

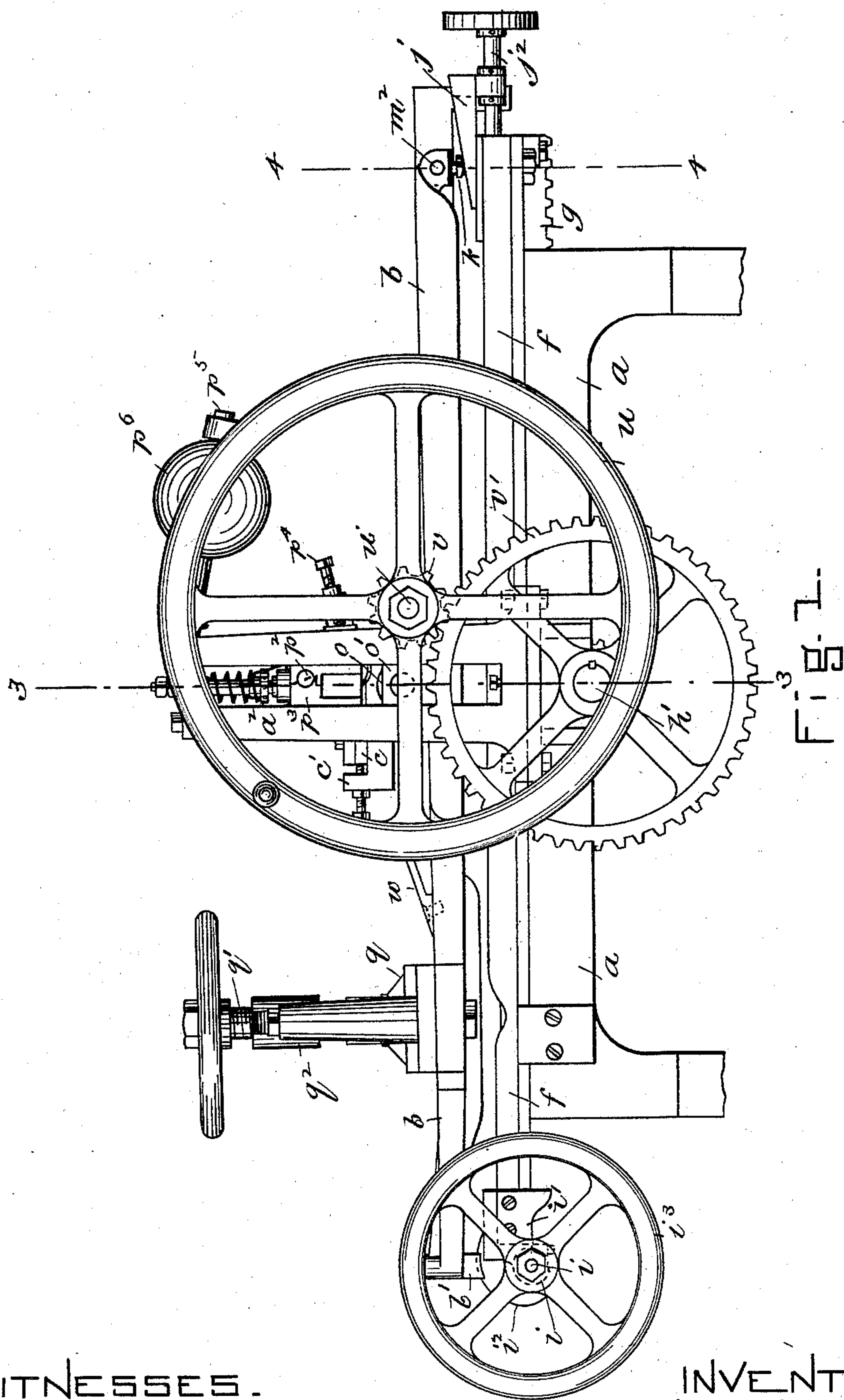
(No Model.)

3 Sheets—Sheet 1.

J. A. SAFFORD.
LEATHER SKIVING MACHINE.

No. 477,458.

Patented June 21, 1892.



WITNESSES.
A. D. Hanson.
K. & Brown

INVENTOR.
J. A. Safford
by Knight Brown Crossley
Atty.

(No Model.)

