(No Model.) 2 Sheets—Sheet 1.

J. H. BICKLEY.

FEEDER FOR SCOURING AND WASHING APPARATUS.

No. 494,405. Patented Mar. 28, 1893.

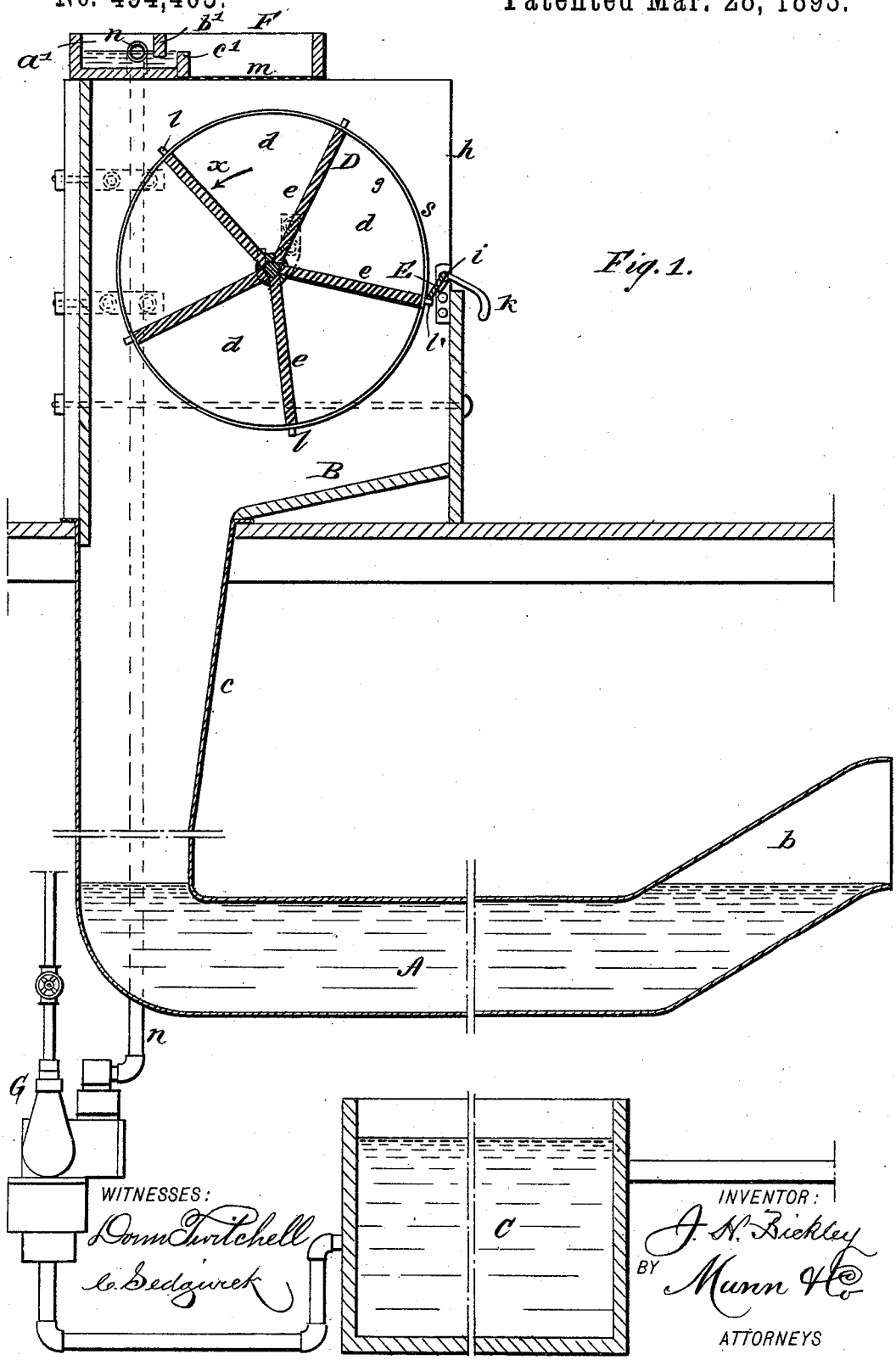

Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

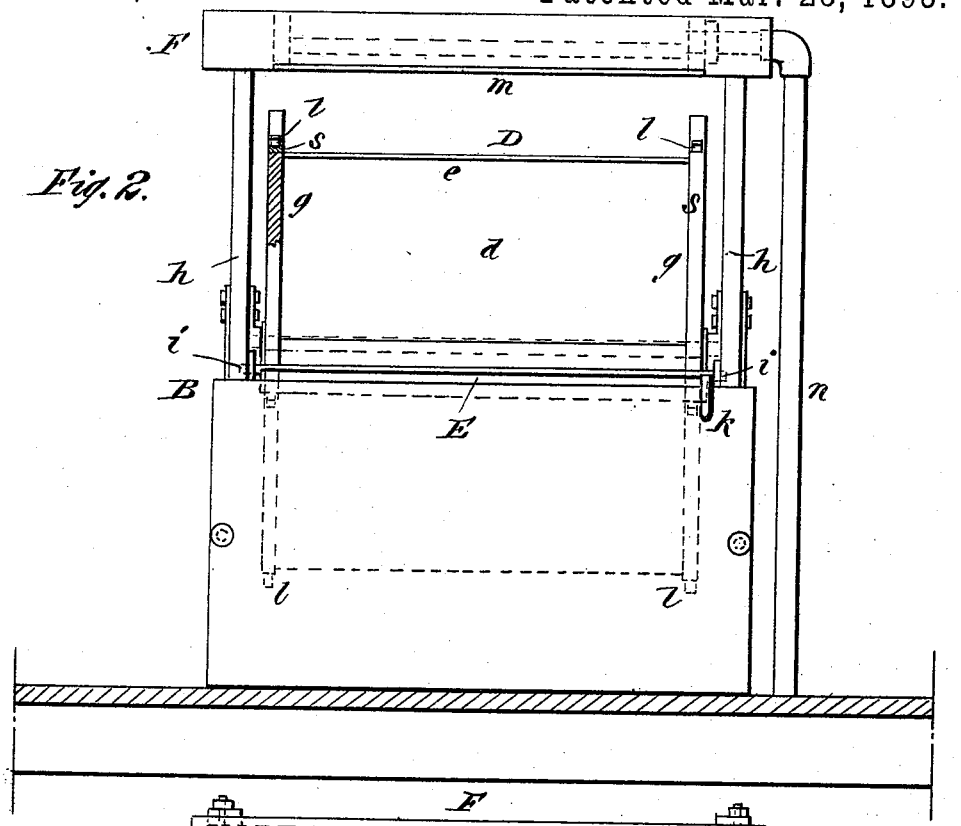
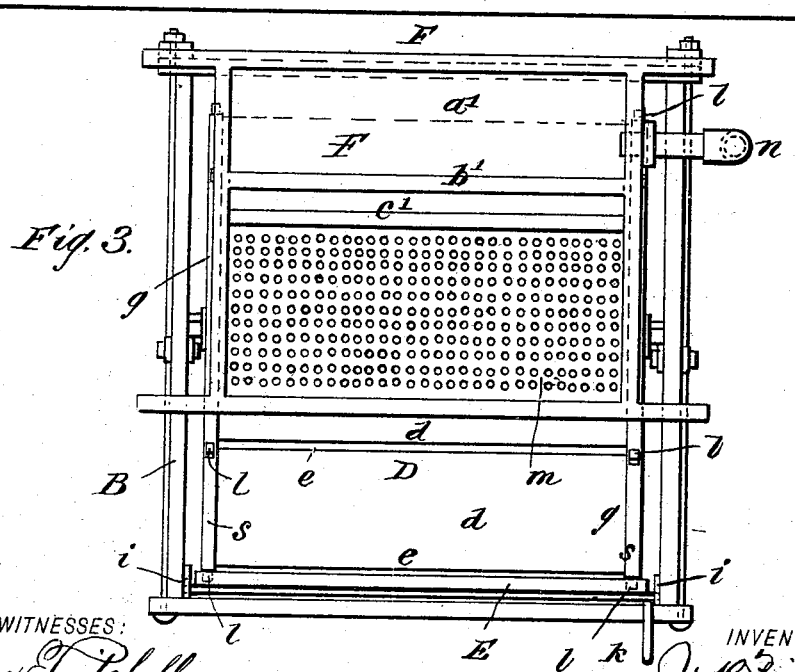


Fig. 3.



