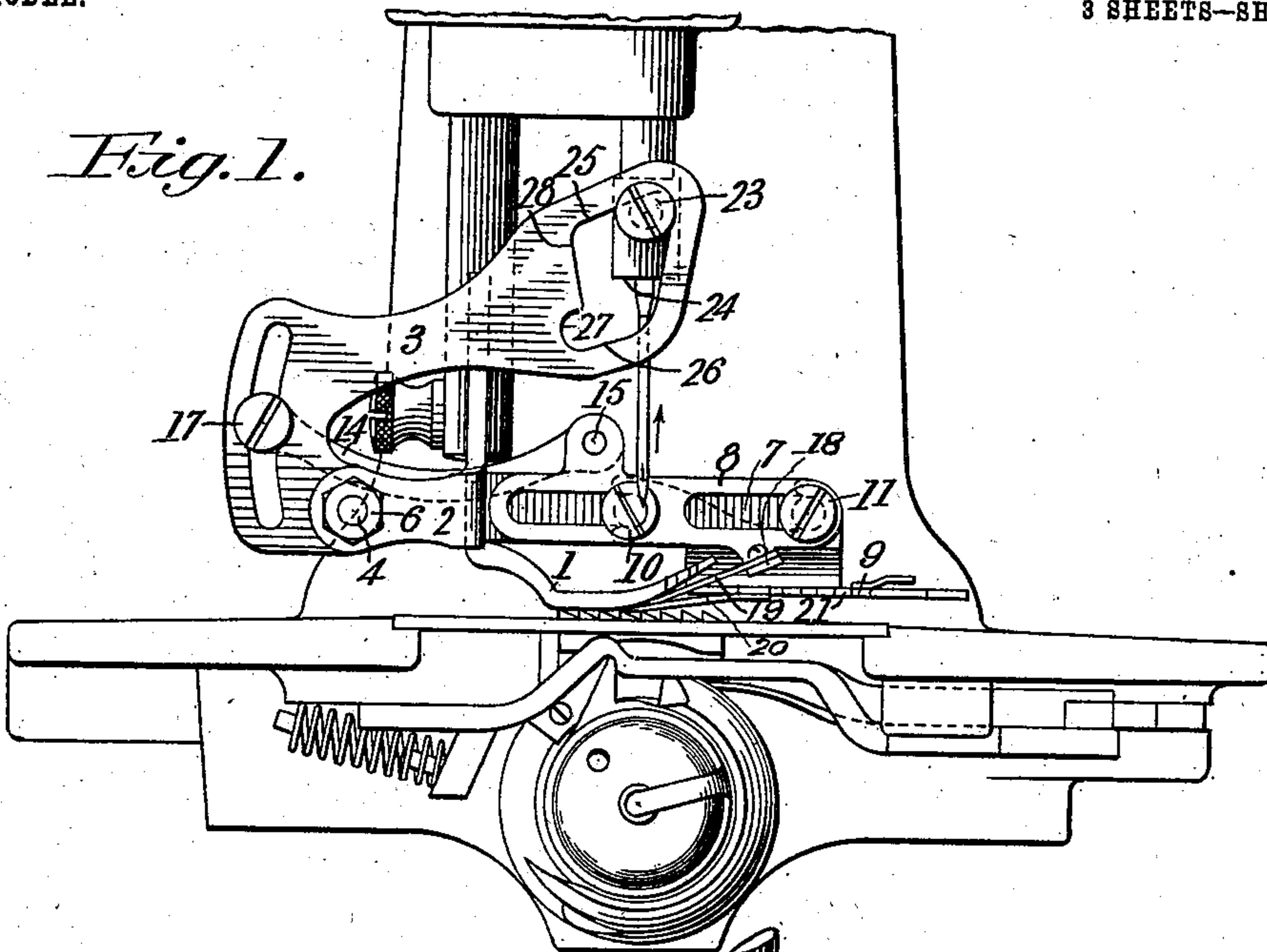
