No. 637,471. Patented Nov. 21, 1899.

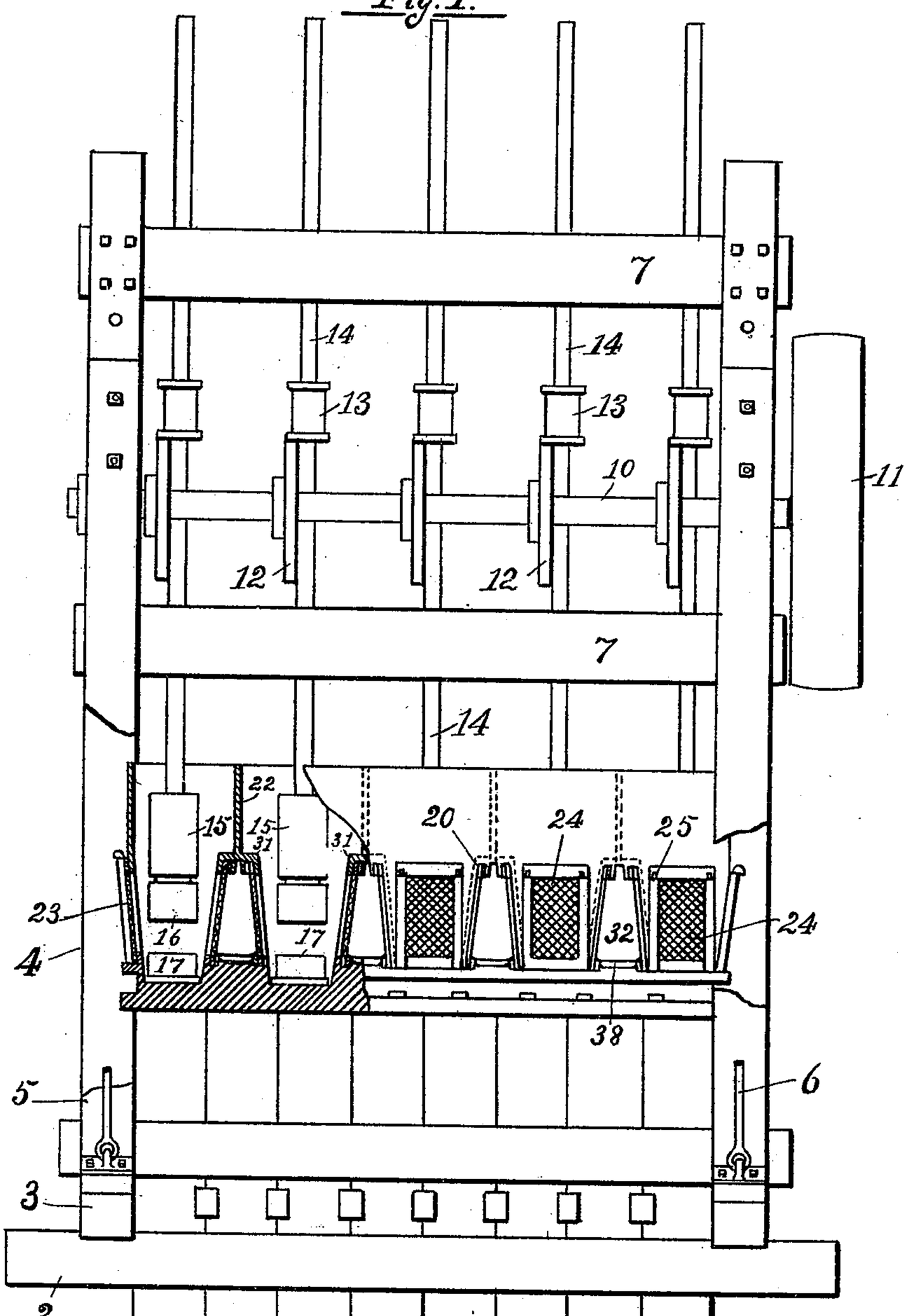
W. A. MERRALLS.

MORTAR FOR STAMP BATTERIES.

(Application filed Aug. 26, 1898.)

(No Model.) 2 Sheets—Sheet 1.

Fig. I.



Witnesses,

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S. H. Haught

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William A. Merralls,

By Francis M. Wright, Atty.

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Fig. II.

