rapidly and cheaply. The H. Fine Crusher will do this work. It takes the place of expensive big rolls and often prepares ore, without further crushing, fine enough for coarse concentration or cyaniding. In any event, it is the greatest and best intermediate machine between the coarse breaker and the pulverizer.

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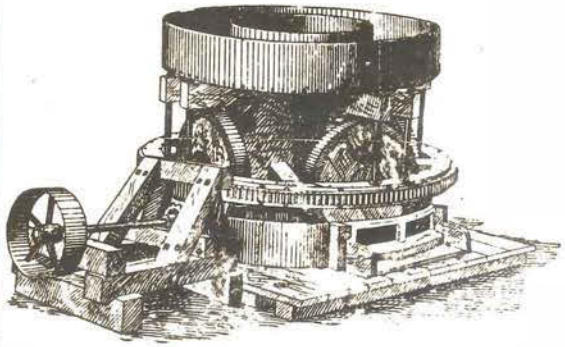

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Southern Oregon Placer Conditions.

Written for the MINING AND SCIENTIFIC PRESS by
THEO. F. VAN WAGENEN.

The hydraulic mines of the placer region of northern California and southwestern Oregon, near Galice in Josephine county in the latter State, are deserving of notice. The discovery of the extensive gold fields of this vicinity, extruding through the counties of Siskiyou, Trinity and Humboldt in California and Josephine and Jackson counties in Oregon followed quickly upon the first rush into California in 1849. As early as 1850 gold was found in Althouse creek, one of the tributaries of the Rogue river, and for several years, while the tide of discovery was running high, the output of gold rivaled that of many parts of the more extensive auriferous region in central California. But the valleys of the Klamath and Rogue were carved out upon a different plan from those of the lower Sacramento and San Joaquin, the result of which was the deposit of much less alluvium along the former than the latter. In consequence, the primitive methods of mining in those days yielded large profits but a short time in the northern districts, and by 1855 the bulk of the roving population had drifted northward to the Columbia and Frazer rivers and eastward towards Idaho and Montana, where later equally rich discoveries were made.

The geological situation in the region under consideration is that of what is called by the miners an ancient river channel, but which actually consists of a deposit of small breccia and soil from 50 to 150 feet in depth and from 500 to 2500 feet wide, through all of which gold is disseminated to such an extent that its yield when the channel is worked in large quantities averages between 15 and 20 cents per cubic yard with great uniformity.

As might be expected from its soft nature, this gold-bearing channel has been very extensively eroded and washed away. Wherever crossed by a river, a gulch or a ravine it is totally gone, while its golden contents have been caught and concentrated in some part of the newer channels below, or swept westward to the ocean, there to be thrown up on the beach and form the profitless diggings of the gold coast. Only fragments remain here and there; yet these fragments may be and have been traced and found by the prospector in his tramps across the country, and, whenever extensive enough to offer a commercial basis for a mining enterprise, have been taken up and are being worked.

In the vicinity of Galice, south of the point where the Rogue river has cut its way through the dyke to the canyon, the gold-bearing deposit, crossing the gorge diagonally, rests upon a slate bedrock 50 feet above the surface of the water.

The word "channel" does not convey a correct idea of the nature of these deposits. Although the slate bedrock appears to have a fairly uniform slope of about 15 feet per mile, within the limits of this property, at least, from south to north, and although its surface is worn smooth in the same direction, as if by the action of moving gravel, yet the mass of the material is in no sense a water deposit, nor is any and breccia which constitutes its mass; but the gold appears to have come in a state of solution from the diorite dyke to the west. The auriferous nature of this dyke, which bears the name of the "Old Yank lode," has long been known to the miners of the vicinity. Again and again it has been located by enthusiastic prospectors and exploited by shrewd stock speculators, but I can not learn that a dividend-paying era has been attained anywhere along its length.

In the Alexander & Bent property, herewith illustrated, of the 750 odd acres nominally included within its patented lines, about half have been washed away by the numerous ravines and gulches that cross it, and fifteen to twenty acres of the various blocks between these have been washed since it was first located by the various owners. As nearly as can be learned, the yield under operation has ranged from $5000 to $10,000 per acre, according to the depth of the banks. This corresponds to a production of about 15 cents per cubic yard. The costs have varied from 3 to 5 cents or more per yard, according to conditions. When well equipped, the first-named figure should be the maximum.

Water for operation is furnished by Galice creek. Fifteen miles of ditches collected it, but only eight miles are in use. The available watershed above the levees of these is about thirty square miles. Over that area the annual precipitation averages 40 inches, so that quite 4000 inches of water is available. The season for working is about eight months.

At the present time the mine is only partially equipped. Not over 2000 yards per twenty-four hours is being washed. The principal operations are

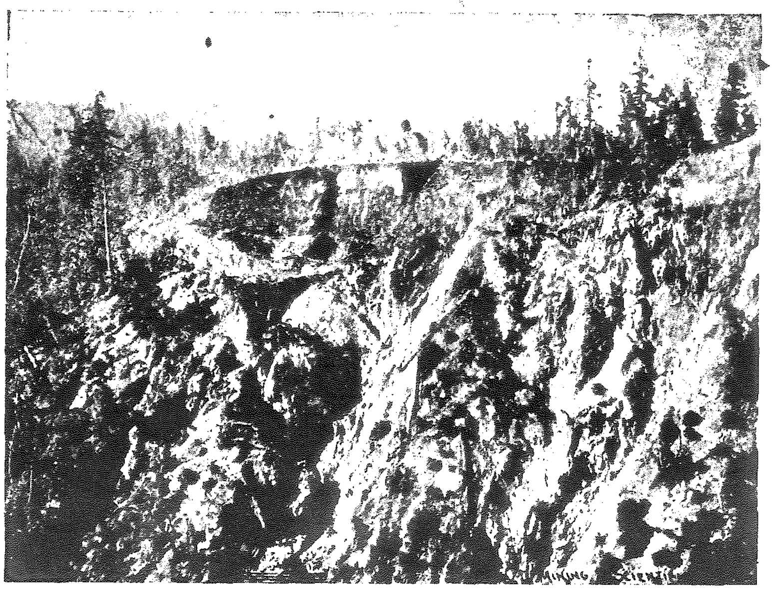

Fig. 1.—Working Pit, A. and B. Placer Mine, Josephine Co., Oregon.

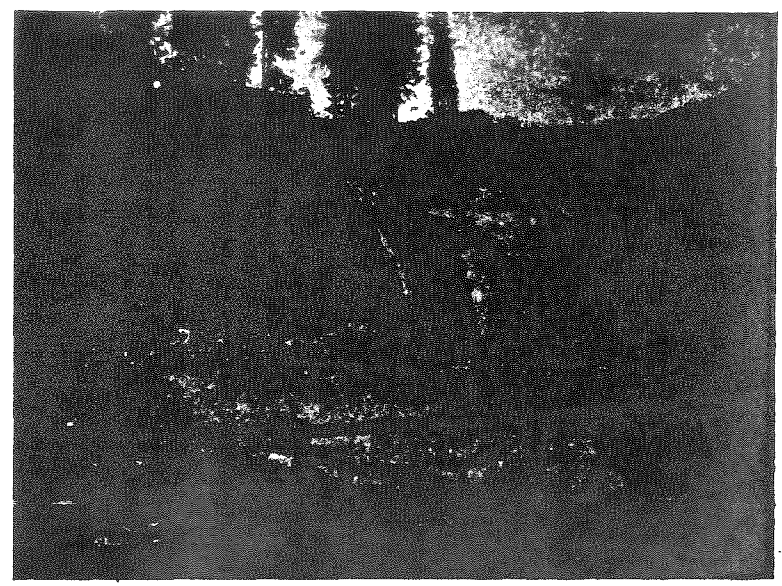

Fig. 2.—Close View of Banks in Working Pit, A. and B. Mine, Josephine Co., Oregon.

which all the ore is sent to the 10th level, there loaded into cars and trammed to the mill. The mine timbers are unloaded and framed at tunnel No. 5 and distributed by gravity to the stopes below.

