(No Model.) 3 Sheets—Sheet 1.

A. J. TEWKSBURY.

LEATHER SKIVING MACHINE.

No. 517,631. Patented Apr. 3, 1894.

Fig. 12.

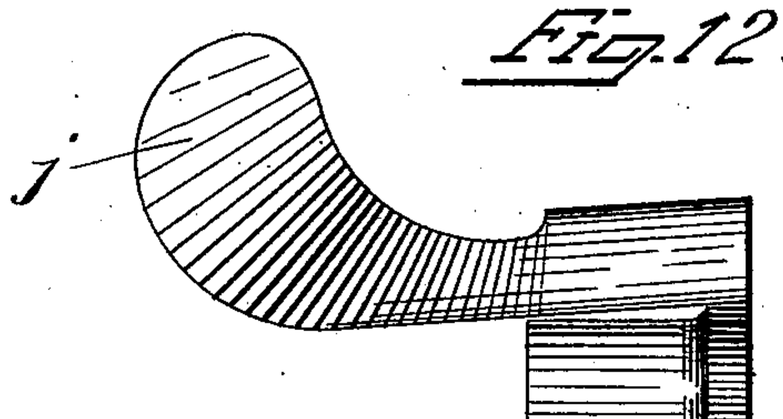


Fig. 1.

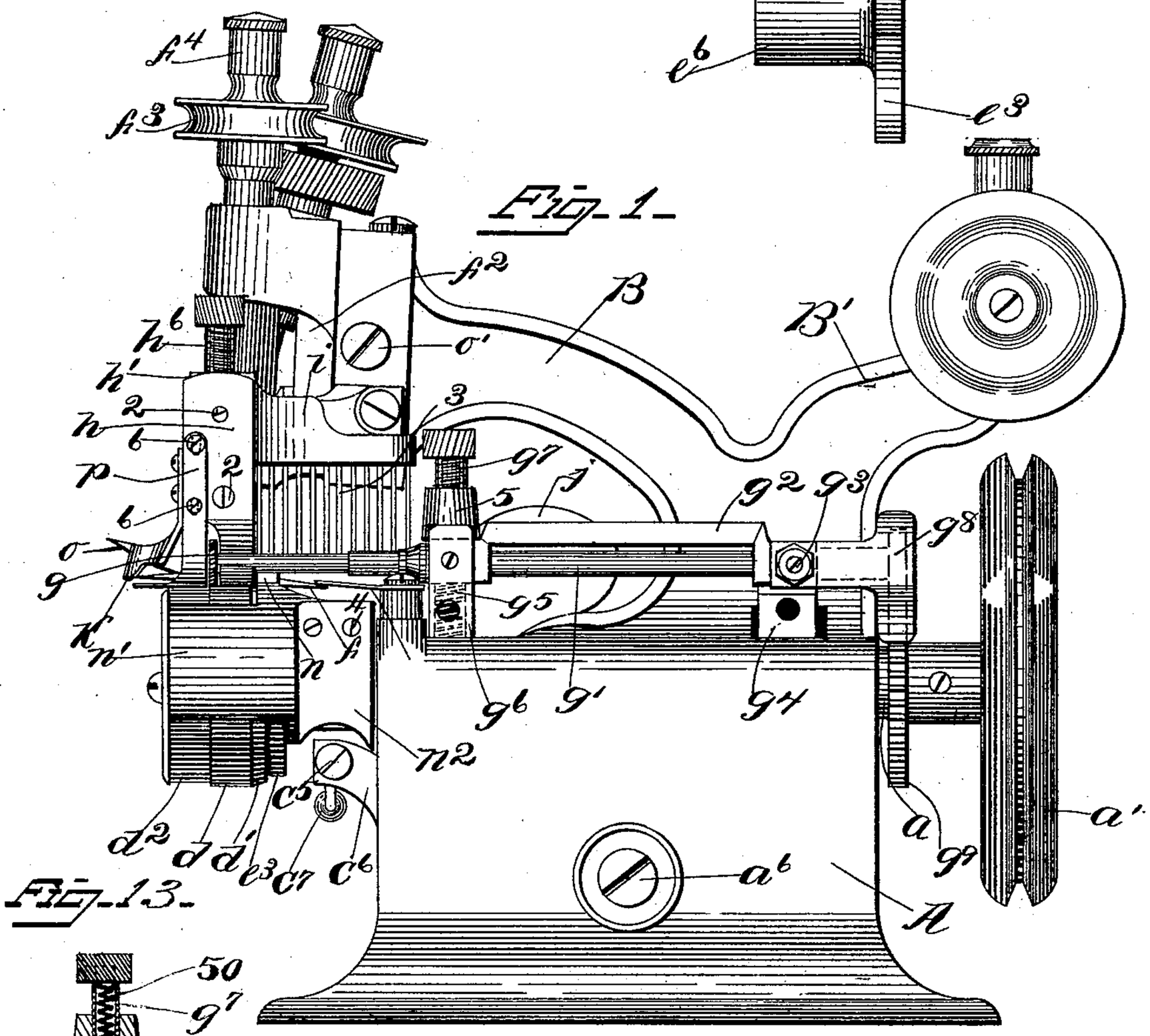


Fig. 13.

