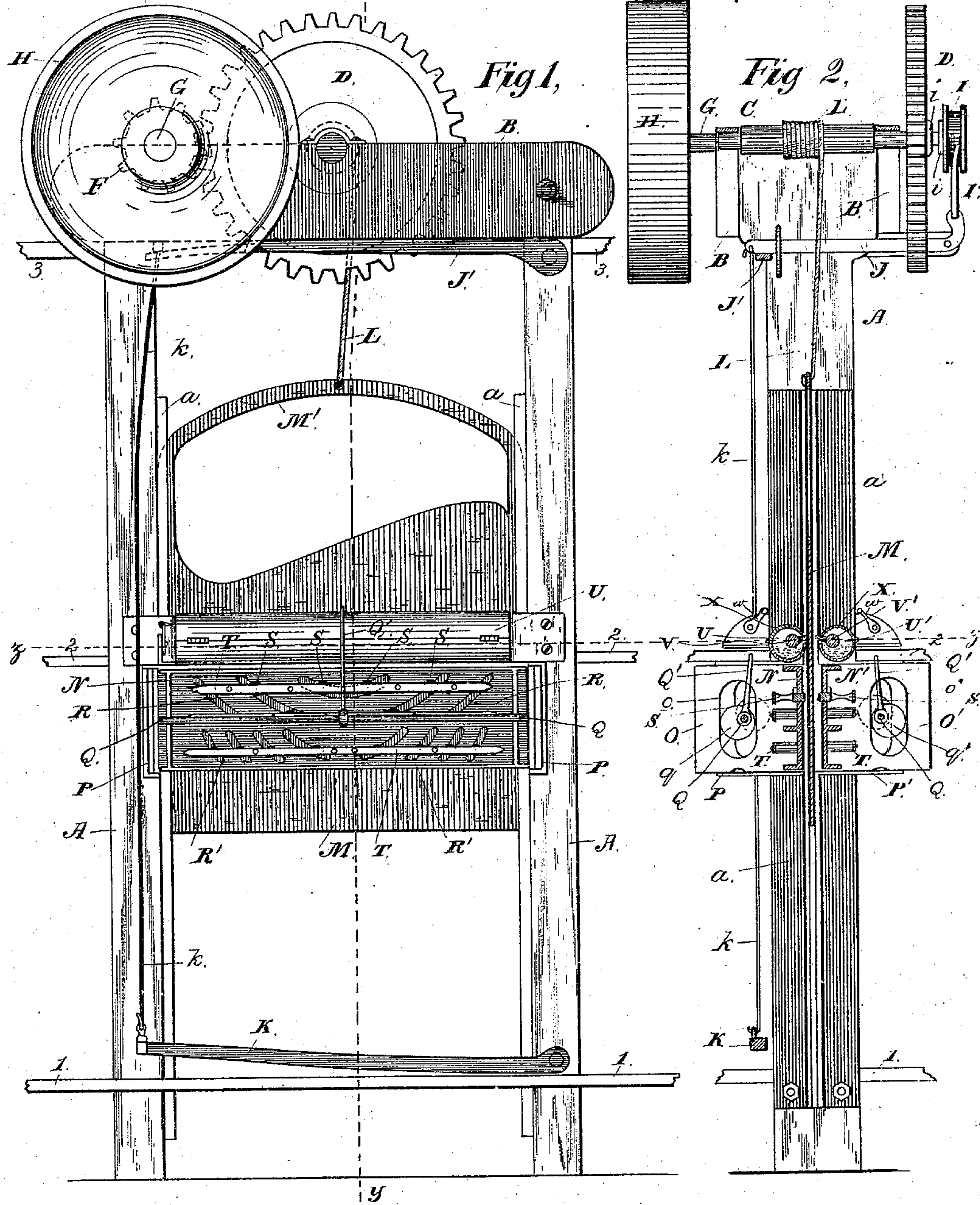


Machine for Drying and Finishing Leather and
Applying Oil Thereto.

No. 232,508.

Patented Sept. 21, 1880.