The ore is stoped out in immense chambers, many of which are from 40 to 100 feet wide and 80 to 200 feet long, well timbered up in square sets and as the work proceeds upward the space between sets is filled with waste. Thus the work goes on from level to level and horizontally on each level, in the course of which are seen some excellent specimens of mine timbering. An illustration of the system employed is seen by the general superintendent's mine chart, on which is recorded the assay value of the ore from every block or square set on any level or stope in the mine. From forty to fifty assays are made each day from ores collected by the sampler, from which the daily record is made up.

As is generally known the mill is a cyanide reduction plant, in which the ores pass through a coarse crusher, thence through Griffin mills, of which there are thirteen in number, and by which the material is ground to from 60 to 80-mesh. It is carried by conveyors and elevators to the pulp tanks and leaching vats. The infinitesimally fine dust particles are blown into five collectors, caught in the collector stockings, from which the air escapes and the dust is thrown down to a conveyor, which carries it to the cars and thence to the leaching tanks. The dust thus saved contains a high percentage of value. The mill crushes about 300 tons of ore per day. The leaching tank capacity is 9000 tons per month and about 3200 tons of material are constantly in course of treatment through the mill. Two large vacuum tanks serve their purpose in drawing the liquid from the leaching tanks to the precipitating room, where zinc dust is used instead of zinc shavings. The equipment for reducing the auro-cyanides to bullion is quite complete, and once a month the gold bars are shipped in a burglar-proof safe to Salt Lake City.

The power plant consists of five boilers; a 500 H. P. mill engine with high and low pressure cylinders, 22 and 34-inch diameter respectively, with 48-inch stroke; a crusher engine, 14x36 inches; a 12x36-inch dynamo engine which operates a 60 K.W., 500-volt dynamo, by which the mine hoist and stationary motors are operated; besides there is a seven-drill compressor and power for a well-equipped machine shop. As a matter of economy the exhaust steam from the engines is condensed and used to heat the boiler water in a Green economizer, the latter cleansing the water and precipitating the lime and other matter in course of development, having about 1200 feet of tunnel work. The vein is said to have been encountered, showing ore that assays well.

The Gold Eagle, belonging to Nesbitt & Hing, comprises two claims, has several hundred feet of development on the vein, said to be a continuation of that of the April Fool. Recent assays showed values of over $80 gold and 200 ounces silver to the ton. The property is bonded to Sanford and others for $40,000, time limit being May 20, 1900.

The Magnolia, north of the DeLamar, has considerable of development and has made some shipments. T. R. Jones and others are interested in the group.

The Little Emma and Hunter claims, four miles north of town, belonging to Roeder, Conway & Thompson, has also been considerably developed, disclosing a fair showing of ore, carrying gold, silver, lead and copper.

The Hercules group, belonging to W. D. Maynard, is well located and has good surface showings.

The Sunbeam, a north extension of the De Lamar, is owned by Dooley, Sexton, McDonough & Brocklestich and has a good showing in surface development.

The Boston & De Lamar, owned by Salt Lake parties, parallels the April Fool and has a 200-foot shaft and 300 feet of drifting.

The Flagstaff group, owned by a stock company in which the De Lamar Co. have control, is developed by a 400-foot tunnel and other work.

The Monkey Wrench, two miles northwest of town, was the first location in the district. It is developed slightly, having a 100-foot shaft, uncovering native and chloride of silver and some gold.

The Reed tunnel, located near the Magnolia, has several hundred feet of work, with a fair disclosure of gold ores. The claims are owned by McDonald & Co. of San Francisco.

The Millionaire group lies west of town and parallels the De Lamar group. It is said to have ore of an average value of $18 per ton near the surface. This is patented ground and is controlled by Capt. De Lamar.

Southwest of town, on both sides of Cedar wash, are two groups of six claims each, controlled by Hiram Crowell and associates. This is about two miles from the De Lamar and April Fool workings. In the judgment of persons here, the outcroppings of the two properties named are traceable to this locality and are included in a zone 1800 feet wide. The Crowell holdings are of sufficient width to encompass the zone as apparently located. A large number of tunnels, shafts and winzes crosses Trait creek, 25 miles above Gold Hill. The laying of this pipe will save the digging of over 20 miles of ditch, as the water will be carried down one hillside and up the other, where otherwise the line would have to be dug along the face of steep hills.

JOSEPHINE COUNTY.

The Eureka mine on Sailor creek, A. F. Nelson Supt., has been bonded to C. G. Griffith, Gen. Mgr. Montreal & Oregon G. M., Ltd., 52 Broadway, New York City. The reported price is $75,000. The Eureka mine is what is known as the Denver City ledge, with a face width of 30 feet, a pay streak 2 feet wide abutting against one of the walls.

UTAH.

JUAB COUNTY.

The Centennial–Eureka Co. has reduced the cost of transportation between its mine and the railroad from 80 cents to 16.5 cents per ton.

WASHINGTON.

The Britannia Copper Co. has made its final payment on the group of claims on Howe sound, near Vancouver. H. C. Walters says that a smelter will be built at Fairhaven.

WYOMING.

CARBON COUNTY.

Battle Lake is a new copper mining camp in the Sierra Madre range, 10,000 feet above sea level, in the southern part of the county, seventy miles from Fort Steele on the Union Pacific Railroad, connected therewith by a stage line. It is near the northern boundary of Routt county, Colo., and one of a series of mineral-bearing districts in the North Park region—Steamboat Springs, Hahn's Peak and Columbine basin.

FOREIGN.

BRITISH COLUMBIA.

The following are the terms of the agreement submitted by the mine owners and adopted by the Rossland Miners' Union last week by a vote of 218 to 103:

1. That the companies are prepared to open up their mines under the contract system to their full capacity as fast as circumstances will permit.

2. The contract system, putting it generally, provides that the contractors are to be paid for all the work they do, and the companies pay for all the work done, at a price agreed upon and determined by both parties.

3. The two simplest systems will be adopted, viz., (a) contract by lineal foot

the companies, as may be agreed upon at the time of making contract.

13. It is expected that the prices agreed upon, based upon ordinary working conditions, will cover all delays which are inseparable from the incident to mining work.

14. It has been made clear that it is the desire and intention of the companies to afford the contractors every facility for carrying out their contracts to the end that all parties concerned may be mutually benefited.

15. The fact of an employe being a member of the union will be no bar to his employment, nor will the companies place any obstacle in the way of non-union men becoming members of a union.

16. The companies reserve to themselves the right to employ such men as they see fit, whether they are members of a union or not.

