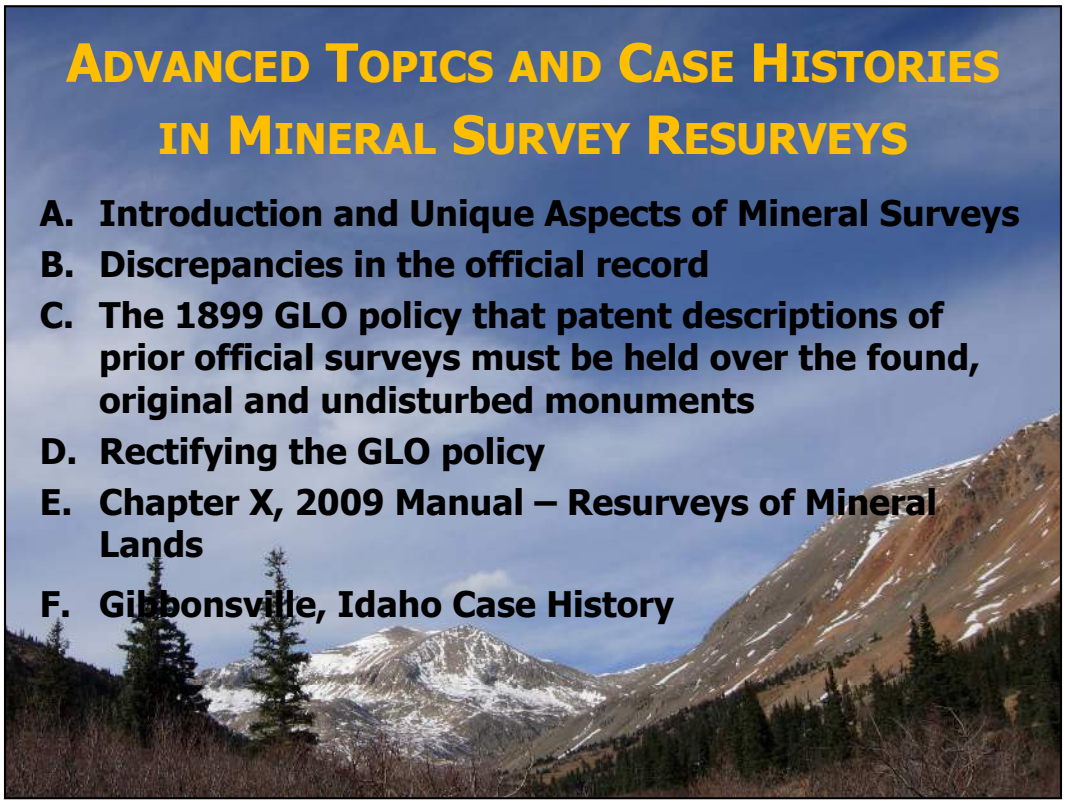
Corner No. 1 of the Bushwhacker Lode, Sur. No. 20591 (lower left foreground) located in Buckskin Gulch three miles northwest of Alma, Colorado.



Location is Buckskin Gulch with Mt. Bross to the right and Mt. Democrat in the background.

Cor. No. 1, Silent Friend Lode, Sur. No. 20504 with Mt. Silverheels in the background.

Note: Other states such as Arizona have the bulk of their public room information available online. Contact each state BLM office directly.

Advanced Topics and Case Histories in Mineral Survey Resurveys

Introduction and Unique Aspects of Mineral Surveys

Overview of mining laws

a. Federal mining laws
   (1.) 1866 Mining Law
   (2.) 1872 Mining Law
   (3.) Act of April 28, 1904
   (4.) Act of July 23, 1955 (30 U.S.C. 601)
   (5.) Federal Land Policy Management Act of 1976

b. State mining laws

c. Local customs and mining district rules.

Federal Mining Laws (Title 30, U.S. Code)

Act of July 26, 1866 (14 Stat. 251)

Declared the mineral lands of the public domain open to exploration and occupation by citizens of the United States. It provided for claims 200 feet in length along the vein for each locator, with an additional 200 feet for the discoverer. An association of 14 men could claim as much as 3000 feet. No width was specified, only sufficient ground for working the claim.

Extralateral rights were granted if a vein could be followed to depth, with all its dips, angles and variations. The Act also provided for obtaining patent (fee title) from the United States and recognized the local customs and rules of mining districts, as long as they were not in conflict with Federal laws.

Federal Mining Laws (Cont.)

Act of May 10, 1872 (30 U.S.C. Ch. 2)

This Act contains the General Mining Laws which, with amendments, are still in force today. It provides in detail for discovery, location, survey and patent of both lode and placer claims; also mill sites. It requires annual labor, or assessment work until patent. Tunnel sites are included to allow the discovery of blind lodes.

Act of April 28, 1904 (30 U.S.C. 34)

The monuments on the ground shall constitute the **highest authority** as to which lands are patented notwithstanding a conflict with the survey record or the calls and descriptions recited in the patent. Also, in extending the public land surveys, all patented mineral claims shall be segregated from the public lands as they are monumented on the ground.

Federal Mining Laws (Cont.)

Act of July 23, 1955 (30 U.S.C. 601)

Allowed multiple use of federal public lands open for mineral entry by restricting the use of the surface of unpatented mining claims to that portion necessary for the development and mining of the deposit and permitted the federal government to manage the surface and vegetative resources.

Act of October 21, 1976 (30 U.S.C. Ch. 23)

The Federal Land Policy and Management Act (FLPMA) required the owners of all unpatented mining claims located prior to the Act to file with the state BLM office a copy of the location certificate by October 21, 1979. Claims located after the passage of the Act must have the location notice filed at the state BLM office within 90 days of location. Maintenance fees must be paid, or an affidavit of labor filed annually.

Early Colorado State Statutes

The following information is included in Volume 14 of the 1880 Census entitled, "The United States Mining Laws and Regulations Thereunder and State and Territorial Mining Laws, to which are appended Local Mining Rules and Regulations", compiled by Clarence King, 1885.

- General Laws, compiled 1877
- Code of Civil Procedure, 1877
- Session Laws, 1879
- Session Laws, 1881

Current laws related to mining easements can be found in C.R.S 34-48-101 through 34-48-111 (2019).

Local Rules, Regulations and By-Laws

Local rules, regulations and by-laws are published in the above reference for several early Colorado mining districts.

United States Mining Laws and Regulations thereunder State and Territorial which are appended Local Mining Rules and Regulations under the direction of Hon. Clarence King, Special Agent Tenth Census. 1885.

https://www.census.gov/library/publications/1885/dec/volume-14.html

Advanced Topics and Case Histories in Mineral Survey Resurveys

Four types of mining claims

a. Lode claims
   (1.) A possessory right to the subsurface mineral estate (in situ)
   (2.) The American apex law and extralateral rights
   (3.) Substantial parallelism of end lines

b. Placer claims
   (1.) A possessory right to the surficial minerals (also rights to petroleum "deposits" prior to 1920)
   (2.) Gulch placers
   (3.) Placers by legal subdivisions (aliquot parts and government lots)

c. Mill sites
   (1.) For mining and milling purposes (must be located on non-mineral ground)
   (2.) Associated with lode claims and after 1960 with placer claims
   (3.) Independent mill site

d. Tunnel sites (a mechanism for discovery of blind lodes)

UNPATENTED MINING CLAIMS - A POSSESSORY RIGHT

§ 539. Nature of the estate as defined by the courts since the enactment of general mining laws (Lindley on Mines, 3rd Ed., 1914).

…Yet as between the locator and everyone else save the paramount proprietor the estate acquired by a perfected mining location **possesses all the attributes of a title in fee**, and so long as the requirements of the law with reference to continued development are satisfied, the character of the tenure remains that of a fee.

…Until patent issues the locator's muniments of title consist of the laws under the sanction of which his rights accrue, the series of acts culminating in a completed valid location, and those necessary to be continuously performed to perpetuate it.

A mining claim perfected under the law is property in the highest sense of that term, which may be bought, sold, and conveyed, and will pass by descent. It is subject to administration and sale in payment of the debts of the deceased owner. "It is vendible, inheritable and taxable," "a legal estate of freehold," and "subject to the lien of a docketed judgment." **It has the effect of a grant by the United States of the right of present and exclusive possession of the lands located, at least for mining purposes.**

Unpatented Mining Claims - A Possessory Right

Lode Claims

Lode claims have strict geometries and are located and oriented along the apex of a lode or vein. A discovery cut, shaft or tunnel was required to "prove up" the discovery and additional development determined the lode's direction.

Under the 1866 Mining Law lode claims were between 400 and 3000 feet along the lode. The 1866 Mining Law was concerned with the "lode" and the claimant only owned the lode with sufficient surface ground to mine the lode.

Under the 1872 Mining Law, lode claims have a statutory limit of 1500 feet along the lode and 300 feet each side of the lode. The 1872 Mining Law was concerned with the "claim" and gave rights to the ground within the boundary of the claim (i.e. rights to all lodes apexing within the claim boundary).

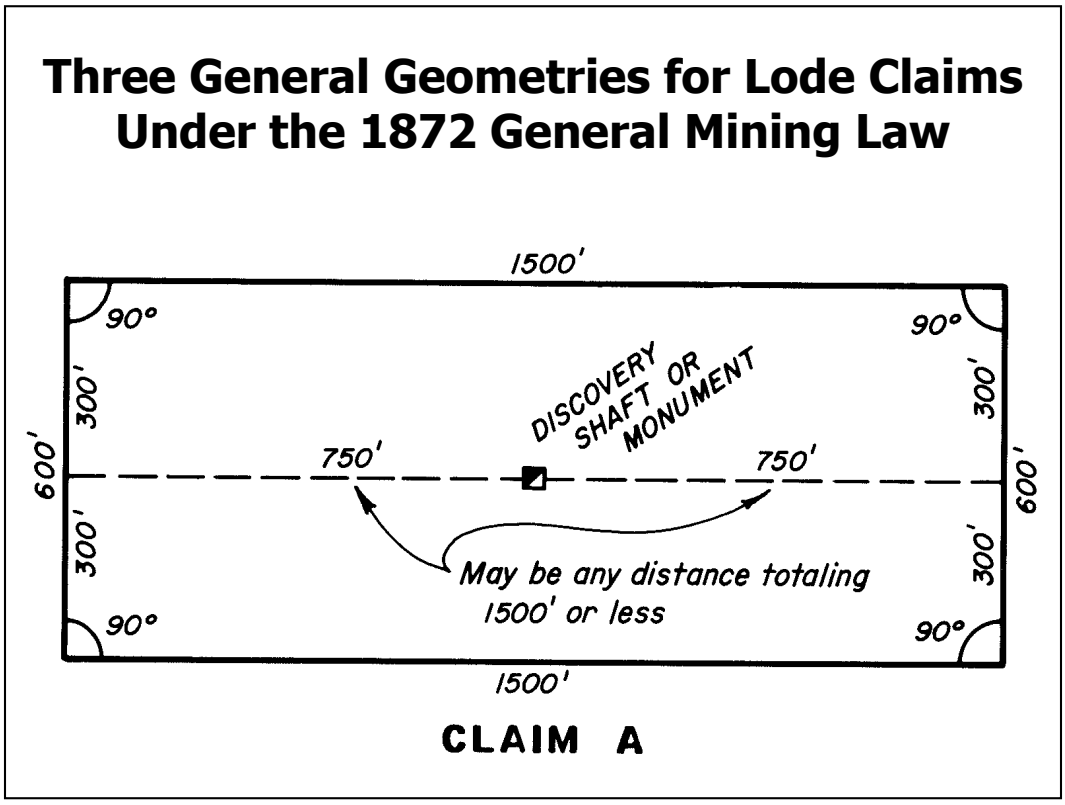
Two Concepts Unique to Lode Claims

Apex of a Vein or Lode - by definition, it is the "top" of the vein. It is the apex or surface expression of a lode that defines the claim's lode line. The side lines of a lode claim roughly parallel the lode line. Whatever the statutory width of a claim was, the side lines cannot be further from the lode line than half of the statutory limit (usually measured at the discovery).

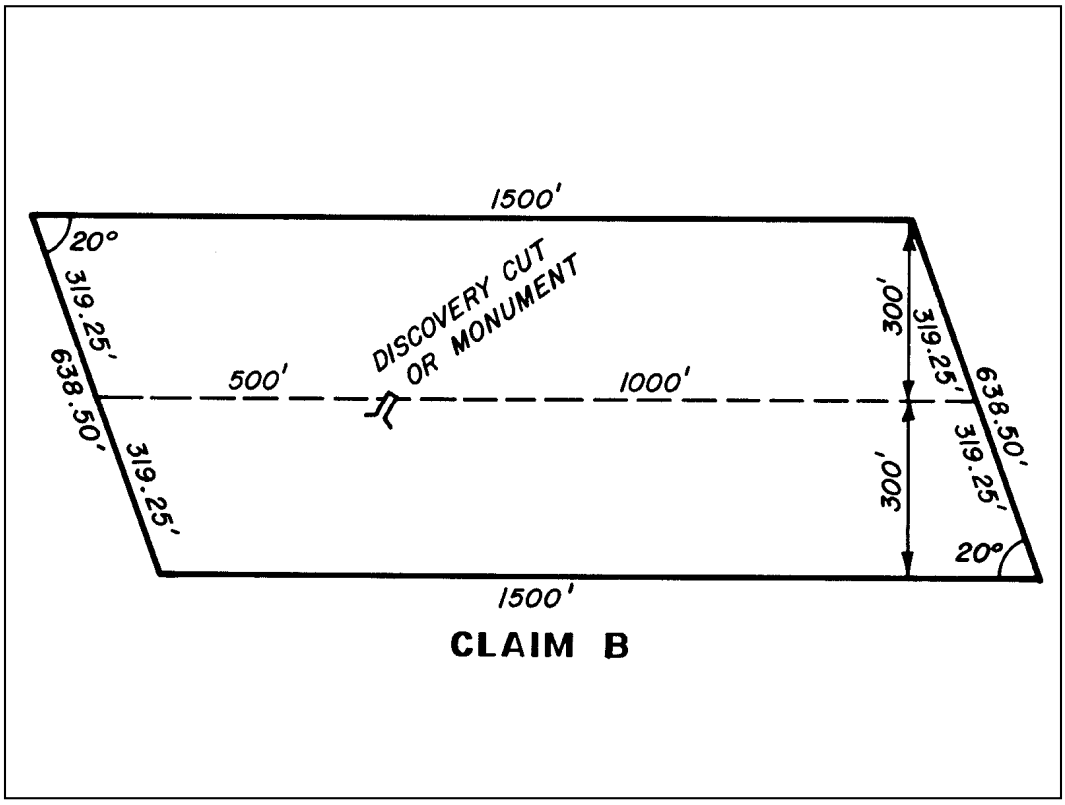
Extralateral rights - gives the miner the right to follow a vein at depth. This is only an issue if the vein is not vertical. This permits a miner to mine beneath a neighboring claim **IF** the vein apexes within the boundaries of his claim.

Excerpt from Morrison's Mining Rights, 1874

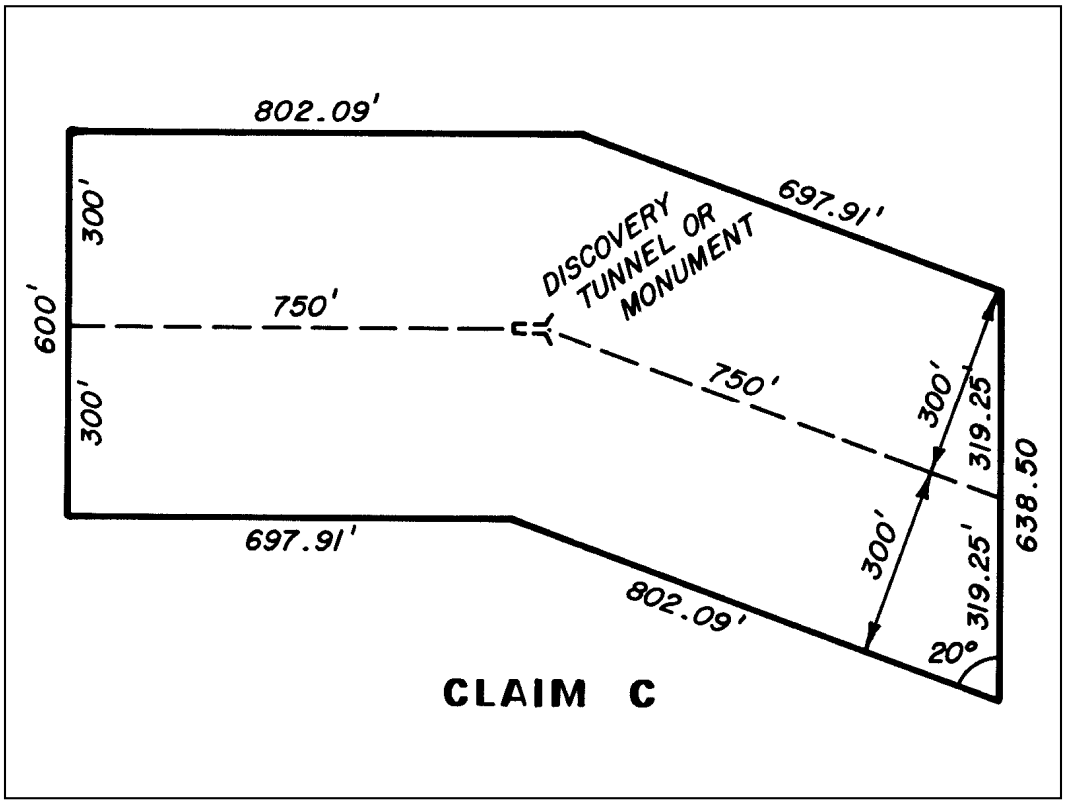
The leading idea of the Acts of Congress is that a lode is a straight vein whose course can be readily ascertained and indicated by a straight line or a series of straight lines; and that occasionally such a vein is crossed by another in a similar straight line, merely requiring the right of way to give each lode its proper claim; but, in fact, a lode is never a straight line; and is seldom to be traced, without confusion, for more than a few feet; and in its course other veins are absorbed into it; and off-shoots (not only spurs, but, perhaps, better developed veins than itself) run from it in all tortuous directions; and in its extension downward, it invariably dips laterally, and often shows a fork of which both parts approach the surface; and it will divide, and may, or may not, unite at another point; and it will abut suddenly upon country rock and so be thrown far to one side; and instead of showing distinct lines, mineral veins are as irregular, as disproportioned in length and width, as much intermingled, as uncertain to segregate from each other, as are the veins of the hand, or the veins on a block of marble.



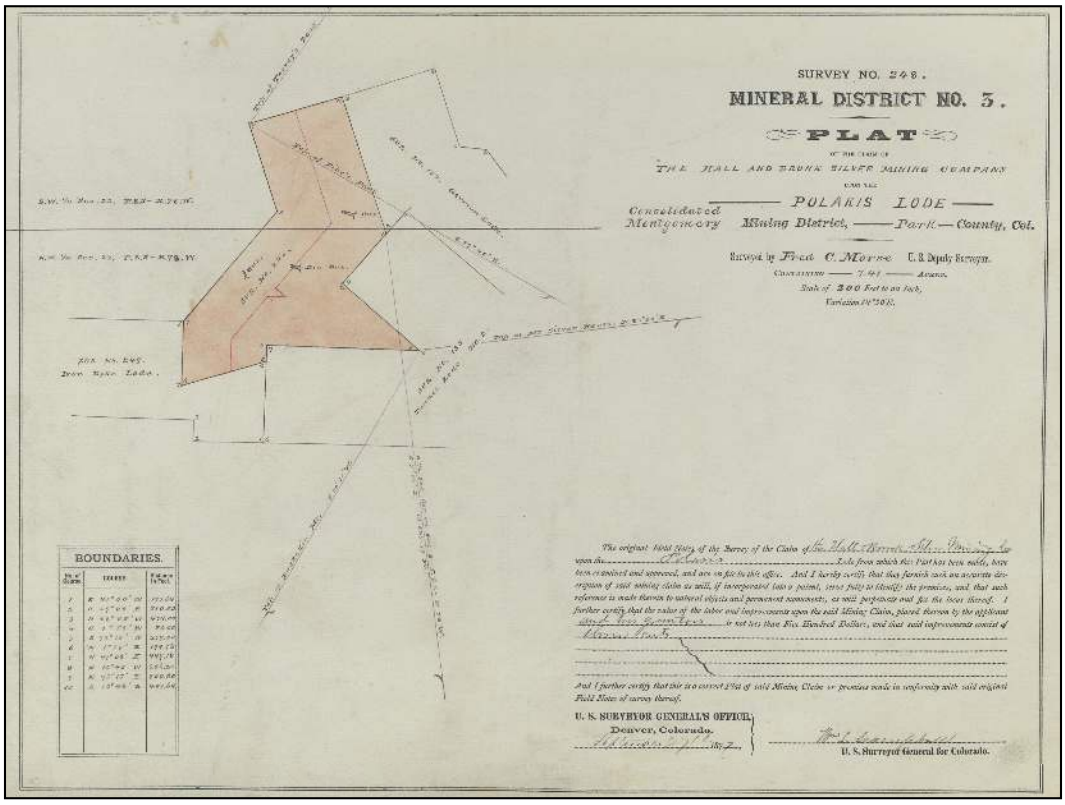
A simple rectangle geometry for a lode mining claim.



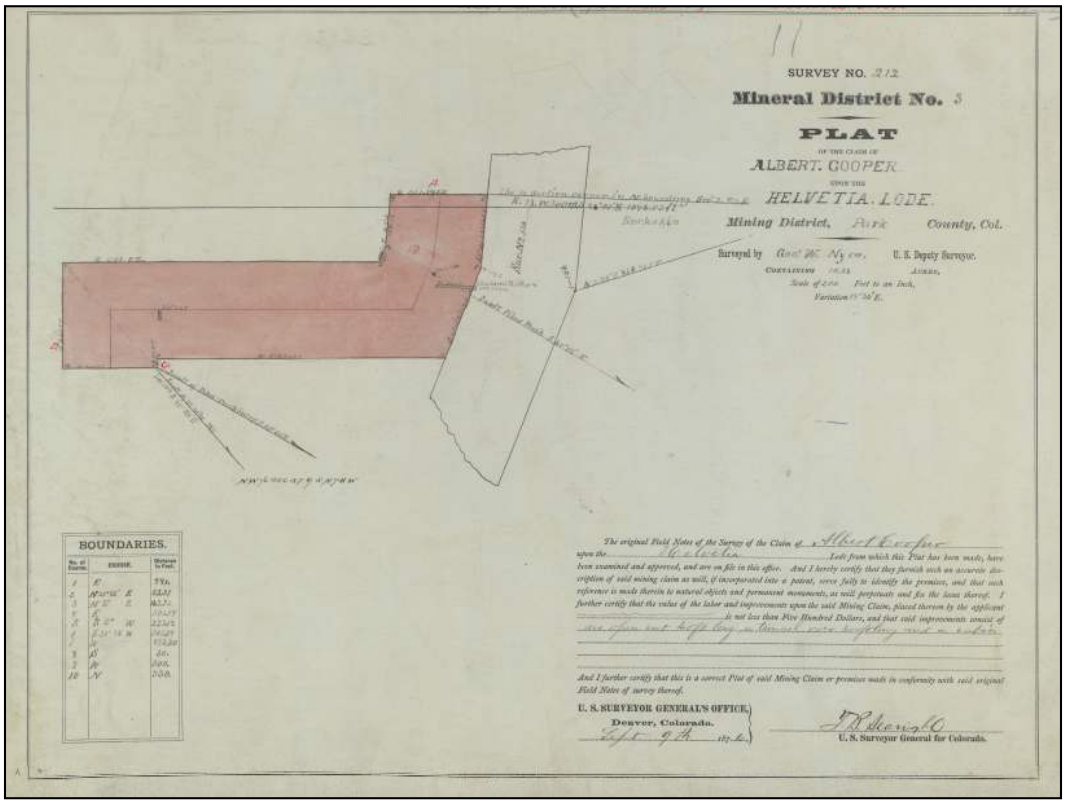
A parallelogram geometry. Note that the length of the end lines can be greater than 600 feet. However, the perpendicular distance from the lode line to each side line cannot exceed 300 feet with a total width of 600 feet or less.



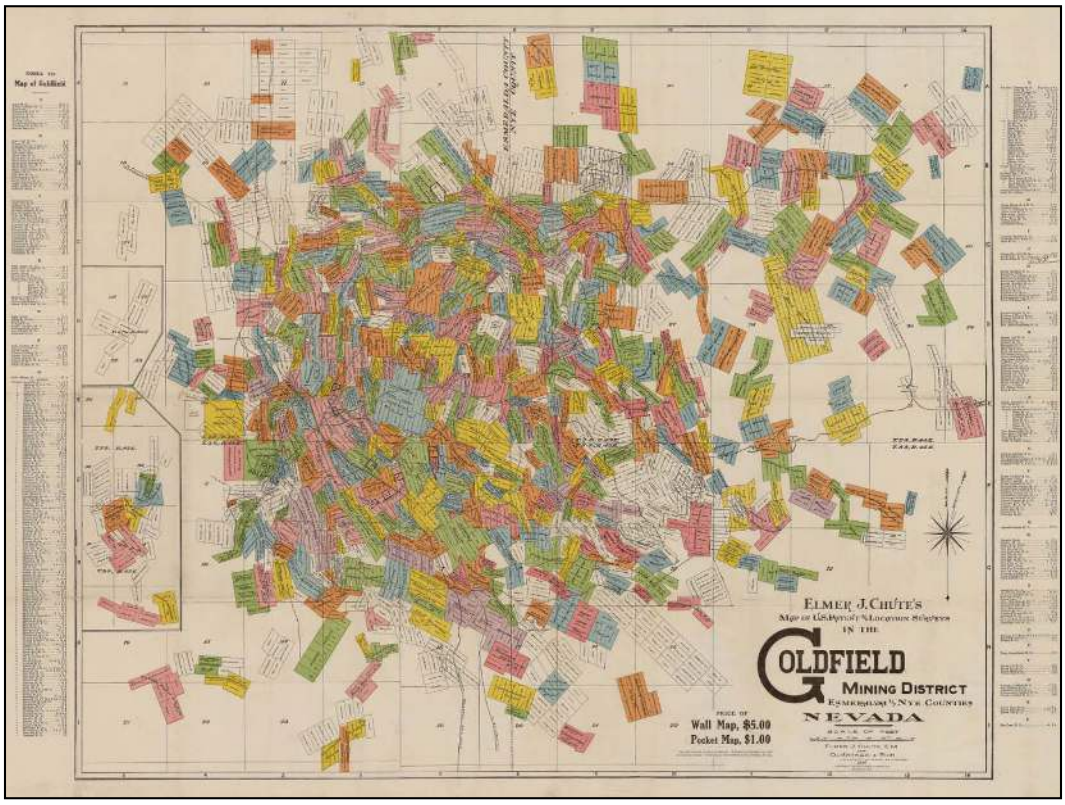
The lode line is not required to be a straight line. In fact, the lode line can have several bends in it as it traces the apex of the mineralized vein.



The odd zigzag in the lode line of the Polaris Lode, Sur. No. 248 has a purpose. Line 2-3 is parallel to and 150 feet from the southeasterly "zig" in the lode line and Line 3-4 is parallel to and 150 feet south of the east-west "zag" in the lode line. This construction of the lode line allowed the claimant to claim all of the triangular area not covered by the older lode claim to the southeast.



This second example of placing the lode line in such a way as to conveniently claim an area was rejected by the Commissioner of the General Land Office. The position of the lode line must follow the apex of a mineralized vein. It cannot be arbitrarily placed by the mining claimant.



After the discovery of a valuable locatable mineral, the mining laws required the mining claimant to conduct additional development work so that lode claim locations were oriented with the apex of the vein. This color map shows the ownership of mining claims in the Goldfield, Nevada Mining District. The ore geology of this area consists of several mineralized veins associated with a volcanic intrusive. The map illustrates that several of the mineralized veins are ring dike structures and the lode mining claims were located to follow the apexes of these circular-shaped veins.

(Elmer J. Chute's map of U.S. patent and location surveys in the Goldfield Mining District, Esmeralda and Nye Counties, Nevada. Special Collections & Archives, University Libraries, University of Nevada, Las Vegas.)

Close-up showing that many of the lode claims are oriented to trace the apex of the mineralized veins of the ring dike structures.

(Elmer J. Chute's map of U.S. patent and location surveys in the Goldfield Mining District, Esmeralda and Nye Counties, Nevada. Special Collections & Archives, University Libraries, University of Nevada, Las Vegas.)

