(No Model.)

C. F. SIMON.

MACHINE FOR WASHING RUBBER, &c.

No. 532,600. Patented Jan. 15, 1895.

Fig. 1.

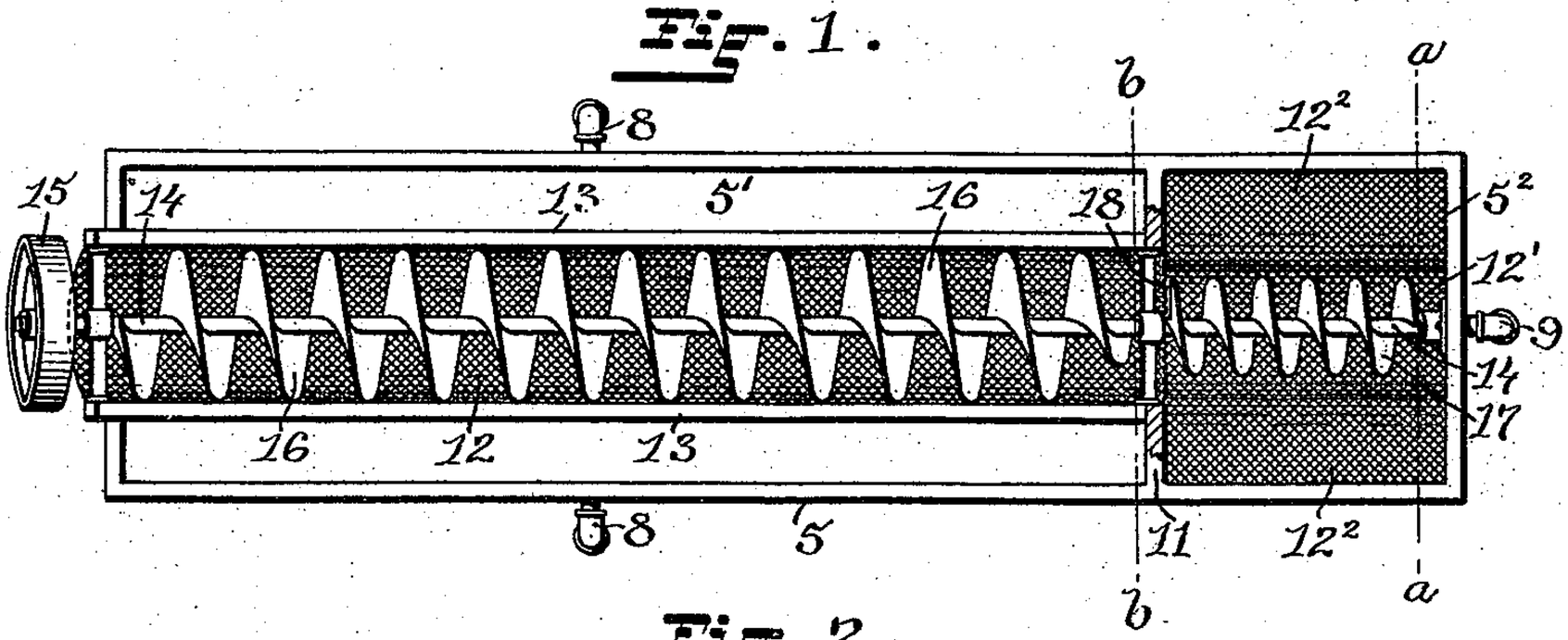


Fig. 2.

