(No Model.) 2 Sheets—Sheet 1.

N. C. MITCHELL.

VESSEL OR TANK FOR DEFIBERIZING RUBBER STOCK.

No. 418,043 Patented Dec. 24, 1889.

Fig. II.

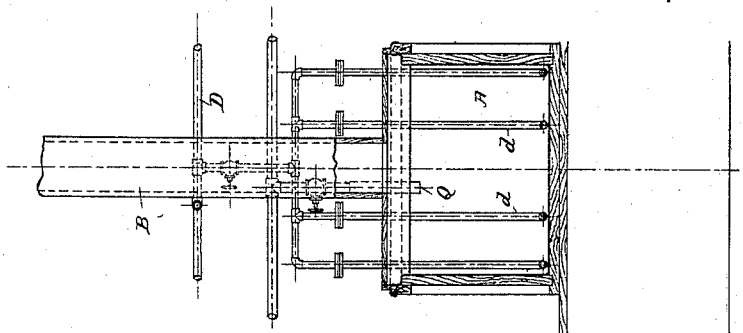
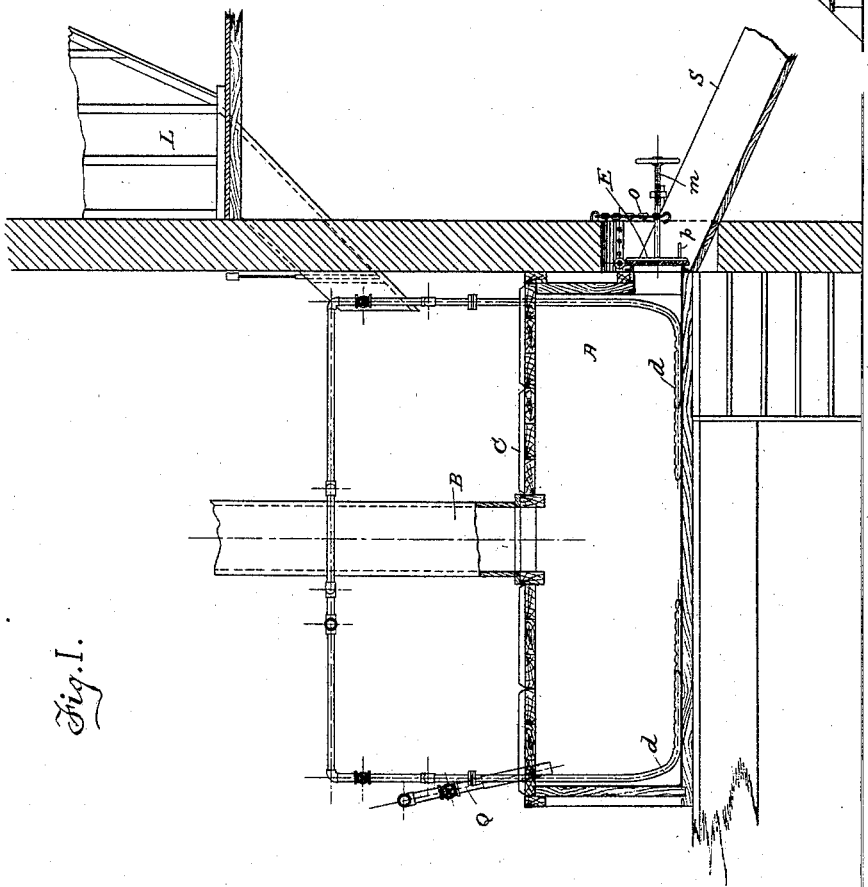


Fig. I.



Witnesses.
Geo. T. Smallwood.
Jas K. McCathran

Inventor.
Nathaniel C. Mitchell
by A. Pollok
his attorney

(No Model.) 2 Sheets—Sheet 2.

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Fig. III.

