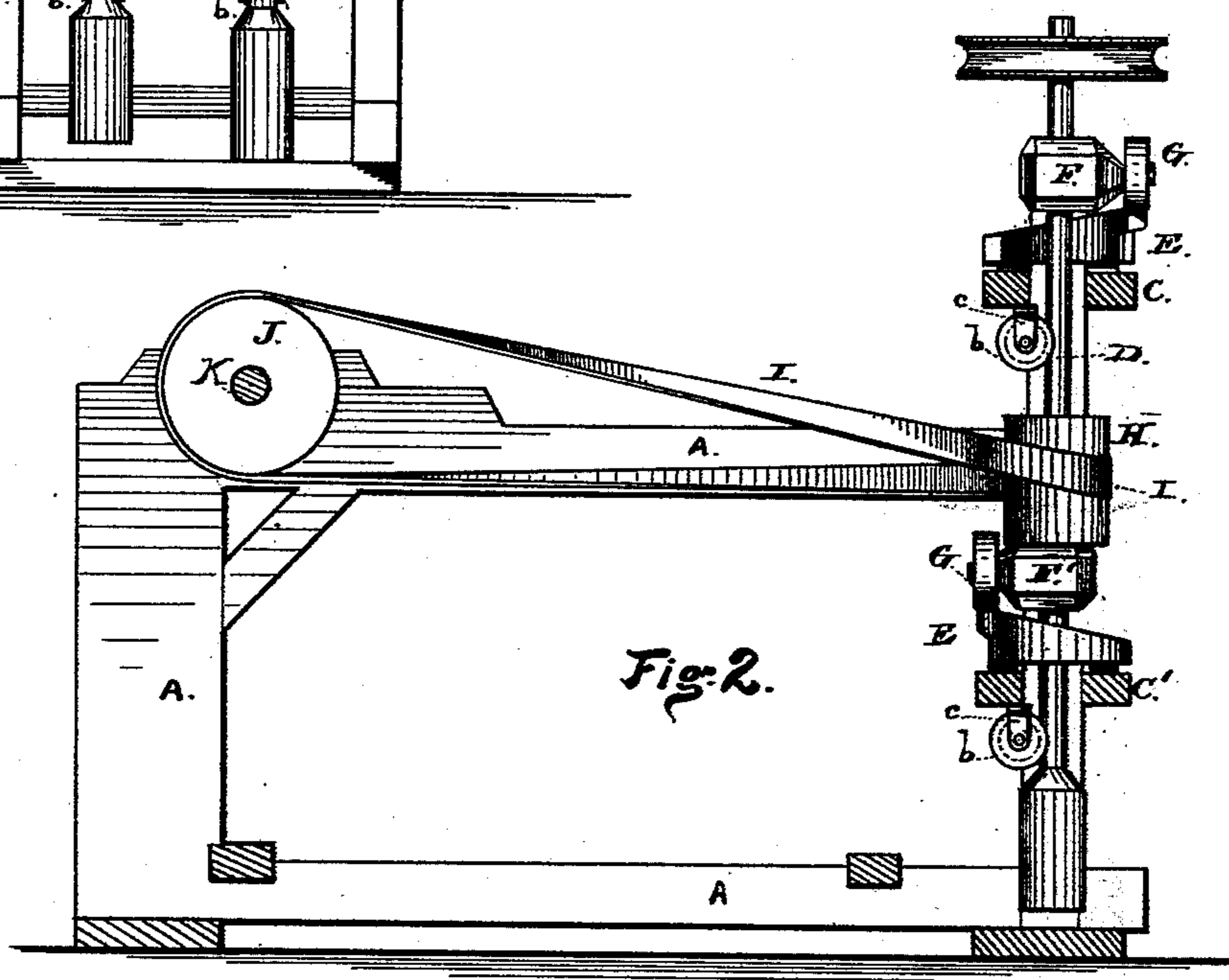