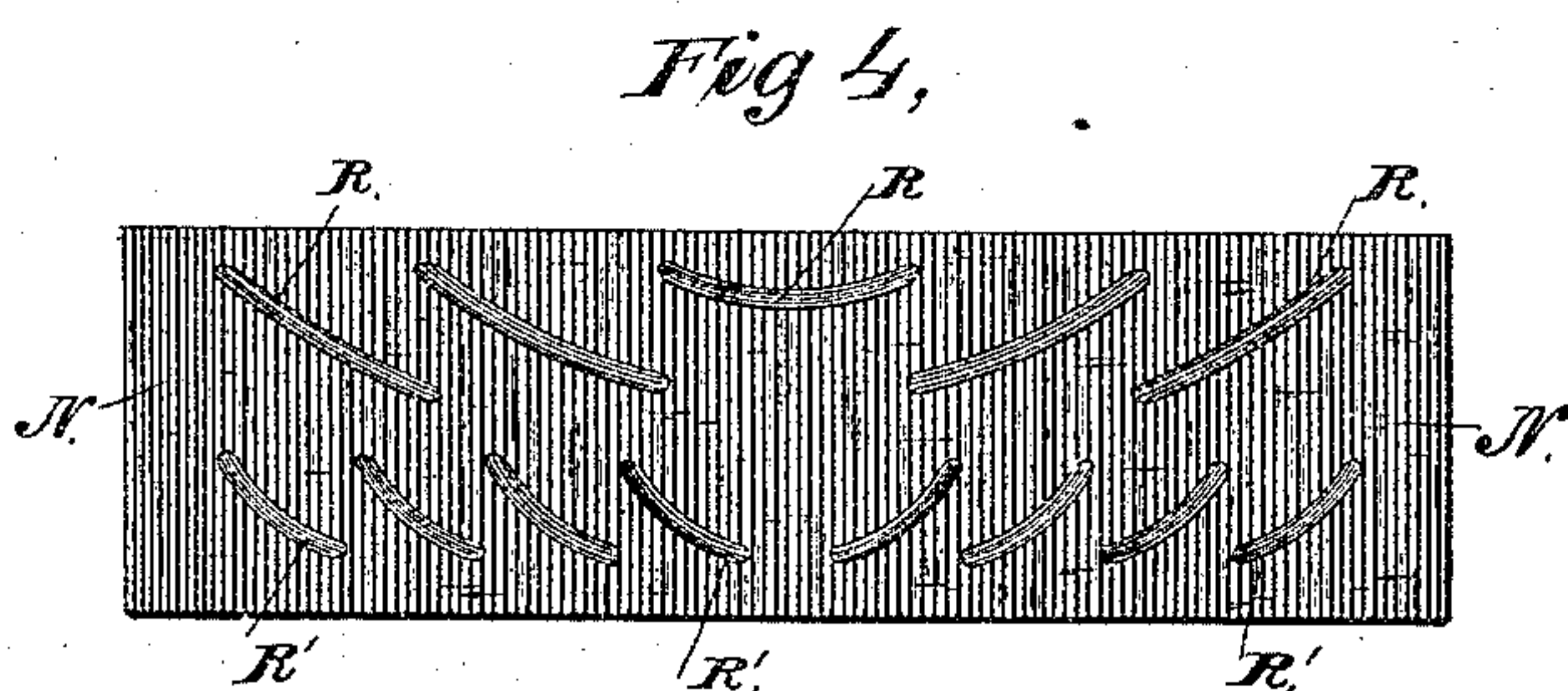
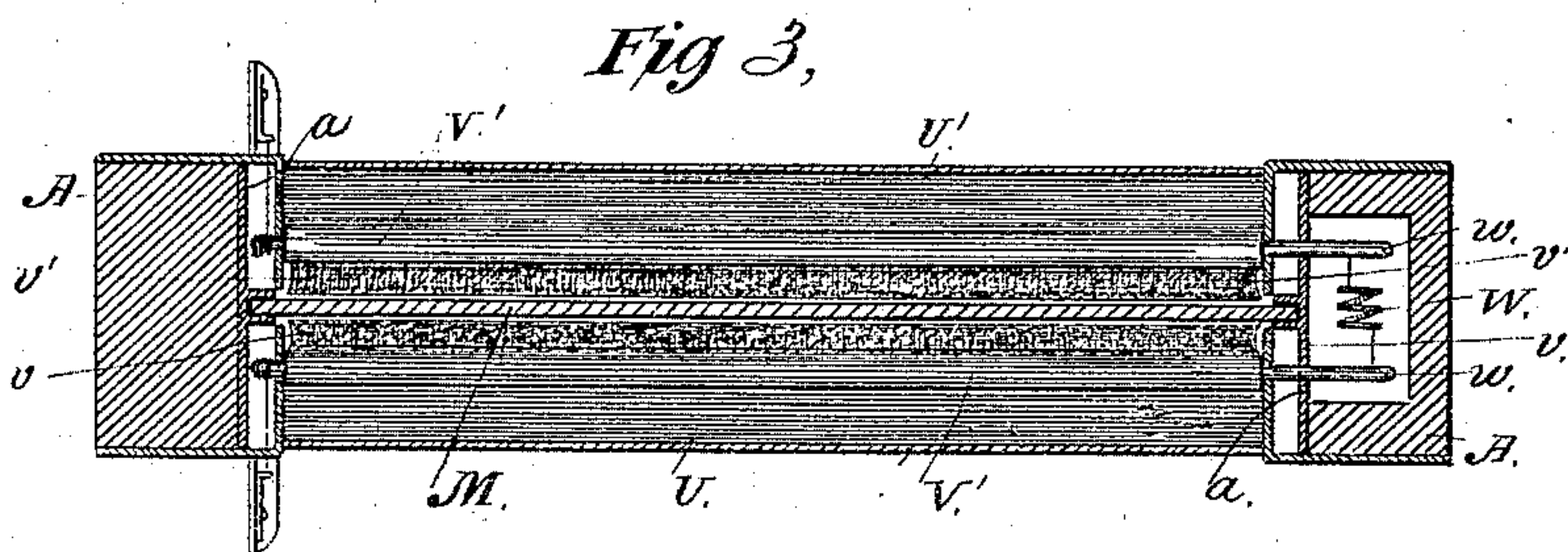