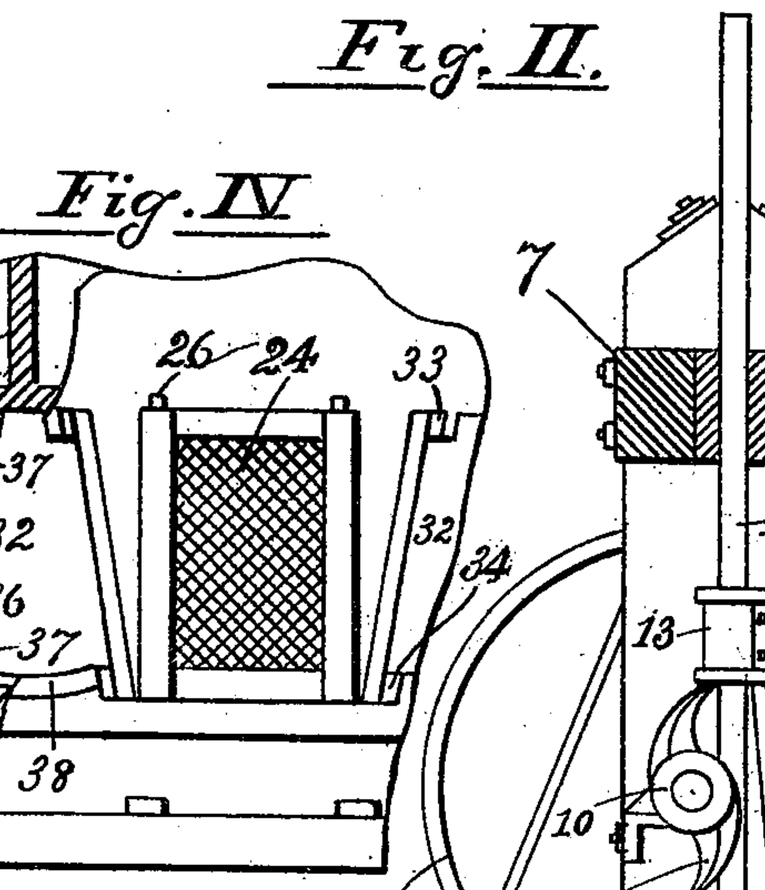

Fig. IV

Fig. V.

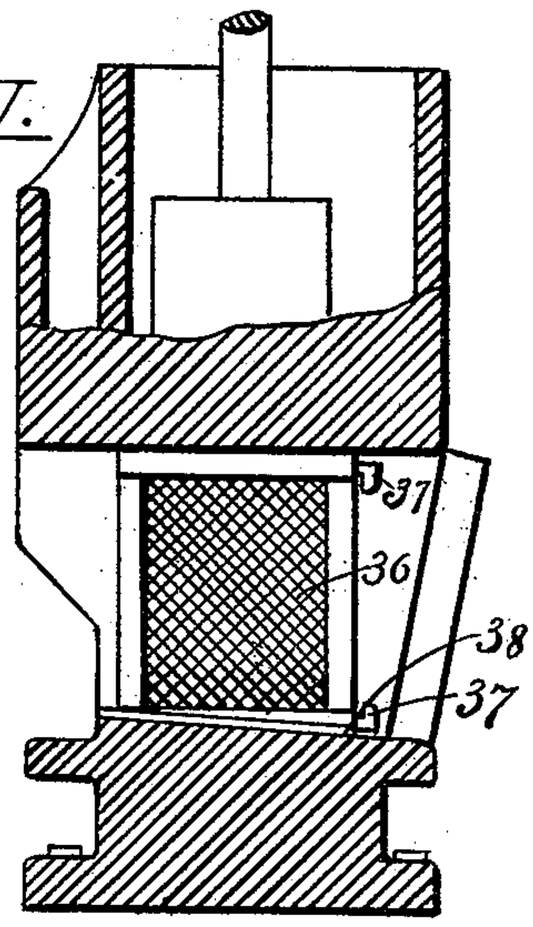

Fig. III.

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UNITED STATES PATENT OFFICE.

WILLIAM A. MERRALLS, OF SAN FRANCISCO, CALIFORNIA.

MORTAR FOR STAMP-BATTERIES.

SPECIFICATION forming part of Letters Patent No. 637,471, dated November 21, 1899.

Application filed August 26, 1898. Serial No. 689,580. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. MERRALLS, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Mortars for Stamp-Batteries, of which the following is a specification.

My invention relates to improvements in mortars for stamp-batteries, the object of my invention being to provide a mortar which shall permit of a greatly-increased capacity of the battery with very slight additional cost of construction and no greater expense in operation, one, moreover, by the use of which the ore shall be discharged as soon as reduced to the degree of fineness required, so as not to be rendered slimy, and one which shall permit of any individual stamp of the battery being repaired or renewed at any time without stopping or in any way interfering with the operation of the remaining stamps.

My invention therefore resides in the novel construction, combination, and arrangement of parts for the above purposes hereinafter fully specified, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a front elevation of a five-stamp battery constructed in accordance with my invention, parts being broken away to show the internal construction. Fig. 2 is a vertical section of the same, taken through one of the stamps. Fig. 3 is a horizontal section taken above the shoes. Fig. 4 is an enlarged front elevation of the battery with parts broken away and parts in section, and Fig. 5 is an enlarged detail vertical section between opposing inner discharge-screens of two adjacent stamps.

