No. 647,057. Patented Apr. 10, 1900.

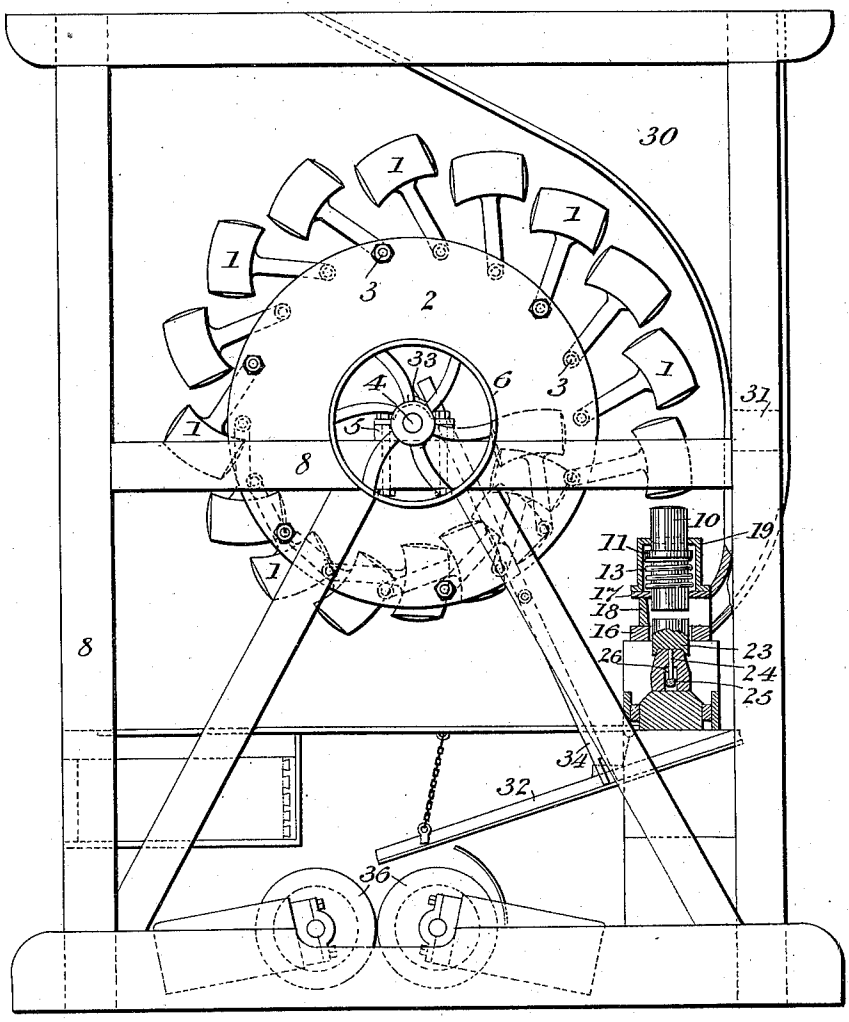
M. WEBER.

STAMPER BATTERY.

(Application filed Apr. 14, 1899.)

(No Model.) 5 Sheets—Sheet 1.

Fig. 1.



Witnesses:
Louise Kiedmann.
Joseph Gafsung.

Inventor.
Marinus Weber
by Dr. L. C. Böhm
his Atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 647,057. Patented Apr. 10, 1900.