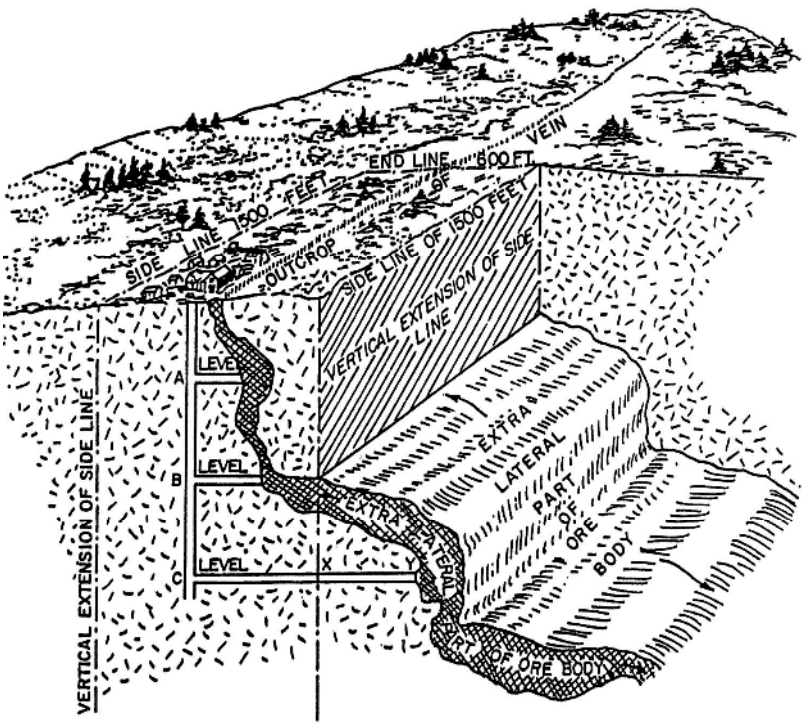
Extralateral Rights Diagram

From

"American Apex Law"

By

J. Warren Andrews



Mining claim cutaway showing extra lateral part of orebody.

The "outcrop of vein" labeled in the diagram is also the apex of the vein and the lode location is based on it. The portion of the dipping vein that is to the right of the vertical extension of the side line is the extralateral portion of the vein and the mining claimant has the right to follow and mine the vein outside of the vertical side line.

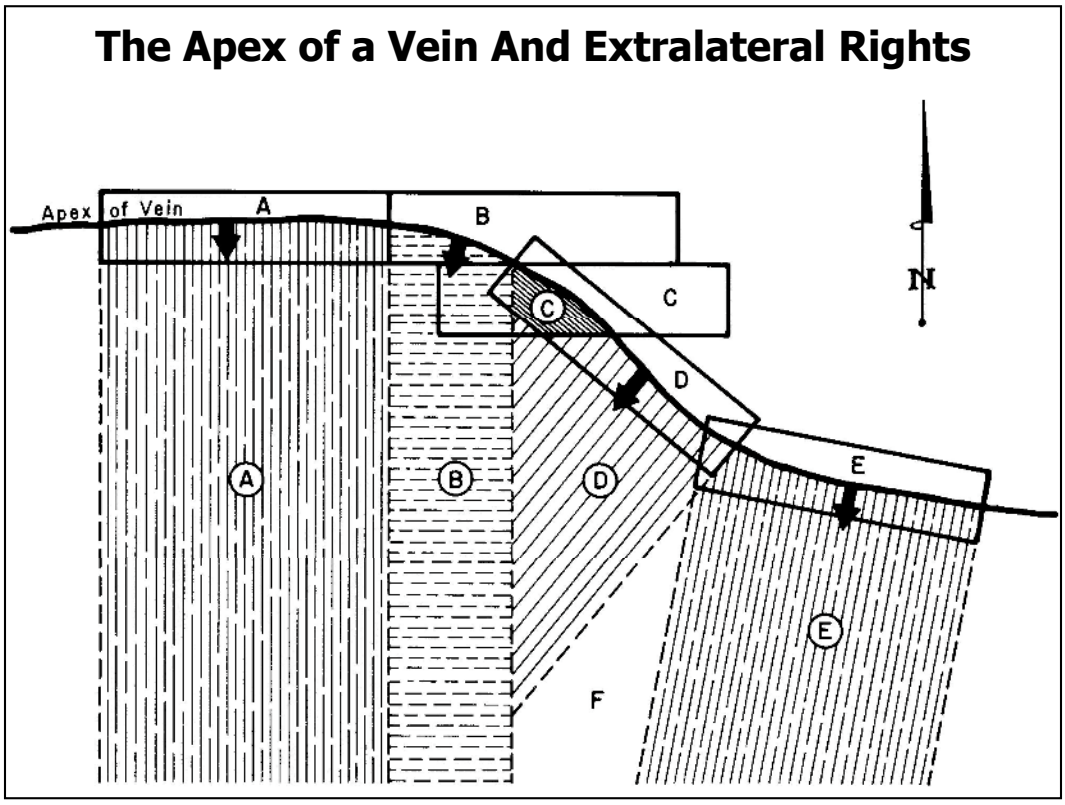


Figure 1 above is from "Mineral Survey Procedures Guide" by John V. Meldrum, 1980. The preceding page to Figure 1 (page 15) describes the extralateral rights of five claims, all of which have parallel end lines. Claim A is most senior and progresses to Claim E as the most junior. Court decisions for situations where the vein passes through one end line and one side line have moved the other end line to the point where the vein intersects the side line (Claim B).

The case of Claim C where the vein passes through both side lines is far more problematic. Some court cases have held that the side lines become end lines (the only vein included is the lode of the claim and the side lines must be parallel). There are other court decisions covering situations where the vein passes through the same side line twice, where the side lines are not parallel and other veins that apex within the claim boundaries. Because the court cases are in different jurisdictions, there is not a simple way of evaluating these situations.

The next situation shows that a junior extralateral right terminates where its end lines intersect the end line of the senior claim (Claim D and Claim B respectively). Finally, the case of two diverging end lines leaves a portion of the vein unclaimed (area "F") and neither claim has any extralateral rights to that area (Claims D and E).

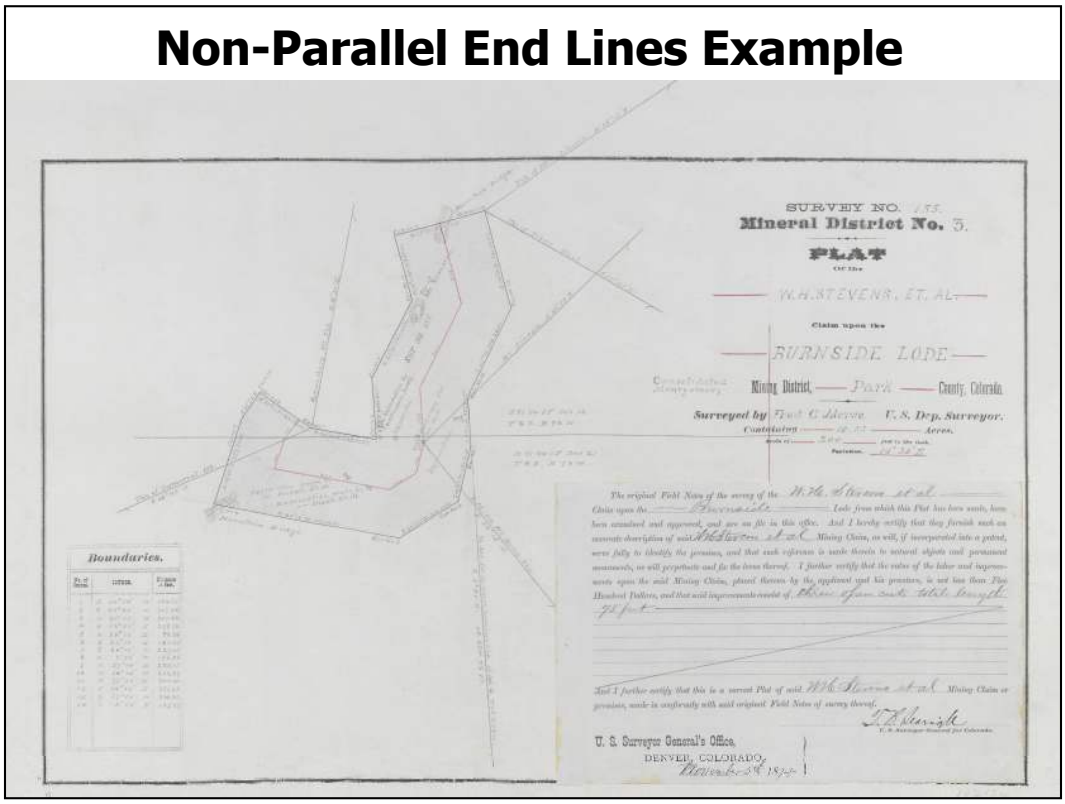
End Lines MUST be Substantially Parallel

Under the 1872 General Mining Law, preservation of a claim's extralateral rights require that the end lines be parallel to each other to properly define those rights. Some early claims did not adhere to this requirement usually when the lode line had one or more bends in it.

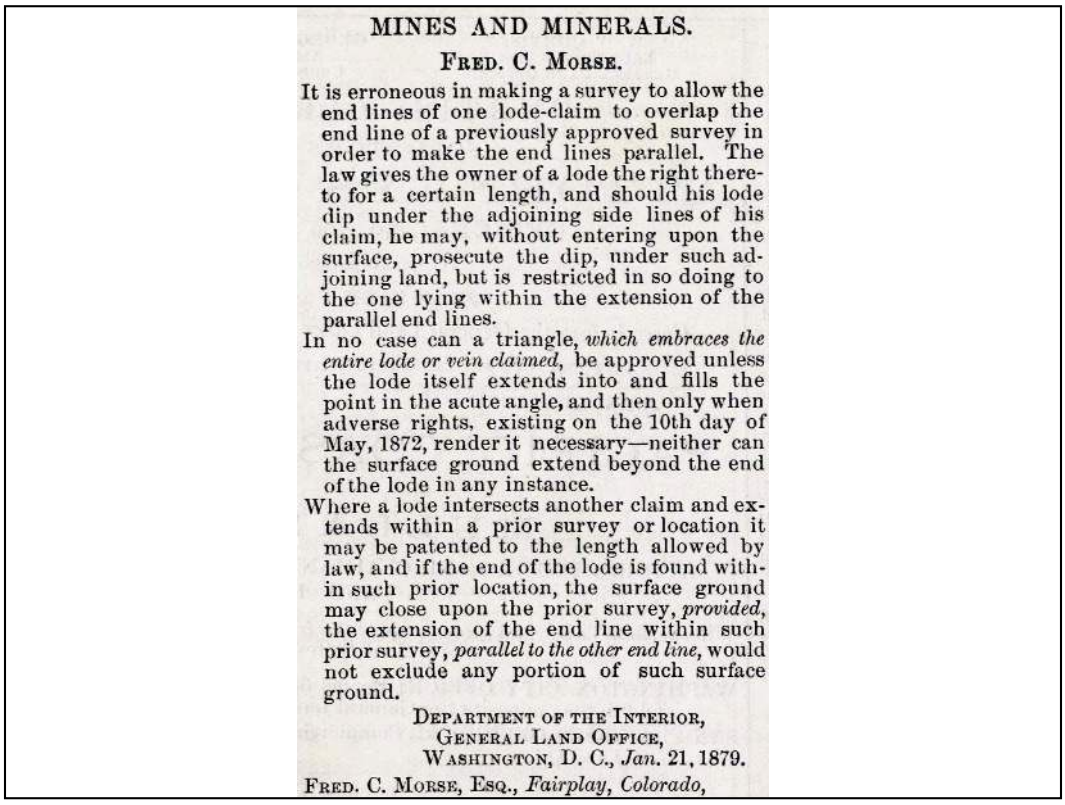
Numbering of Lode Claim Corners

The corners of lode claims are delineated by number, starting with "1". The other corners are numbered sequentially. Cor. No. 1 is usually the corner closest to the section corner, quarter corner, or U.S. Location Monument that the claim is tied to.

Non-Parallel End Lines Example



The Burnside Lode, Sur. No. 155, which includes the summit of Mt. Cameron (Elev. 14238). The patented mining claim was reconveyed to the United States of America in 2014. The end lines are Line 6-7 (S 53°10’ E) and Line 11-12 (N 75°50’ E).



MINES AND MINERALS.

FRED. C. MORSE.

It is erroneous in making a survey to allow the end lines of one lode-claim to overlap the end line of a previously approved survey in order to make the end lines parallel. The law gives the owner of a lode the right thereto for a certain length, and should his lode dip under the adjoining side lines of his claim, he may, without entering upon the surface, prosecute the dip, under such adjoining land, but is restricted in so doing to the one lying within the extension of the parallel end lines.

In no case can a triangle, *which embraces the entire lode or vein claimed*, be approved unless the lode itself extends into and fills the point in the acute angle, and then only when adverse rights, existing on the 10th day of May, 1872, render it necessary—neither can the surface ground extend beyond the end of the lode in any instance.

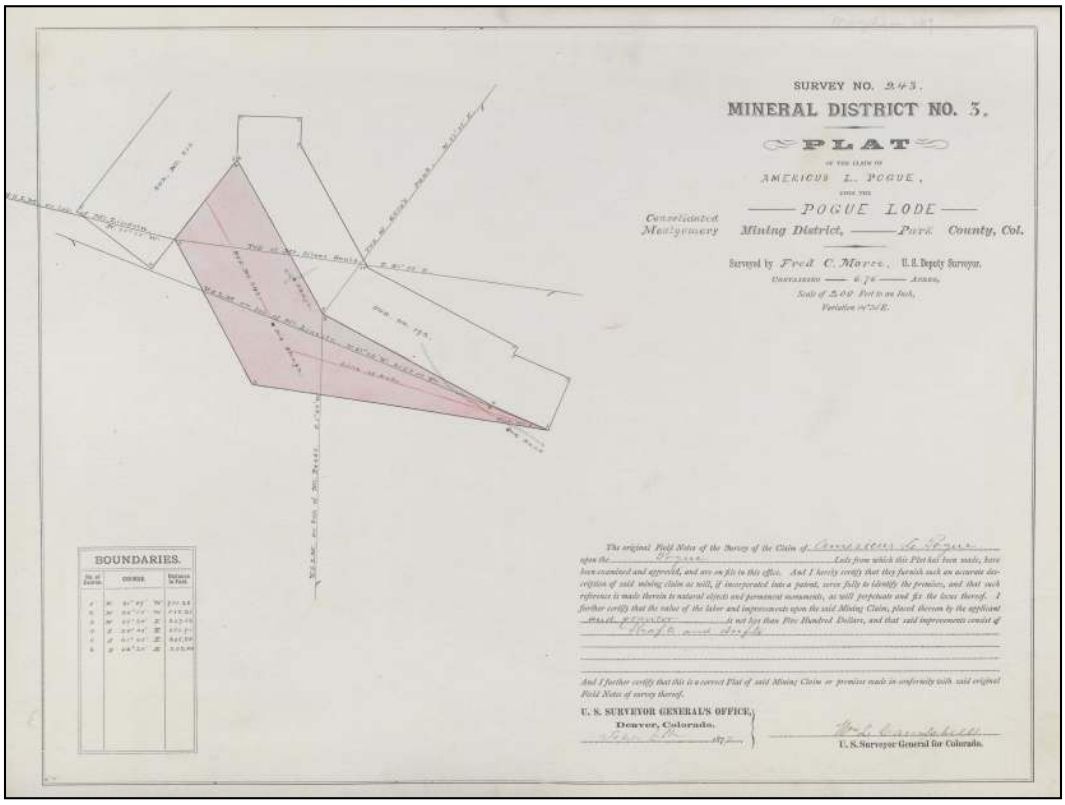
Where a lode intersects another claim and extends within a prior survey or location it may be patented to the length allowed by law, and if the end of the lode is found within such prior location, the surface ground may close upon the prior survey, *provided*, the extension of the end line within such prior survey, *parallel to the other end line*, would not exclude any portion of such surface ground.

DEPARTMENT OF THE INTERIOR,
GENERAL LAND OFFICE,
WASHINGTON, D. C., *Jan.* 21, 1879.

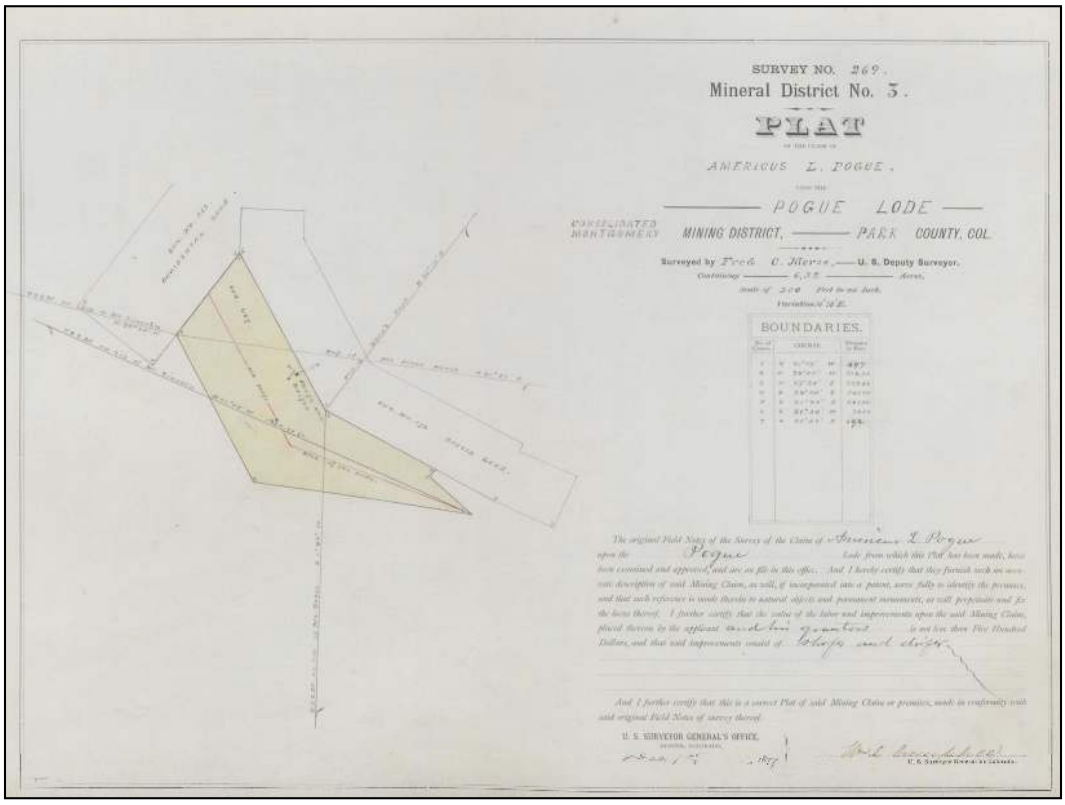
FRED. C. MORSE, ESQ., *Fairplay, Colorado,*

An 1879 Department of the Interior, General Land Office decision that a lode claim can have the shape of a triangle (middle head note paragraph). The answer was "Yes" if the lode line ran precisely through the vertex of the triangle.

(Source Copp's Landowner)

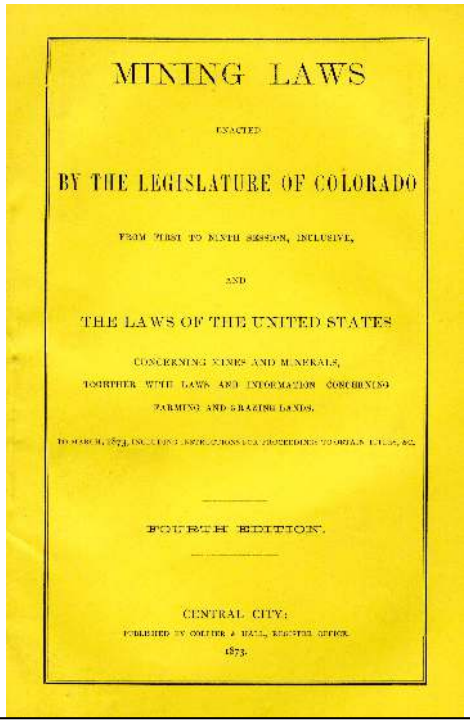


The subject of the GLO Departmental decision, the Pogue Lode, Sur. No. 243. No patent was issued, and the claim was abandoned.



Plat of the Pogue Lode, Sur. No. 269. The claim boundaries were adjusted slightly from the previous survey. Surprisingly, the lode line was moved to go through the vertex of the "end point."

Colorado Territorial Mining Laws – 1873



MINING LAWS

ENACTED

BY THE LEGISLATURE OF COLORADO

FROM FIRST TO NINTH SESSION, INCLUSIVE,

AND

THE LAWS OF THE UNITED STATES

CONCERNING MINES AND MINERALS,

TOGETHER WITH LAWS AND INFORMATION CONCERNING

FARMING AND GRAZING LANDS.

FOURTH EDITION.

CENTRAL CITY:

1873.

Among the laws contained in this booklet is the February 9, 1866 "50-footer" law that reserved to mining claimants of lode claims a width of 25 feet each side of the lode in order to mine the vein.

Colorado Territorial Mining Laws

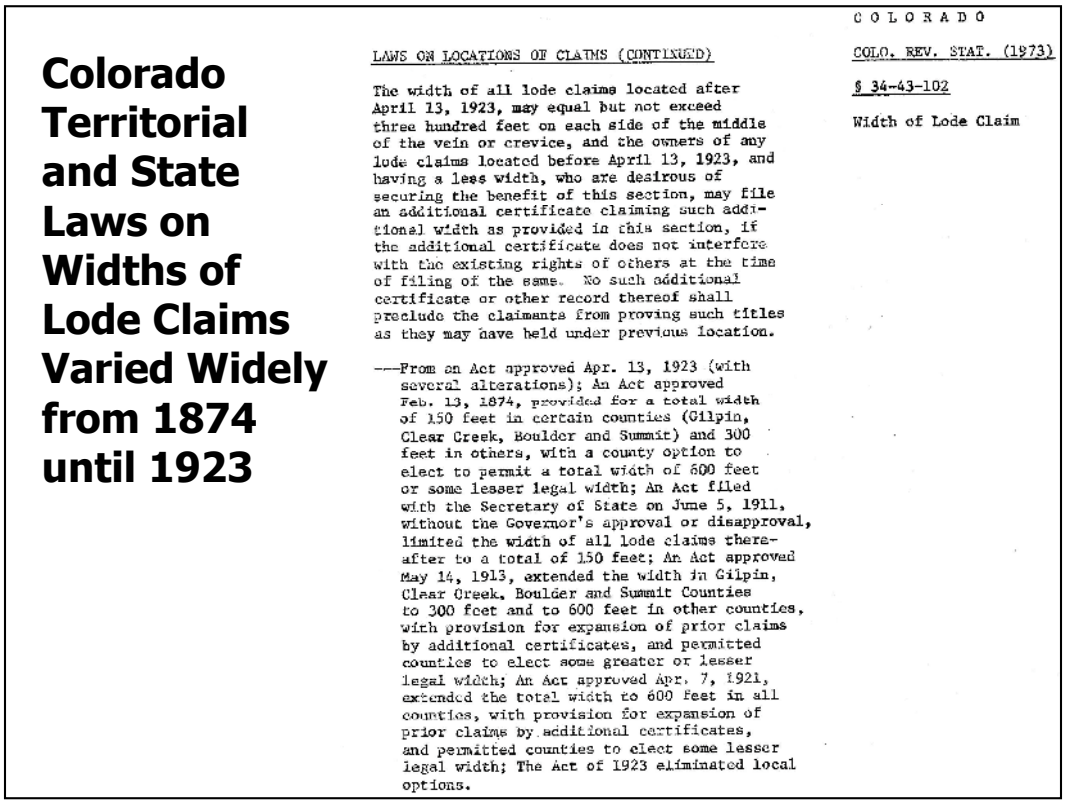
An Act Concerning Mines and Minerals - February 9, 1866

The act entitled the discoverer of a lode up to 1400 linear feet along the lode. In addition, 25 feet each side of the lode was reserved in order to work the mineral vein. This act is also known as the "50-footer" law as it established 50 feet to be the width of lode claims in the Colorado Territory.

Other provisions of the act included extralateral rights for lode claims, how claims were to be monumented, what constituted a valid discovery, persons destroying legal evidence of discovery were guilty of malicious mischief, various duties and responsibilities of county clerks, recorders and treasurers, and relief of disabled miners.

Additional acts are included in the ninth edition of Colorado Territorial Mining Laws, 1873 (available from Google Books).

Colorado Territorial and State Laws on Widths of Lode Claims Varied Widely from 1874 until 1923



COLORADO

COLO. REV. STAT. (1973)

§ 34-43-102

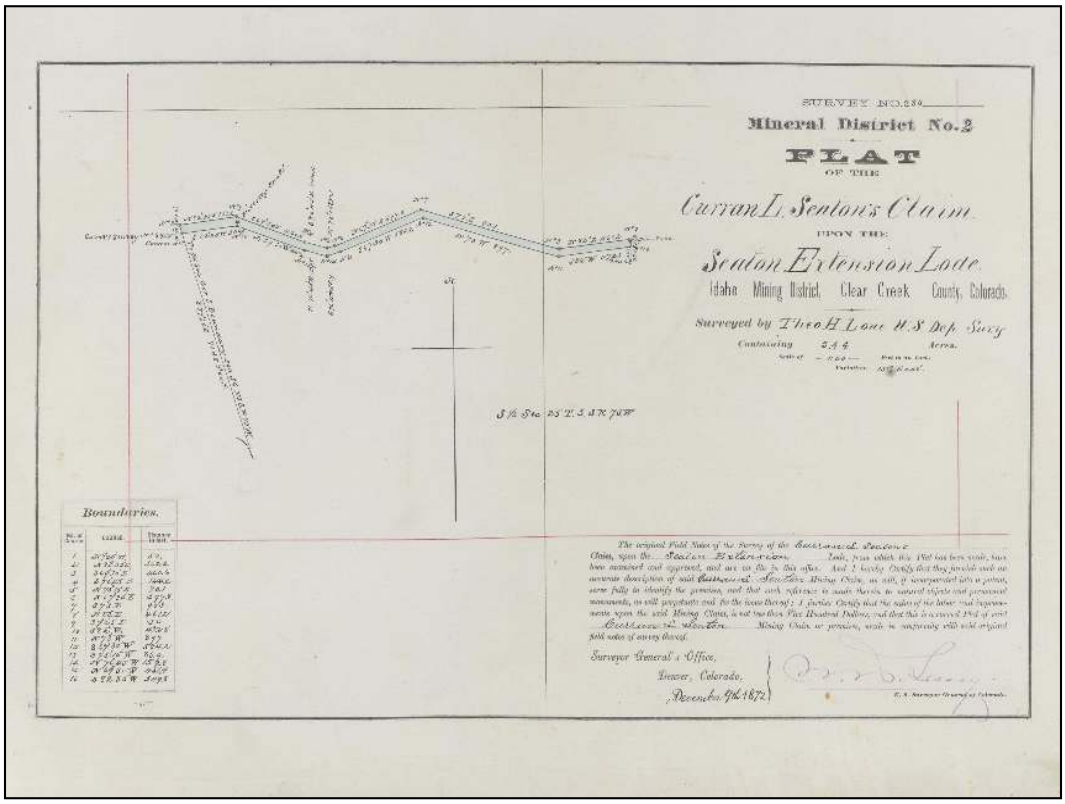
Width of Lode Claim

LAWS ON LOCATIONS OF CLAIMS (CONTINUED)

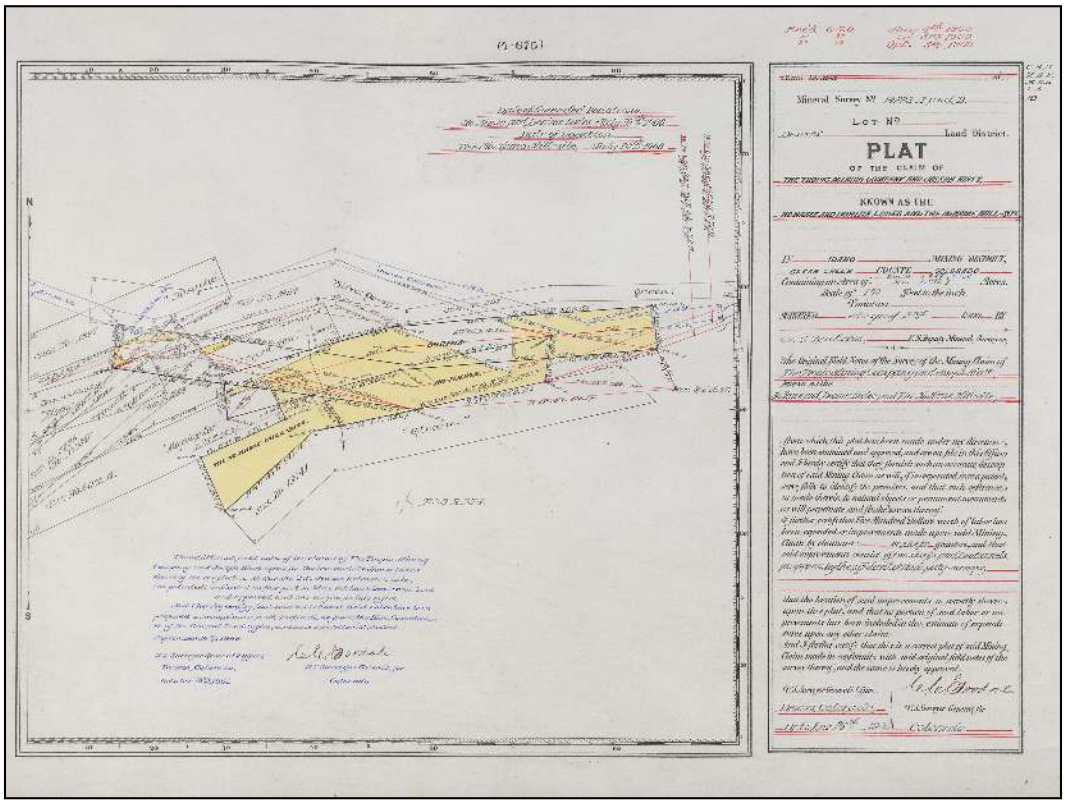
The width of all lode claims located after April 13, 1923, may equal but not exceed three hundred feet on each side of the middle of the vein or crevice, and the owners of any lode claims located before April 13, 1923, and having a less width, who are desirous of securing the benefit of this section, may file an additional certificate claiming such additional width as provided in this section, if the additional certificate does not interfere with the existing rights of others at the time of filing of the same. No such additional certificate or other record thereof shall preclude the claimants from proving such titles as they may have held under previous location.

