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PATENTED APR. 16, 1907.

D. DANIELS.
LEATHER SKIVING MACHINE.

APPLICATION FILED DEC. 6, 1906.

3 SHEETS—SHEET 2.

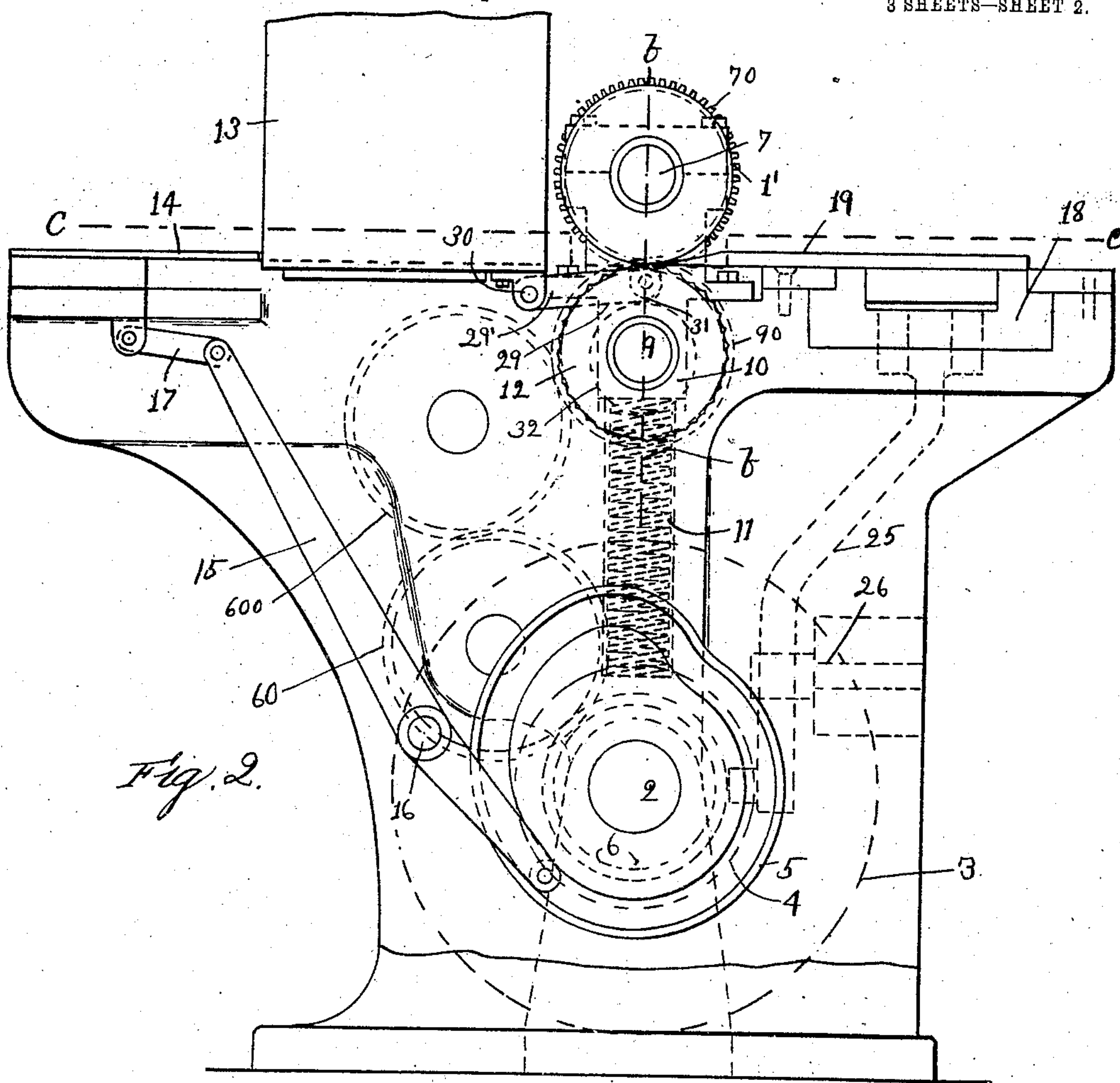


Fig. 2.