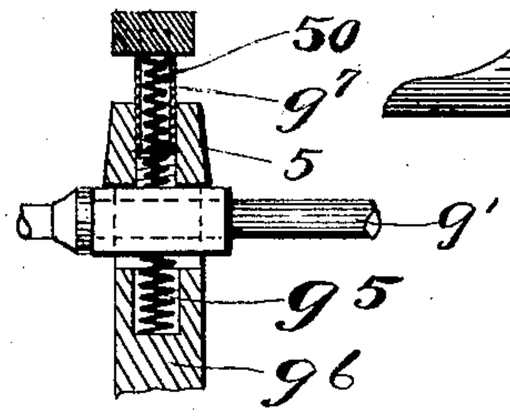
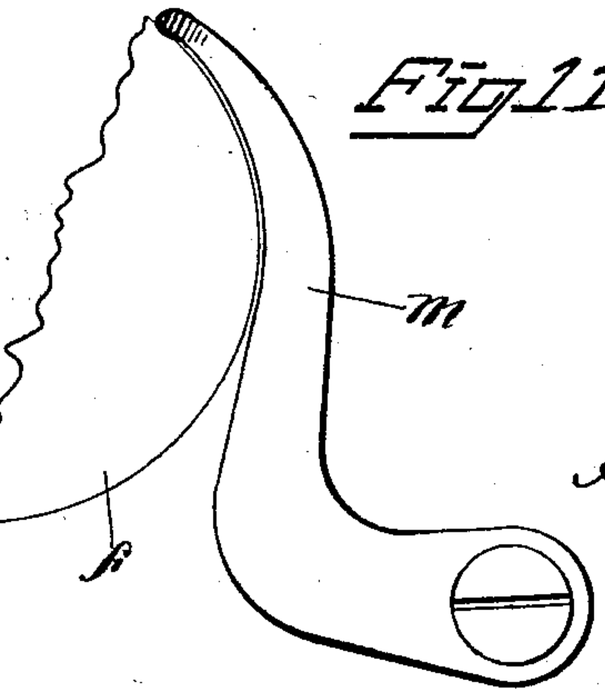


Fig. 11.



