

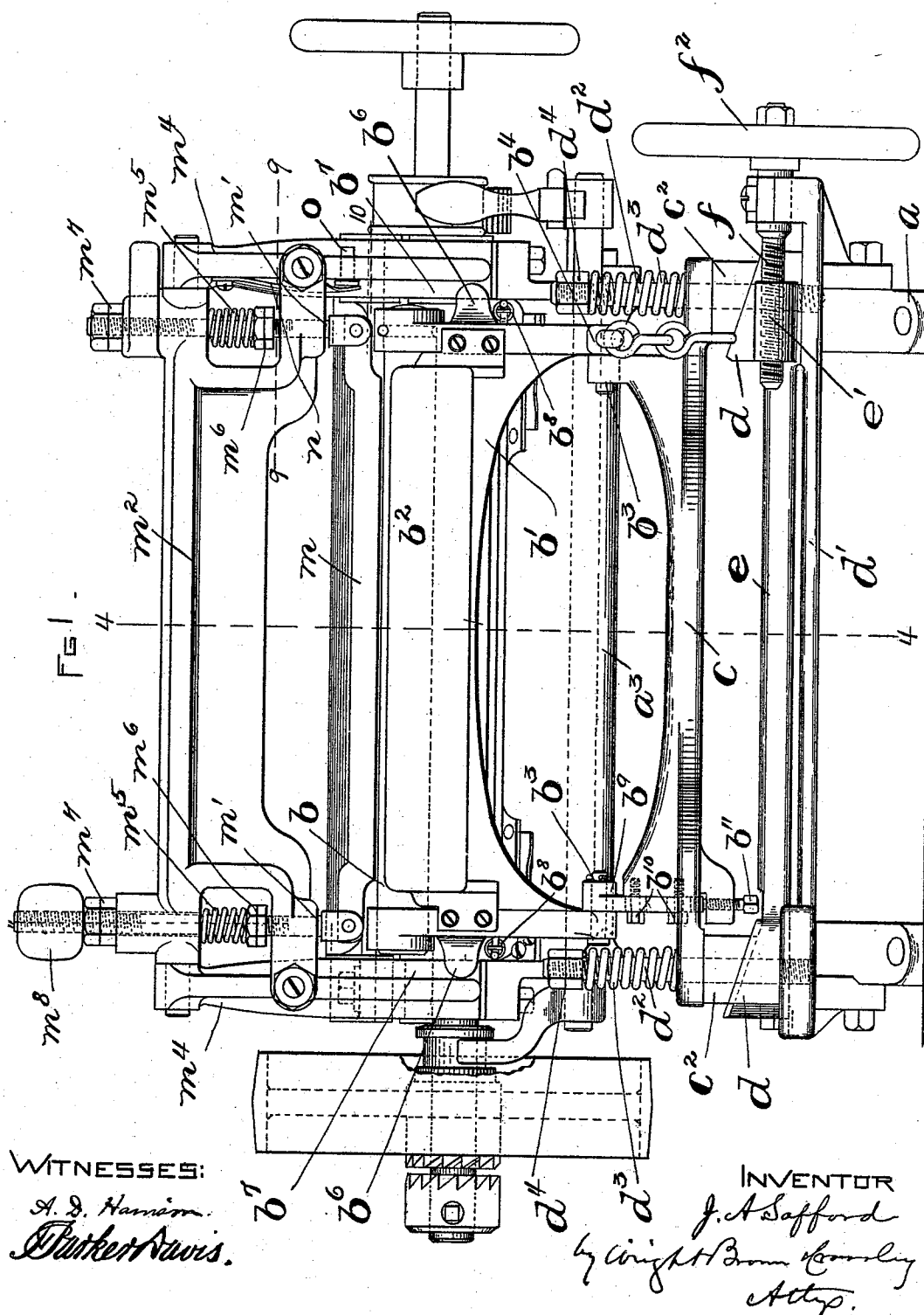
(No Model.)

