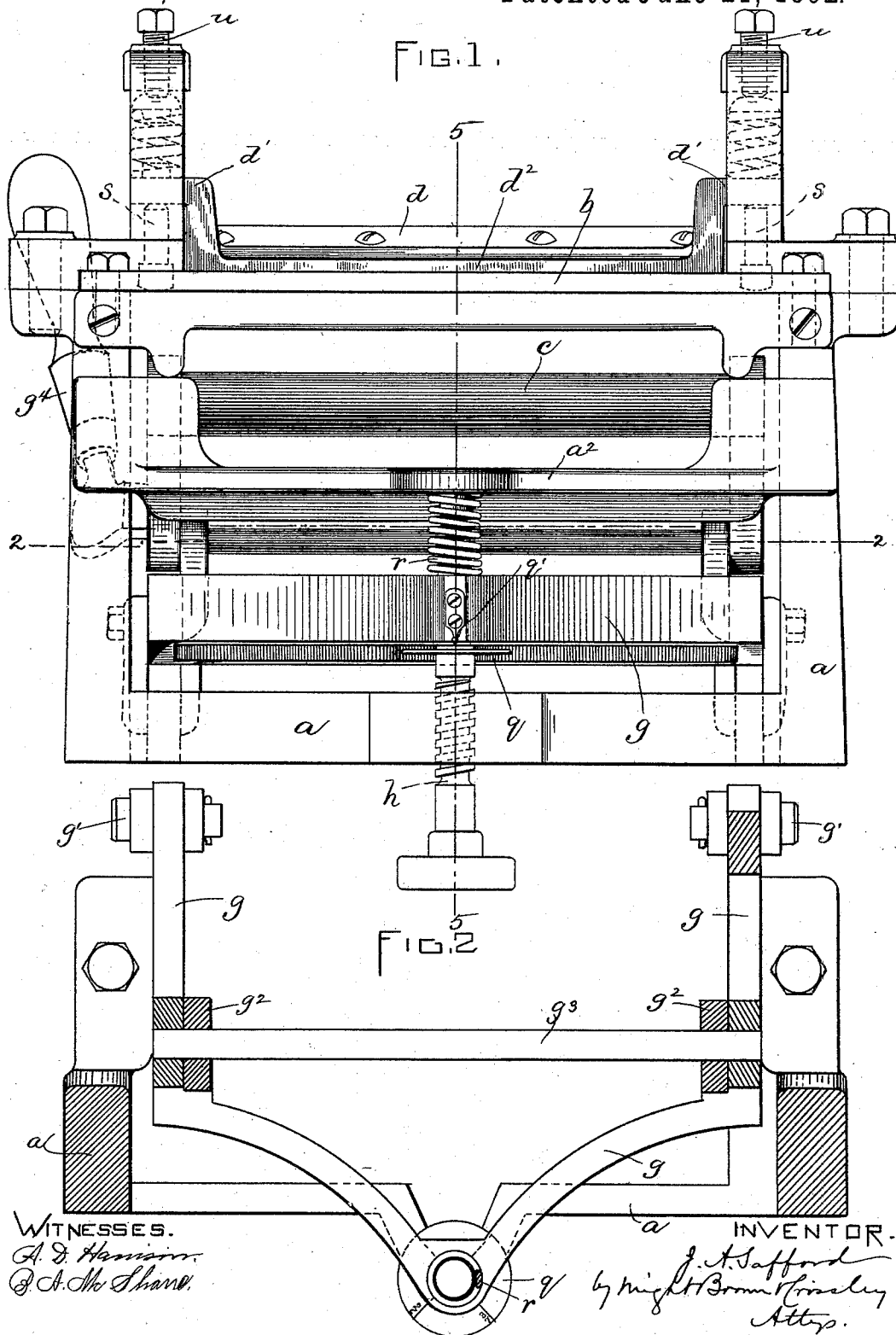


J. A. SAFFORD.
LEATHER SPLITTING AND SKIVING MACHINE.

No. 477,456.