---From an Act approved Apr. 13, 1923 (with several alterations); An Act approved Feb. 13, 1874, provided for a total width of 150 feet in certain counties (Gilpin, Clear Creek, Boulder and Summit) and 300 feet in others, with a county option to elect to permit a total width of 600 feet or some lesser legal width; An Act filed with the Secretary of State on June 5, 1911, without the Governor's approval or disapproval, limited the width of all lode claims thereafter to a total of 150 feet; An Act approved May 14, 1913, extended the width in Gilpin, Clear Creek, Boulder and Summit Counties to 300 feet and to 600 feet in other counties, with provision for expansion of prior claims by additional certificates, and permitted counties to elect some greater or lesser legal width; An Act approved Apr. 7, 1921, extended the total width to 600 feet in all counties, with provision for expansion of prior claims by additional certificates, and permitted counties to elect some lesser legal width; The Act of 1923 eliminated local options.

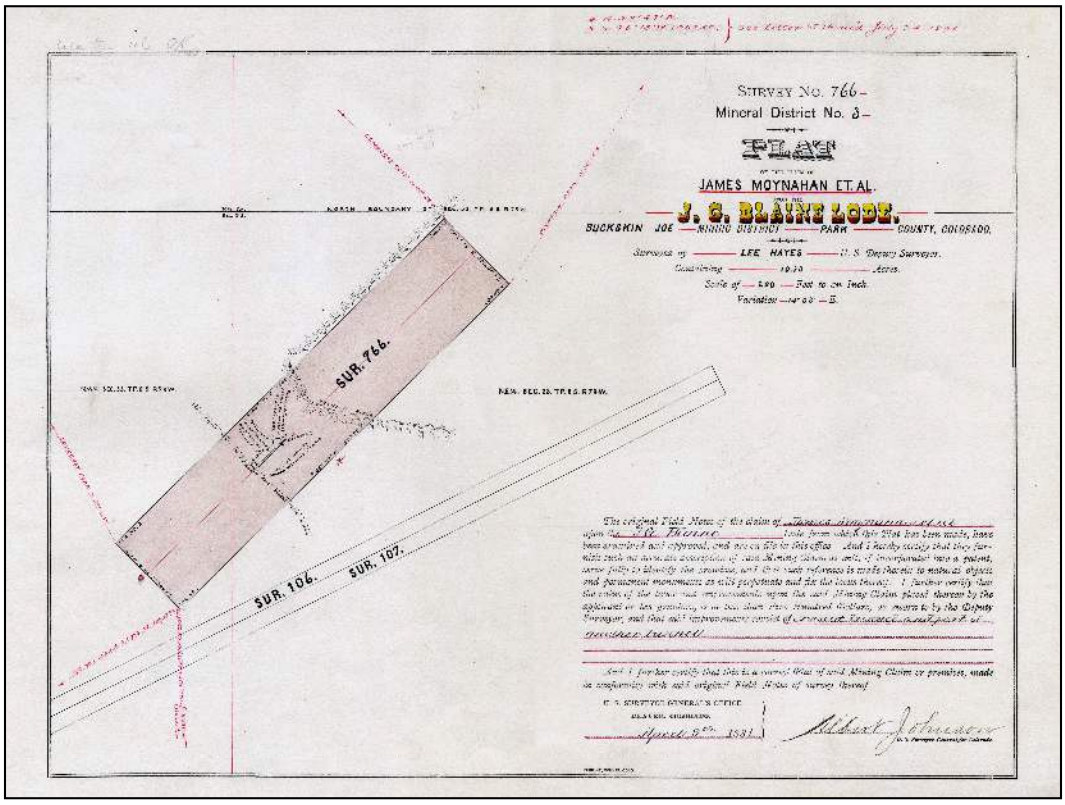
The Colorado Territorial and State Legislatures restricted the lode claim widths to a statutory maximum of 300 feet. Four counties were granted the authority to restrict lode claim widths down to 150 feet. The widths of all lode claims located after April 13, 1923 were brought into conformity with the statutory maximum of 600 feet authorized in the U.S. Mining Law of May 10, 1872.



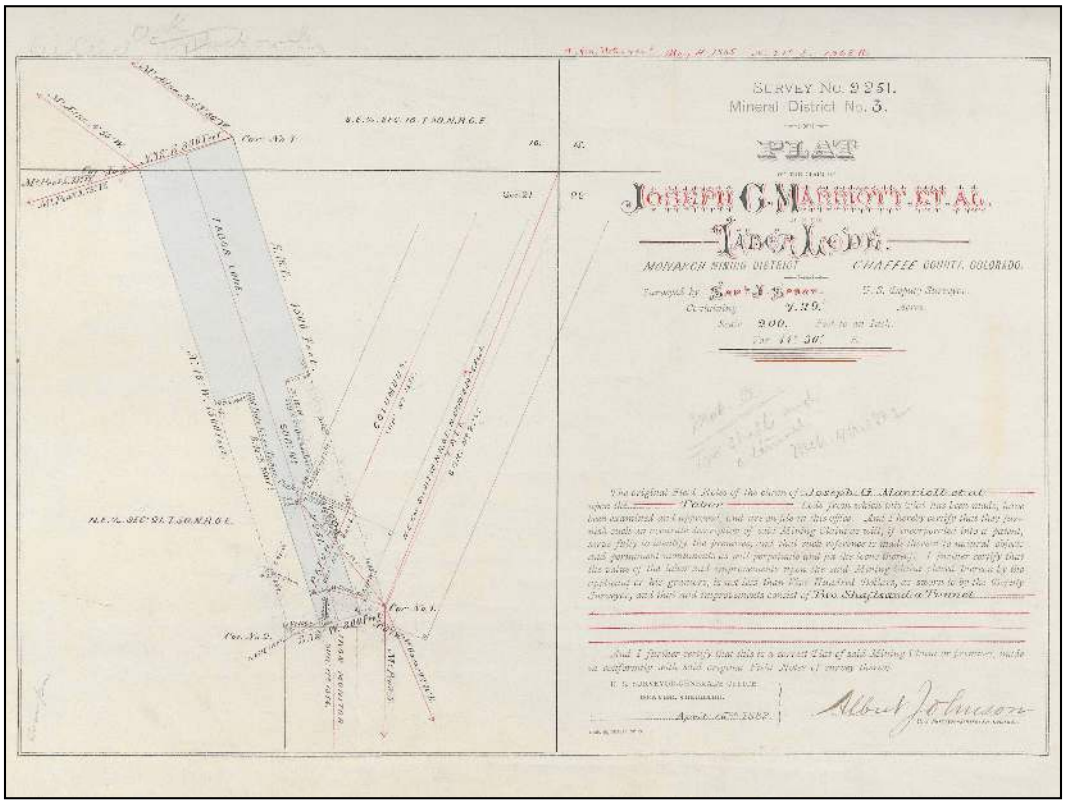
The Seaton Extension Lode, Sur. No. 235, an example of an early Colorado lode claim with 50-foot end lines and a length along the lode of less than or equal to 3000 feet.



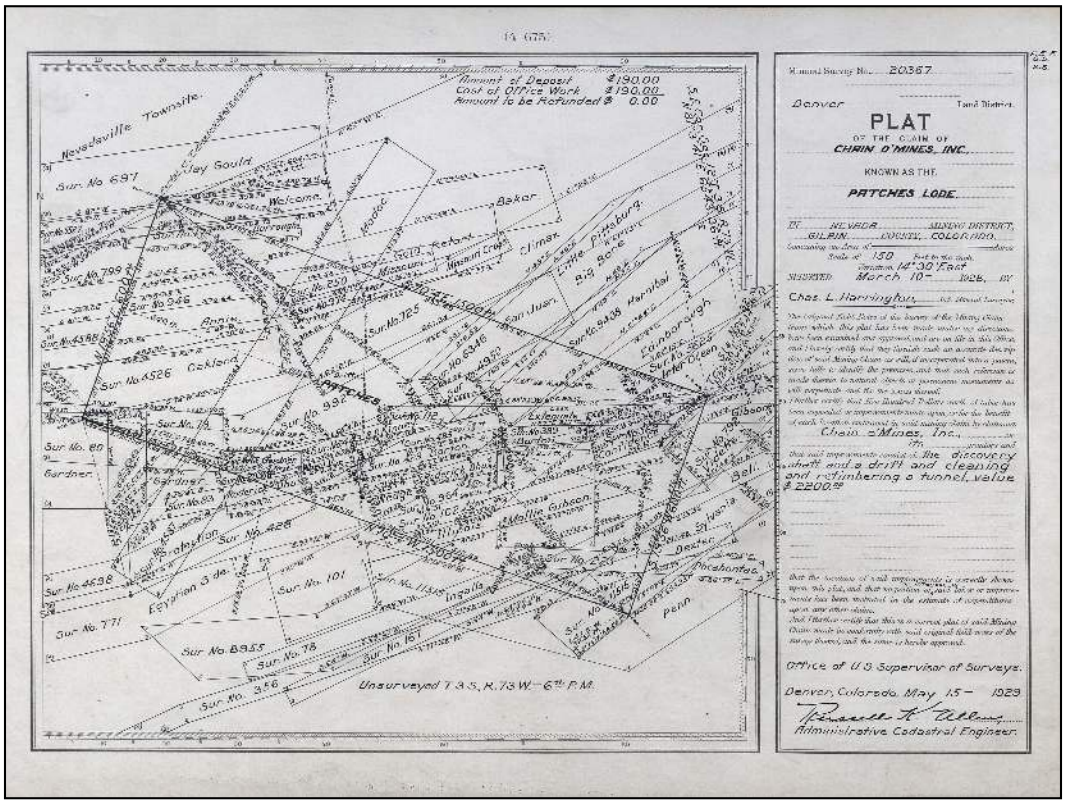
The No Name and Dorina Lodes and the No Name Mill Site, Sur. No. 14222A&B, an example of a lode claim in Clear Creek County where the county restricted lode claim widths to 150 feet. Also, note that the No Name Mill Site is contiguous with the side lines of the two lode claims.



The J.G. Blaine Lode, Sur. No. 766, is an example of a lode claim where the state restricted lode claim widths to 300 feet. Prior to 1884, the official plats in Colorado were prepared by the U.S. Deputy Mineral Surveyor. Deputy Hayes demonstrated a flair for embellishing the claim name.



The Tabor Lode, Sur. No. 2251, is another example of a lode claim where the state restricted lode claim widths to 300 feet. U.S. Deputy Mineral Surveyor. Sam'l N. Spray obviously wanted to impress the mining claimants with his drafting panache.



The Patches Lode, Sur. No. 20367, an example of a lode claim located on April 27, 1927 where the width of the lode claim is 600 feet. After expressly excepting and excluding 37 lode claims and the Nevadaville Townsite the acreage in the patent is only 0.461 acres.

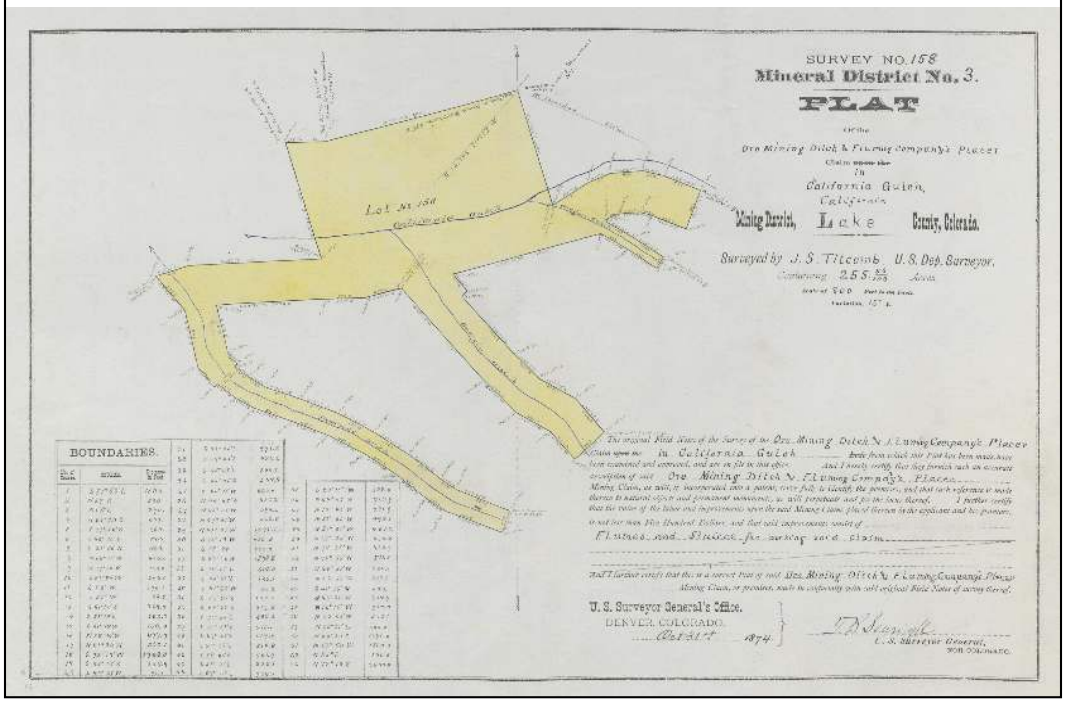
Unpatented Mining Claims - A Possessory Right

Placer Claims

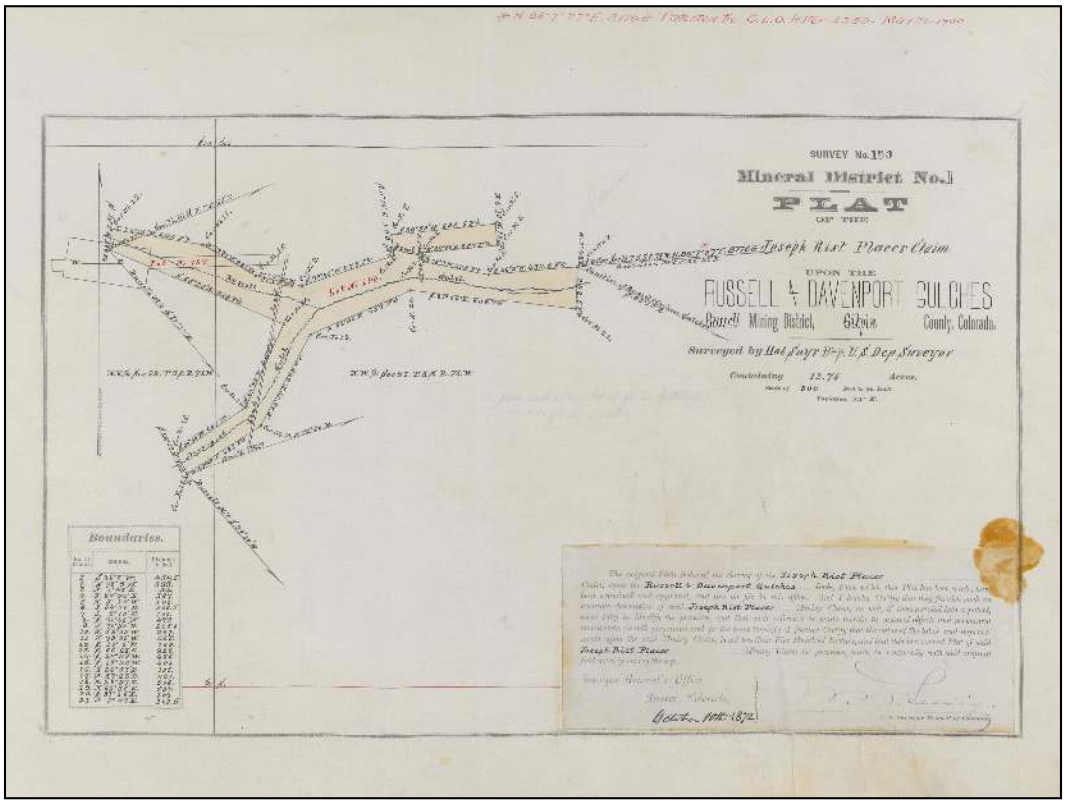
Today, placer claims are usually staked in 20-acre aliquot parcels. The 20 acres is a statutory limit. A surveyor should look at the township plat, and any resurvey or supplemental plats. If the placer is located in a regular 640-acre section, then any overage from the platted amount may be allowed. If the platted size of the aliquot part is larger than 20 acres, you may be forced to stake a 10 acre claim or stake the claim as an association placer.

In the past gulch placers were common. Gulch placers are metes and bounds parcels that normally straddle the stream and are bounded by the valley. The little known 1870 Mining Law added placer claims, which were overlooked in the 1866 Mining Law.

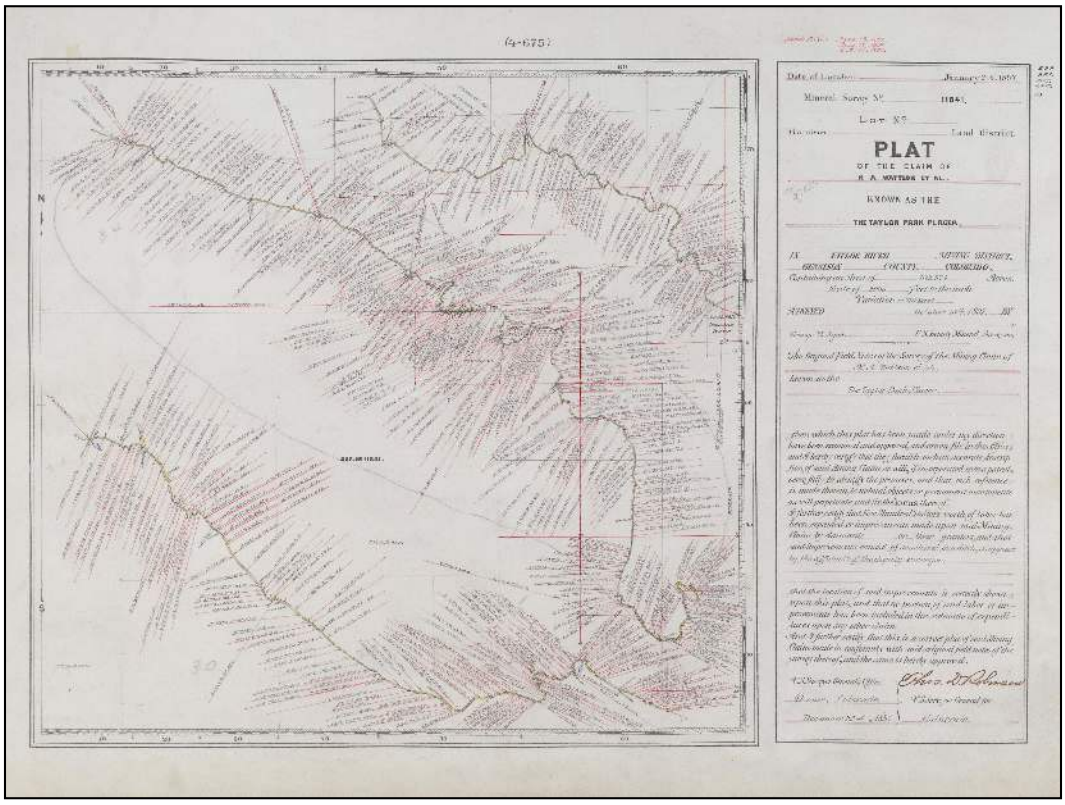
Examples of a Gulch Placer



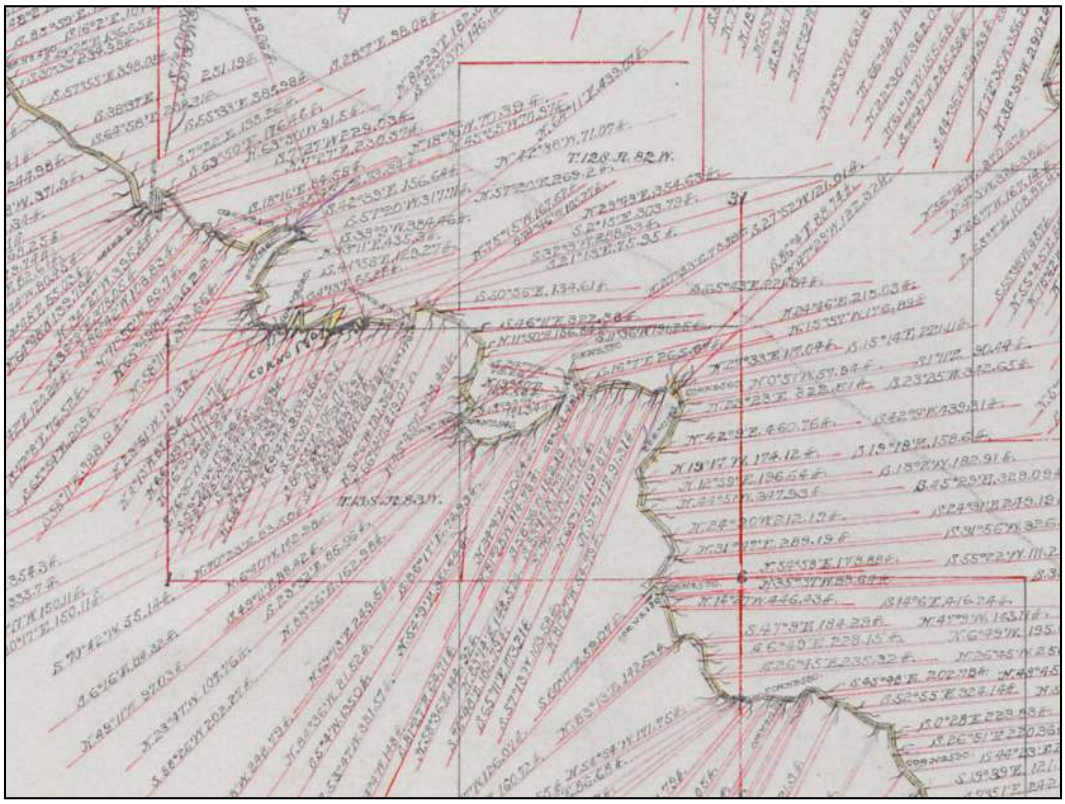
An example of a gulch placer that is aligned with several drainages. Placer claim in California Gulch, Sur. No. 158 in Leadville, CO. Note that the acreage of the placer is 255.56 acres, which is more than the statutory maximum of 160 acres. Litigation ensued all the way to the U.S. Supreme Court who ruled that a party cannot challenge what the General Land Office allowed after the patent is issued, unless fraud can be proved.



The Joseph Rist Placer Claim, Sur. No. 190 southwest of Central City, Colorado. Note the red marginal notation at the top of the plat confirming the connection to the east range line of T. 3 S., R. 73 W., 6th P.M. in the patent, which presumes a later amendment was made to the connection. A pencil notation on the plat states, "Does not close by 9 ft. in latitude and 4 ft. in departure."



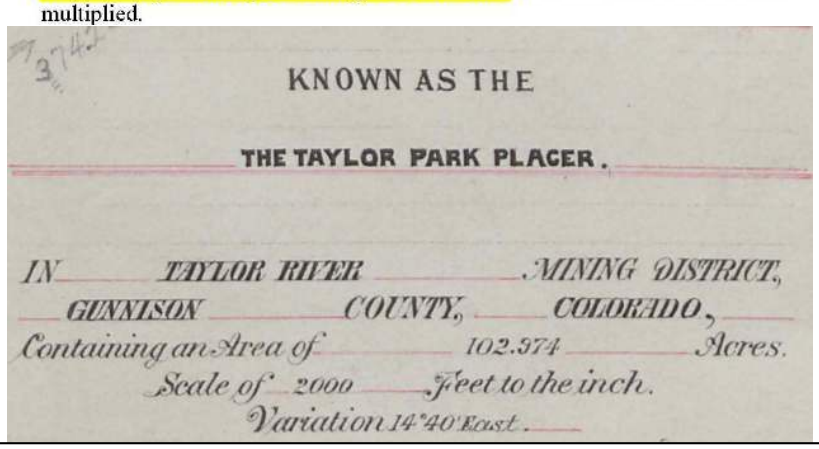
A gulch placer taken to the extreme. The Taylor Park Placer, Sur. No. 11841, near Tincup, Colorado. This claim appears to run along the contour lines and to claim a strip of land approx. 50 feet wide for a water flume. There are 700 corners, the great majority being 4”x4” wood posts. The pencil lines on the plat show how the three segments are joined together.



Close-up of the middle segment showing the bearings and distances. Most of the corners are not labeled with the corner numbers.

PLACER MINING CLAIMS – SECTION 2331, REVISED STATUTES
SNOW FLAKE FRACTION PLACER (37 L.D. 250)

as to secure the maximum area available under the law. For example, upon that theory, a location by eight persons to embrace one hundred and sixty acres, confined to an average of fifty feet in width, could be extended to a length of twenty-six miles; and this conception of flexibility of outline, which has often manifested itself in locations of curious shapes, has in numbers of cases been employed in the appropriation of water-courses, ravines, etc., for inordinate distances. A case decided by the Department October 6, 1900 (not reported), involved a single location over sixteen miles in length, with an average width of about fifty-one feet, containing 102.974 acres. Concrete instances could be multiplied.



KNOWN AS THE

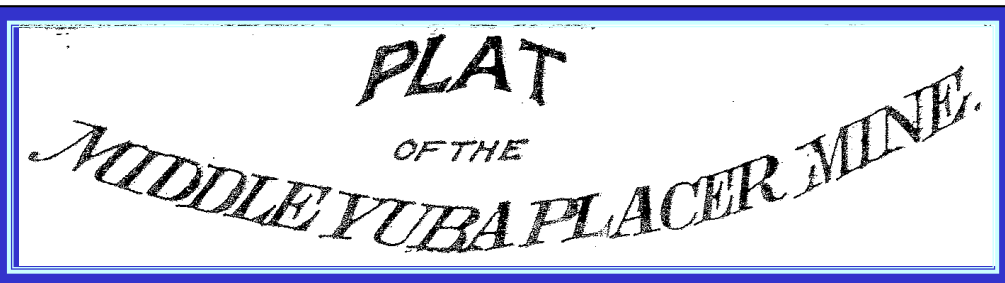
THE TAYLOR PARK PLACER.

IN TAYLOR RIVER MINING DISTRICT,
GUNNISON COUNTY, COLORADO,
Containing an Area of 102.974 Acres.
Scale of 2000 Feet to the inch.
Variation 14°40' East.

Excerpt from the Department of the Interior land decision, The Snow Flake Placer (37 LD 250) regarding an unpublished General Land Office decision. The acreage of The Taylor Park Placer shows that the unpublished decision was for this placer claim.