17. It is the policy and intention of the companies to treat their employes fairly and not to discharge any employe, whether he be a member of a union or not, without just and sufficient cause, it being clearly understood that membership in a union will not constitute grounds for discharge.

18. With respect to matters wherein the employes of the companies may consider themselves aggrieved the companies will, at any reasonable time, receive a presentation of the case, and consider the same in a fair and impartial spirit and endeavor to remove the cause, where any is found to exist.

19. It is expected that the union will at all times use its good offices and exhaust all conciliatory methods before permitting any strike or stopping of work; and, further, that they will not seek to interfere with the companies in employing or discharging employes or interfere with contractors.

MEXICO.

The El Oro gold mine is 100 miles northwest of the City of Mexico and consists of 174 pertenencias. There are a series of veins embraced in the company's property, the chief of which are the San Rafael and the Branch veins. The former varies from 100 to 150 feet in width, about 30 feet of which only has been worked as the pay streak. The Branch vein will average about 6 feet in width. The ore in sight in the San Rafael vein, to a depth of 225 feet, is estimated at 245,000 tons, averaging $21.88 per ton gross, and in the Branch vein 35,000 tons, averaging $35 per ton gross. The American M. Co. operated a 25-stamp mill and Chilian mill [illegible], equal to about forty stamps, and was reported to have extracted 70,000 tons in the

die the ore from the Gregory and other mines on the north side of the group, through the main shaft. At present about sixty-five tons per day are hoisted through the incline. In these operations there is no shoveling of ore, it being handled by gravity, electric haulage and automatic feeders; the concentrate product is carried by belt conveyors from the tables to the car on the side track. The entire property is a good example of the economy to be effected by the consolidation of mines, centralizing operations and increasing the tonnage. WASCOTT.

Black Hawk, Colo., Dec. 8.

1900

"Booming" With a "Shooter."

A peculiar feature used in northern California to assist the placer and hydraulic miner is what is known as a "shooter." It consists of an automatic reservoir of various sizes and shapes, that collects all the water not run through the giants or monitors for, say, fifteen minutes, when a valve automatically opens of sufficient size to allow all the water thus collected to escape in five minutes, thus obtaining the use of over 20,000 inches of water for five minutes that 2000 inches has furnished by cacheing it for fifteen minutes; that force of water will carry boulders weighing over 500 pounds through one mile of flume in five minutes. Several hydraulic mines in the northern counties are equipped with one of these shooters. On the Boss & McClary placer mine, Trinity Center, Trinity Co., the shooter box is 20x40 feet square and 6 feet, with an automatic opening of 18 inches by 4 feet. There is a bedrock flume 6 feet wide by 3 feet deep ... with 9-inch blocks.

It was in northern California that the style of hydraulic mining known as "booming" was first introduced, and has since been most largely in use. It is practiced only along the gulches. These affording but little water, it became necessary that the limited supply be reservoired and properly distributed in order to make it effective in gravel washing. The object is attained by retaining the water in dams and then releasing it suddenly, with a rush or boom. Near the bottom of the dam built for this purpose is left an aperture so large that when opened the water escapes rapidly. Placed on the top of the structure is a small race, through which the water flows when the dam is full, and is discharged into a large wooden box suspended from the end of the sweep, turning on a pivot, and the upper end of which extends to and over the top of the dam. Attached to this end of the sweep is a strip of heavy canvas which, dropping in a fold over the aperture below, keeps it tightly closed when the dam is full. When this stage has been reached the water flowing through the race into the wooden box mentioned soon fills it, causing this end of the sweep to sink and the other to rise, carrying with it the strip of canvas and uncovering the large aperture below, allowing the water to rush out. Meantime, the wooden box, having emptied itself through numerous small holes made for the purpose, this end of the sweep, relieved by its weight, rises, and the other end drops. The canvas falls over the outletting aperture, closing it as before. Then the dam fills again to the brim, and the operation as above is repeated. This plan for handling water is wholly automatic. It takes care of itself and goes on day and night, without ... attention on the part of the miner, doing its work as long as the water lasts.

C. A. S...ENT, refe... to the necessities for larger im...ement in the ...dern gas engine, takes up only the ...ortcomings ... the gas engine of the four-cycle type in which the piston acts during the first, or ...ward, stroke, as a pump drawing in the charge of ... or combustible mixture; compressing it ... the sec... or ... stroke, completing the first ...lution ... the ... ...orming work du... ...flammation, ...rwa... ...ke of the s... ...ion and exhausting the ... products ... the ... stroke of the second ...tion ... ...ead of taking a ... ...n- ... is the ... of a ... the ... ...outs

... California State Mining Bureau, geological condi... attendant thereon are discussed and the commer... aspect of the problem given considerable promin... In instancing the fact that the financial risks of p... pecting for oil vary greatly, the chapter notes ... oil prospecting propositions may be divided into ... orders:

First.—The "orthodox" proposition. In this ... the prospectors have in view a definite oil yiel... stratum, which has proved remunerative in adj... territory, and from which stratum they expec... obtain their oil. Moreover, they have satisfact... geological evidence in sight that the oil stra... they have in view forms an oil line through the te... tory they are about to prospect.

Second.—The "wild cat" proposition. In this ... stance the prospectors have no definite oil stra... in view which has proved remunerative in adjac... territory, or they have not satisfactory geolog... evidence in sight that an oil yielding stratum, wh... is known to be productive in adjacent territo... forms an oil line through the land they are about... prospect.

In prospect wells of the first order the least ... is taken where the outcrop of an oil sand, which ... proved remunerative in a certain oil field, can ... actually traced through the territory to be pr... pected, and the geological structure of the localit... known.

More risk, however, is undertaken where there ... no outcrop of the oil sand, although the strike ... dip of a remunerative body of oil sand in an adjac... ... and the rocks overlying the ... sand can be traced to the territory about to be pr... pected. When an oil line has been developed on ... side of a fold, and an outcrop of oil sand has been ... covered on the other side of the fold, propositions ... prospect this side must be classed among the m... risky "orthodox" propositions.

Most oil mining enterprises which have for th... object the development of new territory, especi... when operations are conducted at a distance fr... any known oil field, are "wild cat" propositio... Some idea of the conditions regulating the amoun... risk involved in such enterprises may be gathe... from the following statements:

The least risky "wild cat" proposition is the ca... in which the strike and dip of a remunerative strat... of oil sand in adjacent territory have been asc... tained, and, although there is no conclusive geolo... cal evidence in sight, it is found after carefully pl... ting a map of the territory that, if the stratum of ... sand were extended in the direction of its stri... without any material alteration in the angle of ... dip, it would form an oil line across the territory ... be prospected. It is a more risky "wild cat" pr... osition to prospect the side of a fold opposite to th... on which an oil line has been developed, in cases whe... surface indications warrant the assumption that ... same sequence of formation exists on both sides of ... fold, and yet no outcrop of oil sand has been disc... ered on the side about to be prospected.

It is a still more risky "wild cat" propositi... when a stratum of oil sand has been discovered, co... cerning which nothing is known except that the sa... gives evidence of containing oil, and a well is sunk ... the first time to determine whether or not the sand contains oil in remunerative quantities.

It is a much more risky "wild cat" propositi... where no outcrop of oil sand has been discovered, b... where a well has been sunk in a certain formati... because it shows some irregular seepages of petrole... or because the formation appears to be similar to th... containing a remunerative body of oil sand in oth... places.

