

F. M. FURBER.  
SOLE SPLITTING MACHINE.  
APPLICATION FILED OCT. 22, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

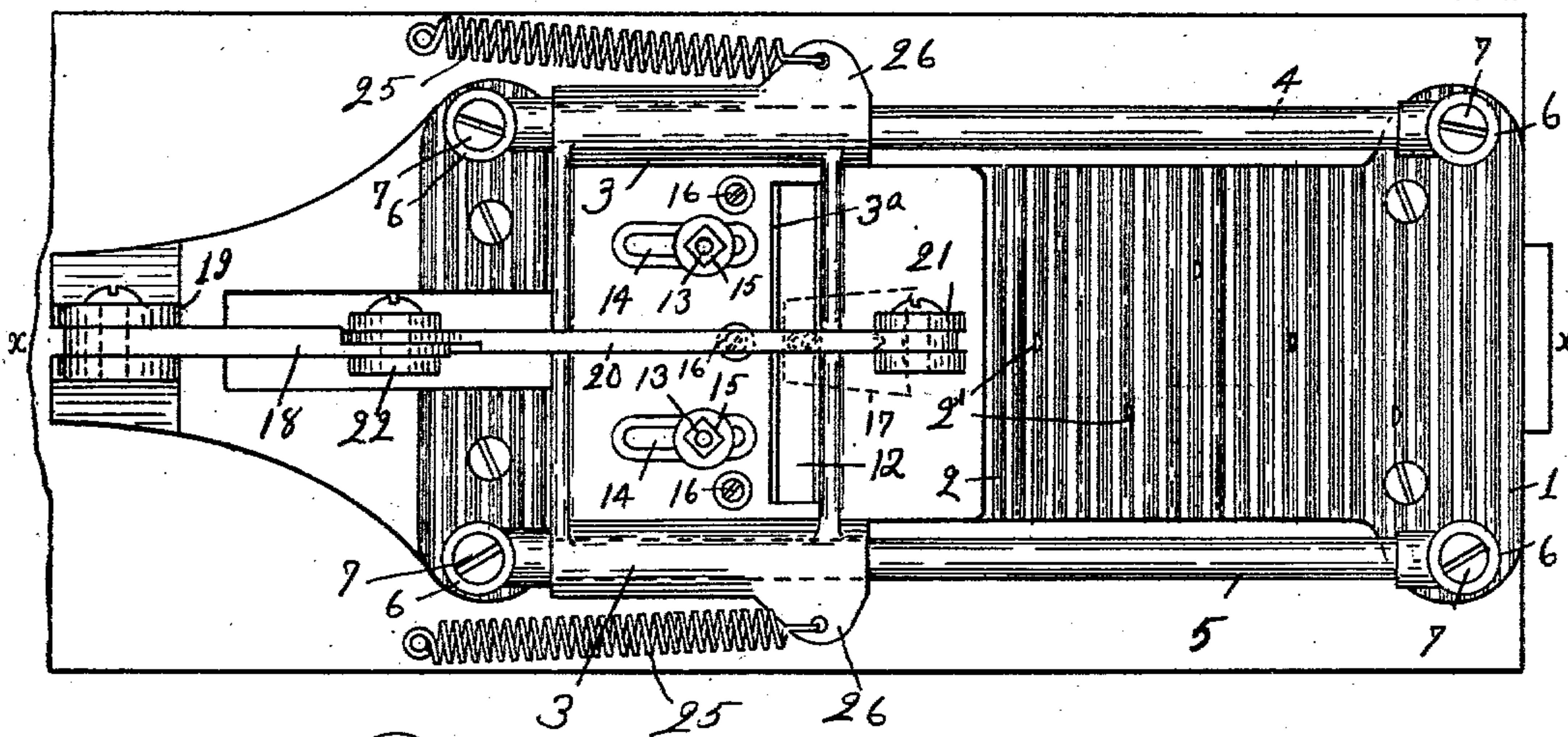


Fig. 1.

