(No Model.)

L. R. TULLOCH.

STAMP MILL ATTACHMENT.

No. 473,371. Patented Apr. 19, 1892.

Fig. 1.

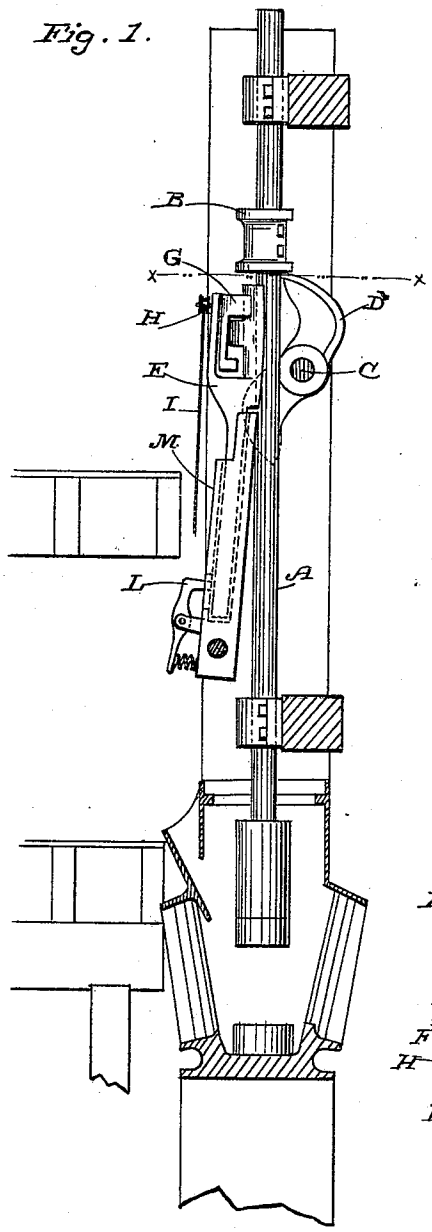


Fig. 2.

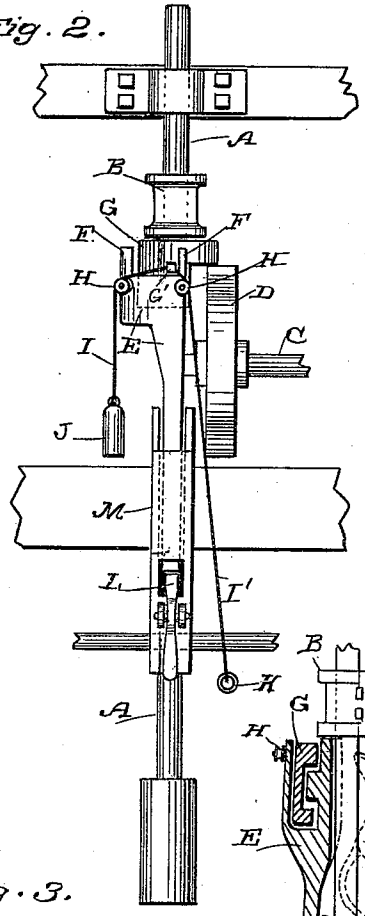


Fig. 3.

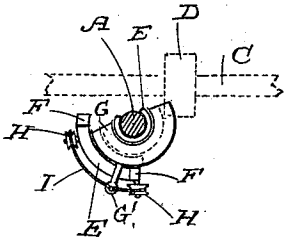
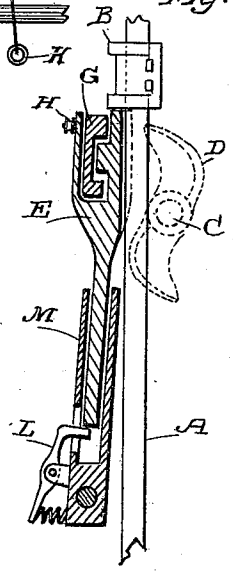


Fig. 4.



Witnesses,
L. A. Howe
J. A. Bayless

Inventor,
Louis R. Tulloch
By Dewey & Co.
Attys

UNITED STATES PATENT OFFICE.

LOUIS R. TULLOCH, OF ANGEL'S, CALIFORNIA.

STAMP-MILL ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 473,371, dated April 19, 1892.

Application filed July 1, 1891. Serial No. 398,169. (No model.)

To all whom it may concern:

Be it known that I, LOUIS R. TULLOCH, a citizen of the United States, residing at Angel's, Calaveras county, State of California, have invented an Improvement in Stamp-Mill Attachments; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to an attachment for stamp-mills such as are employed for crushing quartz and other rock; and it consists of a mechanism by which the stamps may be raised clear of the cams, and thus placed out of operation, or dropped so as to be in position to be operated by the cams at will.

It also consists in certain details of construction, which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a side view of my invention, partially in section, showing its application to a stamp-stem. Fig. 2 is a front view of the same. Fig. 3 is a top view of the segment and a section of the stamp-stem. Fig. 4 is a vertical section of my device, showing the stamp hung up.

Stamp-mills are usually constructed with mortars or batteries having five stamps to each mortar. These stamps are fixed to vertical stems moving in suitable guides and having tappets fixed to the stems. Behind this line of stamp-stems extends the horizontal cam-shaft, having cams fixed to it at suitable angles to each other so as to lift the stamps in any desired succession and allow them to fall upon the rock or material which is fed into the mortar to be crushed. During the operation of these stamps it is frequently necessary to raise one or more of them so that they will not be acted upon by the cams, this operation being technically termed the "hanging up" of the stamps. My invention is designed to accomplish this hanging up of any one or more of the stamps, and they may be released and put into operation again in the same manner.

