(No Model.) 2 Sheets—Sheet 1.

C. F. STACKPOLE.

LEATHER STAKING MACHINE.

No. 457,136. Patented Aug. 4, 1891.

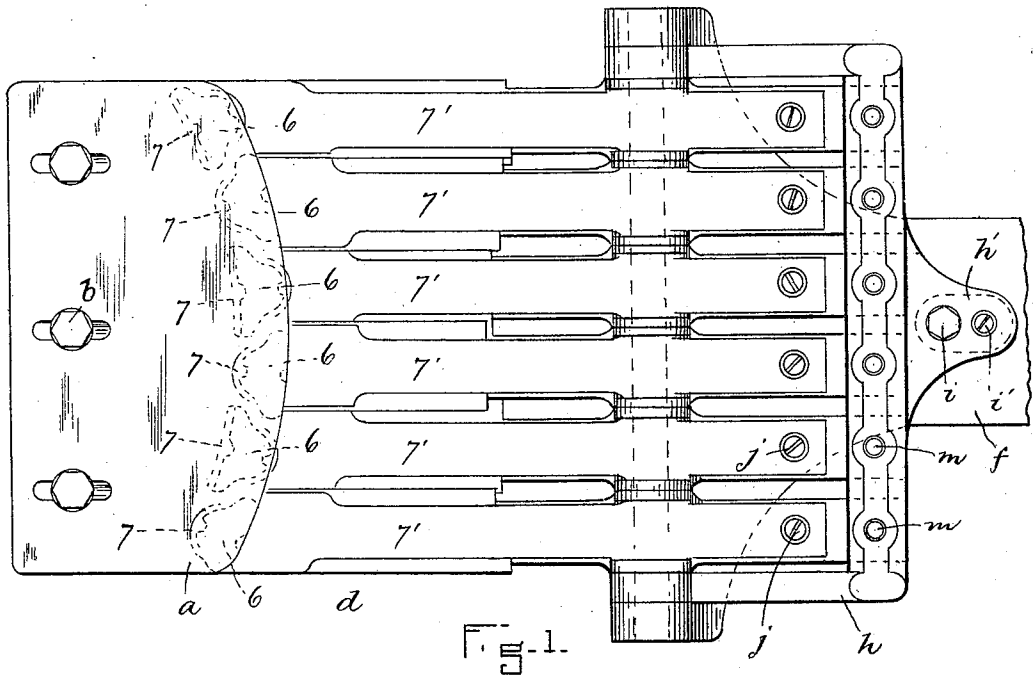


Fig. 1.

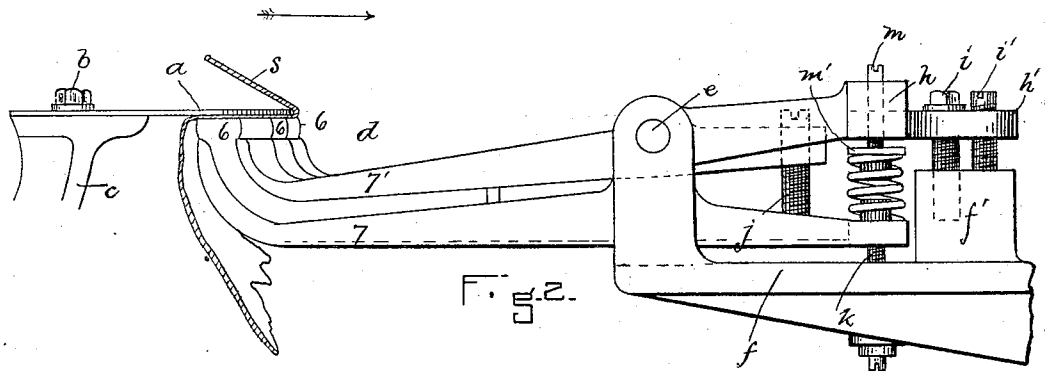


Fig. 2.

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INVENTOR.
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

C. F. STACKPOLE.

LEATHER STAKING MACHINE.

