(No Model.) 3 Sheets—Sheet 1.

W. W. HUBBARD.

MACHINE FOR REDUCING LEATHER TO UNIFORM THICKNESS.

No. 312,272. Patented Feb. 17, 1885.

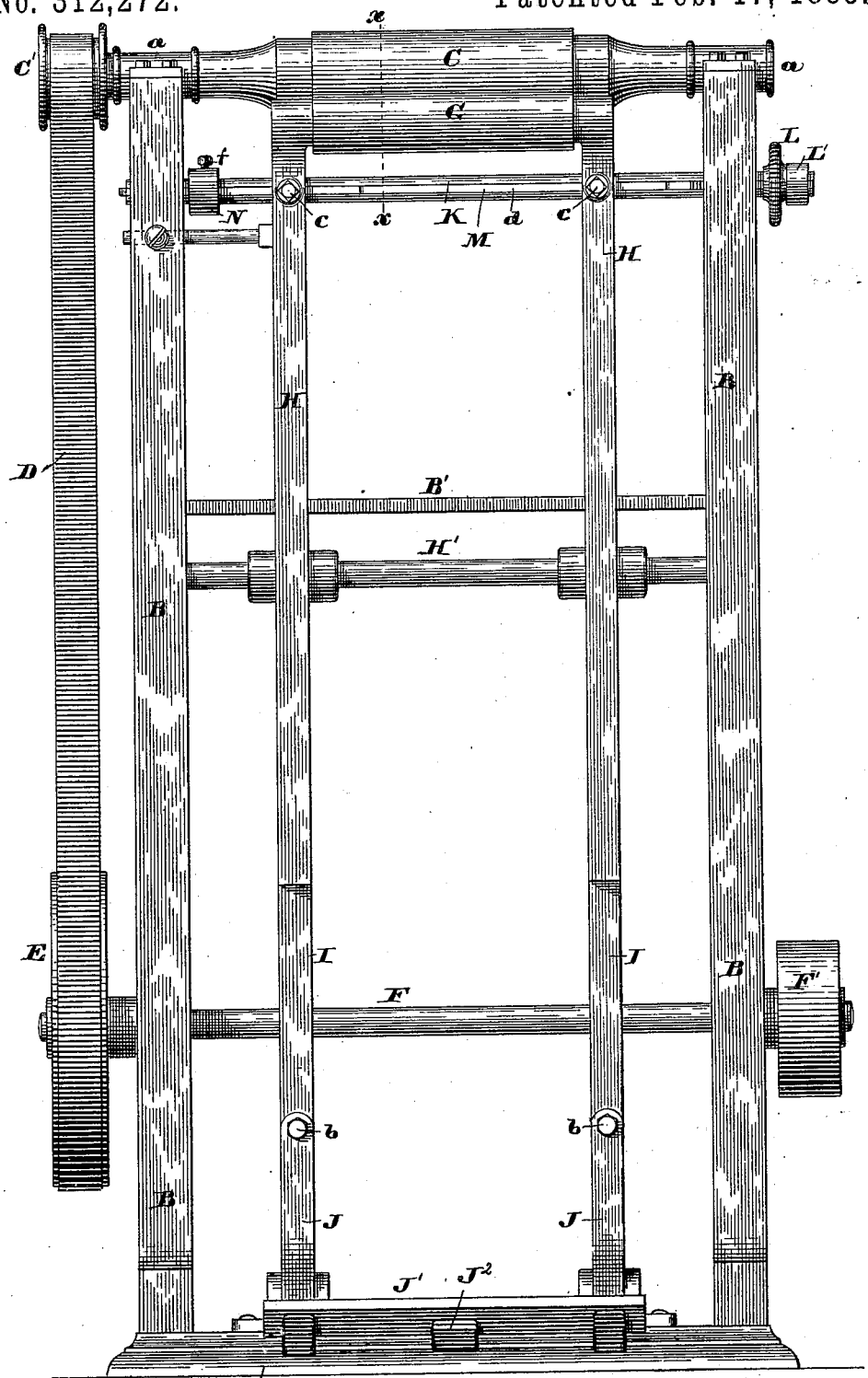

Fig. 1.