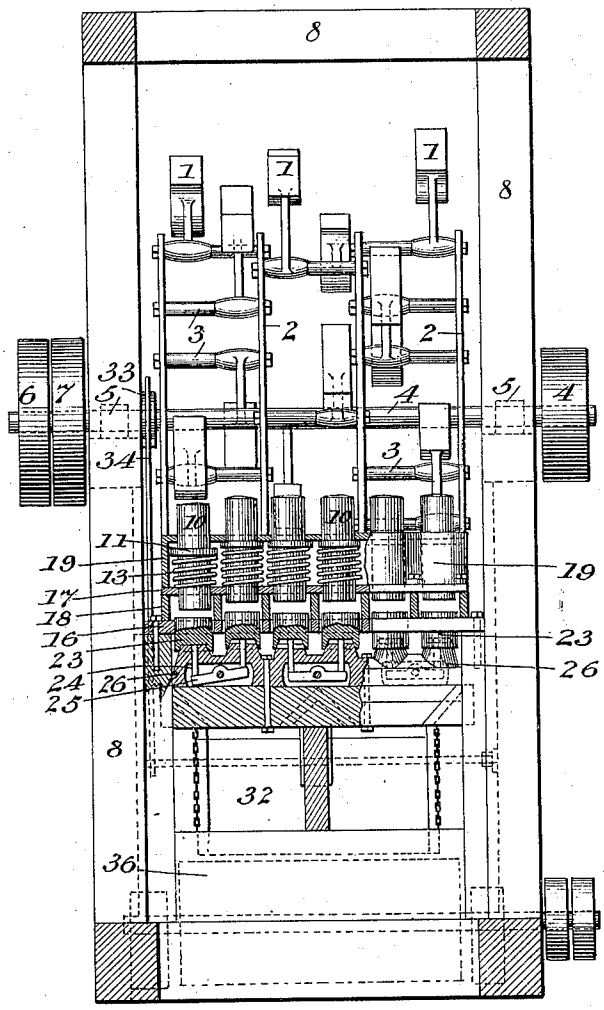
M. WEBER.

STAMPER BATTERY.

(Application filed Apr. 14, 1899.)

(No Model.) 5 Sheets—Sheet 2.

Fig. 2



Witnesses:
Louise Friedmann.
Joseph Gifford

Inventor:
Marinus Weber
by Dr. L. C. Böhm
his Atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 647,057. Patented Apr. 10, 1900.

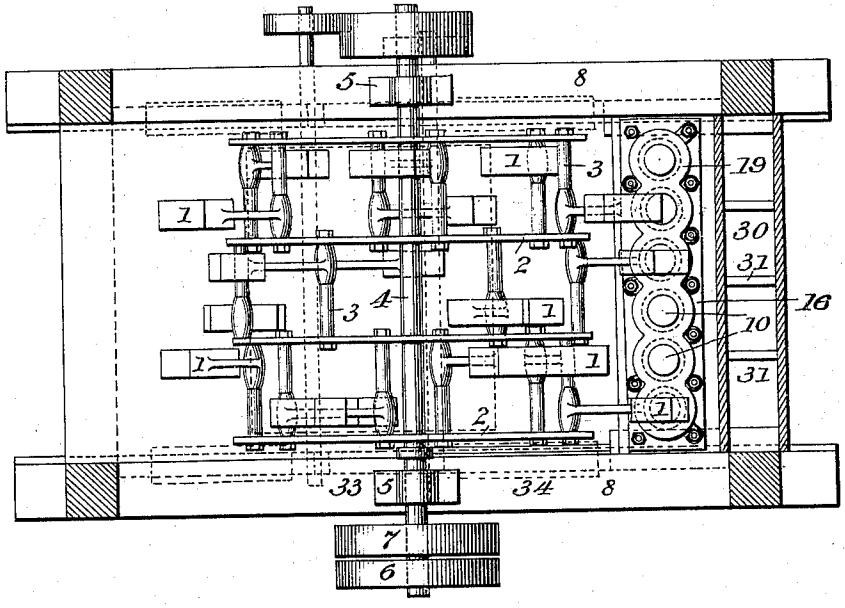
M. WEBER.

STAMPER BATTERY.

(Application filed Apr. 14, 1899.)

(No Model.) 5 Sheets—Sheet 3.

Fig. 3.



Witnesses:
Louis Kuhlmann.
Joseph Gifford.

Inventor:
Marinus Weber
by A. L. E. Bohm
his Atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 647,057. Patented Apr. 10, 1900.