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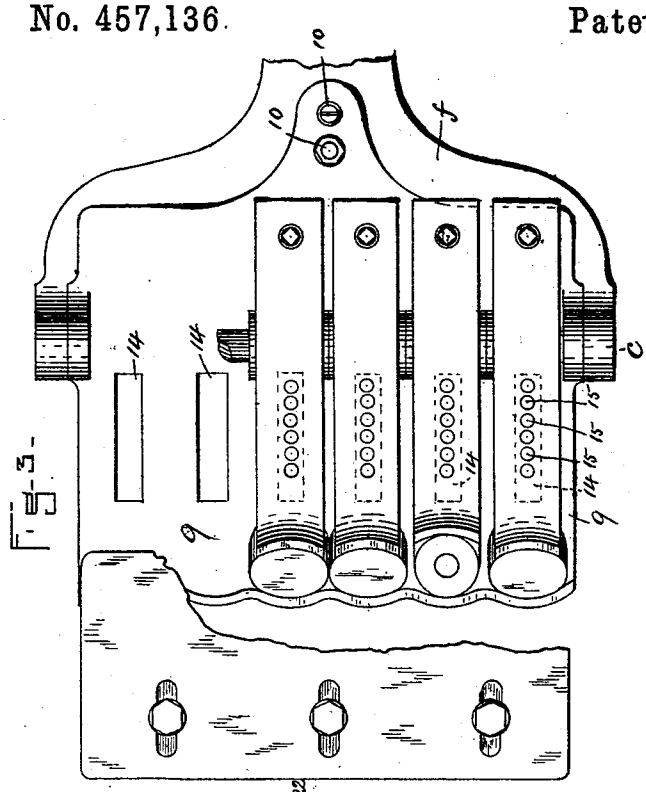


Fig. 3.

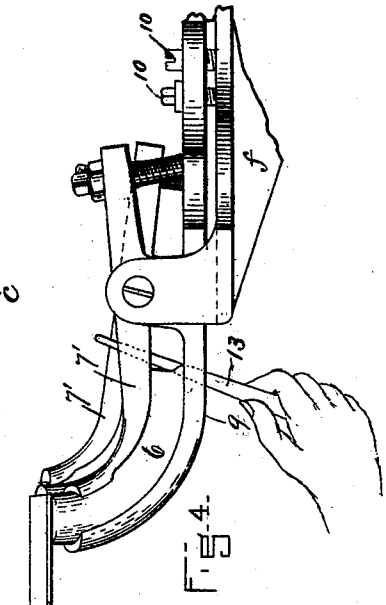


Fig. 4.

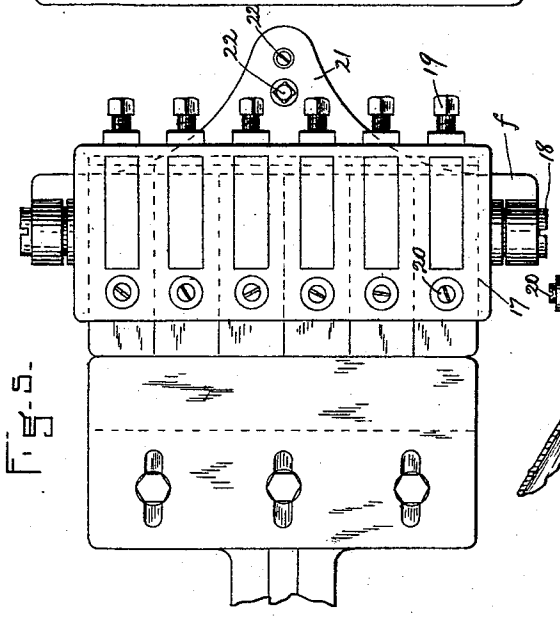


Fig. 5.

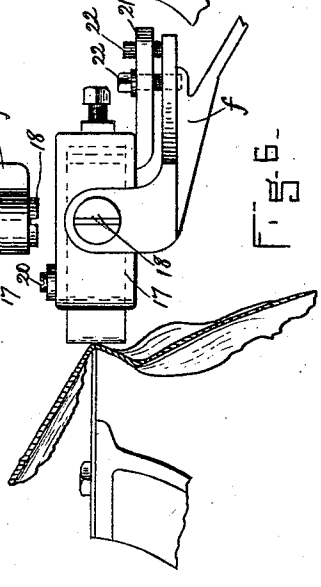


Fig. 6.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHARLES F. STACKPOLE, OF LYNN, ASSIGNOR OF ONE-FOURTH TO JOHN M. SCHOFIELD, OF BOSTON, MASSACHUSETTS.