Patented June 21, 1892.



(No Model.)

4 Sheets—Sheet 2.

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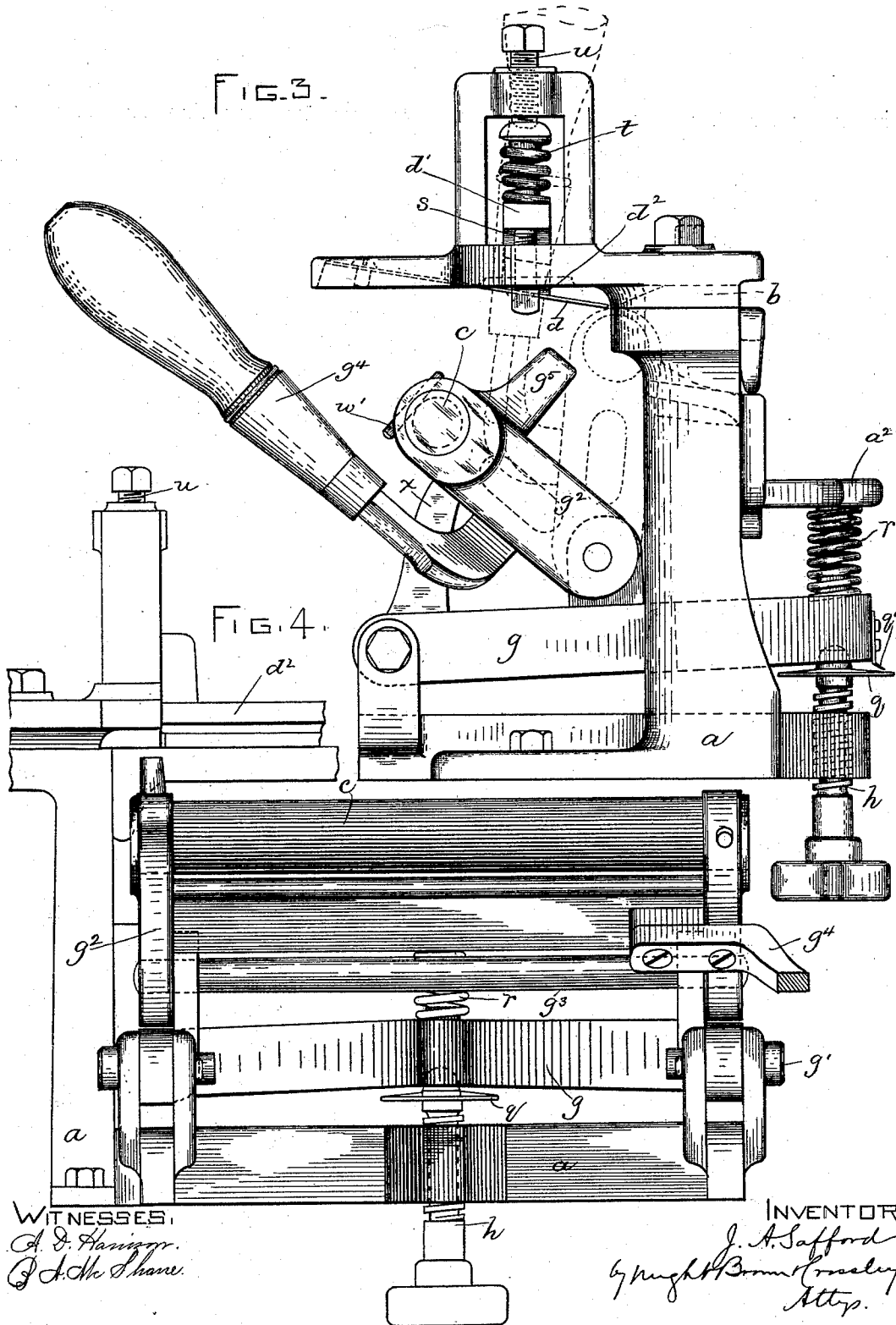


FIG. 4.