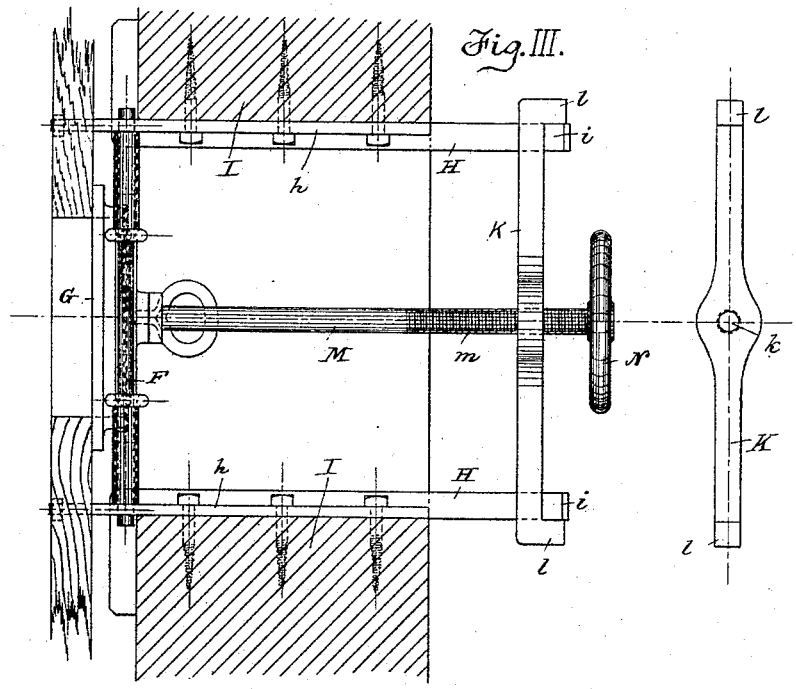
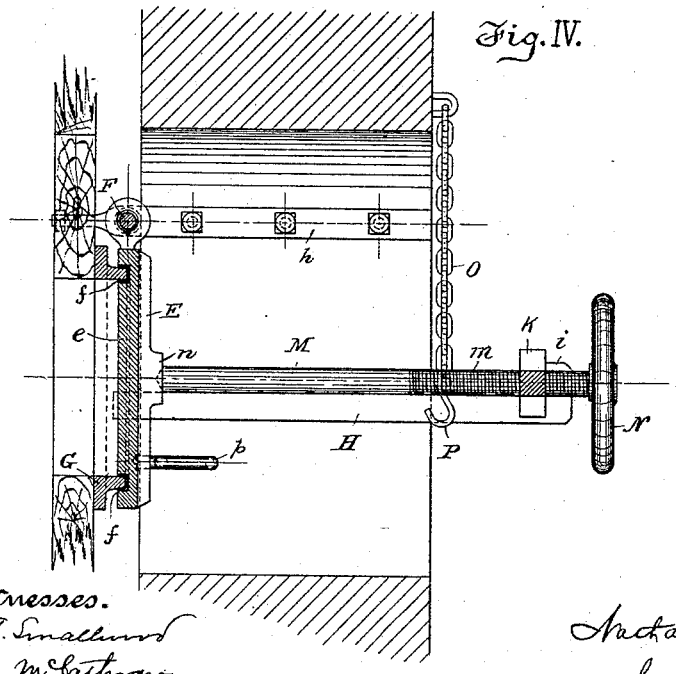


Fig. IV.



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his attorney

UNITED STATES PATENT OFFICE.

NATHANIEL C. MITCHELL, OF PHILADELPHIA, PENNSYLVANIA.

VESSEL OR TANK FOR DEFIBERIZING RUBBER STOCK.

SPECIFICATION forming part of Letters Patent No. 418,043, dated December 24, 1889.

Application filed September 20, 1889. Serial No. 324,581. (No model.)

To all whom it may concern:

Be it known that I, NATHANIEL CHAPMAN MITCHELL, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Vessels or Tanks for Defiberizing Rubber Stock, which improvement is fully set forth in the following specification.

This invention has reference to the construction of cooking tanks or vessels in which rubber waste is subjected to the action of acid and steam or other agents until all fibrous matters are decomposed and separated from the rubber, and it relates more particularly to the means for removing the stock from the tank after the treatment is completed.

Great trouble and delay have heretofore been experienced in the operation of removing the stock from the tank or vessel. Where attempt has been made to use discharge-gates, it has been found practically impossible to prevent leakage, which of course reduces the strength of the solution, resulting either in an imperfect operation or necessitating renewal of the chemical agent, which adds to the expense of the treatment. Moreover, the acid, when that agent is employed, quickly attacks and corrodes most metals, and if it comes in contact with a wooden surface the latter is speedily carbonized and destroyed. For these reasons it has been customary heretofore to unload by hand, using copper buckets, (leaden buckets being too heavy.) This of course requires much manual labor and is very tedious. Moreover, the copper buckets do not long withstand the action of the acid.