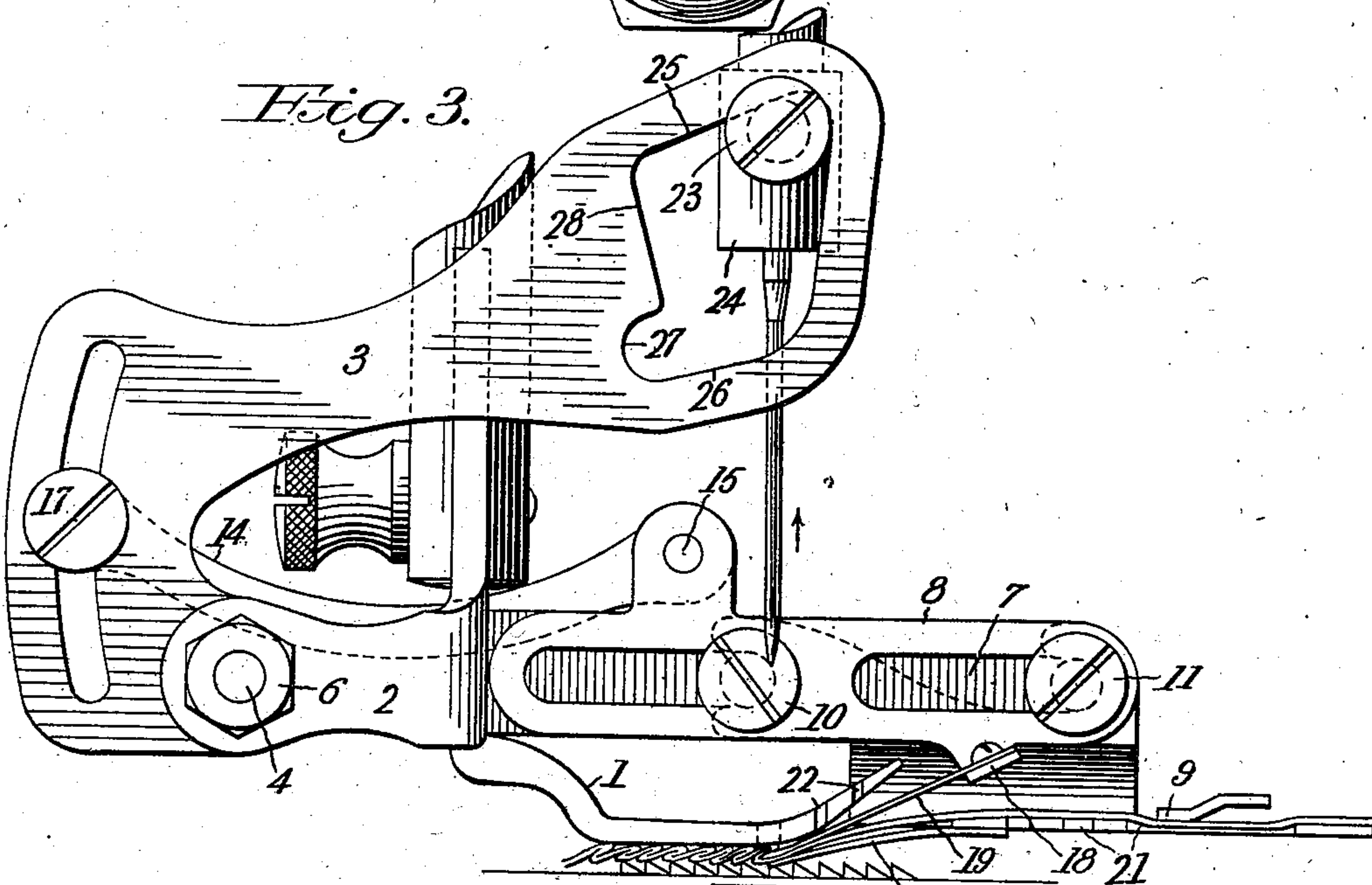