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INVENTOR
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Attys.

(No Model.)

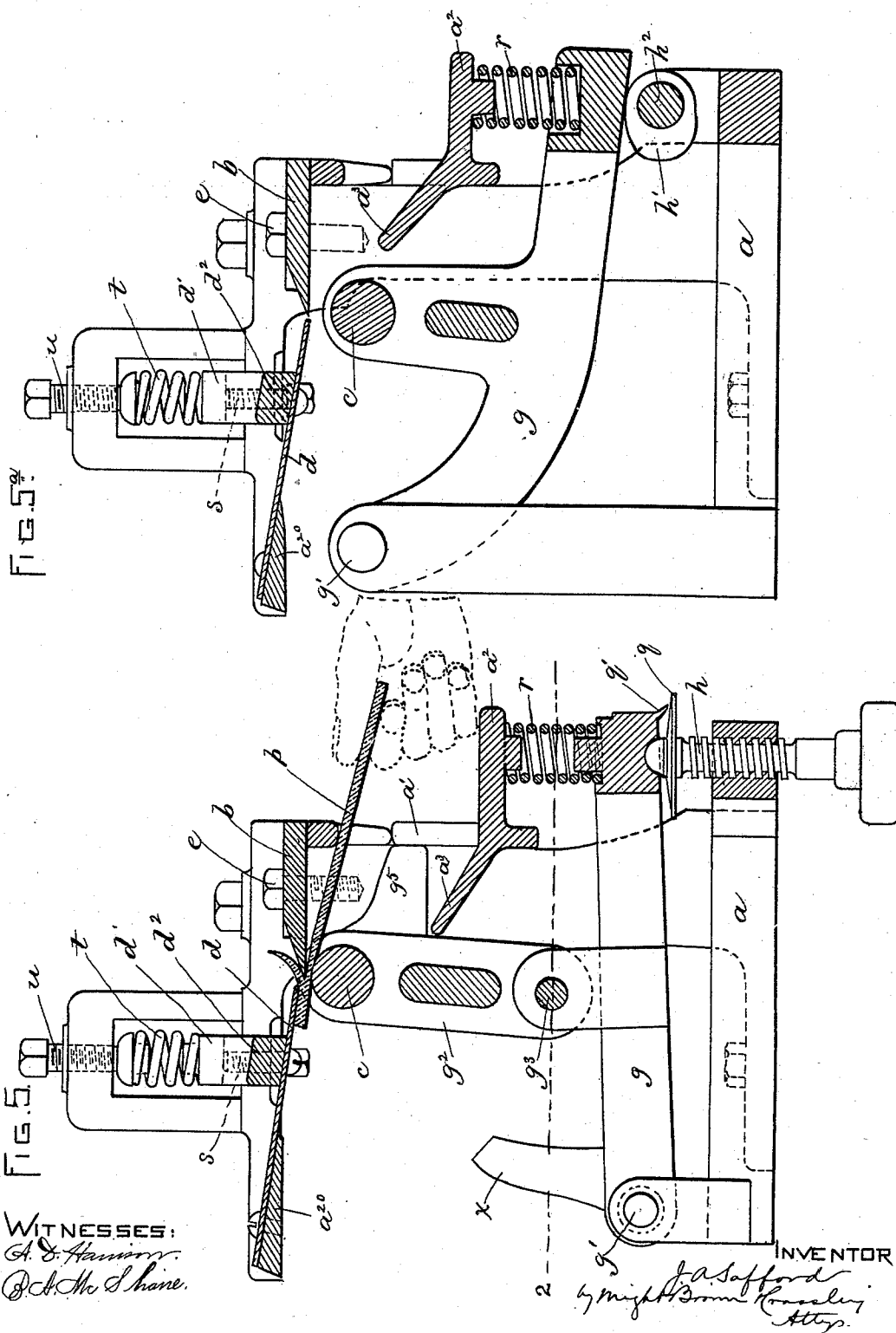
