

No. 828,410.

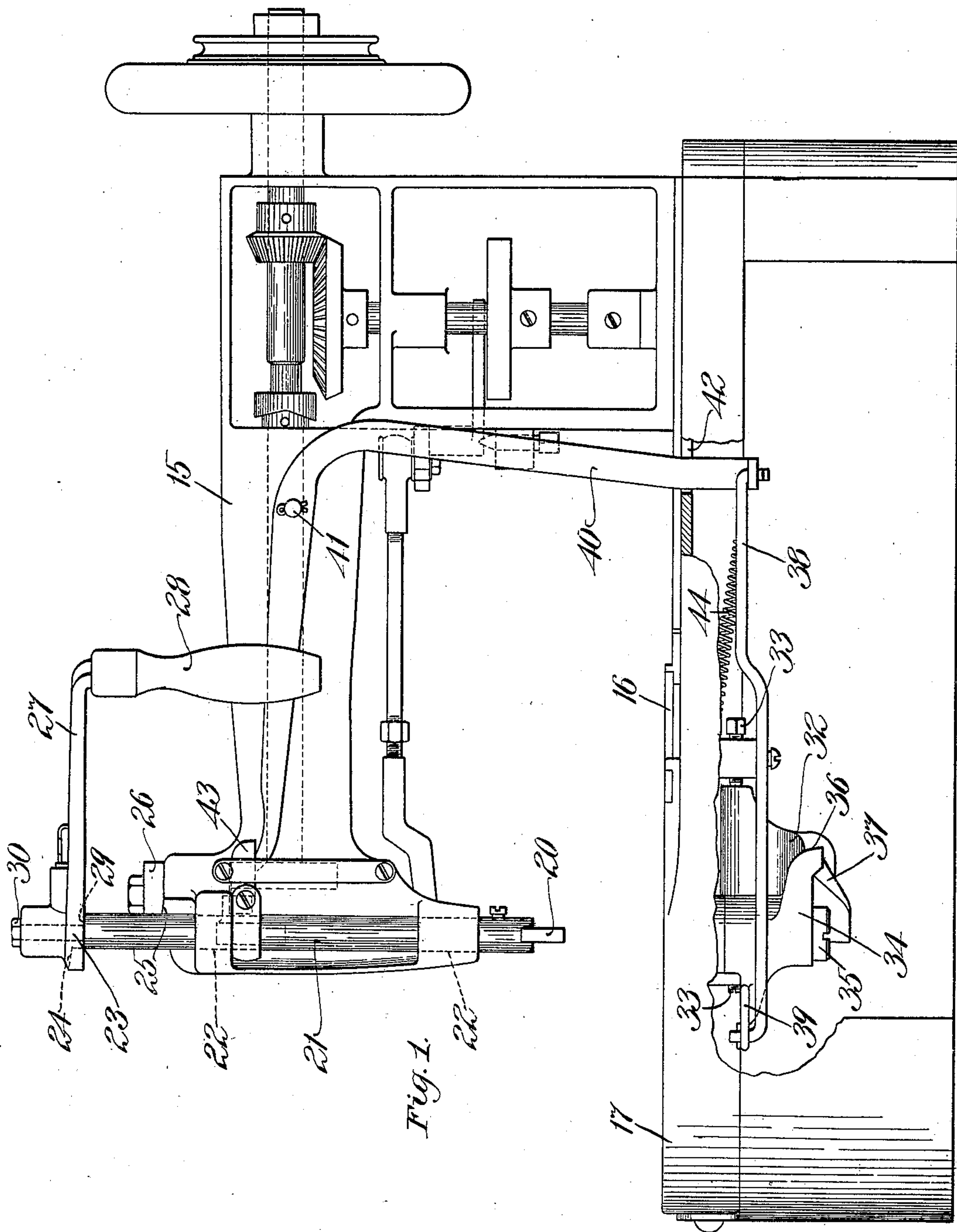
PATENTED AUG. 14, 1906.

J. KIEWICZ.

BUTTONHOLE CUTTING MECHANISM.

APPLICATION FILED APR. 27, 1905.