A is the stamp-stem of a battery, having a tappet B fixed to it.

C is the cam-shaft, properly journaled, and having the cams D fixed upon it so that they engage the lower faces of the tappets when the shaft is revolved and raise the stamps, releasing them so that they may drop as the points of the cams leave the faces of the tappets.

E is a guide, which has a shank or extension movable vertically in an exterior guide M fixed to some portion of the frame-work of the mill near the stamp-stem.

In the present case the upper end of the guide E is shown in the form of a quadrant, having stops F at each end.

G is a segment fitted to rest upon the upper edge of this guide and to be turned about from one side to the other, the said segment having a lug G′ projecting from its side and adapted to travel on the guide E between the end stops F to limit the movement of the segment.

H H are pulleys, over which the cords or chains I I′ pass and connect with a lug or projection extending outwardly from the segment. One of these cords I has suspended from it a weight J, which is sufficient to draw the segment around and hold it normally in the position shown in Fig. 1 and out of engagement with the cam as the latter revolves. In this position the cam will act as before described, engaging the tappet with each of its points to raise the stamp and releasing it to allow the stamp to drop. When it is desired to hang up the stamp, the other cord I′, which connects with the segment, is pulled by means of a ring or handle K, which extends down through the upper floor to a position within easy reach of the operator in charge of the battery. By pulling upon this handle K the segment is drawn around in the guide until the point of it is brought into a position beneath the tappet and between the tappet and the cam. The thickness of this segment is sufficient, so that when the point of the cam engages the segment it will lift it and its guide E and the stamp-stem and stamp, so that the tappet is entirely clear of the circle of rotation of the cam, and when this is done the stamp-stem is engaged by a holding-pawl L, which retains it in its elevated position.

In the present case I have shown the guide E, in which the segments work, as having a shank extending down beside the stamp-stem and moving within guides M, so that when either of the points of the cam engages the segment it will raise the segment and also the

guide in which it has its rotary movement. The lower end of this guide is in such position that the pawl L will drop beneath it either by the action of the spring or by gravitation, and thus prevent the stamp from falling, and the handle K being released the weight J upon the opposite cord will act to immediately pull the segment around to its normal position, where it will be out of reach of the cams, and the stem being held up by the pawl the tappet will be out of reach of the cams, which will thus rotate beneath it without in any way moving the stamp. When it is desired to again lower the stamp, the handle K is pulled and the segment is rotated until its end lies between the tappet and the ends of the cam, and when one of the cam ends strikes this segment it will raise it and the tappet and stamp-stem sufficiently to allow the pawl to be disengaged from the lower end. This immediately allows the stamp to drop again, and the cord being released the weight J will act to pull the segment out of the way of the cam, which will then continue to act upon the tappet and raise the stamp in the ordinary manner. These batteries are usually arranged with relation to the floors in the mill, so that the crushing-mortar is upon one floor and the feed mechanism and the cam-shaft are upon a floor above.

As the hanging up of the stems is managed by the person in charge of the lower floor, the handle K extends through the upper floor to within easy reach of this operator, and the pawl L is preferably situated within reach, either directly or by means of any suitable connection. It will be manifest, however, that the position of the various parts may be changed to suit the particular construction of the mill to which they are applied, the essential feature being the device for raising and lowering the stamp.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The attachment for stamp-mills, consisting of the stamp having a stem, a tappet and a cam adapted to raise the tappet, a vertically-movable slide contiguous to the stamp-stem, a horizontally-movable bar or segment and means by which it is introduced between the point of the lifting-cam and the tappet upon which it operates, so that the cam will act upon this device to raise the stamp above the point ordinarily reached by the action of the cam, and a pawl or mechanism engaging a stop, whereby the stamp is retained in its elevated position, substantially as herein described.

2. A vertically-moving stamp having the stem and tappet and a cam adapted to engage the tappet to alternately raise the stamp and release it and allow it to fall by gravitation, in combination with a bar or segment, a guide upon which it travels, so as to be moved between the tappet and the cam or withdrawn therefrom, a cord or handle by which it is moved forward, and a weight or spring whereby it is retracted, substantially as herein described.

3. The rising-and-falling stamp-stem having a tappet, a cam-shaft and cam adapted to engage the tappet to alternately raise and release the stamp-stem, a vertically-moving slide traveling in a guide adjacent to the stamp-stem, a segment or bar adapted to move horizontally upon the top of the slide and stops between which its movement is determined, cords connected with the bar or segment, passing over guide-pulleys upon the upper part of the slide, one of said cords having a handle attached to it, whereby the segment or bar is drawn into position between the cam and the tappet, so that the cam acts upon it, and the other cord having a weight attached to it, by which the bar or segment is withdrawn out of engagement with the cam when the handle is released, together with a pawl engaging the lower end of the sliding guide, whereby the tappet upon the stamp-stem is retained at an elevation out of the line of travel of the cams, substantially as herein described.

In witness whereof I have hereunto set my hand.

LOUIS R. TULLOCH.

Witnesses:
S. H. NOURSE,
J. H. BAYLESS.