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UNITED STATES PATENT OFFICE.

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FEEDER FOR SCOURING AND WASHING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 494,405, dated March 28, 1893.

Application filed May 26, 1891. Renewed November 14, 1892. Serial No. 451,883. (No model.)

To all whom it may concern.

Be it known that I, JOHN H. BICKLEY, of West Medway, in the county of Norfolk and State of Massachusetts, have invented a new and useful Improvement in Feeders for Scouring and Washing Apparatus, of which the following is a full, clear, and exact description.

This invention is designed to be applied to or form part of apparatus for scouring, washing or dyeing various fibrous materials, more especially the cleansing and washing of wool, such for instance as apparatus operating either wholly or in part upon the principle shown and described in Samuel Hodgson's patents of September 3, 1889, and January 4, 1890, numbered respectively 410,519 and 419,331, and in which the wool or staple is submerged and the same and its surrounding liquid subjected to forward intermittent impulses in a normally filled tube or conduit or flushing flume.

The invention consists in novel means, substantially as hereinafter described and more particularly pointed out in the claims, for intermittently feeding the wool or staple and supplying the liquid with which it is treated.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 represents a vertical section of the intermittent staple and liquid feeding devices applied to a scouring and washing machine of the character above described and here shown only in part. Fig. 2 is a front view of the feeder; and Fig. 3 a plan of the same.

A indicates the normally filled flushing flume or tube, broken away intermediately of its length, having an upturned delivery end *b* and occupying a substantially horizontal position essentially as in a Hodgson scouring and washing machine hereinbefore referred to. The opposite or inlet end of this tube has an upward extension *c* of gradually diminishing size in a downward direction and which connects above with a hopper or supply box B on a floor above. Applied to the cleansing of wool, the staple is submerged in this tube A and subjected, with its surrounding liquid, to forward impulses, and finally delivered through the raised outlet end portion *b* of the tube, after which the staple is rinsed, squeezed, and discharged separately from the liquid, and the same liquid which may be suitably heated, returned to a reservoir tank C to be used over again, all as in the Hodgson patent hereinbefore referred to, but these accessories form no part of the present invention.

The feeder consists in part, of a horizontal cylindrical wheel or drum D hung in suitable, preferably open, bearings within the hopper or supply box B. This wheel is made up of a series of five, more or less, compartments *d* separated from each other by radial partitions *e*, and presenting open fronts between peripheral ends or heads *g*, *g*, of circular contour having metal tires *s*. The hopper or box B is also made open in front as shown at *h*, and is fitted near the lower portion of the opening *h*, with a stop-bar E extending horizontally across said opening and of flat or leaf form with upper trunnions *i* at its opposite ends arranged to turn in suitable bearings in the uprights or side pieces of the box B. This stop-bar E is kept thrown inward up against the tires on the heads *g g* of the wheel D by means of an attached weighted handle *k* and when in this position, said bar acts successively upon stops *l* on the wheel to hold it from rotating as will be hereinafter more fully described.

