

J. H. GAY.
LEATHER SPLITTING MACHINE.
APPLICATION FILED JAN. 13, 1912.

1,038,561.

Patented Sept. 17, 1912.

4 SHEETS—SHEET 1.

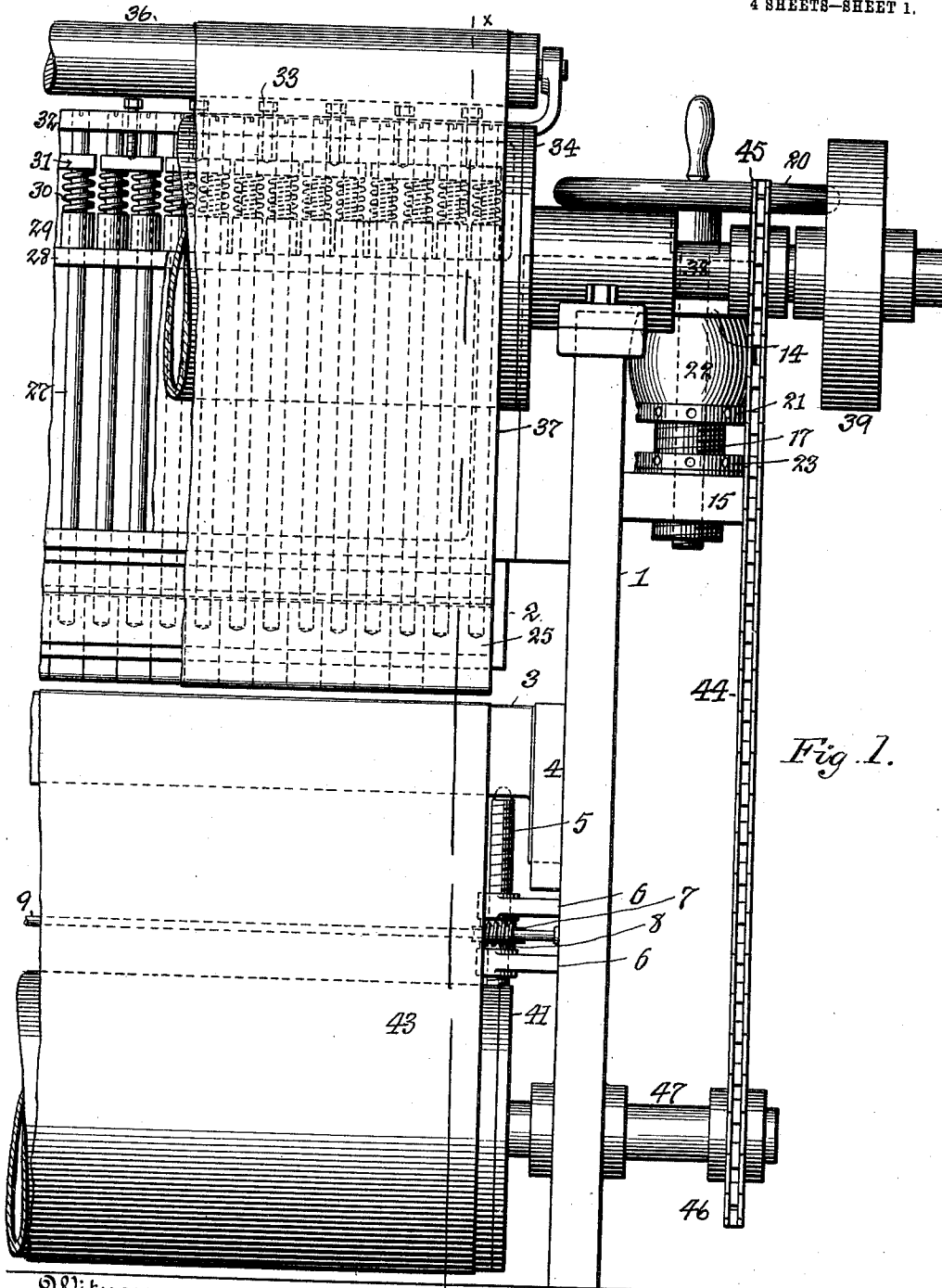


Fig. 1.