Note:
https://www.doi.gov/sites/doi.opengov.ibmcloud.com/files/uploads/doi_decisions_037.pdf (Page 272 of PDF file)

An early gulch placer claim example in Montana that is approx. four miles long. The great majority of the corners are trees or stakes with mound and pit.



The Hunt for an Illusive 1872 Patented Placer Claim

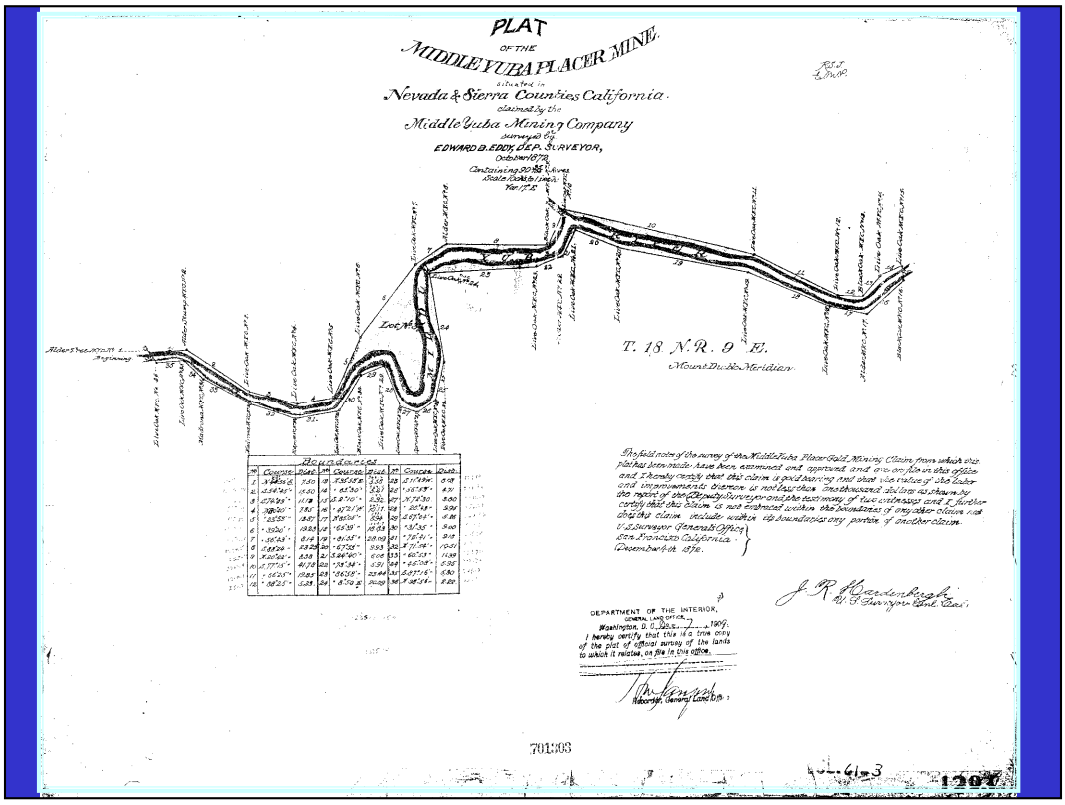
Presented by: John "Steve" Parrish

ACSM-MARLS-UCLS-WFPS

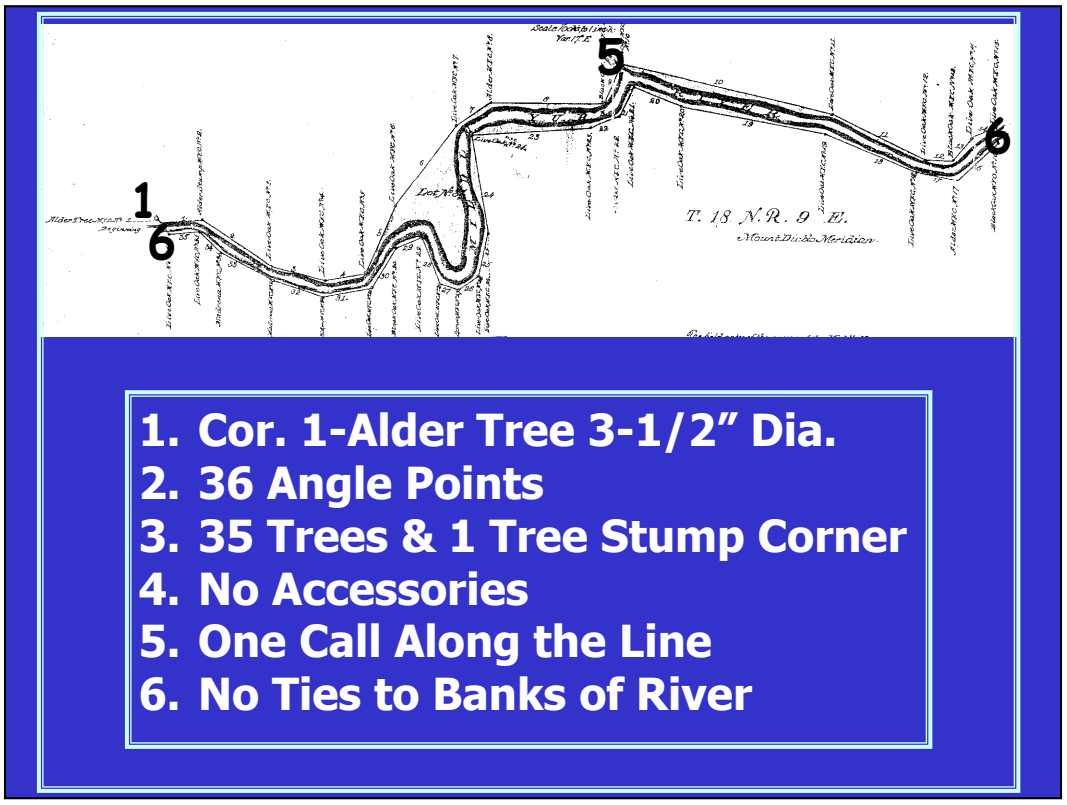
CONFERENCE 2009

February 21, 2009 – 8:00 AM to Noon
Salt Lake City, Utah

The Middle Yuba Placer Mine, circa October 1872, embracing a record 90.35 acres, traversed approximately 2.7 miles along both sides of the Middle Yuba River. This patented Placer Claim is bordered on all sides by National Forest lands and the centerline of the Middle Yuba River is the dividing line between two California counties.



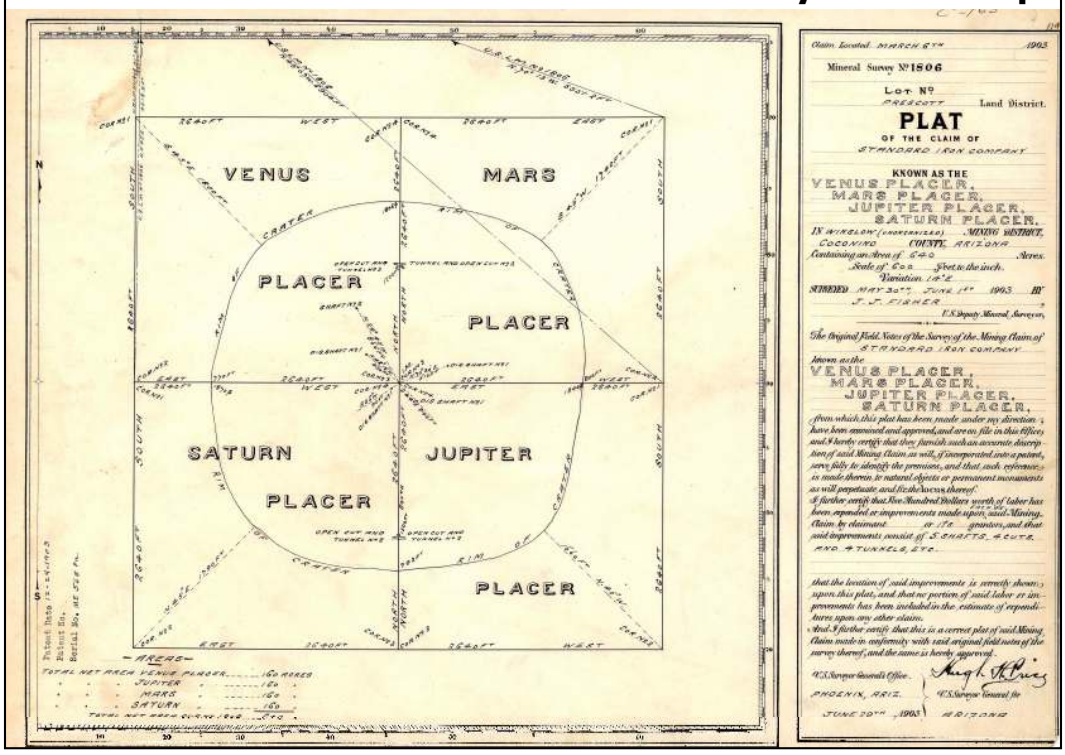
The Forest Service had informed the owners of the patented placer mining claim that their building and other structures, between Angle Point 24 and 25, were suspected to be on National Forest lands. However, the Forest Service had not actually dependently resurveyed the placer claim boundary and had no firm basis for such an assumption. The owners sought the services of a private land surveyor that had experience in retracing patented mining claim boundaries. In addition to locating the placer claim boundary near the building and other structures, the owners wanted to know where their boundary line was located near a gold dredging operation they were leasing within their property at the far eastern end of the placer claim.



Edward B. Eddy, Deputy Surveyor, described a typical metes-and-bounds survey upland of the river banks but closely following the sinuosities of the river (except the portion between Angle Point 5 to 7).

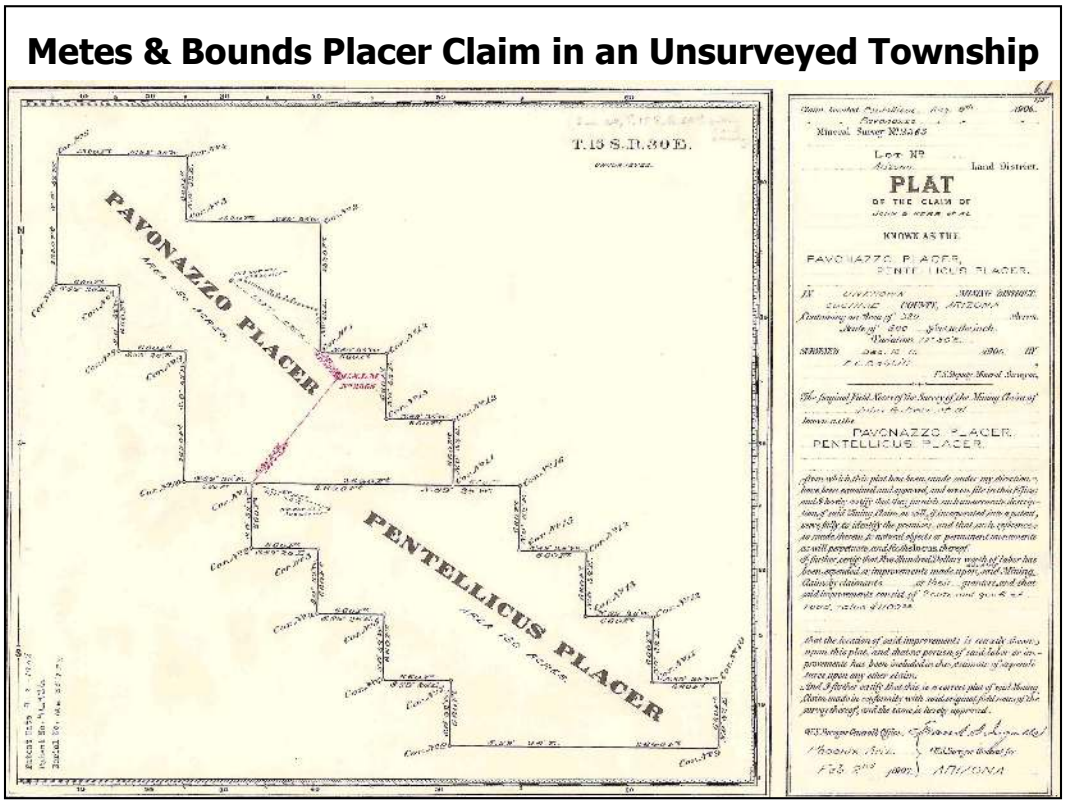
After becoming familiar with the terrain, it was obvious that Eddy and crew traversed along the riverbed and established the "Angle Points" by offsetting from this single line traverse. This portion of the Middle Yuba River is in a deep canyon with steep, rocky, brush and tree covered slopes down to the majority of the riverbanks on both sides of the river. The retracement and dependent resurvey efforts yielded only two positive angle point monuments – the scribed Live Oak corner tree at Angle Point 24 and the remains of the large Live Oak at Angle Point 29.

Metes & Bounds Placer Claim in an Unsurveyed Township



Arizona example of a placer claim mineral survey, Sur. No. 1806 that is located in an unsurveyed township. This is a metes-and-bounds survey even though the dimensions comprise a perfect 1 square mile section. The circular feature in the center of the plat denotes the outline of the rim of Meteor Crater.

Metes & Bounds Placer Claim in an Unsurveyed Township

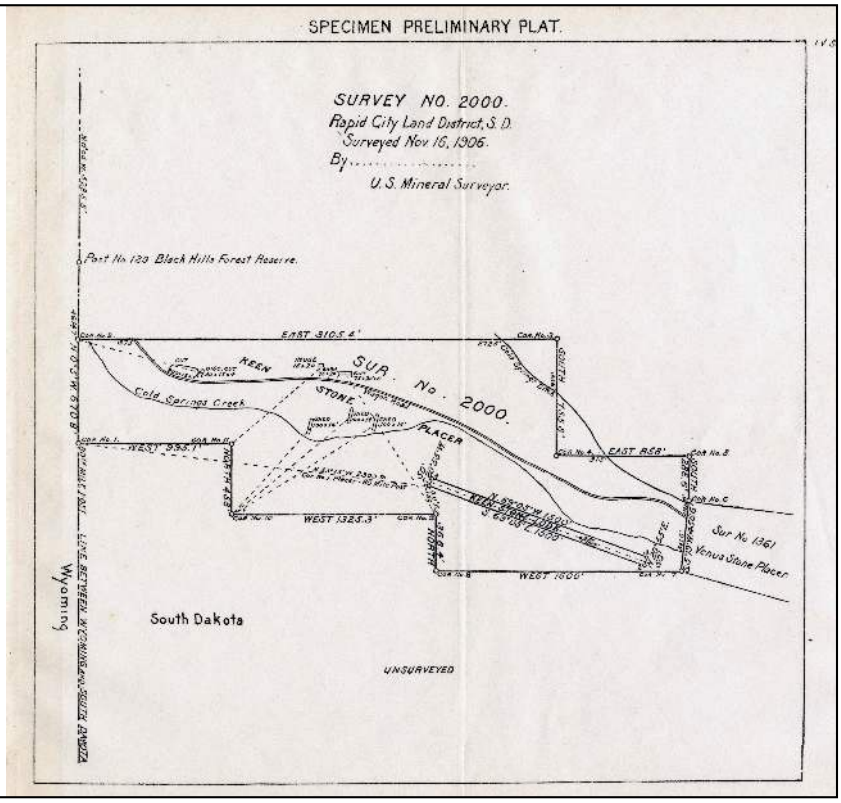


This is another example of an Arizona placer claim mineral survey, Sur. No. 2365. Note that the smallest legal subdivision for mineral lands is 10 acres. Two, 10-acre aliquot parts comprise the basic 20-acre placer claim. Neither the plat nor the official field notes provides a reason for the clockwise rotation of 0°32’ from cardinal.

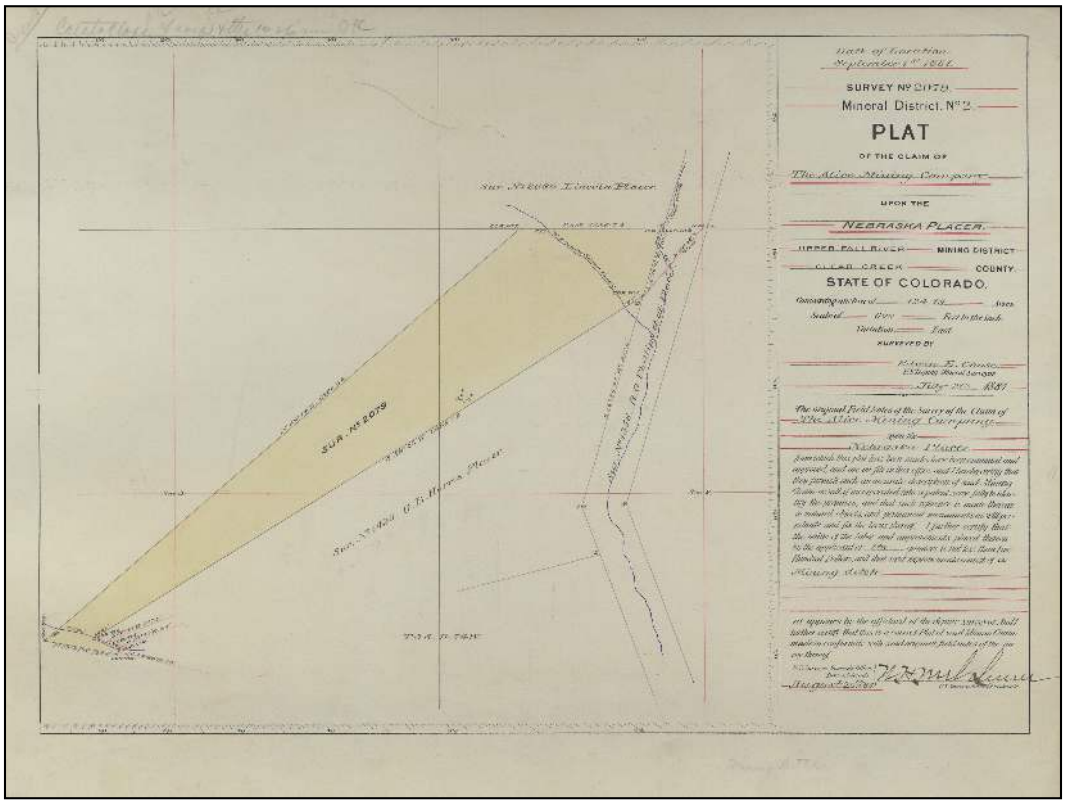
An example of a placer claim located on unsurveyed lands in South Dakota that includes a lode claim within the placer claim boundary.

Patents to placer claims exclude any known lodes not included in the placer mineral survey.

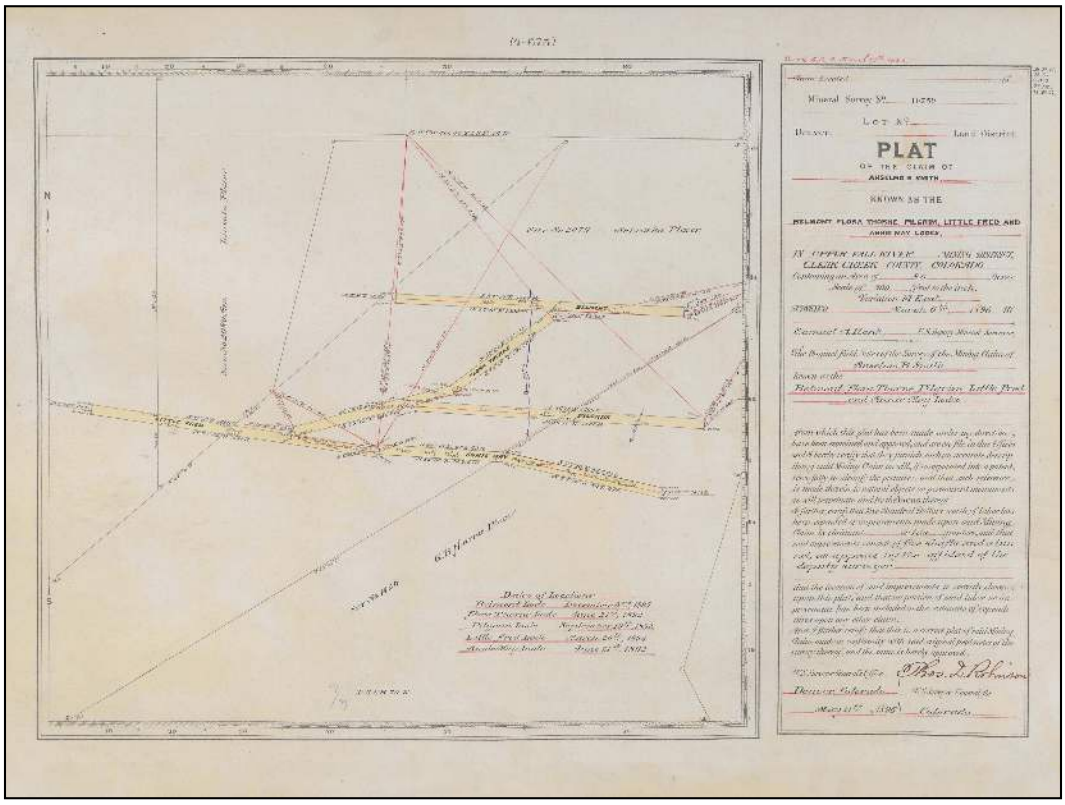
Known lodes not included in the placer claim can be located and patented by others.



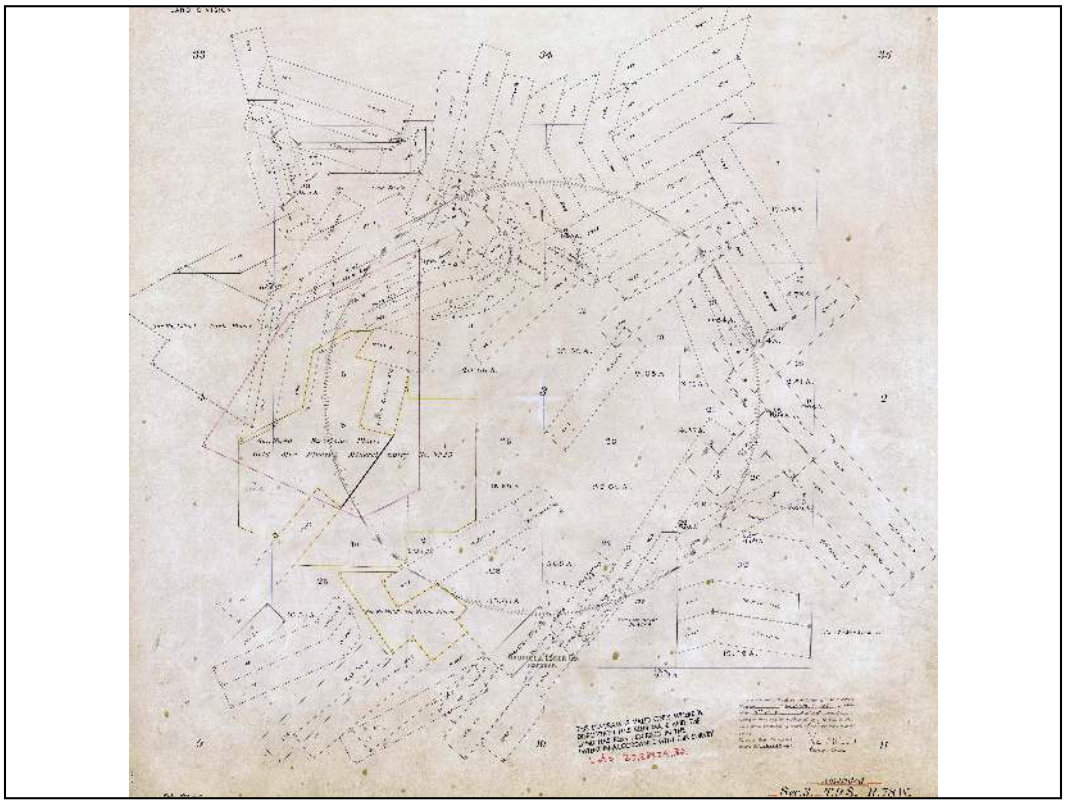
Specimen preliminary plat included in the "Manual of Instructions for the Survey of the Mineral Lands of the United States" 1909, General Land Office. Note that the lengths of the Keen Stone Lode end lines are 50 feet; 25 feet each side of the lode. This is similar to early lode claims in Colorado where the 25 feet of surface ground each side of the lode were reserved to access the vein.



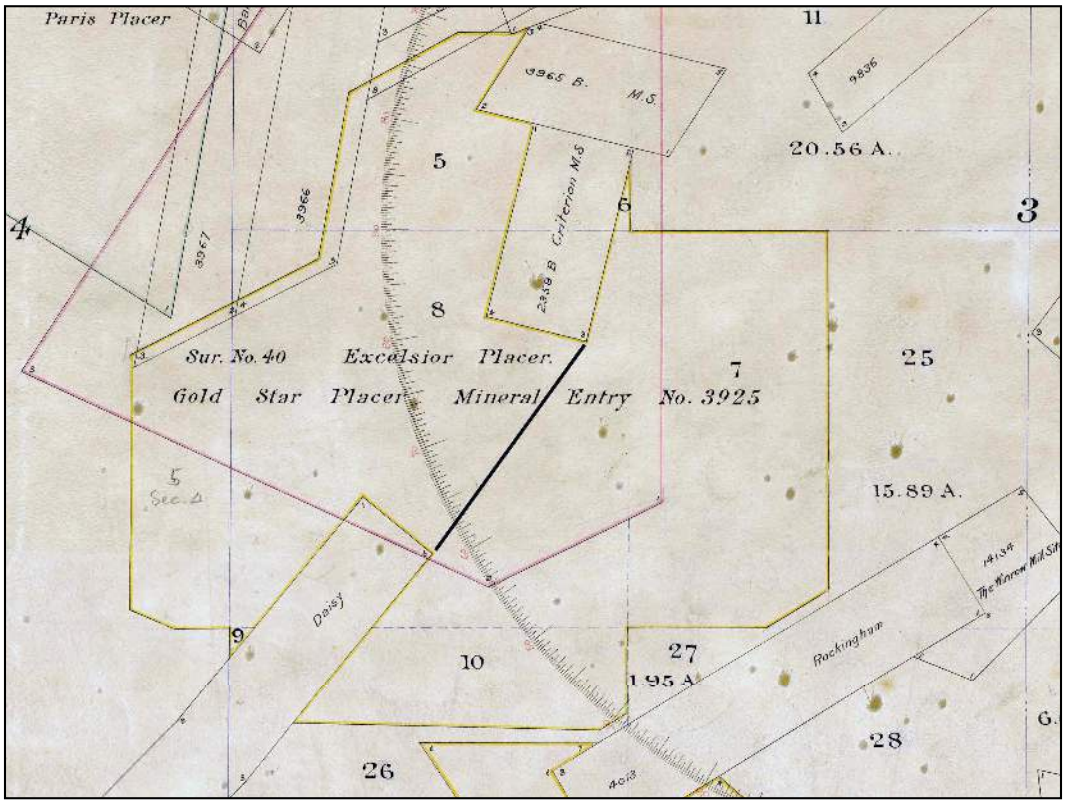
Another example of a gulch placer claim, The Nebraska Placer, Sur. No. 2079 located between Alice and Idaho Springs Colorado. This placer claim failed to stake and include known lodes within its boundaries. Several lodes were staked on those known lodes (See next slide).



The five lode claims: Annie May, Flora Thorne, Pilgrim, Little Fred, and Belmont lodes, Sur. No. 10759 were located between 6/21/1892 and 12/3/1895. The lode claims were staked on the three patented placer claims: G.B. Harris, Sur. No. 1426; Nebraska, Sur. No. 2079; and Lincoln, Sur. No. 2080 amended. These placer claims were patented between 4/22/1886 and 1/5/1889, however none of the patents included lode claims. In this instance, the five lode claims were able to claim the known lodes within the three patented placer claims because known lodes were excluded in the placer patents.



