

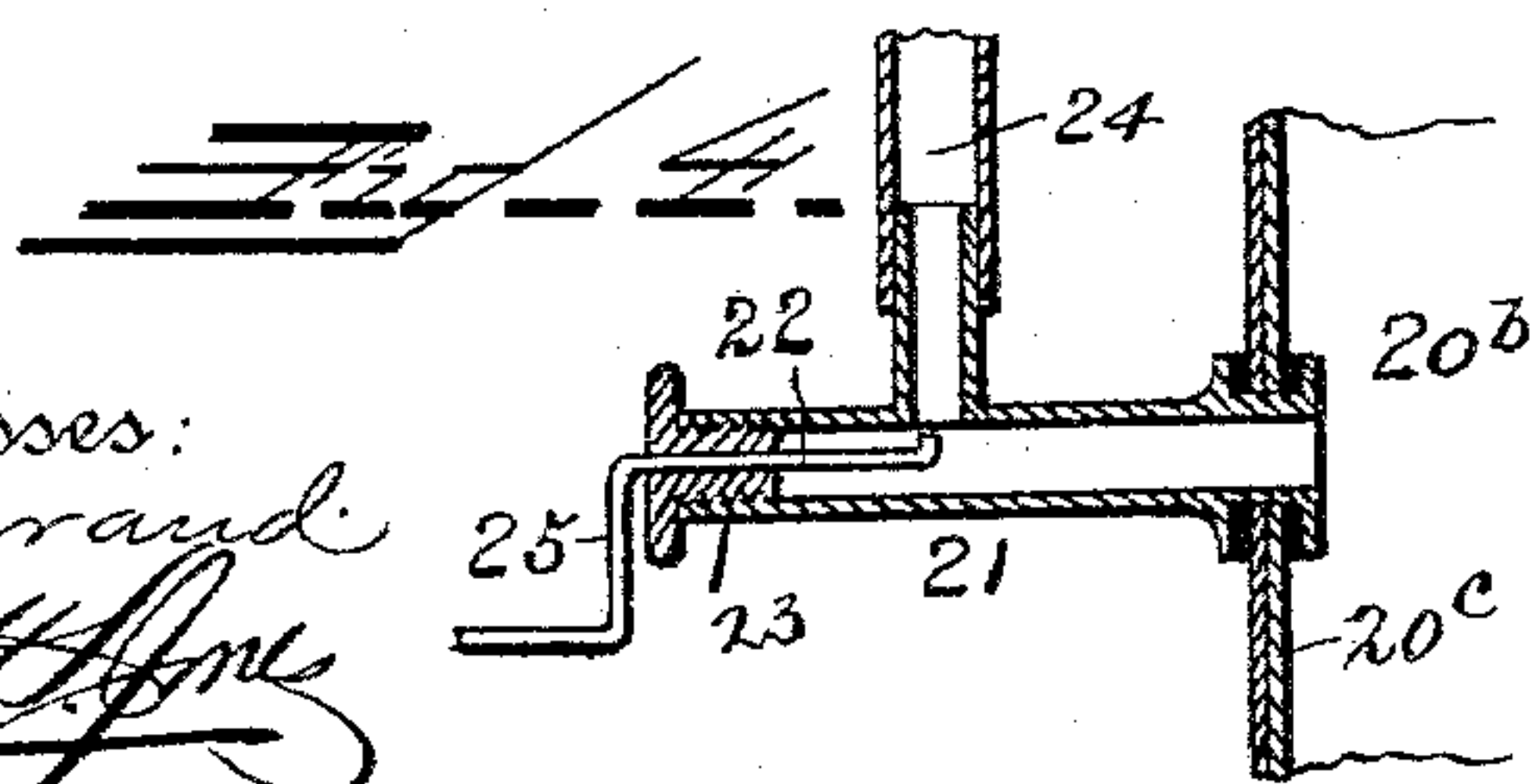