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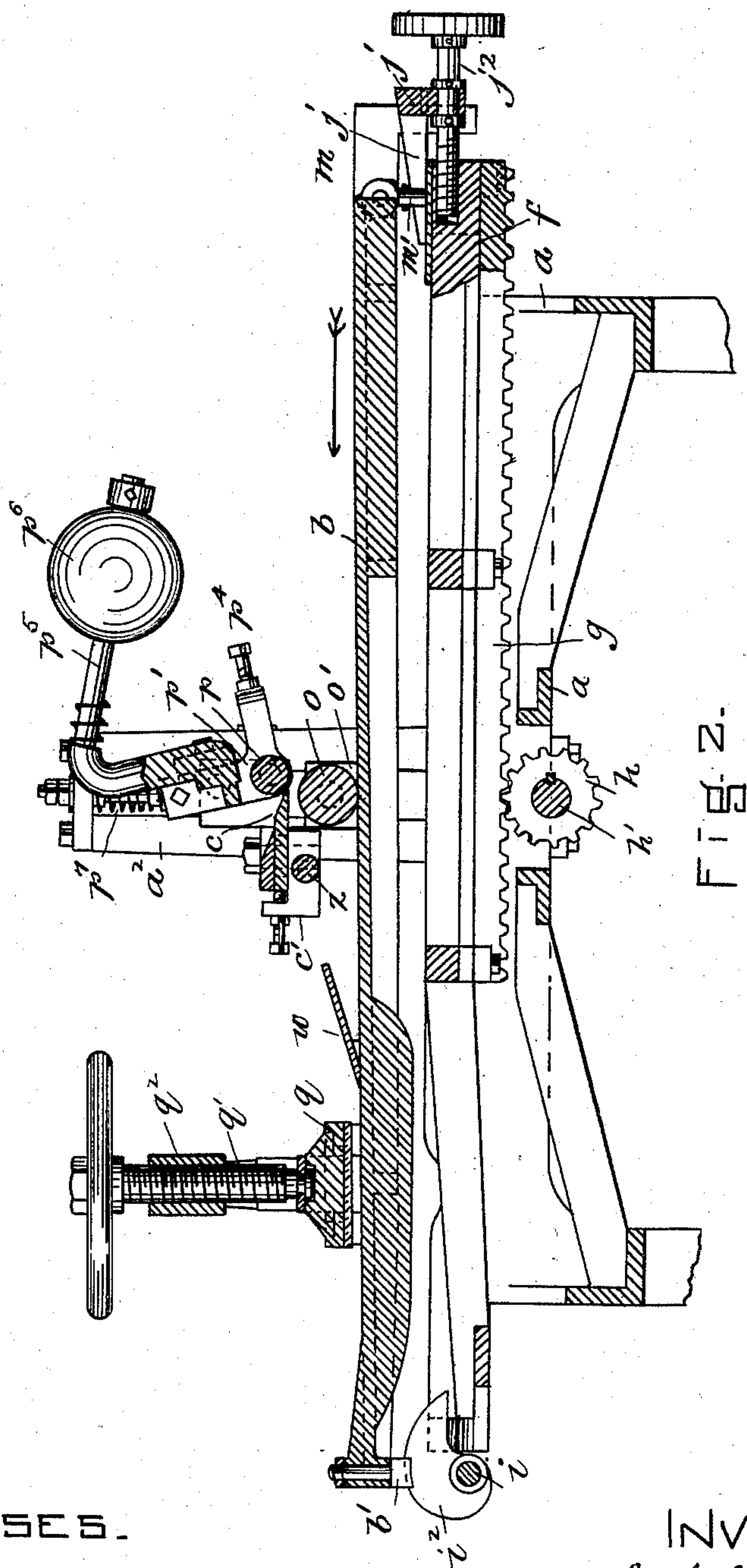


FIG. 2.

WITNESSES.

A. S. Hanson.
H. E. Brown.

INVENTOR.

J. A. Safford
by Hight Brown & Co.
Attys

(No Model.)