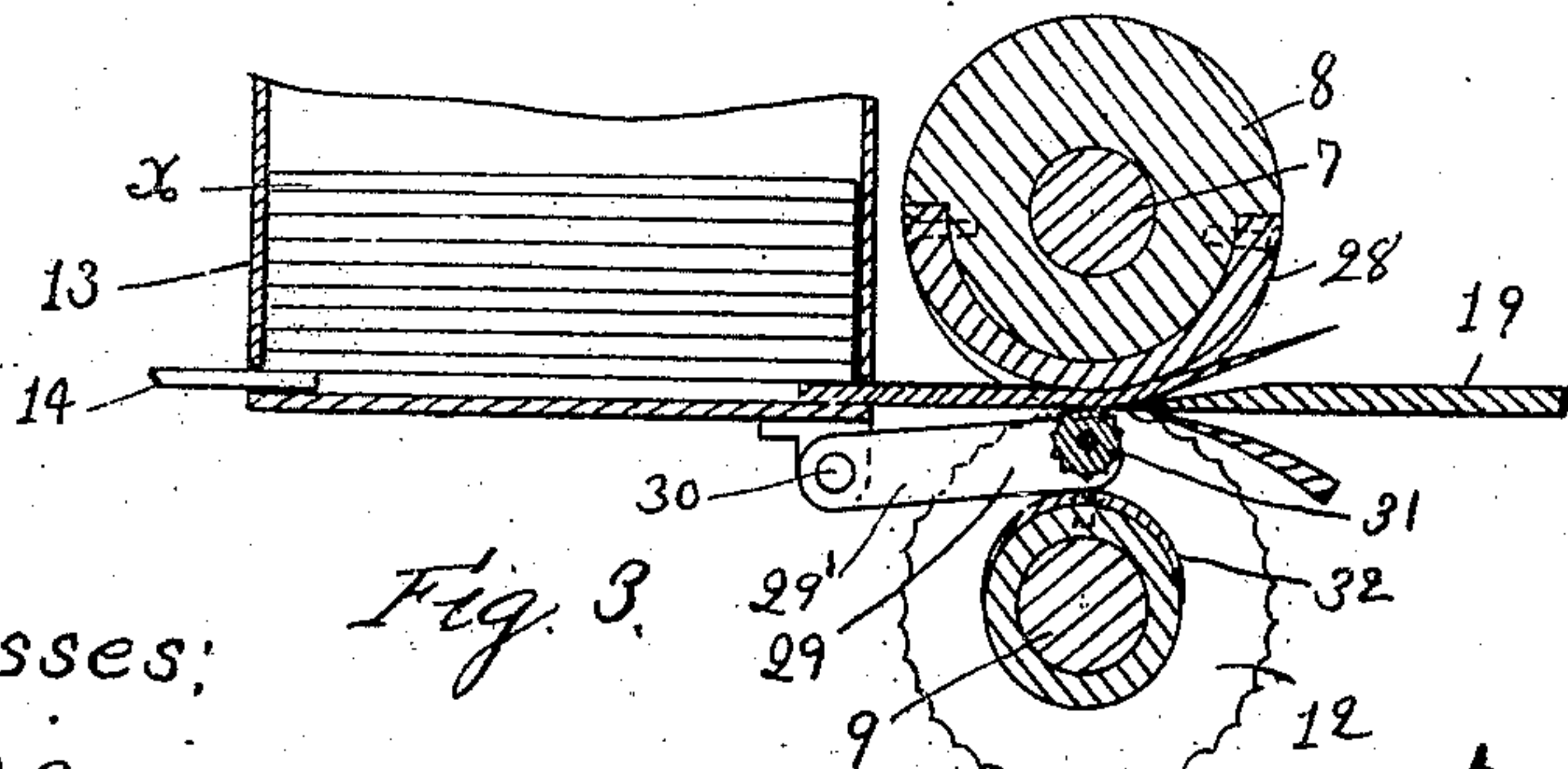


Fig. 3.