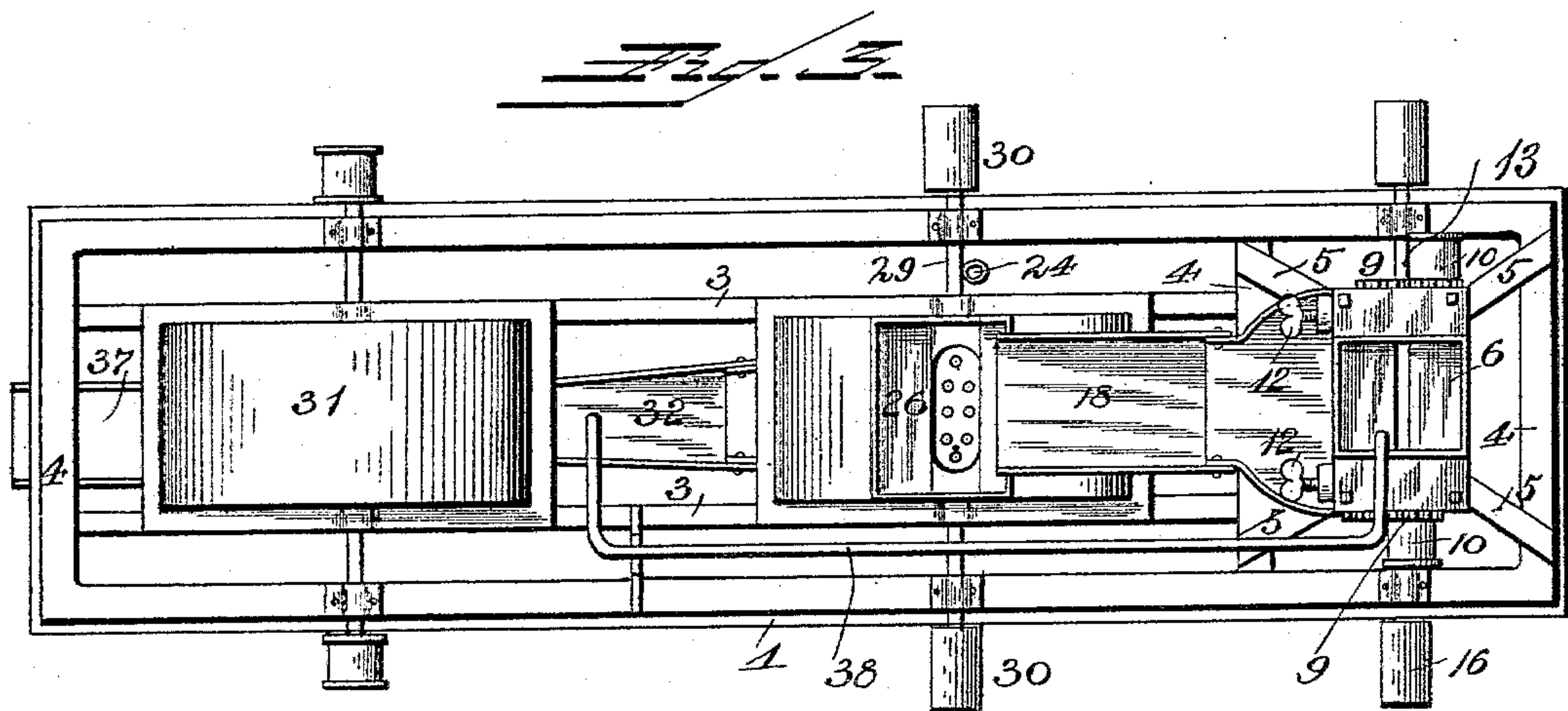