4 Sheets—Sheet 1.

J. A. SAFFORD.  
LEATHER SPLITTING MACHINE.

No. 514,730.

Patented Feb. 13, 1894.



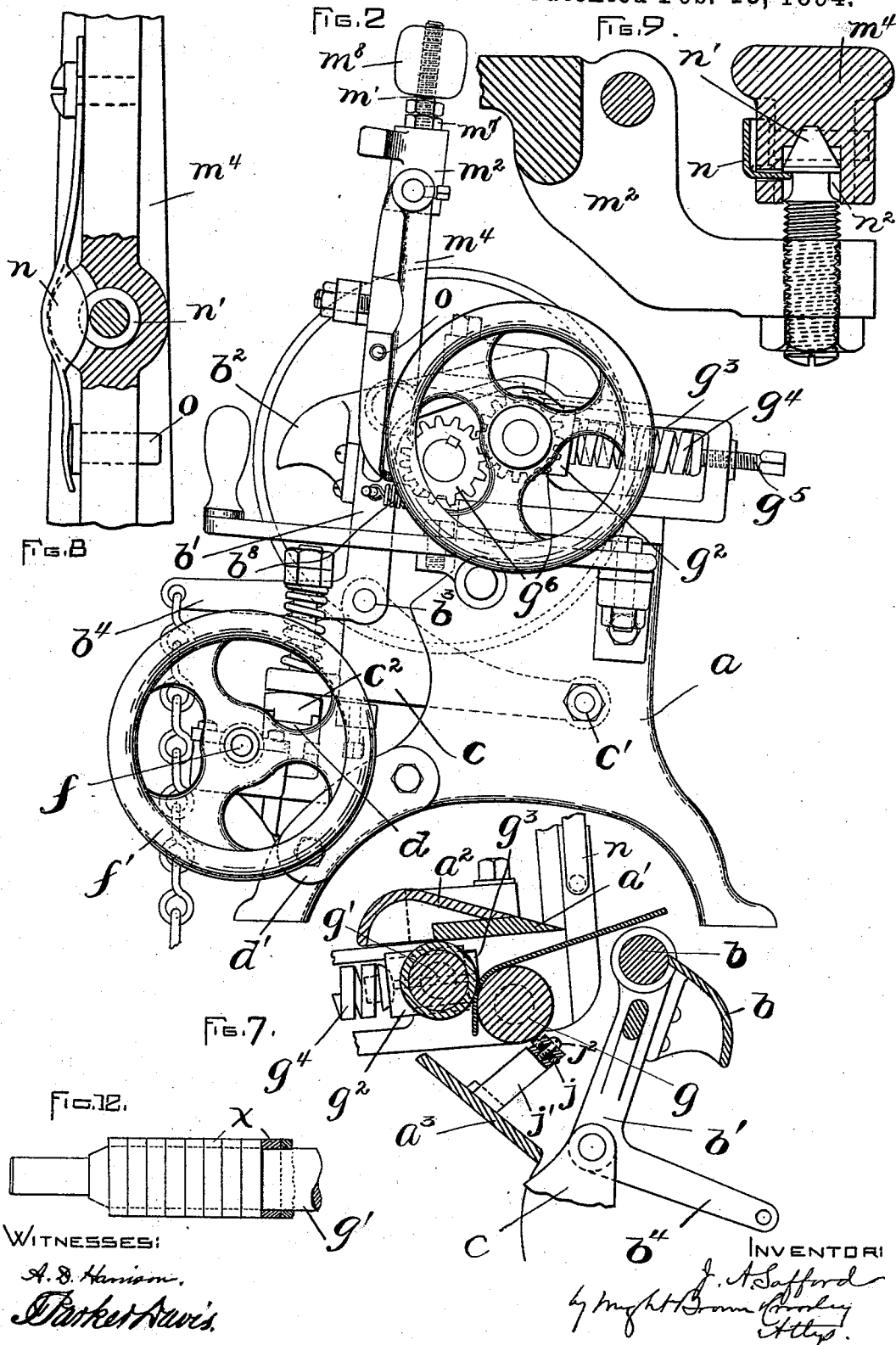
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