3 SHEETS—SHEET 1.



Witnesses:

Franklin E. Low.
Percy F. Wolfe.

Inventor:

Inventor:
John Kiewicz -
by his attorney,
Charles J. Gooding.

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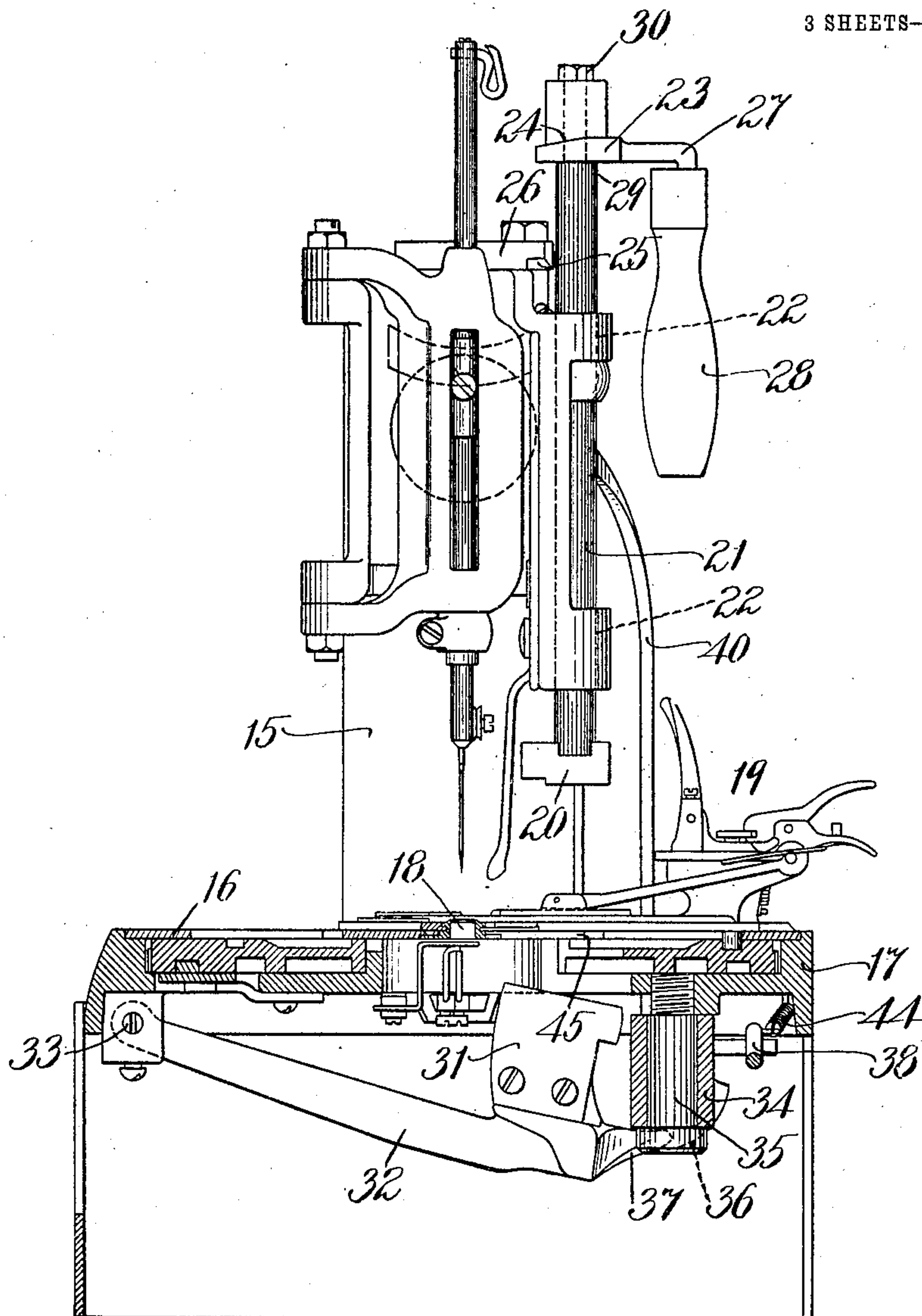


Fig. 2.