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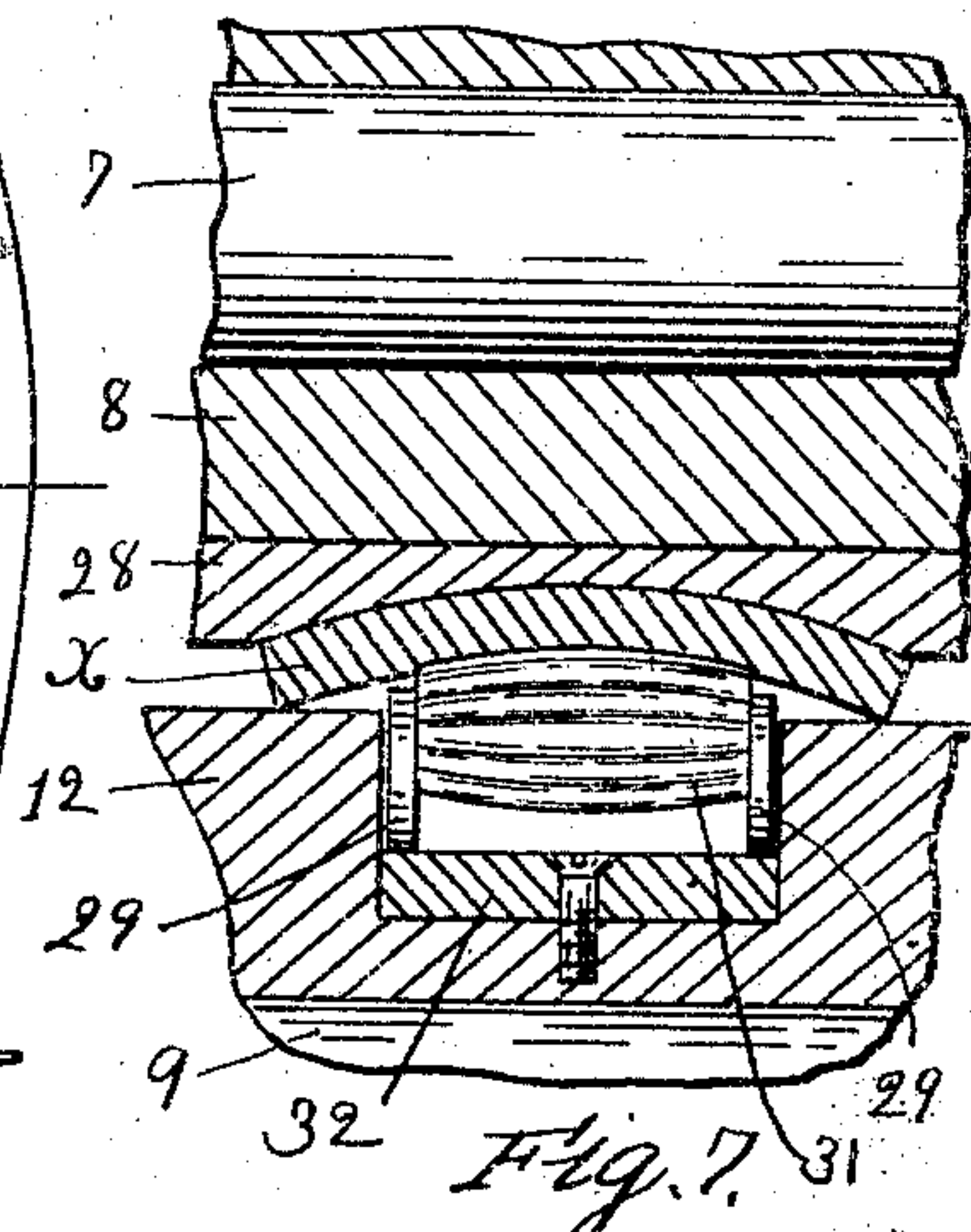
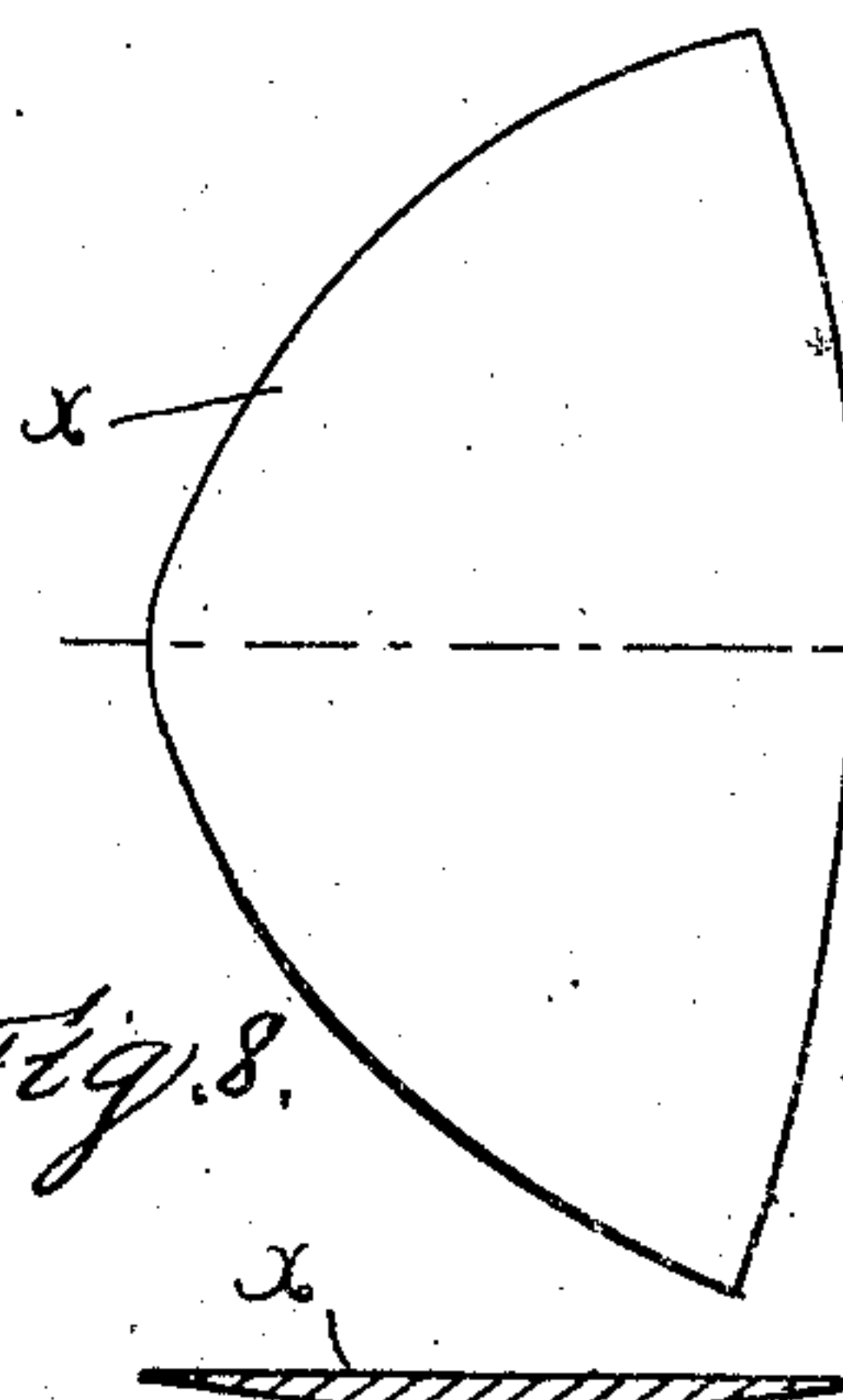