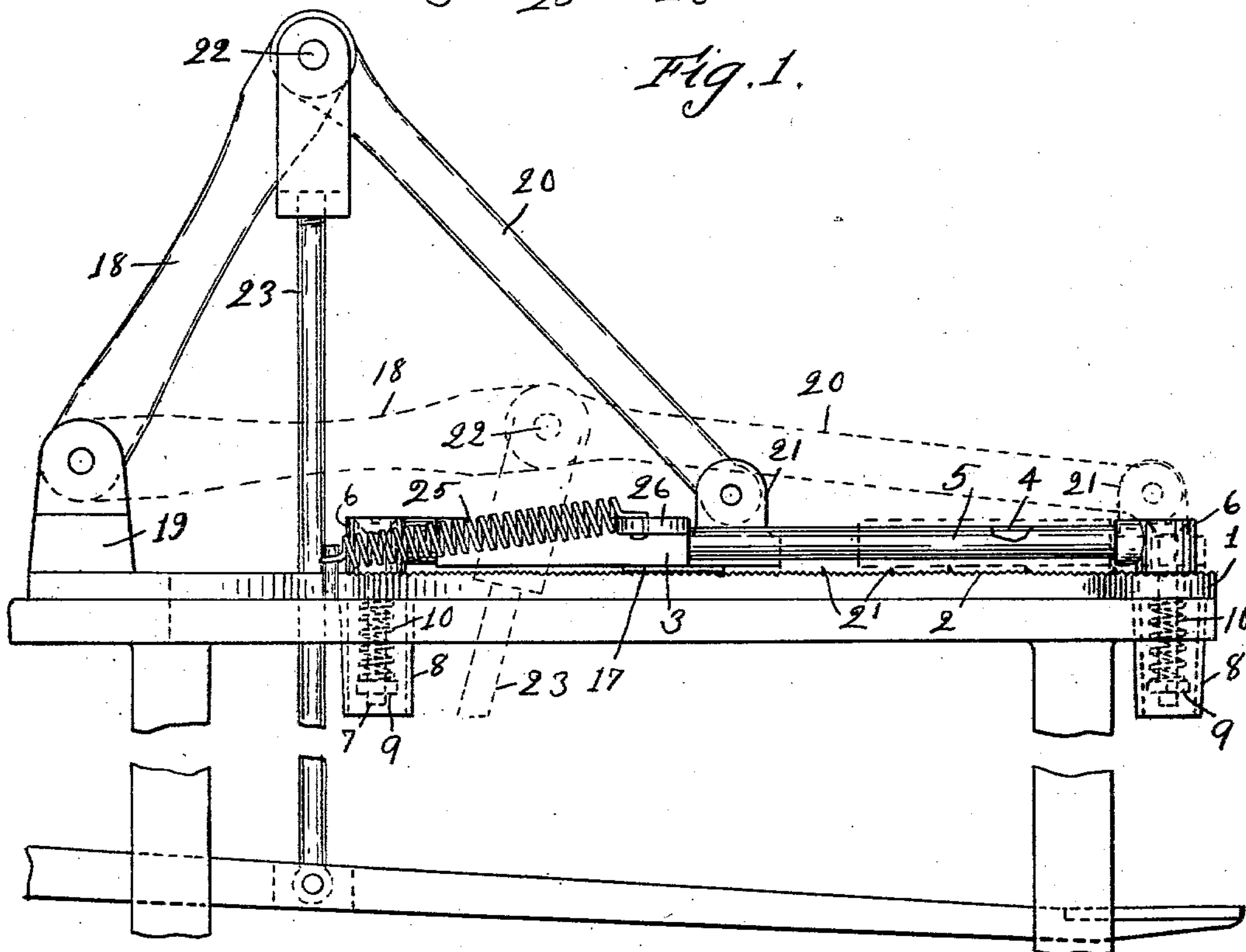


Fig. 2.

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No. 745,591.