3 Sheets—Sheet 3.

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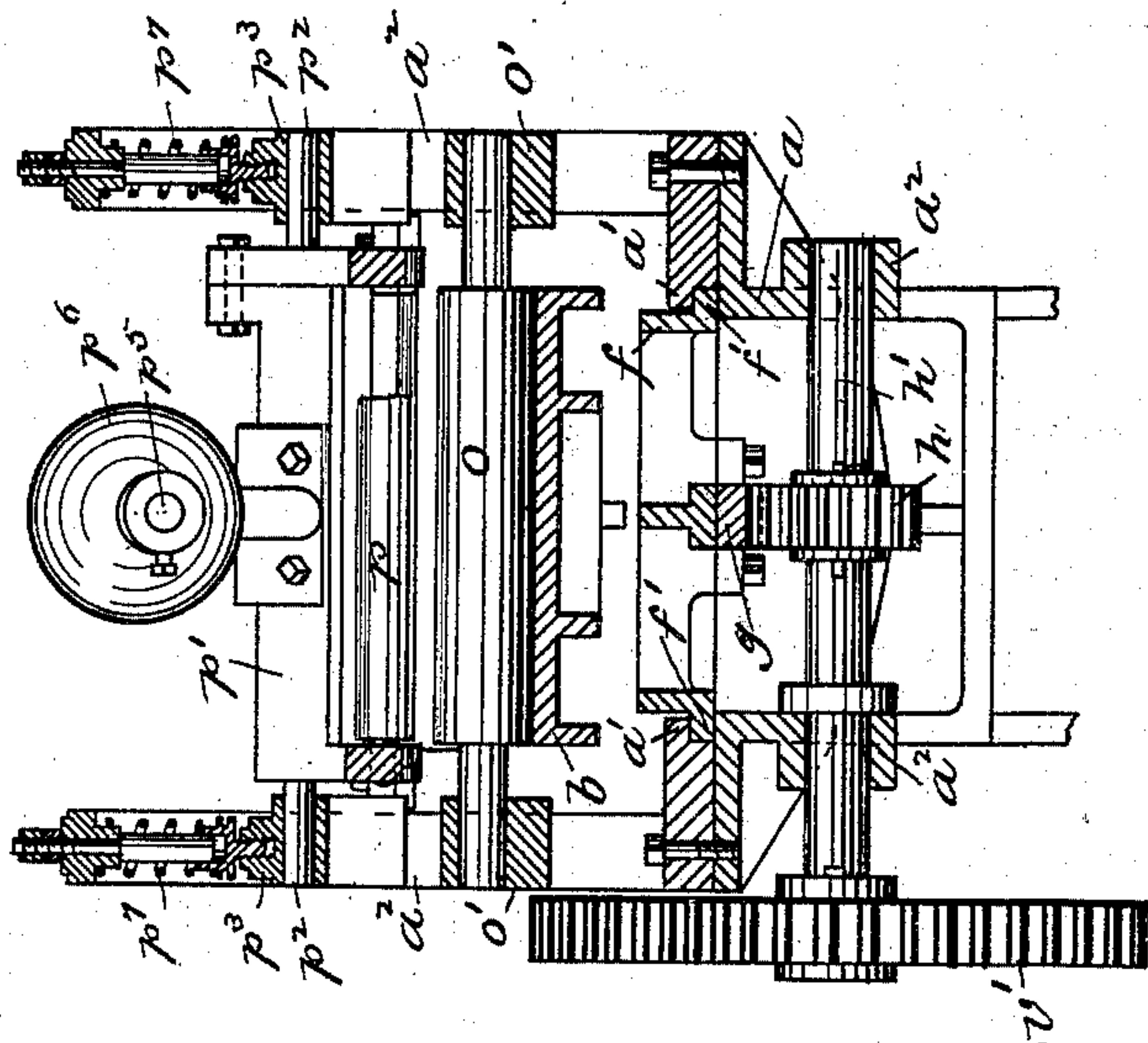