I... well for ... prospectors to study the risk th... are about to take before expending money, and ca... ... taken to control sufficient territory th... ...y may have sufficient room to develop their ... ...eld, in case their ...ture proves successful. No o... should ... ...tal... ... forms of prospecti... unless ... ... the money to be p... into the ...

In C... ... in shales, lim... ... and ... a

N COUNTY.

en Devils M. Co. will copper properties in t next year.

HIGAN.

ON COUNTY.

mill at the Quincy, ng; daily capacity, 1500

TANA.

GE COUNTY.

nd Mountain, Consoli- en Mountain, at Ana- ed operations; about yed.

N COUNTY.

rking the Uncle Sam, Sheridan.——The Cen- will sink a 100-foot nnial Toledo, at Bran- te will begin shipping Watsega M. Co. will on the Watsega, at so equip mine and mill

OW COUNTY.

A. & P. [illegible] l to the [illegible] The [illegible] electric [illegible] 15. [illegible] P. M. to 8 A. M.

ADA.

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COUNTY.

of eighty and one- om the [illegible]-Home- urned [illegible] (net),

T COUNTY. a rted that additional mill will be erected at sgow & Western Co.,

ping nitre from his o the American Nitre

COUNTY.

er, Supt. Wilkinson,

[illegible] & Salt Lake R. prospectors are look- as the proposed line [illegible] good copper ores [illegible] in southeastern and northeastern part [illegible] California, and [illegible] Lincoln county,

[illegible] the Mineral Union [illegible] the lixiviation of [illegible] Process," [illegible] of the in- [illegible] Professor H. [illegible] under [illegible] & [illegible] Mexico [illegible] lead

[illegible] feet from shaft, is in 50 feet, west drift on the 1600-foot level is cleaned out and repaired for 650 feet from shaft.——In the Chollar the main north drift on 900-foot level is cleaned out and repaired for 336 feet.——The south drift from main tunnel of the Potosi is in 216 feet; all workings are now lighted by electricity.——At the Silver Hill, the northwest drift is in 123 feet.——During the week ending Dec. 15, 100 tons of ore from stopes on 325-foot level were milled at the Gould & Curry, which returned $4.57 (coin value) per ton.——West crosscut No. 9 on 425-foot level of the Best & Belcher is in 89 feet.——On the Utah, surface tunnel No. 2 is in 788 feet; face in hard porphyry.

Electricity was substituted for steam power in the carpenter shop of the Chollar, Virginia, on the 13th inst.——Electrical machinery will go in on the Nevada by Jan. 1st.——At the recent delinquent sale of the Con. Cal. & Va. M. Co. only 2500 shares out of 216,000 shares were sold for non-payment of the assessment.

The Gould & Curry, at Virginia, is turned over to the new managers, Douglass & Shaw.

WASHOE COUNTY.

W. H. Jackson, of the Jumper, Olinghouse gulch, recently shipped [illegible] of high grade [illegible] worth, will put in two Kinkeads and a 5-stamp mill.——Three carloads of ore from the [illegible]

The Chainman mill, at Ely, is being put in shape to run. A combined amalgamation and cyanide process will be used. Twenty-five men will be employed.——W. Lawlor has men running a tunnel in Egan canyon, near Ely.

The first shipment of ore from the Jumbo group, 80 miles from Oasis, was recently made to Salt Lake, Utah; assays show 40% lead and 4.5 ounces silver per ton.

NEW MEXICO.

DONA ANA COUNTY.

The Lead Queen and Lead King mines, in the San Andreas mountains, near Tularosa, recently sold to the Salinas Peak M. Co. of Chicago for $100,000, are shipping ore.——R. Y. Anderson & Co. have resumed operations on the Ben-Nevis group.——Goodwin Bros. are working copper properties near San Andreas.——A new hoisting plant is going in on the Copper Bar at Organ. Work will be pushed.——In the breast of the 500-foot tunnel on the Flor de Mayo, Good Fortune canyon, in the San Andreas mountains, 35 miles west of Tularosa, a 3-foot vein of ore running $100 to the ton is reported opened up; Tipton Copper Co. owners, Manager W. S. Becker.

COLFAX COUNTY.

A new dredging plant will soon begin operations near Elizabethtown.

The Black Copper, at Elizabethtown, is closed down until the mill is up.——The Golden Era M. & M. Co. is pushing work on its new mill in Big Nigger gulch. There are eight coal mines in this county, employing [illegible] men, and turning out 399,-206 tons of coal yearly, valued at $602,-107.

GRANT COUNTY.

The San Jose Concentrating Co. will increase the capacity of its plant in Gold [illegible] from [illegible]-five to sixty tons daily. [illegible] and two Bartlett [illegible] P. McGrath of Silver [illegible] has made the last payment on [illegible] at Burros and will [illegible] to work it.——The [illegible] at Pinos Altos is sink- [illegible] down 300 feet, [illegible] Waterbury [illegible] Co. of New

The new Little Bug mill at Red River, an amalgamation plant, with crushers, is expected to begin operations Jan. 1.

OREGON.

BAKER COUNTY.

Arrangements are about completed for a resumption of operations on the co-operative property near Sumpter.——A stamp mill is projected for the Carrol B., Pleasant Valley.——A 600-foot tunnel will be driven on the Diadem, Baker City.——The case of Finnegan vs. the Golconda M. Co. for $21,000 damages is decided in favor of defendants.——A ledge of ore running 15% copper is opened up on 60-foot level of the Free Silver at Mineral.——A 6-foot ore body is opened up in the 700-foot tunnel of the Golden Star at Baker City.——Work on the Jerome group on Little Beaver creek, near Alamo, will be pushed during the winter.

The Oregon Placer & Power Co. has put in new giants and pipe on the Griffith placers, near Baker City, and will push work on latter.

A strike of ore assaying $33.20 is reported made on the Leo, at Sumpter.

GRANT COUNTY.

The shaft on the Red Boy, at Granite, [illegible] on the Mayflower, near Susanville.

The shaft on the Red Rock group at Gold Center, near Granite, down 85 feet [illegible] be done.——Work on the crosscut tunnel on the Buffalo, at Granite, is being pushed; Supt. R. T. Cox.

The Scandia M. & Tunnel Co. has ordered drills and an air compressor, and will begin work on the 3000-foot Aldrin tunnel which will penetrate Quebec hill, near Granite.

Work on the Quartz Gulch placer, near Canyon City, will resume soon.

JOSEPHINE COUNTY. 1900

Supt. W. D. O'Brien is pushing work on the Old Channel, at Six Mile, three giants are in operation.——C. H. Parks operating the Golden Wedge, at Galice, reports a 5-foot ledge at a depth of 100 feet; mine was formerly known as the Hutchins-Kramer.——The Rocky Gulch placer has suspended operations temporarily on account of scarcity of water.——Reed & Larrabee of Helena, Mont., are pushing work on their quartz property on Forest creek, near Galice; a mill may be put in soon.

UNION COUNTY.

The Bird's-Eye group, near Sanger, is bonded to A. Freeman of Dallas, Texas.

SOUTH DAKOTA.

LAWRENCE COUNTY.

The Homestake Co. is credited with intention to build a large cyanide plant at the mouth of Bobtail gulch, near Central City, to treat tailings from the Caledonia, Deadwood, Terra and Father De Smit mills; the two latter are now being put in shape to run.——The Boston & South Dakota, in Blacktail gulch, is closed down for the purpose of building a 150-ton cyanide plant.

