(No Model.)

2 Sheets—Sheet 1.

J. H. HOVEY.

LEATHER STONING MACHINE.

No. 294,320. Patented Feb. 26, 1884.

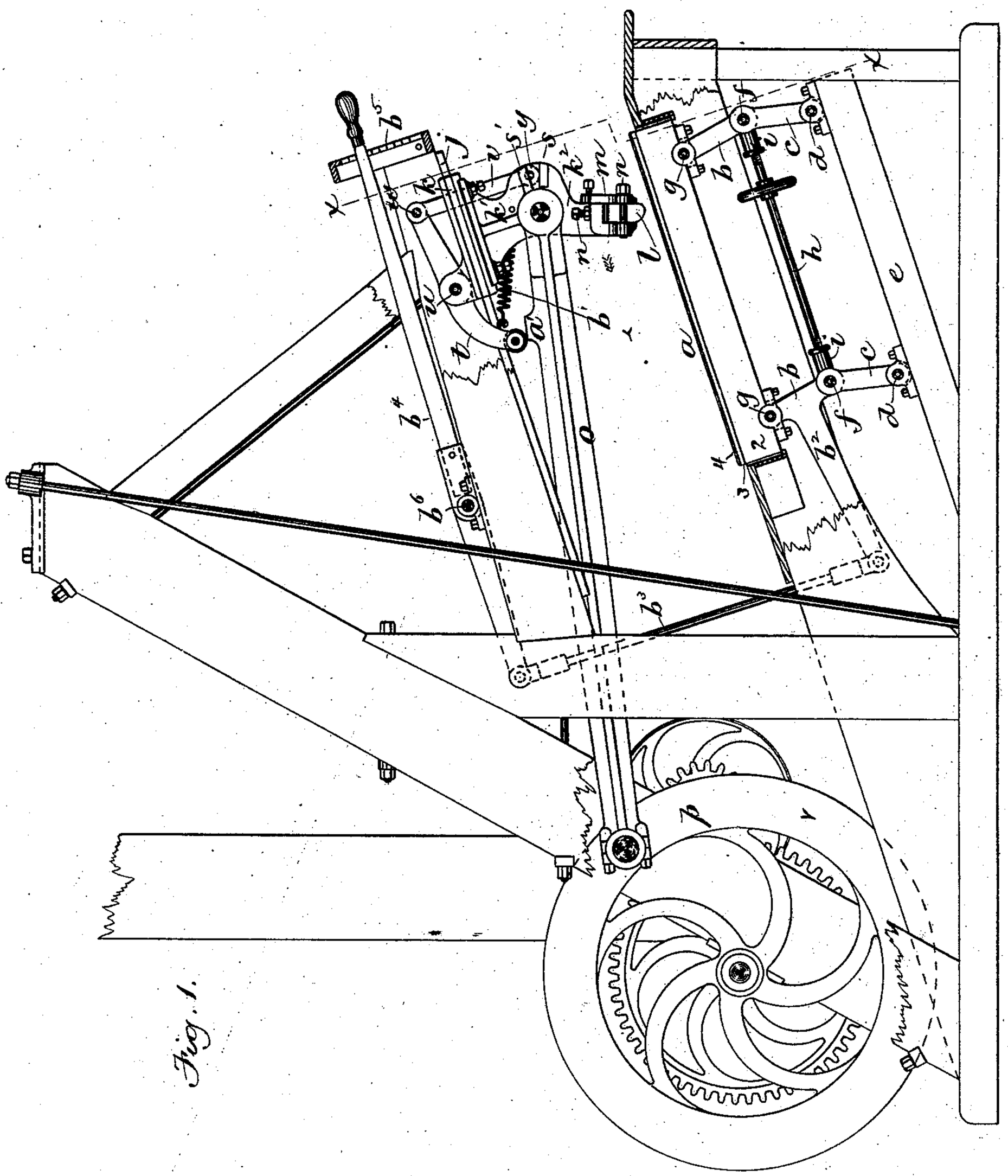

Fig. 1.