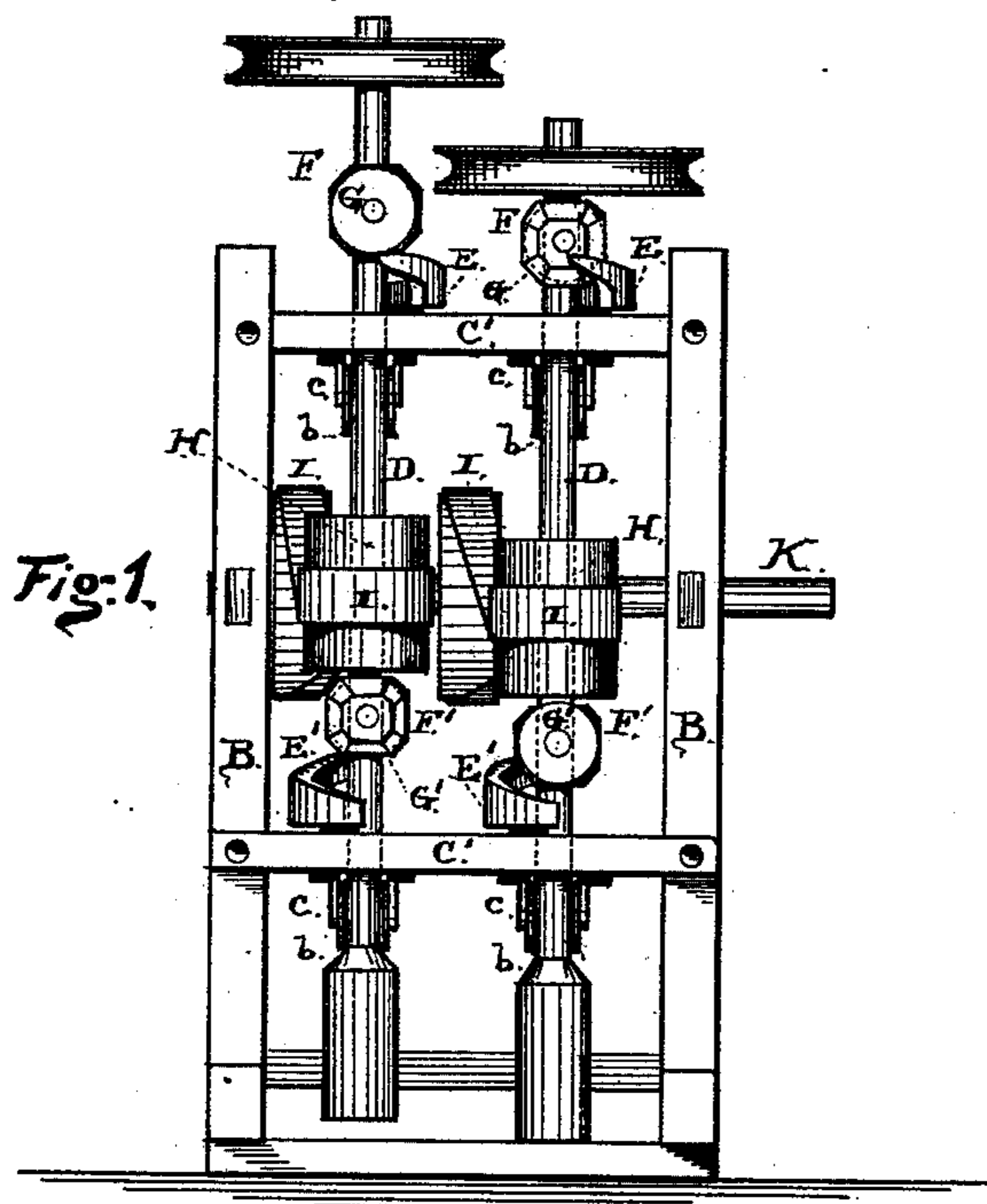