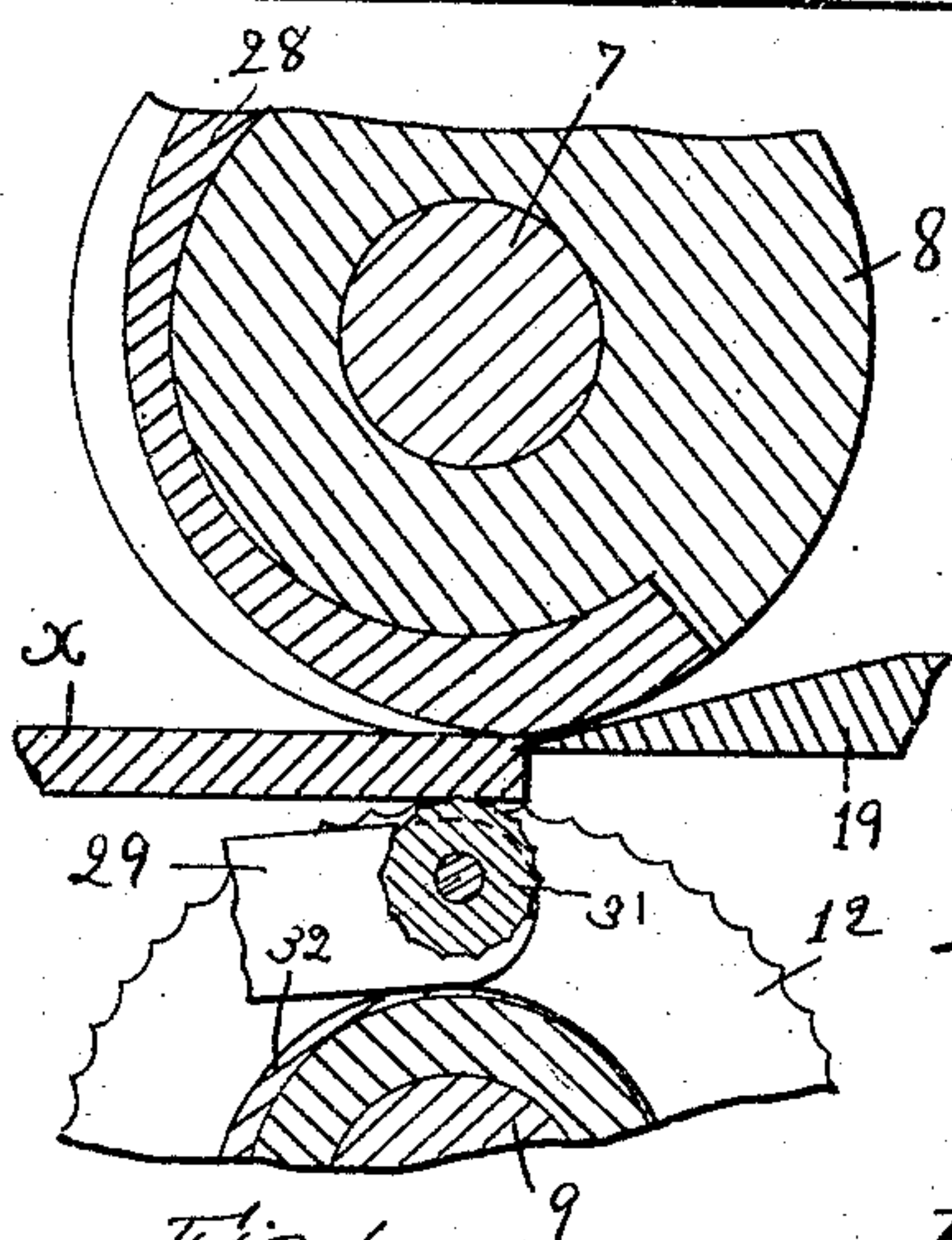
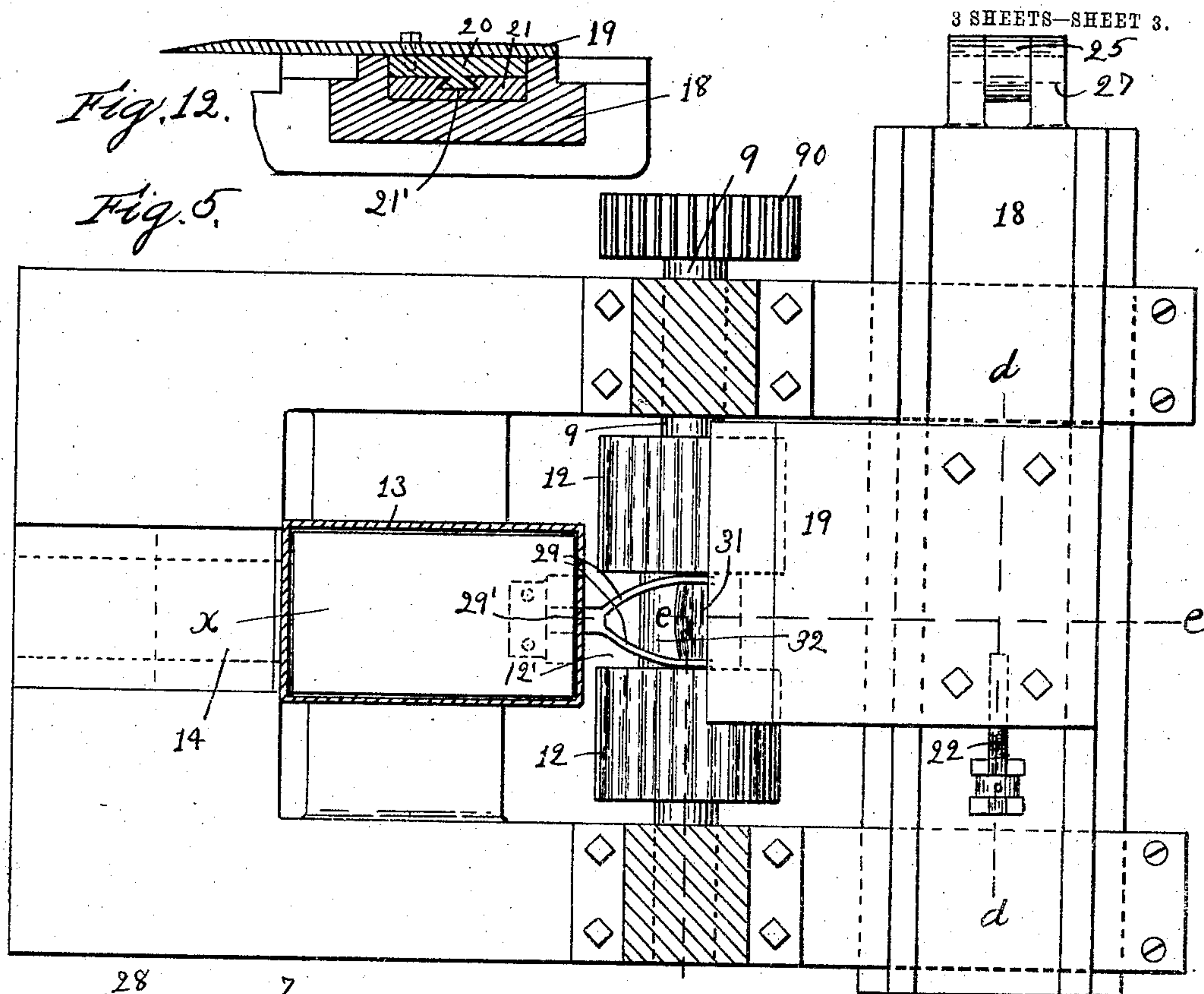
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att'y