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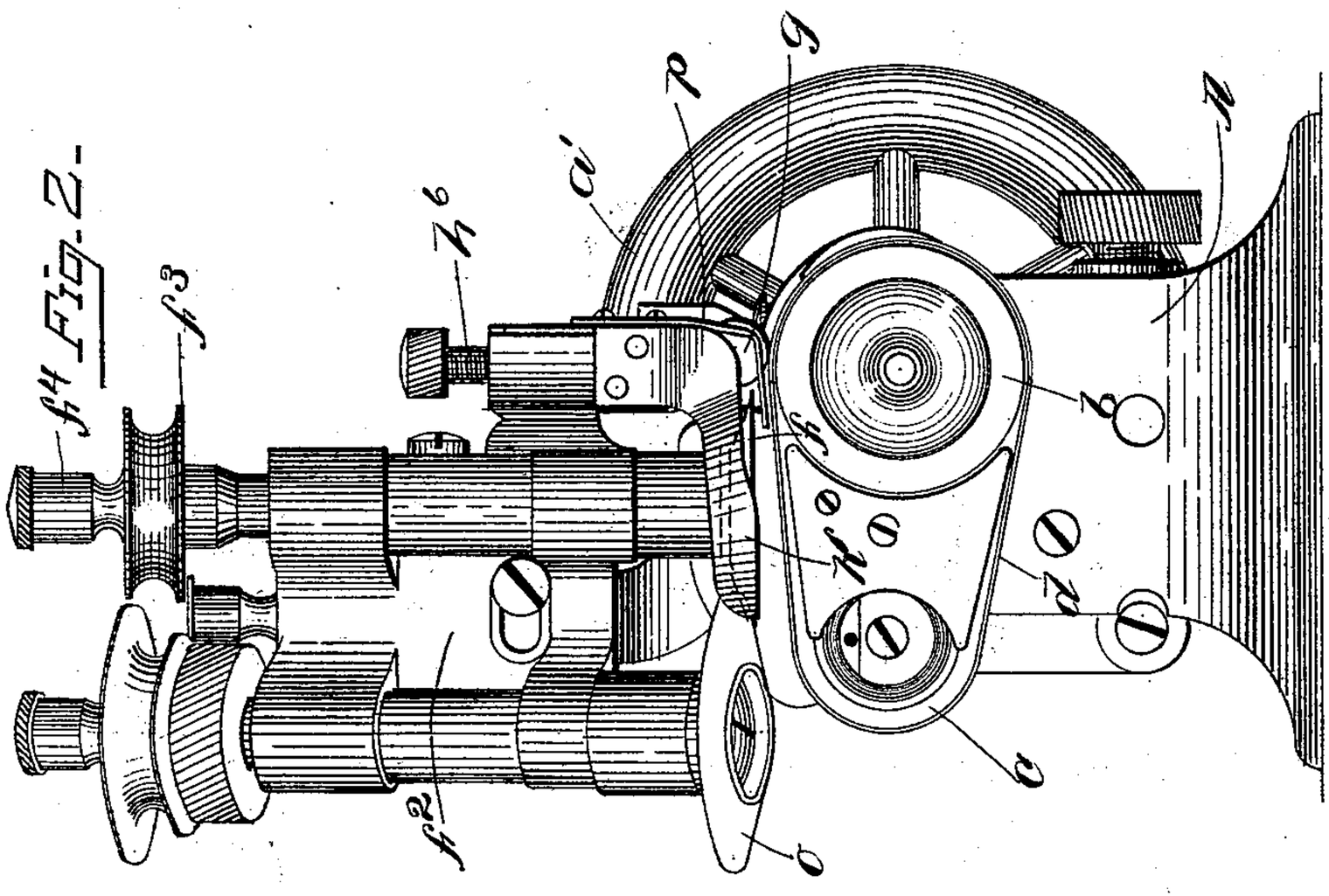
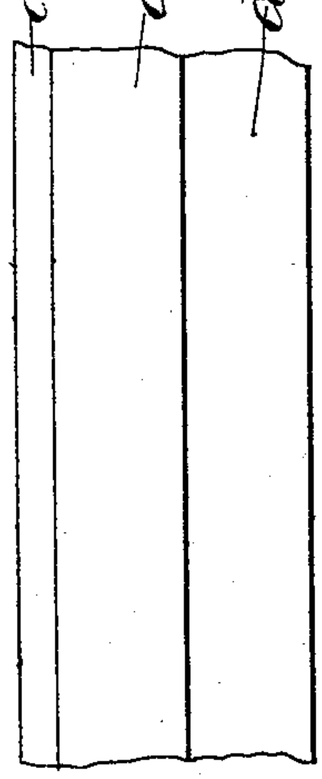
(No Model.) 3 Sheets—Sheet 2.

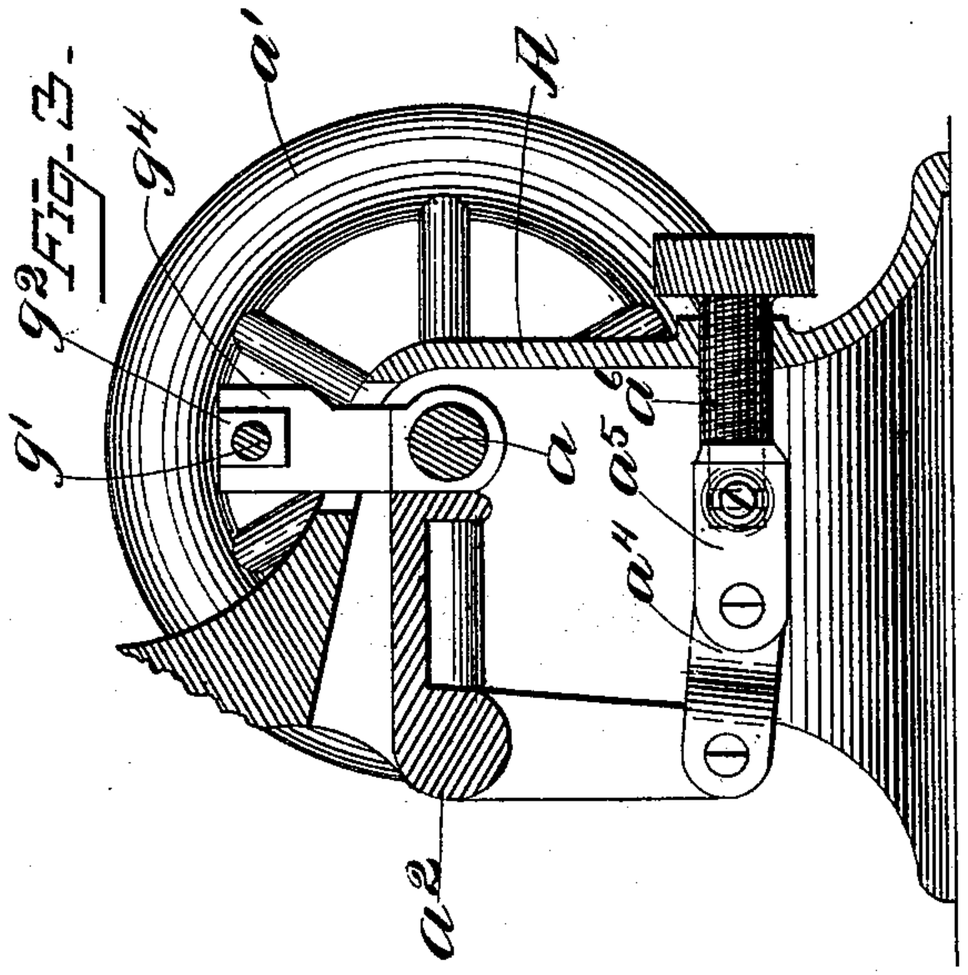
A. J. TEWKSBURY.