Fig. 3-

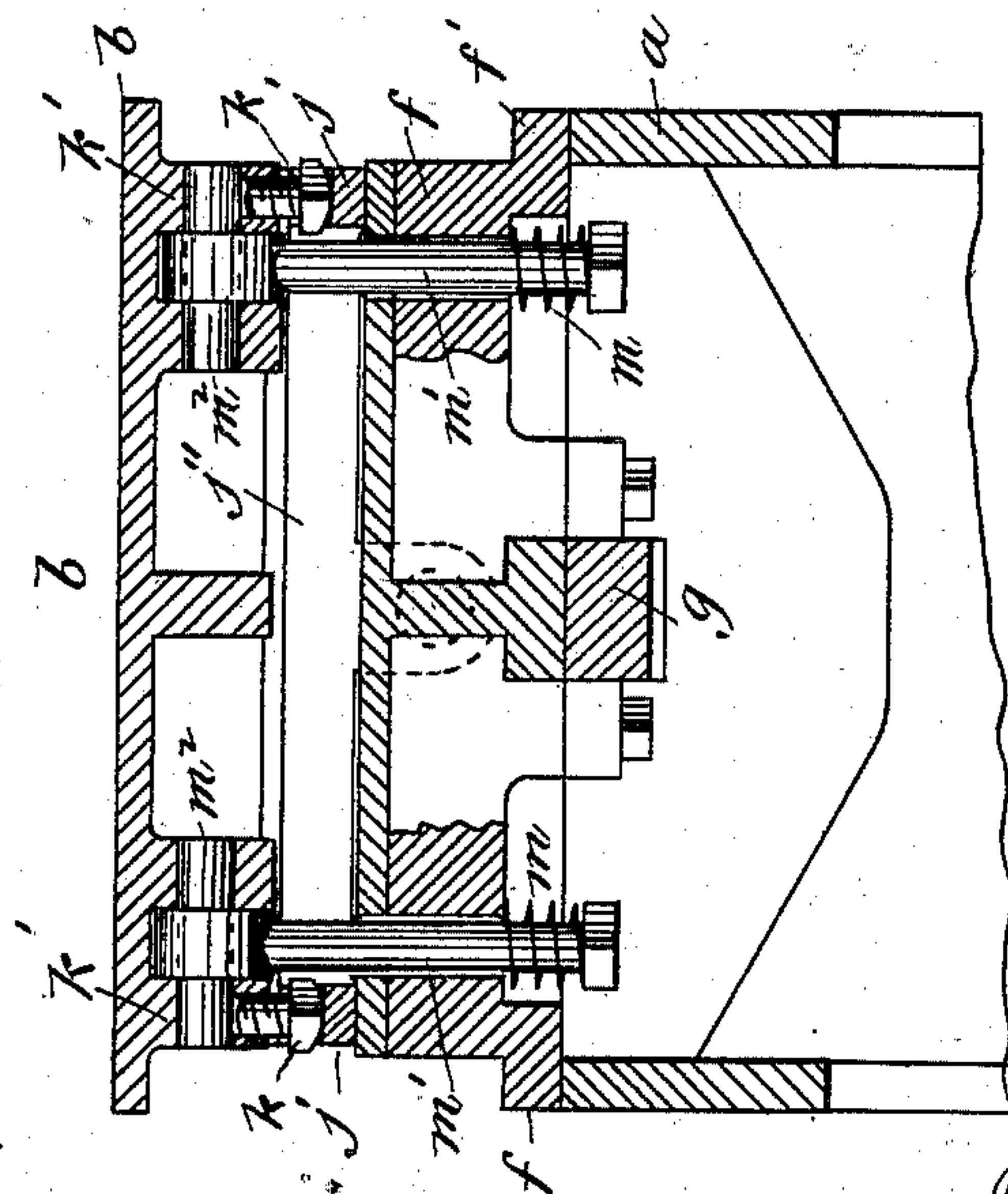


Fig. 4-

WITNESSES.
A. D. Hanson.
H. C. Brown.

INVENTOR.
J. A. Safford
by Wright Brown & Co.
Atty

UNITED STATES PATENT OFFICE.

JOSEPH A. SAFFORD, OF MALDEN, MASSACHUSETTS.

LEATHER-SKIVING MACHINE.

SPECIFICATION forming part of Letters Patent No. 477,458, dated June 21, 1892.

Application filed June 6, 1891. Serial No. 395,323. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH A. SAFFORD, of Malden, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Leather-Skiving Machines, of which the following is a specification.

This invention has for its object to provide a machine adapted to accurately skive or taper pieces of leather, and particularly large pieces, in which the area of the skived or tapered surface is large and a considerable expenditure of power is required.

The invention consists in the improvements which I will now proceed to describe and claim.

In the accompanying drawings, forming a part of this specification, Figure 1 represents a side elevation of a machine provided with my improvements. Fig. 2 represents a longitudinal section of the same. Fig. 3 represents a section on line 3 3, Fig. 1; and Fig. 4 represents a section on line 4 4, Fig. 1, on a larger scale.