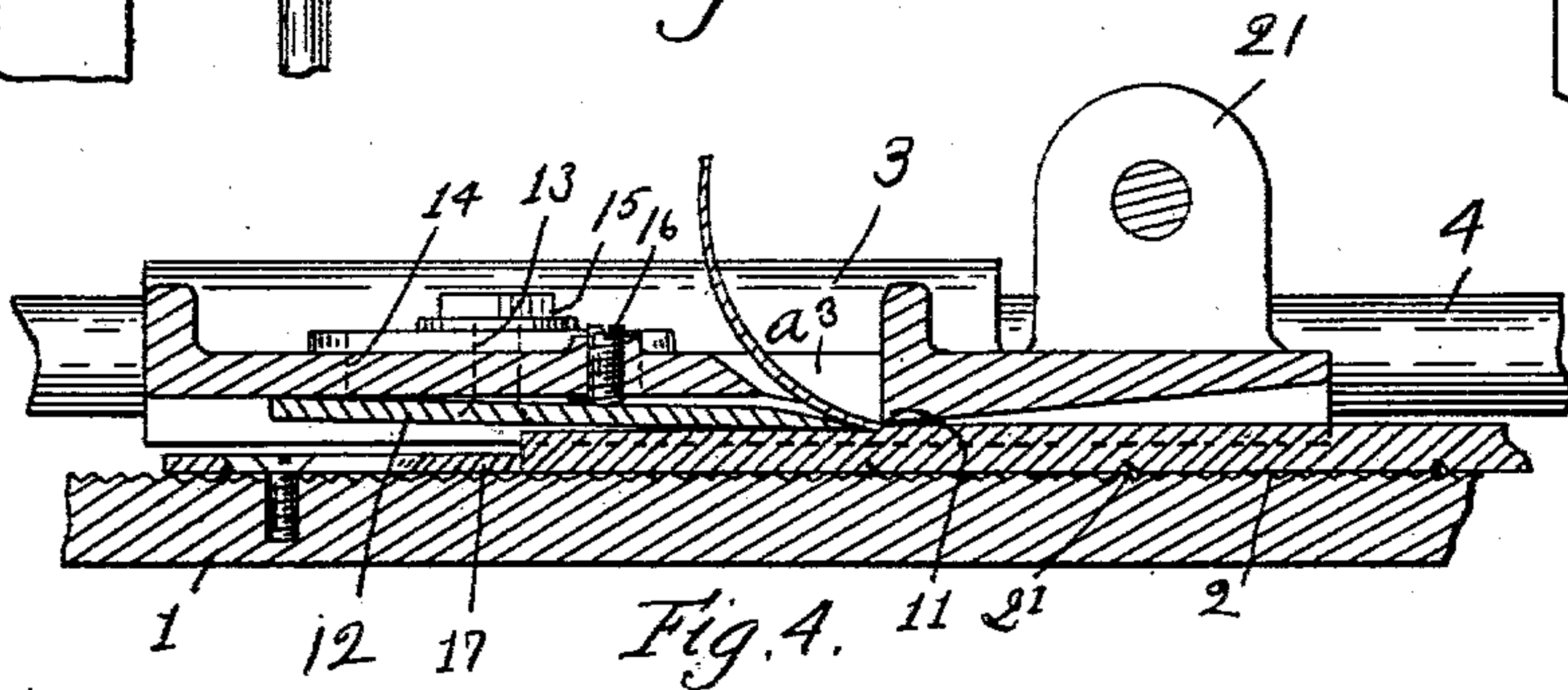
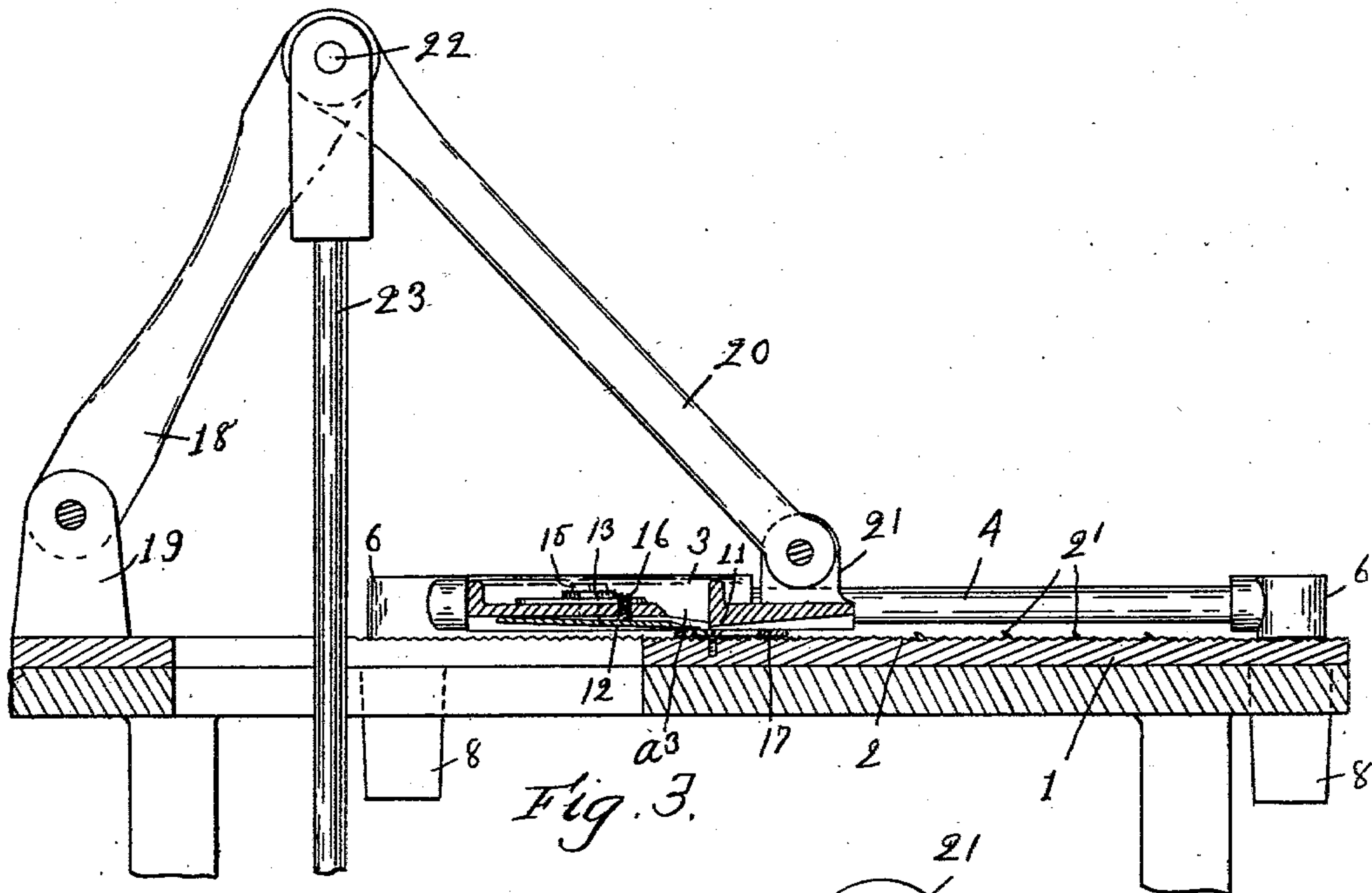
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