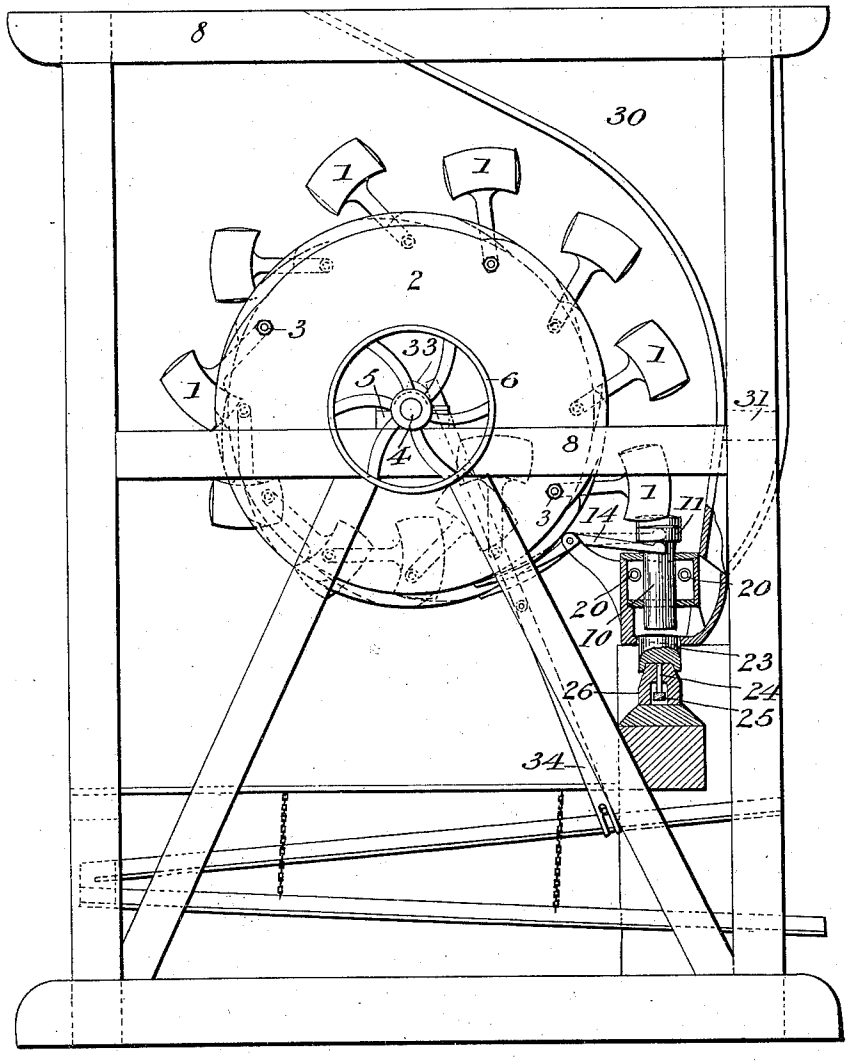
M. WEBER.

STAMPER BATTERY.

(Application filed Apr. 14, 1899.)

(No Model.) 5 Sheets—Sheet 4.

Fig. 4.



Witnesses:
Louise Kiedmann.
Joseph Lipman

Inventor:
Marinus Weber
by Dr. L. Ch. Böhm
his Att'y.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 647,057. Patented Apr. 10, 1900.

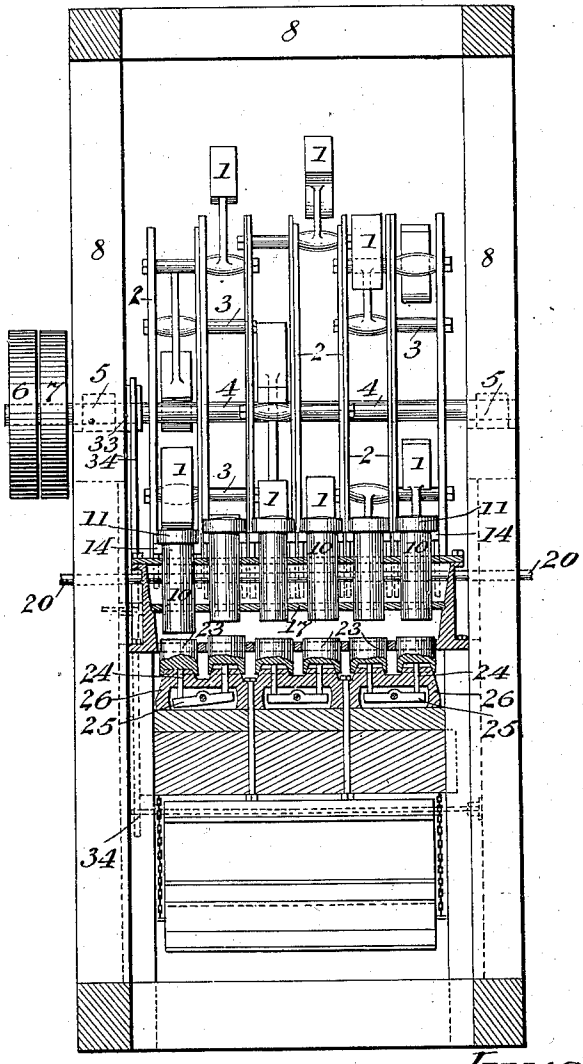
M. WEBER.

