H. HOWSON.

Machinery for Graining, Pebbling and Softening Leather.

No. 168,497. Patented Oct. 5, 1875.

Fig. 1

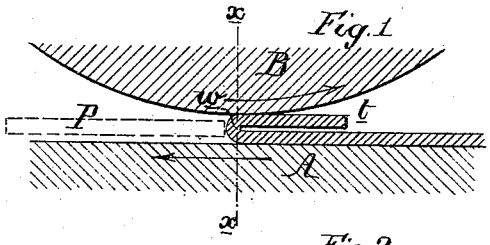


Fig. 2.

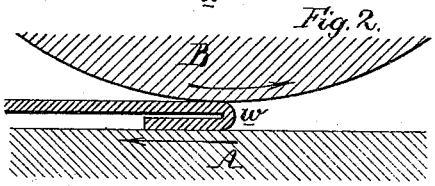


Fig. 4

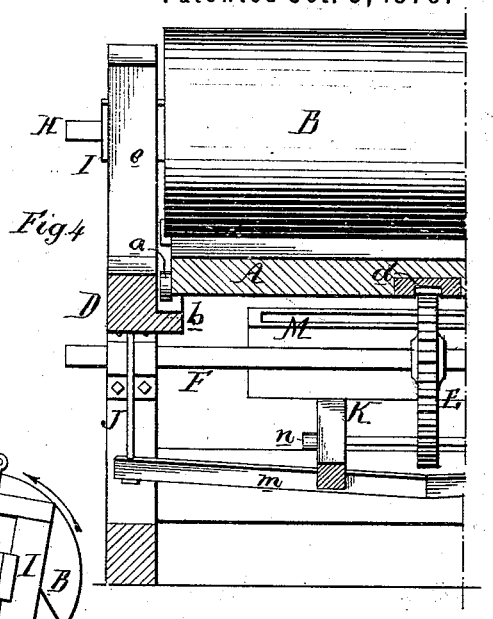


Fig. 7.

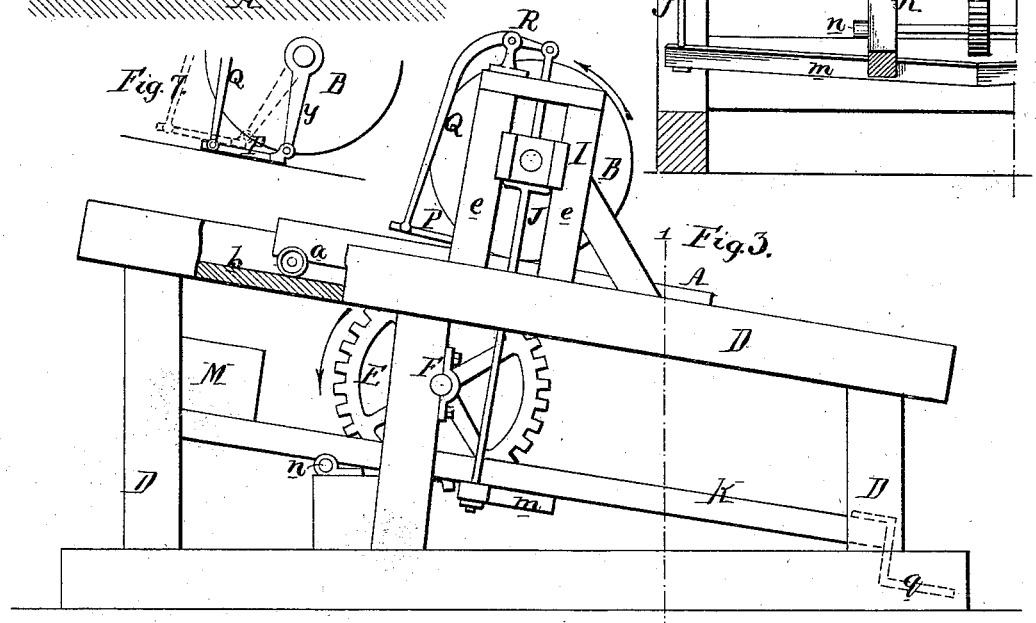


Fig. 5.