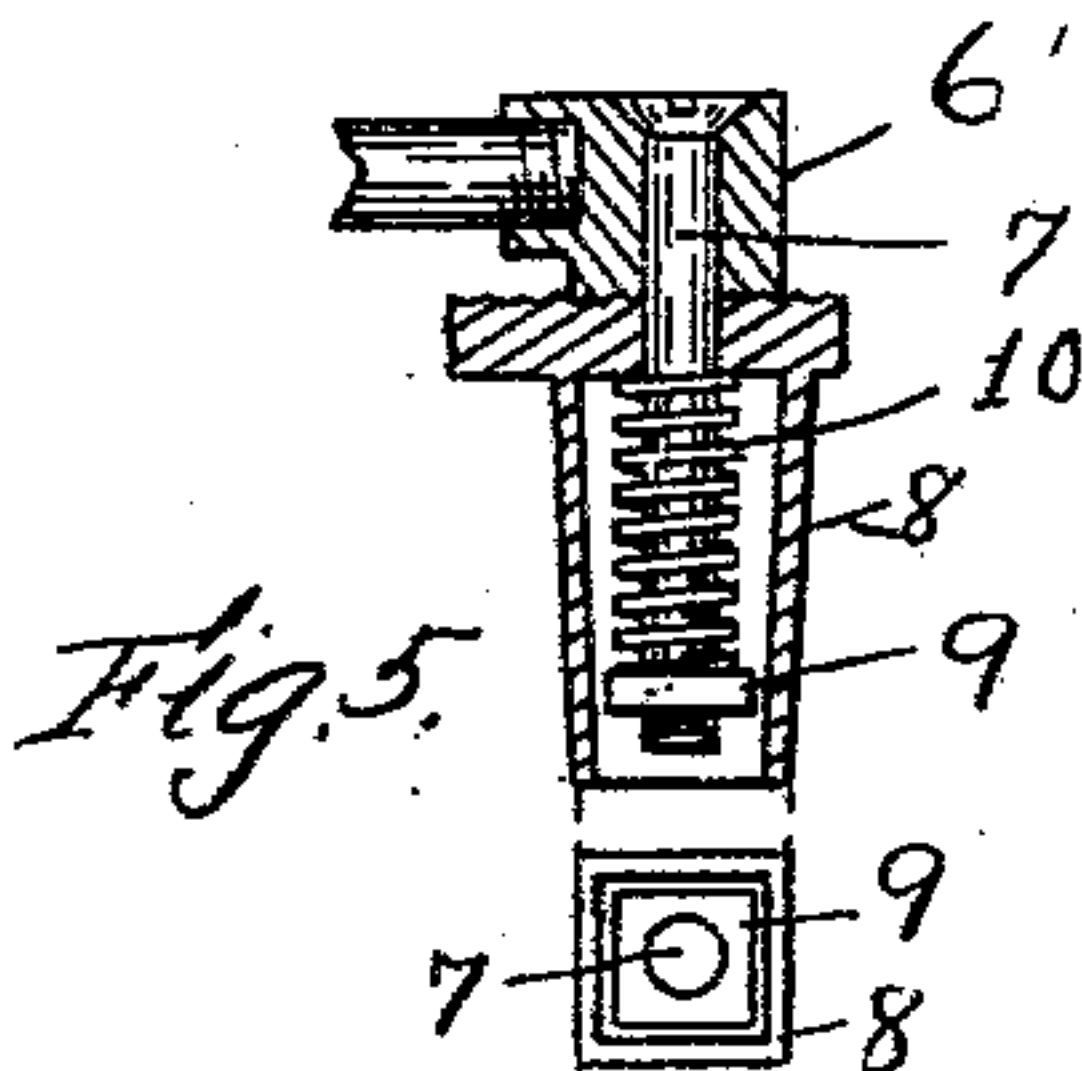
2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