A. LAUBSCHER.
SEWING MACHINE RUFFLER.

APPLICATION FILED SEPT. 19, 1902.

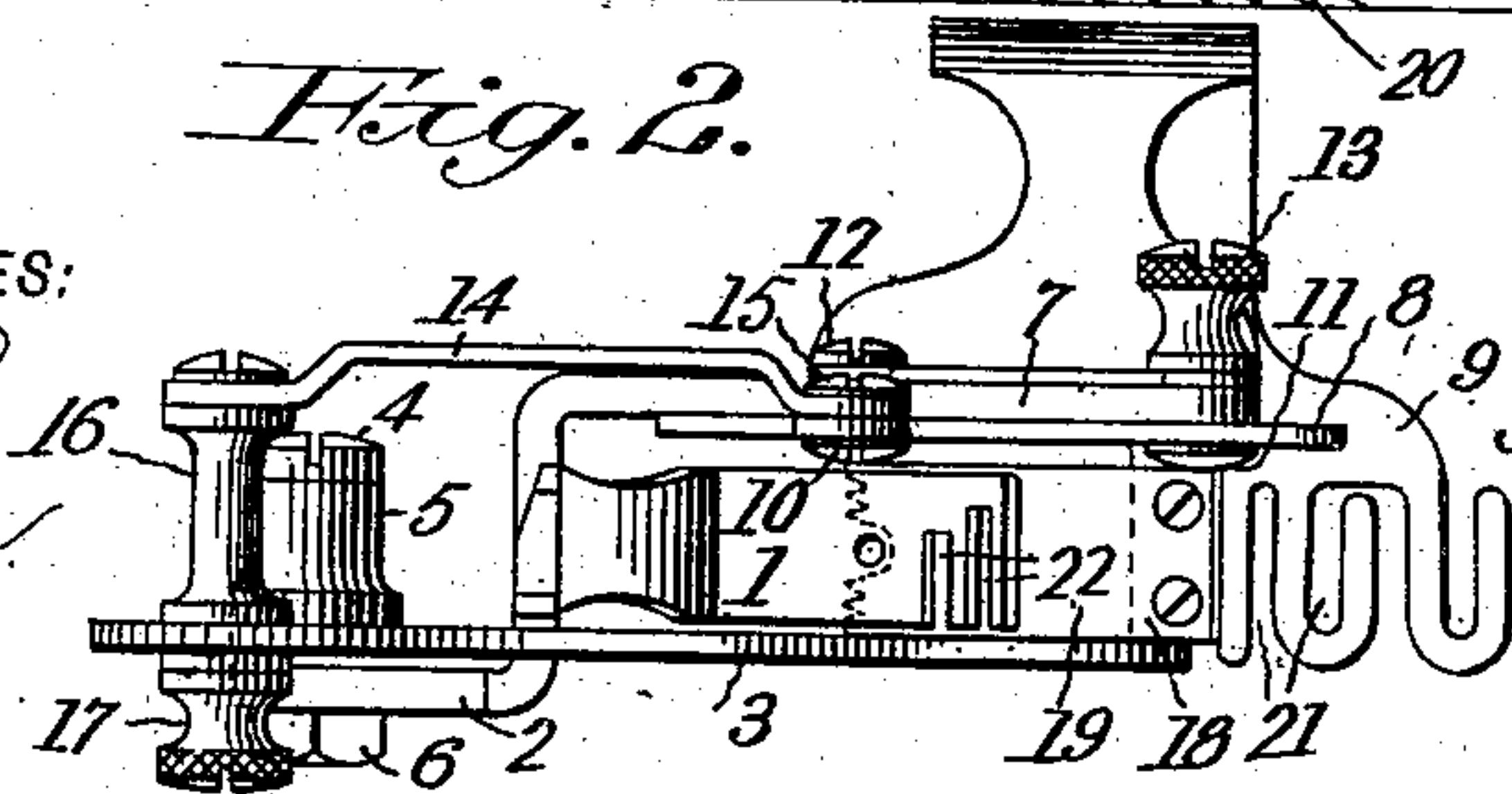
NO MODEL.

3 SHEETS—SHEET 1.

Fig. 1.*Fig. 3.**Fig. 2.*

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No. 724,589.