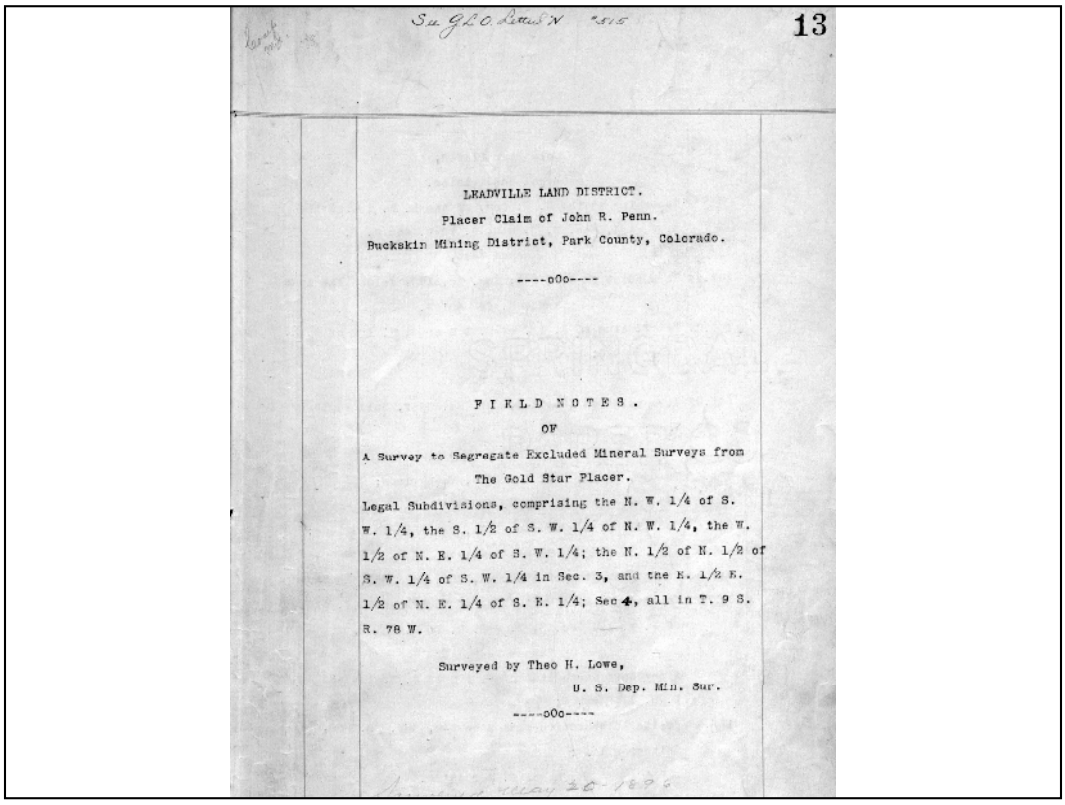
An example of a placer claim patented by legal subdivisions. The patent for the Gold Star Placer consists of Lots 5, 6, 7, 8, 9, and 10 of Sec. 3; and Lot 5 of Sec. 4, T. 9 S., R. 78 W., 6th P.M. and was issued on July 20, 1896. This segregation diagram was prepared in May 1904 and therefore is not valid for the disposition of the Gold Star Placer.



Close-up view of the Gold Star Placer (yellow outline) that shows only its Mineral Entry number. No mineral survey was conducted as the placer was patented via legal subdivisions. The Excelsior "Placer", Sur. No. 40 was never patented (outline in red) and abandoned prior to the location of the Gold Star Placer.

The offsets of the Gold Star Placer with the Rockingham, Bald Eagle, Young, and Panabase No. 2 lodes were caused by a policy of the General Land Office to show patent description positions in vogue from July 1899 through July 1904.

Note: This policy is discussed in detail later in the course.



13

LEADVILLE LAND DISTRICT.

Placer Claim of John R. Penn.

Buckskin Mining District, Park County, Colorado.

----oOo----

F I E L D N O T E S .

OF

A Survey to Segregate Excluded Mineral Surveys from The Gold Star Placer.

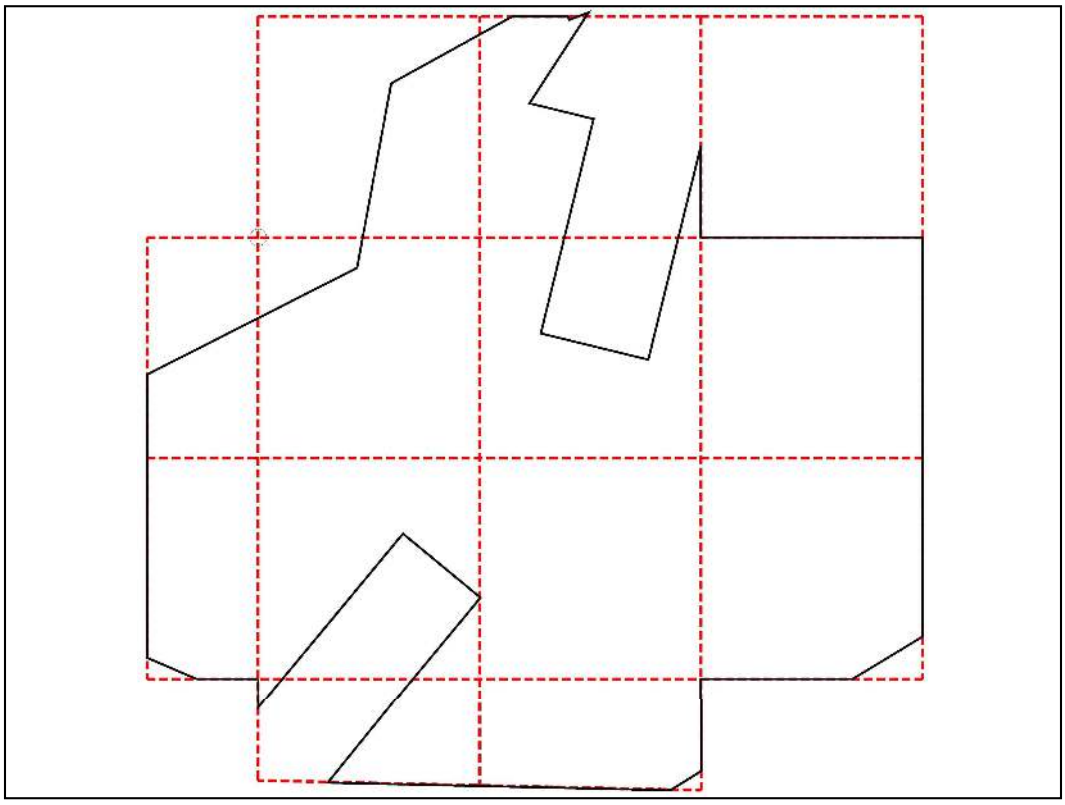
Legal Subdivisions, comprising the N. W. 1/4 of S. W. 1/4, the S. 1/2 of S. W. 1/4 of N. W. 1/4, the W. 1/2 of N. E. 1/4 of S. W. 1/4; the N. 1/2 of N. 1/2 of S. W. 1/4 of S. W. 1/4 in Sec. 3, and the E. 1/2 E. 1/2 of N. E. 1/4 of S. E. 1/4; Sec 4, all in T. 9 S. R. 78 W.

Surveyed by Theo H. Lowe,

U. S. Dep. Min. Sur.

----oOo----

In September 1895, the General Land Office required the preparation of "Field Notes of a Survey to Segregate Excluded Mineral Surveys from The Gold Star Placer," which was approved on June 29, 1896. Monuments were not set, nor was a survey on the ground conducted to show the monumented positions of the excluded mineral surveys nor were Secs. 3 and 4 subdivided by a field survey.



A cartoon sketch showing the record positions of the excluded mineral surveys and the protracted positions of a "perfect" section subdivision into 10-acre aliquot parts (i.e. the red dashed lines describe aliquot parts that are all 660 x 660 feet with bearings that are north-south and east-west).

Unpatented Mining Claims - A Possessory Right

Mill Sites

Mill sites were originally metes and bounds parcels located on unmineralized land. The land was used in conjunction with the mining activities of a noncontiguous lode claim and/or milling operations. By statute, they cannot exceed 5 acres in size.

For lode claims with an associated mill site in the same U.S. Mineral Survey, an "A" is appended to the survey number. The mill site has a "B" appended to the survey number. If a lode claim crosses an existing mill site, only the portion of the lode claim containing the discovery is valid. Because mill sites can only be located on non-mineralized land, it is presumed that the lode does not cross the mill site. A second discovery remedies the problem.

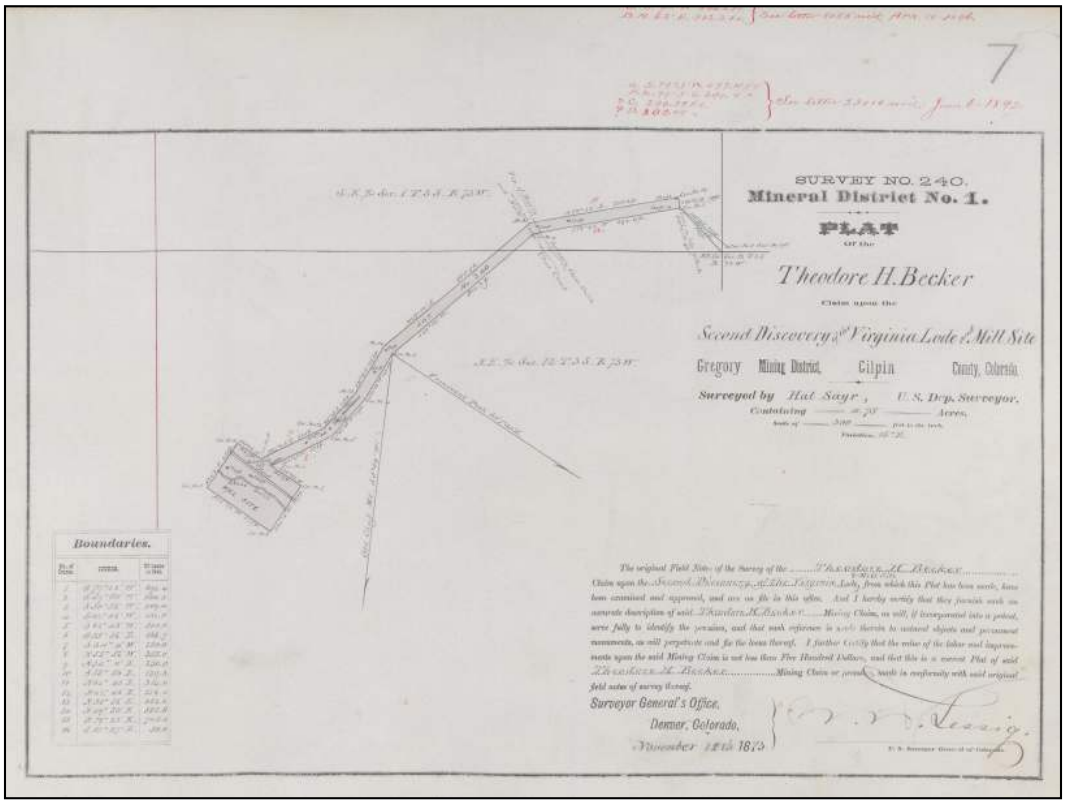
Unpatented Mining Claims - A Possessory Right

Mill Sites (Cont.)

An independent mill site does not have an associated lode or placer claim. There are specific requirements that the mill site claimant must complete to hold an independent mill site. One is to build a mill on the mill site.

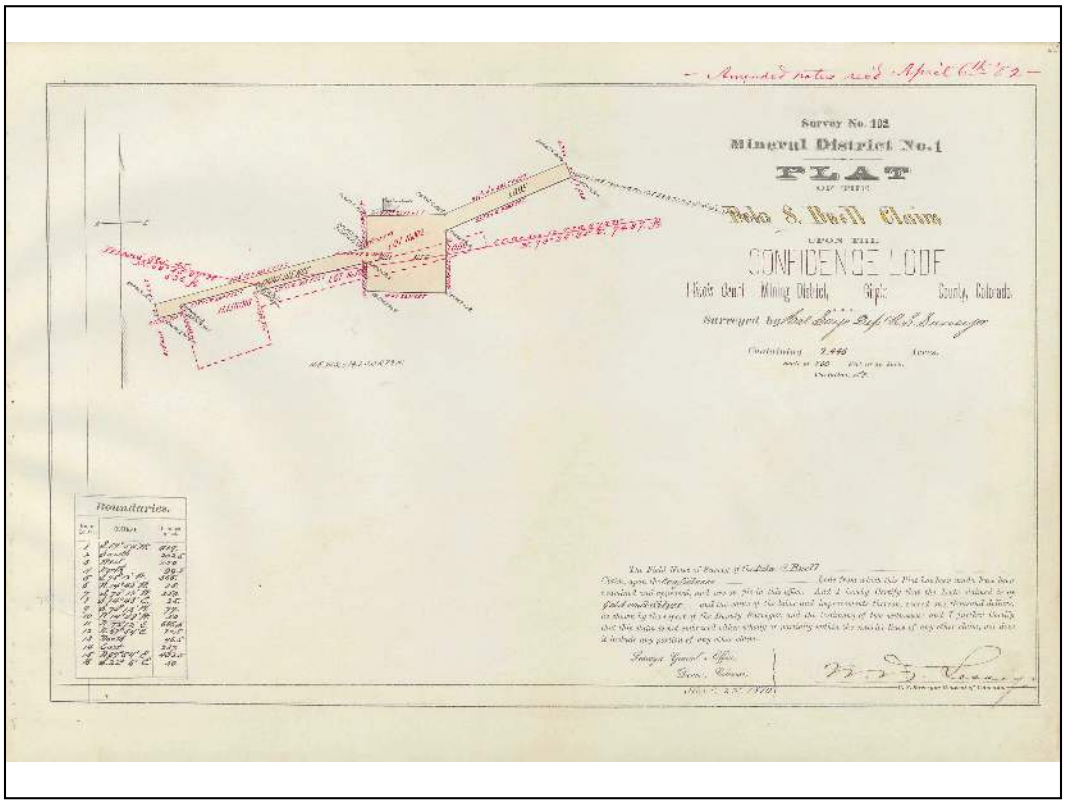
The Act of March 18, 1960 (30 U.S.C. 42) allowed mill sites to be included with a mineral survey containing one or more placer claims. The legislation also permitted the mill site to be described by aliquot parts.

In 1972, a BLM Instruction Memo (No. 72-151) permitted mill sites to be described by aliquot parts for mineral surveys containing associated lode claims.



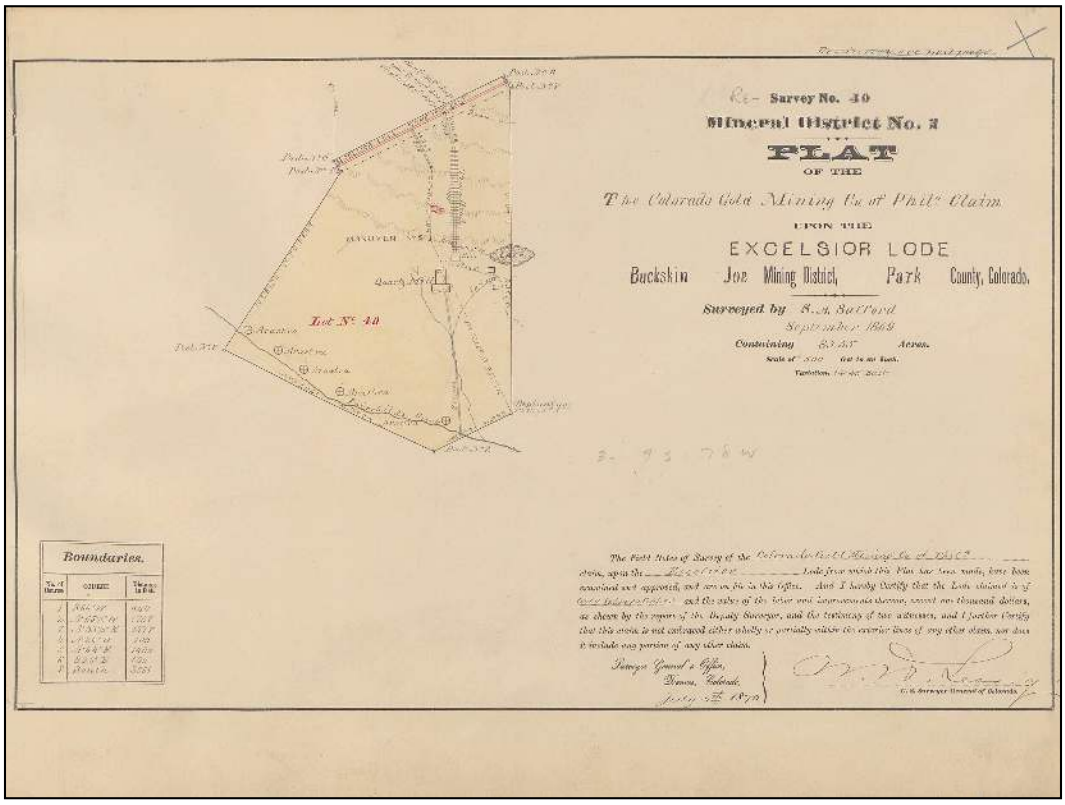
An example of an 1866 lode claim with a mill site at the end of the lode, Second Discovery of the Virginia Lode and Mill Site, Sur. No. 240.

Note: Mill sites were not explicitly included in the 1866 mining law but were authorized in the 1872 mining law.

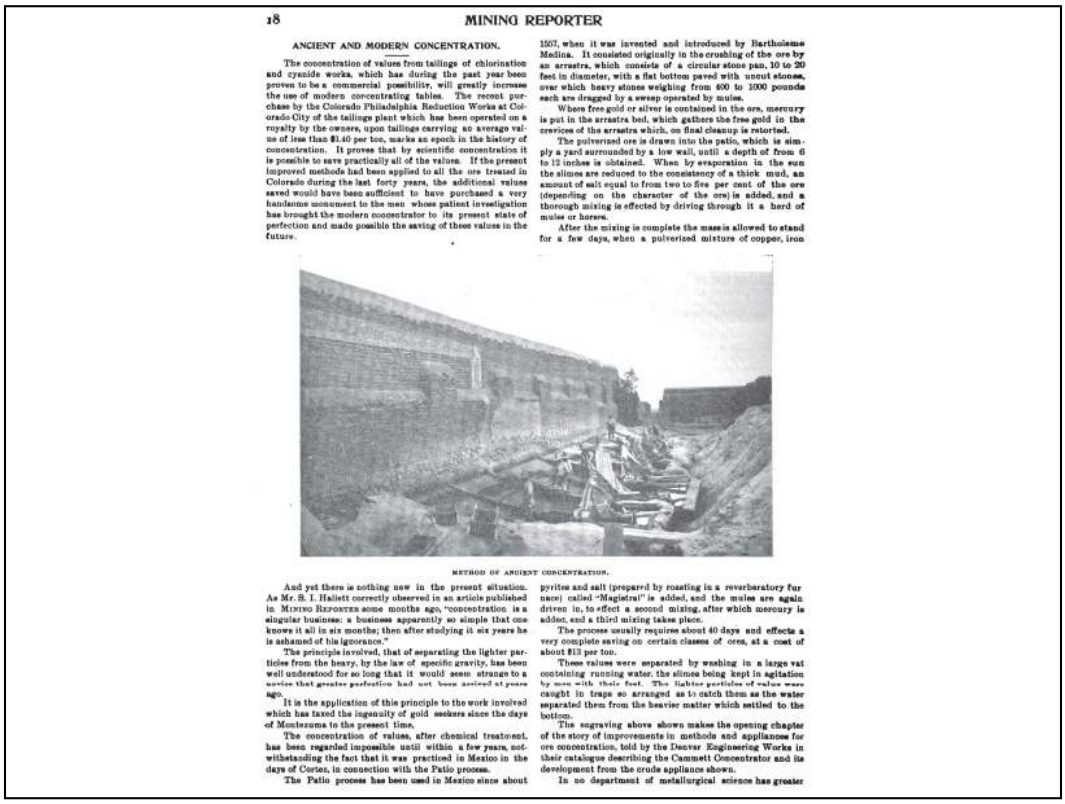


Another example of an 1866 lode claim with a mill site located in the middle of the lode, Confidence Lode [and Mill Site], Sur. No. 102.

Note: Under the 1872 mining law, mill sites were required to be on non-mineralized ground and therefore it was not proper to site a mill site where it shared a common line with an end line of a lode claim.



An example of an 1866 lode claim with an adjoining lot, Excelsior Lode, Sur. No. 40. The lot has several improvements including five arastras. This is the same claim shown on the segregation diagram and labeled as the Excelsior Placer.



18 MINING REPORTER

ANCIENT AND MODERN CONCENTRATION.

The concentration of values from tailings of chlorination and cyanide works, which has during the past year been proven to be a commercial possibility, will greatly increase the use of modern concentrating tables. The recent purchase by the Colorado Philadelphia Reduction Works at Colorado City of the tailings plant which has been operated on a royalty by the owners, upon tailings carrying an average values of less than $1.40 per ton, marks an epoch in the history of concentration. It proves that by scientific concentration it is possible to save practically all of the values. If the present improved methods had been applied to all the ore treated in Colorado during the last forty years, the additional values saved would have been sufficient to have purchased a very handsome monument to the men whose patient investigation has brought the modern concentrator to its present state of perfection and made possible the saving of these values in the future.

1557, when it was invented and introduced by Bartholome Medina. It consisted originally in the crushing of the ore by an arrastra, which consists of a circular stone pan, 10 to 20 feet in diameter, with a flat bottom paved with uncut stones, over which heavy stones weighing from 600 to 1000 pounds each are dragged by a sweep operated by mules.

Where free gold or silver is contained in the ore, mercury is put in the arrastra bed, which gathers the free gold in the crevices of the arrastra which, on final cleanup is retorted.

The pulverized ore is drawn into the patio, which is simply a yard surrounded by a low wall, until a depth of from 6 to 12 inches is obtained. When by evaporation in the sun the slimes are reduced to the consistency of a thick mud, an amount of salt equal to from two to five per cent of the ore (depending on the character of the ore) is added, and a thorough mixing is effected by driving through it a herd of mules or horses.

After the mixing is complete the mass is allowed to stand for a few days, when a pulverized mixture of copper, iron

METHOD OF ANCIENT CONCENTRATION.

And yet there is nothing new in the present situation. As Mr. S. I. Hallett correctly observed in an article published in MINING REPORTER some months ago, "concentration is a singular business: a business apparently so simple that one knows it all in six months; then after studying it six years he is ashamed of his ignorance."

The principle involved, that of separating the lighter particles from the heavy, by the law of specific gravity, has been well understood for so long that it would seem strange to a novice that greater perfection had not been arrived at years ago.

It is the application of this principle to the work involved which has taxed the ingenuity of gold seekers since the days of Montezuma to the present time.

The concentration of values, after chemical treatment, has been regarded impossible until within a few years, notwithstanding the fact that it was practiced in Mexico in the days of Cortez, in connection with the Patio process.

The Patio process has been used in Mexico since about

pyrites and salt (prepared by roasting in a reverberatory furnace) called "Magistral" is added, and the mules are again driven in, to effect a second mixing, after which mercury is added, and a third mixing takes place.

The process usually requires about 40 days and effects a very complete saving on certain classes of ores, at a cost of about $13 per ton.

These values were separated by washing in a large vat containing running water, the slimes being kept in agitation by men with their feet. The lighter particles of value were caught in traps so arranged as to catch them as the water separated them from the heavier matter which settled to the bottom.

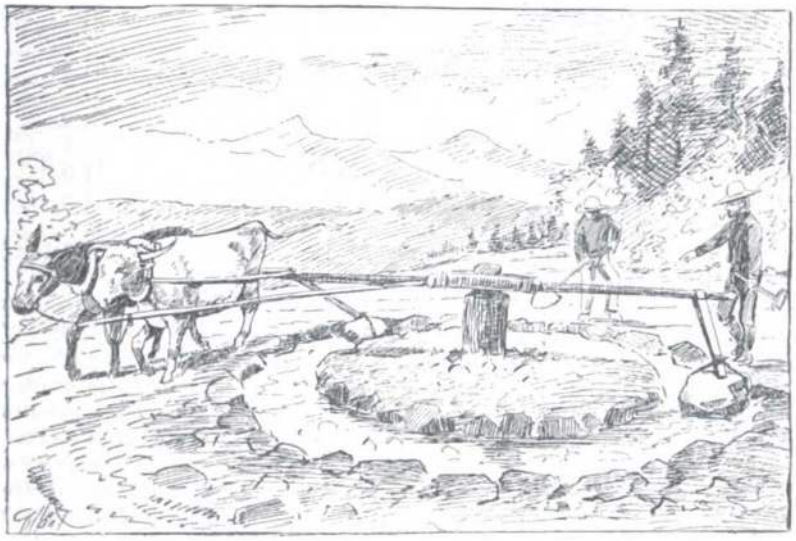
The engraving above shown makes the opening chapter of the story of improvements in methods and appliances for ore concentration, told by the Denver Engineering Works in their catalogue describing the Cammett Concentrator and its development from the crude appliances shown.

In no department of metallurgical science has greater

An article entitled, "Ancient and Modern Concentration" in *The Mining Reporter*, Vol. 39, No. 25, June 22, 1899. The article discusses various methods of concentrating gold, in particular the concentration of native gold from quartz ore.

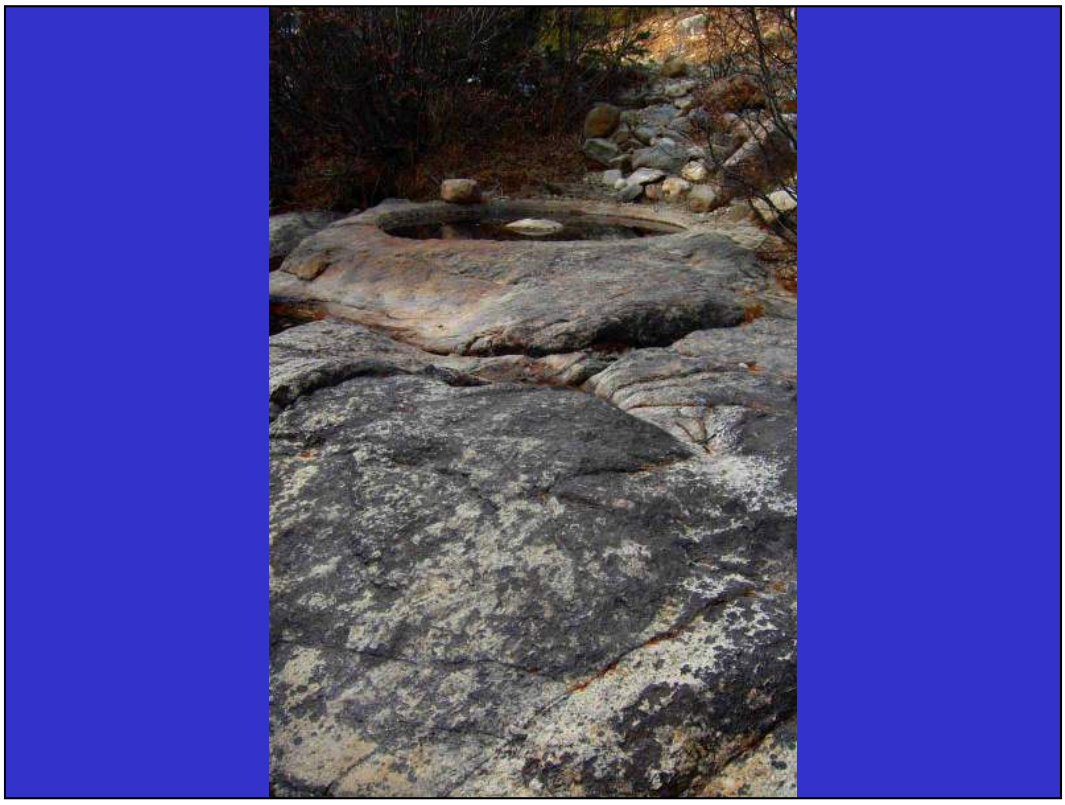
advancement been made in the last few years than in the science of concentration.

MINING REPORTER is proud of the fact that practically all of this development has been made by Colorado men, and that the concentrators offered to the mining world by Denver manufacturers embody the highest skill in manufacture and the most complete scientific knowledge of the most difficult art of concentration.



MEXICAN ARRASTRA.

The quartz ore was crushed in an arastra by draft animals that dragged one or two large stones attached to a yoke.