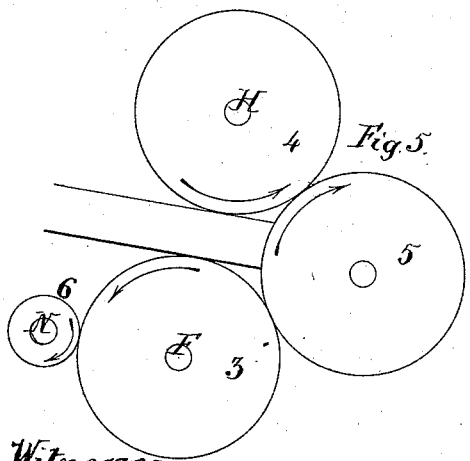
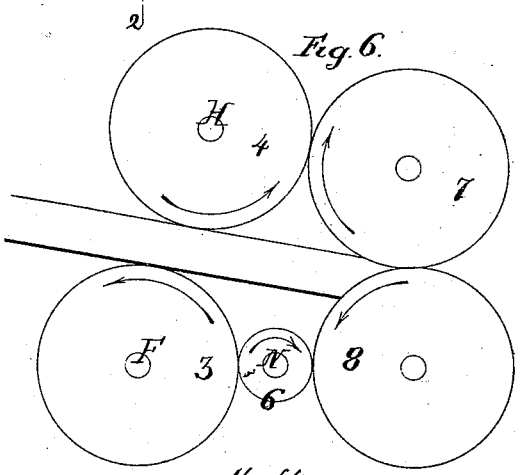


Fig. 6.



Witnesses,
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By his attys
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UNITED STATES PATENT OFFICE.

HENRY HOWSON, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO WILLIAM Y. WARNER, OF WILMINGTON, DELAWARE.

IMPROVEMENT IN MACHINERY FOR GRAINING, PEBBLING, AND SOFTENING LEATHER.

Specification forming part of Letters Patent No. **168,497**, dated October 5, 1875; application filed August 27, 1875.

To all whom it may concern:

Be it known that I, HENRY HOWSON, of Philadelphia, Pennsylvania, have invented certain Improvements in Machinery for Graining, Pebbling, and Softening Leather, of which the following is a specification:

The object of my invention is to construct a simple and effective machine for graining, pebbling, and softening leather; and this object I attain in the manner which I will now proceed to describe.

It may be well in the outset to explain the main feature of my invention and the principle on which the machine is based by referring to the diagram, Figure 1, of the accompanying drawing, in which—

A represents part of a reciprocating bed, and B part of a roller, both being covered with rubber or other material which has an adhesive affinity for leather.

After it has received the usual preliminary treatment, the leather is folded skin side outward and placed on the bed while the latter, as well as the said roller, is stationary, the leather being so adjusted that a line, *x x*, drawn through the center of the roller at right angles to the bed shall pass through the crease *w*. After this adjustment the crease is compressed between the bed and the roller, either by depressing the latter or raising the former, and the roller is then caused to turn and the bed to traverse in the direction of their arrows, the face of the bed moving at the same speed as the circumference of the roller. The result of this will be the movement of the upper fold *t* of the leather in the same direction as the roller, and of the lower fold of the leather in the contrary direction, determined by the bed. As these folds move at the same speed in contrary directions, it will be evident that the crease *w* will always retain the same position in respect to the line *x x*, where it is acted on by the roller under pressure, and that the leather must be subjected to the creasing necessary for softening, pebbling, or graining, the leather being subjected to as many repetitions of the operation as circumstances may require.

In order to facilitate the adjustment of the crease *w* in its proper position in respect to the line *x x*, I use a bar, P, the operation of which will be referred to hereafter.

It will be evident that the creasing of the leather may be accomplished if it be adjusted between the roller and bed in the manner shown in Fig. 2.

I prefer to arrange the bed in an inclined position, so that it will return by its own gravity after it has been moved in the proper direction for producing the above-described effect on the leather, this arrangement of inclined bed traversing inclined ways tending to simplify the machine, which I will now proceed to describe, reference being had to the drawing, in which—

Fig. 3 represents a side view, partly in section, of a machine by which my invention has been carried into successful effect; Fig. 4, a transverse section on the line 1 2, Fig. 3; and Figs. 5 and 6, diagrams illustrating different kinds of gearing which may be applied to the machine.

The bed A is furnished at each edge with two rollers, *a*, those at one edge of the bed being adapted to ways *b* on one side frame D of the machine, and those at the opposite side of the bed being adapted to similar ways on the opposite frame, as best observed in Fig. 4. On the under side of the bed is a rack, *d*, into which gears a wheel, E, on the shaft F, which is caused to revolve in the direction of the arrow.

