

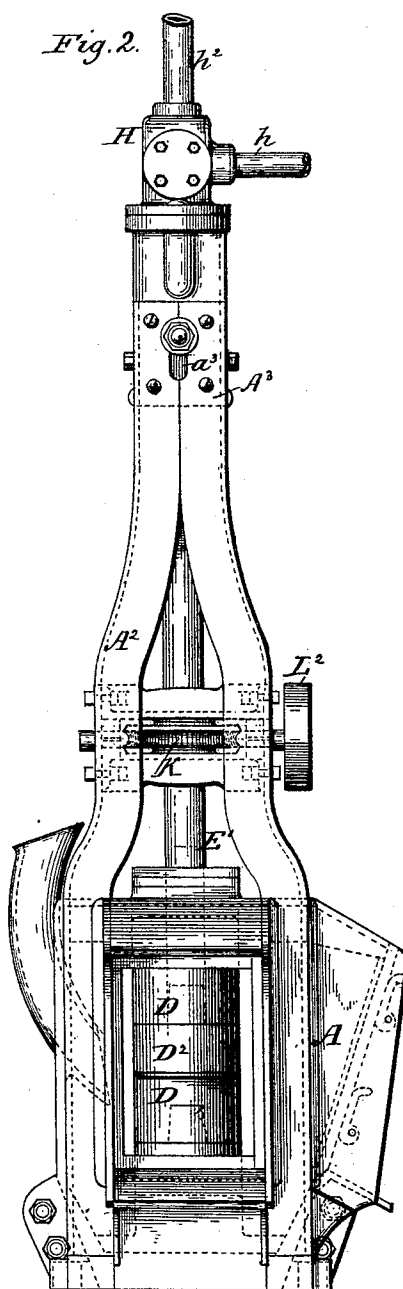
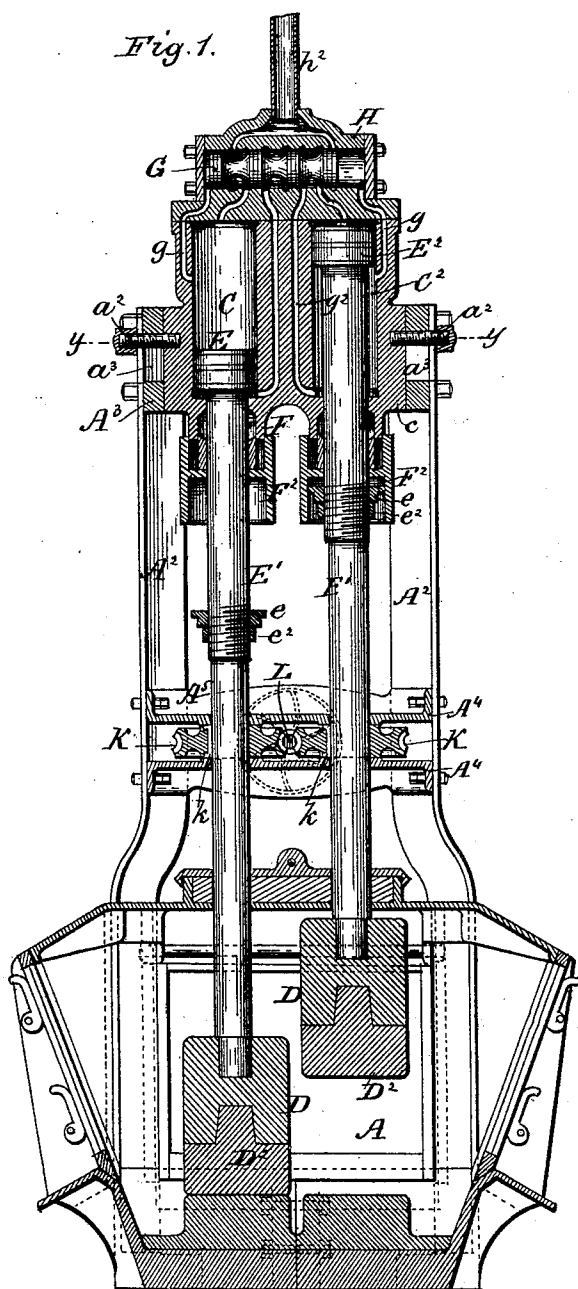
(No Model.)

2 Sheets—Sheet 1.

C. A. MARLITT.
STEAM POWER STAMP.

No. 480,332.

Patented Aug. 9, 1892.