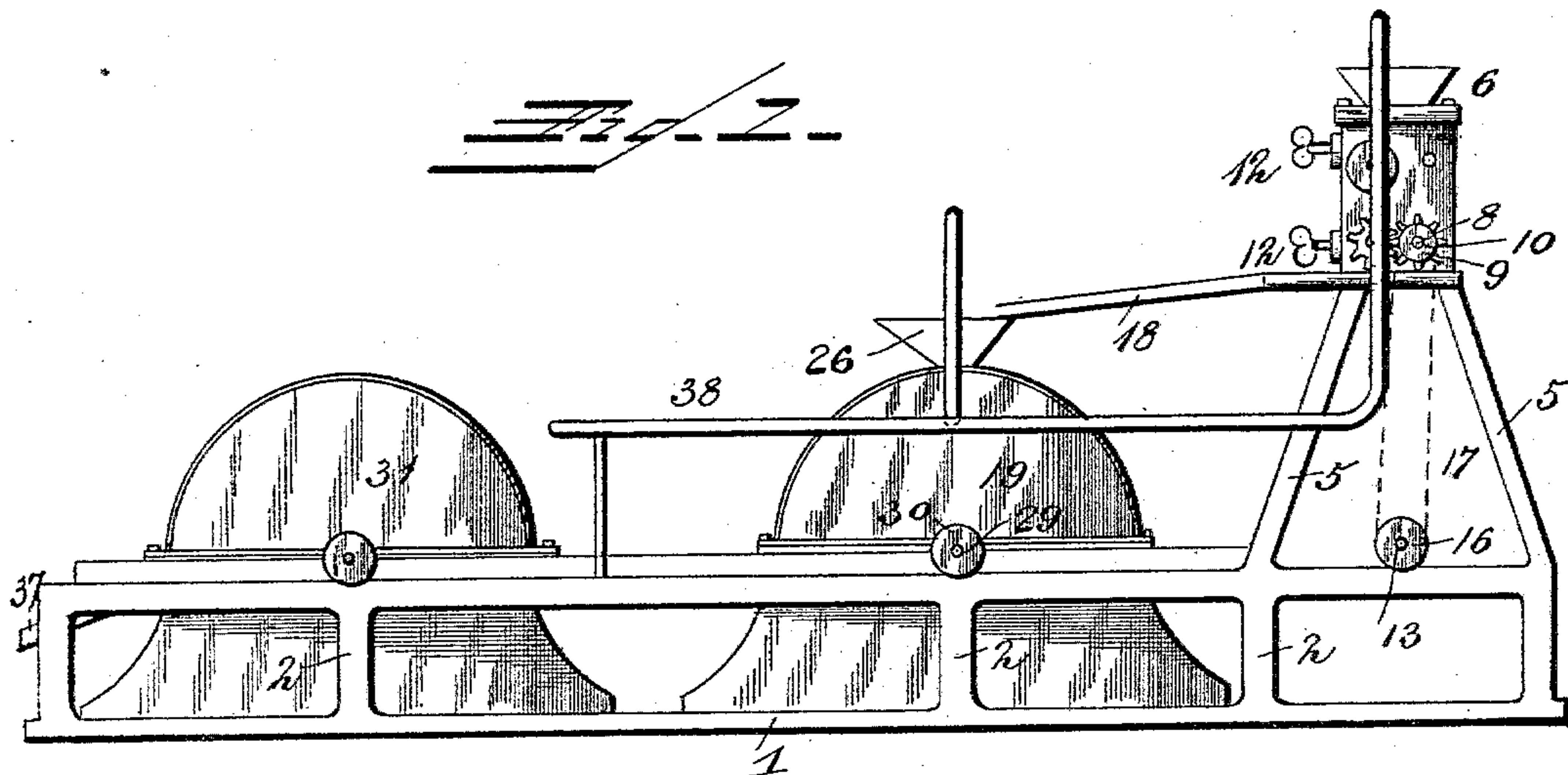
(No Model.)