Witnesses:
James T. Murray.
Walter E. Lombard.

Inventor:
William W. Hubbard,
by N. C. Lombard
Attorney.

N. PETERS. Photo-Lithographer, Washington, D. C.

(No Model.) 3 Sheets—Sheet 2.

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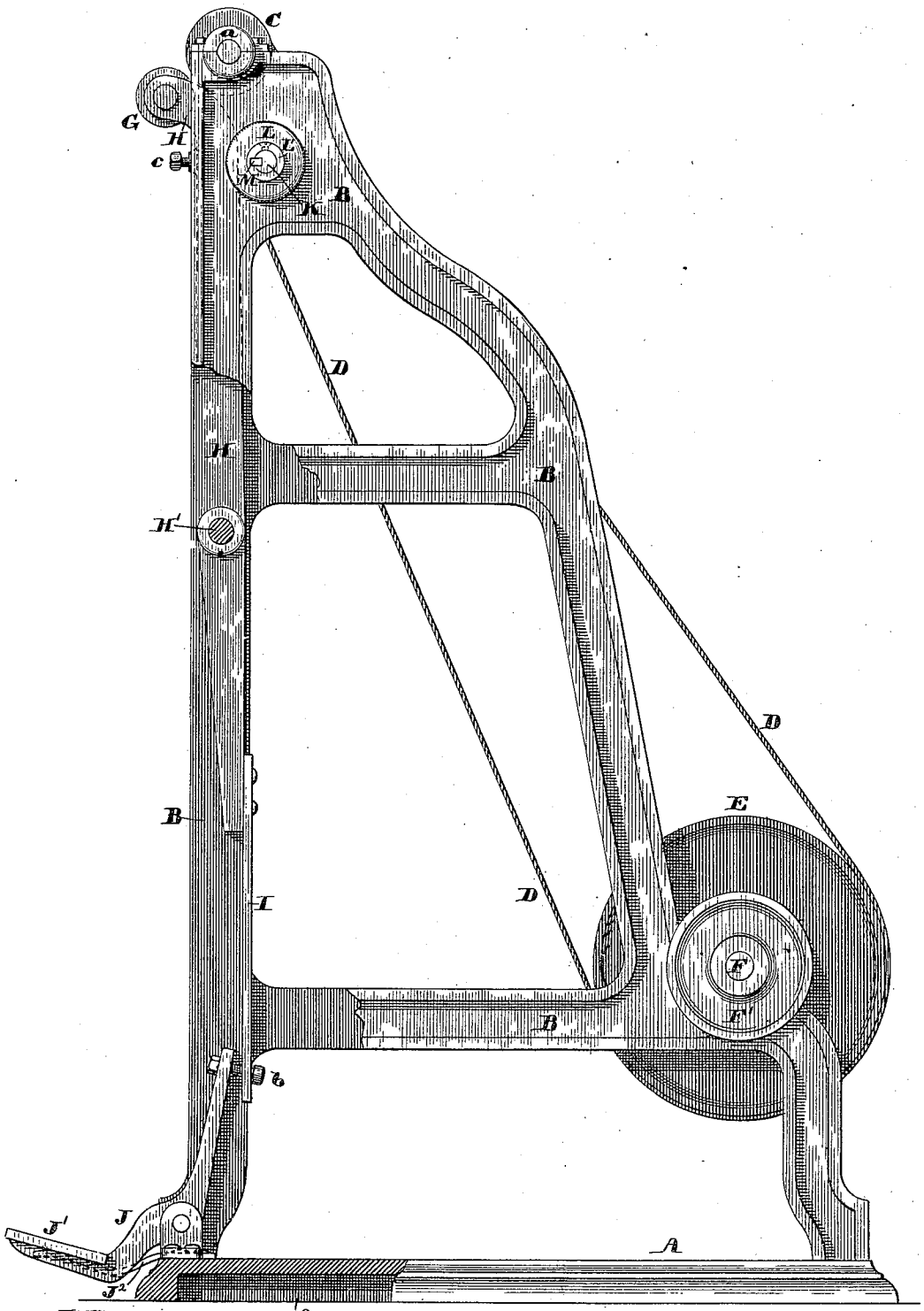

Fig. 2.