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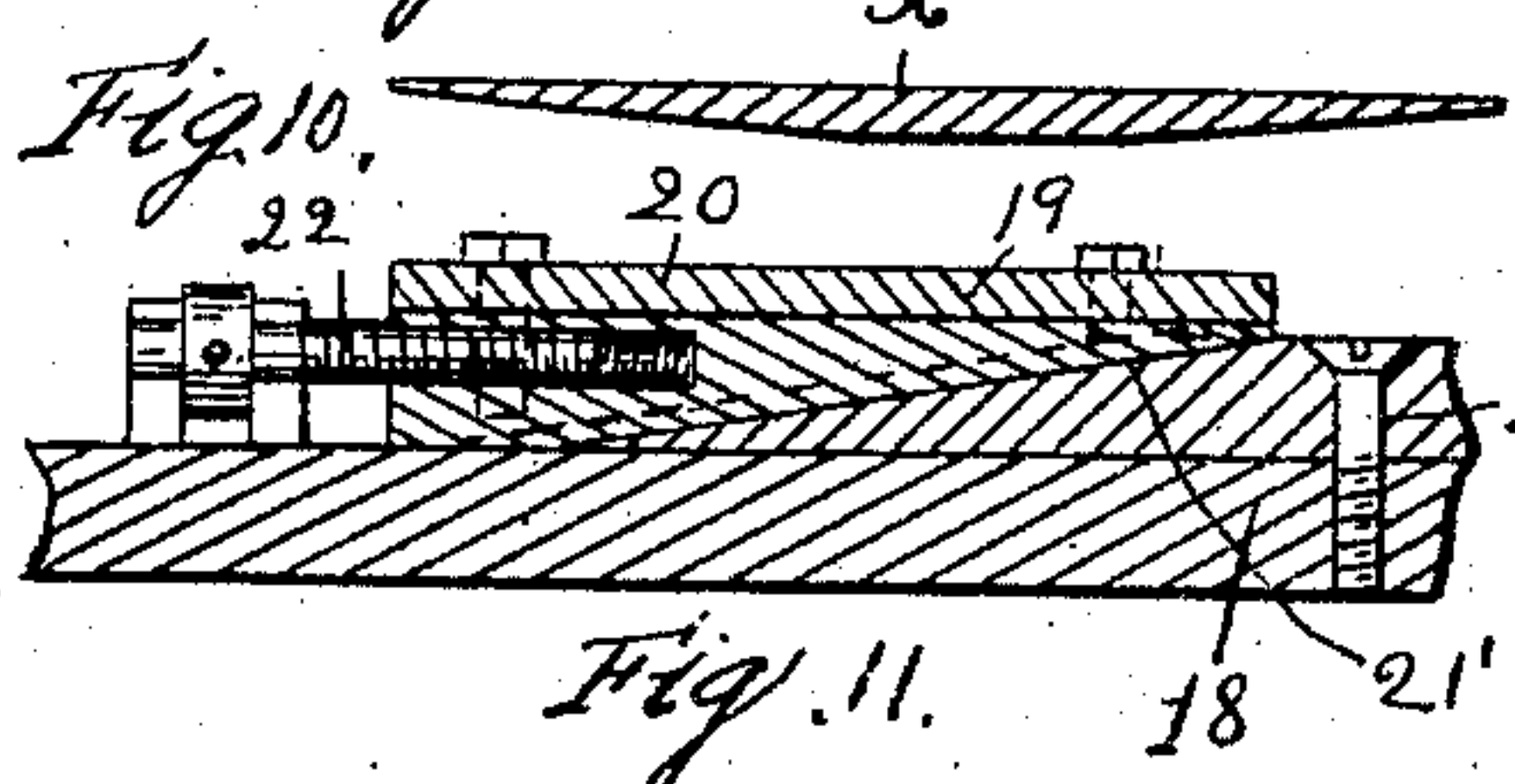
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UNITED STATES PATENT OFFICE.