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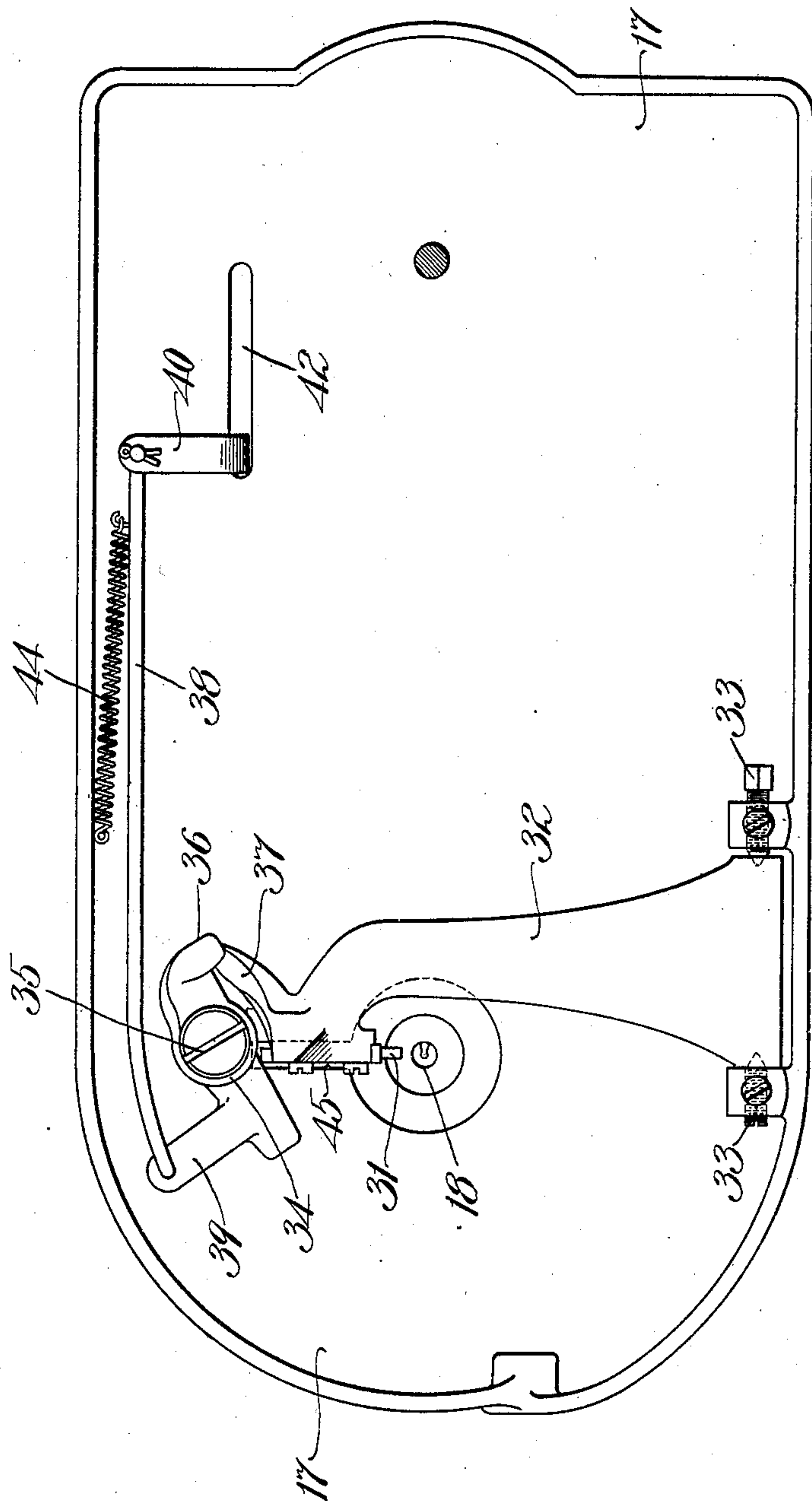


Fig. 3.