LEATHER SKIVING MACHINE.

No. 517,631. Patented Apr. 3, 1894.







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LEATHER SKIVING MACHINE.

No. 517,631. Patented Apr. 3, 1894.

Fig. 7.

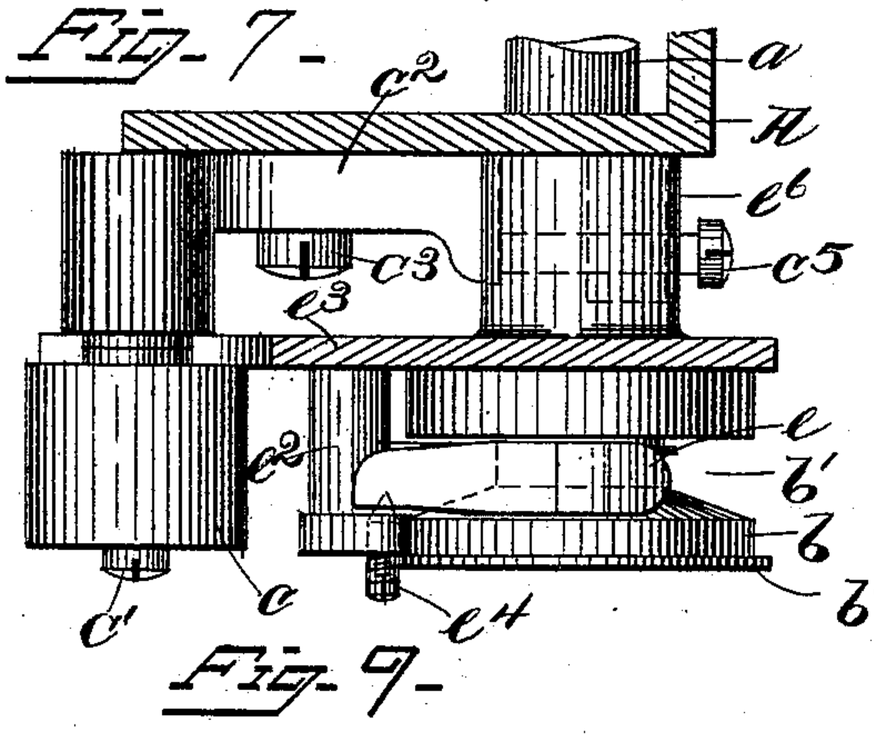


Fig. 8.

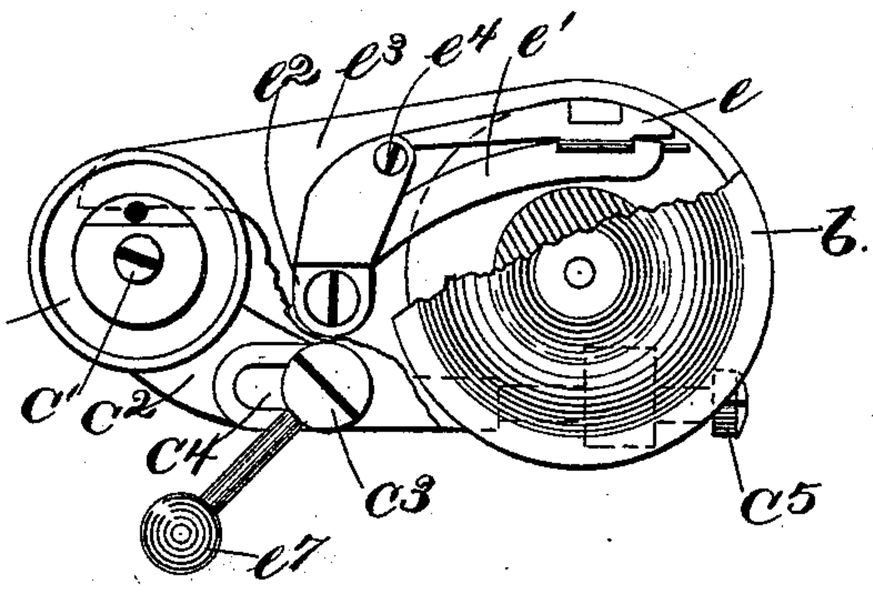


Fig. 9.