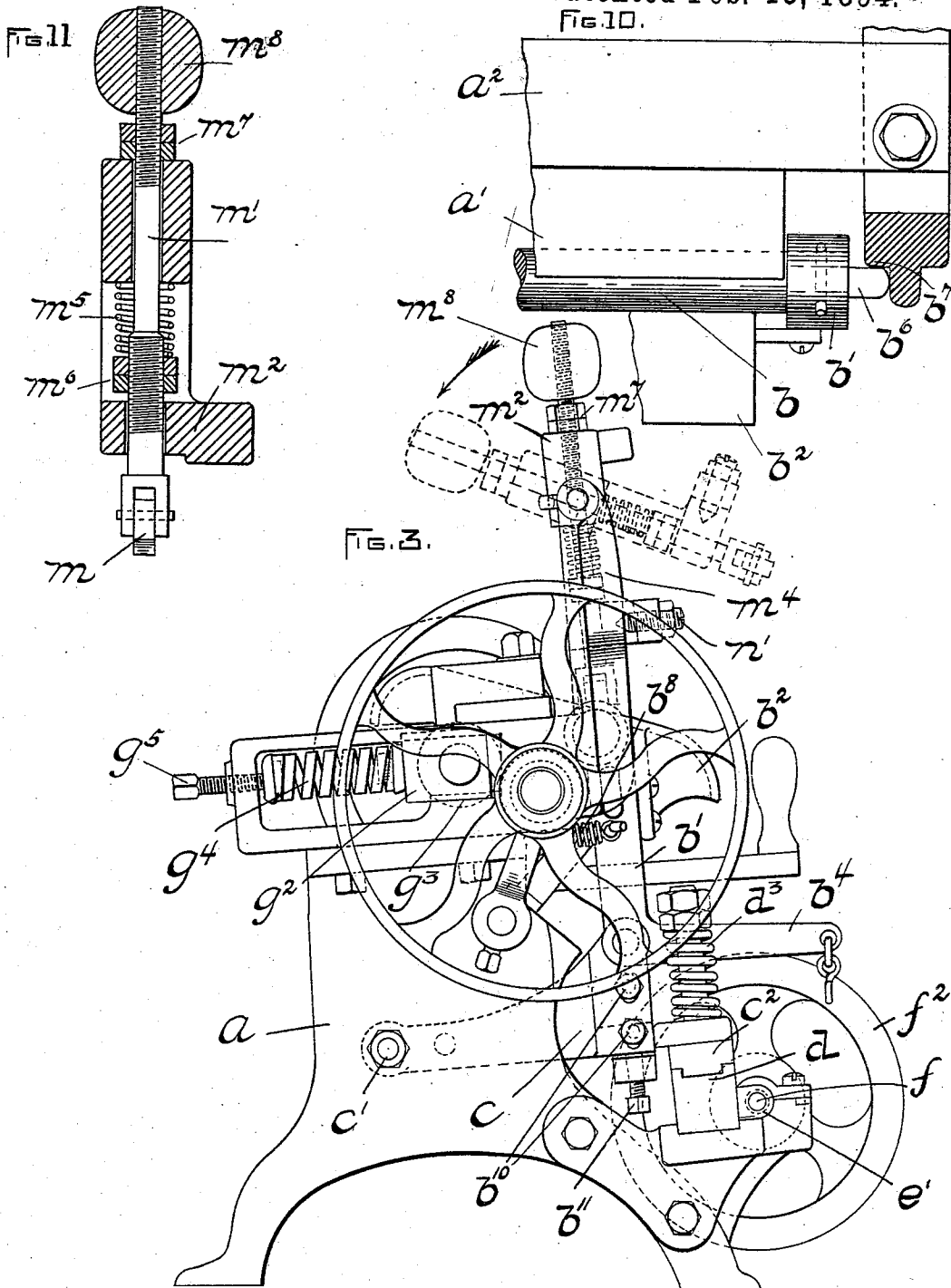
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WITNESSES:  
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# UNITED STATES PATENT OFFICE.