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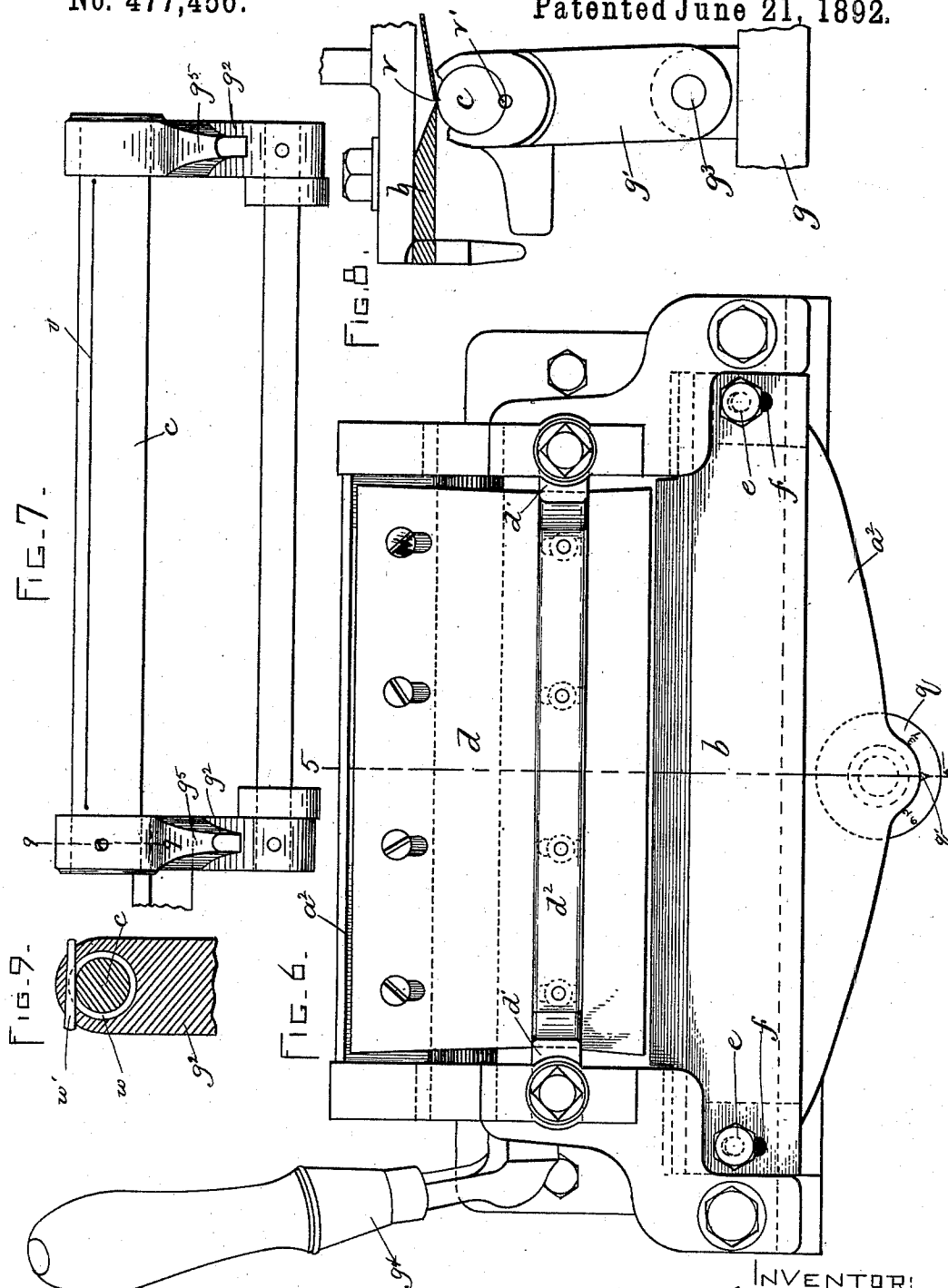


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UNITED STATES PATENT OFFICE.

