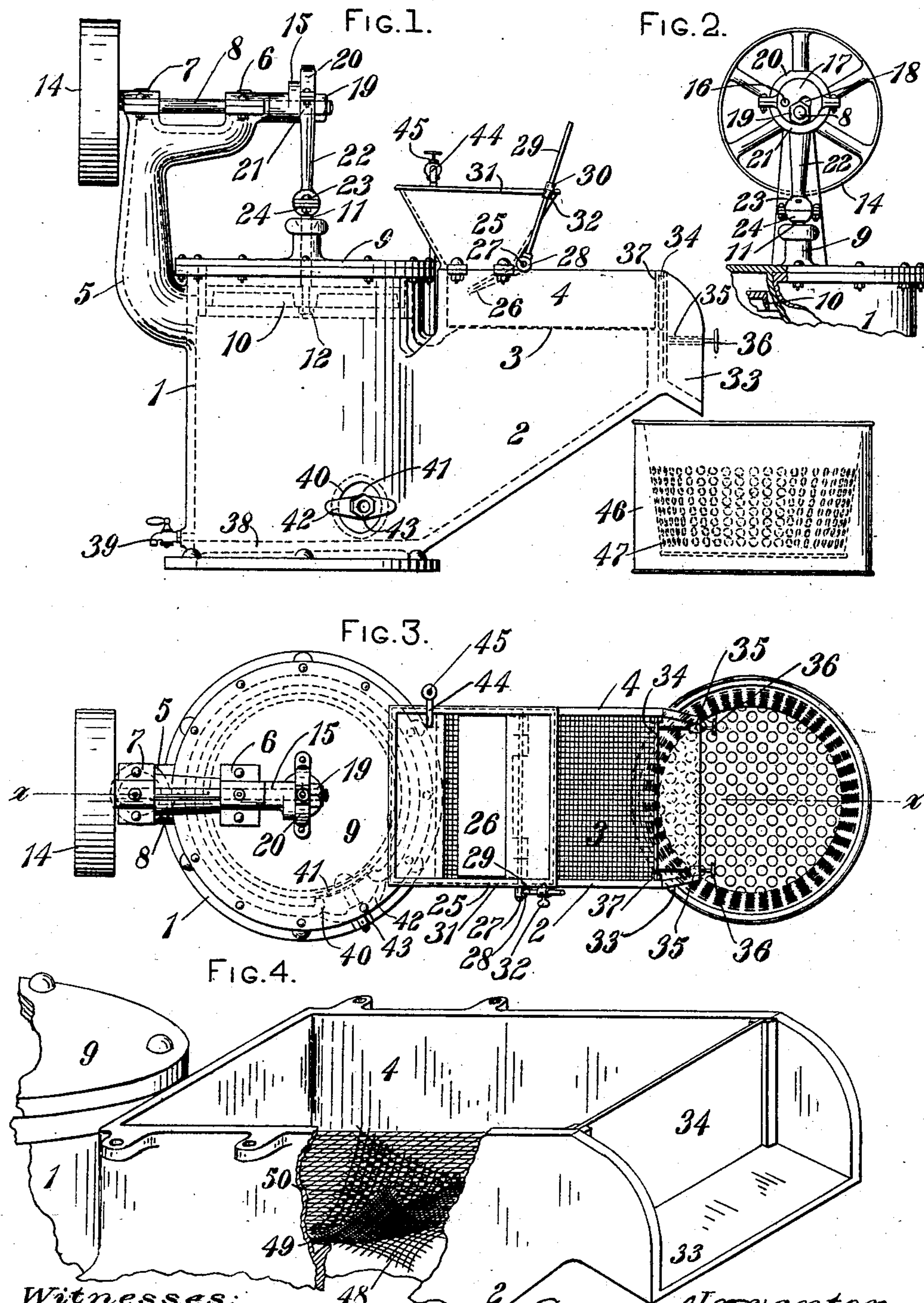


No. 886,152.