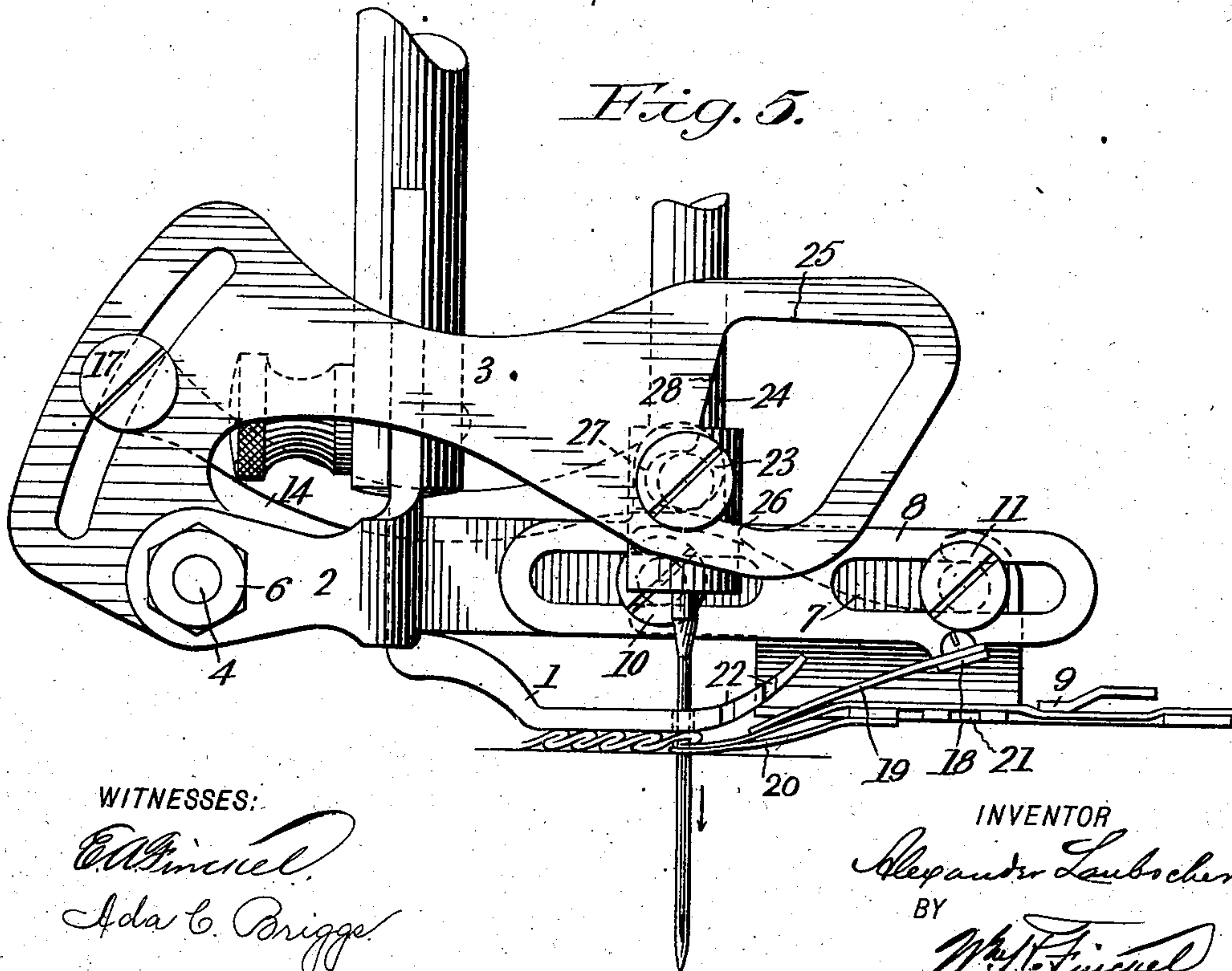
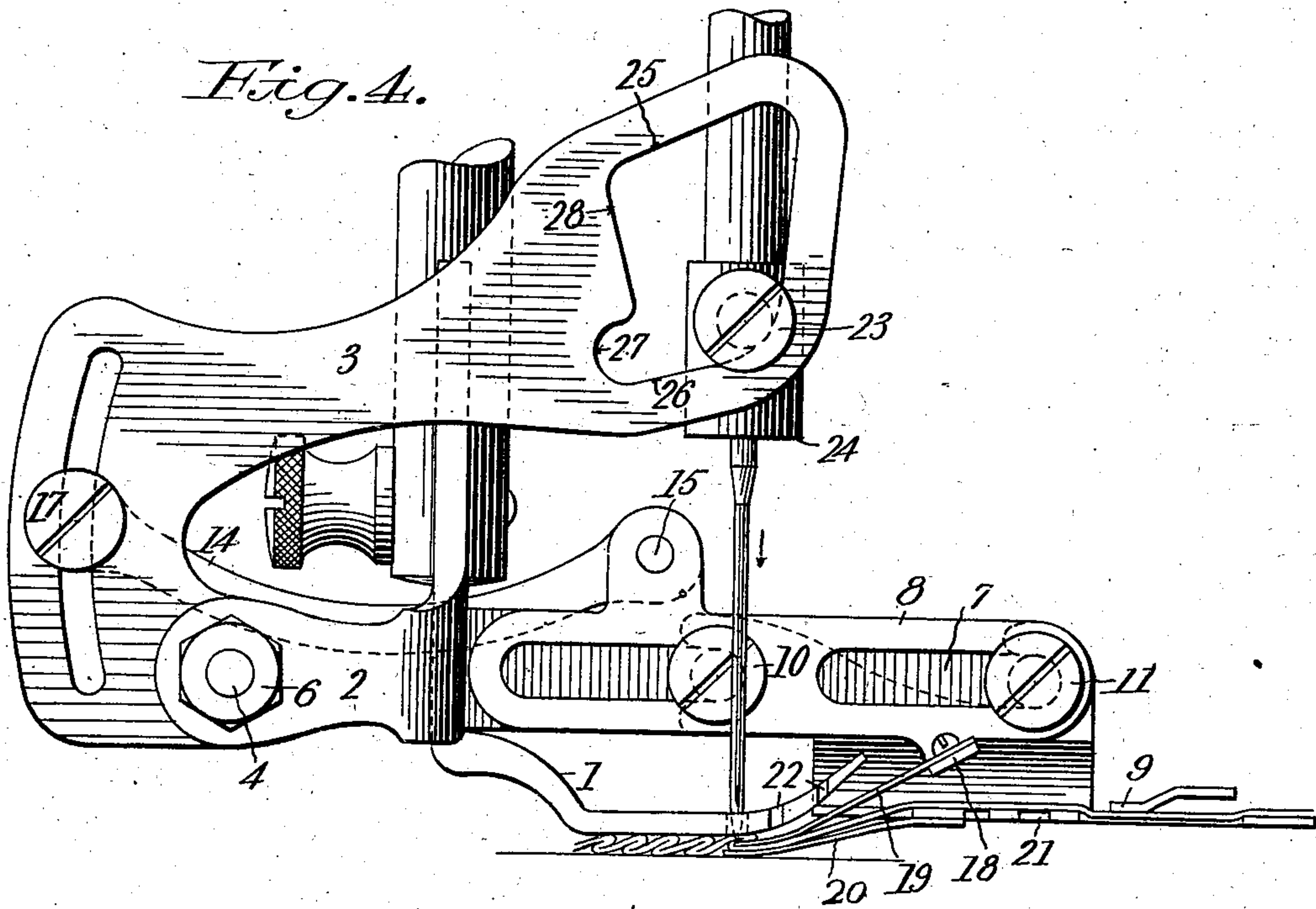
PATENTED APR. 7, 1903.