JOSEPH A. SAFFORD, OF BOSTON, MASSACHUSETTS.

LEATHER SPLITTING AND SKIVING MACHINE.

SPECIFICATION forming part of Letters Patent No. 477,456, dated June 21, 1892.

Application filed March 31, 1891. Serial No. 387,104. (No model.)

To all whom it may concern:

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

This invention has for its object to provide a simple and effective machine particularly for splitting or skiving comparatively small pieces of leather, as distinguished from machines for splitting whole sides or large sheets of leather, the present invention relating particularly to machines in which the leather is pulled over the splitting-knife by hand, although the improvements hereinafter described are not necessarily limited to a hand-operated machine.

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 front elevation of a machine embodying my improvements. Fig. 2 represents a section on line 2 2 of Fig. 1. Fig. 3 represents an end elevation of the machine. Fig. 4 represents a rear elevation of the same. Fig. 5 represents a section on line 5 5 of Figs. 1 and 6. Fig. 5^a represents a section similar to Fig. 5, showing a modification. Fig. 6 represents a top plan view of the machine as shown in Figs. 1 to 5, inclusive. Fig. 7 represents a top view of the gage-roll and its supporting frame or yoke removed from the machine. Fig. 8 represents an end elevation of the gage-roll and its supporting yoke or frame and a sectional view of the splitting-knife and of a portion of the yielding pressure-plate. Fig. 9 represents a section on line 9 9 of Fig. 7.

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

In the drawings, *a* represents the supporting-frame of the machine, which is constructed to afford suitable supports for the fixed splitting-knife *b*, the gage-roller *c*, the yielding pressure-plate *d*, and other essential parts of the machine. The knife *b* is horizontally arranged and is affixed to the supporting-frame by sockets or bolts *e e*, passing through slots *f f*, Fig. 6, in the ends of the knife, said slots

permitting the knife to be adjusted laterally to compensate for wear of its cutting-edge.

g represents a swinging frame, which is pivoted at *g'* to fixed ears on the supporting-frame, one end of said frame being free to rise and fall and resting on an adjustable stop or support *h*, which is preferably a screw working in a threaded socket in the base of the supporting-frame, said screw enabling the free end of the frame *g* to be raised and lowered. Said adjustable stop or support is not necessarily a screw, however, but may be any other suitable device, such as a cam *h'* on a shaft *h''*, as shown in Fig. 5^a, said cam bearing against the under side of the free end of the frame *g* and being adapted to raise and lower the same when the shaft *h''* is turned in its bearings, as will be readily seen.

The frame *g* supports and vertically adjusts the gage-roll *c*. Said roll is shown in Figs. 1, 2, 3, 4, 5, 6, 7, and 8 as journaled in bearings formed in a swinging yoke or secondary frame *g''*, which is pivoted at *g'''* to ears on the frame *g*, so that the gage-roll is adapted to be moved independently of the frame *g* by the oscillating movements of the yoke *g''*, as well as with said frame *g* when the latter is raised and lowered, the yoke and roll partaking of all the movements of the frame *g*.

In Fig. 5^a I show the gage-roll journaled in bearings formed directly on the frame *g*, the swinging yoke *g''* being omitted. I prefer the construction first described, however, for obvious reasons, the independently-swinging yoke permitting the gage-roll to be moved rapidly toward and from the knife in the arc of a circle. I will therefore during the remainder of this specification exclude the construction shown in Fig. 5^a from consideration so far as the gage-roll and its supporting devices are concerned.