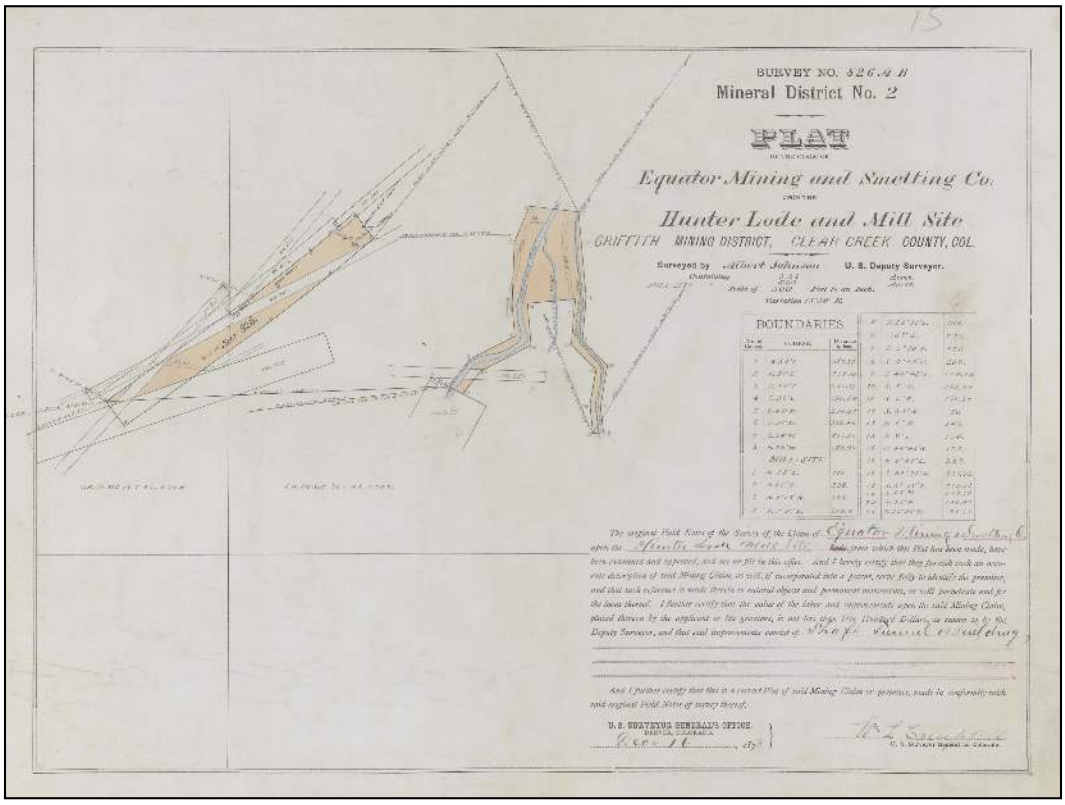


Looking upstream at an arastra adjacent to Fairchild's Creek (one of the five arastras shown on the plat of Sur. No. 40.

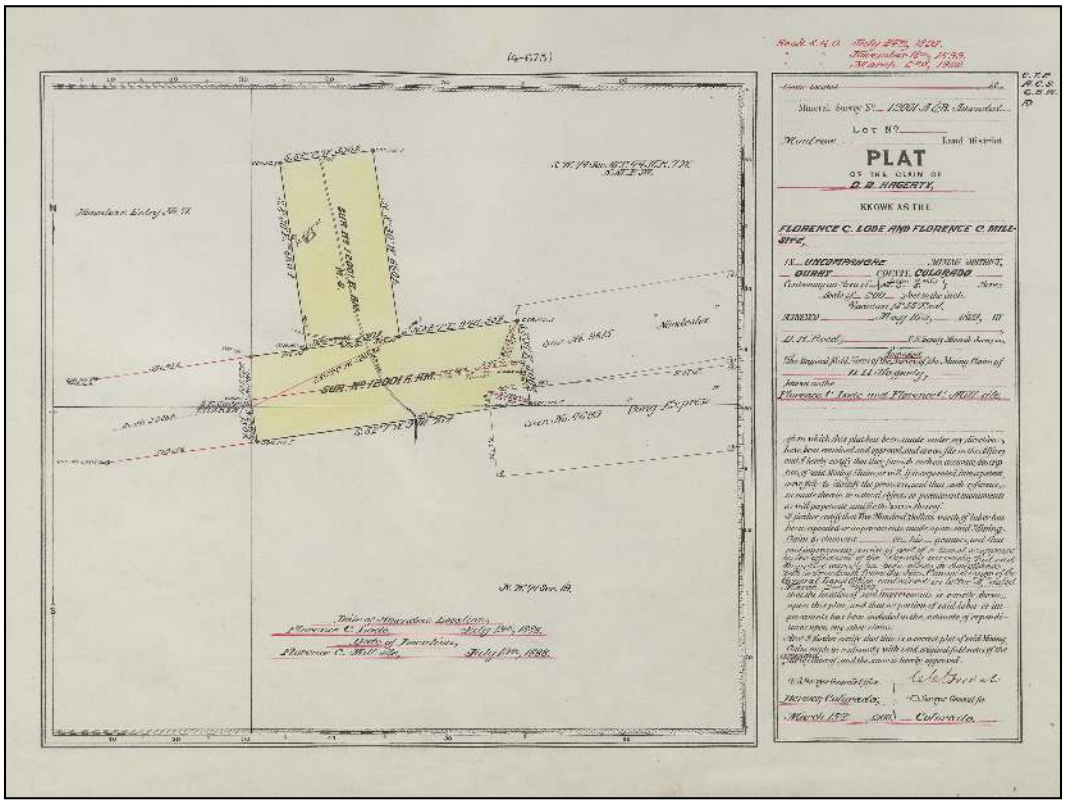
Photo of same arastra. The central high point shows the remains of a steel post that the yoke and heavy stones were attached.

Photo looking downstream of a second arastra located in Fairchild's Creek.

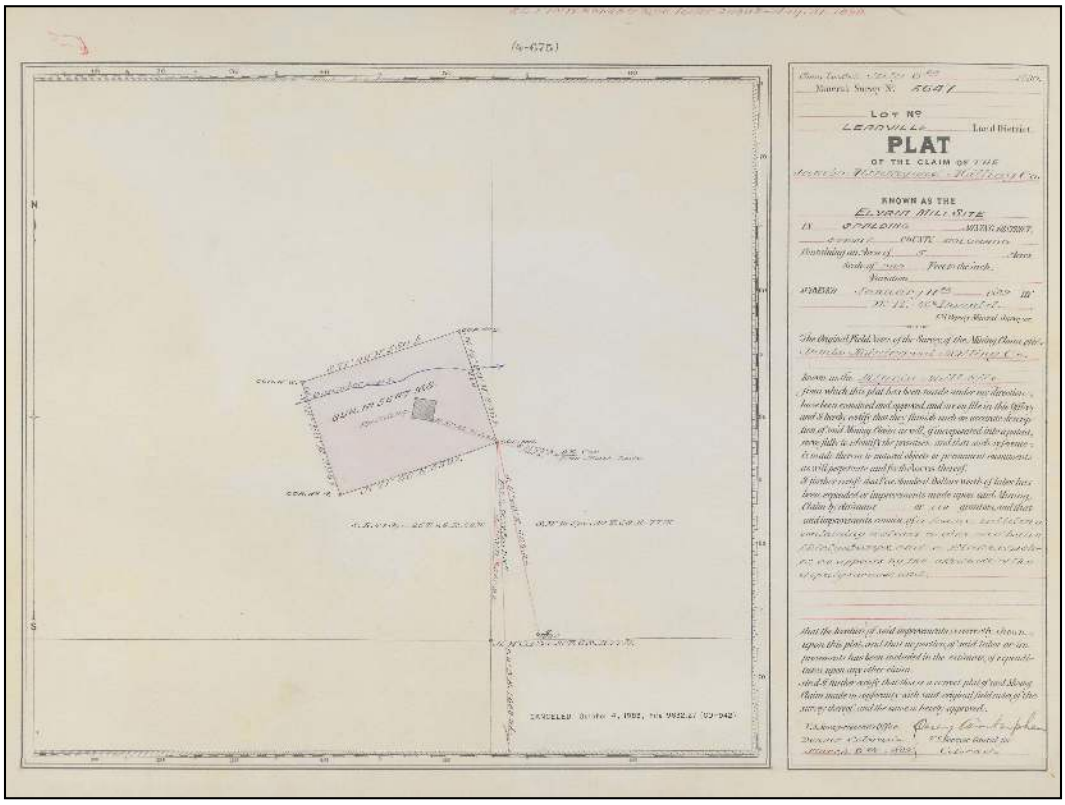
Photo of arastra from downstream. The downstream lip of the arastra has broken off and acts like a spillway.



An example of a lode claim with mill site that do not share a common boundary line, Hunter Lode and Mill Site, Sur. No. 826A&B. Under the 1872 mining law, mill sites are metes and bounds parcels that cannot exceed 5 acres in size.



Another example of a lode claim and mill site, Florence C. Lode and Florence C. Mill-Site, Sur. No. 12001A&B. In this case, the mill site adjoins a side line of the lode. It is rare for a mill site to adjoin the lode claim on an end line in the same survey as the mill site must be on non-mineralized ground.



An example of an independent mill site (no associated lode claim), Elyria Mill Site, Sur. No. 5647.

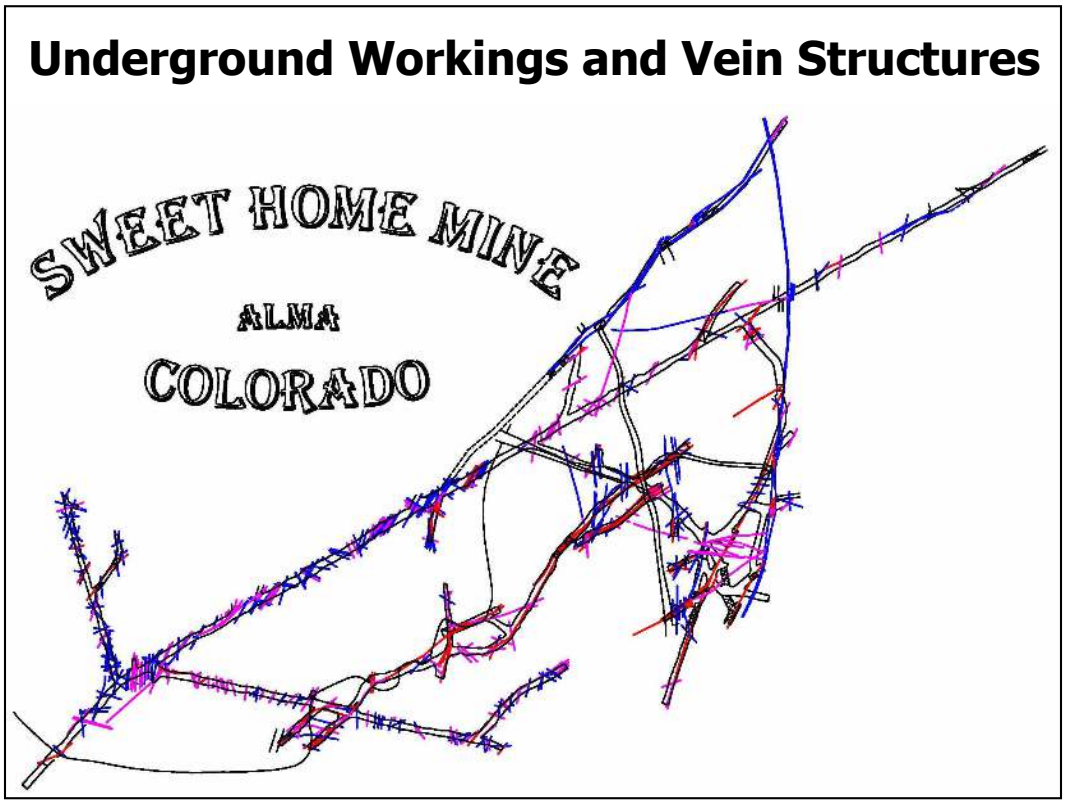
Note: Independent mill sites do not have a "B" appended to the survey number and in order to be valid must have an improvement such as a stamp mill built on the claim.

Unpatented Mining Claims - A Possessory Right

Tunnel Sites

Tunnel sites are a means of discovering valuable minerals when the veins do not extend up to the surface, or the surface is covered by alluvium or talus. A tunnel site claimant cannot patent the tunnel. A tunnel site is considered abandoned if no work has been conducted within the last 6 months.

Tunnel site dimensions are 3000 feet along the direction of the tunnel and 1500 feet on each side of the tunnel. Stakes are usually placed at the surface to form a 3000 by 3000 feet claim. Other miners cannot prospect the surface (except for known lodes) while the tunnel site is being worked.



Plan view of the underground workings at the Sweet Home silver mine showing numerous veins.

Southwest flank of Mt. Bross

Photograph taken from Loveland Mountain

The Sweet Home Mine is located in the lower third and center of the photo and any mineralized veins discovered underground could be used to establish lode claims on the surface since the scree covering the surface makes it difficult to trace the apex of those mineralized veins.

RELOCATION AND AMENDED CLAIMS

A **RELOCATION** certificate is required whenever the original discovery has moved or is invalid. The rights to the claim are reset to the date of relocation. A relocation is normally filed when there is a flaw in the original location certificate that requires a physical change. One example is if the original discovery is located on ground in conflict with a senior claim.

An **AMENDED** location certificate is usually filed when there is an error such as an erroneous tie to the section corner. Another reason to file an amended location certificate (**ADDITIONAL** location is sometimes used) is to claim an area in conflict with a senior lode claim that has been abandoned. Until the amendment is filed the area of conflict is open ground. An amended location certificate keeps the original location date for seniority purposes.

UNIQUE ASPECTS OF MINERAL SURVEYS

CHARACTERISTICS OF THE RECTANGULAR SURVEY SYSTEM

- Global in design beginning with an Initial Point, Principal Meridian and Base Line;
- Land divisions are formed by a telescoping grid that is based on well-defined rules & procedures;
- The official survey is normally done prior to sale and before 1909, under contract with the U.S. Government;
- Most township subdivision surveys are conducted under a single contract;
- Subdivision creates common boundaries between land parcels (in other words, the plan is that there are no overlaps or hiatuses);

UNIQUE ASPECTS OF MINERAL SURVEYS

CHARACTERISTICS OF THE RECTANGULAR SURVEY SYSTEM

- Subdivision does not normally create junior-senior relationships (e.g. a "regular" township subdivision);
- Bona fide rights as to location;
- The concept of closing corners is well defined; and
- **The simple squares of the rectangular survey system are not simple**.

UNIQUE ASPECTS OF MINERAL SURVEYS

CHARACTERISTICS OF MINERAL SURVEYS

- The initial possessory right to Mineral Lands is based on the discovery of a locatable mineral on ground open to mineral entry;
- The lode is determined by additional exploration and development;
- The mining claimant must sufficiently mark his claim so it is readily retraceable on the ground;
- Prior to patent, the claimant must do $100 of annual mining improvements to maintain his possessory right;
- Placer claims are surficial estates and do not normally overlap or create junior/senior rights with abutting claims;

Unique Aspects of Mineral Surveys

Characteristics of Mineral Surveys

- At the time of the application for patent any known lodes within a placer claim must be segregated and staked as lode claims by the placer claimant. Otherwise, others can enter the placer claim and claim the known lodes;
- If there are no known lode claims at the time of the application for patent, all lodes apexing within the surface boundary of the placer claim belong to the placer claimant. However, the placer claimant does not have any extralateral rights to dipping mineralized veins;
- Mill sites are required to be located on non-mineralized ground;

UNIQUE ASPECTS OF MINERAL SURVEYS

CHARACTERISTICS OF MINERAL SURVEYS

- Mill sites are surficial estates & do not normally overlap or create junior/senior rights with abutting claims;
- While mill sites are required to be located on non-mineralized ground, all surficial and subsurface mineral rights are conveyed to the mill site owner upon issuance of the patent. Like placer claims, no extralateral rights are granted for veins apexing within the surficial boundary;
- Lode claims often overlap and junior-senior rights are the norm;
- Hiatuses and gaps between lode claims are the norm, not the exception;

UNIQUE ASPECTS OF MINERAL SURVEYS

CHARACTERISTICS OF MINERAL SURVEYS

- For lode claims, bona fide rights to the subsurface mineral estate (i.e. extralateral rights) are fully preserved if the end lines are substantially parallel;
- The concept of closing corners is not explicitly defined;
- The loci of all mineral surveys are fixed by a connection to the rectangular survey system, a U.S. Location Monument or U.S. Mineral Monument;
- Mineral surveys are often tied to far distant, poorly established, shifting monuments, supposed to be corners of the rectangular survey system;
- When retracing mineral surveys, thinking *outside the box* is to be encouraged;

Unique Aspects of Mineral Surveys

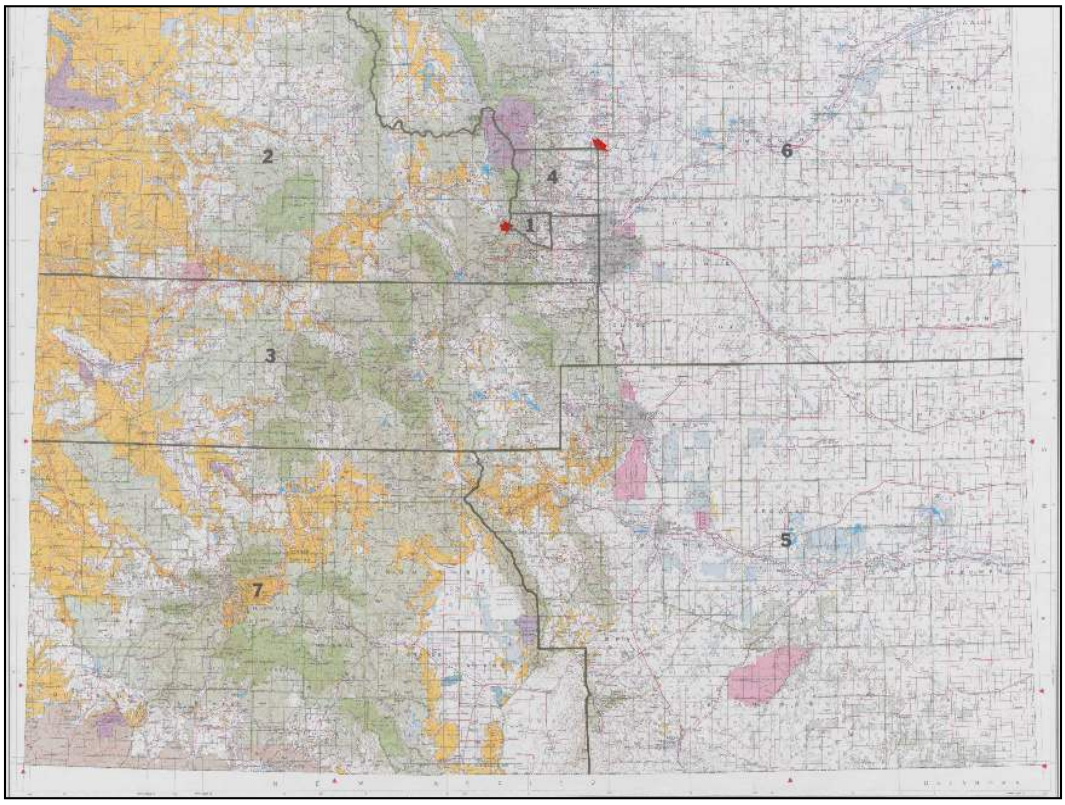
Characteristics of Mineral Surveys

- The mining claimant must employ and pay a U.S. [Deputy] Mineral Surveyor to conduct the official mineral survey after obtaining a survey order (the survey was approved by the U.S. Surveyor General, currently the BLM Branch Cadastral Chief);
- There are explicit rules on how to address the junior-senior rights of two or more lode mining claims;
- U.S. patents to lode mining claims that have conflicts with other lode claims that are senior in right will have an "expressly excepting and excluding" clause after the metes-and-bounds description; and
- **Mineral Surveys are not simple rectangles**.

Andy Senti Public Lands Information Center

What resources are available at the Andy Senti Public Lands Information Center other than the obvious patent, plat and field notes? Where should you start?

In Colorado, begin by asking for directions to the index that references the names of lodes and placers to their U.S. Mineral Survey number. Numbers less than 4500 are not unique and the Mining District Number is also needed. After the US Mineral Survey number is known, you should pull the index card for the mineral survey.



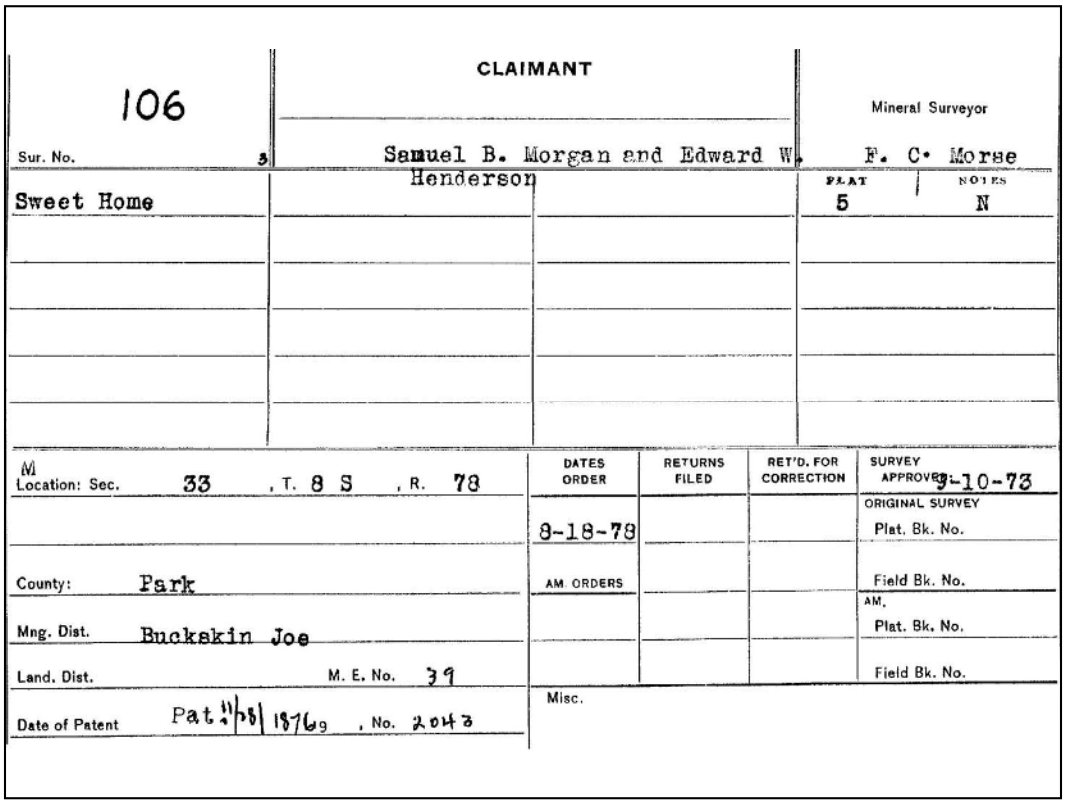
Until December 1, 1886 there were seven mineral districts in Colorado each of which had mineral survey numbers beginning with "37" and therefore there can be up to seven mineral surveys with the same number. Mineral survey numbers greater than 4500 are unique and the mineral district number is not required.

Rectangular and mineral survey field notes and plats on microfiche in the Colorado BLM public room. GLO tract books are also included in this collection.

Close-up of microfiche tray containing mineral survey plats and field notes for Land District 3 (same as Mineral District 3 on the Mineral District map). The surveys are organized by mineral survey number, starting with Sur. No. 37.

The public room also contains microfilm rolls for mineral surveys which are organized by the original bound field notes volumes. The microfiche records were imaged from these microfilm rolls so if the microfiche is illegible, the microfilm image may be readable. The mineral survey index cards (see below) include the original field notes volume letter/number.

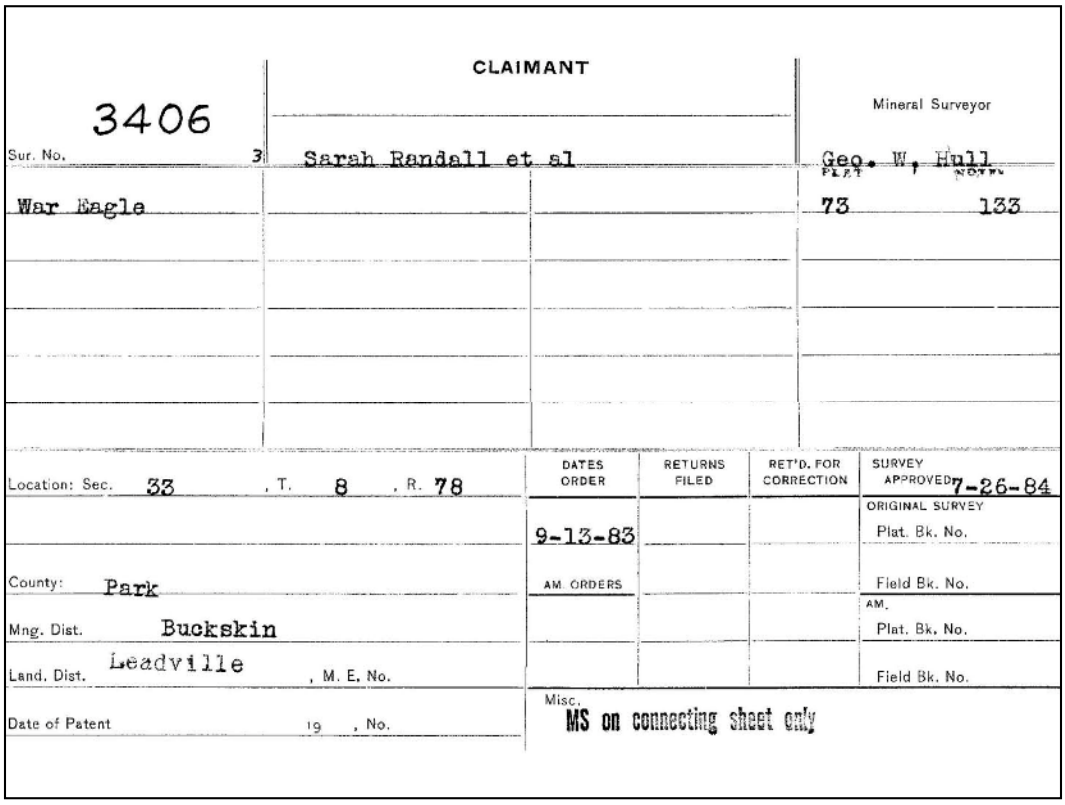
Mineral survey index cards that contain information on each mineral survey (also includes the mineral surveys that were not approved). The cards are organized by Mineral District number (survey numbers less than 4500) and mineral survey number.



Sur. No. 106	CLAIMANT	Mineral Surveyor
	Samuel B. Morgan and Edward W. Henderson	F. C. Morse
Sweet Home		PLAT 5 / NOTES N

Location: Sec. 33, T. 8 S, R. 78	DATES ORDER	RETURNS FILED	RET'D. FOR CORRECTION	SURVEY APPROVED 3-10-73
	8-18-78			ORIGINAL SURVEY Plat. Bk. No.
County: Park	AM. ORDERS			Field Bk. No.
Mng. Dist. Buckskin Joe				AM. Plat. Bk. No.
Land. Dist. M. E. No. 39				Field Bk. No.
Date of Patent Pat. 11/28/1879, No. 2043	Misc.			

An example of a mineral survey index card. The cards normally include the survey number, claim name, claimant, mineral surveyor, plat book number, field notes volume number, section and township, date of mineral survey order, date survey approved, county, mining district, land district, Mineral Entry number, date and number of patent, and miscellaneous information such as GLO Departmental letters and which claims went to patent.



	CLAIMANT	Mineral Surveyor
Sur. No. 3406	Sarah Randall et al	Geo. W. Hull
War Eagle		FLAT 73 NOTE 133

Location: Sec. 33 , T. 8 , R. 78

County: Park

Mng. Dist. Buckskin

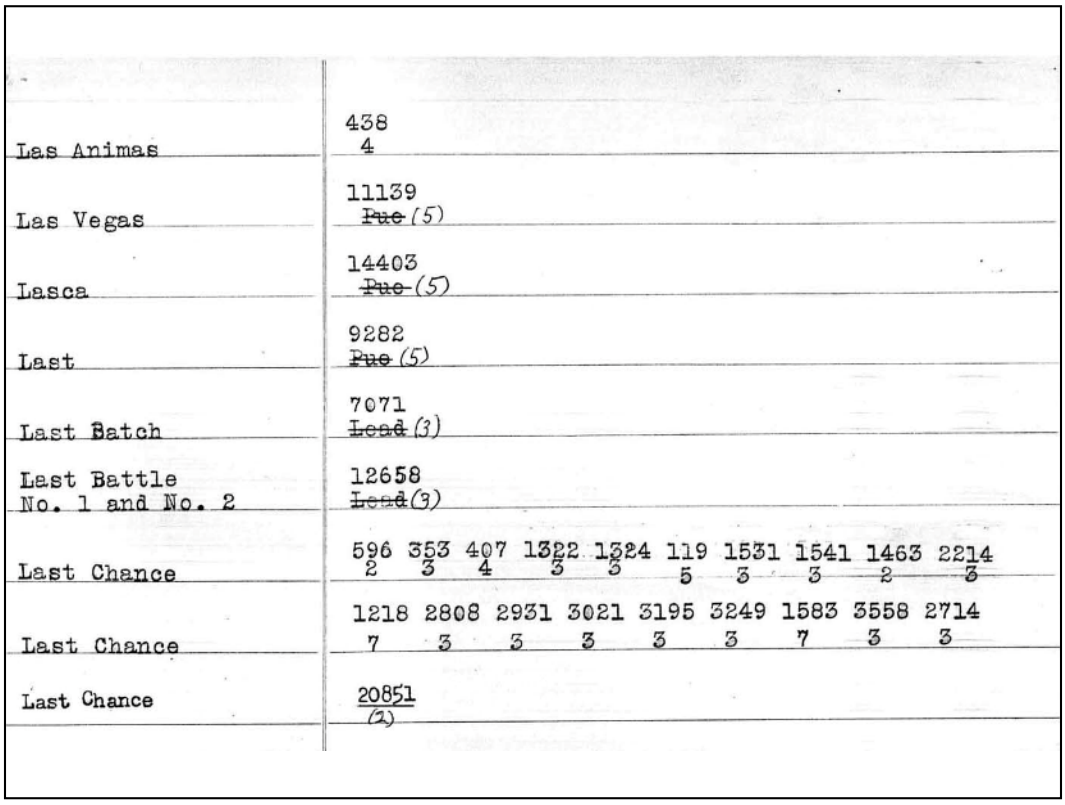
Land. Dist. Leadville , M. E. No.