DAN DANIELS, OF DOVER, NEW HAMPSHIRE.

LEATHER-SKIVING MACHINE.

No. 850,627.

Specification of Letters Patent.

Patented April 16, 1907.

Application filed December 6, 1906. Serial No. 346,529.

To all whom it may concern:

Be it known that I, DAN DANIELS, of Dover, county of Strafford, State of New Hampshire, have invented an Improvement in Leather-Skiving 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 that class of machines for skiving counters and tips for shoes in which the blank to be skived is pressed into a die or recess formed in one of a pair of feed-rolls and while thus pressed into a concave shape, with its edges inclining to the horizontal, is fed against and split obliquely by a straight horizontal knife, which thus simultaneously performs the skiving operation upon the opposite edge portions of the blank.

Inasmuch as it is usually not desired to remove or split off any leather from the middle portion of the blank, it is necessary to press such middle portion beyond the surface of the die-roll or the edges of the die. In prior devices of this character this function has been accomplished by means of a series of spring-actuated fingers which lie in grooves in the lower feed-roll and are adapted to be moved beyond the surface thereof into the die-recess. This means is chiefly objectionable for the reason that these fingers not only do not act to hold the blank from displacement, but the spring tension thereon necessary to cause them to press ordinarily stiff leather into the die-recess causes a strong frictional engagement between them and the blank, so that they not only render the employment of an excessive amount of power necessary to drive the machine, but the extent to which they drag on the blank also often causes them to act to displace the blank in the die. Such displacement obviously causes the edges to be unevenly skived.

The principal object of my invention is to provide means for pressing and holding the blank in the die, whereby friction on the blank will be practically eliminated, and practically the entire surface of the blank will also be pressed firmly against the bottom of the die and be securely held from twisting or other movement in the die while it is being fed against the knife. I accomplish this object by the means shown in the accompanying drawings, in which—

Figure 1 is an end elevation of a skiving-machine provided with my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a detail sectional view on the line *a a* of Fig. 1. Fig. 4 is a detail sectional view on the line *b b* of Fig. 2. Fig. 5 is a sectional plan view on the line *c c* of Fig. 2. Figs. 6 and 7 are detail views similar to Figs. 3 and 4, respectively, showing different positions in the skiving operation. Figs. 8, 9, and 10 are respectively plan and sectional views of one of the blanks which the machine is adapted to operate upon. Fig. 11 is a sectional view on line *d d* of Fig. 5. Fig. 12 is a sectional view on line *e e* of Fig. 5.

In the drawings, 1 indicates the frame or bed of the machine, in which a main shaft 2 is journaled, said shaft being adapted to be driven by a pulley 3 and bearing cams 4 and 5 and a gear 6. A shaft 7 is journaled in bearings 1', mounted rigidly upon the frame, and has mounted thereon the upper feed-roll 8. A shaft 9 is journaled in bearings 10, which are slidable vertically in the frame and supported by means of springs 11, adjustable stops 100 being provided to limit the upward movement of said bearing. Said shafts 7 and 9 are provided with intermeshing gears 70 and 90, the gear 90 being driven from gear 6 by the intermediate idle gears 60 and 600. Said shaft 9 is provided with a longitudinally fluted or corrugated feed-roll 12, having an annular recess 12' formed in the middle portion thereof, the ends of said recess being at right angles with the surface of the roll.

A magazine 13 is mounted on the bed of the machine and is adapted to receive a pile of blanks *x*, as indicated in Fig. 3, and a feeding-slide 14 is mounted in the frame and is adapted to be moved beneath the stack of blanks held in the magazine, so as to engage the bottom blank and push it rearwardly to the feed-rolls 8 and 12 in proper time, as in other devices of this character.

The particular means for operating the slide 14, as shown, comprises a lever 15, which is pivoted at 16 and is adapted to be oscillated by the cam 5, which engages the lower end thereof, said lever being connected at its upper end by a link 17 to the slide and one rotation of the shaft 2 being adapted to cause the slide to make one complete reciprocation.