The yoke *g''* is provided at one end with a handle or lever *g'''*, by which the operator may swing said yoke to move the gage-roll from its inoperative position (shown in full lines in Fig. 3) to its operative position (shown in dotted lines in Fig. 3 and in full lines in Figs. 5 and 8,) the yoke being arrested in the last-named position by contact of an arm *g''''*, formed thereon, with a fixed stop *a'* on the

supporting-frame, as shown in Fig. 5, the gage-roll being thus held in proper position with relation to the cutting-edge of the knife. It will be seen that when the gage-roll is in the position shown in Fig. 5 and a piece p of leather is drawn between the gage-roll and the knife, the knife will cut off the upper portion of the piece, as indicated in Fig. 5, so that the thickness of the piece will be exactly equal to the distance between the highest point of the gage-roll and the cutting-edge of the knife. By adjusting the frame g vertically by the means already described the thickness of the piece p can be increased or diminished, as will be readily seen.

To enable the operator to determine the quantity of material that will be removed from the piece p by the action of the splitting-knife, I provide the adjusting-screw h with a circular disk g , which is rigidly affixed to said screw and has suitable marks or indications on its upper side, as shown in Figs. 2 and 6, which marks co-operate with a fixed pointer g' on the swinging end of the frame g in indicating the thickness of the piece p which will be caused by any adjustment of the screw h .

r represents a spring, which is interposed between the upper side of the free end of the frame g and a fixed bar or ledge a^2 on the supporting-frame, said spring holding the frame g downwardly with a yielding pressure on the adjusting-screw and preventing the frame and the gage-roll carried thereby from jumping or rising accidentally. The pressure-plate d is a strip of elastic sheet metal rigidly attached at its rear end to a cross-bar a^2 , affixed to the supporting-frame, its forward end being free to rise and fall and being located in close proximity to the cutting-edge of the knife and substantially parallel with the latter, as shown in Fig. 6. The free edge of the plate d bears yieldingly upon the upper surface of the piece of material being split or skived immediately in advance of the cutting-edge of the knife and holds the piece down properly upon the gage-roll.

To limit the downward movement of the free end of the plate d toward the gage-roll, I provide adjustable stops $s s$, which are preferably screws engaged with threaded sockets in the supporting-frame and adapted to be raised or lowered when rotated. The upper ends of said screws bear on the under sides of ears $d' d'$, projecting outwardly from opposite ends of the plate d , said ears being preferably formed on a rigid bar d^2 , extending parallel with the free edge of the plate d and secured to said plate between its fixed and free edges. The bar d^2 is located so far back from the free edge of the plate d that the portion of said plate that projects forward from said bar has in itself a considerable degree of elasticity.

$t t$ represent springs supported at their upper ends by adjusting-screws $u u$, affixed to

the supporting-frame and bearing at their lower ends on the upper sides of the ears $d' d'$, said springs pressing said ears downwardly toward or upon the stops $s s$.

It will be seen from the foregoing that the pressure-plate d is adapted to yield both by its own inherent elasticity and by the springs $t t$, which normally press it downwardly as far as the stops $s s$ will permit. The elastic plate d and the springs applied to it, as described, constitute a simple and effective pressure device which is economical in construction and not liable to get out of order. I do not limit myself, however, to this particular construction of pressure device, but may use any other suitable pressure device in connection with the previously-described improvements.

In Figs. 7 and 8 I show means for conveniently adjusting the knife b to its proper position relatively to the gage-roll, so that in applying a new knife to the machine or re-applying a knife that has been removed to be sharpened the operator can quickly and accurately adjust the knife. To this end I provide the gage-roll c with a longitudinal score or mark v and with a device whereby the roll may be locked to its carrying-frame with the mark v at the extreme highest point of the roll when the frame is arrested by the stop a' with the gage-roll in its operative position. The locking device is preferably a pin inserted in a hole v' , Fig. 8, formed partly in the roll c and partly in one of the bearings thereof, the parts of said hole being so located as that when they coincide the mark v will be at the highest point of the roll. It will be seen that when the roll is locked as described and the yoke or frame g^2 is moved up to the stop a' the mark v will furnish a guide by which to set the cutting-edge of the knife, the knife being in proper position when its edge is parallel with and immediately over said mark.