Date of Patent 19 , No.

DATES ORDER	RETURNS FILED	RET'D. FOR CORRECTION	SURVEY APPROVED 7-26-84
9-13-83			ORIGINAL SURVEY Plat. Bk. No.
AM. ORDERS			Field Bk. No.
			AM. Plat. Bk. No.
			Field Bk. No.

Misc. MS on connecting sheet only

Another example of a mineral survey index card. The miscellaneous note, "MS on connecting sheet only" indicates that the mineral survey was only approved, not patented.



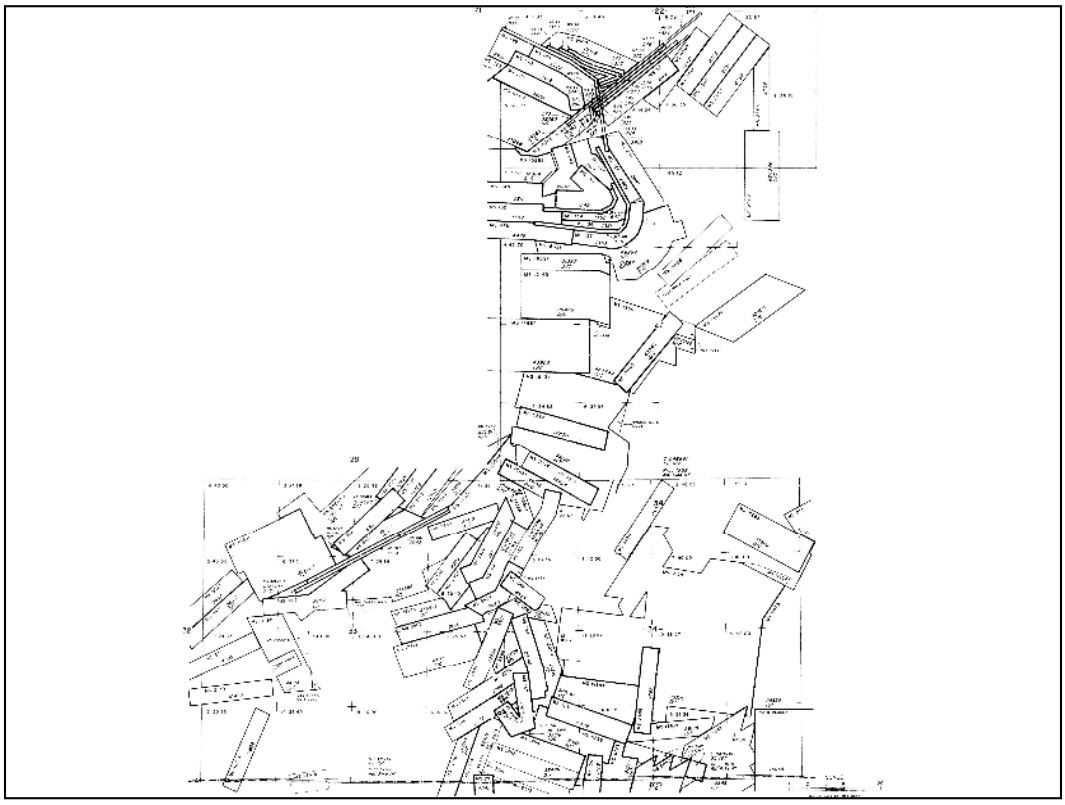
Las Animas	438 4
Las Vegas	11139 ~~Puc~~ (5)
Lasca	14403 ~~Puc~~ (5)
Last	9282 ~~Puc~~ (5)
Last Batch	7071 ~~Lead~~ (3)
Last Battle No. 1 and No. 2	12658 ~~Lead~~ (3)
Last Chance	596 353 407 1322 1324 119 1531 1541 1463 2214 2 3 4 3 3 5 3 3 2 3
Last Chance	1218 2808 2931 3021 3195 3249 1583 3558 2714 7 3 3 3 3 3 7 3 3
Last Chance	20851 (2)

A separate mineral index card system contains an alphabetical list by mineral survey claim names. For each unique claim name, the index lists all mineral survey numbers and mineral district numbers of mineral surveys that include the claim name.

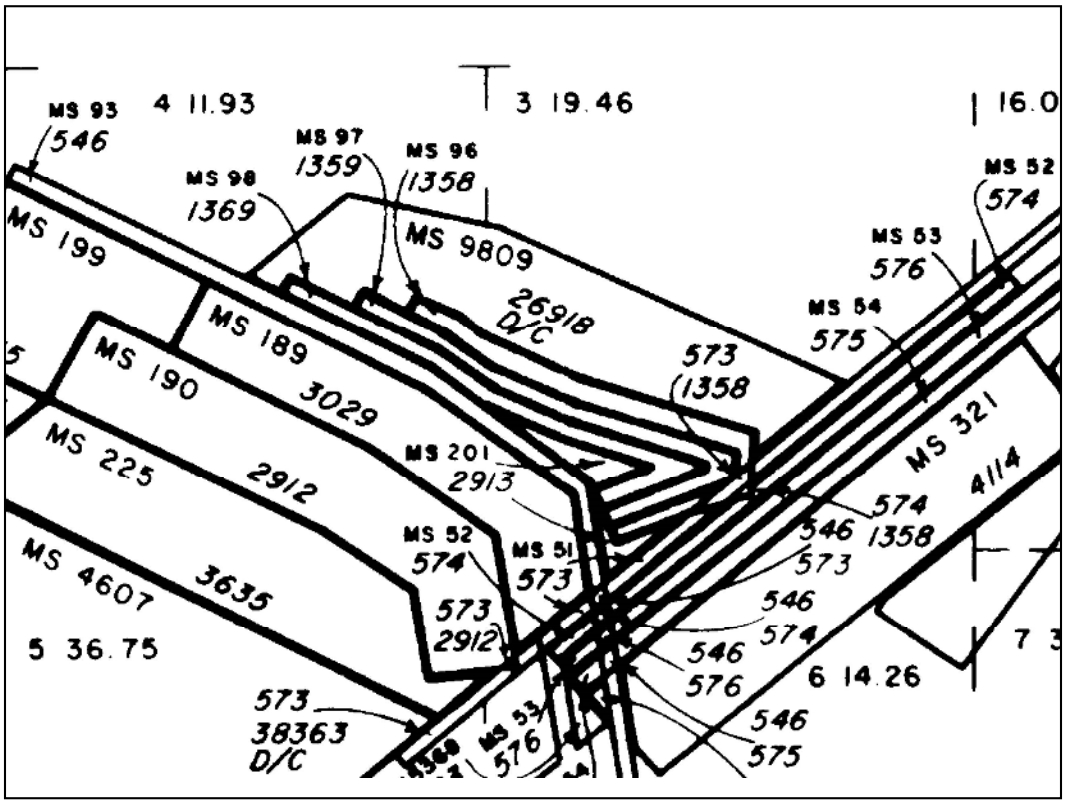
Note: A very common claim name is "Last Chance."

Other general information includes the Township Plat, Master Title Plat and any Supplemental Plats, and Connected or Connection Sheets. Master Title Plats show ownership, along with rights reserved by the Federal government such as ditches and canals. The MS number and patent number are included for each survey. If multiple claims are part of the same survey, the interior boundaries are [usually] not shown.

Connection Sheets are generated for each section that has multiple mineral surveys but does NOT show ownership in areas of conflict. The Connection Sheets include approved mineral surveys regardless of whether they are patented or not. In states like Arizona, Montana and Utah, multi-section diagrams are called Mining District Sheets.



An example of a supplemental Master Title Plat in an area with numerous patented mineral surveys (Secs. 22, 27, 33 & 34, T. 8 S., R. 78 W., 6th P.M.).



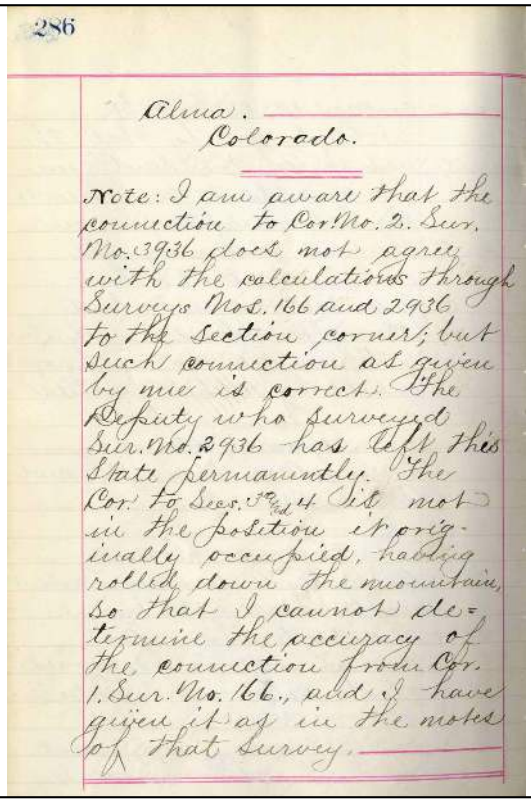
Close-up of the above supplemental MTP in Sec. 22 that shows the mineral survey numbers, patent numbers and lot acreages of the remaining public lands.

Note: These are early mineral surveys where many of the mineral surveys that overlap do not exclude the conflicting mineral survey(s). In other words, the patents do not include an "expressly excepting and excluding" clause. There are numerous examples on this supplemental MTP showing both patent numbers for the areas in conflict because there are no explicit exceptions in any of the patents.

In addition to pulling the Field Notes and Plat for the survey of interest, it is usually informative to also examine the notes and plats of nearby claims. This is especially true for surveys that were done after the survey you are researching. There is often valuable information in those field notes regarding whether corners were destroyed, material errors in prior surveys, etc. in the "Report" or "Other Corner Descriptions" section of the field notes.

In the official field notes of Sur. No. 3434, Mineral District No. 3, Colorado.

Surveyed on October 11, 1883 by Lee Hayes



286

Alma.
Colorado.

Note: I am aware that the connection to Cor No. 2. Sur. No. 2936 does not agree with the calculations through Surveys Nos. 166 and 2936 to the Section corner; but such connection as given by me is correct. The Deputy who surveyed Sur. No. 2936 has left this State permanently. The Cor. to Secs. 3rd 4 Sit. not in the position it originally occupied, having rolled down the mountain, so that I cannot determine the accuracy of the connection from Cor. 1. Sur. No. 166., and I have given it as in the notes of that Survey.

The official field notes of mineral surveys contain a plethora of information, much of it after the metes-and-bounds description at the beginning of the field notes. This is an example where the U.S. Deputy Mineral Surveyor included a separate report to explain why his connection to the PLSS section corner did not agree with a prior official survey.

Note: In this case, the township subdivision survey where this mineral survey is located was surveyed between Oct. 29 and Nov. 7, 1882. The sandstone for Secs. 3, 4, 33 & 34 that was described in the township subdivision field notes as being, "duly set & marked" was found on October 11, 1883 during the survey of the Cutoff Lode, Sur. No. 3434 to have, "rolled down the mountain." It likely was disturbed during the intervening winter by snow movement or by landslide activity. The section corner was established on June 9, 1873 in the upper portion of a scree slope.

Colorado GLO Digital Records Available on Portable Hard Drive

(1.) Rectangular survey field notes through Volume 597. Some early volumes and volumes 598 through 617 are available on the GLO Records web site.

(2.) Mineral survey field notes (700 volumes are scanned; 86 volumes remain to be scanned).

(3.) Colorado mineral survey plats and connected sheets not available on the GLO Records web site.

(4.) Miscellaneous finding aids & search strategies.

The BLM Andy Senti Public Lands Information Center has for sale a 1 TB portable hard drive that contains the above information (call (303) 239-3600 for availability and pricing).

GLO Records Web Site

https://glorecords.blm.gov/default.aspx

1. Land patent records
2. Survey plats and field notes
3. Land status records
4. Control Document Index records
5. Tract Books
6. Web services and bulk data
7. Reference materials and surveying manuals

LR2000 reports and status serial register pages

https://reports.blm.gov/reports.cfm?application=LR2000

RECORDS AT THE NATIONAL ARCHIVES

The regional National Archives house many original maps, manuscripts and documents of value to the land surveyor. The U. S. Bureau of Land Management records are catalogued under Record Group 49. For the Denver Archives there is a catalog for each state entitled, "Preliminary Inventory of the Records of the Bureau of Land Management - <*state name*>".

The Rocky Mountain Region (includes Colorado, Montana, New Mexico, Utah and Wyoming). Information about the National Archives at Denver is available on their web site.

https://www.archives.gov/denver

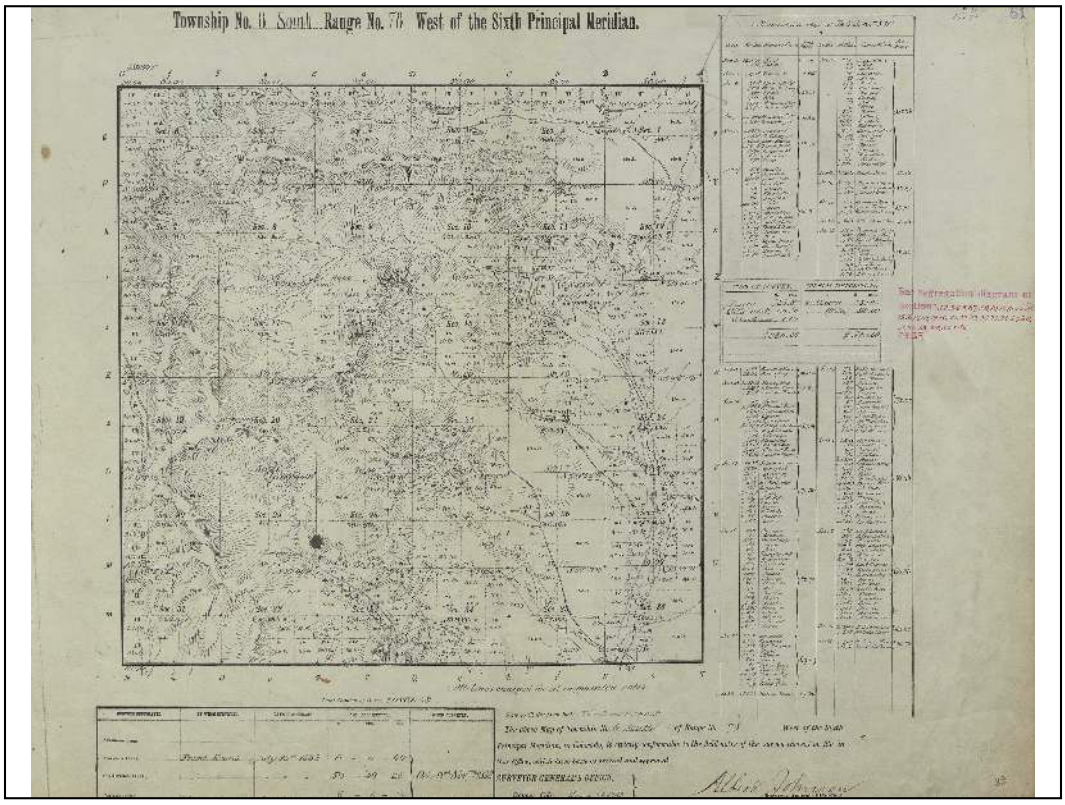
RECORDS AT THE NATIONAL ARCHIVES

Land Entry Case File ordering information

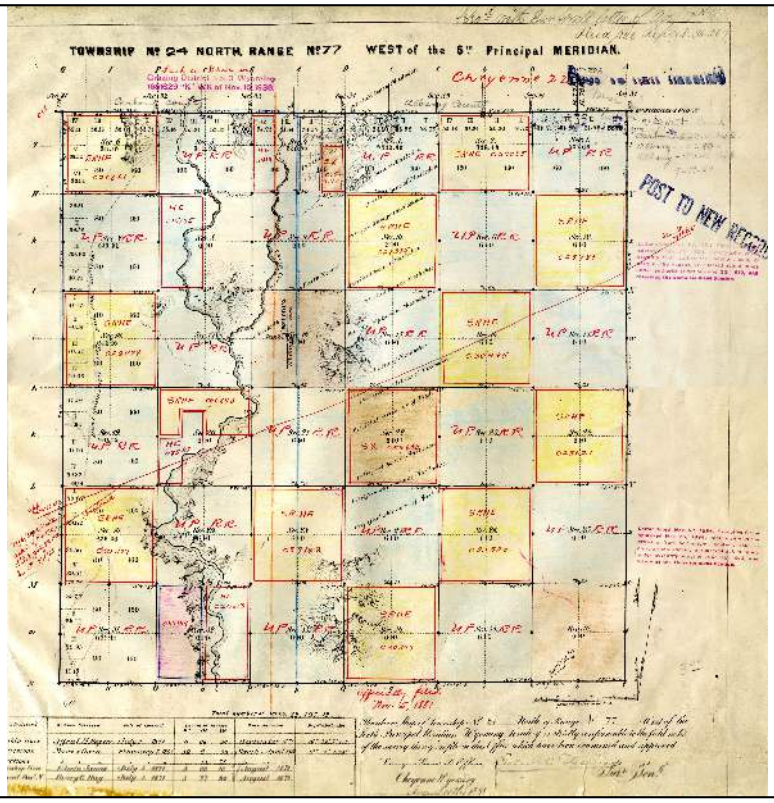
https://www.archives.gov/research/land

National Archives at Denver, Colorado

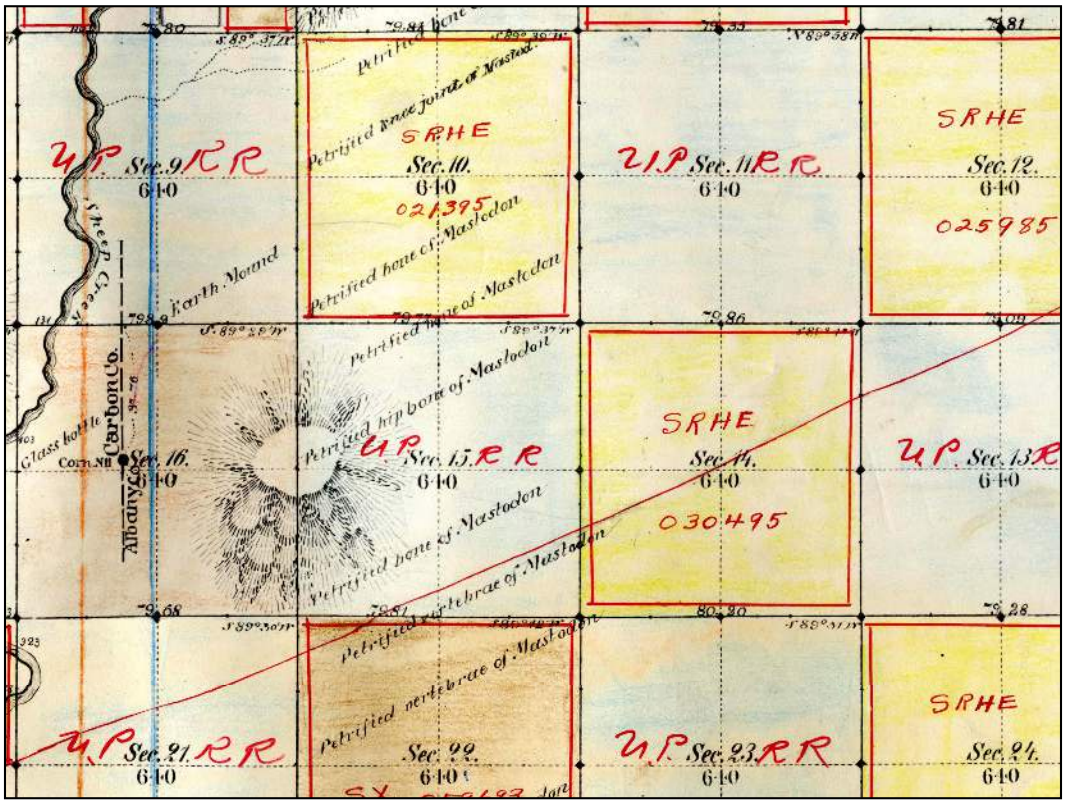
17101 Huron Street
Broomfield, CO 80023
Phone: 303-604-4740



An example of the original township plat for T. 8 S., R. 78 W., 6th P.M. that was originally bound in a plat book at the Colorado Surveyor's General office.

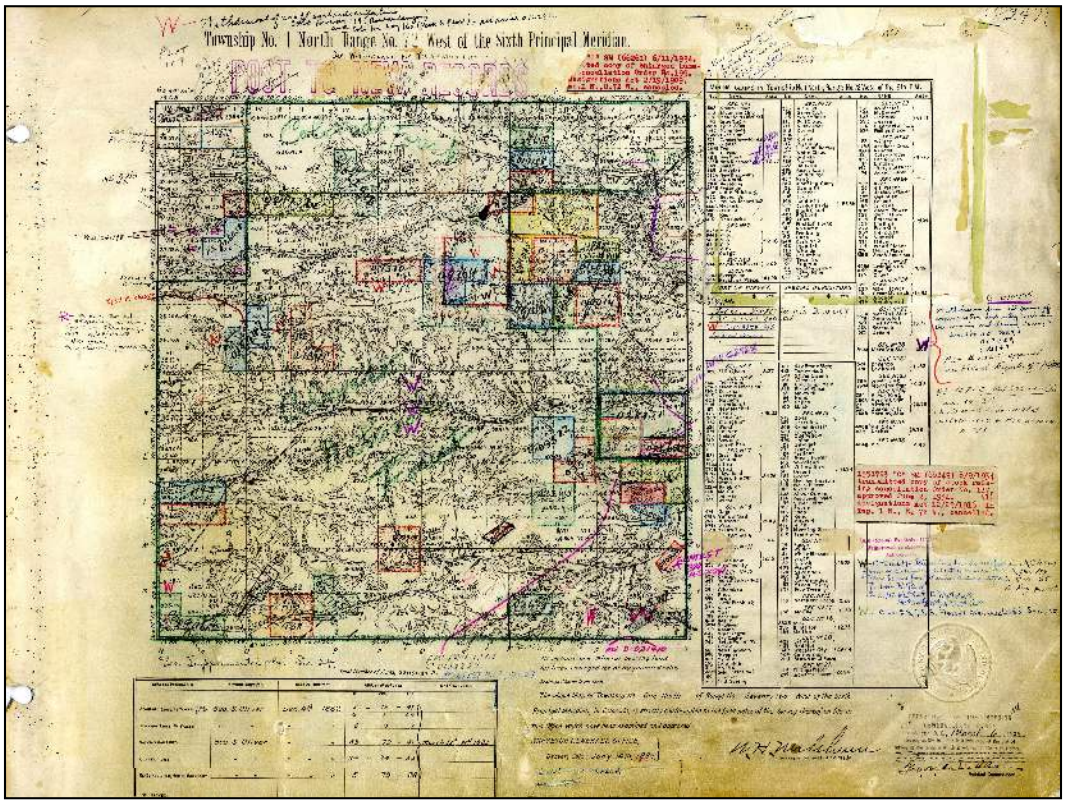


An example of a triplicate township plat, T. 24 N., R. 77 W., 6th P.M., Wyoming that shows the land disposition in this portion of Albany and Carbon counties. This triplicate plat was located at the local Land Office and shows the land disposition along the transcontinental railroad with every other section being granted to the Union Pacific Railroad (blue shading). The land disposed of by the Stock Raising Homestead Entry Act, December 29, 1916 (yellow shading) only granted patent to the surficial estate.

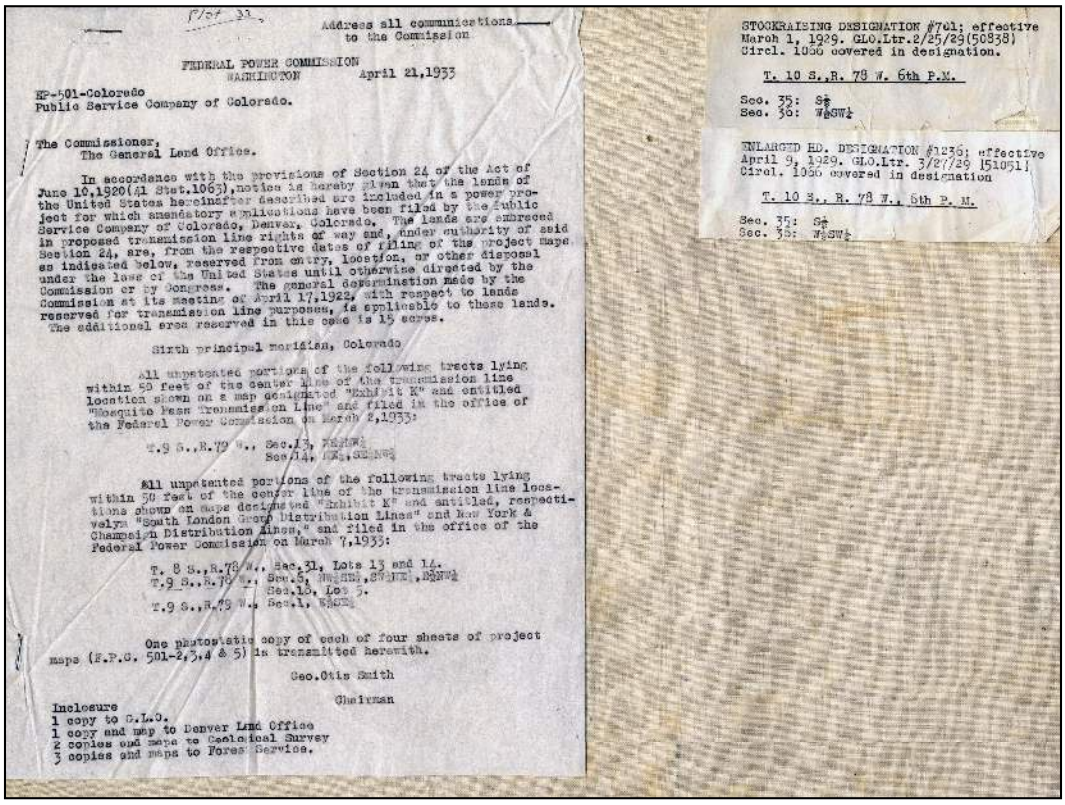


Close-up of the triplicate township plat, showing several corners were monumented by fossilized mastodon bones. U.S. Deputy Surveyor William O. Owen had difficulty finding stone in the area, but luckily found these fossils nearby. In fact, the fossils were from a sauropod dinosaur not a mastodon.

(From: Drucker, James. (2004). Stones and Bones set by William O. Owen. Surveying and Land Information Science. 64. 23-27.)



An example of a triplicate township plat of T. 1 N., R. 72 W., 6th P.M., northwest of Boulder, Colorado showing various land disposals, rights-of-way (both roads and electrical distribution lines), Colorado National Forest withdrawal, and lands withdrawn from mineral entry and reserved for picnic areas, etc.



Address all communications to the Commission

FEDERAL POWER COMMISSION
WASHINGTON April 21,1933

EP-501-Colorado
Public Service Company of Colorado.

The Commissioner,
The General Land Office.