A. LAUBSCHER.
SEWING MACHINE RUFFLER.

APPLICATION FILED SEPT. 19, 1902.

NO MODEL.

3 SHEETS—SHEET 2.



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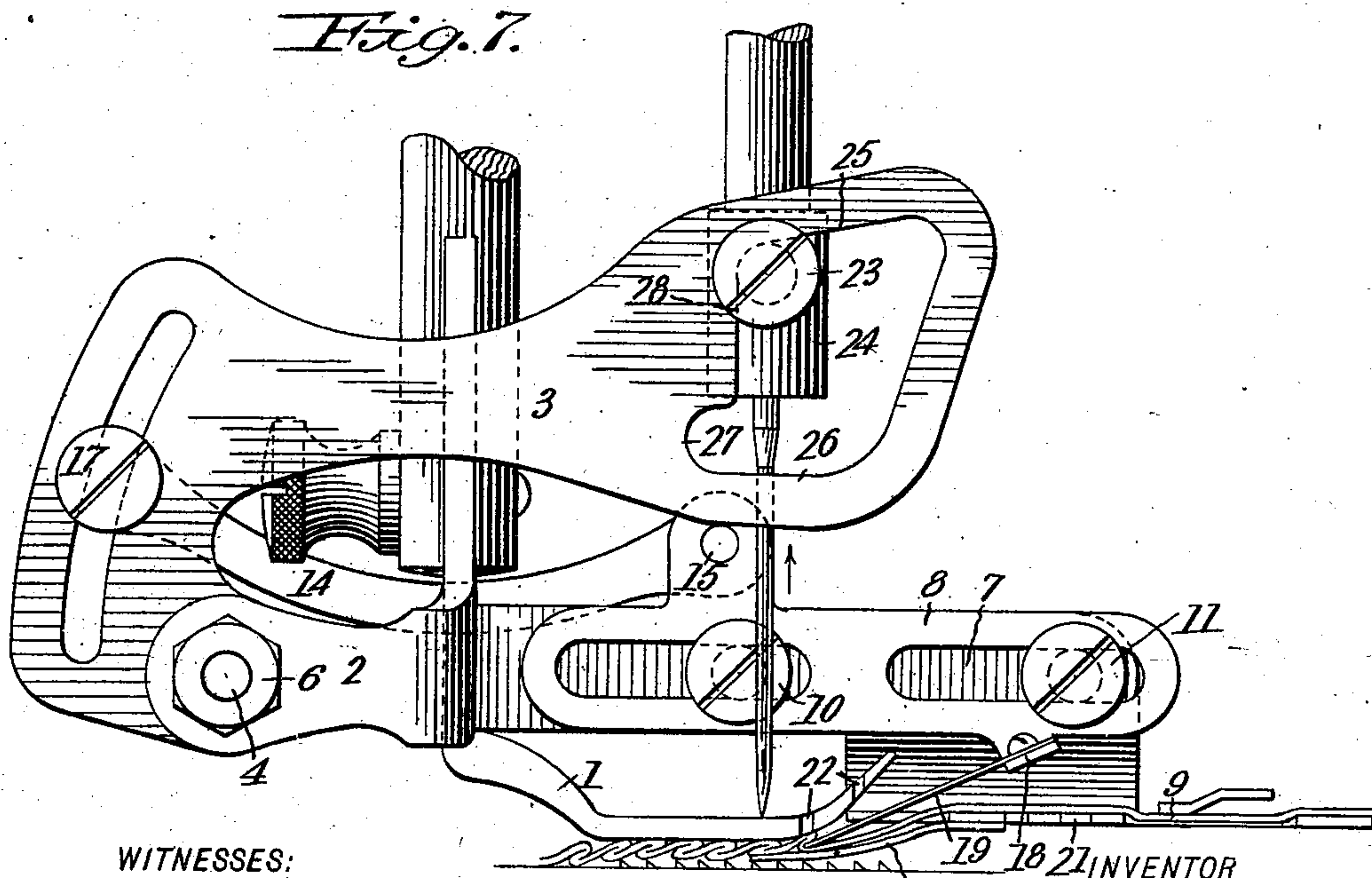
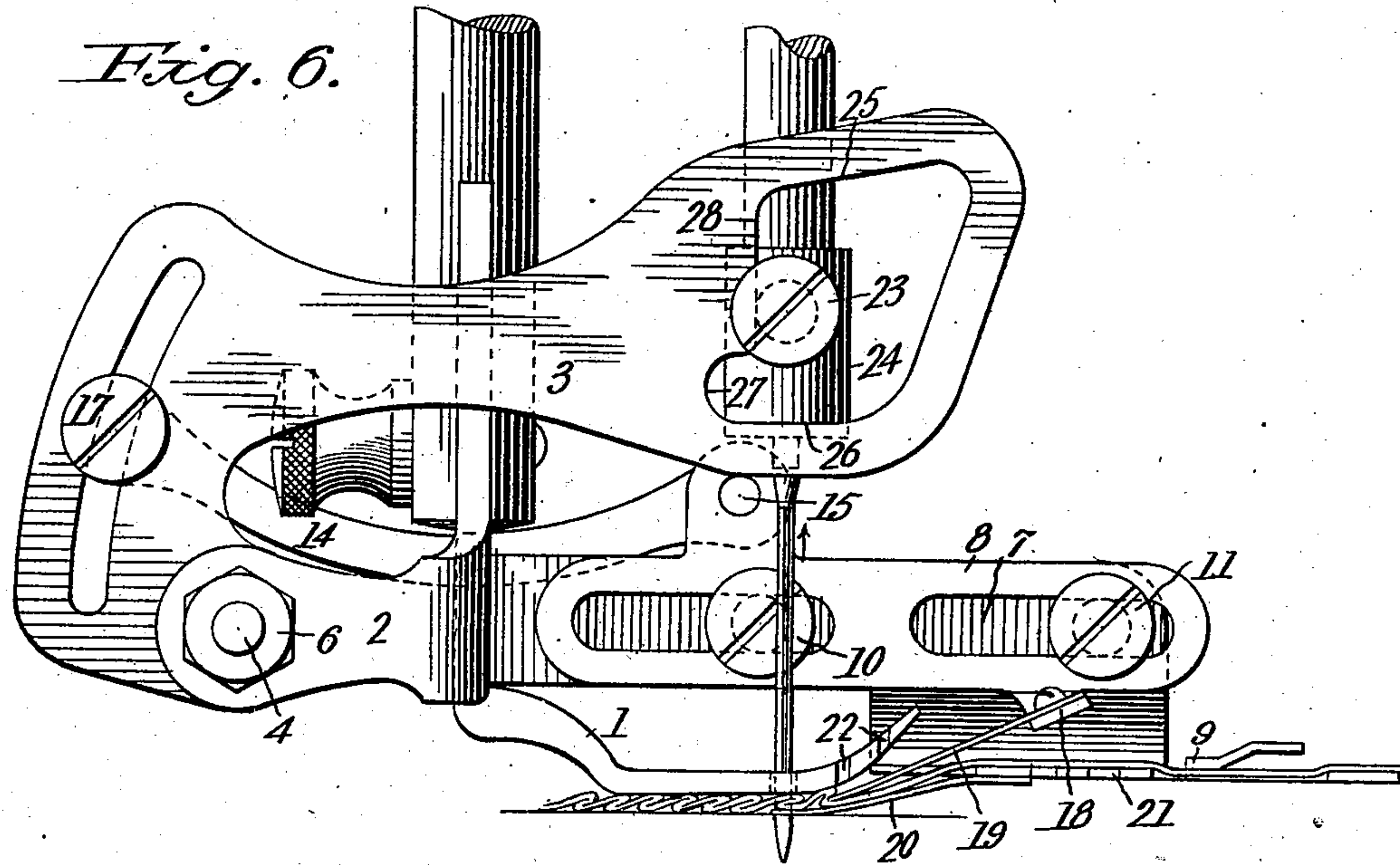
No. 724,589.