FREDERICK M. FURBER, OF HAVERHILL, MASSACHUSETTS.

## SOLE-SPLITTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 745,591, dated December 1, 1903.

Application filed October 22, 1902. Serial No. 128,237. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK M. FURBER, of Haverhill, county of Essex, State of Massachusetts, have invented an Improvement in Sole-Splitting Machines, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to leather-splitting machines, and more particularly to a machine which is especially adapted to be employed in splitting a thin sheet or shaving of leather of uniform thickness from the grain side of leather soles.

In making slippers having wooden heels it has usually been customary to split off a portion of the grain surface of the sole from the back of the heel to the shank and bend the thin sheet thereby formed down in front of the breast of the heel and cement it securely thereto, so that this sheet constitutes a portion of the leather covering of the heel.

The object of my invention is to provide a machine of the above character which is of simple form and is adapted to split off the grain surface of a sole for a portion of its length, the thickness of the sheet which is splitting being uniform irrespective of the thickness of the sole. I accomplish this object by providing a bed having a corrugated or roughened work-holding face adjacent to which a knife-holder is located, said holder bearing a knife and a rigid clamping-bar, both rigidly secured thereto, said bar being of angular form and having a smooth work-engaging portion formed at the intersection of two sides thereof, the cutting edge of said knife being set below closely adjacent and in the rear of said work-engaging portion, means being provided for yieldingly forcing said bar and bed together and to thereby hold the work on the bed in position to be engaged by the knife.

For a more complete understanding of my invention reference is made to the accompanying drawings, in which—

Figure 1 is a plan view of my machine. Fig. 2 is a side elevation thereof. Fig. 3 is a central longitudinal cross-section on the line  $\alpha\alpha$ , Fig. 1. Fig. 4 is an enlarged detail view

showing the action of the knife and the clamping-bar. Fig. 5 is a detail view of one of the guideway-springs.

