No. 815,936. PATENTED MAR. 27, 1906.

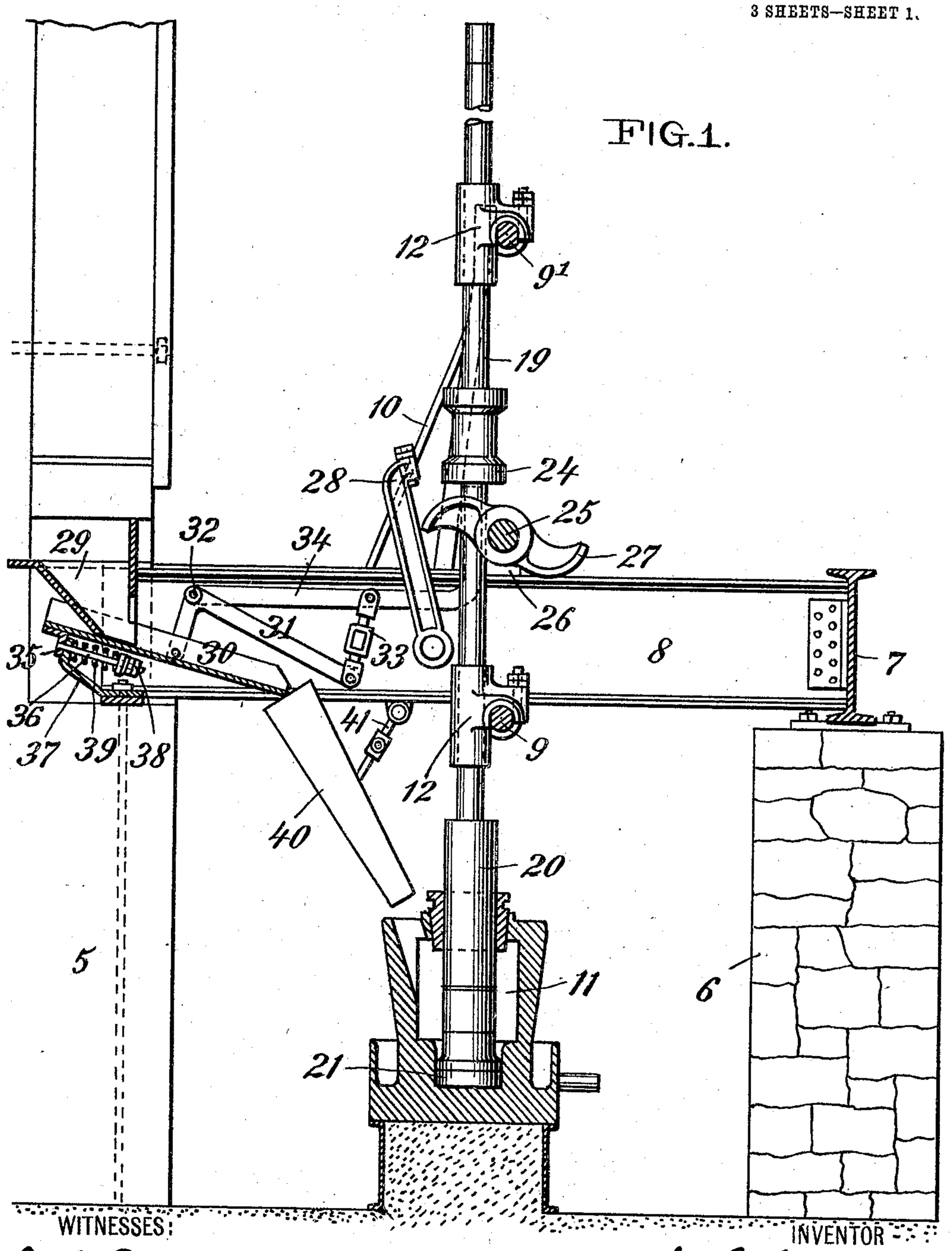
M. P. BOSS.