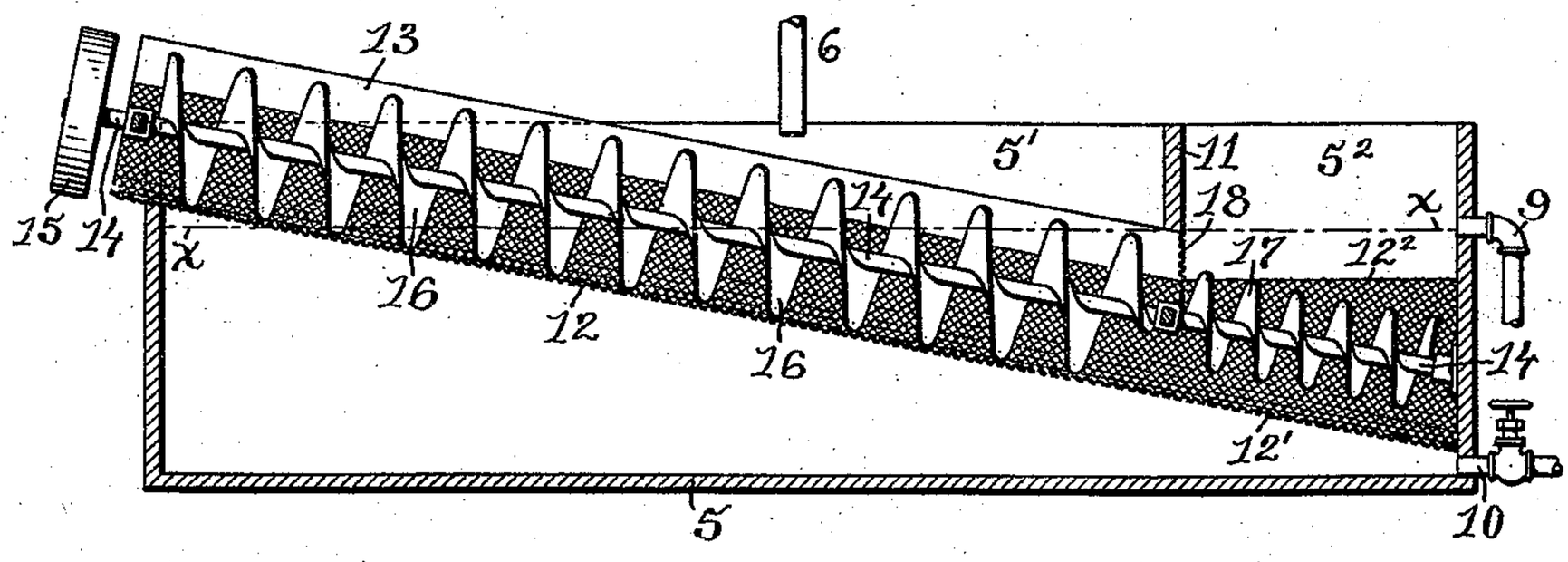


Fig. 3.

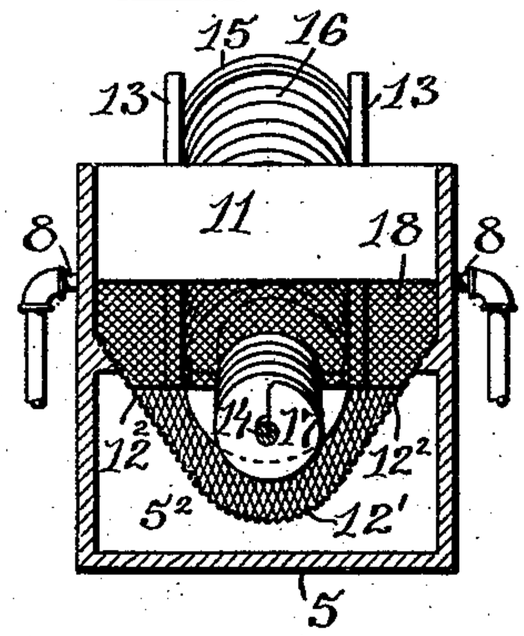
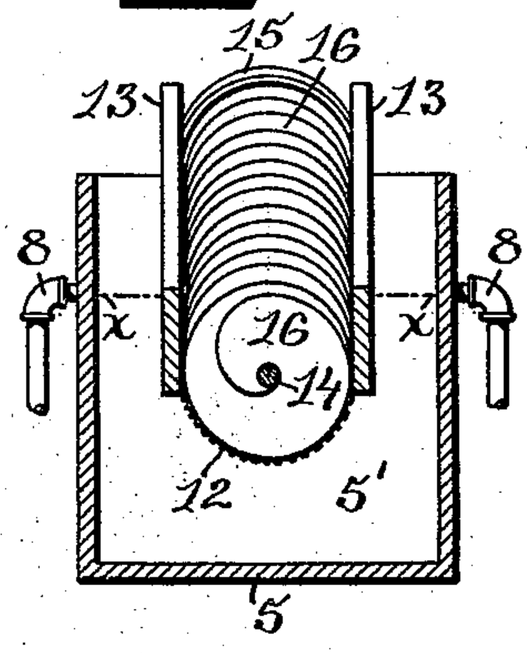


Fig. 4.



WITNESSES:

Henry J. Miller

Chas. H. Luther Jr

INVENTOR:

Charles F. Simon

by Joseph A. Miller & Co.

Atty's.

UNITED STATES PATENT OFFICE.

CHARLES FRIEDERICH SIMON, OF BRISTOL, RHODE ISLAND.

MACHINE FOR WASHING RUBBER, &c.

SPECIFICATION forming part of Letters Patent No. 532,600, dated January 15, 1895.

Application filed November 6, 1894. Serial No. 528,024. (No model.)

To all whom it may concern:

Be it known that I, CHARLES FRIEDERICH SIMON, of Bristol, in the county of Bristol and State of Rhode Island, have invented certain new and useful Improvements in Machines for Washing Rubber, &c.; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

This invention has reference to improvements in machines for washing rubber in the process of reclaiming the same from manufactured articles.

The object of the invention is to so construct a washing-machine of this nature that the buoyant or floatable material released from the heavier particles may be floated above the conveyer so as to be readily conveyed from the machine.

Another object of the invention is to so construct a washing-machine of this nature that the floatable material may be released from the more valuable material by its buoyancy while the heavier waste, such as sand, may be separated from the rubber and fall to a position whence it may be drained off from the machine.