The bed 1 is provided with a corrugated or roughened work-receiving surface 2, which may also be provided with a series of teeth 2', as shown in Figs. 1, 2, and 3.

A holder or carrier 3 is reciprocally mounted on a pair of parallel guide-rods 4 5, arranged at each side of the bed and parallel thereto, said rods passing through suitable apertured lugs at each side of the carrier. Said rods are provided with sockets 6 at their ends, which normally rest on the bed, and bolts 7 pass through said sockets and through the bed. Bosses 8 are formed on the under side of said bed at the point where said bolts 7 pass therethrough, each boss having a square recess adapted to receive the nuts 9 on said bolts and hold them from turning. Springs 10 are interposed between said nuts and the under side of the bed, as is more clearly shown in detail in Fig. 5, and act to draw the carrier toward the bed. The nuts 9 are adjusted so that the tension of the springs 10 will be as nearly uniform as possible.

A clamping-bar 11 extends transversely of and is formed integral with the carrier 3, said bar being arranged at the front side of the carrier and having a smooth underside, which is inclined toward the bed from its front to its rear side. Said rear side extends vertically upward at the rear edge of said under side, so that a relatively narrow work-engaging portion is formed at the intersection of said rear and under sides. A transversely-extending opening 3<sup>a</sup> is thereby formed in the carrier at the rear side of the bar 11, and a horizontally-arranged and transversely-extending knife 12 is clamped to the under side of said carrier 3 by a pair of bolts 13 and nuts 15, which pass through longitudinally-extending slots 14 in the carrier. Adjusting-stops 16, which are in the form of simple set-screws, are arranged in said carrier between the bolts 13 and the edge of the knife and are adapted to vary the vertical position of the cutting edge of the knife with respect to the clamping-bar, and thereby vary the thickness of the sheet which may be split by the knife.



The cutting edge of the knife 12 is arranged closely adjacent and slightly in the rear of the work-engaging portion of the bar 11 and at a distance below it corresponding to the thickness of the leather to be split from the sole. Said knife is also held at a slight inclination with respect to the bed, so that its under surface extends upwardly from its cutting edge, the bevel of which is on the upper side of the knife.

An adjustable work-gage 17 is secured to the surface of the bed, said gage being sufficiently thin to permit the knife to pass above it as it is reciprocated. A link 18 is pivoted to a lug 19 on the rear end of the bed, and a link 20 is pivoted to a lug 21 on the knife-carrier, and said links 18 and 20 are pivoted together by a bolt 22. A rod 23 is also pivoted on said pin 22 and is connected to a suitable treadle 24. Springs 25 are secured at one end to lugs 26 at each side of the knife-carrier and at their opposite ends to the bed, as shown in Figs. 1 and 2, said springs acting to draw the carrier 3 back to the position shown in Figs. 1, 2, and 3, so that the edge of the knife is in the rear of the gage 17.

In using the machine the sole is inserted under the clamping-bar 11, so that its heel end is pressed against the gage 17. The treadle is then depressed, straightening the links 18 and 20 and forcing the carrier 3 forwardly to its limit. As the carrier is advanced the clamping-bar will first ride up on the sole and press it firmly against the surface of the bed, so that the corrugations and projections of said bed will firmly engage the sole and hold it in place. As the knife is rigidly connected with the bar 11, when the bar is lifted by the sole the knife will also be lifted an equal distance, so that the knife will always be held in fixed relation with the upper surface of the sole and will therefore split a sheet of leather of uniform thickness from the upper surface of the sole, whatever its thickness or variation in thickness, said sheet passing through the opening 3<sup>a</sup>. The bar 11 thus performs two distinct functions, viz: first, as one member of a clamp, by holding the sole in a fixed position on the corrugated surface of the bed while the knife is passing over the bed and splitting the sole, said bed constituting the other member of the clamp, and, second, as a knife-controller, by supporting the knife and preventing it from being forced into the sole beyond a certain depth. When the carrier has moved forward to its limit, the treadle is released and the springs will withdraw the carrier to its initial position. The gage or stop 17 is adjusted so that the sheet which is turned up will be of exactly the desired length—i. e., the nearer the sole is placed to the initial position of the knife the longer will be the portion of the sole which will be skived when the knife is forced forward to its limit, and vice versa.