R. F. BRIDEWELL.  
Stamp-Battery for Quartz-Mills.

No. 215,090.

Patented May 6, 1879.



Witnesses:  
Wm. F. Smith  
Edward G. Osborn.

Inventor:  
Richard F. Bridewell.  
By Wm. F. Smith,  
his Attorney

# UNITED STATES PATENT OFFICE.

RICHARD F. BRIDEWELL, OF SAN FRANCISCO, CALIFORNIA.

## IMPROVEMENT IN STAMP-BATTERIES FOR QUARTZ-MILLS.

Specification forming part of Letters Patent No. 215,090, dated May 6, 1879; application filed December 30, 1878.

*To all whom it may concern:*

Be it known that I, RICHARD FRANCIS BRIDEWELL, of the city and county of San Francisco, in the State of California, have invented a certain new and useful invention or Improvement in Stamp-Batteries for Quartz-Mills, which invention is fully set forth and described in the following specification and accompanying drawings.

My invention has for its object to construct an improved stamp-battery for the reduction of ores, in which the friction of the various moving parts and bearings is reduced to a minimum, and much less power is required to properly operate the stamps.

It consists, first, in the means for lifting the stamp-stems during their continuous rotation with a small amount of friction, and always in a perpendicular direction; second, in a means for holding the stamp-stems in line perpendicularly, and causing them to work with less amount of friction, all of which will be more fully set forth hereinafter.

In the accompanying drawings, Figure 1 is a front elevation of a two-stamp battery constructed in accordance with my invention. Fig. 2 is a side elevation in longitudinal vertical section.

A A represent the frame; B B, the standards, between which the stamps are situated; and C C', the horizontal supports or cross-beams. Through these horizontals C C' the stamp-stems D D play in loose bearings, and upon them are bolted the semicircular inclined planes E E'—one on the upper horizontal, C, and the other on the lower one, C'. These planes are held in place by flanges, through which screws pass into the frame C C', and they partly surround the stems, being formed on the arc of a circle of which the stem is the center. Upon the stems D, in position above these inclined planes, are secured tappets F F', having friction-rollers G G' fixed thereto, in line with the top bearing-face of the planes. Set-screws a a hold these tappets in place, and they are so set with respect to each other that the upper one, G, faces in one direction, while the other one, G', is placed opposed to it, the inclined planes E E' being likewise fixed in contrary position. The highest end of one being in line with and over the lowest end of the

other one, it will be seen that as the stem is rotated the rollers G G' will both bear against their respective inclined planes, and simultaneously act to raise the stem during its rotation.

As the rollers G G' are placed opposite to each other diametrically upon the stem, it follows that they will always act to raise the stem perpendicularly, and without throwing it out of line or causing it to work unevenly upon its bearings.

The stems D D are kept in line by means of the grooved rollers or pulleys b, secured by bearings c c to the under side of the cross-pieces. They act to hold the stems in position with a small amount of friction, both during their rotation and their lifting and dropping movements.

Upon the stems D D are secured fixed drums or wide-faced pulleys H, to receive the belts I I, that run from the driving-pulleys J upon the shaft K. This mechanism gives the rotary motion to the stamp-stems, and produces also by the rotation their proper lifting and dropping movements.

The bearing-rollers b b serve also to resist or counteract the tension or strain of the belts, and thus enable the tappet-rollers to work evenly and in line with their inclined planes, so that the stamp-stems shall always be lifted evenly and perpendicularly.

The inclined planes E E' may be made of greater or less pitch, according to the height required to lift the stem, and of greater or less curve; but they are required always to be on the arc of a circle of which the stem will be the center.

It is maintained that this construction and manner of operating the battery produces a great saving of friction and in the power required to operate the stamps over the ordinary method of lifting the stamps.

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

1. In combination with an ore-stamp stem having a continuous rotary motion imparted to it, the two stationary inclined planes E E', surrounding or concentric with the stem, and placed in positions relatively opposed to each other, and the two tappets F F', secured upon the stem in positions also opposed to each other,

and coinciding with their respective planes, whereby the rotating motion of the stamp-stem will cause it to be lifted and dropped in a vertical line and allow it to work in loose bearings, constructed and applied substantially as described and set forth.

2. In combination with an ore-stamp stem working in loose bearings, and having its lifting and dropping movements produced by the stationary inclined planes, and the tappets fixed on the stem in positions diametrically opposed to each other, as described, the means for rotating the said stem without affecting its vertical position and movement, consisting of the hori-

zontal pulley H, fixed on the stem and driven by a belt from a driving-shaft, and the vertical frictional pulleys *b b*, situated at the back of the stem, above and below the said pulley, and in position to resist the pull or tension of the driving-belt, substantially as herein described and set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 26th day of November, 1878.

RICHARD F. BRIDEWELL.

Witnesses:

PHILIP MAHLER,  
EDWARD E. OSBORN.