JOSEPH A. SAFFORD, OF MALDEN, MASSACHUSETTS.

## LEATHER-SPLITTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 514,730, dated February 13, 1894.

Application filed April 24, 1893. Serial No. 471,685. (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-Splitting Machines, of which the following is a specification.

This invention relates to an improvement in leather-splitting machines, and the chief object is to provide a machine in which the leather will be drawn on to the edge of the splitting knife by rolls mounted behind said edge, instead of being pushed against the cutting edge by rolls mounted in front of the same as at present practiced.

The invention consists in certain novel features of construction and combinations of parts, which will be fully described hereinafter and pointed out in the claims.

The accompanying drawings illustrate a construction by which the invention may be carried out.

Figure 1 shows a front elevation of the machine. Fig. 2 shows a side elevation, as viewed from the right of Fig. 1. Fig. 3 shows a side elevation, as viewed from the left of Fig. 1. Fig. 4 shows a cross-section on the line 4—4 of Fig. 1. Fig. 5 shows a perspective view of a fragment of the machine. Fig. 6 shows a sectional detail of a scraper, which acts against one of the draw-rolls. Fig. 7 shows a sectional detail illustrating a movement of which the gage-roll is capable. Figs. 8 and 9 show details of a latch for locking the swinging frame which supports the presser-bar; Fig. 10 shows a section on the line 10—10 of Fig. 1. Fig. 11 shows a section on the line 11 of Fig. 1. Fig. 12 shows a detail to be referred to hereinafter.

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

In drawings: The letter *a* designates the supporting-frame of the machine. A splitting-knife *a'* is supported in a substantially horizontal position at the upper part of the frame, and an inclined table *a<sup>2</sup>* extends rearwardly from the knife. A gage-roll *b* is journaled in the upper ends of a support *b'*, which also carries a curved guide *b<sup>2</sup>*, over which the leather may pass into the machine. The gage-roll support is in the form of a frame, whose side arms are pivoted at *b<sup>3</sup>* to a horizontal frame *c*, pivoted at *c'* to the main frame *a* of

the machine. The hinged frame *c* is formed with forward extensions, which carry blocks *c<sup>2</sup>*, having correspondingly inclined under surfaces, resting on inclines *d*, formed on a slide *e*, which engages the slideway of a bracket *d'* affixed to the frame *a*. Rods *d<sup>2</sup>* are fastened in the bracket *d'*, and project up through slots in the slide *e* and circular openings in the blocks *c<sup>2</sup>*, and spiral springs *d<sup>3</sup>* are placed on said rods and bear upon the upper side of the frame *c*, and also against adjusting-nuts *d<sup>4</sup>* on the rods *d<sup>2</sup>*. By this means, the blocks *c<sup>2</sup>* are held in engagement with the inclines *d*.

A screw-shaft *f* is mounted in a bearing on the bracket *d'*, and engages a screw-threaded boss *e'* on the slide *e*. Said screw-shaft carries a hand-wheel *f<sup>2</sup>*, and, by turning this wheel, the slide *e* may be adjusted, and the hinged frame *c* raised or lowered. By this means, the gage-roll *b* is adjusted vertically with relation to the knife *a'*, to determine the thickness of the split leather.

The support *b'* is formed with lateral ears *b<sup>6</sup>*, which abut fixed stops *b<sup>7</sup>* on the frame of the machine, and these ears are held against the said stops by springs *b<sup>8</sup>*. The said ears may slide upon the stops during the vertical adjustment of the gage-roll. I provide for adjusting one end of the gage-roll independently of the other end, to secure a parallelism between it and the splitting-knife, by pivoting one arm of the frame *b'* to a bearing *b<sup>9</sup>*, adjustably fastened to the hinged frame *c* by means of screws *b<sup>10</sup>*, extending through slots in the said bearing *b<sup>9</sup>* and an adjusting-screw *b<sup>11</sup>* in the frame *c*, and engaging the under side of the bearing *b<sup>9</sup>*.