2 Sheets—Sheet 1.

C. GRAFF.  
GOLD AMALGAMATING APPARATUS.

No. 569,710.

Patented Oct. 20, 1896.



Witnesses:  
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Inventor:  
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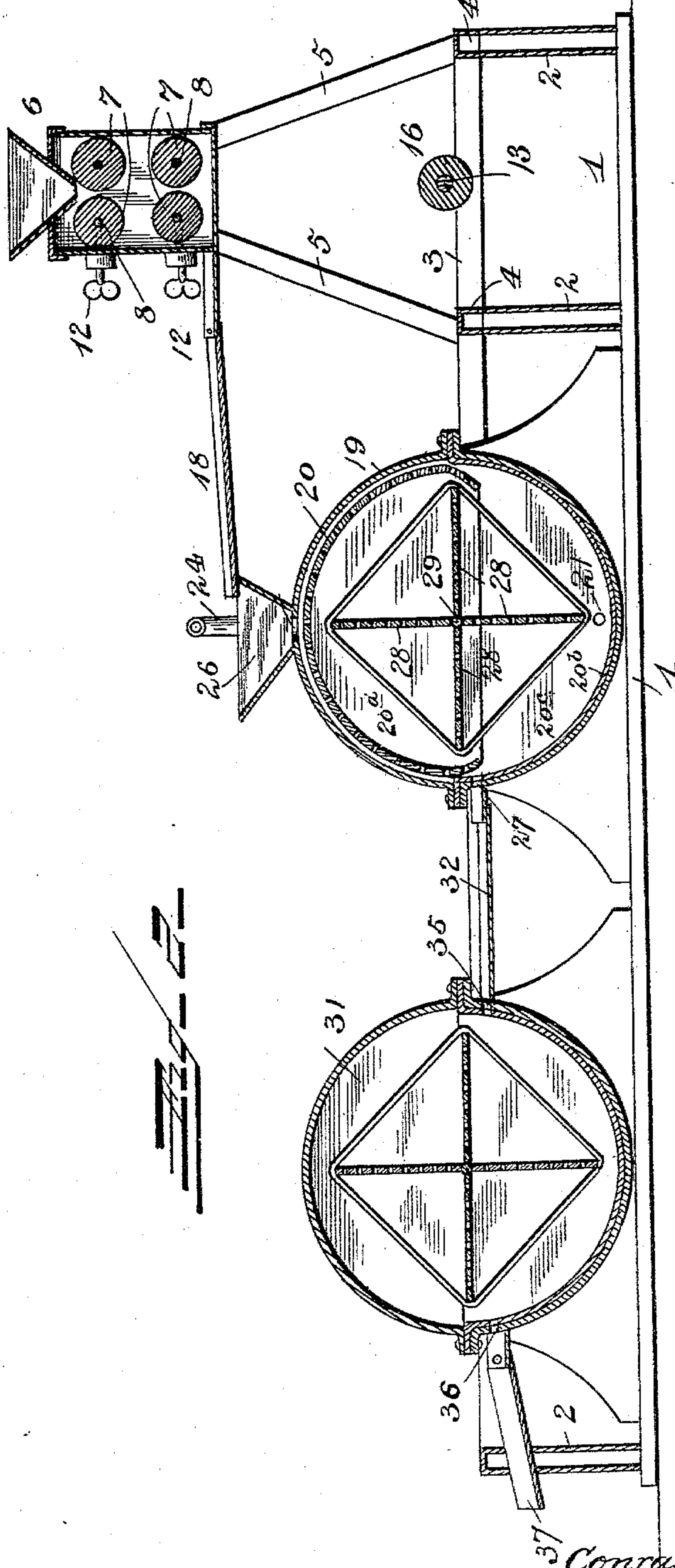
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GOLD AMALGAMATING APPARATUS.

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# UNITED STATES PATENT OFFICE.

CONRAD GRAFF, OF GUNNISON, COLORADO, ASSIGNOR OF ONE-HALF TO  
JAMES S. PHILLIPS, OF SAME PLACE.

## GOLD-AMALGAMATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 569,710, dated October 20, 1896.

Application filed January 14, 1896. Serial No. 575,504. (No model.)

*To all whom it may concern:*

Be it known that I, CONRAD GRAFF, a citizen of the United States, and a resident of Gunnison, in the county of Gunnison and State of Colorado, have invented certain new and useful Improvements in Gold-Amalgamating Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to improvements in gold amalgamating and concentrating machines, and is principally designed for working over tailings and for separating placer gold, although it may be employed with equally good results for treating pulp coming directly from stamp-mills.

The object of the invention is to provide an improved construction which shall possess superior advantages with respect to efficiency in operation.

The invention consists in the novel construction and combination of parts hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a gold saving and amalgamating machine constructed in accordance with my invention. Fig. 2 is a central longitudinal section of the same. Fig. 3 is a plan view.