UTAH.

BOX ELDER COUNTY.

A recent week's run at the Century, Park Valley, returned a $1000 gold bar; Supt, D. H. Lynch.

Supt. P. H. Lynch is pushing work on the Century, at Park Valley.

IRON COUNTY.

A new reduction mill may be put in on the Ophir at Stateline, Manager [illegible] Lathrop.

JUAB COUNTY.

Supt. Underwood is pushing work in the Carisa & Spy, [illegible]

Gemini	
Humbug	
Tesora	
Swansea	
Star Consolidated	
Total	1[illegible]

PIUTE COUNTY.

The shaft on the Park, of the Park C. M. Co., at Marysvale, is down 250 feet; crosscutting is in progress on this level.

SALT LAKE COUNTY.

The new concentrator of the Butterfield M. Co. at Bingham, is running.——Work on the Homestake and Eldor[illegible] claims at Alta is being pushed.——The new working and drain tunnel on the Ol[illegible] Telegraph, now being driven from mouth of Bear Gulch, is in 200 feet; it is expected to cut the foot wall in 850 feet, at a depth of 500 feet.

On the New Sensation at Big Cottonwood, an ore body is reported opened up in the tunnel.——Good ore is opened up in the old Congress tunnel of the Winnemuck, Bingham, which, until recently has lain idle for twenty years. The Dewey mill is running on a 200-ton lot of ore from the old Damphool tunnel of the Midland group.——The West Mountain M. & M. Co. operating the Kansas group in Free[illegible] gulch, Bingham, is taking out good [illegible] Kansas shaft No. 1; ore shows [illegible] copper, 9.7% lead, 25.2 ounces silver and $1.20 gold per ton.——By Jan. 15th the Provo canyon electric plant will be supplying Bingham mines and mills with [illegible]. Upon inauguration of electric power into Bingham, the Fortuna and Shawmut mills will probably start up.

A vein of galena, one-half foot thick yielding 20% lead, 3% copper, and from six to ten ounces silver to the ton, is reported on the York, at Bingham, owned by the York M. Co.

The Silver Shield, Bingham, will ship several cars of crude ore and concentrates the end of this month.——By the end of 1901, it is thought probable that the United States Co. will have a 500-ton smelter running.——The Last Chance mill is turning out about five tons of concentrates daily.——The tunnel on the Admiral Schley, Nos. 1 and 2, is running through ore, which assays 4% to 6% copper, eight ounces silver and $2 gold per ton.——Supt. Dugan is pushing work on the Little Cottonwood tunnel, now being driven to cut the I. X. L. and Jersey Blue vein.——Fifteen men are employed at the Shawmut on development work.

SUMMIT COUNTY.

Machinery for the new King sampler, at Park City, is arriving, and construction work will be pushed.——A station is being cut on 1600-foot level of the Ontario.——Following are shipments of ore from Mackintosh sampler for week ending Dec. 15:

	Pounds.
Daly-West	1,19[illegible]
Silver King	967,000
Anchor concentrates	510,000
Ontario	200,000
Total	2,866,000

It is locally reported that the Centennial Eureka M. Co., Eureka, may buy the Eureka Hill, which adjoins the Centennial Eureka on the north; the Eureka Hill is equipped with steam hoist, a 100-stamp combination mill, etc.

[illegible] COUNTY.

The new concentrator on the West Argent at Stockton is running successfully; manager F. [illegible] Ball.

UINTAH COUNTY.

The smelter at Vernal is running steadily. Operations at the Dyer were temporarily suspended recently, owing to a strike of employes.

WASATCH COUNTY.

The Josephine M. Co., capital [illegible], is incorporated to work the Sunflower [illegible]

bar folded about midway upon itself to form converging jaws, and split from a point near the outer end of the folded portion to form two straight and parallel sides separated from each other. These sides are provided with adjusting holes and a lever having a corrugated and beveled end, is fulcrumed in either of the holes so as to compress the pipe between itself and the two separated sides and the folded portion which forms the final point of contact. Thus clamped, a sufficient purchase may be brought upon the lever to easily turn the pipe in either direction.

BURGLAR ALARM DOOR LOCK.—No. 663,586. Dec. 11, 1900. Jennie Simoni, San Francisco, Cal., one-half assigned to W. K. & L. C. Hays of same place. The object of this invention is to provide an independent movable device which can be placed in contact with a closed door within the room and mechanism carried by the device which will be operated by any pressure applied to swing to open the door. It consists of a spring-actuated alarm with a locking device, a base plate upon which this is carried with fixed points adapted to rest upon the floor, a slidable rod having a point adapted to rest against the surface of the door and an angular ring having its opposite sides pivoted to the base plate, said ring carrying a detent upon one edge which engages and normally retains the alarm out of action. An incline upon the opposite side is in line with the slidable shank of the movable point, so that any movement of these parts disengages the detent and sounds the alarm.

TRANSMITTING AND REVERSING GEAR.—No. 663,603. Dec. 11, 1900. J. E. Doak, San Francisco, Cal., one-half assigned to Wm. Leviston, same place. The object of this invention is to provide a simple transmitting and reversing gear for engines. It consists of a driving shaft, a driver fixed thereto, a sleeve having its major axis in the direction of the length of the shaft, and loosely mounted thereon, a second driver on the sleeve, a transmitter adapted to occupy the space between the two drivers and mounted in the plane of the axis of one of them; a means for disengaging or engaging the transmitter with the two drivers, a clutch member fixed to the driving shaft, a second clutch member rigid with the opposite end portion of the sleeve and a unitary mechanism whereby the clutch is engaged or disengaged simultaneously with the disengagement or engagement of the transmitter with the drivers.

Latest Market Reports.

SAN FRANCISCO, Dec. 20, 1900.

SILVER.—Per oz., Troy: London, 29⅝d (standard ounce, 925 fine); New York, bar silver, 64c (1000 fine); San Francisco, 64c; Mexican dollars, 50¾c.

COPPER.—New York: Lake, 1 to 3 casks, $17.00 cash; carload lots, 16.75; Electrolytic, 1 to 3 casks, 16.87½; carload lots, 16.62½; Casting, 1 to 3 casks, 16.62½; carload lots, 16.50. San Francisco: 18. Mill copper plates, 20c; bars, 22@23c.

LEAD.—New York, $4.32½; Salt Lake City, $4.00; St. Louis, $4.20; San Francisco $5.00, carload lots; 5½c 1000 to 4000 lbs.; pipe 6¾, sheet 7½, bar 6c; pig, $4.70 @5.10. London, £16 2s per ton.

SPELTER. — New York, $4.27½; St. Louis, $4.10; San Francisco, ton lots, 5½c; 100-lb lots, 6c.

ANTIMONY.—New York, Cookson's, 10c; Hallett's, 9½c; San Francisco, 1000-lb lots, 12c; 300 to 500 lbs., 13@14c; 100-lb lots, 15@18c.

IRON.—Pittsburg, Bessemer pig, $13.25; gray forge, $13.50; San Francisco, bar, per lb., 2.65c in small quantities.

STEEL.—Bessemer billets, Pittsburg, $19.75; open hearth billets, $21.50; San Francisco, bar, 7c to 12c per lb.