PATENTED APR. 7, 1903.

A. LAUBSCHER.
SEWING MACHINE RUFFLER.
APPLICATION FILED SEPT 19, 1902.

NO MODEL.

3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

ALEXANDER LAUBSCHER, OF FAIRFIELD, CONNECTICUT, ASSIGNOR TO
WHEELER & WILSON MANUFACTURING COMPANY, OF BRIDGEPORT,
CONNECTICUT, A CORPORATION OF CONNECTICUT.

SEWING-MACHINE RUFFLER.

SPECIFICATION forming part of Letters Patent No. 724,589, dated April 7, 1903.

Application filed September 19, 1902. Serial No. 124,115. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER LAUBSCHER, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented a certain new and useful Improvement in Sewing-Machine Rufflers, of which the following is a full, clear, and exact description.

My invention relates to ruffling attachments for sewing-machines; and its object is to make less liable imperfect operation incident to wear and to effect a uniform spacing of the plaits or gathers under varying conditions of speed.

The difficulty most commonly experienced in the operation of rufflers used in connection with what are commonly known as "family" sewing-machines is the liability of variation in the extent of movement of the crimping-blade effecting a variation in the fullness of the ruffle, dependent upon the speed at which the machine is run.

My invention is more particularly designed to overcome this difficulty, and it is carried out by a construction which so times the movement of the crimping-blade relatively to the needle actuation as to hold the plait or gather against accidental movement incident to a change in the speed at which the machine is operated, as is liable to occur in the operation of the older forms of construction, all as I will proceed now more particularly to set forth and claim.

In the accompanying drawings, illustrating my invention, in the several figures of which like parts are similarly designated, Figure 1 is a partial end elevation of a Wheeler & Wilson sewing-machine equipped with my improved ruffler, the needle-bar being at the upward limit of its stroke. Fig. 2 is a top plan view of the ruffler detached. Fig. 3 is a front elevation of the ruffler, needle, presser-foot, and parts of the needle-bar and presser-bar, the parts being in the same position as in Fig. 1, the needle wholly withdrawn and the crimping-blade in its extreme forward position in the path of the needle and at the completion of the plait or gather. Fig. 4 is a view similar to Fig. 3, but with the needle just enter-

ing the material, and thereby preventing disturbance of the previously-formed plait by the withdrawal of the crimping-blade for forming the next plait. Fig. 5 also is a view similar to Fig. 3, illustrating the needle at its lowermost position, with the crimping-blade withdrawn to its extreme rearward position, as occurs when the needle has completed its downstroke. Fig. 6 also is a view similar to Fig. 3, illustrating the position of the crimping-blade after partial formation of the next plait, the needle-bar having ascended sufficiently to withdraw from the cam-slot notch, whereby is effected a dwell in the movement of the ruffler sufficient to enable the needle to withdraw from the material before completing the plait. Fig. 7 also is a view similar to Fig. 3, showing the crimping-blade in the same position it occupies in the previous view preparatory to completing the fold, but with the needle-bar nearer its uppermost position and in engagement with the cam-slot preparatory to effecting the final movement of the crimping-blade, at the completion of which the parts again will occupy the position illustrated in Fig. 3.

The presser-foot 1 serves the double purpose of a presser-foot proper for the sewing-machine and also as a frame to which all of the operative parts may be either directly or indirectly attached. Extending rearwardly (or to the left, as shown in the several figures) from the bottom of the upright portion of the presser-foot is a projection 2, to which is attached the operating-lever 3 by means of a bolt 4, passing through an elongated bearing 5 and secured by a jam-nut 6. This operating-lever has at its free end a cam-slot of peculiar and novel formation and function, as will more fully appear hereinafter, for cooperation with the needle-bar for effecting the purposes of the invention. From the presser-foot is extended a second projection 7, upon which is movably secured the crimping-blade carrier 8 and the stationary separator-plate 9. The crimping-blade carrier 8 is secured movably to the projection 7 by suitably-shouldered screws 10 and 11, which are extended through said projection a suf-

efficient distance to receive the check-nuts 12 and 13, and thereby serve to secure the separator-plate 9 to the projection 7. The operating-lever 3 and the crimping-blade carrier 8 are connected by a link 14, which is pivotally attached to the carrier 8 by a suitably-shouldered screw 15 and its opposite end adjustably secured to the operating-lever 3 by a suitable connection, such as a post 16 (see Fig. 2) and a jam-nut 17.

Upon a laterally-projecting member 18 of the crimping-blade carrier is attached the crimping-blade 19, which is tooth-pointed, as shown by dotted lines in Fig. 2, and of flexible material. The forward end of the crimping-blade carrier extends beneath the forward end of the presser-foot and above the extended portion 20 of the separator-plate 9.

The various notches 21 (see Fig. 2) in the lower flange of the separator-plate 9 and the notches 22 in the front end of the presser-foot 1 serve as guides for the passing fabric under different conditions.

The fabric to be ruffled is interposed between the crimping-blade and the separator-plate beneath and is gathered by the reciprocating action of the blade. The reciprocating movement is imparted to the blade-carrier and the blade by means of the operating-lever 3 through the connection-link 14, the lever being actuated by the "needle set-screw" 23 (so called) or other projection carried by the needle-bar 24 of the sewing-machine.

The details of construction may be varied at pleasure, however, a main feature of my invention residing in the construction of the cam-slot in that end of the operating-lever which acts in conjunction with the projection 23, located on the needle-bar, as will be described now.