Witnesses.
A. L. White
J. McNulty

Inventor
J. H. Hovey
by Wright Brown
Attys.

(No Model.) 2 Sheets—Sheet 2.

J. H. HOVEY.

LEATHER STONING MACHINE.

No. 294,320. Patented Feb. 26, 1884.

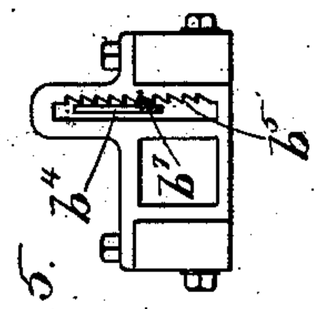

Fig. 5.

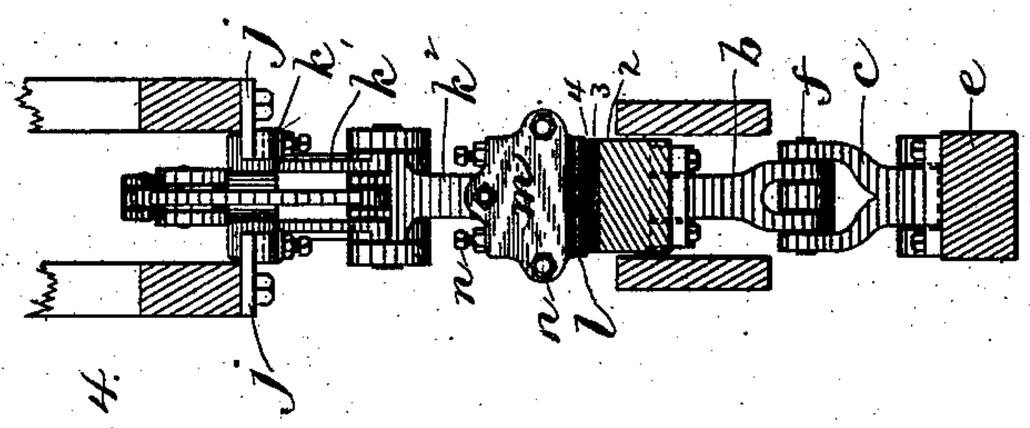

Fig. 4.

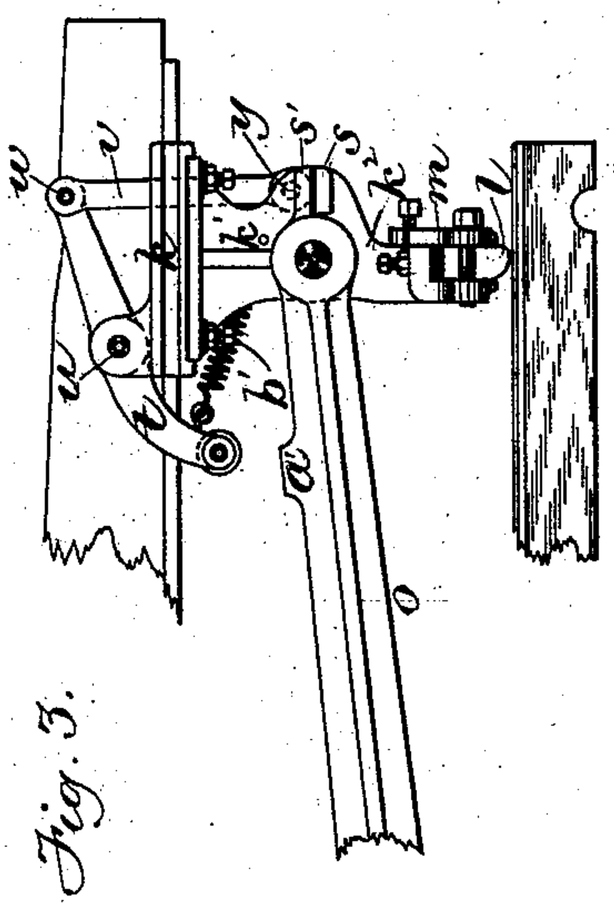

Fig. 3.