TIN.—New York, pig, $25.50; San Francisco, ton lots, 29c; 1000 lbs., 29½c; 500 lbs., 29½c; less, 30c; bar tin, ℔, 35c.

QUICKSILVER. — New York, $51.00; large lots: London, £9 2s 6d; San Francisco, local, $48.00 ℔ flask of 76½ lbs.; Export, $45.

NICKEL.—New York, 50@60c ℔ lb.

MAGNESIUM.—New York, $3.00 ℔ lb.; San Francisco, $4.00.

ZINC.—San Francisco, 5½c; slab, 5¾c; bar, 7c.

BABBITT METAL.— San Francisco, No. 1, 10c.

SOLDER. — Half-and-half, 100-lb. lots, 18½c; San Francisco, Plumbers', 100-lb. lots, 15½c.

ASSAY LITHARGE.—San Francisco, 10c ℔ lb, small lots.

ALUMINUM.—New York, No. 1, 99% pure ingots, 35c; No. 2, 90%, 30c to 35c.

BISMUTH.—New York, ℔ lb., $1.60 50-lb lots; San Francisco, $2.50 to $2.75 lb lots.

PHOSPHORUS. —F. o. b. New York 50@60c ℔ lb.

TUNGSTEN.—New York, ℔ lb., 95c; San Francisco, $1.15.

FERRO-TUNGSTEN. — New York, 37%, 35c; San Francisco, 65c (60%).

FERRO-MANGANESE. — Pittsburg, 80%, domestic, $85, large lots.

PLATINUM.—San Francisco, crude, $17 ℔ oz.; New York, $18.20 per Troy oz

POWDER.—F. o. b. San Francisco: No. 1. 70% nitro-glycerine, per lb., in carload lots, 15½c; less than one ton, 17½c. No. 1*, 60%, carload lots, 13½c; less than one ton, 15½c. No. 1** 50%, carload lots, 11½c; less than one ton, 13½c. No. 2, 40%, carload lots, 10c; less than one ton, 12c. No. 2* 35%, carload lots, 9½c; less than one ton, 11½c. No. 2** 30% carload lots, 9c; less than one ton, 11c. Black blasting powder in carload lots, minimum car 728 kegs, $1.50 per keg; less car lots, $2 per keg.

CAPS.—3x, $5.50 per 1000; 4x, $6.50; 5x, $8; Lion, $9, in lots not less than 1000.

FUSE.—Triple tape, $3.60 per 1000 feet; double tape, $3.00; single tape, $2.65; Hemp, $2.10; Cement No. 2, $3.00; Cement No. 1, $2.65, in lots of 3000 feet and up.

CANDLES.—Granite 6s, 16 oz., 40s., 11½c ℔ set; 14 oz., 40s., 10c.

CHEMICALS.—Cyanide of potassium, 98% 99%, jobbing, 32½@33½c ℔ lb.; carloads, 30@31c; in 10-lb. tins, 40c; sulphuric acid, 66° B, 2c ℔ lb.; soda ash, $1.60 ℔ 100 lbs. 58%; hyposulphite of soda, 2½@3c ℔ lb.; blue vitriol, 5½@6c ℔ lb.; borax, concentrated, 7@8c ℔ lb.; chlorate of potash, 12@13c; roll sulphur, 6c; alum, $1.90@2.00; flour sulphur, French, 2½@2¾c; California refined, 1¾@2c; nitric acid, in carboys, 8c ℔ lb.; caustic soda, in drums, 3@4c ℔ lb.; Cal. s. soda, bbls., $1.00; sks, 95c ℔ 100 lbs.; chloride of lime, spot, $2.50@2.60; nitrate of potash, in kegs, 8c; caustic potash, 10c in 40-lb. tins.

COAL. — San Francisco, coast, yard prices: Wellington, $9; Seattle, $7.00; Coos Bay, $5.50; Southfield, $9.00. Cargo lots, Eastern and foreign: Wallsend, $8.00; Brymbo, $7.50; Pennsylvania, hd., $14.00; Scotch, $8; Cumberland, $12; Cannel, $9.50; Welsh Anthracite, $12.00; Rock Springs, $8.50; Colorado Anthracite, $14.50. Coke, $16 per ton in bulk; $18 in sacks.

OILS.—Linseed, pure, boiled, bbl., 86c; cs., 91c; raw, bbl., 84c; cs., 89c. Deodorized Stove Gasoline, bulk, 14½c; do., cs., 20½c; 86° Gasoline, bulk, 21c; do., cs., 27c; 63° Naphtha or Benzine, deodorized, in bulk, per gal., 13½c; do., in cs., 19½c; Lard Oil, Extra Winter Strained, bbl., 70c; cs., 75c; No. 1 bbl., 50c; cs., 55c; Neatsfoot Oil, coopers' bbls., 60c; extra bbls., 65c; cs., 60c; No. 1 bbl., 52½c; cs., 57½c.

San Francisco Stock Board Sales.

SAN FRANCISCO, Dec. 20, 1900.

200 B. & B.....24c	150 Ophir.....61c
100 C. C. & V.$1 40	200 Savage.....15c
200 H. & N.....18c	200 Union Con...21c

ALPHABETICAL INDEX TO ADVERTISERS.

(—) Indicates every other week or monthly advertisements.

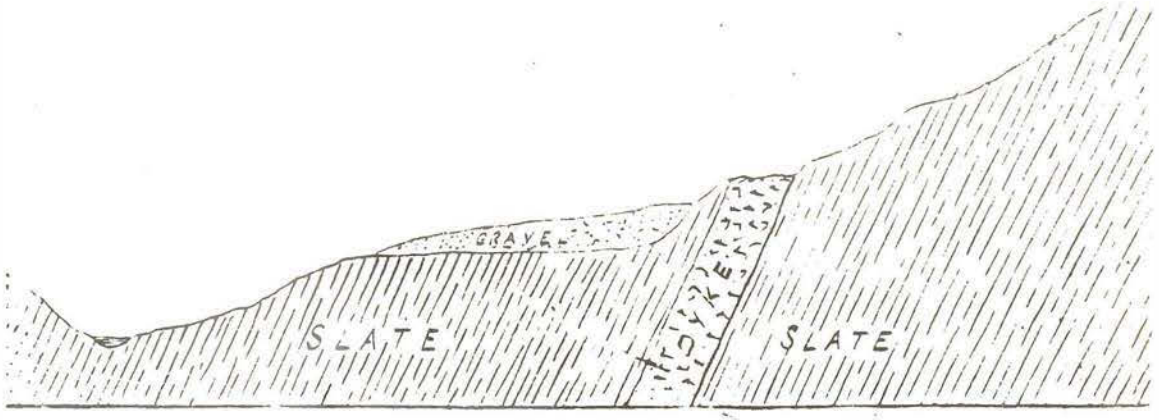
Fig. 1.—Working Pit, A. and B. Placer Mine, Josephine Co., Oregon.

Fig. 2.—Close View of Banks in Working Pit, A. and B. Mine, Josephine Co., Oregon.

eration is interesting. Where now stand the rugged and picturesque Siskiyou and Rogue river ranges, built up upon a massive core of serpentine and slate, there used to be in former geologic time a broad and deep let from the Pacific reaching as far eastward as southwestern Idaho. Into the head of this the Snake river, which now heads in Wyoming and empties into the Columbia, poured its floods. The coast lines of the ancient gulf may to-day be traced with considerable accuracy, and they indicate a comparatively narrow inlet from the ocean at about the region of the Oregon-California line; a broad interior basin with an average diameter of fully 500 miles, along which numerous bays extended in several directions towards the center of the continent, connecting probably with the Humboldt and Salt Lake basins and certainly with the region now known as the Snake river desert.