In accordance with the provisions of Section 24 of the Act of June 10,1920(41 Stat.1063),notice is hereby given that the lands of the United States hereinafter described are included in a power project for which amendatory applications have been filed by the Public Service Company of Colorado, Denver, Colorado. The lands are embraced in proposed transmission line rights of way and, under authority of said Section 24, are, from the respective dates of filing of the project maps as indicated below, reserved from entry, location, or other disposal under the laws of the United States until otherwise directed by the Commission or by Congress. The general determination made by the Commission at its meeting of April 17,1922, with respect to lands reserved for transmission line purposes, is applicable to these lands. The additional area reserved in this case is 15 acres.

Sixth principal meridian, Colorado

All unpatented portions of the following tracts lying within 50 feet of the center line of the transmission line location shown on a map designated "Exhibit K" and entitled "Mosquito Pass Transmission Line" and filed in the office of the Federal Power Commission on March 2,1933:

T.9 S.,R.79 W., Sec.13, [illegible]
Sec.14, [illegible]

All unpatented portions of the following tracts lying within 50 feet of the center line of the transmission line locations shown on maps designated "Exhibit K" and entitled, respectively "South London Coast Distribution Lines" and New York & Welyn "South London Coast Distribution Lines," and filed in the office of the Champaign Distribution Lines," and filed in the office of the Federal Power Commission on March 7,1933:

T. 8 S.,R.78 W., Sec.31, Lots 13 and 14.
T.9 S.,R.78 W., Sec.5, [illegible]
Sec.10, Lot 5.
T.9 S.,R.79 W., Sec.1, [illegible]

One photostatic copy of each of four sheets of project maps (F.P.C. 501-2,3,4 & 5) is transmitted herewith.

Geo.Otis Smith
Chairman

Inclosure
1 copy to C.L.O.
1 copy and map to Denver Land Office
2 copies and maps to Geological Survey
3 copies and maps to Forest Service.

STOCKRAISING DESIGNATION #701; effective March 1, 1929. GLO.Ltr.2/25/29(50838) Circl. 1036 covered in designation.

T. 10 S.,R. 78 W. 6th P.M.

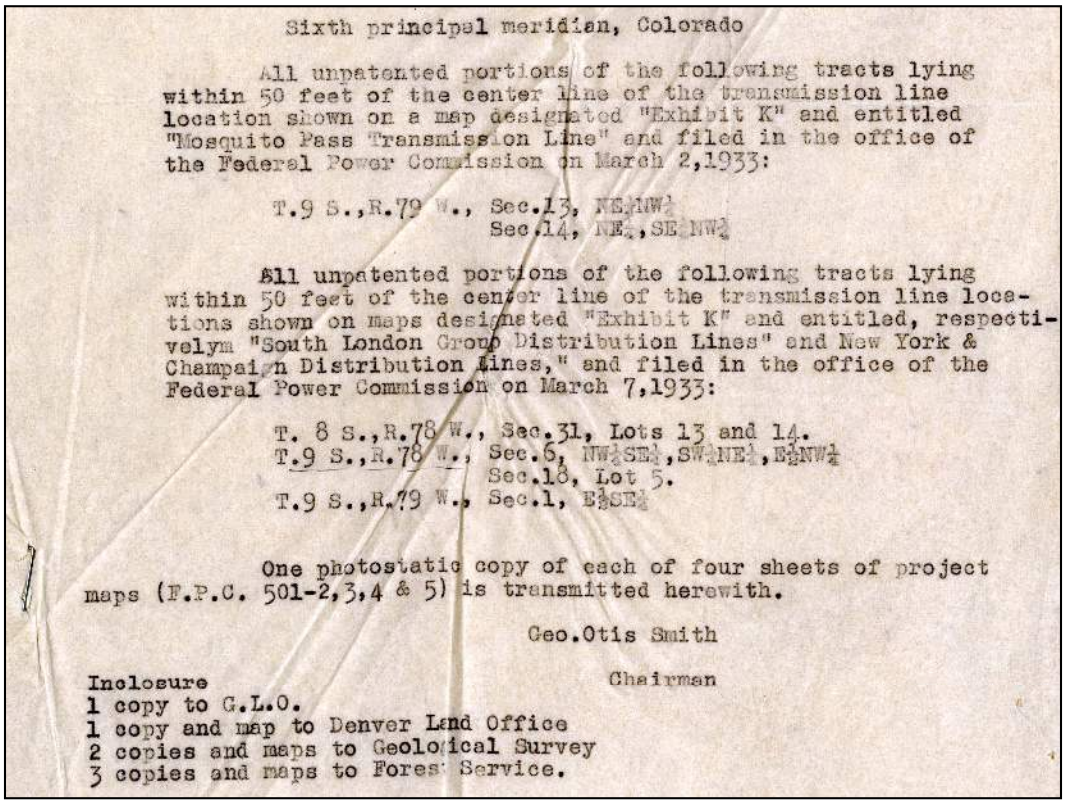
Sec. 35: S½
Sec. 36: W½SW¼

ENLARGED HD. DESIGNATION #1236; effective April 9, 1929. GLO.Ltr. 3/27/29 [510511] Circl. 1036 covered in designation

T. 10 S., R. 78 W., 6th P. M.

Sec. 35: S½
Sec. 36: W½SW¼

A triplicate township plat, T. 9 S., R. 78 W., 6th P.M. with a letter and notes on the back side. The letter is from the Federal Power Commission granting a 100-foot right-of-way for three electrical distribution lines.



Sixth principal meridian, Colorado

All unpatented portions of the following tracts lying within 50 feet of the center line of the transmission line location shown on a map designated "Exhibit K" and entitled "Mosquito Pass Transmission Line" and filed in the office of the Federal Power Commission on March 2,1933:

T.9 S.,R.79 W., Sec.13, NE¼NW¼
Sec.14, NE¼,SE¼NW¼

All unpatented portions of the following tracts lying within 50 feet of the center line of the transmission line locations shown on maps designated "Exhibit K" and entitled, respectivelym "South London Group Distribution Lines" and New York & Champaign Distribution Lines," and filed in the office of the Federal Power Commission on March 7,1933:

T. 8 S.,R.78 W., Sec.31, Lots 13 and 14.
T.9 S.,R.78 W., Sec.6, NW¼SE¼,SW¼NE¼,E½NW¼
Sec.18, Lot 5.
T.9 S.,R.79 W., Sec.1, E½SE¼

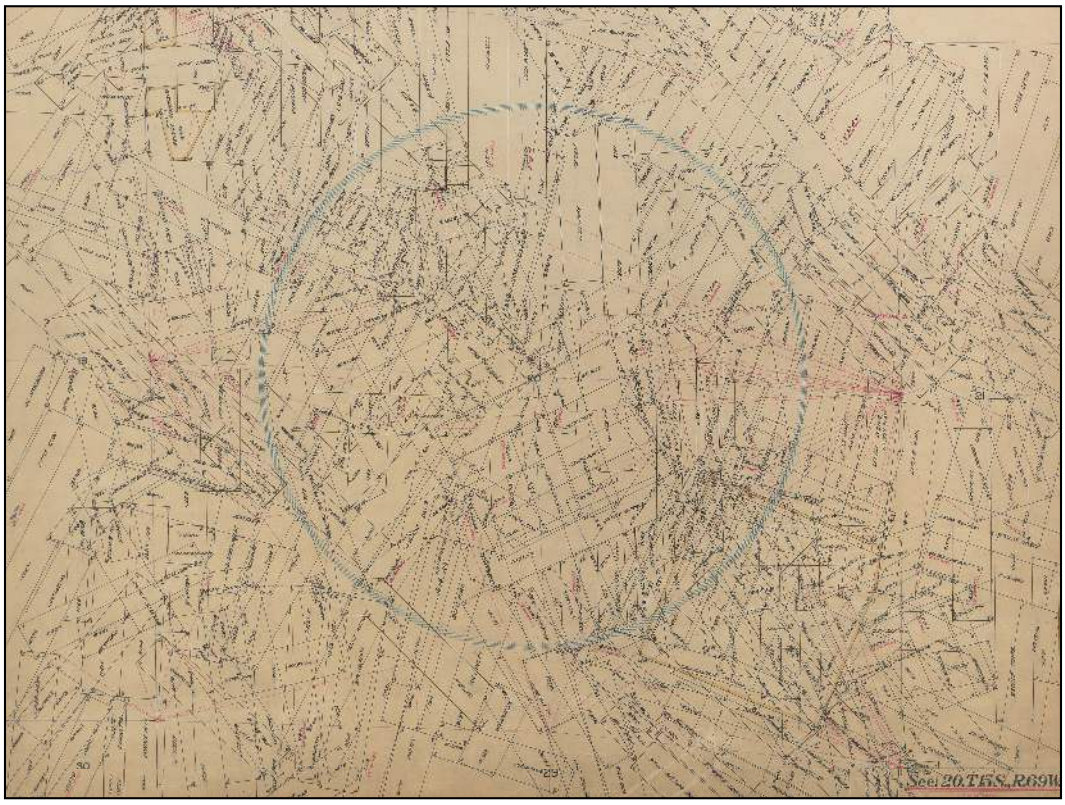
One photostatic copy of each of four sheets of project maps (F.P.C. 501-2,3,4 & 5) is transmitted herewith.

Geo.Otis Smith

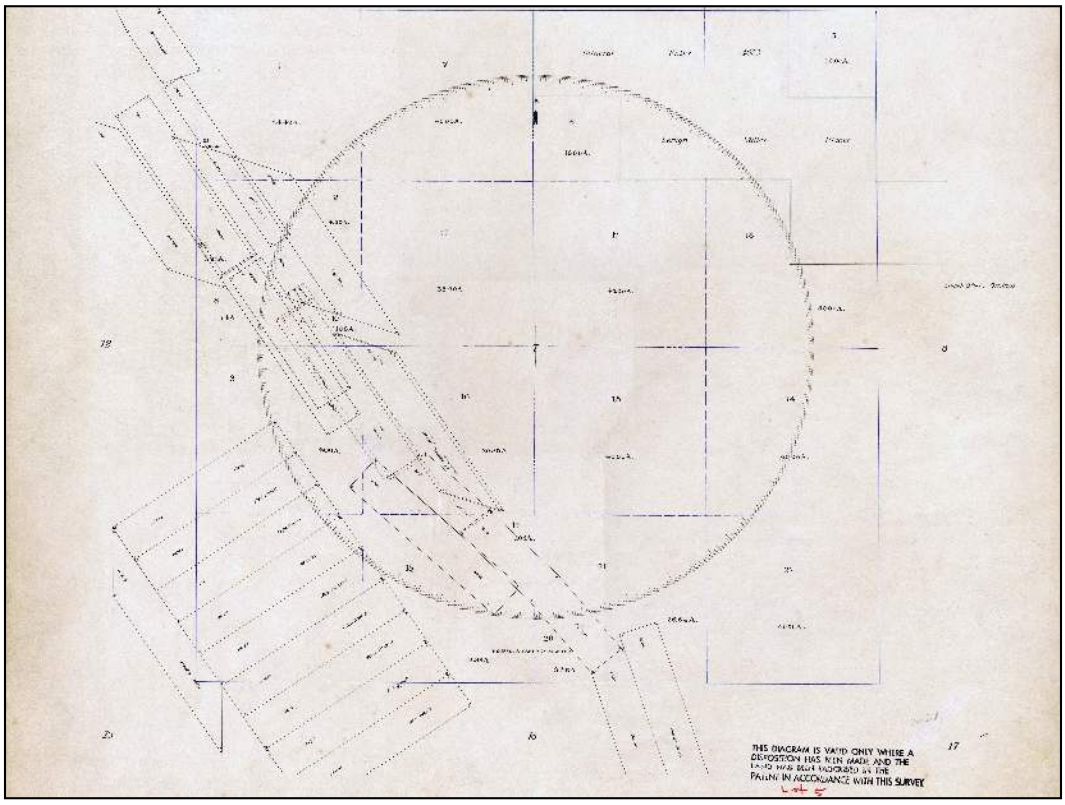
Chairman

Inclosure
1 copy to G.L.O.
1 copy and map to Denver Land Office
2 copies and maps to Geological Survey
3 copies and maps to Forest Service.

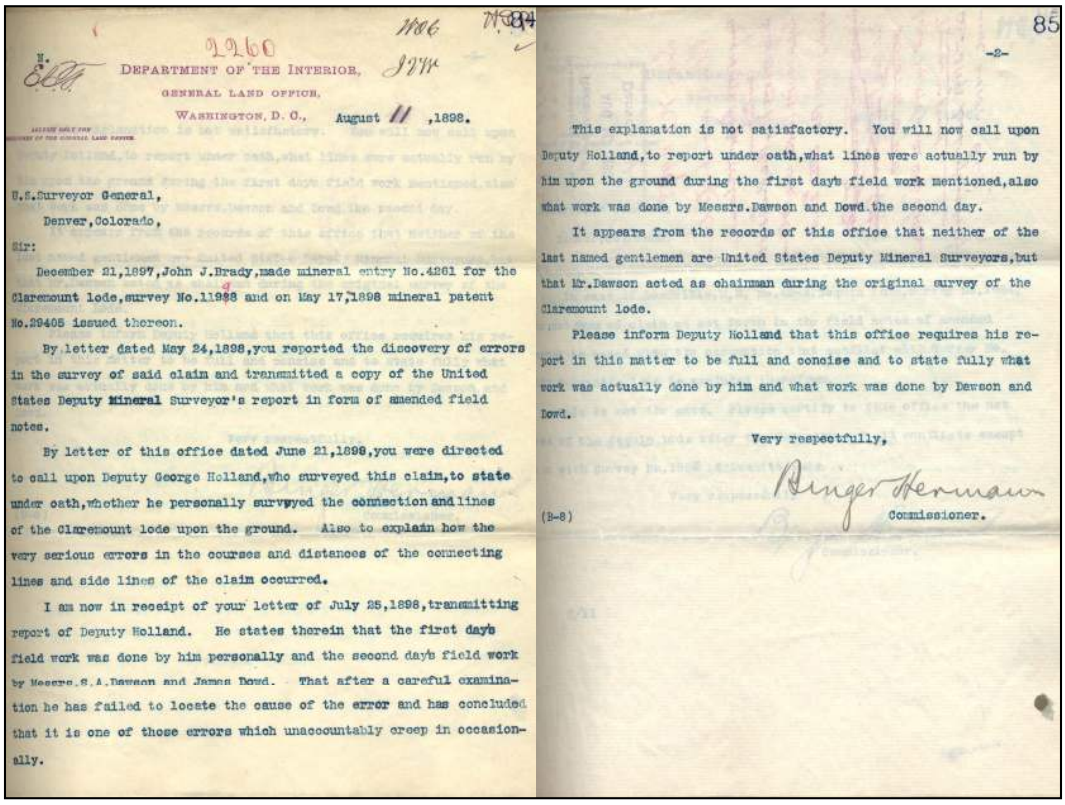
Details of a Federal Power Commission letter describing three electrical distribution lines all with 100-foot rights-of-way.



An example of a connected sheet, Sec. 20, T. 15 S., R. 69 W., 6th P.M. in the Bull Hill area southeast of Cripple Creek, Colorado.



An example of a segregation diagram, Sec. 7, T. 9 S., R. 78 W., 6th P.M. showing an idealized section and the patent description positions of the lode claims along the London Fault, which is west of Alma, Colorado.



DEPARTMENT OF THE INTERIOR,
GENERAL LAND OFFICE,
WASHINGTON, D. C., August 11, 1898.

U.S.Surveyor General,
Denver,Colorado,
Sir:

December 21,1897,John J.Brady,made mineral entry No.4261 for the Claremount lode,survey No.11988 and on May 17,1898 mineral patent No.29405 issued thereon.

By letter dated May 24,1898,you reported the discovery of errors in the survey of said claim and transmitted a copy of the United States Deputy Mineral Surveyor's report in form of amended field notes.

By letter of this office dated June 21,1898,you were directed to call upon Deputy George Holland,who surveyed this claim,to state under oath,whether he personally survyyed the connection and lines of the Claremount lode upon the ground. Also to explain how the very serious errors in the courses and distances of the connecting lines and side lines of the claim occurred.

I am now in receipt of your letter of July 25,1898,transmitting report of Deputy Holland. He states therein that the first day's field work was done by him personally and the second day's field work by Messrs.S.A.Dawson and James Dowd. That after a careful examination he has failed to locate the cause of the error and has concluded that it is one of those errors which unaccountably creep in occasionally.

85

-2-

This explanation is not satisfactory. You will now call upon Deputy Holland,to report under oath,what lines were actually run by him upon the ground during the first days field work mentioned,also what work was done by Messrs.Dawson and Dowd the second day.

It appears from the records of this office that neither of the last named gentlemen are United States Deputy Mineral Surveyors,but that Mr.Dawson acted as chainman during the original survey of the Claremount lode.

Please inform Deputy Holland that this office requires his report in this matter to be full and concise and to state fully what work was actually done by him and what work was done by Dawson and Dowd.

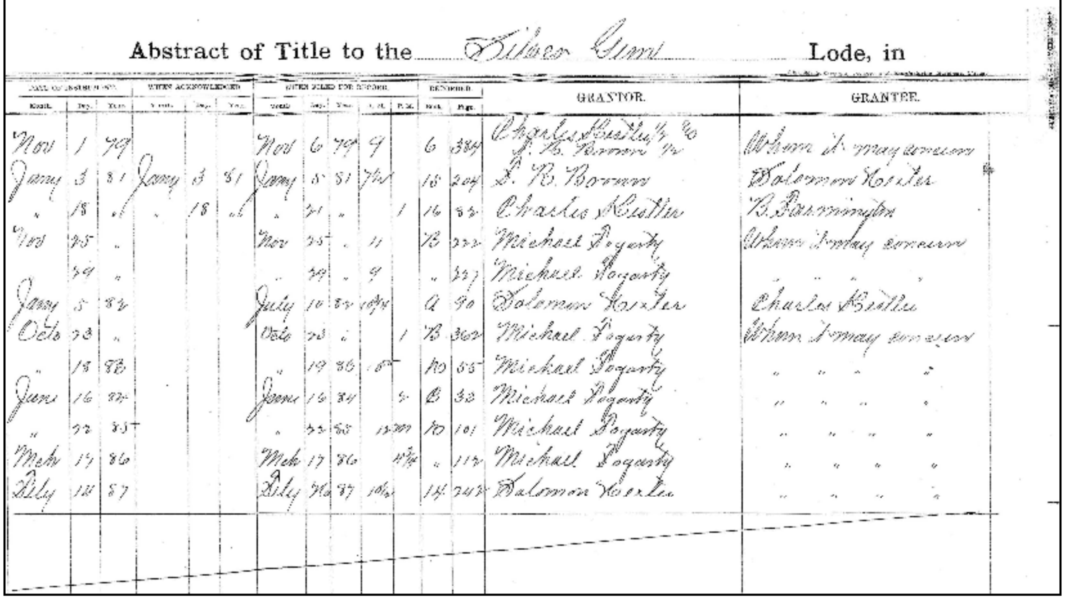
Very respectfully,

(B-8) Binger Hermann
Commissioner.

An example of a General Land Office Departmental Letter "N" to the U.S. Surveyor General in Colorado.

Note: Letter "N" correspondence is from the Mineral Division of the Commissioner's office of the GLO in Washington, D.C. This letter is directed at U.S. Deputy Mineral Surveyor, George Holland who is being chastised for allowing others to survey a portion of the mineral survey that only he was authorized to conduct. By regulations and instructions, mineral surveyors were required to personally conduct the survey in the field.

Patent Package from National Archives
Abstract of Title



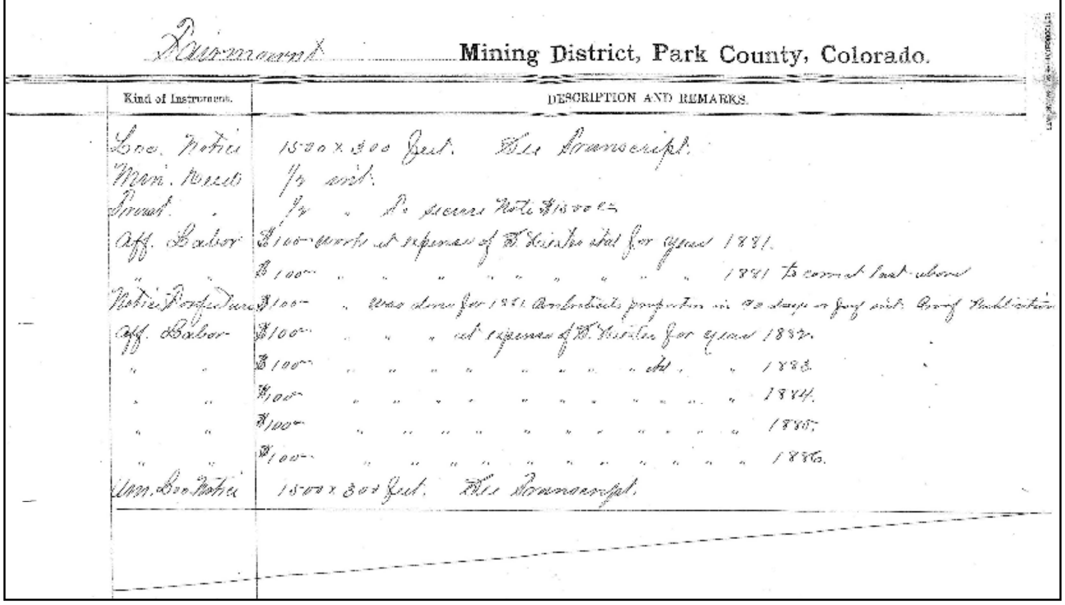
Abstract of Title to the Silver Gem Lode, in

Date of Instrument			When Acknowledged			When Filed for Record					Recorded		Grantor.	Grantee.
Month	Day	Year	Month	Day	Year	Month	Day	Year	A.M.	P.M.	Book	Page		
Nov	1	79				Nov	6	79	9		6	384	Charles Keitley ½ & S. B. Brown ½	Whom it may concern
Jany	3	81	Jany	3	81	Jany	5	81	7½		18	204	S. B. Brown	Solomon Hostler
"	18	"	"	18	"	"	21	"		1	16	82	Charles Keitler	B. Barrington
Nov	25	"				Nov	25	"	11		13	222	Michael Fogarty	Whom it may concern
	29	"				"	29	"	9		"	227	Michael Fogarty	" " " "
Jany	5	82				July	10	82	10½		A	90	Solomon Hostler	Charles Keitler
Octo	23	"				Octo	23	"		1	13	362	Michael Fogarty	Whom it may concern
"	18	83				"	19	83	10		10	55	Michael Fogarty	" " " "
June	16	84				June	16	84		5	B	32	Michael Fogarty	" " " "
"	22	85				"	22	85	11.30		10	101	Michael Fogarty	" " " "
Mch	17	86				Mch	17	86		4¾	"	112	Michael Fogarty	" " " "
July	12	87				July	12	87	10½		14	242	Solomon Hostler	" " " "

An example of the left page of the abstract of title for the Silver Gem Lode that was part of the patent application for Sur. No. 4617. The papers included in the patent application can be ordered from the National Archives via an online form. The National Archives refers to the patent application as the Land Entry Case File.

https://www.archives.gov/research/land

Patent Package from National Archives
Abstract of Title

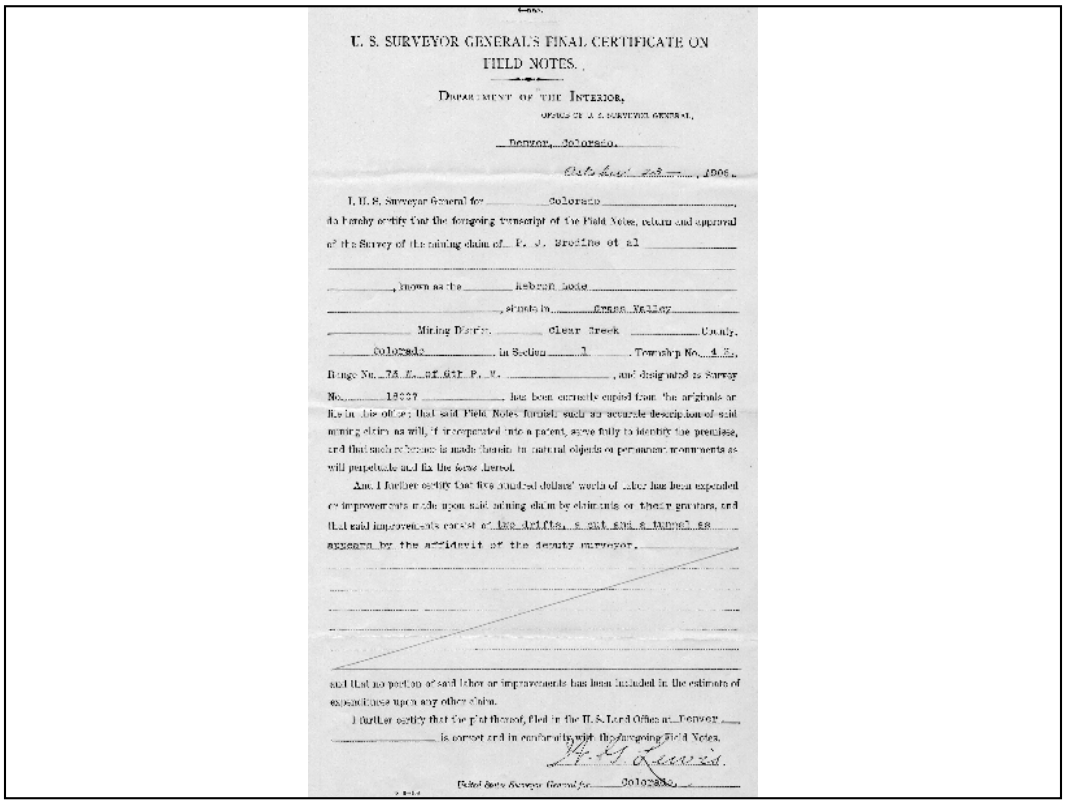


Fairmount Mining District, Park County, Colorado.

Kind of Instrument.	Description and Remarks.
Loc. Notice	1500 x 300 feet. [illegible]
Min. Deed	1/2 int.
Trust.	1/2 " to secure Note $1500 [illegible]
Aff. Labor	$100 work at expense of [illegible] for year 1881.
" "	$100 [illegible] 1881 to correct last above
Notice Forfeiture	$100 " was done for 1881 [illegible]
Aff. Labor	$100 [illegible] at expense of [illegible] for year 1882.
" "	$100 [illegible] 1883.
" "	$100 [illegible] 1884.
" "	$100 [illegible] 1885.
" "	$100 [illegible] 1886.
Am. Loc. Notice	1500 x 300 feet. [illegible]

An example of the right page of the abstract of title of the Silver Gem Lode that was part of the patent application for Sur. No. 4617. The papers included in the patent application can be ordered from the National Archives via an online form. The National Archives refers to the patent application as the Land Entry Case File.

https://www.archives.gov/research/land



U. S. SURVEYOR GENERAL'S FINAL CERTIFICATE ON FIELD NOTES.

DEPARTMENT OF THE INTERIOR,
OFFICE OF U. S. SURVEYOR GENERAL,

Denver, Colorado.

Oct 2nd, 1906.

I, U. S. Surveyor General for Colorado,
do hereby certify that the foregoing transcript of the Field Notes, return and approval of the Survey of the mining claim of P. J. Brosius et al
known as the Hebron Lode
situate in Swan Valley
Mining District, Clear Creek County,
Colorado, in Section 1, Township No. 4 S.,
Range No. 78 W. of 6th P. M., and designated as Survey
No. 13037, has been correctly copied from the originals on file in this office; that said Field Notes furnish such an accurate description of said mining claim as will, if incorporated into a patent, serve fully to identify the premises, and that such reference is made therein to natural objects or permanent monuments as will perpetuate and fix the same thereof.

And I further certify that five hundred dollars' worth of labor has been expended or improvements made upon said mining claim by claimants or their grantors, and that said improvements consist of Two Adits, 6 cut and 6 tunnel 68 aggregate by the affidavit of the deputy surveyor.

and that no portion of said labor or improvements has been included in the estimate of expenditures upon any other claim.

I further certify that the plat thereof, filed in the U. S. Land Office at Denver is correct and in conformity with the foregoing Field Notes.

H. G. Reed.

United States Surveyor General for Colorado.

An example of a "US. Surveyor General's Final Certificate On Field Notes." The U.S. Surveyor's General office after approval of the mineral survey would prepare a transcription of the official field notes for the claimant. The claimant would include the transcribed field notes in the application for patent. This form certified that the transcription was a true and accurate copy of the approved field notes.

Note: On occasion, the metes-and-bounds description in the official field notes will not be the same as in the patent. The transcribed copy of the field notes that the patent was based upon can be obtained from the National Archives by ordering the Land Entry Case File for the mineral survey and used to isolate the source of the scrivener's error.