In Figs. 7 and 9 I show the preferred means for engaging the roll c with the bearings in which it rotates, so as to prevent endwise movement of said roll, said means being a peripheral groove w in the roll c and a pin w' , driven into a hole in one arm of the yoke g^2 , said pin being tangential to the roll and entering one side of the groove w . The rear edge of the ledge or cross-bar a^2 , hereinbefore referred to as supporting the spring r , is extended upwardly to constitute what I call a "guide-bed" a^3 , arranged to guide a piece of leather inserted in the space between the ledge a^2 and the knife b to a position over the gage-roll when the latter is in its depressed position, said guide-bed insuring the proper placing of the leather upon the gage-roll before the latter is raised to its operative position. It will be noticed by reference to Fig. 5 that the guide-bed a^3 is separated from the knife by a space of sufficient width to permit the introduction of a piece of leather.

x represents an arm projecting upwardly

from the frame *g* in position to support the yoke *g*² in its depressed position, as shown in Fig. 3.

I claim—

1. In a leather splitting and skiving machine, the combination of the fixed splitting-knife, the gage-roll movable toward and from the knife, a gage-roll-carrying frame pivotally connected with the supporting-frame of the machine, means for adjusting said gage-roll-carrying frame to vary the distance between the knife and gage-roll when the latter is in its operative position, a yielding flat pressure-plate mounted on the supporting-frame and arranged to bear with a yielding pressure on the material in close proximity to the cutting-edge of the knife, and adjustable stops for limiting the movement of the free end of the plate toward the gage-roll, as set forth.
2. In a leather splitting and skiving machine, the combination, with the fixed knife, the movable gage-roll, and means for supporting and operating said roll, of the elastic metal pressure-plate rigidly attached at one edge to the supporting-frame and free to yield at its other edge, the latter being arranged so that it is in close proximity to the cutting-edge of the knife and over the gage-roll when the latter is in its operative position, and stops adjustably secured to the supporting-frame and adapted to limit the movement of the free edge of the pressure-plate toward the gage-roll, said stops permitting the movement of said edge in the opposite direction, as set forth.
3. In a leather-splitting machine, the combination, with the fixed knife, the movable gage-roll, and means for supporting and operating said roll, of the elastic metal pressure-plate rigidly attached at one edge to the supporting-frame and free to yield at its other edge, a rigid bar attached to said plate between its fixed and free edges and provided with ears projecting from said plate, said bar being parallel with the yielding edge of the plate, adjustable stops on the supporting-frame, arranged to support said ears, and thereby limit the movement of said plate to-

ward the gage-roll, and springs arranged to press said ears toward said stops, as set forth.

4. In a leather-skiving machine, the combination, with a fixed splitting-knife and a non-rotating pressure device, of an idle gage-roll movable toward and from said knife, a swinging frame carrying said roll and adapted to be swung freely toward and from the knife by the operator, stops to limit the swinging movement of the frame and roll in both directions, and an adjustable stop or support whereby said frame may be held in different positions to vary the distance between the gage-roll and knife when the gage-roll is in its operative position, as set forth.

5. In a leather-skiving machine, the combination, with a fixed splitting-knife and a non-rotating pressure device, of a gage-roll, a swinging frame or carrier, a yoke or secondary frame pivoted to said carrier and directly supporting the gage-roll, said roll being movable both by the independent swinging movements of the yoke and by the movement of both the yoke and carrier, and an adjusting-screw arranged to support and adjust the swinging end of said carrier, as set forth.

6. In a leather-skiving machine, the combination, with the adjustably-secured knife, the swinging gage-roll-carrying frame, and a stop to arrest said frame in its operative position, of the gage-roll journaled in said frame and provided with an indicating mark on its periphery, and means for locking the roll to its carrying-frame with the said mark in a predetermined position, whereby the mark is caused to serve as a guide by which the knife may be adjusted to its proper position, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 25th day of March, A. D. 1891.

JOSEPH A. SAFFORD.

Witnesses:

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