Referring to Figs. 1 and 3, the needle-bar and the end of the operating-lever driven thereby are shown fully up and the crimping-blade at the forward end of its stroke in the formation of the plait or gather, and for the purpose of describing the relative movements of the parts for the formation of a plait or gather I will start with the position represented in Figs. 1 and 3, with the needle at its limit of upward stroke in the direction of forming the plait. First the movement of the needle-bar will be to the position shown in Fig. 4, which movement has passed the projection 23 from the wall 25 of the cam-slot in the operating-lever down to the wall 26 of said slot without any movement of the operating-lever 3. The further movement of the needle-bar causes the projection 23 to contact with the wall 26, carrying the lever down to the position shown in Fig. 5 and moving the crimping-blade to the position shown in said Fig. 5, which is its extreme backward movement, and then the projection 23 enters a notch 27, which is offset into the body of the lever from the lower inner corner of the cam-slot. The initial movement of the needle-bar in the opposite direction positions the op-

erating-lever and crimping-blade, as shown in Fig. 6, with the needle still in the goods, and it is this movement of the crimping-blade which constitutes the main operative feature of my invention, as prior thereto the needle was first raised sufficiently to clear the material and the crimping-blade was caused to form the plait. The needle-bar is next moved upward until its projection 23 occupies the position relatively to the cam-slot shown in Fig. 7, there being no movement of the crimping-blade during this vertical movement of the projection 23 along the wall 28 of the cam-slot. The final movement of the needle-bar brings the parts to the position shown in Figs. 1 and 3 with the plait formed and ready for the action of the needle. It will be observed that there is a movement of the needle-bar sufficient for the needle to pierce the material before there is a movement of the crimping-blade 19 backward, followed by a movement of the projection 23 on the wall 26 of the operating-lever's cam-slot to move the crimping-blade to its limit of position out of the fold, and this is followed by an upward movement of the needle-bar while its projection 23 is still in the notch 27 sufficient to form the plait while the needle is in the goods, followed by a dwell in the movement of the operating-lever 3 until the projection 23 contacts with the wall 25, when there is a further movement of the crimping-blade to place or form the plait in line with the next descent of the needle.

From the foregoing it will be understood that the notched cam-slot is of such profile as to cause a movement of the crimping-blade to form the plait while the needle is in the material, then a dwell in the action of the crimping-blade, followed by a movement of the crimping-blade to place the plait in line with the descent of the needle and to hold such plait until the needle descends through and secures such plait against movement.

What I claim is—

1. A ruffling attachment for sewing-machines, comprising a reciprocating crimping-blade, an operating-lever, and connections between said blade and said lever, said lever at its free end constructed with a cam-slot having a notch offset into the body of the lever and adapted to coact with a projection on the needle-bar of a sewing-machine to effect a movement of the crimping-blade in a direction to form a plait or gather while the needle is withdrawing from but still in the material.

2. A ruffling attachment for sewing-machines, comprising a reciprocating crimping-blade, an operating-lever, and connections between said blade and said lever, said lever having at its free end a cam-slot provided with a notch offset from its lower wall and adapted for coöperation with a lateral projection on a reciprocating needle-bar to effect a movement of the blade to form a plait or gather while the needle is withdrawing from but still in the material.

3. A ruffling attachment for sewing-machines, comprising a reciprocating crimping-blade, an operating-lever, and connections between said blade and said lever, said lever having a cam-slot at its free end provided with an offset notch at one corner of its bottom, combined with a reciprocating needle-bar of a sewing-machine having a lateral projection which enters said cam-slot and engages its walls to actuate the lever and thereby reciprocate the blade and adapted on its upstroke to engage the notch and move the blade to form a plait or gather while the needle is in the material.

4. A ruffling attachment for sewing-machines, comprising essentially a crimping-blade, an operating-lever therefor having in its free end a cam-slot provided in its lower inner corner with an offset notch, and connections between the blade and lever, combined with a reciprocating needle-bar having a lateral projection which in the descent of the needle is ineffective relatively to the operating-lever and crimping-blade until it reaches the bottom of the cam-slot and the needle enters the goods, and entering the notch effects the full backward movement of the blade, and leaves the notch only while the needle is in the goods and after the blade has begun the formation of a fresh plait or gather.

5. A ruffling attachment for sewing-ma-

chines, comprising essentially a crimping-blade, an operating-lever therefor having in its free end a cam-slot provided in its lower inner corner with an offset notch, and connections between the blade and lever, combined with a reciprocating needle-bar, whereby the crimping-blade is moved to form a plait while the needle is in the material, then is caused to dwell, and then is moved to place the plait in line with the descending needle and hold it until pierced by the needle.

6. A ruffling attachment for sewing-machines, comprising a reciprocating crimping-blade, an operating-lever, and connections between said blade and said lever, said lever at its free end constructed with a cam-slot and a cam-notch, one of the walls of said cam-slot acting to control the movements of the crimping-blade while the needle is out of the material, the other of said walls together with the cam-notch, acting to control the movements of the crimping-blade while the needle is in the material, substantially as described.

In testimony whereof I have hereunto set my hand this 17th day of September, A. D. 1902.

ALEXANDER LAUBSCHER.

Witnesses:

J. V. MEEKS,
C. N. WORTHEN.