Attest:
Geo T Smallwood Jr.
W. O. Guy

Inventors:
Horace S. Johnston.
William H. Humphrey.
Knights Bros
attys.

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H. S. JOHNSTON & W. H. HUMPHREY.
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Attest:
Geo. F. Smallwood Jr.
W. D. Gray

Inventors:
Abrae S. Johnston
William H. Humphrey
By *Knights* *attys.*

UNITED STATES PATENT OFFICE.

HORACE S. JOHNSTON AND WILLIAM H. HUMPHREY, OF TIOGA, PA.; SAID HUMPHREY ASSIGNOR TO MRS. SARAH B. HUMPHREY, OF SAME PLACE.

MACHINE FOR DRYING AND FINISHING LEATHER AND APPLYING OIL THERETO.

SPECIFICATION forming part of Letters Patent No. 232,508, dated September 21, 1880.

Application filed November 10, 1879.

To all whom it may concern:

Be it known that we, HORACE STONE JOHNSTON and WILLIAM HORACE HUMPHREY, both of Tioga, in the county of Tioga and State of Pennsylvania, have invented a Machine for Facilitating the Drying and Finishing of Leather and Applying Oil Thereto, of which the following is a specification.

The subject of our invention is a machine for removing the wrinkles and water from leather and applying oil thereto to facilitate the finishing of the leather in its original manufacture. It is adapted to operate upon leather of every grade, from the largest side of sole-leather to a calf-skin, or the machine may be made for use on smaller skins.

From examination and manipulation of sides of leather in the course of the conception and maturing of our invention we discovered that a line running transversely across the side midway between the pate and butt invariably passes over a smooth and even portion of the leather, and hence it was found that a machine adapted to operate successfully upon leather for the extraction of the water by means of pressure and rubbing should apply the pressure from the central line above referred to, gradually working and manipulating the leather from this smooth portion toward the more uneven, wrinkled, and ragged extremities of the side.

We further discovered that it was desirable to subject the leather to draft, friction, and compression at the same time. This is effected by drawing the leather through between opposing pressers, which are made to yield independently, so as to distribute the pressure over all portions of the leather, whether the said pressers are in the shape of rubbers or rollers.

We further discovered that oil may be most efficaciously applied to the leather as it leaves the aforesaid pressure-surfaces.

Our machine consists, essentially, of an elevator over which a side of leather may be thrown and appliances for drawing the said elevator upward within a vertical guiding-frame between cross-heads or plates, within which are mounted a number of rubbers or rollers, as preferred, the rubbers or rollers be-

ing pressed together by independent springs, so as to exert the required pressure on both surfaces of the leather, which is thus pressed between the said rubbers or rollers and the elevator-plate, as hereinafter described.

The invention further relates to a device for drawing the presser-plates together or separating them, as required; also, to an appliance for oiling the leather as it leaves the rubbers or rollers.

In order that the invention may be fully understood, we will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 is a front elevation of a machine illustrating our invention. Fig. 2 is a vertical section of the same on the line *yy*, Fig. 1. Fig. 3 is a horizontal section above the oilers on the line *zz*, Figs. 1 and 2. Fig. 4 is a view of the inner face of one of the presser-plates or cross-heads.

1 2 3 may represent the first, second, and third floors of a tannery.