Witnesses:

C. C. Schiller,
L. C. Mills

Inventor:

Charles A Marlitt

by E. E. Masson
att'y.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

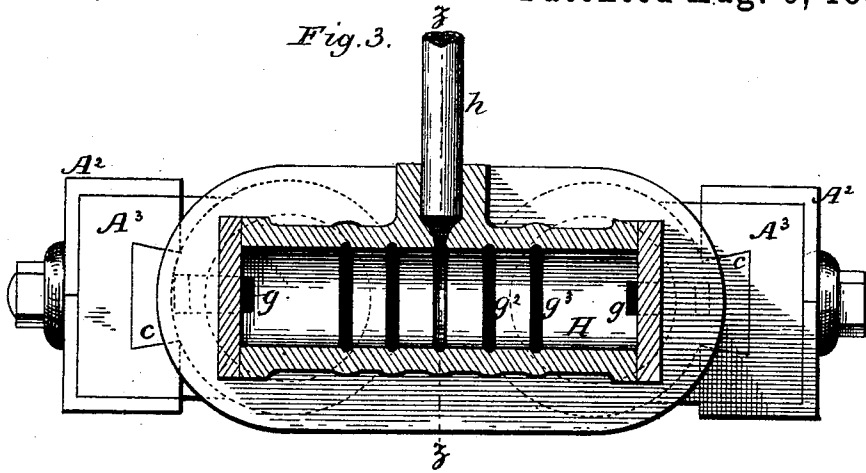


Fig. 4.

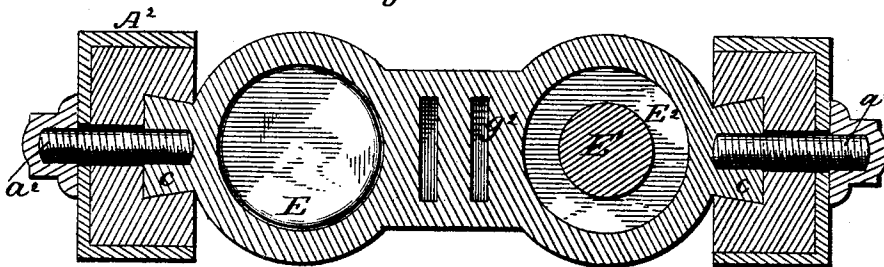
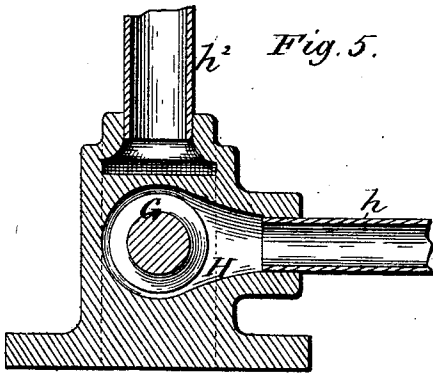


Fig. 5.



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UNITED STATES PATENT OFFICE.

CHARLES A. MARLITT, OF PORTLAND, OREGON.

STEAM-POWER STAMP.

SPECIFICATION forming part of Letters Patent No. 480,332, dated August 9, 1892.

Application filed February 13, 1892. Serial No. 421,405. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. MARLITT, a citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented certain new and useful Improvements in Steam-Power Stamps, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to mills for stamping ores and minerals, and the objects of my improvement are, first, to provide a double stamp-mill with a single valve to supply steam to both cylinders and with simple means to cause the live steam used to raise the pistons therein to be transferred above it to again force down the piston; second, to provide peculiar means for air-cushioning the pistons; third, to provide peculiar means to revolve the stamps, and for other purposes which will be hereinafter described, and pointed out in the claims. I attain these objects by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal vertical section of a double steam stamp-mill constructed in accordance with my invention. Fig. 2 is a side view of the same, showing the stamp-chamber open. Fig. 3 represents on a larger scale a horizontal section through the center of the valve-chamber. Fig. 4 is a horizontal section on line *yy* of Fig. 1, but on a larger scale. Fig. 5 is a transverse central section of the valve and valve-chamber on line *zz* of Fig. 3.

In said drawings, A represents a stamp-box of usual form and construction, to which is attached the cylinders-supporting frame consisting of angle-irons A^2 and blocks A^3 in the upper end of said frame. The steam-cylinders C and C^2 are formed in a casting having projecting from the ends thereof the dovetails *c*, that are planed to fit in corresponding dovetailed grooves in the blocks A^3 to permit the cylinders to be adjusted correspondingly to the wear of the shoes D^2 at the bottom of the stamps D. For this purpose there is a vertical slot a^3 , formed in each block A^3 and in the frame A^2 , through which a stud-bolt a^2 passes and has its inner end screwed in the dovetail *c* of the frame of the cylinders, and a nut on the outer end of said stud-bolt

firmly clamps the cylinders to their supporting-frame. Said cylinders have therein the pistons E and E^2 , each one provided with a larger rod E' , constituting the stem of the stamp.