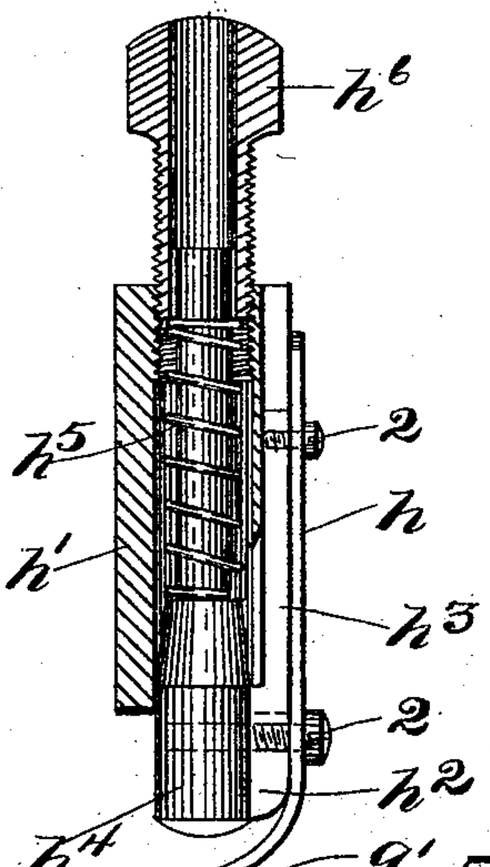
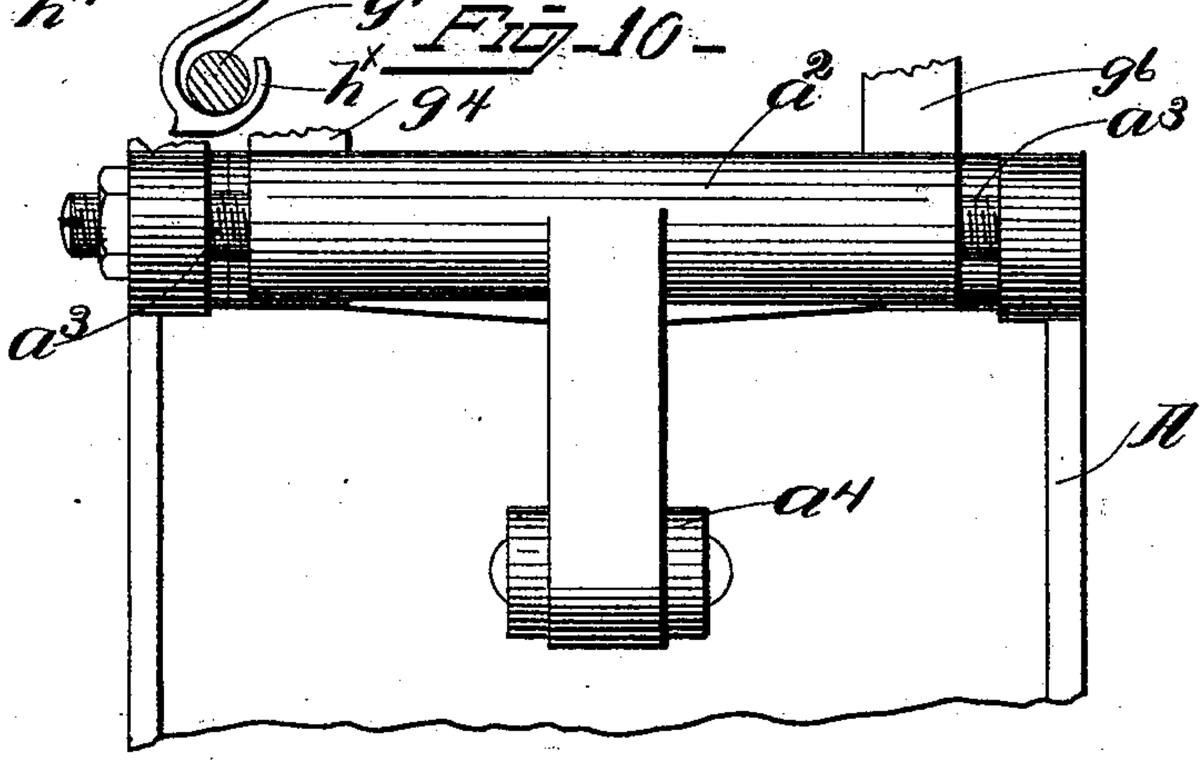


Fig. 10.



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UNITED STATES PATENT OFFICE.

ANDREW J. TEWKSBURY, OF HAVERHILL, MASSACHUSETTS.

LEATHER-SKIVING MACHINE.

SPECIFICATION forming part of Letters Patent No. 517,631, dated April 3, 1894.

Application filed August 28, 1893. Serial No. 484,193. (No model.)