STAMP MILL.

APPLICATION FILED JAN. 14, 1903.

3 SHEETS—SHEET 1.

FIG. 1.



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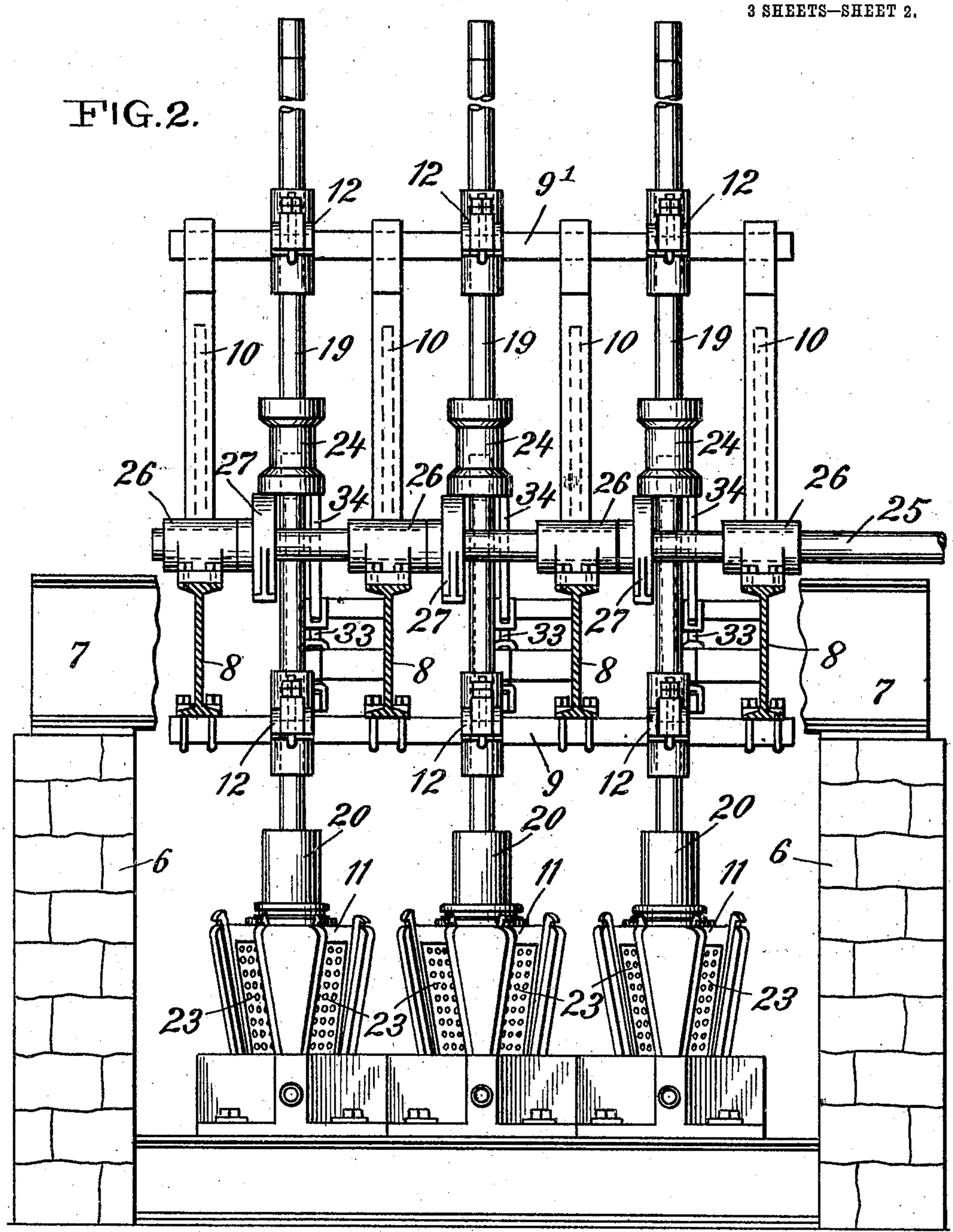
3 SHEETS—SHEET 2.