The frame *b'* is formed with a projecting arm *b<sup>4</sup>*, which may be connected with a treadle, and by the depression of which the said frame is thrown forward on its pivots *b<sup>3</sup>* and the gage-roll moved away from the knife-edge, as illustrated in Fig. 7, to admit the leather to a pair of draw-rolls mounted behind the knife and in the present instance below the same. One of these draw-rolls, *g*, is supported in stationary bearings, and may be faced with metal or any other suitable material; while the other roll, *g'*, is supported in sliding bearings or boxes *g<sup>2</sup>*, and is faced with wood, leather or other suitable substance.

A preferred construction of draw-roll is that

consisting of a metal core and a series of annular leather rings, disks or collars, as  $a$  (see Fig. 12), fitted over said core, and abutted to form a covering or facing for the core. The

5 advantage of such a construction over that in which a continuous sheet of leather is wrapped around the core, is that there is not the liability to stretch and become loose on the core as with a continuous sheet, the grain  
10 of the leather in the rings having a different direction with respect to the core than that of the continuous sheet. One or both of the draw-rolls may have such a construction.

The bearings or boxes  $g^2$  fit in slideways  $g^3$   
15 in the frame of the machine, and spiral springs  $g^4$  bear against said boxes and press the roll  $g'$  forward against the roll  $g$ . By means of screws  $g^5$ , the tension of the springs  $g^4$  may be adjusted to suit the thickness of  
20 the leather passing through. The rolls  $g$  and  $g'$  will be continuously driven by means of gears  $g^6$ , mounted on their spindles; and, in the operation of the machine, leather is introduced between the rolls and drawn thereby  
25 against the splitting-knife, as illustrated in Fig. 4. The waste  $h$  is carried over the inclined table  $a^2$ , while the split leather  $h'$  is delivered out of the front of the machine after passing the rolls  $g$  and  $g'$ .

30 A scraper is provided for each of the rolls  $g$  and  $g'$ , to prevent the leather winding upon the same. The scraper for the roll  $g'$  consists of a plate  $i$ , fastened to arms  $i'$ , which are supported by a bar  $i^2$ , pivoted to the journal-boxes  $g^2$ , and the said scraper is held  
35 yieldingly against the roll  $g'$ , by means of resilient fingers  $i^3$  fastened to the bar  $i^2$  and bearing with sliding contact against the surface of an inclined fixed portion  $a^3$  of the  
40 frame  $a'$ . By this construction, the wear of the roll will be taken up, and the scraper will always bear against the same, while adjustments of the roll to suit different thicknesses of leather will not affect the scraper, which is  
45 carried by the journal-boxes of the roll, and whose springs  $i^3$  have sliding contact with the part  $a^3$  of the frame.

The scraper which acts against the roll  $g$  consists of a strip  $j$ , of leather or any other  
50 suitable material which in practice will not wear or injuriously affect the roll. Said strip is clamped in a rigid support  $j'$ , and adjusted therein to bear against the surface of the roll  $g$ . The leather strip  $j$  is slotted where the  
55 clamping-screws  $j^2$  pass through it, so as to permit adjustment to compensate for wear. The scraper  $i$ , besides performing its function as a scraper, also serves to direct the split leather toward the front of the machine  
60 and over the inclined chute  $a^3$ .

A presser-bar  $m$ , which may be a roll or a plate, bears upon the leather and holds it down against the gage-roll  $b$ , so as to insure uniformity in the thickness of the split leather.  
65 This presser-bar is jointed at its ends to rods  $m'$ , which fit loosely through a frame  $m^2$ , piv-

oted at its upper ends to standards  $m^4$ , which are parts of the frame  $a$ . Springs  $m^5$  are placed upon the rods  $m'$ , and bear against the frame  $m^2$  and adjusting-nuts  $m^6$  on the said  
70 rods. Other adjusting-nuts  $m^7$  are screwed upon said rods and bear on the top side of the frame  $m^2$ , and, by means of these nuts, the tension of the springs  $m^5$  may be regulated. By the construction described, it will be seen  
75 that one end of the presser-bar may move independently of the other end, and the presser-bar may thus adjust itself to irregularities in the leather. Said presser-bar, in its operative position, stands close to the edge of the  
80 splitting-knife. It may be swung forward and up out of the way, by turning the frame  $m^2$  on its pivots, a handle  $m^8$  being provided to facilitate manipulation of the said frame.