To all whom it may concern:

Be it known that I, ANDREW J. TEWKSBURY, of Haverhill, county of Essex, State of Massachusetts, have invented an Improvement in Leather-Skiving Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention has for its object to improve the construction of leather skiving machines, especially adapted for skiving upper leather, whereby the material or skiving is removed on a continuous bevel from the full thickness of the stock to the edge, with little or no liability of injuring the stock. In accordance with this invention the leather to be skived is fed forward by an endless feeding belt, and an upper positively driven feed wheel, and the material is held pressed down upon said feeding belt by one or more presser feet. A block is adjustably supported beneath the feeding belt, at the point where the skiving is to be done, the axis of which is at right angles to the axis of the pulleys over which the belt passes, said block presenting a hard surface over which the feeding belt travels, and by its adjustment varies the plane of the upper surface of said belt at the point where the skiving is being done. In order that the skiving may be done as nearly as possible over the driving pulley of the endless feeding belt, said pulley is provided with a circumferential groove, and the block is placed in or enters said groove. A rotary skiving knife is provided, which is slightly tipped at an angle to produce the required bevel, the shaft carrying it being mounted in a head which is made horizontally adjustable on an arm on the frame. One of the pulleys over which the endless feeding belt passes is positively driven, and the other pulley is supported by an adjustable frame, so that it may be moved away from the positively driven pulley to thereby tighten the belt. The shaft of the positively driven pulley is supported by an adjustable bell-crank lever, or other form or construction of frame, so that it may be raised or lowered at will. The shaft of the upper feed wheel is also supported by said adjustable frame. Suitable guards are provided for the front of the rotary knife, and also for the back of said knife, and also at other places as will be described, to prevent the material which is being skived from coming in contact with any of the operating parts.

Figure 1, shows in side elevation a leather skiving machine embodying this invention; Fig. 2, a front elevation of the machine shown in Fig. 1; Fig. 3, a vertical sectional detail showing the adjusting device for the driving shaft; Figs. 4, 5, and 6, details of the endless feeding belt; Figs. 7 and 8, plan and front views of the supporting pulleys for the endless feeding belt; Fig. 9, a vertical section of the presser foot; Fig. 10, a side view of the adjusting device of the driving shaft; Fig. 11, a plan view of one of the guards of the rotary knife; Fig. 12, a plan view of another guard to be referred to; Fig. 13, a vertical sectional detail of the adjusting device of the upper feed wheel carrying shaft.

The main frame work comprises essentially the base A, and oppositely extended arms B, B′, erected thereon. The shaft a, at one end of which the belt pulley a' is secured, has its bearings at the end of the horizontal arm of a bell crank lever or frame a^2, see Figs. 3 and 11, which is contained within the hollow base A, and pivoted at each end at a^3 to the side walls of said base. A yoke a^4, is loosely connected to the lower end of the vertical arm of said bell-crank lever or frame a^2, which has loosely connected to it a similar yoke a^5, to which an adjusting screw a^6 is swiveled, said screw passing through an internally screw threaded hole in the side wall of the base A, and provided with a milled head by which it may be turned to adjust the position of said bell-crank lever or frame a^2, raising or lowering the horizontal arm thereof, and thereby raising or lowering the shaft a. The shaft a has secured to its end, opposite the belt pulley a', a pulley b, see Figs. 2, 7, and 8, herein represented as having a circumferential groove b', and also a radially projecting flange b^2. An idler c is loosely mounted on a stud c' projecting from an arm c^2 secured to the base A by a screw c^3, the shank of said screw passing through a slot c^4 in said arm so that when said screw is loosened the arm may be adjusted longitudinally to in turn move the idler toward or from the pulley b. An adjusting screw c^5 passes through a projection