Witnesses:
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(No Model.) 3 Sheets—Sheet 3.

W. W. HUBBARD.

MACHINE FOR REDUCING LEATHER TO UNIFORM THICKNESS.

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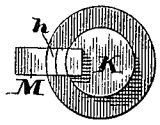


Fig. 6.

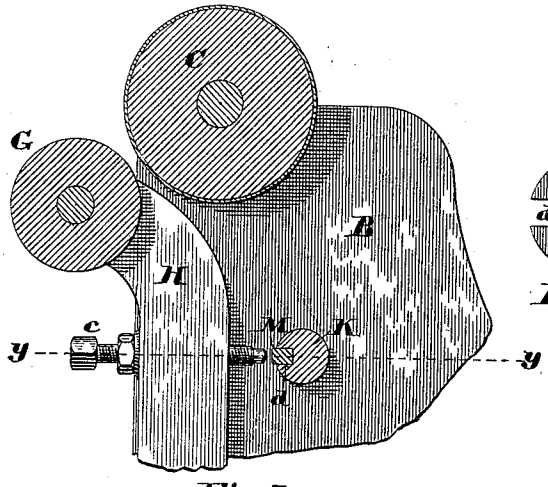


Fig. 3.

Fig. 7.

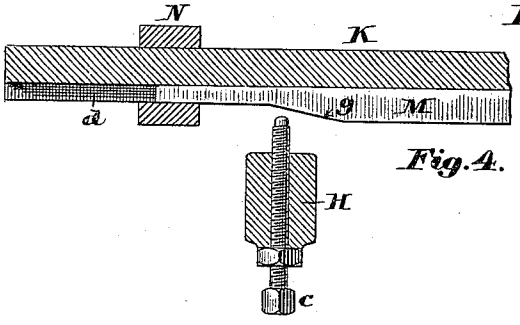
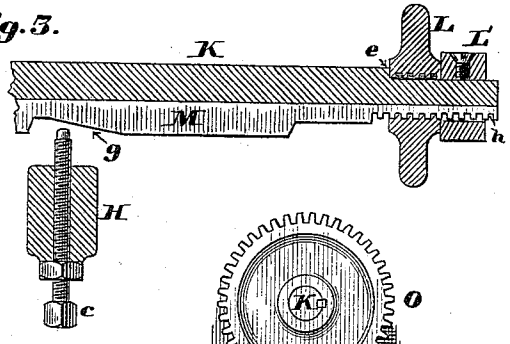


Fig. 4.



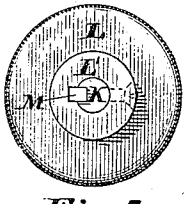


Fig. 5.

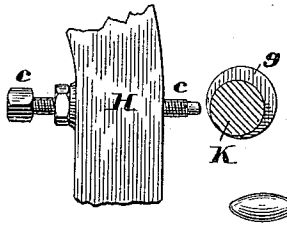


Fig. 10.

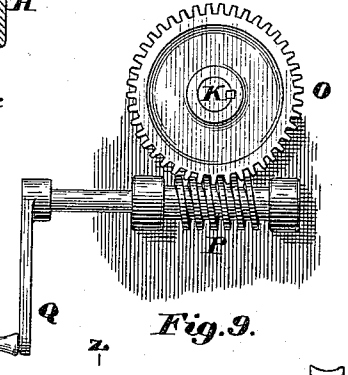


Fig. 9.