I have found by experience that the slight

inclination of the knife described is absolutely essential to satisfactory operation, for if the knife were arranged in a position parallel to the bed it would bind on the sole.

The most important feature of my invention is the provision of the clamping-bar 11 in place of the roll ordinarily employed to press the work upon the bed below. If a roll were used in place of the bar 11, it would be necessary to set the cutting edge of the knife below and slightly in the rear of a vertical line through the axis of the roll, thus necessitating the use of a knife having a long bevel to enable the stock which is split to pass between the roll and knife. By providing the knife with a long bevel its cutting-edge portion is greatly weakened and rendered liable to spring and cut a shaving of varying thickness.

By constructing the clamping-bar 11 with its work-engaging portion formed at the intersection of two sides I am enabled to employ a knife having as short a bevel as is practicable, as this construction of bar permits of a free opening, which extends directly upward from the rear end of the work-engaging portion of said bar, through which the leather may pass without being pressed against the beveled portion of the knife, and also permits the knife to be set with its cutting edge but slightly in the rear of the portion of the bar which presses the work against the bed and holds it in position thereon.

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

1. A leather-splitting machine comprising a bed having a corrugated or roughened work-holding face, a clamping-bar extending over and across said bed and having a relatively smooth work-engaging face on its under side which extends forwardly and upwardly from the face of said bed, the rear side of said bar extending sharply upward from the lowest portion of its work-engaging face, a knife rigidly connected with said bar and having its cutting edge arranged below, closely adjacent, and in the rear of the lower edge of said rear side of said bar, means for yieldingly forcing said bed and bar together in a vertical direction and for simultaneously moving one with relation to the other, in a horizontal direction, substantially as described.

2. A leather-splitting machine comprising a bed having a corrugated or roughened work-holding face, an angularly-shaped clamping-bar extending across said bed and having a relatively smooth work-engaging portion next the bed formed at the intersection of two sides of said bar, a knife rigidly connected to said bar extending rearwardly therefrom, and having its cutting edge set closely adjacent and beneath the work-engaging portion of said bar, and means for yieldingly forcing said bed and bar together in one direction, and for simultaneously moving one with re-



lation to the other in a direction at an angle thereto, substantially as described.

3. A leather-splitting machine comprising a bed having a flat corrugated work-holding face, a carrier, a pair of parallel spring-actuated guideways connected to and movable to and from said bed, and on which said carrier is slidably mounted, a clamping-bar rigid with said carrier and extending transversely of said ways, said bar having its under side obliquely disposed with respect to the bed with its lowest, or work-engaging portion adjacent the rear side of the bar, a knife rigidly connected to said carrier in the rear of said bar, with its cutting edge closely adjacent the lower edge of the rear side thereof, and means for reciprocating said carrier on said ways, substantially as described.

4. A leather-splitting machine comprising a bed having a flat corrugated work-engaging face, a carrier, a pair of parallel spring-actuated guideways for said carrier, connected to and movable to and from said bed, a clamping-bar rigid with said carrier and extending transversely of said ways, said bar having its under side obliquely disposed with respect to the bed, with its lowest, or work-engaging portion adjacent the rear side of the bar, a knife rigidly connected to said carrier in the rear of said bar, with its cutting edge closely adjacent the lower edge of the rear side thereof, and means for causing relative movement of said bed and carrier in the direction of the ways, substantially as described.

to and movable to and from said bed, a clamping-bar rigid with said carrier and extending transversely of said ways, said bar having its under side obliquely disposed with respect to the bed, with its lowest, or work-engaging portion adjacent the rear side of the bar, a knife rigidly connected to said carrier in the rear of said bar, with its cutting edge closely adjacent the lower edge of the rear side thereof, and means for causing relative movement of said bed and carrier in the direction of the ways, substantially as described.

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

FREDERICK M. FURBER.

Witnesses:

LOUIS H. HARRIMAN,  
MAUD M. PIPER.