c^6, on the base A, which bears against the end of the arm c^2, by means of which said arm is adjusted longitudinally when the screw c^3 is loosened. To facilitate tightening said screw c^3, it is herein shown as provided with a finger piece e^7. A feed belt passes around the pulley b, and idler c, the upper or outer surface of which is beveled at its inner edge as at d', and cut away or thinned at its opposite edge as at d^2, thereby leaving a central raised portion. This feeding belt is made of leather, and by adjustment of the idler c it may be held sufficiently taut. A block or plate e is pivotally supported by an arm e' within the circumferential groove b' of the pulley b, said arm projecting from a post e^2, cast integral with or secured to a plate e^3, and an adjusting screw e^4 passes through a projection on said post e^2, the tapering end of which bears against the under side of said plate e, acting to rigidly hold said plate e with its upper surface in different planes. The plate e bears against the under side of the feeding belt d at the point where the skiving is to be done, and the upper surface of said plate is curved as shown in Fig. 8, to afford a smooth and unyielding bearing over which said belt may travel. The rotary knife f is secured to the lower end of a shaft f' supported vertically in bearings in the head f^2, said shaft having at its upper end a belt pulley f^3. The knife f is supported at a slight angle with relation to the feeding belt d so that as the material is fed along it will be skived off on a continuous bevel. The head f^2 is mounted upon a screw o' passing transversely through the end of the arm B, so that as said screw is turned said head will be adjusted horizontally. The head f^2, also supports the shaft carrying the grinding disk o. The upper feed wheel g is secured to a shaft g' lying parallel with the shaft a, and having its bearings in a yoke or arm g^2, pivoted at one end as at g^3, to a bifurcated vertical projection g^4, rising from the horizontal arm of the bell crank lever a^2, just above the shaft a, and supported at its other end upon a spring g^5, contained within a bifurcated vertical projection g^6, also rising from the horizontal arm of the bell crank lever, just above the shaft a, a socketed adjusting screw g^7 passing down through a cross piece 5, secured to the top of said projection g^6, and containing a spiral spring which bears upon the arm g^2. A toothed wheel g^8, see dotted lines Fig. 1, is secured to said shaft g' which is engaged by a toothed wheel g^9 secured to the shaft a. The feed wheel g is adapted to bear upon the material on the feeding belt d, close to the outer edge of the raised central portion of said belt. A presser foot is adapted to bear upon the material at the raised central portion of the feeding belt or directly above the block or plate e, said presser foot being herein shown as a plate h secured to a post h' by screws 2 or otherwise, see Figs. 1 and 9, the lower end $h^\times$, of which is bent or formed as a hook to pass beneath and partially embrace the shaft g', and present its under surface to the material. The yielding pressure of the foot is varied by a cam h^2, bearing against one side of the plate h at the point where it is bent, and as said cam is adjusted vertically the hook-shaped lower end $h^\times$ of the plate will be moved in the arc of a circle, to thereby exert greater or less pressure upon the material. The cam h^2 is formed integral with or secured to a bar h^3, moving vertically on the screws 2, as guides, and is also formed integral with or secured to a block h^4, contained in a vertical recess in the post h', the upper end of said block being reduced in diameter or provided with a stem which is encircled by a spiral spring h^5 bearing at its lower end upon the block h^4, and at its upper end against the adjusting cap h^6 which is screwed into the upper end of the recess in the post. By turning said adjusting hut h^6 in one or the other direction the cam h^2 will be raised or lowered, thereby moving the hook-shaped end $h^\times$ of the plate. Another yielding presser foot p, also preferably adjustable is secured to the plate h, and post h', by screws 6, or otherwise, its foot bearing upon the material above the cut away portion d^2 of the feeding belt, or at the front side of the block or plate e. The post h' is formed integral with or secured to an arm i which is secured to the end of the arm B of the frame. Numerous pins 3, project downwardly from said arm i which effectually close the space between said arm and the bed of the machine, preventing a vamp or other thing which is being skived from passing through said opening. A large plate j which occupies substantially a horizontal plane, and has a curved upper surface, is formed integral with or secured to the plate e^3, and a hub e^6 is also formed integral with or secured to said plate e^3, which embraces the shaft a to give additional support for the plate j. This plate j, in addition to serving as a support for some of the parts, also serves as a guard for the material being skived, directing it in such a manner that it shall not engage with the operating parts of the machine. A guard k is secured to the post h' which protects the front edge of the knife f. As a guide for the material which is being skived I employ a suitably shaped projection n formed integral with or secured to a curved plate n' which incloses a portion of the feeding belt d and has a rearward projection n^2 through which screws 4 pass, securing said plate and guide to the guard j. To prevent the material which is being skived from coming in contact with the back side of the knife, after it has been skived, a guard m is secured to the base A which passes around and above the back side of said knife, its extremity overlapping the knife as shown in Fig. 12. The radial flange b^2, and plate e^3, serve as guides for the feeding belt. As to adjustment of the essential operating parts it will be seen that the knife is adjustable horizontally by screw o',

and the pulley *b* over which the feeding belt passes is adjustable in the arc of a circle about the pivot a^3 as an axis, by screw a^6, thereby raising or lowering the feeding belt, and that the block or plate *e* is adjustable to vary the angle of the feeding belt by the screw e^4. By beveling the inner edge of the feeding belt, and guiding the material to be skived in line with the inner edge of the beveled portion thereof, I am enabled to use a rotary knife, tipped at an angle, and mounted in its bearings above the belt, so that it will revolve transversely to the material, and not come in contact with the belt. And furthermore by providing the feeding belt with the cut away portion d^2, sufficient space is afforded for the presser foot *p* beneath the front edge of the knife, to bear upon and assist in holding the material in position to be skived.

I claim—

1. In a leather skiving machine, the combination of two pulleys, an endless feeding belt *d* thereon, beveled at its inner edge, as at *d'*, and cut away at its outer edge, as at d^2, leaving a flat central portion the full thickness of the belt, a rotary skiving knife, and two presser feet, one bearing upon the stock upon the flat central portion of the belt, and the other bearing upon the stock at the cut away portion d^2, and an upper feed wheel, substantially as described.