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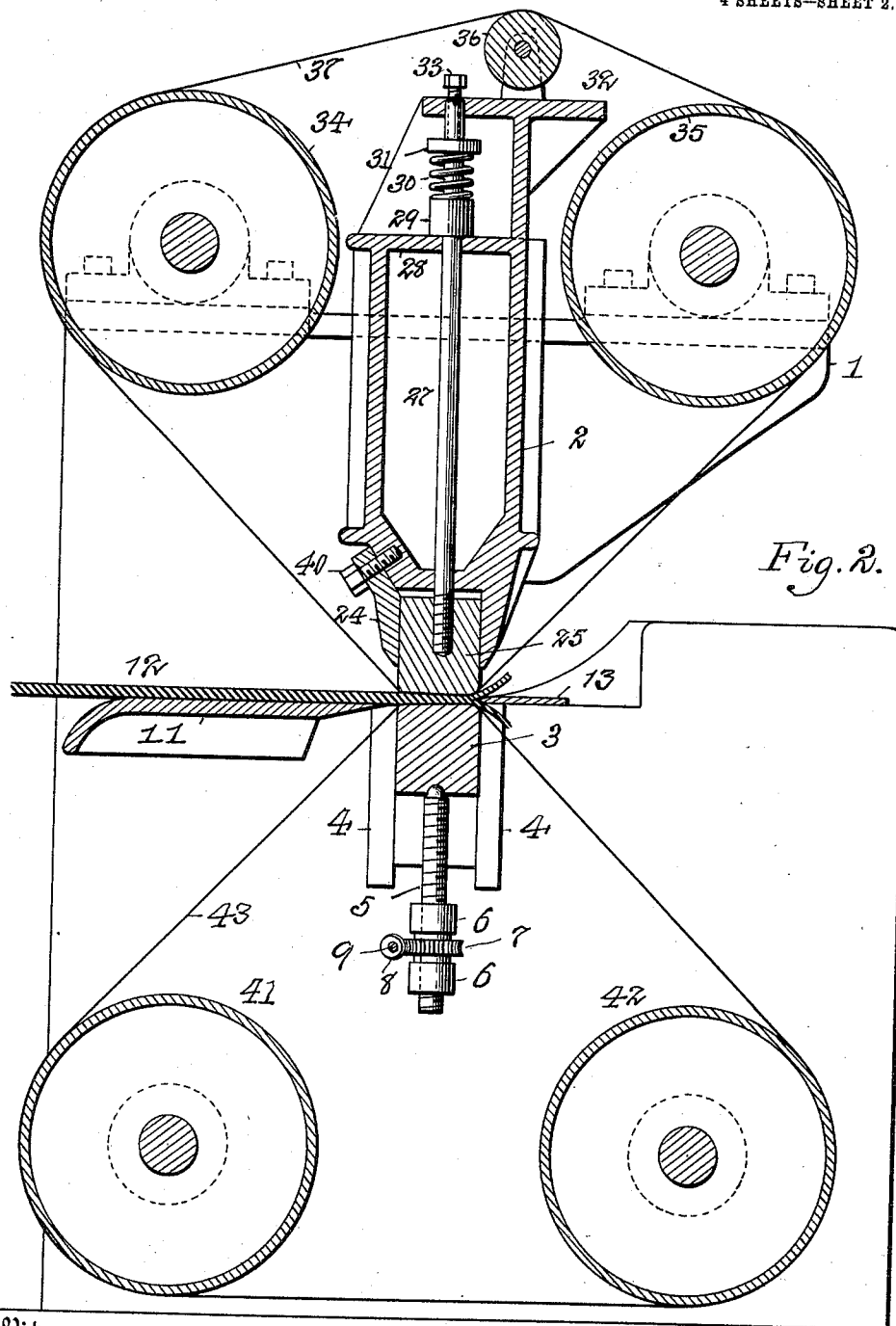


Fig. 2.