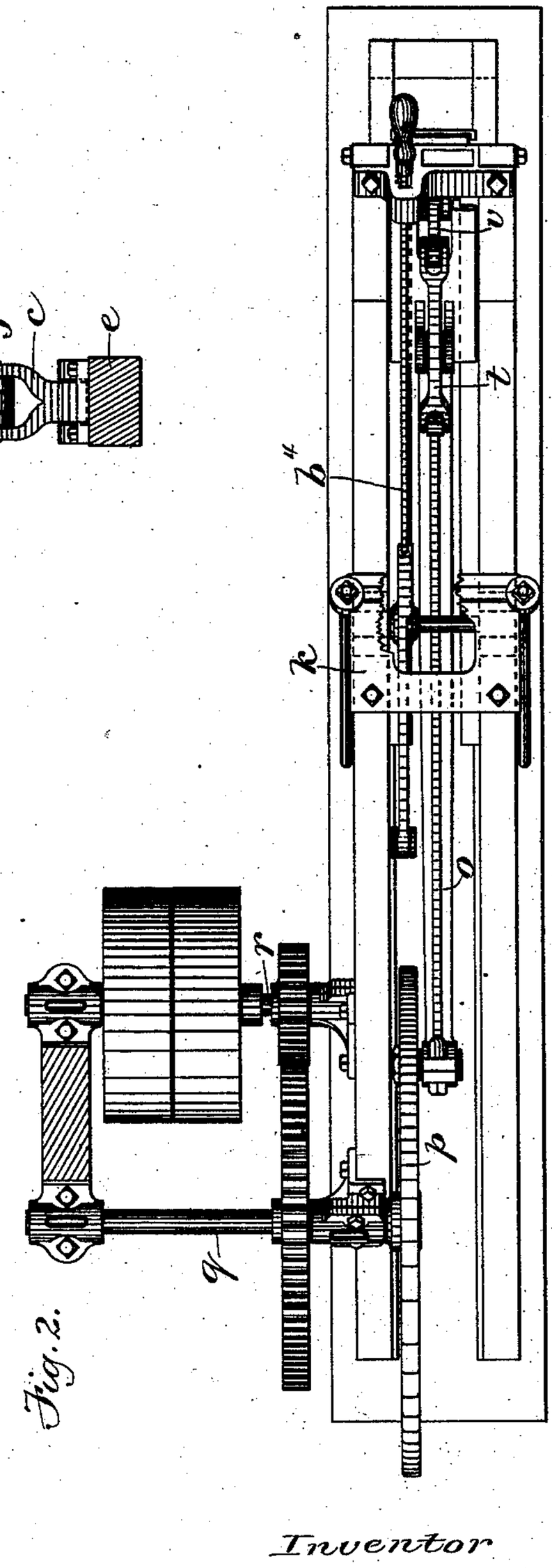

Fig. 2.

Witnesses.
A. L. White
J. McNulty

Inventor
J. H. Hovey
by Wright & Brown
Attys.

UNITED STATES PATENT OFFICE.

JOHN H. HOVEY, OF WOBURN, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO E. L. SHAW & CO., OF SAME PLACE.

LEATHER-STONING MACHINE.

SPECIFICATION forming part of Letters Patent No. 294,320, dated February 26, 1884.

Application filed December 19, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. HOVEY, of Woburn, in the county of Middlesex and State of Massachusetts, have invented certain Improvements in Leather-Stoning Machines, of which the following is a specification.

This invention has for its object to provide an improved machine for stoning or rubbing leather by the use of a reciprocating tool; and it consists in the improvements hereinafter described, whereby the action of the tool on the leather is improved and the operator is enabled to readily control the operation of the machine, as I will now proceed to describe.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a side elevation of a machine embodying my invention. Fig. 2 represents a top view of the same. Fig. 3 represents a side elevation of a part of the machine. Fig. 4 represents a section on line *x x*, Fig. 1. Fig. 5 represents a detail view.