The invention consists in the peculiar construction of the washing-tank, the arrangement of the supply and drain pipe, the open-work compartment contracted at the bottom and spreading outward at the sides, and the inclined-screw conveyer working in such compartment.

The invention also consists in the peculiar contruction of the inclined compartment, for containing the material to be washed, having parallel sides for the greater portion of its length which spread outward toward its lower end to provide an enlarged compartment for the reception of the material and to allow of an enlarged water surface to receive the more buoyant refuse.

The invention likewise consists in such other novel features of construction and combination of parts as may hereinafter be more fully described and pointed out in the claims.

Figure 1 represents a plan view of the improved washing-machine. Fig. 2 represents a vertical longitudinal view of the same. Fig. 3 represents a cross-sectional view taken on a line *a*—*a*, Fig. 1. Fig. 4 represents a similar view taken on a line *b*—*b*, Fig. 1.

Similar numbers of reference designate corresponding parts throughout the views.

In the process for the recovery of rubber from manufactured articles, particularly rubber boots and shoes, it is necessary, after the material has been separated into fragments, to subject the same to a thorough washing to separate the loose refuse therefrom, this refuse consisting of both buoyant and heavy material. The buoyant material must be removed in such a manner that it will not clog the movement of the heavier refuse as it passes from the rubber fragments.

In carrying my invention into practice I construct a long tank 5 which is adapted to hold water to a level indicated by the lines *x*—*x* in Figs. 2 and 4. This tank is furnished with an inlet-pipe 6 and with the water-level drain-pipes 8—8 and 9 while at the bottom it has the drain-pipe 10 governed by a valve. A cross partition 11 is located near one end of the tank to divide the same down to the water level into two compartments $5'$ and 5^2. Securely mounted in the tank and extending through the full length of the same is an inclined trough 12 formed of perforated material, preferably wire cloth. That portion of the trough which extends through the main portion $5'$ of the tank has the solid or closed sides 13—13 below which the perforated trough is concaved, while in the smaller compartment the portion $12'$ of the trough, which is located wholly below the water line, has a concave bottom of less diameter than that of the main portion and inclined perforated sides 12^2—12^2 which are secured to the sides of the tank. Journaled in bearings, one of which is mounted near the lower portion of the compartment 5^2 while the other is secured at the upper end of the perforated trough, is a shaft 14 provided with a driving-pulley 15 and having the spiral-conveyer blades 16 and 17, those marked 16 being of a diameter to nearly fit the perforated trough 12 while those marked 17 are considerably smaller. Between these sets of blades is a bearing for the shaft 14 which is secured to the tank and a perforated apron 18 is secured between this bearing and the lower edge of the partition 11.

During the washing operation a constant

water level is maintained in both compartments of the tank, the rubber fragments in the unclean state are thrown into the compartment 5^2 of the tank and, as the shaft 14 is rotated, the blades 17 tend to loosen the fragments and present them to the action of the water, the more buoyant refuse will rise to the surface of the water being prevented from entering the compartment 5′ by the perforated apron 18. The refuse particles, such as splinters, leaves, cotton, &c., may be drawn off through the drain-pipe 9. In the meantime the more readily detached portions of the heavier refuse, such as sand, drop through the openings in the sides and bottom of the trough within this compartment while the rubber fragments are forced by the screw-blades 17 under the apron 18 and to a position where they may be engaged by the blades 16. The rubber fragments are now carried along the trough by these conveyer blades being subjected to a working and mixing thereby that tends to separate the refuse matter still carried by the rubber from the valuable portions, the heavier material falling as before through the perforated trough while the scum rises to the surface and is conveyed from the tank by the side pipes 8—8 which are so located that a constant current from the center to the sides is maintained. As the rubber fragments are carried along the trough they will gradually move above the water level in the tank and much of the water will drain from them before they finally pass from the open end of the trough into a receptacle where they may be treated with acid to eat out the fibrous material not previously removed by the washing. The sediment at the bottom of the tank may be removed from time to time through the outlet 10.

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

1. In a washing-machine for the purpose herein described, the combination with a tank provided with the outlets 8—8 and 9, a cross partition extending down to the level of said outlets, and a perforated screen extending below the partition, of an inclined trough located in said tank having its lower end extended in width, a shaft journaled in the general axial plane of the trough, and spiral blades carried by the shaft, as described.

2. In a washing-machine of the nature herein described, the combination with the tank 5 having the outlets 8—8, 9 and 10 and the partition 11, of the inclined trough 12 provided with the sides 13—13 and having the lower portion 12′ furnished with the spreading perforated sides 12^2—12^2, the shaft 14 journaled in said trough in the general axial plane thereof and having the blades 16—and 17 located as described, and the screen or apron 18 extending between the horizontal plane of the shaft and the partition 11, as and for the purpose described.

In witness whereof I have hereunto set my hand.

CHARLES FRIEDERICH SIMON.

Witnesses:

JOSEPH A. MILLER, Jr.,

M. F. BLIGH.