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

In the drawings, *a* represents the supporting-frame of the machine, and *b* represents the leather-supporting bed, which is adapted to slide on said frame.

c represents the fixed skiving-knife, which is supported in any suitable way on the supporting-frame, the supports for the knife being preferably ears or brackets *c' c'*, affixed to the housings *a² a²*, which rise from opposite sides of the frame, the ends of the knife resting on said brackets and being attached thereto by screws in such manner as to firmly hold the knife and permit its adjustment to compensate for wear of its cutting-edge. There is nothing new in the knife nor in the means employed to secure it to the supporting-frame. The bed *b* bears on a sliding carrier or holder *f*, which is adapted to move with the bed on the frame and is provided with gibs or flanges *f' f'*, Figs. 3 and 4, which are engaged with guides *a' a'* on the supporting-frame, the carrier being thus retained on the frame and permitted to move endwise thereon.

g represents a rack affixed to the under side of the carrier *f*, said rack meshing with a pin-

ion *h* on a shaft *h'*, which is journaled in bearings *a² a²* on the frame *a*. The rotation of said shaft causes the endwise movement of the carrier and the bed *b* thereon, as will be readily seen.

The bed *b* is inclined, one end being higher than the other, so that when the bed is moved in the direction indicated by the arrow in Fig. 2 its surface immediately under the knife will gradually rise and raise a sheet of leather resting on said bed, so that the knife will cut gradually deeper into the leather and remove a tapered skiving therefrom, leaving the upper surface of the leather correspondingly tapered, this result being due to the combined endwise and upward movement of the leather. The bed is so mounted on the carrier that both its inclination and the height of its rear end, which determine the thickness of the end of the tapered piece of leather, can be varied. To this end I provide at the forward end of the carrier a shaft *i*, which is journaled in bearings *i'*, attached to the carrier, (see Fig. 1,) and is provided with a cam *i²*, the perimeter of which supports an ear or lug *b'*, affixed to the forward end of the bed *b*. By rotating the shaft *i* (by means of a hand-wheel *i³* or otherwise) the cam *i²* is caused to raise or lower the forward end of the bed *b*, and thus vary the inclination of the bed.

The rear end of the carrier is provided with two adjustable wedges *j j*, which are connected by a bar *j'*, to which they are both attached. Said wedges rest on the upper surface of the rear end of the carrier and are secured to the carrier by an adjusting-screw *j²*, the unthreaded portion of which is engaged with an ear on the bar *j'*, as shown in Figs. 1 and 2, while its threaded portion enters a threaded socket in the carrier. The bed *b* is provided with two feet *k k*, bearing on the inclined upper surfaces of said wedges, said feet being preferably the heads of bolts, the screw-threaded shanks of which are screwed into bosses *k' k'* on the under side of the bed, Fig. 4. The feet *k k* are held upon the wedges *j j* with a yielding pressure by means of springs *m m*, which are interposed between the bottom surface of the carrier *f* and the heads of bolts *m'*, which bolts are hung upon trunnions or short shafts *m²*, secured in the bosses *k' k'*. It will be

seen that the springs by pressing downwardly on the bolts m' exert a downward pressure on the feet k , thus keeping said feet in close contact with the wedges j and at the same time permitting said feet to be raised and lowered by the adjustment of the wedges. The bolts m' , trunnions m^2 , bosses k' , and springs m constitute yielding hinges that connect one end of the bed to the carrier, and not only allow the free end of the bed to rise and fall, but also allow the hinged end to rise and fall. It will be seen that when the wedges are forced inwardly they raise the rear or hinged end of the bed b , and when forced backwardly they lower said rear end, thus determining the thickness of the rear end of the piece of leather which is skived by the movement of the bed under the knife c . The screw connection between the feet k and the bed b enables said feet to be independently adjusted to true the bed in case one side is higher than the other. The adjustment of the forward end of said bed by the cam i^2 varies the inclination of the bed and determines the length of the skived or tapered surface imparted to the leather.

o represents a loose roll, which rests by its own weight on the bed b and is vertically movable, so that it will rise and fall with the bed. Said roll is journaled in boxes $o' o'$, which are adapted to slide vertically in slots in the housings $a^2 a^2$, said housings keeping the boxes in place laterally and permitting them to rise and fall. The object of the roll o is to elevate the sheet of leather being skived above the bed and curve said sheet abruptly at the point where it is presented to the knife, so that the knife in commencing the skiving operation will more readily enter the sheet than it would if the sheet were laid flat on the bed and the latter raised high enough to present the sheet to the knife.

p represents a pressure-roller, which is journaled in bearings in a swinging frame p' , said frame having trunnions $p^2 p^2$, which are journaled in boxes $p^3 p^3$, fitted to slide in the guiding-slots in the housings a^2 , the swinging movement of the roll p enabling it to move toward and from the knife. The movement of the roll toward the knife is determined by a stop-screw p^4 , working in a bracket on the swinging frame p' and bearing on one of the housings a^2 . The frame p' is provided with a weighted arm p^5 , the weight p^6 of which holds the roll in the relation to the knife permitted by the adjusting-screw p^4 . The boxes p^3 are pressed downwardly by springs p^7 to give the roll p the desired yielding pressure on the leather.

q represents a clamp, which consists of a bar extending across the bed b and supported by an adjusting-screw q' , which works in a yoke q^2 , affixed to the bed b . When the clamp is depressed by the rotation of the screw q' , it bears on the sheet of leather placed on the bed and secures it firmly to the bed.