FIG. 2.



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3 SHEETS—SHEET 3.

FIG. 3.

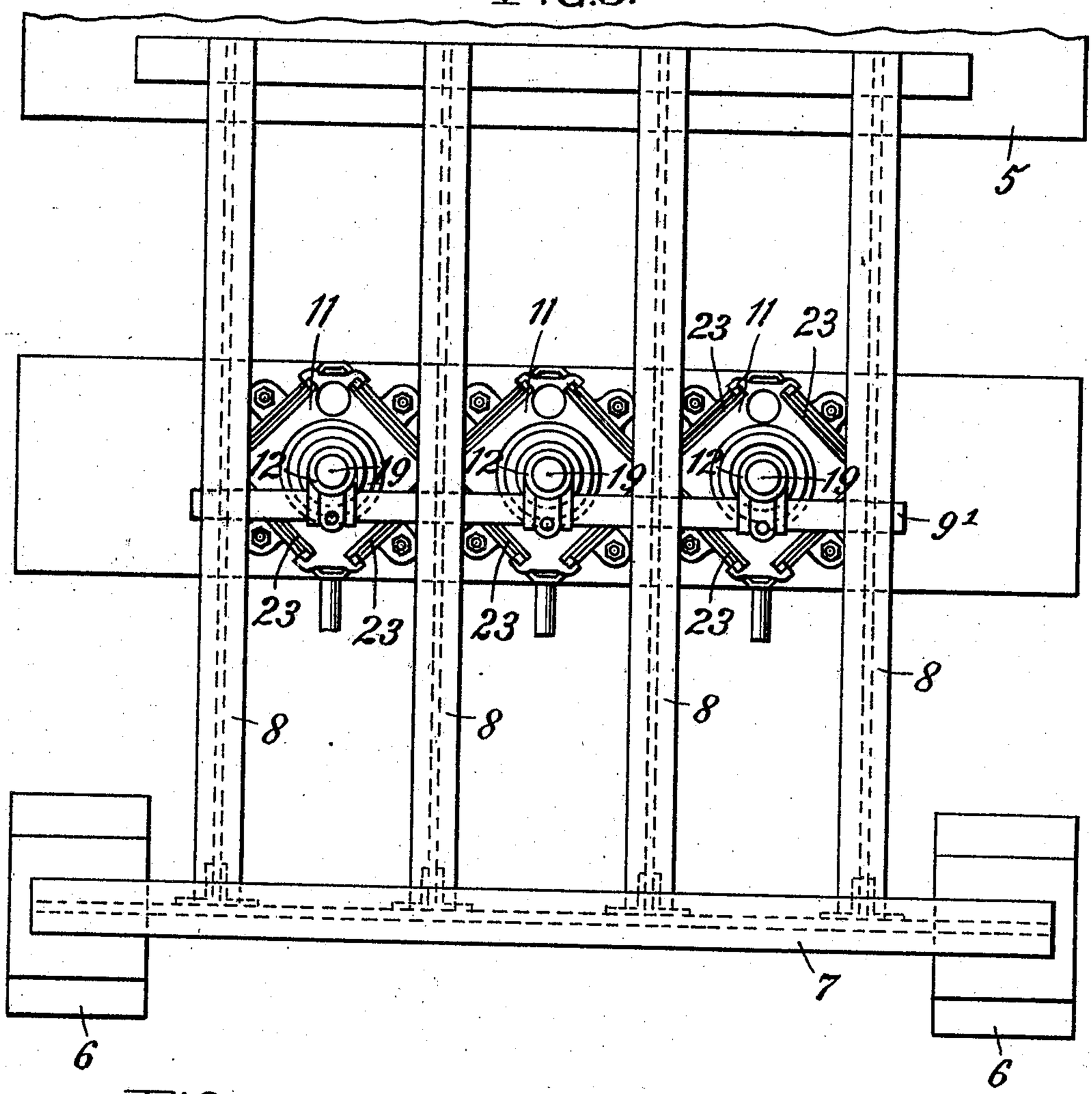


FIG. 4.