The presser-bar frame or support is locked  
85 in its operative position, by means of a spring-latch  $n$ , secured to one of the standards  $m^4$ , and engaging a catch  $n'$ , fastened in the frame  $m^2$  and entering a depression  $n^2$  in the standard  $m^4$ . The latch is disengaged from  
90 the catch by means of a push-button  $o$ , fitting in a web of the standard  $m^4$  and engaging the inner side of the latch.

The operation of the machine, briefly stated, is as follows: The gage-roll is thrown  
95 forward, as illustrated in Fig. 7, and the piece of leather to be split is passed below the knife and introduced between the draw-rolls  $g$  and  $g'$ , so that, upon starting said rolls to rotating, the leather will be drawn through  
100 them. The gage-roll is released, and the springs  $b^8$  draw it against the stops  $b^7$ , and draw the leather against the knife-edge. The draw-rolls are set in motion, and draw the leather onto the knife and it is split thereby,  
105 and passes out of the machine in the manner already described.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A leather-splitting machine, comprising in its construction a splitting-knife, continuously-rotated draw-rolls mounted back of the cutting edge of said knife and arranged to draw the leather onto said edge, one of said  
115 rolls being mounted in boxes, slideways for said boxes, springs acting on the boxes, and means for adjusting the tension of the springs.

2. A leather-splitting machine, comprising in its construction a splitting-knife, continuously-rotated draw-rolls mounted back of the cutting edge of said knife and arranged to draw the leather onto said edge, one of said  
120 rolls being mounted in spring-pressed boxes, and a scraper carried by said boxes and bearing against the roll.

3. A leather-splitting machine, comprising in its construction a splitting-knife, continuously-rotated draw-rolls mounted back of the cutting edge of said knife and arranged to  
130 draw the leather onto said edge, one of said rolls being mounted in spring-pressed boxes,

and a scraper pivotally connected with said boxes and yieldingly held against the roll.

4. A leather-splitting machine, comprising in its construction a splitting-knife, continuously-rotated draw-rolls mounted back of the cutting edge of said knife and arranged to draw the leather onto said edge, one of said rolls being mounted in spring-pressed boxes, a scraper pivotally connected with said boxes and yieldingly held against the roll by resilient fingers on the scraper and having sliding engagement with a rigid part of the machine.

5. A leather-splitting machine, comprising in its construction a splitting-knife, continuously-rotated draw-rolls mounted back of the cutting edge of said knife and arranged to draw the leather onto said edge, and a gage-roll in a pivoted support movable toward and away from the knife and spring-held in its operative position against fixed stops.

6. A leather-splitting machine, comprising in its construction a splitting-knife, continuously-rotated draw-rolls mounted back of the cutting edge of said knife and arranged to draw the leather onto said edge, a pivoted

frame, a gage-roll mounted in a support which is pivoted to the said pivoted frame whereby the gage-roll may be moved toward and away from the knife, springs holding said pivoted support against fixed stops, and means for vertically adjusting the pivoted frame.

7. A leather-splitting machine, comprising in its construction a splitting-knife, a gage-roll in front of the same, and a presser-bar yieldingly held down and its two ends independently movable whereby said bar may adjust itself to irregularities of the leather.

8. A leather-splitting machine, comprising in its construction a splitting-knife, a gage-roll in front of the same, and a presser-bar jointed at its ends to vertically-sliding spring-pressed rods.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 14th day of April, A. D. 1893.

J. A. SAFFORD.

Witnesses:

A. D. HARRISON,  
F. PARKER DAVIS.