The operation of the machine is as follows: The piece of leather secured to the bed by the

clamp q is passed from thence between the knife c and roll or bar o , the portion of said piece which is to be skived being the portion between the knife and the rear end of the bed (this being the right-hand end, as viewed in Figs. 1 and 2.) The bed is then moved by the rotation of the shaft h' in the direction indicated by the arrow in Fig. 2, and as soon as the leather is raised by the inclination of the bed into contact with the knife the latter commences to cut a skiving from the upper side of the sheet and continues to cut, the skiving gradually increasing in thickness until the end of the sheet is reached, the thickness of the skived portion at the end of the piece being determined by the adjustment of the rear end of the bed, while the distance from said end at which the skiving operation commences is determined by the adjustment of the forward end of the bed. This machine is adapted particularly for scarfing or skiving large pieces of leather, such as the ends of strips of heavy belting. The shaft h' , which moves the bed b , may be impelled by any suitable power, and is here shown as impelled by a hand-wheel u on a shaft u' , journaled in bearings on one of the housings a^2 , said shaft having a pinion v , meshing with a gear v' on the shaft h' .

w , Figs. 1 and 2, represents an incline affixed to the bed b near the clamp q for the purpose of supporting the sheet of leather above the surface of the bed and at a point about as high as the top of the roll o .

My invention is not limited to the details of mechanism herein described, as the same may be changed or modified in various particulars without departing from the spirit of the invention, and this statement applies particularly to the devices at the ends of the bed and carrier to vary the inclination and height of the bed.

z represents a loose or idle roll located below the knife for the purpose of depressing the leather and causing it to conform to a portion of the periphery of the gage roll or bar, so that the portion that is presented to the knife will be abruptly curved, the surface of the leather being thus kept uniform in its relation to the knife and prevented from exerting friction on the under side of the knife.

I claim—

1. In a leather-skiving machine, the combination of a fixed knife, a pressure roll or bar movable toward and from the knife, a reciprocatory inclined straight bed or guide movable horizontally under the knife, and a vertically-movable gage roll or bar supported by said bed and interposed between the knife and bed, said roll constituting a rolling support which presents the leather to the knife and abruptly curves the leather at the point of presentation to the knife and is moved toward the knife during the operation of the machine by a longitudinal movement of the inclined bed, whereby the leather is skived or tapered, as set forth.

2. In a leather-skiving machine, the combi-

nation of a supporting-frame, a fixed knife thereon, a carrier movable lengthwise on the frame under the knife, a shaft having an adjusting-cam at one end of said carrier, adjustable wedges or inclines at the other end of said carrier, a straight leather-supporting bed bearing at one end on said cam and at the other on the inclines, and yielding hinges securing one end of the bed to the carrier, said hinges permitting the end of the bed with which they are connected to rise and fall, as set forth.

3. The combination of a fixed knife, a gage roll or bar movable toward and from the knife, the inclined bed supporting said gage-roll, the adjustable feet at one end of said bed, said feet being the heads of set-screws adjustably secured to the bed, the carrier under said bed, and inclined supports on said carrier, arranged to support said feet, the latter being independently adjustable to true the bed, as set forth.

4. In a leather-skiving machine, the combination of a supporting-frame, a fixed knife

thereon, a carrier movable on said frame under the knife, adjustable wedges on the carrier supporting one end of the bed, means for adjusting said wedges, bolts suspended from the bed and passing through the carrier, independently-adjustable feet on the bed bearing on said wedges, and springs acting on said bolts to press said feet yieldingly against said wedges, as set forth.

5. The combination of the supporting-frame, the fixed knife, the movable gage roll or bar, the pressure-roll, a swinging weighted frame supporting said pressure-roll, and spring-pressed boxes, to which said frame is pivoted, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 22d day of May, A. D. 1891.

JOSEPH A. SAFFORD.

Witnesses:

C. F. BROWN,
A. D. HARRISON.