STAMPER BATTERY.

(Application filed Apr. 14, 1899.)

(No Model.) 5 Sheets—Sheet 5.

Fig. 5.



Witnesses:

Louis Stiedmann.

Joseph Gipsun

Inventor:

Marinus Weber

by Dr. L. A. Bohm

his Atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

MARINUS WEBER, OF ADELAIDE, SOUTH AUSTRALIA.

STAMPER-BATTERY.

SPECIFICATION forming part of Letters Patent No. 647,057, dated April 10, 1900.

Application filed April 14, 1899. Serial No. 713,072. (No model.)

To all whom it may concern:

Be it known that I, MARINUS WEBER, a citizen of the Republic of Switzerland, and a resident of the city of Adelaide, in the Colony of South Australia, have invented certain new and useful Improvements in Stamper-Batteries, (for which I filed applications for Letters Patent in Western Australia November 12, 1898; in Victoria November 7, 1898; in New South Wales November 19, 1898; in Queensland December 6, 1898; in New Zealand November 22, 1898, and in Canada January 12, 1899, Serial No. 84,290,) of which the following is a specification.

This invention is designed to supply an improved stamper-battery by which a given amount of ore or material can be crushed more quickly and at a much less expenditure than by present appliances. The invention is based on the principle of providing a number of hammers pivoted near the periphery of a revolving wheel or a set of revolving circular plates in connection with a corresponding series of disconnected stampers suitably constructed and arranged in suitable boxes for the purpose of enabling the force of the revolving hammers to be effectively applied.

In order that my invention may be clearly understood, I will describe the same with reference to the accompanying drawings, in which—

Figure 1 is a side view of my improved stamper. The battery-box and portion of the bed of same are in section. Fig. 2 is a front view of the same. The hopper and portion of the front of the battery-box are removed and portion of the bed is shown in section. Fig. 3 is a plan with the upper portion of the hopper and of the main frame removed. Figs. 4, 5, and 6 are similar views of a battery, showing a modification of the arrangement shown in Figs. 1, 2, and 3. Figs. 7 and 8 are sectional views showing another arrangement of battery-box.

I will first describe Figs. 1, 2, and 3. The hammer-wheel 2, to which the hammers 1 are hung, may be made of one or more pieces in any convenient manner. I prefer to employ a number of circular plates connected together by suitable bolts 3, upon which the hammers are hung. This wheel is mounted on a central spindle 4, the bearings 5 of which are supported by a main frame 8. The spindle is provided with fast and loose pulleys 6 and 7, whereby it is operated by steam or other power. I have shown eighteen hammers in six sets of three, the hammers of each set being arranged to strike in rotation upon one of the stampers 10. The stampers 10 are arranged within a specially-devised battery-box having two compartments, an upper and a lower. The bottom plate 16 extends the full length of the battery-box and is provided with apertures, one beneath each stamper, an anvil-block 23 to receive the stroke of the stamper being fitted within each aperture. A little above this bottom plate is an intermediate plate 17, which is provided with apertures, one for each stamper. Between the plates is a distance piece or frame 18, which extends along the back and the two ends of the stampers and with the plates forms the lower compartment of the battery-box in which the ore is crushed. Above the intermediate plate 17 is a hood 19, in the top plate of which are like apertures, one for each stamper. This forms the upper compartment. The two apertures—namely, that in the top of the hood and that in the intermediate plate—form guides for each stamper, through which they are raised and depressed, crushing the ore upon the corresponding anvil-block in the bottom plate. Within the hood 19 are springs 13, preferably spiral, one to each of the stampers 10, whereby the stamper is lifted after the retreat of the hammer. The spring 13 encircles the stamper, the upper end of the spring fitting immediately beneath a collar 11 on the stamper and the bottom end resting upon the top of the intermediate plate 17. Each of the anvil-blocks 23 beds upon the specially-formed bed-block 26 and has at its center a downwardly-projecting stem 24, the bottom of which impinges upon an oscillating lever 25, pivoted in the bed-block and so adjusted that as one anvil-block is depressed to the bed-block another is raised from the bed-block. Sufficient space is left between the outside of the anvil-block and the hole in the bottom of the battery-box to allow the finely-crushed material to drop through onto the inclined surfaces of the bed-block 26 and its supporting-beam and thence to a shaking-sieve 32, which leads any ma-