In the said drawings the reference-numeral 1 designates the base of the machine, provided with uprights 2, which support a frame consisting of horizontal bars 3 and transverse bars 4. At one end of the frame are standards 5, upon which is mounted a hopper 6, consisting of a rectangular box, in which are located four rollers 7 7, arranged in pairs one above the other, the shafts 8 of each pair being provided with intermeshing gear-wheels 9 and pulleys 10. Set-screws 12 pass through the hopper or box and bear against the shafts 8 for the purpose of regulating the distance between the rollers. Journaled to the side bars 3 of said frame is a shaft 13, provided with pulleys 16, connected by belt 17 with the pulleys 10. At the bottom of said hopper is a chute or trough 18, of copper, electro-

plated with silver, which leads to a scouring-box 19. This box consists of two semicylindrical halves bolted together and is supported by the said frame. At the upper part of the upper half is a perforated metal plate 20 with a space therebetween. The said plate at the ends is provided with semicircular heads 20<sup>a</sup>. Located in the lower half of said box is a similar but imperforate plate 20<sup>b</sup>, which fits close against the box and is provided with heads 20<sup>c</sup>. Communicating with said box near the lower end is a draw-off pipe 21, provided with a screw-cap 23. This pipe is provided with a rubber gooseneck 24, by which the flow of the amalgam is regulated. Passing through said cap into the pipe 21 is a rotatable rod 22, provided at its outer end with a crank 25, by turning which the material in said pipe may be agitated to prevent clogging. At the upper end this scouring-box is provided with a hopper 26, which receives the pulp from the trough, and at one side the box is provided with apertures 27 for the escape of the base material and water.

Located in the scouring-box is a dasher comprising a number of radial blades 28, of perforated metal, secured to a shaft 29, which shaft is provided with pulleys 30, connected by belts (not shown) with the pulleys on the driving-shaft.

For the purpose of saving any precious metal which may be carried away from the scouring-box with the waste I provide an amalgamating-box 31 with removable plates of silvered copper. This box is connected with the scouring-box by a trough 32, of silvered copper. The amalgamating-box is formed with inlet-openings 35 and outlet 36. It is also provided with a silvered copper trough 37 for carrying off the waste and with radial perforated arms, shaft, and pulleys similar to the scouring-box.

The numeral 38 designates water-pipes connected with any suitable source for supplying water to the hoppers.

The operation is as follows: The roller-hopper is connected with a stamp-mill by a flume, (not shown,) so that pulp will be conducted to the same, where quicksilver will be added. From the rollers the pulp, quicksilver, and water will be conducted to the scouring-box,



where they will be subjected to the action of the blades, which will remove grease and dirt from the precious metal, so that it will readily form an amalgam with the quicksilver and fall to the bottom of the box, from whence it may be removed by means of the pipe. This pipe can be under the sole charge of a proper party, so that there will be no opportunity of purloining the amalgam by dishonest persons. The object of the rollers in the first hopper is to crush and break up any lumps or clogged material which may come from the stamps and aid in incorporating the quicksilver or mercury therewith. The water and pulp escape through the outlet in the side of the box, and any precious metal which may be carried over therewith will be subjected to action of the blades in the amalgamating-box and be saved by adhering to the silver blades. When the silvered plate on the amalgamating-box is removed to have the gold scraped off, another one is substituted therefor, so as to avoid stopping the machine during the scraping operation.

Having thus fully described my invention, what I claim is—

1. In a gold-amalgamating apparatus, the combination with the frame, the hopper at the upper end thereof, the adjustable rollers located therein, the regulating-screws, and the trough at the lower end of said hopper, of the two-part scouring-box, provided with a hopper at the upper end and an exit-opening at the side, the perforated curved plate, located in the upper half of the box with a space therebetween and provided with semicircular heads, the curved imperforate plate

located in the lower half of said box, fitting tightly against the same and provided with semicircular heads, the rotatable shaft and perforated radial arms, and the draw-off pipe communicating with the lower part of said box, substantially as described.

2. In a gold-amalgamating apparatus, the combination with the frame, the hopper at the upper end thereof, the adjustable rollers located therein, the regulating-screws and the trough at the lower end of said hopper, of the two-part scouring-box, provided with a hopper at the upper end and an exit-opening at the side, the perforated curved plate located in the upper half of the box, with a space therebetween and provided with semicircular heads, the curved imperforate plate located in the lower half of said box and fitting tightly against the same, and provided with semicircular heads, the rotatable shaft and perforated radial blades, the draw-off pipe communicating with the lower part of said box, the screw-cap in the end of said pipe, the rotatable shaft passing through said cap and provided with a crank at its outer end, and the flexible pipe or gooseneck connected with said draw-off pipe between the said cap and the box, substantially as described.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

CONRAD GRAFF.

Witnesses:

W. J. BROWN,

FRANK E. DEAN.