PATENTED APR. 28, 1908.

E. G. PFAU.
FOUNDRY SEPARATOR.
APPLICATION FILED MAR. 11, 1905.

2 SHEETS—SHEET 1.



Witnesses:
Carnegie L. Ordway
Ada Burnett

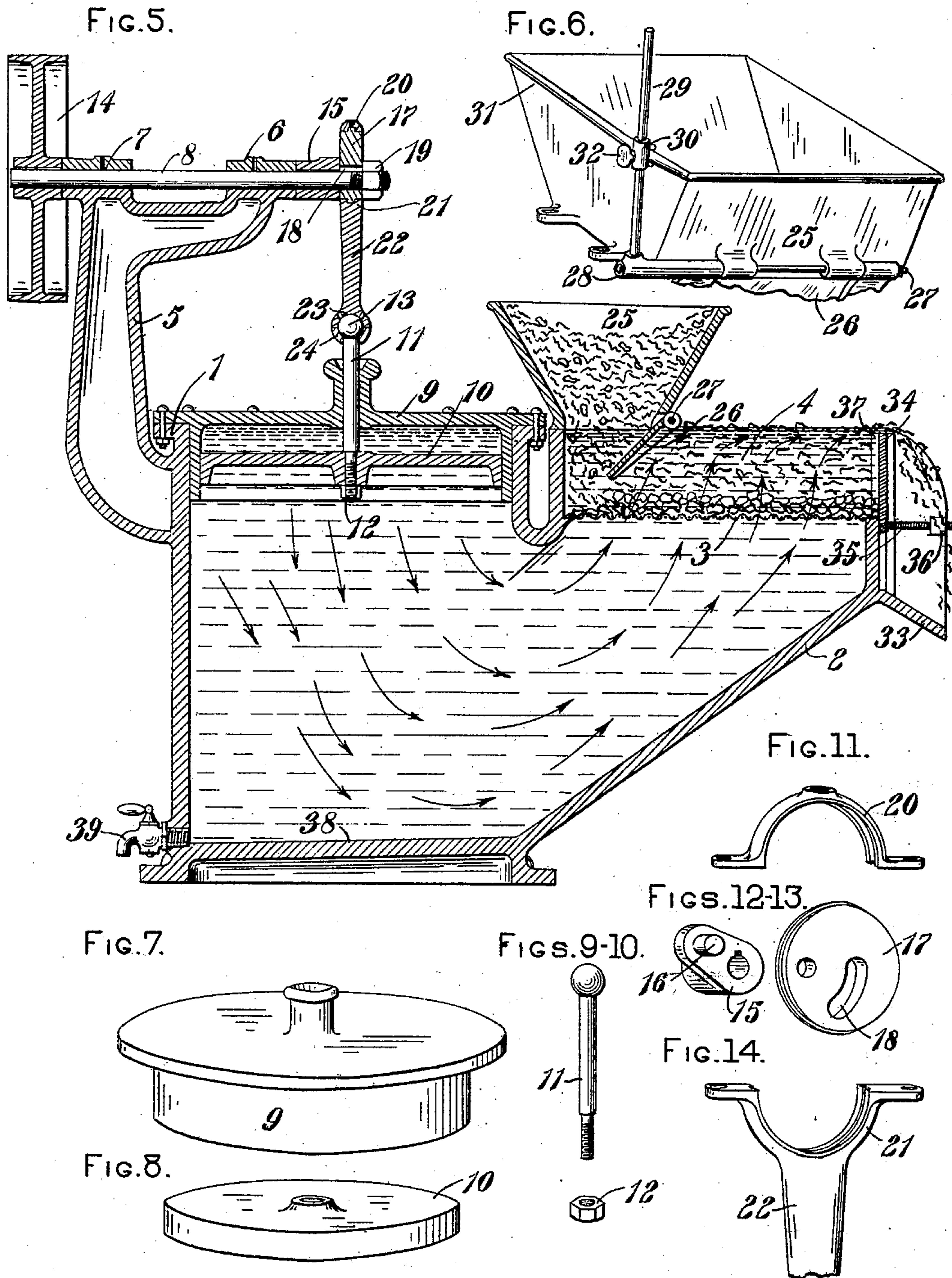
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

EDWARD G. PFAU, OF CINCINNATI, OHIO, ASSIGNOR TO THE PFAU MANUFACTURING COMPANY, OF CINCINNATI, OHIO, A CORPORATION OF OHIO.