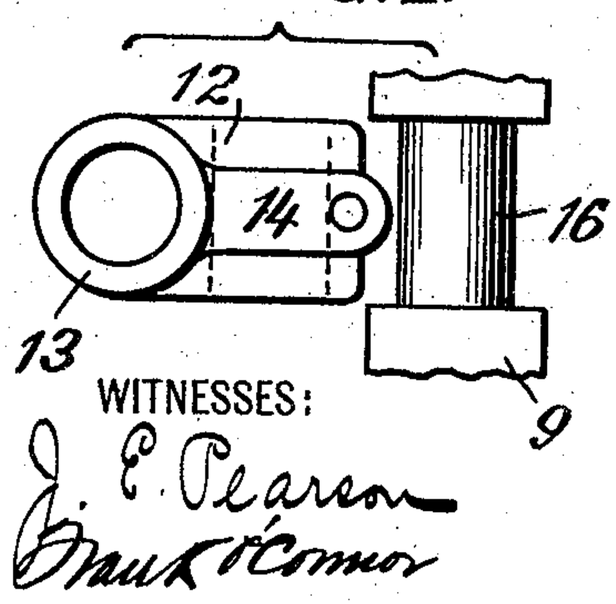


FIG. 5.

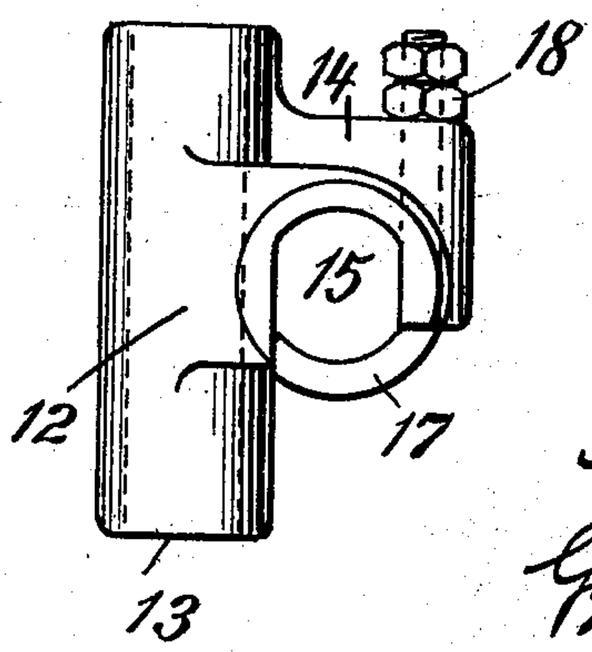
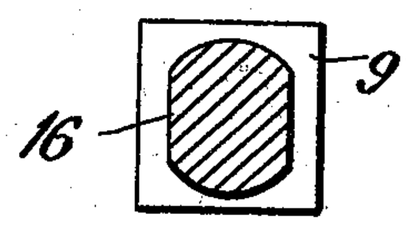


FIG. 6.



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UNITED STATES PATENT OFFICE.

MARTIN PRIOR BOSS, OF SAN FRANCISCO, CALIFORNIA.

STAMP-MILL.

No. 815,936. Specification of Letters Patent. Patented March 27, 1906.

Application filed January 14, 1903. Serial No. 139,007.

To all whom it may concern:

Be it known that I, MARTIN PRIOR BOSS, a citizen of the United States, residing at San Francisco, county of San Francisco, State of California, have invented certain new and useful Improvements in Stamp-Mills, of which the following is a specification.