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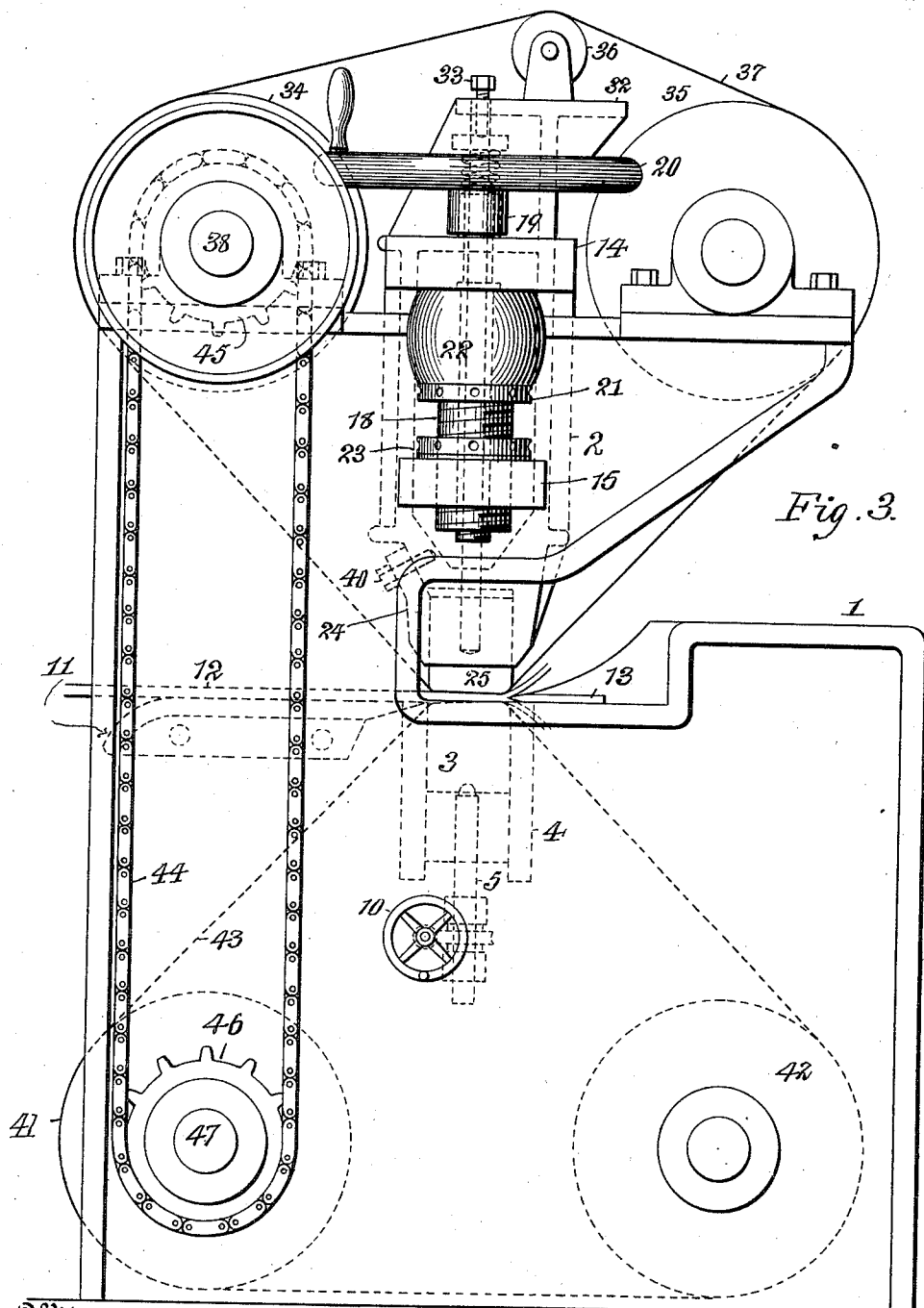