A knife-block 18 is mounted to slide paral-

lel to the feed-rolls in ways formed in the bed
 of the machine, and a straight-edged split-
 ting-knife 19 is adjustably supported on said
 block by means of a pair of oppositely-dis-
 5 posed wedges 20 and 21. The lower wedge
 21 is bolted to the block, and its inclined up-
 per face is adapted to engage the correspond-
 ingly-inclined lower face of the upper wedge
 20, to the upper side of which the knife 19 is
 10 securely bolted. The wedge 21 is provided
 with a longitudinally-extending dovetail
 slot 21' in its inclined face, and a correspond-
 ingly-shaped rib is provided on the inclined
 under side of wedge 20. A horizontal ad-
 15 justing-screw 22 is threaded into said wedge
 20 and has a swivel connection with the block
 18, as shown, so that by turning said screw
 said wedge 20 may be moved longitudinally
 and the knife 19 be raised or lowered while
 20 its horizontal position is maintained.

A lever 25 is pivoted at 26 upon the frame
 and is adapted to be oscillated by the cam 4,
 said knife-block 18 being connected at one
 end to the upper end of said lever by means
 25 of a pivot 27, located in a slot (indicated in
 dotted lines, Fig. 1) formed in the lever.
 These parts are so arranged that one rotation
 of the main shaft will cause the knife 19 to
 make one complete reciprocation.

30 The upper roll 8 is provided with a remov-
 able die-plate 28, said plate being recessed to
 correspond to the shape of the blank which is
 to be pressed therein and being deepest in its
 middle portion and gradually decreasing in
 35 depth toward its edges at all points, as is cus-
 tomary in devices of this class. A pair of
 supporting-arms 29 extend divergently from
 a single arm 29', which is pivoted at its op-
 40 posite end to the frame by means of a pivot
 30, and a presser-roll 31 is journaled to rotate
 freely at its end in the ends of said arms 29,
 said arms extending so as to hold the axis of
 said roll 31 approximately in the vertical
 45 plane in which the axes of the rolls 8 and 12
 lie, and said pivot 30 being located approxi-
 mately in the horizontal plane in which the
 axis of roll 31 lies, when said roll is in its mid-
 dle vertical position, so that the axis of said
 roll will lie approximately in the vertical plane
 50 of the axes of the feed-rolls in all of its vertical
 positions. The arms 29 lie close to the shoul-
 ders formed at the ends of the recess 12' in
 the roll 12 and are made as thin as practicable.
 Said arms also extend transversely at their
 55 ends to an extent sufficient to support roll 31
 out of contact with the bottom of recess 12'.
 The middle recessed portion 12' of the roll
 12 has secured thereto an eccentric 32, which
 is adapted to engage the under sides of said
 60 arms 29 adjacent the ends thereof to raise
 said roll 31. Said roll 31 is made tapering
 from its middle portion toward each end cor-
 respondingly to the inclination of the bottom
 of the die-recess transversely thereof or longi-

tudinally of the feed-rolls and is also fluted 65
 or corrugated longitudinally.

The slide 14 will be so timed that it will de-
 liver one end of a blank to the die as its cor-
 responding end approaches the vertical plane
 of the axes of the feed-rolls, so that the blank 70
 may be pressed into its proper position in the
 die as it is carried between the rolls. At this
 time the splitting-knife 19 will be moving
 forwardly, so as to engage the blank with a
 drawing cut, the parts being so arranged that 75
 the knife moves forwardly during the entire
 time in which the blank is fed against it. At
 this point in the operation the cam or eccen-
 tric 32 engages the arms 29, so as to lift the
 presser-roll 31 into engagement with the 80
 blank and press the same firmly against the
 bottom of the die, and as the rolls advance
 the blank the eccentric lifts the arms 29 cor-
 respondingly to the increasing depth of the
 die, causing the roll 31 to be raised above the 85
 surface of the roll 12, so that it may enter the
 die-recess and force the blank positively
 against the bottom thereof at points closely
 adjacent the edge of the knife throughout
 the entire movement between the roll. The 90
 eccentric permits roll 31 to be lowered corre-
 spondingly after the deepest point in the die
 has been reached. The parts are so arranged
 that one edge portion of the tip or counter
 which constitutes the blank will first be de- 95
 livered between one end portion of the lower
 roll 12 and the upper roll or die, so that the
 tip will be forcibly fed thereby, and as the
 blank is immediately brought into contact
 with the idle presser-roll 31 the flutes therein 100
 will be pressed into the blank, causing a posi-
 tive engagement therebetween. The roll 31
 will thus be caused to rotate as the blank is
 forced forward by the main rolls, and as said
 roll is adapted to rotate freely the engage- 105
 ment thereof with the blank will not appre-
 ciably impede the movement of the blank, so
 as to cause a drag thereon. However, the
 longitudinal flutes therein positively hold the
 blank from twisting movement with relation 110
 thereto. When the middle portion of the
 blank is being split, the opposite edge portion
 from that originally engaged will have run
 onto the opposite end of the roll 12, as indi-
 cated in Fig. 4, thus materially assisting in 115
 holding the blank from displacement. The
 blank is thus firmly held between the posi-
 tively-driven upper and lower rolls and be-
 tween the presser-roll and the bottom of the
 die-recess in the upper roll during the entire 120
 skiving operation, twisting or displacement
 thus being effectively prevented. After the
 blank has been passed between the rolls and
 skived, as shown in Figs. 9 and 10, the knife
 and feeding-slide 14 will be returned to their 125
 initial positions, as will be obvious.