LEATHER-STAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 457,136, dated August 4, 1891.

Application filed October 17, 1890. Serial No. 368,399. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. STACKPOLE, of Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Leather Working or Staking Machines, of which the following is a specification.

This invention has for its object to provide certain improvements in machines for stretching and working tanned skins to make them soft and flexible, and, by stretching the grain or outer surface, open the pores so that they will freely absorb coloring-matter, such machines being known among leather-manufacturers as "staking-machines." A machine of this class has a metallic scraping blade or jaw, against which the flesh side of the skin is held, and an elastic presser or cushion which presses the skin against said blade. Said blade and presser or cushion are arranged to act as jaws which open or are separated to receive the skin between them and close upon the skin. They are reciprocated together or in unison, and are separated while moving one way and closed upon the skin while moving the other way, the skin being held at one end by the operator against the pull exerted on it by the closed jaws, so that the blade scrapes the skin and the two jaws together stretch and soften the same while they are closed upon it.

My invention relates, chiefly, to the construction and relative arrangement of the said jaws, and particularly to the construction of the yielding jaw or cushion; and it consists, first, in a yielding jaw or cushion made in independently-adjustable sections, in combination with a suitably-arranged scraping jaw or blade, said sections enabling the yielding jaw to be adjusted to compensate for the varying wear to which its acting surface is often subjected, said surface being frequently worn away more rapidly at its central than at its end portions. This unequal wear can be taken up by an independent adjustment of the central sections, so that the period of usefulness of the yielding jaw as a whole is much greater than it would be if its unworn portions had to be cut away or dressed down in consequence of local wear not affecting the elastic acting surface, or if the entire jaw had to be discarded in consequence of such wear, either of which results would be likely if the yielding jaw were in one integral piece or part, as in all machines in use prior to my invention, so far as I am aware.

The invention also consists in the combination, with the yielding jaw made in independent sections, of means for applying an independent yielding pressure to each section, so that the sections can yield independently, and thus conform to wrinkles and other local inequalities in the thickness of the skin.

The invention also consists in the means employed to adjustably support the sections of the yielding jaw, and in other improvements, all of which I will now proceed to describe and claim.

In the accompanying drawings, forming a part of this specification, Figure 1 represents a top view of a scraping jaw or blade and a sectional yielding jaw or cushion co-operating therewith, said parts embodying my invention. Fig. 2 represents a side view of the construction shown in Fig. 1. Figs. 3 and 4 represent, respectively, a top and a side view of a set of jaws of modified construction, the blade or scraping-jaw being partly broken away in Fig. 3. Figs. 5 and 6 represent a top and a side view of another modification.

The same letters of reference indicate the same parts in all of the figures.

Referring first to Figs. 1 and 2, *a* represents the blade or scraping-jaw, which is attached by bolts or screws *b* to an arm or carrier *c*, which is connected with a movable carriage, to which a reciprocating motion may be imparted in any suitable way.

d represents the sectional yielding jaw, which is composed of sections 6 6 6, of elastic vulcanized rubber or other suitable yielding material, and clamping devices adapted to adjustably hold said sections and permit their independent adjustment. The sections 6 are arranged to bear on the under side of the blade or scraping-jaw *a* near the operating-edge of the latter. The clamping devices that hold said sections are a series of pairs of pivoted levers 7 7′, each pair being composed of a lower lever 7, supporting one of the sections