The object of the present invention is to provide the cooking vessel or tank with a discharge-gate which will prevent leakage, will not be affected by the action of the acid, and can be swung out of the way when the tank is to be emptied, so that its contents can be washed out by a properly-directed current of water into the washing-tub, to be there treated as described in application Serial No. 324,584, filed September 20, 1889. The water used for flushing the tank is not wasted, but is utilized in the next operation for washing out the acid and other impurities.

In the accompanying drawings, which form part of this specifiction, Figure I is a longitudinal vertical section of a cooking-tank; Fig. II, a vertical section at right angles to Fig. I; Fig. III, a detail in horizontal section illustrating the discharge-gate, and Fig. IV a vertical section of the same.

A represents the cooking tank or vessel, made of wood with the usual lead lining, and provided with a flue or uptake B for the escape of vapors. Vessel A has a cover C, composed of several panels, which can be readily removed when it is desired to fill the vessel from the receivers where the stock is accumulated, one of which is shown at L, Fig. I.

D represents a steam-pipe from which a number of branch pipes *d* are led into the vessel, the steam escaping through perforations in the lower horizontal part of pipes *d*.

The discharge-gate E is best shown in Figs. III and IV. It is composed of wood, metal, or any suitable material and provided with a lining *e* of Ajax metal, which, as experience shows, is adapted to withstand the action of the acid used in treating the rubber-stock. Other suitable non-corrodible material may be substituted. The gate is hinged at its upper side to a rod F, supported by bars *h*. The lining *e* has a countersunk groove, in which is a packing or gasket *f*, adapted to make a tight joint with the shouldered frame G, surrounding the outlet to the vessel A.

On each side of the gateway is a stout bar H, bent at a right angle at its inner end, which passes behind the wall I. At their outer ends bars H are provided with hooks *i*, against which rests the cross-bar K. The latter is provided with a threaded opening or socket *k* at its center and with a shoulder *l* at each end, which shoulders engage hooks *i* on bars H. A rod M, having a threaded portion *m*, which engages the threaded opening *k*, bears at its inner end in a step *n* on the gate E. Rod M has a hand-wheel N for turning, by which sufficient pressure can be kept upon the gate E to make it perfectly tight and prevent leakage while the operation of defiberizing the rubber is being carried on in the tank A. When this operation is concluded, the screw-rod M is loosened and it and cross-bar K can be at once removed out of the way, so as not to be

exposed to contact with the acid in the vessel. Gate E is then raised and suspended by eye *p* upon hook P, the latter being attached to the end of chain O. The contents of the tank A at once begins to discharge itself, being carried by gravity down the chute S, and, water being turned on from pipe Q, the tank is completely flushed out. This operation requires but a few minutes' time and is attended with little difficulty. The gate can be quickly replaced and secured, and the tank can at once be filled with another charge from one of the receivers L.

For the purpose of explaining clearly the advantages of the invention, I have herein referred to the use of the improved gate in connection with a vessel designed for treating rubber-stock by the acid and steam process. It is obvious, however, that it is immaterial for what purposes the vessel to which this invention is applied be utilized. The improved discharge-gate could be advantageously employed upon a vessel in which the well-known alkaline process for disintegrating woolen fibers is carried on, and the construction is obviously applicable to other uses.

Having now fully described my said invention, what I claim, and desire to secure by Letters Patent, is—

1. A vessel for defiberizing rubber stock, having a discharge-gate in the side thereof, said gate being lined with non-corrodible material, in combination with a clamping-rod, a bar carrying said rod, and fixed supports upon which said rod and bar are removably supported, substantially as described.

2. In a vessel for defiberizing rubber stock, the combination, with the upright gate in the side thereof, of fixed horizontal bars having upturned or hooked ends, a cross-bar resting upon the fixed supporting-bars and bearing against their hooked ends, and a clamping-rod carried by said cross-bar and adapted to bear against the gate, substantially as described.

3. In a vessel for defiberizing rubber, the combination of a discharge-gate hinged at its upper side, a hook for engaging an eye on said gate and holding the same open, a clamping or holding rod, and a removable support therefor, substantially as described.

4. In a vessel for defiberizing rubber, the combination of a discharge-gate on one side thereof, a screw-threaded holding-rod arranged to be disconnected and removed when the vessel is to be emptied, and a water-pipe entering said vessel on the side opposite the discharge-gate, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

NATHANIEL C. MITCHELL.

Witnesses:
PHILIP MAURO.
C. W. CROASDILL.