2. In a leather skiving machine, the combination of two pulleys, an endless feeding belt *d* thereon, beveled at its inner edge, as at *d'*, and cut away at its outer edge, as at d^2, leaving a flat central portion the full thickness of the belt, a rotary skiving knife, an upper feed wheel bearing upon the stock upon the flat central portion of the belt, and a presser foot bearing upon the material at the cut away portion d^2, substantially as described.

3. In a leather skiving machine, an endless feeding belt, two pulleys over which it passes, the shaft *a* driving one of said pulleys, and the adjustable bell-crank lever supporting said shaft *a*, substantially as described.

4. In a leather skiving machine, the combination of endless feeding belt, two pulleys *b*, *c*, over which it passes, driving shaft *a* for the pulley *b*, an upper feed wheel *g*, driving shaft *g'* for it, and an adjustable bell-crank lever or frame *a* supporting said shafts *a* and *g*, substantially as described.

5. In a leather skiving machine, the combination of an endless feeding belt, two pulleys *b*, *c*, over which it passes, driving shaft *a* for the pulley *b*, an adjustable bell-crank lever or frame a^2, supporting said shaft *a* an upper feed wheel *g*, driving shaft *g'* for it, a yoke supporting said shaft *g'* pivotally connected at one end to said bell-crank lever, and adjustably connected at the other end with said lever, substantially as described.

6. In a leather skiving machine, the combination of an endless feeding belt, two pulleys over which it passes, a rotary knife, and two presser feet, and an upper positively driven feed wheel between said presser feet, substantially as described.

7. In a leather skiving machine, the combination of an endless feeding belt, two pulleys over which it passes, a rotary knife, and a positively driven upper feed wheel, an adjustable yielding presser foot *h*, $h^\times$, passing beneath the shaft of the feed wheel, substantially as described.

8. In a leather skiving machine, the combination of an endless feeding belt, two pulleys over which it passes, a rotary knife, a positively driven feed wheel, and a presser foot consisting of the plate *h* bent at its lower end at $h^\times$, to bear upon the material and pass beneath the shaft of the feed wheel, the cam h^2 for adjusting the lower end $h^\times$, spring h^5, and adjusting nut h^6, substantially as described.

9. In a leather skiving machine, the combination of an endless feeding belt, two pulleys *b*, *c*, over or around which it passes, one of which as *b* has a circumferential groove, a presser foot and a rotary skiving knife, and the block *e* entering the groove in the pulley *b* and pivotally connected to a fixed arm *e'* the axis of said block being at right angles to the axis of the pulley *b* and the adjusting screw e^4 having a tapered end for varying the plane of the upper surface of said block, *e*, substantially as described.

10. In a leather skiving machine, the combination of a rotary skiving knife, and an endless feeding belt, two pulleys over or around which it passes, a frame supporting one of said pulleys, adjustable on an axis in line with the axis of the other pulley, whereby the feeding belt may be moved toward and from the skiving knife, a feed wheel bearing upon said feeding belt supported by the aforesaid adjustable frame and thereby movable in conjunction with the pulley which is supported by it, an independent block beneath and adapted to bear against the under side of the feeding belt, beneath the skiving knife, an adjusting screw for adjusting it on an axis at right angles to the axis on which the pulleys revolve, to vary the plane of said block with relation to the face of the pulley, and a support for said independently adjustable block made movable in conjunction with the movable pulley, substantially as described.

11. In a leather skiving machine, the combination of feeding mechanism, a rotary skiving knife, arm B supporting it, and a vertical guard *i*, 3, placed between said arm and the bed of the machine, substantially as described.

12. In a leather skiving machine, the combination of feeding mechanism, a rotary skiving knife, and the guard *j* having a curved upper surface, substantially as described.

13. In a leather skiving machine, the combination of an endless feeding belt, and a block located below it at the point where the skiving is to be done, a rotary skiving knife located above said belt, the guard *k* inclosing and protecting the front of said knife, and

the guard *m* passing around the back side of and crossing the plane of said knife, substantially as described.

14. In a leather skiving machine, the combination of a rotary skiving knife, an endless feeding belt, two pulleys over or around which it passes, a frame supporting one of said pulleys adjustable to vary its position relative to the skiving knife, a feed wheel bearing upon said feeding belt supported by said adjustable frame, an independent block beneath and adapted to bear against the under side of the feeding belt, at a point beneath the skiving knife, means for adjusting said block on an axis at right angles to the axis upon which the pulleys revolve, to vary the plane of said block with relation to the face of the pulleys, a support for said adjustable block, guides for the feeding belt, and a guide for the material being skived, both supported by the adjustable frame carrying the movable pulley, substantially as described.

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

ANDREW J. TEWKSBURY.

Witnesses:
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CHARLES B. CROCKER.