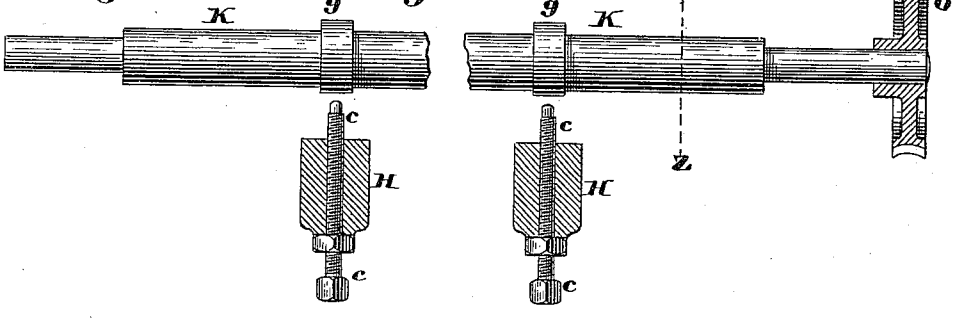


Fig. 8.

Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM W. HUBBARD, OF MANCHESTER, NEW HAMPSHIRE, ASSIGNOR TO CHARLES B. BRADLEY, OF SAME PLACE.

MACHINE FOR REDUCING LEATHER TO UNIFORM THICKNESS.

SPECIFICATION forming part of Letters Patent No. 312,272, dated February 17, 1885.

Application filed December 6, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. HUBBARD, of Manchester, in the county of Hillsborough and State of New Hampshire, have invented certain new and useful Improvements in Machines for Reducing Leather to a Uniform and Even Thickness, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to a machine for reducing leather to an even thickness, and to that class of such machines in which the reduction is produced by the action of an abrading cylinder or roll; and it consists in certain novel constructions, arrangements, and combinations of parts, which will be readily understood by reference to the description of the drawings and to the claims hereinafter given.

Figure 1 of the drawings is a front elevation of a machine embodying my invention. Fig. 2 is an end elevation of the same, with a portion of one frame broken away in order to show the treadle-connection for operating the gage-roll. Fig. 3 is a partial transverse vertical section on line *x x* on Fig. 1, drawn to an enlarged scale. Fig. 4 is a horizontal longitudinal section through the adjustable stop mechanism, on line *y y* on Fig. 3. Fig. 5 is an end elevation of the adjustable stop mechanism detached. Fig. 6 is an end view of the grooved rod and sliding cam bar or wedge detached. Fig. 7 is an end view of the grooved rod for carrying the sliding cam-bar detached. Fig. 8 is a plan of a modified form of the adjustable cam-stops. Fig. 9 is an end elevation of the same, and Fig. 10 is a transverse section on line *z z* on Fig. 8.

A is a base-plate, from which rises the two end frames, B B, connected together by the tie-girt B′.

C is a sand-paper-covered roll, mounted in bearings *a a* in the tops of the frames B B, and may be of any well-known construction. The roll C has mounted upon one end of its shaft the pulley C′, by which and the belt D, the pulley E, shaft F, and driving-pulley F′ rotary motion may be imparted to the sand-paper roll C.

G is a gage-roll mounted in bearings in the upper ends of the levers H H, which are mounted loosely upon the shaft H′, and, extending below said shaft, have secured to their lower ends the leaf-springs I I, the lower ends of which are connected by the bolts *b b* to the inner ends of the two levers J J, to the opposite ends of which is secured the treadle-board J′, as shown in Figs. 1 and 2. The treadle-board J′ is raised when the operator's foot is removed therefrom by the spring J^2. The levers H H are each provided with a set-screw, *c c*, to limit the movement of the gage-roll G toward the sand-paper roll.

So far as described the machine is old and not of my invention, and therefore needs no further description here.