My invention relates to stamp-mills of the type used for reducing or crushing rock, ores, and the like; and it consists in a particular construction of the supporting-frame for the moving parts. Heretofore it has been the universal custom to erect frames for such stamps by first laying a sill below or near the plane upon which rests the mortar wherein the rock is crushed and from this sill erecting a massive vertical post. To this post was hung the cam-shaft and also the guide-girths to which were attached the guides for the stamps, making a very cumbersome top-heavy affair requiring very strong bracing.

The object of my invention is to greatly simplify this construction and at the same time improve it by giving freer accessibility to the working parts. To accomplish this end, I raise the sill to a height proper to take the cam-shaft boxes thereon, which incidentally gives free head room for a man to walk and work below it unhampered by posts and braces. These sills I support at the ends. One end I prefer to rest on the retaining-wall under the ore-bin and the other end to a girder, which in turn is supported by a series of pillars conveniently spaced. This arrangement brings my lower guide-girth at or near the lower side of the sill or cross-girder, the upper guide-girth being carried by a light post or standard in lieu of the massive post carrying all of the moving parts.

The accompanying drawings will serve to illustrate my invention, in which similar numerals indicate like parts.

Figure 1 is a side view of a stamp-mill with a portion of the supporting-frame, mortar, and the supporting-base for the mortar in section. Fig. 2 is a front view of a gang stamp-mill consisting of three stamps and showing a portion of the supporting-frame broken away. Fig. 3 is a plan view. Fig. 4 is a top view of a portion of the lower guide-girth and a top view of one of the guides for the stamp-stem. Fig. 5 is a side view of one of the guides for the stamp-stem. Fig. 6 is a transverse section of a guide-girth at its cut-away portion.

In the drawings, 5 indicates the retaining-wall of an ore-bin. Arranged opposite to this wall are the supporting-pillars 6. In the drawings these pillars are shown as constructed of stone. They may, however, be constructed as iron columns, wooden beams, or otherwise. Arranged across the top of the pillars 6 is a longitudinal girder 7. That shown in the drawings is formed as an ordinary I-beam. It may, however, be formed of a truss-beam or a wooden beam. Arranged between the retaining-wall 5 and the girder 7 are the sills 8, each of which has one end located in a recess in the wall 5 and the other end secured to the girder 7. These sills, like the girder 7, may be I-beams, truss-beams, or wooden beams. In the plan view, Fig. 3, four of such sills are shown arranged equidistant and in such manner that a sill will be located vertically over each end of a mortar-box. Secured to the bottom of the sills 8 in any suitable manner is a guide-girth 9. This girth I prefer to make square in section where it is attached to the sills 8 It, however, may be given any suitable section. Mounted upon each sill is an upright frame 10, to which is connected in any suitable manner a second guide-girth 9′, arranged parallel with the lower guide-girth. Mounted upon the guide-girths 9 9′ and in the axial line of the mortar-boxes 11 are the guides 12 for the stamp-stems. (Best shown in Figs. 4 and 5.) These guides consist of the sleeve portion 13 and the projecting arm portion 14. The arm portion 14 is shaped at the bottom 15 to receive the cut-away portion 16 of the guide-girths 9 9′. In order to prevent the guides 12 from rotating on the guide-girths, I prefer to make the sides of the shaped portion 15 and the cut-away portion 16 of the guide-girths parallel. The cut-away portion of the guide-girths 9 9′, as well as the shaped portion of the arm 14, may, however, be given any desired section—as, for instance, a circular section.

To secure the guides 12 in position on the guide-girths, I may make use of the hook-bolt 17, which may be secured and adjusted by means of the nuts 18. Located in the guides 12 and arranged to reciprocate therein is the stamp-stem 19. Secured to the bottom of the stem is a stamp-head 20, on the end of which is a stamp-shoe 21. The stamp-head and stamp-shoe are arranged to have a vertical movement in the mortar 11. These mortars I prefer to arrange as shown in Fig. 3—*i. e.*, with the screens 23 of adjacent mortars disposed at an angle to each other. Secured

to the stamp-stem 19 above the sill 8 is a block or tappet 24, and mounted upon a shaft 25, having its bearings in boxes 26, is a shaped cam 27.