FOUNDRY-SEPARATOR.

No. 886,152.

Specification of Letters Patent.

Patented April 28, 1908.

Application filed March 11, 1905. Serial No. 249,577.

To all whom it may concern:

Be it known that I, EDWARD G. PFAU, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Foundry-Separators, of which the following is a specification.

My invention relates to means for separating a metal or other heavy substance from a disintegrated lighter material.

The object of my invention is to provide a machine whereby metal may be separated from the coke ashes, sweepings and the like taken from foundries.

My invention consists of a vessel having an opening, across which is placed a perforated diaphragm or sieve, of a plunger within the vessel, means for imparting movement to the plunger, means for admitting water to the vessel, and means for discharging and draining the material after it has been separated.

My invention also consists in parts and in the combination and arrangement of parts as will hereinafter be more fully described.

In the drawings: Figure 1 is a side elevation of my invention. Fig. 2 is an end elevation of a portion of the same. Fig. 3 is a plan of my improved separator. Fig. 4 is a perspective view of a portion of the separator showing the receptacle with a portion of its wall broken away and having portions of the sieve torn up to show its preferred construction. Fig. 5 is a sectional view on line $x-x$ of Fig. 3, but showing the separator supplied with water and with material to be separated, the arrows denoting the direction of the motion imparted to the water by the plunger on its downward stroke. Fig. 6 is a perspective view of the hopper and a portion of its gate showing the means of adjustment. Fig. 7 is a perspective view of the plunger guide. Fig. 8 is a perspective view of the plunger. Figs. 9 and 10 are perspective views of the plunger rod and the nut for securing the plunger in place, respectively. Fig. 11 is a perspective view of the upper section of the eccentric strap. Figs. 12 and 13 are perspective views of the crank and the adjustable eccentric sheave, respectively. Fig. 14 is a perspective view of the lower section of the eccentric strap and a portion of the eccentric rod which is integral with it.

The preferred construction of my improved foundry separator is as follows: The vessel is formed of the open topped cylindrical por-

tion. 1, and an angular extension 2, across which is fixed the diaphragm or sieve 3. Portion 4 of this extension thus forms a receptacle for the material to be separated. The column 5 also forms a part of the vessel and supports the bearings 6 and 7 for the shaft 8. Fitting into the open top of the vessel and forming a lid therefor, is a plunger guide 9. Plunger 10 is fitted to slide within the guide and is secured to the plunger rod 11, passing through the guide, by the nut 12. The plunger rod is preferably formed with the spherical head 13. The shaft 8 is provided near one end with the pulley 14 whereby it may be rotated. Near the other end of the shaft 8, rigidly attached thereto, is the crank 15 having the pin 16. The eccentric sheave 17 is pivoted on the pin 16 while the shaft 8 extends through its slot 18 and is threaded to receive the nut 19. The slot 18 is so formed that the throw of the eccentric may be adjusted by swinging the sheave 17 on the pin 16 to the required position, in which position it may be clamped by means of the nut 19. The eccentric strap is formed of the upper section 20 and the lower section 21, integral with which is formed the eccentric rod 22. The socket 23 is formed in the lower end of the eccentric rod 22 to receive the spherical head of the plunger rod 11 which is pivotally secured therein by means of a collar 24 secured to the eccentric rod 22. In the drawing the machine is represented as having the eccentric at the highest point of its throw. Upon the receptacle 4 near its rear end is mounted the hopper 25 which is provided with the gate 26, pivoted to the lower portion thereof by means of the rod 27. The gate has an extension 28 to which is attached the lever 29. This lever is provided with the sliding head 30 having lugs embracing the extended rim 31 of the hopper 25. The sliding head also carries a thumb screw 32 by which it may be clamped stationary upon the lever 29. The front end of the receptacle 4 is formed with the sloping spout 33, across which is placed a gate 34 supported by the lugs 37 on the walls of the receptacle. This gate is adapted to slide up or down so that it may be adjusted for use with different quantities of material and may be held in adjustment by the screws 36 taking through the lugs 37.