A A are standards, connected at their upper ends by cross-beams B, in which is mounted a horizontal shaft, C, carrying a cog-wheel, D, with which gears a loose pinion, F, on a second shaft, G, which is driven by a pulley, H, or by other suitable means, and has on its extremity a clutch, I, working on a spline, so as to be rotated by the said shaft while capable of longitudinal movement imparted by a shifter, I', on the upper arm of a lever, J, the extremity of which is pressed upward by a spring, J', to draw the clutch I away from the pinion F, and is drawn down by means of a rod, *k*, and treadle K when it is desired to throw the clutch against the pinion, so that the teeth *i* on their opposing faces will engage, and thus cause the pinion to be rotated by its shaft G. The shaft C constitutes a drum, on which is coiled a cord or chain, L, attached at its lower end to the elevator M, which works in guides *a* on the inner faces of the standards A.

The elevator consists of a plate with an irregularly-curved upper edge and a bail or bar, M', projecting above its top for the attachment of the elevating cord or chain L.

N N' represent horizontal plates or cross-

heads attached to slides O O' working within guides P P', and formed with apertures o o' for the reception of cams q q' on the extremities of a shaft, Q, to which is attached a handle or lever-arm, Q', for rotating the said shaft in either direction, in order to draw the cross-heads or plates N N' toward one another or separate them, as required. The horizontal cross-heads or plates are provided with suitable apertures for the reception of the rubbers R R', which we prefer to form of brass or other suitable alloy or composition, in about the shape represented; but rollers may be substituted for the said rubbers, if preferred. The said rubbers are pressed toward the center by means of gum or other springs, S S, bearing against the abutment-bars T T at the back, so as to exert a pressure against each side of the elevator M.

The upper edge of the elevator M has the inclined and curved form shown, in order that a side of leather thrown across it may hang smoothly with the shanks and other parts in vertical position, and may thus be presented most advantageously to the rubbers and pressers.

Above the cross-heads are mounted troughs U U' for the reception of oil, having hinged covers X, and containing horizontal shafts V V', provided on one side with lamb's-wool brushes v v'. On one extremity of each shaft V V' is a pulley, w, on which is coiled a spring, W, attached to the frame of the machine in such a way as to tend to rotate the shafts and cause their brushes v v' to bear against the side of leather on the elevator as it rises, and thus apply oil thereto in a uniform and effective manner. At the other extremity of each shaft is a crank or handle, w', by which the shafts are turned back to immerse the brushes in the oil. While not in use they remain thus submerged.

In operation a side of leather is thrown across the inclined top of the elevator with the back toward the upper side and the thin edge rising slightly on the upward curve at the other side. The elevator is thus adapted for skins of various sizes, and causes the side of leather to hang evenly and vertically. The elevator is drawn up by the action of the shaft C when thrown into gear by means of the treadle and clutch, as described, the effect of which is to rub out the wrinkles in the leather and exert a pressure and manipulation from the smooth central portion of the side to each end, after which it is brought in contact with

the oilers, as already described. The cam-shaft Q is rotated so far as is necessary to apply pressure to the leather as it is drawn up between the rubbers or rollers used in lieu thereof.

The pressers are preferably arranged, as represented, in two horizontal gangs, R R', one above the other. The larger or upper pressers, R, have each two springs, S, while the lower pressers, R', have each one spring.

In practice the springs of the larger pressers yield each a pressure of about two hundred and twenty-five pounds under one-half inch depression. The springs of the smaller pressers yield a little more than one-half this pressure, their office being not so much to take out the water as to remove the wrinkles and render the leather smooth and favorable for the action of the larger pressers, and it will be observed that these are so arranged that their force is jointly exerted from the central portion of the leather to the outside.

In a full-sized machine there are from fourteen to eighteen of the larger and from thirty-two to thirty-six of the smaller rubbers or pressers.

Having thus described our invention, the following is what we claim as new therein and desire to secure by Letters Patent:

1. A machine for facilitating the drying and finishing of leather, constructed, as herein described, with a vertical elevator and pressing appliances having independent rubbers R R', operating, as set forth, to straighten out the leather and remove surplus water therefrom.

2. The oiling attachment, consisting of rotary brushes and oil-troughs, within which the brushes may be submerged, in combination with the elevator and pressers, substantially as and for the purposes set forth.

3. The combination of an elevator, M, and pressers R, supported by independent springs S, as and for the purposes set forth.

4. The combination of the elevator, the pressers, and the oilers, substantially as and for the purpose explained.

5. The combination of the elevator, cams, lever, lateral pressure-frames, pressers, and independent springs, as and for the purposes set forth.

HORACE STONE JOHNSTON.

WILLIAM HORACE HUMPHREY.

Witnesses:

J. SCHIEFFELIN, Jr.,

C. W. RYON.