The series of seismic disturbances which later elevated the floor of this extensive gulf and covered much of it with vast beds and ridges of lava, forcing the Snake northward to a junction with the Columbia and sealing the outlets of the Humboldt and Salt Lake basins, is a story which when rightly deciphered by the geologist will prove not nly interesting, but economically valuable; for, dur- g these changes, very large marine deposits of uriferous conglomerates were formed in northern alifornia and southern Oregon, not very dissimilar in aracter to those at Johannesburg, South Africa; d great dikes of auriferous diorite were thrust up- rd through the earth's crust near the present Pa- c coast line; both of which have been the immedi- source from which came much of the gold being resent recovered in this region.

ne of these latter has been traced almost in an oken line through southwest Oregon, from Rid- to Waldo, a distance of forty miles. So per- t is this fissure and so straight its course— N.E. to S.W.—that it probably marks the line fault plane; east of which the country slowly was ted, while west of it there was as gradual a sub- ce. Parallel to it and so close that the two may d to adjoin—for they are never separated by few rods—is what is locally called a considerable proportion of the rock fragments it contains water-worn. On the contrary, they are for the most part angular pebbles, scattered irregularly through a mass of soil, which near the surface is deeply stained with red and yellow iron oxides and consists mainly of clay. In some of the blocks there is evident stratification of the material; but the planes of these earthy and gravelly beddings slope from the west to the east across the course of the channel, and not from south to north along its length. So far as I have been able to discover, the eastern wall of the channel is gone, or, more correctly, seems never to have existed; so that the floor upon which the auriferous material rests is a shelf of varying width, bounded on the west by the wall of the dyke or by a nearly vertically tilted uplift of the slate bedrock resting closely upon the dyke. The following section across is through one of the blocks of ground lying between Rich and Applegate ravines, locally known as Thoss Flat, is typical.



Typical Cross Section Through Block of Ground at Thoss Flat, Josephine Co., Oregon.

After several examinations of this interesting deposit, I am unable to account for the [illegible] earth carried on at a point near the northern end. Fig. 1 shows the working pit. Fig. 2 is a near view of a piece of the bank shown in Fig. 1, which displays not only the cross-stratification of the mass, but its remarkable freedom from boulders. The climatic and other conditions in the Rogue River valley are peculiarly favorable for hydraulic mining. The altitudes of the deposits above sea level rarely exceed 1200 feet. The winter, which is the mining season, is mild; the rainfall is very rarely deficient, and the deep canyon of the river with its great volume of water and regular fall carries away all tailings to the ocean.

PROFESSOR DEWAR, who liquefied hydrogen a year ago, is now producing hydrogen as a solid. Discussing the question of the futility of solid hydrogen in scientific research, he says the mere fact of its transformation from gas is interesting because it is the elementary body of the lowest atomic weight. One of its uses was in the solidification of oxygen and it [illegible] used in the separation of mixed gases.

of two 4-ft. belt machines.

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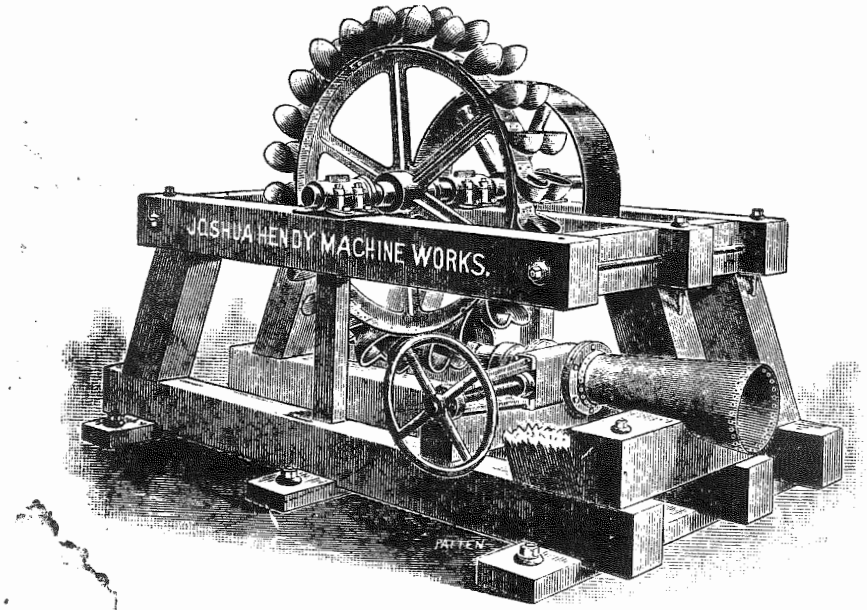

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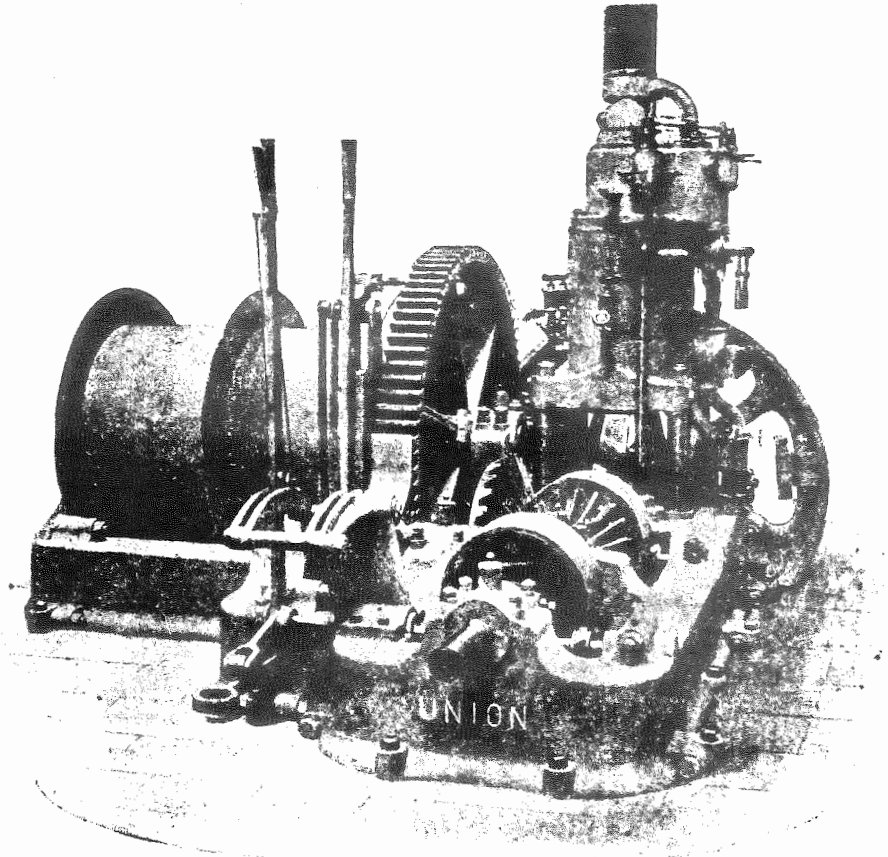

The above illustrates the "Union" 25 H. P. double cylinder divided drum mining hoist for double compartment shaft. Cages and cars balance each other, therefore power is only used to raise ore, cost of hoisting ore is therefore reduced to the minimum. Made in sections for mountain transportation.