The same letters represent the same parts in all the figures.

In the drawings, *a* represents the bed or table which supports the leather while it is being acted on by the rubbing-tool. Said table is composed of a base, 2, of wood or other suitable material, a sheet, 3, of elastic rubber, placed on the base 2, and a flexible sheet, 4, of metal, bearing on the rubber and serving as a direct support for the leather to be treated; or, if preferred, a strip of rawhide or leather may be secured to the upper surface of the metal strip. The rubber and flexible metal form an elastic bed, which will yield equally at any part of its area, and only yields at a point directly under the rubbing-tool, instead of yielding bodily, like a rigid table supported by independent springs. The scouring operation is facilitated by this construction, the yielding of the bed only under the tool causing the latter to act more effectively than would be the case if the table had a rigid surface.

The table *a* is supported by jointed legs composed of links *b b* and *c c*. The links *c c* are pivoted at *d d* to a fixed support, *e*, and the links *b b* are pivoted at *f f* to the links *c c* and at *g g* to the bed or table *a*. The pivots *f f* are connected by a rod, *h*, which is provided at one end with right-hand screw-threads, and at its opposite end with left-hand threads, said threaded ends engaging with correspondingly-threaded sockets formed in end pieces, *i i*, which are pivoted to the pivots *f f*. By rotating said rod the pivots *f f* will be moved simultaneously toward or from each other, so that one of the jointed legs will be caused to raise its end of the table *a*, and the other will at the same time be caused to depress the other end of the table. The inclination of the table can thus be readily varied. One of the links *b* is provided with an arm, b^2, which is connected by a rod, b^3, with a lever, b^4, which is pivoted at b^6 to a fixed support, and is provided at its outer end with a tooth, b^7, adapted to engage with one of a series of ratchet-teeth, b^5, affixed to the supporting-frame. By moving the lever b^4 the angle of the links *b c* can be varied, thus altering the height of the table *a* as may be desired, the teeth b^5 holding the lever b^4, and thus securing the table in any positien to which it may be adjusted. I do not limit myself, however, to the ratchet-teeth for holding the lever b^4, as any other suitable means may be employed for securing said lever at different points.

Over the table are two guides, *j j*, which are affixed to the supporting-frame. *k* represents a cross-head adapted to slide between said guides, and provided with a downwardly-projecting arm, *k'*, to the lower end of which is pivoted a holder, k^2, provided with a rubbing-tool, *l*, of stone, glass, metal, or other suitable material. Said tool is detachably secured to the holder by a clamping-plate, *m*, and bolts *n n*. *o* represents a connecting-rod, which is connected to the arm *k'* of the cross-head and to a wheel, *p*, on a shaft, *q*, which is journaled in the supporting-frame and is geared to a driving-shaft, *r*. The guides *j j* are substantially parallel with the bed or table *a*, and the cross-head is reciprocated by the rotation of the wheel *p*, and carries the tool *l* back and forth over the table. When the cross-head is moving in the direction indicated by the arrow in Fig. 1, and the tool is in contact with the leather on the table, the tool-holder stands in line with the arm *k'*, as shown in Fig. 3, and is kept in said position