terial which is too coarse for treatment to a pair of rollers 36, where it is crushed to the necessary fineness. The anvil-block has a downwardly-projecting circular lip fitting around the projection of the bed-block to prevent any material lodging between the anvil-block and the bed-block. The sieve 32 is supported from the main frame by chains or other connections and operated by a suitable cam arrangement 33 on the main spindle and operating-levers 34. The rollers 36 are operated by means of belts and pulleys from the main spindle 4. The hopper 30 is arranged to feed the material to the front of the lower compartment of the battery-box and is provided at intervals with bars 31, which regulate the flow of the ore and prevent it from jamming together.

In operation the ore is placed in the hopper 30 and passes down to the lower compartment of the battery-box to between the bottom of the stamper 10 and the top of the anvil-block 23. On the hammer-wheel 2 being rotated the hammers 1 are caused to fly out from the wheel, and each one of each set in rotation strikes the stamper to which it belongs, driving it downward and crushing the material beneath it. Immediately the blow has been struck the hammer rebounds toward the center of the wheel and is carried past the battery-box before it swings outward again, and the stamper is lifted by the spring 13, allowing a fresh supply of ore to fall onto the anvil-block. When the stamper is driven downward, the anvil-block is caused to bed firmly on the bed-block, the stem 24 depressing one end of the oscillating lever 25, thereby lifting the anvil-block above the other end of that lever. The object of the oscillation is to prevent the crushed material lodging between the anvil-block and the aperture in the bed of the battery-box and to cause it to pass away freely. The crushed material falls down the inclined faces of the bed-block and its supporting-beam and thence onto the sieve.

The above arrangement is specially applied to dry crushing.

Referring to Figs. 4, 5, and 6, in this arrangement the springs 13 are dispensed with and in place thereof the stampers 10 are raised by means of levers 14, each of which has at one end a cheek which engages the under side of the collar 11 on the stamper, while the other end impinges upon the periphery of the wheel-plate. The periphery of the wheel-plate is specially designed and shaped to operate the levers which lift the stampers, so that when the hammer has delivered its blow on the stamper and retreated therefrom the one end of the lever is depressed by the wheel-plate raising the other and with it the stamper and then letting it drop immediately before the strike of the next hammer. In this construction I have shown only twelve hammers in six sets of two each. The battery-box is specially designed for wet crushing and the back and front and ends and the bottom are made in one solid casting, apertures being provided in the bottom for the anvil-blocks. The stampers are guided and supported in apertures in an intermediate plate and the top plate of the battery-box, as in the previous arrangement. Underneath the top of the battery-box are two pipes 20, extending from end to end, for the supply of water. The arrangement of anvil-blocks and bed-blocks and of the hopper is the same as previously described; but instead of the shaking-sieve the crushed material is delivered to amalgamating-tables or other suitable gold-saving device. Above the amalgamating-tables a floor is attached to the frame to prevent oil or other matter dropping into them. Beneath this floor is a drawer for holding tools or anything desired. The method of operation in this case is the same as that previously described, except that the stampers are lifted by the levers 14 instead of by springs.