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Which use either MANUFACTURED or NATURAL GAS, ORDINARY STOVE GASOLINE (NAPHTHA or BENZINE), DISTILLATE or KEROSENE.

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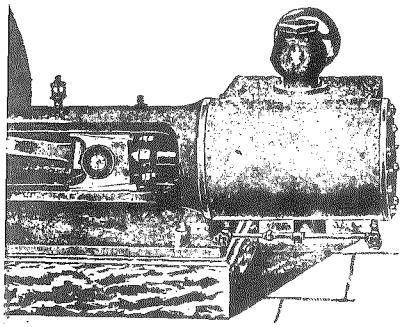

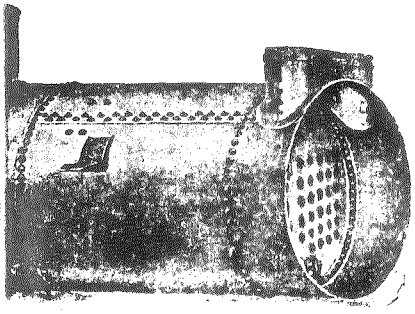

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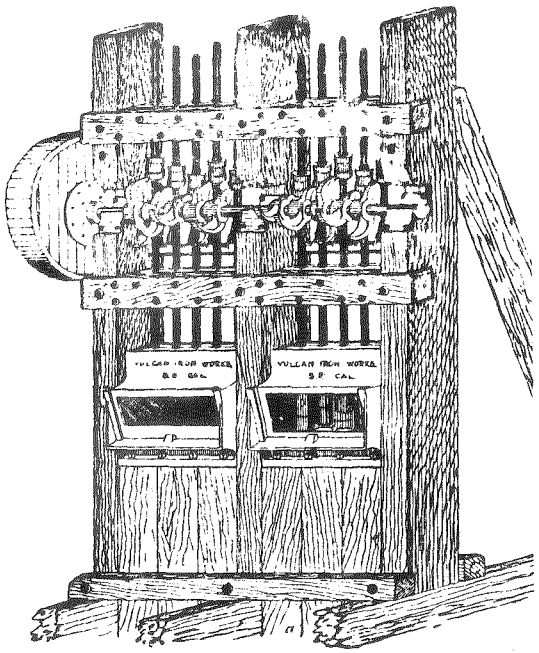
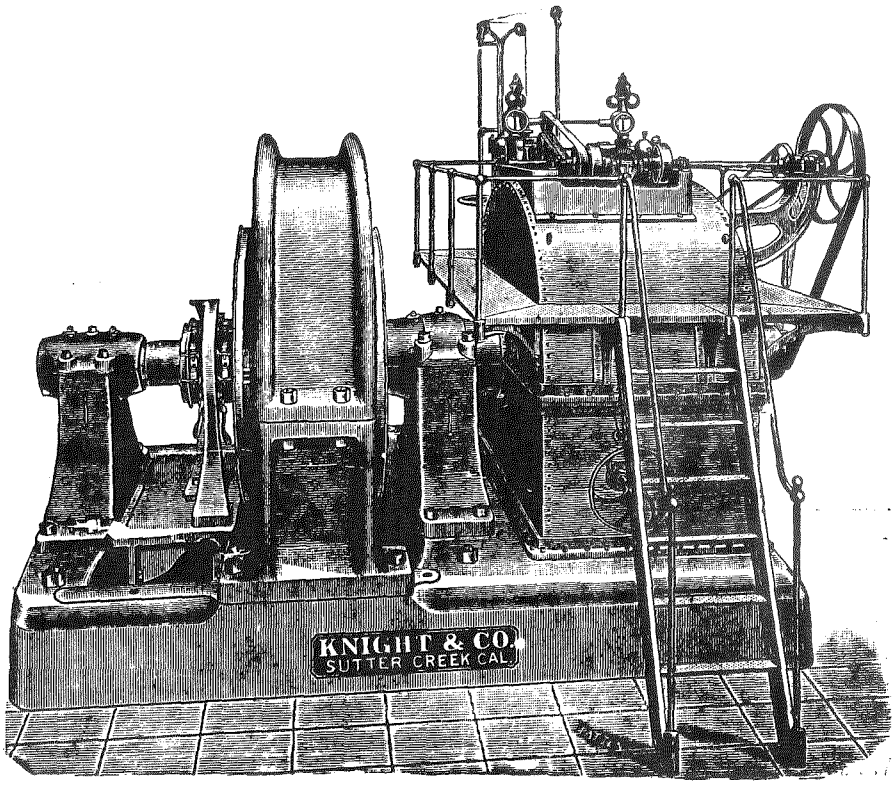


KNIGHT'S WATER WHEEL.



The accompanying cut shows the general arrangement of The Knight Water Wheel, direct-coupled to a 750 kilowatt generator, with governor mounted on top of wheel casing.
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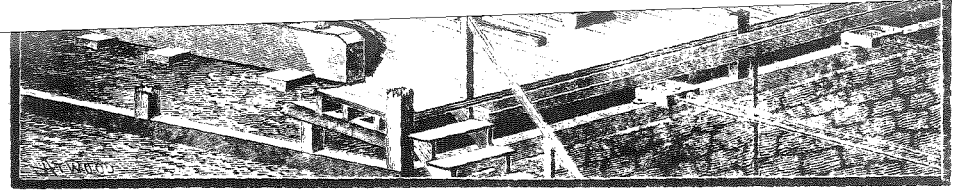

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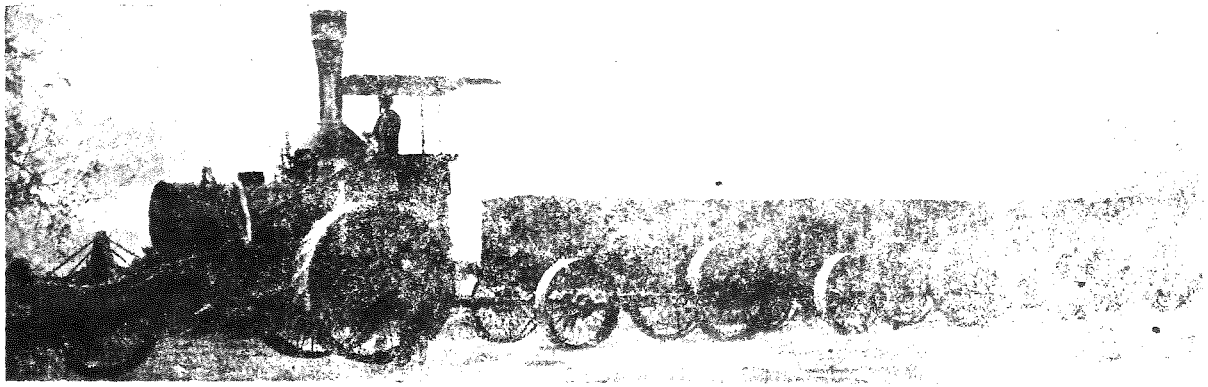
or total freight carrying capacity
of train 50 tons.



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