Above the wheel D, to each compartment *d* of which in succession the wool or staple is or may be introduced by hand as such compartment comes opposite the opening *h* and is held there by the action of the stop-bar E on the stops *l*, is arranged a liquid supply cistern or tank F having a perforated sprinkler *m* in its bottom extending more in rear than in front of a vertical plane drawn through the axis of the wheel D, so that as liquid flows through the sprinkler *m* into the compartment *d* of the wheel immediately beneath it, the weight of the liquid within such compartment will, when the wheel is released from hold by the stop bar E, turn the wheel as indicated by the arrow *x* in Fig. 1. The cleansing liquid is supplied to this cistern F from the tank C by a pump or pulsometer G, said liquid being de-

livered by a pipe n into a close bottomed chamber a' of the cistern F arranged in rear of the sprinkler m and of dam like construction, being provided with a break strip b' and overflow lip piece c' in order that the liquid may be passed on to the sprinkler portion m in a regular manner, free from any perceptible interruption to its flow due to the pulsatory action of the pump or pulsometer.

In the operation of this feeder, supposing the apparatus to be in action, each compartment d of the rotatable cylinder or drum D, as it comes opposite the front opening h in the hopper or box and is arrested in such position by the stop bar E, is changed by the attendant with wool or staple to be cleansed, while an advance compartment d, similarly charged with the staple, occupies a position directly under the sprinkler m of the cistern F, with the central radial plane of said compartment to the rear of a vertical line from the axis of the wheel. The cleansing liquid is thus sprinkled or sprayed onto the wool in the compartment under the sprinkler, which mode of introducing the liquid much more effectually opens the wool or staple and saturates or washes it of grease or dirt preparatory to its introduction to the washing flume A, than if the cleansing liquid were introduced to it in a solid stream. While this is going on, the next compartment d in front of the opening h is being charged with wool, thus saving time, and in due course the stop bar E is moved by the attendant's manipulation of the handle k, from hold on the stop l, when the wheel D will move as indicated by the arrow x automatically, by reason of the weight of the water in the compartment d immediately under the sprinkler m being in excess on the side back of the center of the wheel. This will bring the next or newly charged compartment d under the sprinkler for similar treatment by the cleansing liquid, the stop bar E then being allowed to assume its normal position to hold the wheel by its stops l. This operation is repeated, by the intermittent rotation of the wheel, for each compartment d in succession, and as said compartments when charged with the wool and liquid severally approach or assume an inverted position their contents are discharged down the pipe or extension c into the normally filled tube or flume A and the contents of the latter subjected, by the intermittent supply to it, to a succession of forward impulses for the purpose of more thoroughly cleansing and washing the staple passing through said flume or tube.

The rotation of the wheel D may have its speed controlled to prevent a too sudden or jerking action by the attendant, through a proper manipulation of the handle k, bringing the stop bar E to bear or act as a brake by friction on the peripherical surfaces of the heads g of the wheel or on the tires s thereon.

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

1. The combination, with a staple and liquid feeding wheel or drum, divided into a series of successive compartments, of a liquid supplying cistern or receptacle above said wheel and provided with a sprinkler arranged more to the one side of the axis of said wheel than to the opposite side thereof, as and for the purpose stated.

2. The combination, with a staple and liquid feeding wheel or drum, divided into a series of successive compartments and provided with stops to arrest it in its movements, of a liquid supplying cistern or receptacle above said wheel with its discharge more to the one side of the axis of the wheel than to the other side thereof, and a movable stop bar or device arranged to engage with said stops, essentially as and for the purpose stated.

3. The combination of the automatically engaging stop bar or device, with the multiple compartment staple and liquid feeding wheel or drum provided with stops corresponding with said compartments, and a liquid supplying device having its discharge above and to one side of the axis of said wheel, essentially as described.

4. The combination, with the multiple compartment staple and liquid feeding wheel or drum provided with circular heads and projecting stops corresponding with the compartments in the wheel, of the automatically engaging stop bar arranged for operation in connection with said stops and also as a frictional brake on the peripheral heads or ends of the wheel, as herein set forth.

5. In apparatus for scouring and washing wool and other fibrous material or staple, the combination of a movable staple feeding device and a liquid supplying cistern provided with a dam-like compartment and with a numerously perforated or sieve-like sprinkler in the bottom of the cistern beyond the dam-like compartment and above the movable staple feeding device, substantially as and for the purpose stated.

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Witnesses:
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