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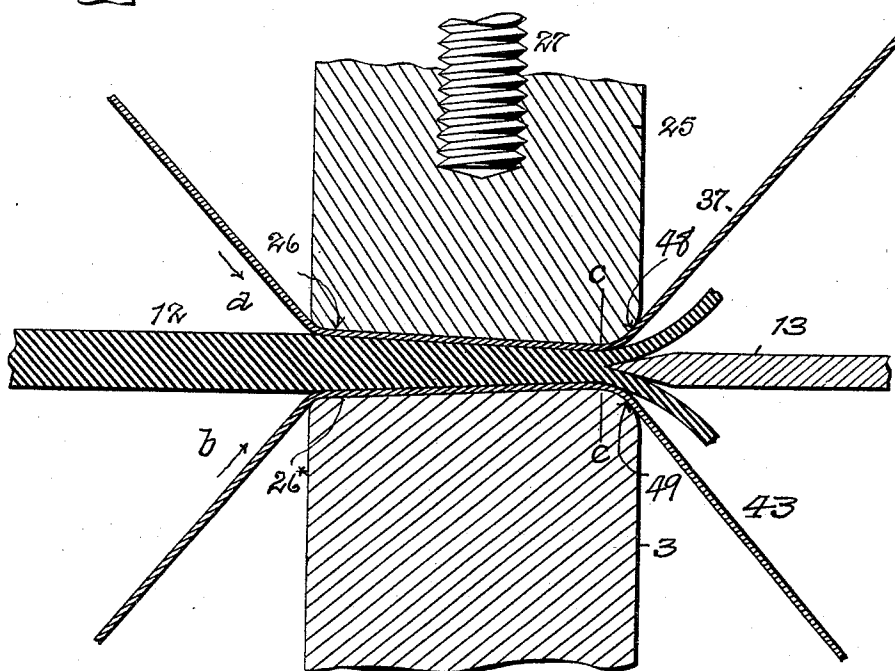
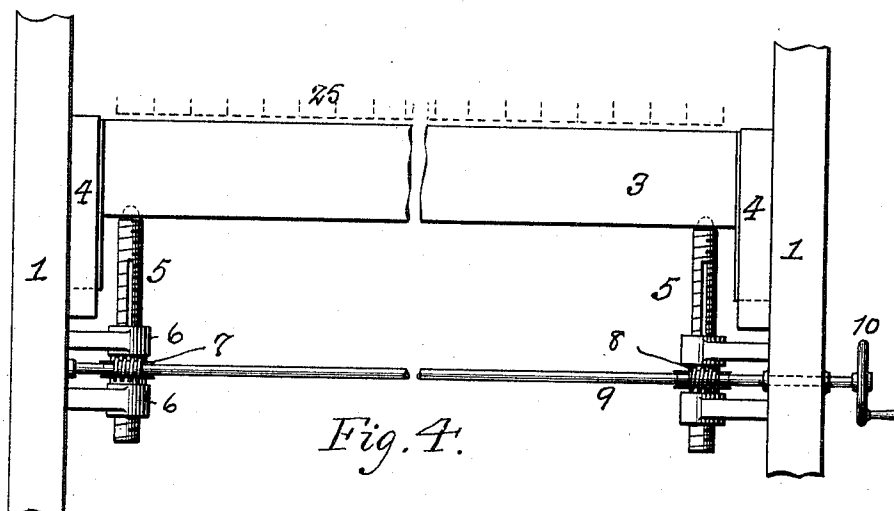