The bottom 38 of the vessel is sloped, as shown and near its lower portion a sediment

cock 39 is provided. The hand-hole 40 is also formed in the wall of the vessel and is closed by the usual hand-hole plate 41, yoke 42 and bolt and nut 43. The water connection 44, through which the water supply is regulated by the valve 45 empties into the hopper 25. Under the spout 33 of the receptacle 4 is placed the receiver 46 which consists of an outer casing, adapted to hold water, provided with an inner perforated casing 47.

As shown in Fig. 4 the sieve is made up of three thicknesses, a lower coarse fabric 48, a middle finer fabric 49 and an upper coarse fabric 50. This construction allows the use of a fine and delicate fabric in the middle, which will be reinforced and protected by the coarser and stronger fabrics on either side; however, one thickness, as is represented in the other figures of the drawings, is all that is essential to the operation of my invention.

The operation of my improved foundry separator will now be described.

The vessel is filled with water through the connection 44, and the mixture of ashes and brass is supplied to the hopper 25. The shaft 8 is rotated and an up and down movement is imparted to the plunger 10 by means of the eccentric and other parts above described. The plunger 10, preferably is so fitted to the plunger guide 9, that the water may rise above it so that it is lubricated by the water. The up and down movement of the plunger within the vessel will impart a similar movement to the water contained therein and, consequently, to the mixture of ashes and brass in the hopper 25. The gate 26 of the hopper may be so adjusted that the mixture will be distributed by the action of the moving water throughout the receptacle 4, while the brass contained in the mixture, being heavier than the ashes will be deposited in a layer on the sieve. The ashes on the other hand, being more subject to the action of the water will be carried out of the receptacle with the water when it over-flows the gate 34. It will be found, after the machine has been in operation for some time without receiving a new supply of the mixture, that all the ashes have been thus washed out of the receptacle, leaving only a layer of brass therein. The gate may now be lowered and

the brass may be scraped or shoveled out of the receptacle. The gate 34 is made adjustable to adapt the receptacle for operating upon different quantities of mixture with this result, since if it is lowered a smaller quantity of mixture could be separated, and the ashes removed more quickly than if it were in its highest position.

The adjustable throw of the eccentric is provided to adapt the machine for operating on different kinds of material, the length of the throw being determined by experience. Likewise the proper adjustment of the gate 26 would be determined, but the free or lower end thereof should project into the fluid so that all of the mixture will be immersed. This gate may be held in the required position by means of the sliding head 30 clamped to the lever 29 and engaging the rim 31 of the hopper 25 with its lugs. During the operation of the machine particles of brass pass through the perforated diaphragm or sieve 3 and fall to the bottom of the vessel; this sediment may be removed through the hand hole 40. All the water may be drained from the vessel by means of the sediment cock 39.

When the ashes are discharged from the receptacle 4 through the spout 33, they fall into the perforated inner casing of the receiver 48 and the water flows from them into the outer casing. These casings may be emptied by any suitable means.

While I have shown and described the peculiar construction herein, I do not wish to be understood as limiting myself to it, but

What I desire to secure by Letters Patent is:

In a separator, the combination with a receptacle, of a hopper for supplying material to said receptacle, a gate for said hopper, a horizontally disposed rim on said hopper, a lever for actuating said gate, a member slidably disposed upon said lever, means carried by said member for engaging said rim, and means for binding said member against movement with relation to said rim.

EDWARD G. PFAU.

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