6, and an upper lever 7′, which is pressed down upon the same section 6, the two levers clamping the section 6 between them. The said levers are pivoted at *e* to ears on an arm or carrier *f*, which is connected with the movable carriage above mentioned, and are provided with means whereby their forward ends may be pressed upon the sections 6 to grasp and hold the same, and moved apart to release said sections and permit their adjustment, this result being accomplished by adjusting-screws *j*, inserted in the rear ends of the levers 7′ and bearing upon the rear portions of the levers 7, as shown in Fig. 2. There is a screw *j* for every lever 7′, and when either of said screws is turned inward or downward it separates the rear ends and forces together the forward ends of the pair of levers to which it belongs, thus clamping the section 6 which is between said forward ends. Either section 6 may be released, to permit its independent adjustment, by turning outward the screw *j*, connected with the levers that support it, thus loosening the section so that it may be moved endwise. Each pair of clamping-levers is acted on by an independent spring *g*, which presses its grasping ends and the section 6 held thereby upwardly, to give said section a yielding pressure on the skin between it and the blade. There are a series of said springs *g* interposed between the rear ends of the lower levers 7 and a yoke or frame *h*, which is mounted to swing on the pivot *e*, that supports the series of levers. Said frame is provided with an ear *h*′, which is adjustably connected with a projection *f*′ on the arm or carrier *f* by means of screws *i i*′, which rigidly, yet adjustably, connect the frame *h* with said arm. By adjusting the screws *i i*′ the frame *h* may be either raised or lowered, and thus caused to decrease or increase the yielding downward pressure of the springs *g* on the rear ends of the levers 7, the forward grasping ends of said levers and the sections 6 thereon being pressed upwardly against the skin interposed between said sections and the blade *a* by said pressure. The pressure of each spring may be independently regulated by means of a series of adjusting-screws *m* in the frame *h*, said screws bearing on plates *m*′, resting on the upper ends of the springs *g*. Hence each spring may be given more or less tension, as circumstances may require, so that if a weak place or hole should be found in the skin the pressure on one or more of the sections 6 may be decreased without varying the pressure on the entire series. The downward movement of the rear ends of the levers 7 may be limited by stop-screws *k*, of which there may be one for each lever 7, said screws being inserted in the arm *f*.

It will be seen from the foregoing that the sections of the yielding jaw *d* are adapted to be adjusted independently to compensate for wear, so that the parts of the said jaw that are subjected to the greatest wear may be adjusted without disturbance of the other parts. It will also be seen that by providing the jaw-sections with a yielding pressure against the skin and with means for varying said pressure, either throughout all the sections simultaneously or in one or more independently, the machine can be readily adapted to various qualities and kinds of stock, so that the pressure can be made lighter when thin and delicate skins are being treated than with stronger and heavier skins. This provision of means for imparting to the yielding jaw-sections a yielding pressure, which is variable either throughout all the jaws at once or locally, is an important feature of my invention.

The holders or carriers *c f*, supporting the scraping-jaw *a* and the sectional jaw *d*, may be operated by any suitable mechanism, said carriers forming parts of an organized machine provided with means for closing the jaws upon a skin *s* and moving them simultaneously in the general direction indicated by the arrow in Fig. 2, when they are closed, and with means for moving the jaws in the opposite direction and at the same time separating them, so that the skin or another one may be inserted between them when they return to their starting-point. The operator holds one end of the skin in any suitable way, or by the aid of any suitable appliances, at a point to the left of the arm or carrier *c*, as viewed in Fig. 2, so that the jaws slip upon the skin as they move in the direction of the arrow. The sections 6 hold the skin closely pressed against the under side of the scraping-jaw close to the scraping-edge of the latter, and thus afford a sufficient resistance to the slipping movement of the skin between the jaws to enable the jaws to thoroughly stretch the skin and at the same time render it pliable, both by the scraping action of the blade on its flesh side and by the abrupt flexure of the skin over the edge of the blade. The arrangement of the sectional yielding jaw so that it presses the skin against the under side of the scraping-jaw close to the edge thereof enables the skin to be bent very abruptly over the edge of the blade, as will be seen by reference to Fig. 2, this abrupt bending giving the pores in the grain or outer side of the skin the maximum stretching or opening. I prefer to make the edge of the blade a convex, as shown in Fig. 1, the yielding jaw-sections being arranged on a curve corresponding to the curvature of the said edge. This form of the edge of the blade gives a lateral stretch to the pores of the skin, the outer surface being stretched laterally by its conformation to the convex edge of the blade.

In Figs. 3 and 4 I show a modification in which the yielding-jaw sections 6 bear on a single plate 9, which extends as one piece under the whole series of sections, so that the sections have no independent yielding movement excepting that afforded by their inherent elasticity. The plate 9 is pivoted at *e* to ears on the arm or carrier *f* and is adjustably

connected at its rear end with said carrier by screws 10 10. The upper levers 7′ are formed and arranged substantially as shown in Figs. 1 and 2, and they are adjusted by the screws *j*, which bear at their lower ends on the plate 9. The sections 6 may be pushed forward in this modification to compensate for their wear by means of a rod 13, Fig. 4, passed through one of a series of slots 14 in the plate 9 and inserted in an orifice 15 in the lever 7′, located above said slot, the rod 13 being then pressed against the rear end of the section 6, and thus caused to push it forward. There should be a row of orifices 15 in each lever 7′, as shown in Fig. 3.