Referring to the drawings, which show a five-stamp battery in which my improved mortar is used, 1 represents the base or foundation of the battery, having the longitudinal sills 2, transverse sills 3, uprights 4, struts 5, ties 6, and cross-beams 7, forming a frame such as is commonly used with the present form of battery.

10 is the cam-shaft, driven by the pulley 11 and carrying cams 12, one for each stamp, engaging tappets 13 on the stems 14. Each stem 14 carries the head 15 and the shoe 16, operating above the die 17. This construction does not differ from that at present in use.

20 represents my improved mortar in which said stamps work and which receives the ore to be crushed. Said mortar is provided in its rear wall or plate with separate feed holes or chutes 21, one for each stamp, and is divided transversely by vertical partitions or walls 22 integral with the front and rear plates of the mortar, forming separate chambers for the several stamps. The ore is discharged at the ends of the mortar through the discharge-screens 23 and at the front through the screens 24, one for each chamber. Said screens 23 and 24 are inserted in the upwardly-extending grooves or guides 25 and are secured by the usual keys 26. The partitions 22 extend downwardly to about the height of the top of the screens 23 24, and the lower edge of each partition joins one of a series of narrow horizontal walls 31, so that said vertical and horizontal walls form inverted-T sectional transverse webs integral with the front and rear plates. In its front plate between each pair of the openings for the screens 24 the mortar is cut away divergently downward from the height of the wall 31, and therefore from substantially the same height as the top of the openings for the screens 24, to form apertures divergently downward, as shown at 32, and is provided on each side with upper and lower horizontal guides 33 34 for the reception of lateral discharge screens or frames 36, said frames being inserted therein from the front and secured by keys 37. Said screens when in position stand obliquely and at about the same inclination to the vertical as the front and end screens 24 23 and substantially coextensive vertically with said screens, and there are thus provided between opposing screens channels or conduits 38, sloping toward the front, as clearly shown in Fig. 5.

This construction of mortar provides a greatly-increased capacity for discharge over the mortars at present in use, so that even when the ore-feeder is operated at a much higher speed the pulp is discharged as fast as it is reduced to the required degree of fineness, and sliming is prevented. The capacity of the battery is thus greatly increased. Fur-

thermore, it permits any stamp of a series to be independently examined, repaired, and renewed. With the present construction this is impossible, as the splashing from the other stamps will effectually prevent any examination or repairing of one of them; but with my improved mortar any one of the stamps can be hooked up and the other four may be permitted to remain at work while repairs are being made or the shoe renewed on the stationary stamp.

I claim—

1. A mortar for a stamp-battery having a series of screen-openings in its front plate and means for removably supporting front discharge-screens over said openings, said front plate having an aperture between each pair of screen-openings, said apertures being adapted to receive a pair of lateral discharge-screens substantially coextensive vertically with the front screens, inverted-T sectional transverse webs integral with the front and rear plates, and extending from the front plate, one above each aperture, to the rear plate, and means, carried by the lower or horizontal portion of the web, for removably supporting said lateral screens in a position transverse to the front screens, substantially as described.

2. A mortar for a stamp-battery having a row of chambers, the rear wall of the mortar having a row of feed-holes adapted for feeding into the respective chambers, and the front wall having a row of screen-openings in front of the respective chambers, means for removably supporting front discharge-screens over said screen-openings, said front plate having an aperture between each pair of screen-openings, said apertures being adapted to receive a pair of lateral discharge-screens substantially coextensive vertically with the front screens, means for removably supporting said screens, passed through said apertures, in a position transverse to the front screens, and vertical transverse walls, integral with the front and rear plates, and extending from the front plate, one above each aperture, to the rear plate, substantially as described.

3. A mortar for a stamp-battery having a row of chambers the rear wall of the mortar having a row of feed-holes adapted for feeding into the respective chambers, and the front wall having a row of screen-openings in front of the respective chambers, means for removably supporting front discharge-screens over said screen-openings, said front plate having an aperture between each pair of screen-openings said apertures diverging downwardly from substantially the same level as the top of the screen-openings, whereby a pair of lateral screens, substantially coextensive vertically with the front screens, can be inserted through said aperture, horizontal walls extending from the front plate to the rear plate over said apertures, said walls having guides for supporting said screens transverse to the front screens, and vertical walls extending above and continuous with the horizontal walls and forming partitions for the several chambers above said lateral screens, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WILLIAM A. MERRALLS.

Witnesses:

A. J. HENRY,

FRANCIS M. WRIGHT.