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4 SHEETS--SHEET 4.



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Fig. 5.

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UNITED STATES PATENT OFFICE.

JOSEPH H. GAY, OF NEWARK, NEW JERSEY.

LEATHER-SPLITTING MACHINE.

1,038,561.

Specification of Letters Patent.

Patented Sept. 17, 1912.

Application filed January 13, 1912. Serial No. 671,022.

To all whom it may concern:

Be it known that I, JOSEPH H. GAY, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented a certain new and useful Improvement in Leather-Splitting Machines, of which the following is a specification.

In U. S. Patent No. 718655, granted to W. D. Quigley and myself, January 20, 1903, we have described a construction of drawing-in rolls and knife, which involves a certain described setting of the rolls, so that an expanding clearance space is provided, in which space the knife may be set at, or in close proximity to, the line of maximum compression of the hide between said rolls instead of at a distance therefrom. Where the hide after leaving the line of maximum compression has to travel some distance before it meets the knife edge, it is apt to buckle or become displaced from a true plane of movement, with the result that a smooth straight cut is no longer made, but rather a wavy one, so that each split instead of being of uniform thickness is of varying thickness, and hence not only is the work impaired but the number of splits obtainable from the hide is reduced, with consequent economical loss.

My present invention provides a means of accomplishing the same result. The usual drawing-in rolls are eliminated. In place of the spring roll a plurality of presser blocks is substituted, disposed in line side by side across the machine—each block having a rounded lower surface or edge which may be struck on an arc of much shorter radius than that of the ordinary spring roll. A web of canvas or other strong fabric—preferably endless and suitably driven—travels under the lower edges of the blocks. The blocks themselves are resiliently supported by suitable springs, and are sufficient in number to permit of self-adjustment to the natural variations in thickness of the hide. In place of the gage roll I provide a bar having its upper surface curved correspondingly to the presser blocks above noted, said bar being vertically adjustable. A traveling web passes over the edge of the lower bar, and coacts with the web passing under the presser blocks to draw in the hide to the knife. By reason of the short radius of

edge curvature of the blocks and bar, the clearance space between the same may be made of such a predetermined width as will permit the knife edge to be brought so close to the maximum line of compression of the hide that the intervening distance between said line and said knife will be practically nothing. Hence there is no chance for the hide to buckle between compression line and knife, and straight and uniform splits are produced, not only from tanned hides, but even from the much more flexible green hides. So that in fact I can with this device split green hides before tanning them.

In the accompanying drawings—Figure 1 is an elevation of a portion of a hide splitting machine of the general type set forth in the aforesaid patent, showing so much of said machine as is necessary clearly to illustrate my invention and its relation to the usual parts of said apparatus. Fig. 2 is a vertical section of said portion on the line *x, x* of Fig. 1. Fig. 3 is an end elevation of said portion. Fig. 4 is a partial side elevation of the lower part of the machine, showing the means for vertically adjusting the hide supporting bar. Fig. 5 is an enlarged sectional view showing the relation of the knife to the presser blocks, bar and traveling webs.

Similar numbers of reference indicate like parts.

At 1, 1 are shown the two end frames between which are supported the upper or truss frame 2, and the supporting bar 3 for the hide. The ends of said bar are received between guides 4 on the frames 1, and said bar is vertically adjustable in said guides by means of the screws 5, (Fig. 4). Said screws are held in brackets 6 on the frames 1. Between said brackets are worm pinions 7, internally threaded to engage with the screws 5. Said pinions are rotated by the worms 8 on shaft 9, operated by hand wheel 10.

At 11 is the usual fixed work table over which the hide 12 passes to the drawing-in devices and knife 13. Said knife may be a traveling band, as fully described in the aforesaid patent.

The truss frame 2 has at its ends projecting arms, one of which is shown at 14, which are supported upon similar arms 15, projecting from the end frames 1, by the

following means: 17 is a cylindrical shell (Fig. 3) exteriorly threaded and received in arm 15, and interiorly threaded to receive the lower threaded portion of a rod 18, which passes through arm 14, and above said arm has a collar 19 and operating hand wheel 20. Between a flange 21 on shell 17 and arm 14 is interposed an annular rubber spring 22. On shell 17 is a lock nut 23. The initial resiliency of spring 22 is adjusted by rotating the shell 17, (by means of a lever inserted in openings in the rim of flange 21) so as to move said shell vertically in arm 15, and after such adjustment the shell is secured in position by the lock nut 23, rotated by similar means. By turning the hand wheel 20, the truss frame 2 is raised or lowered, the rubber spring 22 then expanding or becoming compressed, as the case may be.

The truss frame 2 is provided at its lower edge with a recess, of which a removable bar 24, secured in place by bolts 40, forms one wall. In said recess are placed side by side a number of steel blocks 25. The under face 26 of each block is inclined, and the corners are rounded. The body of the block fits the recess in the frame and the recess is made of sufficient length to permit said block to be adjusted upwardly or downwardly therein. In order to effect this vertical adjustment of the blocks in the truss frame, each block is provided with an operating rod 27, which extends upward through frame member 28, and carries a fixed collar 29. A helical spring 30 bears on said collar and upon a loose bar 31. There are a number of bars 31, each receiving two rods 27, the upper ends of said rods passing through the uppermost frame member 32. In member 32 are adjusting screws 33, bearing on each of the bars 31, between the pair of rods 27 which pass through said bar.