In practice the shape of the presser-roll 31
 and the eccentric 32 will be somewhat varied

to correspond to the shape of the recess in the particular die 28, which it is found necessary to employ for different blanks.

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

1. A skiving-machine, comprising a die-roll having a blank-receiving recess and a presser-roll tapered at each end to fit into said recess longitudinally of the die-roll, and mounted to rotate adjacent thereto, means for causing said presser-roll to hold the blank against the bottom of said recess, and a knife disposed to split the blank as it is passed between said rolls, substantially as described.

2. A skiving-machine comprising a pair of feed-rolls, one of said rolls having a blank-receiving recess, and the other having an annular groove opposite said recess, a movable support, a presser-roll rotatably mounted in said support and disposed in said groove, means for moving said support to cause said presser-roll to press the blank into said recess, means for driving said feed-rolls, and a knife disposed to split the blank as it is fed between said rolls, substantially as described.

3. A skiving-machine comprising a feed-roll having a blank-receiving recess therein, a support, a presser-roll mounted on said support to rotate about an axis parallel to said feed-roll, means for positively moving said support to force said roll into said recess to press the blank against the bottom thereof as it passes between said rolls, and a knife disposed to split the blank during said movement, substantially as described.

4. A skiving-machine comprising a feed-roll having a blank-receiving recess therein, a support, a presser-roll mounted on said support to rotate about an axis parallel to said feed-roll, a cam rotatably mounted adjacent said presser-roll for positively moving the same into said recess to press the blank against the bottom thereof as it passes between said rolls, and a knife disposed to split the blank during said movement, substantially as described.

5. A leather-skiving machine comprising an upper and a lower feed-roll, said upper roll having a blank-receiving recess and said lower roll having an annular groove therein opposite said recess, a vertically-movable arm independently supported adjacent said roll and extending into said groove adjacent said upper roll, a presser-roll mounted to rotate freely in said arm, a cam on said lower roll for lifting said arm in time to cause its roll to press the blank into said recess, and a knife disposed to split the blank as it is fed between said rolls, substantially as described.

6. A leather-skiving machine comprising an upper and a lower feed-roll, said upper roll having a blank-receiving recess and said lower roll having an annular groove therein

opposite said recess, a vertically-movable arm independently supported adjacent said roll and extending into said groove adjacent said upper roll, a presser-roll mounted to rotate freely in said arm, a cam on said lower roll for lifting said arm in time to lift said presser-roll above the surface of said lower roll to press the blank against the bottom of said recess, and a knife disposed to split the blank as it is passed between said rolls, substantially as described.

7. A leather-skiving machine comprising an upper and lower feed-roll, said upper roll having a blank-receiving recess and said lower roll having an annular groove therein opposite said recess, a pair of vertically-movable arms supported independently of said rolls, and extending into said groove adjacent said upper roll, a presser-roll rotatably mounted at its ends in said arms between said feed-rolls, a cam mounted on said lower roll for engaging said arms in time to raise said presser-roll to press the blank into said recess and a knife disposed to split the blank as it is fed between said rolls, substantially as described.

8. A leather-skiving machine comprising an upper and a lower feed-roll, said upper roll having a blank-receiving recess and said lower roll having an annular groove therein opposite said recess, a portion of the surface of the bottom of said groove adjacent each end being eccentric to the axis of the roll, a pair of vertically-movable arms extending into said groove adjacent the ends thereof and disposed to be engaged by the eccentric bottom portion thereof, a presser-roll rotatably mounted in said arms, said eccentric bottom portion being adapted and disposed to engage said arms to lift said presser-roll beyond the surface of said lower roll in time to press the blank into said recess, and a knife disposed to split the blank as it is passed between said rolls, substantially as described.

9. A leather-skiving machine, comprising an upper and a lower feed-roll, said lower roll having an annular groove in the middle portion thereof and said upper roll having therein a blank-receiving recess disposed opposite said groove and an adjacent portion of said lower roll, a support, a presser-roll rotatably mounted thereon and disposed in said groove between said feed-rolls, means for moving said presser-roll vertically to press the blank into said recess, and a knife disposed to split the blank as it is held between said upper roll, and said lower and presser roll, substantially as described.

10. A leather-skiving machine, comprising an upper and a lower feed-roll, said lower roll having an annular groove in the middle portion thereof and said upper roll having therein a blank-receiving recess disposed opposite said groove and an adjacent portion of said lower roll at each end of said groove, a

support, a presser-roll rotatably mounted thereon and disposed in said groove between said feed-rolls, means for moving said presser-roll vertically to press the blank into said recess, and a knife disposed to split the blank as it is held between said upper roll, and said lower and presser roll, substantially as described.

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

DAN DANIELS.

Witnesses:

L. H. HARRIMAN,
H. B. DAVIS.