28 indicates a stop pivoted on a sill 8, such as is commonly used to hold the stamp in a raised position.

Arranged at the left of the stamp is a feed-chute 29 from the ore-bin adapted to discharge upon an automatic feed-table 30. The table 30 is mounted upon a bell-crank lever 31, pivoted at 32. The short arm of the lever is connected to the table 30, and the long arm is carried downward and connected, through a turnbuckle 33, with a second lever 34, pivoted at one end at 32 and having its opposite end carried forward and upward under the tappet 24. On the left-hand end of the table 30 is a bracket 35, to which is connected a rod 36, which passes through an opening in a bracket 37, secured to one of the sills 8. Connected to the rear end of the rod 36 are the adjusting-nuts 38, and between these nuts and the upper portion of the bracket 37 is a coiled spring 39. Situated under the forward end of the table 30 and adapted to discharge into the mortar-box 22 is a chute 40.

It will be understood that when the stem 19 is reciprocated by the action of the cam 25 the tappet 24 in falling will strike the end of the lever 34, which acting through the bell-crank 31 serves to swing the table 30 backward and to compress the spring 39, which when the tappet 24 moves upward returns the table to its original position.

41 indicates a pipe through which water may be discharged into the chute 40.

I do not limit myself in any wise to the employment of an automatic feed-table of the character described, as other well-known tables may be used in its place.

It will be observed from the construction shown and described that the support for the cam-shaft boxes is located wholly above the mortar or mortars and that access may be had to all sides of the mortars unimpeded by any portion of the supporting-frame.

I wish it understood that I do not limit myself to the precise construction of the supporting-frame shown and described, providing the sills and the operating mechanism for the moving parts are located above the mortar, as many changes may be made in such frame without in any wise departing from the intent of my invention. I wish it understood that I do not claim the features of construction of the mortar as illustrated and described, as the same has been made the subject of a copending application, Serial No. 139,006, filed January 14, 1903.

Having thus described my invention, I claim—

1. In a stamp-mill, the combination with a guide-girth of rectangular cross-section having reduced cylindrical portions shaped to provide parallel flats, of guides mounted on such reduced portions, and clamp-bolts securing said guides.

2. In a stamp-mill, the combination of a longitudinal girder, supporting-pillars therefor, situated entirely independent of the mortar-boxes of said mill, a series of parallel sills connected at one end to said girder, means for supporting the opposite end of the sills, guide-girths connecting said sills, guides on said guide-girths, a series of mortar-boxes arranged in line, a series of stamps movable in said guides, and means mounted on said sills for reciprocating the stamps.

3. In a stamp-mill, the combination of a series of rectangular mortars with diagonals in alinement having their screen-openings arranged at an angle to the cam-shaft, a series of sills located above said mortars and entirely independent of said mortars, a series of stamps adapted to reciprocate midway between said sills, guide-girths connecting said sills at top and bottom, guides on said guide-girths, in which the stamps reciprocate, tappets on said stamps, a cam-shaft mounted on said sills parallel with the guide-girths, and cams on said shaft located under the tappets on the stamps.

4. In a stamp-battery, the combination of a suitably-supported **I**-beam platform, elevated with respect to the mortars, and made up of two longitudinal girders and a series of transverse ones, any two of which carry the mountings of one stamp arranged as follows—cam-shaft carried by top flange, lower guide-girth attached to bottom flange, upper guide-girth supported by framing from the platform, guides on each girth, and a stamp-stem reciprocating therein.

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

MARTIN PRIOR. BOSS.

Witnesses:
D. C. KELLEY,
ALLEN HILL.