The shaft H of the roller B turns in boxes I I, each box being adapted to guides *e e*, with which each side frame is furnished, and each box is connected, by a rod, J, to a cross-bar, *m*, on a lever, K, which has its fulcrum at *n* on the frame of the machine, and has at one end a treadle-board, *q*, for receiving the foot of the operator, and at the other end a box, M, for receiving such weights as will tend to depress the short arm of the lever K and raise the long arm, and consequently the roller B, a slight effort being therefore required to depress the roller and lever.

As different styles of gearing may be adopted as mediums through which to operate the bed and roller, it has not been deemed necessary to minutely illustrate or describe any specific

driving appliances. I have, however, given outlines in Figs. 5 and 6 of two styles of gearing which may be employed.

In Fig. 5 a wheel, 3, on the shaft F is driven by a pinion, 6, on a driving-shaft, N, the said wheel 3 (of the same diameter as the rack-wheel) gearing into an idler-wheel, 5, and the latter into a wheel, 4, on the roller-shaft H, the idler-wheel being so coupled to the shafts F and H that the wheels shall always remain in gear, whatever may be the vertical position of the roller B.

In Fig. 6 a driving-shaft, N, is also used, and carries a pinion, 6, gearing into the wheel 3 on the shaft F, and driving the roller-shaft H through the medium of the wheels 8, 7, and 4.

Whatever system of driving-gear is adopted the wheels should bear such relation to each other and to the roller B that the bed A will traverse at the same speed as the circumference of the roller, and there should be a clutch or other device on the driving-shaft to enable the attendant to start and stop the gearing at pleasure.

The roller and bed being stationary, and the latter being at its lowest position on the frame, the attendant, who is stationed in front of the table, adjusts the folded leather so that the crease will be in its proper position below the elevated roller, after which he depresses the latter by means of the lever K, and then starts the machine, so that the roller B will revolve and the bed A traverse in the directions pointed out by their arrows, and this will result in the creasing of so much of the leather as is comprised in the upper fold. When this creasing has been accomplished the attendant stops the machine by throwing a clutch on the driving-shaft out of gear, or by other appliances; or the gearing may be made self-stopping when the bed has reached a given point. At the same time the attendant releases the lever K, and the roller B is consequently elevated, and the bed, being released, will descend the inclined ways without interruption, as the gearing is at liberty to be turned by the rack, the driving-shaft being out of gear. After the leather has been refolded and readjusted on the bed the attendant depresses the roller B and throws the driving-shaft into gear, when a repetition of the above-described creasing operation will take place.

In order to facilitate the adjustment of the folded leather in its proper position on the bed I arrange across the latter, but free from contact therewith, the sliding bar P, above alluded to, which is operated through the medium of two bell-crank levers, Q, secured to a shaft, R, the latter having its bearings in the opposite frames, and the short arms of the bell-crank levers being connected to rods extending from the sliding boxes I, so that when the roller is depressed the sliding bar P will be moved away from and clear of the roller, and when elevated will be moved forward beneath the roller, the bar being so adjusted that when the roller is elevated to its highest point the front edge of the bar will define the proper position of the crease in the leather, the operator taking care that the crease is properly adjusted against the bar before the roller is lowered and the machine started.

The bar P may be arranged to slide in guides on the frame of the machine; but I prefer to connect the bar at its front edge and at each end by a link, *y*, loosely to the roller-shaft H, as shown in Fig. 7, so that when the long arm of the bell-crank lever is moved outward from the roller as the latter is depressed the bar P will assume the position shown by dotted lines. The front edge of the bar will always be retained by the links in its position just clear of the circumference of the roller, whatever may be the position of the latter.

I claim as my invention—

1. In a machine for graining, pebbling, and softening leather, the combination of the bed A with the roller B, the former being caused to traverse in a direction opposite to that in which the roller is caused to revolve for action on the folded leather, in the manner described.

2. The combination of the roller B with the reciprocating bed A, having rollers adapted to inclined ways on the frame-work of the machine, all substantially as specified.

3. The combination of the adjustable roller B, reciprocating table, bar P, and mechanism whereby the said bar is operated, in the manner described.

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

HENRY HOWSON.

Witnesses:

HUBERT HOWSON,

HARRY SMITH.