Journalled on the end frames 1 and respectively disposed on opposite sides of truss frame 2, are rolls 34, 35. Passing over said rolls and over an idler roll 36 on the top frame member 32 and under blocks 25, is a preferably endless web or belt 37 of suitably strong fabric or material. The shaft 38 of roll 34 extends beyond the end frame 1 and carries a driving pulley 39, by means of which said roll is rotated and the web caused to travel under blocks 25 in the direction of the arrow *a*, Fig. 5. Also journalled in the end frames 1 are two rolls 41 and 42. An endless web 43 passes over these rolls and above the top face 26^x of bar 3. Said face is of a shape conforming to that of the lower faces of the blocks 25, except that it is of opposite inclination. The web 43 is caused to travel by means of the chain belt 44 which passes over a sprocket pulley 45 on shaft 38 of upper roll 34 and over a sprocket pulley 46 on the shaft 47 of roll 41. The web 43 is

in this way driven in the direction of the arrow *b*, Fig. 5.

The hide being placed in the usual way upon the table 11 is advanced until gripped between the webs 37 and 43, and is thus drawn in between blocks 25 and bar 3 and presented edgewise to the knife 13, whereby it is split, as indicated in Fig. 5.

Particular attention is now called to the following: If two rotating rolls are placed one above the other, with their longitudinal central axis in the same vertical plane, then the line of maximum compression (line *c, c*, in Fig. 5) of the hide drawn in between them is in said plane. The clearance space between the roll peripheries on the delivery side of the compression line (right hand side of Fig. 5) will enlarge proportionately to the radius of curvature of either roll or of both. Into this clearance space the splitting knife enters. Hence if, because of large curvature radius, the clearance space expands only very gradually for a considerable distance from the line of compression, it may not afford sufficient room to permit the knife to be brought into the desired proximity to that line. If, on the other hand, the spring or upper roll be reduced in radius so as to provide for more rapid expansion of the clearance space in order to allow more room for the approximation of the knife to the compression line, then the roll itself may become so attenuated as to be liable to distortion or bending. When, however, a stationary device and traveling webs, as herein described, are substituted for the drawing-in rolls, the difficulty is obviated, since the curvature of the corners 48 of the blocks 25 and corner 49 of bar 3 may be made of any short radius to give the necessary clearance to permit the knife to be brought close to the compression line *c, c*, Fig. 5, without impairing in any wise the rigidity of blocks and bar.

By reason of the large area of the opposing faces of blocks 25 and bar 3, correspondingly large areas of the traveling webs are held in contact with the hide, so that a very powerful drawing in grip is obtained. The inclination of the faces produces also a space between them which becomes less as the line *c, c* of maximum compression is approached, thus subjecting the hide to gradual consolidation and causing it to be rigidly grasped at the moment of splitting.

In another application for Letters Patent, filed simultaneously herewith, Serial No. 671,021, I have described and claimed the combination of a moving support, a moving web, and means acting upon said web for establishing a line of maximum compression of said hide between said web and said support; and also the construction and arrangement of the presser blocks 25, and means for adjusting the same, all substan-

tially as herein set forth. The subject-matter of said application is, therefore, not herein claimed.

I claim:

- 5 1. A hide-splitting machine, comprising a splitting blade, two moving webs, and members having plane faces bearing on said webs to hold the same respectively in contact with opposite sides of the hide: the
10 said members adjacent to said faces being rounded to produce a clearance of sufficient width to permit of the adjustment of said blade in close proximity to the line of maximum compression of said hide.
- 15 2. A hide-splitting machine, comprising a

splitting blade, two moving webs, and members having oppositely inclined plane faces bearing on said webs to hold the same respectively in contact with opposite sides of the hide: the said members adjacent to said faces being rounded to produce a clearance of sufficient width to permit of the adjustment of said blade in close proximity to the line of maximum compression of said hide.

In testimony whereof I have affixed my signature in presence of two witnesses.

JOSEPH H. GAY.

Witnesses:

GERTRUDE T. PORTER,
MAY T. MCGARRY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