The lower end of each cylinder is provided with a stuffing-box F, having in the bottom thereof an inverted cylindrical cup F^2 . Said cup constitutes an air-chamber, in which air is compressed at each upstroke of the piston by means of a brass collar *e*, which is screwed on the piston-rod and retained in position by a jam-nut e^2 , screwed on said rod under the collar. The collar *e* has such a diameter as to fit nicely into the cup F^2 , and when the piston is ascending and has nearly reached the upper end of its course the collar enters this cup and compressing the air which is caught in it, forms an air-cushion therefrom.

To control the admission of steam to the two cylinders and the exhaust therefrom, a single valve G is used. It has four cylindrical portions that fit steam-tight within a cylindrical valve-chamber H, located on top of the steam-cylinders with suitably-curved steam-ports between it and the steam-cylinders. Between the four cylindrical portions of the valve the body of said valve is cut away or reduced in diameter to obtain three steam-passages of substantially the same size and arranged between said four cylindrical portions, the central passage being for the live steam and the others for the exhaust-steam. The live steam is admitted in the central portion of the valve-chamber through the horizontal pipe *h* in the side thereof and the exhaust-steam escapes through the vertical pipe h^2 in the top thereof. The steam is so admitted and conducted to each cylinder that the same steam which is first used to raise the piston is subsequently used to produce the downward stroke of the same piston. In other words, the live steam is first admitted under the piston to raise it, and then instead of exhausting it into the atmosphere it is transferred by a movement of the valve from the bottom to the top of the piston, where the area of the latter is greater, (as it has no piston-rod on top,) and said transferred steam is used to give it the downward stroke and the blow of the stamp, assisted by the weight of the stamp and the piston-rod. The valve G is forced endwise by steam which

enters the valve-chamber through small passages g , said passages conducting live steam from under the piston when said piston has nearly reached the top of its course. The parts being in the position shown in Fig. 1, as when the machine is in motion, the live steam is ready to enter under the piston E as the valve has just been shifted and the dead steam from abovesaid piston exhausts through the pipe h^2 . Just previous to this the piston E^2 passed above the lower opening of the small steam-passage g and pushed the valve to the position shown in Fig. 1. The steam under the piston E^2 then passes up the port g^2 to the valve-chamber and thence down through the port g^3 and presses on the top of the piston E^2 , where the area is much greater than beneath, and causes the stamp to strike the blow.

To slowly revolve the stamps while in motion, worm-wheels K are loosely mounted upon the stamp-stems forming the lower ends of the piston-rods $E^1 E^2$. The top and bottom of said worm-wheels rest against plates A^4 , which are bolted to the frame A^2 and are bored to receive the stamp-stems, which slide up and down in them. A keyway is placed in each stamp-stem and a key k is fitted into the hub of each wheel and enters each keyway. Between the worm-wheels is placed a worm L , that gears into both and the shaft of which passes through and is supported by plates A^5 , secured to the frame A^2 . Upon one end of the worm-shaft is secured a pulley L^2 , by which power is applied by means of a belt (not shown) from some auxiliary power, which is always needed with a stamp-mill—as, for example, the engine employed for operating a rock-breaker or the pump for feeding the boiler.

Having now fully described my invention, I claim—

1. The combination of two stamps, their stems, and pistons upon the latter, two cylinders having passages leading thereto and therefrom, as described, with a valve-chamber on top of said cylinders and a recessed steam-actuated cylindrical valve therein controlled by the piston, whereby the same steam used to raise the piston is transferred to the top thereof to force the piston down, substantially as described.

2. The combination of two stamps, their stems, and pistons upon said stems, two cylinders having stuffing-boxes and inverted cylindrical cups upon said boxes, with the piston-rods and collars screwed upon said rods, substantially as described.

3. The combination of two stamps, their grooved stems, and pistons upon said stems, two worm-wheels having keys within their hub, and a worm between the two worm-wheels and in gear with both wheels, substantially as described.

4. The combination of a stamp-box, angle-iron frames attached thereto, grooved and slotted blocks A^3 , attached to the upper end of said frames, the frame of the two cylinders having dovetails fitting within the grooved blocks, and stud-bolts passing through the slots of the blocks and secured to the frame of the cylinders, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

CHAS. A. MARLITT.

Witnesses:

E. D. SPAULDING,
P. J. BANNON.