Figs. 5 and 6 show another modification, in which the sections 6 are inserted side by side in a holder 17, which is connected by pivots 18 with the ears on the arm or carrier *f*. The sections 6 bear directly against the edge of the blade *a* in this case, said blade being straight. The sections are independently adjustable toward the blade by means of screws 19, inserted in the rear of the holder and bearing against the rear ends of the sections. Screws 20, inserted in the top of the holder, aid in retaining the sections at any positions to which they may be adjusted. The holder has an ear 21, which is secured to the carrier *f* by screws 22 22, said screws enabling the holder to be turned on its pivots 18 to vary the height of the acting faces of the sections 6.

It will be seen that in each of the above-described modifications the yielding jaw is made in sections which are independently adjustable to compensate for wear.

Other modifications may be made in the construction and arrangement of the parts without departing from the spirit of the invention.

The sections 6 may, if desired, be provided with metal tips or terminals to bear on the skin, said terminals being yieldingly supported.

Instead of using a series of separate springs *g*, I may use a continuous block or piece of rubber extending across all the levers 7, said strip being compressed over each lever 7 by one of the screws *m* and constituting an equivalent of the series of independent springs.

I claim—

1. The combination of a scraping blade or jaw, a series of independently-yielding sections constituting a yielding jaw, and means, substantially as described, for adjusting said sections independently, whereby the pressure of the yielding jaw at any point may be varied without varying the pressure at other points, as set forth.

2. In a staking-machine, a flat reciprocating scraping jaw or blade having a laterally-curved convex edge projecting outwardly at its central portion farther than at its ends, whereby said blade is adapted to stretch a skin and open the pores thereof laterally, combined with a yielding reciprocating jaw adapted to co-operate with said convex edge in stretching a skin laterally, as set forth.

3. In a staking-machine, a flat reciprocating scraping jaw or blade having a laterally-curved convex edge projecting outwardly at its central portion farther than at its ends, whereby said blade is adapted to stretch a skin and open the pores thereof laterally, combined with a yielding reciprocating jaw composed of a series of sections arranged on a curved line corresponding to the curvature of the edge of the scraping-blade, as set forth.

4. The combination of a flat reciprocating scraping blade or jaw, the series of reciprocating elastic jaw-sections arranged to bear on the under side of said jaw or upon a skin interposed between the jaw and sections, a series of pairs of levers holding said sections, a carrier to which said levers are pivoted, and means for exerting a yielding pressure on said levers and on the sections held thereby, whereby the sections are yieldingly pressed against the blade, as set forth.

5. The combination of the flat reciprocating blade, its carrier, the series of pairs of levers pivoted to another carrier, the reciprocating yielding jaw-sections held by said levers, the series of adjusting-screws *j*, whereby the said sections may be either clamped or loosened independently, and means for exerting a yielding pressure on said levers and jaw-sections, as set forth.

6. The combination of the scraping-blade, its carrier, the series of pairs of levers pivoted to another carrier, the yielding jaw-sections held by said levers, means for clamping and releasing said sections, the pivoted frame *h*, adjustably connected to the last-named carrier, and a series of springs interposed between said frame and the levers, whereby a yielding pressure is imparted through the levers to the jaw-sections, said pressure being variable by adjustment of the frame *h*, as set forth.

7. The combination of the scraping-jaw *a*, its carrier *c*, the carrier *f*, having the stop-screws *k*, the levers 7 7′, pivoted in pairs to the carrier *f*, the yielding jaw-sections clamped between the forward ends of the levers, the frame *h*, pivoted to said carrier *f* and adjustably connected therewith, as described, the springs *g*, interposed between said frame and the levers 7, and the spring-adjusting screws *m* in said frame, all arranged and operating substantially as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 15th day of October, A. D. 1890.

CHARLES F. STACKPOLE.

Witnesses:

C. F. BROWN,

A. D. HARRISON.