As heretofore constructed, the set-screws *c c* worked in conjunction with fixed or non-adjustable stops to limit the movement of the gage-roll toward the sand-paper roll for the purpose of determining the thickness to which the leather could be reduced, and whenever it became necessary to vary this thickness the adjustment had to be obtained by adjusting the screws *c c* independently of each other, and as a consequence great care had to be exercised in order not to disturb the parallelism of the two rolls relative to each other, which was found to be a great objection. To overcome this difficulty and obviate the objection, I conceived the idea of using two wedges or cams of uniform shape for stops to limit the inward movement of the gage-roll, said wedges or cams being so arranged relative to the screws *c c* and to each other that each of the screws *c c* would strike one of the cams or wedges, and that both of said wedges or cams could be adjusted together by a single operation.

Two forms of wedges or cams are shown in the drawings, but, though differing somewhat in form and mode of operation, are essentially the same in principle, each embodying the feature of a pair of wedges or inclined planes so connected together that they cannot be moved separately, but must be moved together, if at all, and bearing such relations to the set-screws *c c* that a simultaneous movement of said wedges or cams will cause a variation in the distance between the gage and abrading rolls without destroying their parallelism.

In the device shown in Figs. 1, 2, 3, and 4 a shaft, K, having a rectangular groove, *d*, extending longitudinally the whole length there-

of, is secured in bearings in the frames A A in a fixed position, with a portion of one end, which is reduced in diameter, projecting through the right-hand frame, and has mounted upon said projecting portion, so as to revolve freely thereon, the milled-edged nut L, which is prevented from moving lengthwise of said shaft K by the collar L′ and the shoulder *e* of said shaft, as shown in Fig. 4. A rectangular bar, M, is fitted to the groove *d*, so as to be freely moved endwise therein when desired, it being secured in said groove by the nut L and the collar N, the latter being firmly secured to the shaft K by the set-screw *f*, (shown in Fig. 1,) but without binding the bar M, so as to interfere with an endwise movement of said bar in the groove *d*. The bar M has formed upon its front edge two wedge or cam surfaces, *g g*, of uniform inclination and length, and arranged with the centers of their lengths at a distance apart just equal to the distance between the centers of the two screws *c c*. One end of the bar M has formed upon its front edge a series of teeth, *h*, each of which is a segment of a screw-thread, with which the female thread in the nut L engages as a means of adjusting said bar endwise in the groove *d*.

In Figs. 8, 9, and 10 is illustrated the other form of and mode of applying the wedges or cams to adjust the gage-roll G, in which the shaft K is mounted, in the frames A, so as to be revolved in their bearings, and the wedges or cams *g g* are in the form of eccentrics extending circumferentially around said shaft, as shown in Figs. 8 and 10. The shaft K in this case has secured to one end thereof the worm-wheel O, with which the worm-screw P, mounted in suitable bearings formed upon or secured to the outside of one of the frames A, engages as a means of adjusting said wedges by moving the shaft K around its axis, the shaft of said worm being provided with the crank Q, by which it may be revolved.

The operation of my invention will be readily understood from the foregoing, and therefore need not be further described here.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination of an abrading-roll mounted in fixed bearings, a gage-roll mounted in bearings in the ends of pivoted levers, a treadle connected with said levers for moving said gage-roll away from the abrading-roll, a pair of set-screws set in said levers for adjusting said gage-roll parallel with the abrading-roll, and a pair of cam or wedge surfaces arranged to co-operate with said set-screws and to be simultaneously adjusted to vary the limit of movement of the gage-roll toward the abrading-roll, substantially as and for the purpose described.

2. The combination of an abrading-roll mounted in fixed bearings, a gage-roll mounted in bearings in the ends of pivoted levers, a treadle connected with said levers for moving the gage-roll toward the abrading-roll, the set-screws *c c*, the grooved shaft K, the bar M, provided with the wedges or cam-surfaces *g g* and the segmental threads *h*, and the nut L, all constructed and arranged to operate substantially as and for the purposes described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 29th day of November, A. D. 1884.

WILLIAM W. HUBBARD.

Witnesses:
D. F. O'CONNOR,
E. M. TOPLIFF.