In Figs. 7 and 8 another form of battery-box is shown. In place of the anvil-blocks 23, as previously described, I employ oscillating bars 28, one at the back and the other at the front of a central bed, oscillating upon projections from that central bed. The bars are placed in position from the front and from the back, the front and the back of the battery-box being hinged to open, as shown in dotted lines in Fig. 7, to enable this to be done. The stampers 10 are supported in apertures in guide-plates, as previously described, which are secured to the ends of the stamper-box. In this case the crushed material passes down between the oscillating bars and the central bed-block and is discharged through slots or passages 29 in the cross-piece of the frame.

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

1. A stamper-battery consisting of a supporting-frame, a hammer-wheel composed of a multiple of circular plates connected by bolts, a multiple of swinging hammers hung on the bolts and means for applying power to the wheel in combination with a stamper-box of two compartments having apertures, disconnected stampers mounted in the apertures, means for raising the stampers, oscillating anvil-blocks, and a hopper supplying ore to the anvil-blocks, as specified.

2. A stamper-battery consisting of a supporting-frame, a hammer-wheel composed of a multiple of circular plates connected by bolts, a multiple of swinging hammers hung on the bolts and means for applying power to the wheel in combination with a stamper-box of two compartments having apertures, disconnected stampers mounted in the apertures, means for raising the stampers, oscillating anvil-blocks, a hopper supplying ore to the anvil-blocks and a pair of crushing-rollers below, as specified.

3. A stamper-battery consisting of a sup-

porting-frame, a hammer-wheel composed of a multiple of circular plates connected by bolts, a multiple of swinging hammers hung on the bolts and means for applying power to the wheel in combination with a stamper-box of two compartments composed of oscillating anvil-blocks forming the bottom, plates forming the sides, ends, and the top, and an intermediate plate, said top and intermediate plate being provided with corresponding apertures, disconnected vertical stampers mounted in the apertures of the box provided each in its upper portion with a collar, a circular spring surrounding the stamper between the collar and intermediate plate, and means for operating the stampers, as specified.

4. A stamper-battery consisting of a supporting-frame, a hammer-wheel composed of a multiple of circular plates connected by bolts, a multiple of swinging hammers hung on the bolts and means for applying power to the wheel in combination with a stamper-box of two compartments composed of oscillating anvil-blocks forming the bottom, plates forming the sides, ends, and the top, and an intermediate plate, the top and intermediate plate being provided with corresponding apertures, disconnected vertical stampers mounted in the apertures of the box provided each in its upper portion with a collar, a circular spring surrounding the stamper between the collar and intermediate plate, the oscillating anvil-blocks having each in its center a downwardly-projecting stem, and pivoted oscillating levers below, as specified.

5. In a stamper-battery a stamper-box of two compartments composed essentially of oscillating anvil-blocks forming the bottom, plates forming the sides, ends, and the top, and an intermediate plate; the top plate and intermediate plate being provided with corresponding openings in combination with vertical stampers mounted in the apertures of the box and each provided in its upper portion with a collar, a circular spring surrounding the stamper between the collar and the intermediate plate, and means for operating the stampers, as specified.

6. In a stamper-battery a stamper-box of two compartments composed essentially of oscillating anvil-blocks forming the bottom, plates forming the sides, ends and the top, and an intermediate plate; the top plate and intermediate plate being provided with corresponding openings; in combination with vertical stampers mounted in the apertures of the box and each provided in its upper portion with a collar and a circular spring surrounding the stamper between the collar and the intermediate plate, and oscillating anvil-blocks having each in its center a downward-projecting stem, and pivoted oscillating levers below, as specified.

7. In a stamper-battery a pair of oscillating anvil-blocks, bed-blocks upon which the anvil-blocks bed, a downwardly-projecting stem in the center of each anvil-block, and an oscillating lever pivoted in the bed-block on whose ends impinge the bottoms of the stems, so that, as one anvil-block is depressed to the bed-block the other one is raised from it, as specified.

MARINUS WEBER.

Witnesses:
C. A. MURPHY,
F. W. D. WORTH.