by the contact of a shoulder, *s*, on the tool-holder with a corresponding shoulder, *s'*, on the arm. The tool-holder and arm are then, in effect, a single rigid arm, holding the tool firmly against the leather on the table. When the cross-head moves in the opposite direction, the tool-holder yields and swings backwardly, as shown in Fig. 1, and therefore does not exert any material pressure on the leather during the return movement of the cross-head, but acts only when moving in the direction first described, so that it will not displace or "bunch up" the leather, which is held by the operator only at the front of the machine—viz., at the upper end of the bed. The tool may be allowed to bear against the leather with a pressure due only to its weight during the backward movement of the cross-head, so that when the forward movement commences it will at once be caused to resume its rigid condition by its contact with the leather. I prefer, however, to provide means for positively raising the tool from the leather during the backward or return movement and pressing it against the leather when said movement ceases. To this end I provide a lever, *t*, pivoted at *u* to the cross-head *k*, and connected with the tool-holder k^2 by a link or rod, *v*, pivoted at *w* to one end of the lever, and at *y* to the tool-holder. The other end of the lever *t* is curved downwardly, and provided with an anti-friction roller. The connecting-rod *o* is provided with a projection, *a'*, which strikes the roller-carrying end of the lever *t* when the rod *o* commences to move the cross-head backwardly, said rod being raised in moving the cross-head backwardly and depressed in moving it in the opposite direction. The contact of the rod *o* with the lever *t* tilts the latter and depresses the rod or link, thus swinging the tool-holder k^2 backwardly, as shown in Fig. 1. When the rod *o* is depressed by the wheel *p*, as shown in Fig. 3, in making the forward movement of the cross-head, the lever *t* is released, and is moved by a spring, *b'*, so as to raise the rod or link *v*, and move the tool-holder into line with the arm *k'*, thus making the tool rigid while it is moving forward. The spring *b'* is attached at one end to the cross-head and at the other end to the lever *t*.

It will be seen that the described provision of means for adjusting the height of the table *a* enables the operator to adapt the table to the thickness of the skin or side of leather being operated on, so that in case the pressure of the tool upon it is too great the pressure can be instantly relieved, thus avoiding injury to the machine and danger of breaking the driving-belt. The provision of means for varying the inclination of the bed enables the operator to compensate for variations in the thickness of the same hide or skin in case it is thicker at one edge or end than at the other.

I am aware that it is not new to apply a sheet of rubber to the surface on which the leather is supported in a leather-dressing machine; hence I do not claim the same, broadly.

I claim—

1. In a leather stoning or rubbing machine, a supporting bed or table composed of a rigid base, a sheet of elastic rubber, and a covering of flexible sheet metal, as set forth.

2. The combination of a bed or table, a rubbing-tool reciprocating in fixed guides, and means, substantially as described, for varying the height of said bed and holding it at any height to which it may be adjusted, as set forth.

3. The combination of a bed or table, a rubbing-tool reciprocating in fixed guides, and means, substantially as described, for varying the inclination of said bed, as set forth.

4. The combination of a bed or table, fixed rectilinear guides, a cross-head adapted to move in said guides, a rotating wheel or crank, and a connecting-rod actuated thereby, whereby the cross-head is reciprocated, a tool-holder pivoted to the cross-head, and adapted to oscillate independently of the cross-head and connecting-rod, and shoulders or bearings, as *s s'*, formed on the cross-head and tool-holder, and adapted to make the tool-holder rigid when the cross-head is moving forward, the pivotal connection of the tool-holder to the cross-head enabling it to yield when the cross-head is moving backward, as set forth.

5. The combination of a bed or table, a cross-head movable in fixed guides, mechanism for reciprocating said cross-head, a tool-holder pivoted to the cross-head, and means, substantially as specified, whereby the tool-holder is thrown back to raise the tool from the leather during the backward movement of the cross-head, and thrown forward to present the tool to the leather during the forward movement of the cross-head, as set forth.

6. The combination of the bed or table, the jointed legs or supports therefor, having oppositely-threaded sockets *i i*, and the rod *h*, having oppositely-threaded ends engaged with said sockets, as set forth.

7. The combination of the bed or table, the jointed legs or supports therefor, the arm b^2 on one of said legs, the connecting-rod b^3, the pivoted lever b^4, and locking devices for said lever, as set forth.

8. The cross-head having the shouldered arm *k'*, combined with the shouldered tool-holder k^2, pivoted to said arm, as set forth.

9. The combination of the cross-head having the shouldered arm *k'*, the shouldered tool-holder k^2, pivoted to said arm, the connecting-rod *o*, the lever *t*, pivoted to the cross-head, the link *v*, connecting the lever *t* with the tool-holder, and the spring *b'*, connecting the lever *t* with the cross-head, as set forth.

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

JOHN H. HOVEY.

Witnesses:
E. D. NEWTON,
HERBERT L. PARKER.