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UNITED STATES PATENT OFFICE.

JOHN KIEWICZ, OF HYDE PARK, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO WHEELER MANUFACTURING COMPANY, A CORPORATION OF MAINE.

BUTTONHOLE-CUTTING MECHANISM.

No. 828,410.

Specification of Letters Patent.

Patented Aug. 14, 1906.

Application filed April 27, 1905. Serial No. 257,682.

To all whom it may concern:

Be it known that I, JOHN KIEWICZ, a subject of the Czar of Russia, residing at Hyde Park, in the county of Norfolk and State of Massachusetts, have invented new and useful Improvements in Buttonhole-Cutting Mechanism, of which the following is a specification.

This invention relates to an improved mechanism for cutting buttonholes, the object of the invention being to provide a simple, cheap, and convenient mechanism for cutting buttonholes, which mechanism is easily operated by hand, the same being particularly adapted to be used in connection with a machine for sewing buttonholes.

The invention consists in certain improvements in mechanism for cutting buttonholes in fabric, as set forth in the following specification and particularly pointed out in the claims thereof.

Referring to the drawings, Figure 1 is a front elevation of the frame of a buttonhole-sewing machine, together with a portion of the mechanism thereof, with my improved buttonhole-cutting mechanism attached thereto. Fig. 2 is a side elevation of the same, partly in section, as viewed from the left of Fig. 1, with the fabric-clamp attached thereto and in position to begin the sewing of a buttonhole. Fig. 3 is an underneath plan of the same with the main driving-shaft shown in section and all of the mechanism removed from the machine with the exception of the buttonhole-cutting mechanism.

Like numerals refer to like parts throughout the several views of the drawings,

In the drawings, 15 is the frame of a buttonhole-sewing machine.

16 is the work-plate fastened to the bed-plate 17 of the frame 15, and to said work-plate is fastened a cylindrical needle-throat 18. A fabric-clamp 19 holds the fabric in position to be cut by the mechanism hereinafter described, said clamp being rotated around the needle-throat by any suitable mechanism in a manner well known to those skilled in this art.

The buttonhole is cut in the fabric by means of two cutters and mechanism to move said cutters toward each other. The cutter located above the bed-plate is a reciprocating cutter, while that located beneath the

bed-plate is a rocking cutter. The upper cutter 20 is fastened to a reciprocating slide 21, consisting, preferably, of a cylindrical bar guided in ways 22, formed in the frame of the machine. A cam 23 is rotatably mounted upon the slidable rod 21, said cam having an inclined face 24, adapted to engage an incline 25, formed upon the under side of a plate 26, fast to the frame of the machine. The cam 23 has an arm 27, fast thereto, provided with a handle 28. By pressing downwardly upon the arm 27 or handle 28 the cam 23 will carry the slide 21 downwardly, said cam being free to rotate upon the slide 21, but prevented from longitudinal movement thereon by a shoulder 29, formed upon the slide 21, and by a nut 30, fast to the upper end thereof.

It will be seen that when the slide 21 has been sufficiently lowered so that the inclined face 24 comes substantially in alinement with the incline 25, formed upon the under side of the plate 26, if a rotary movement is imparted to the cam 23 the inclined face 24 will contact with the incline 25 upon the fixed plate 26, and a continued rotation of the cam 23 will cause the slide 21, together with the upper cutter 20, to be forced downwardly, cooperating with the lower cutter, as hereinafter described, to cut a buttonhole in the fabric which is interposed between the upper and lower cutters.

The lower cutter 31 is fastened to an arm 32, pivotally supported upon two studs 33 on the frame of the machine, Fig. 3. A rotary cam-lever 34 is pivoted to a stud 35, fast to the bed-plate 17. Said lever has an inclined cam-face 36, adapted to engage an incline 37, formed upon the arm 32 when said cam-lever is rotated, and the rotation of said cam-lever is secured by a link 38, pivotally connected at one end to an arm 39 of the cam-lever 34 and at the other end thereof to a lever 40, pivoted at 41, Fig. 1, to the frame 15 and projecting downwardly therefrom through a slot 42, formed in the bed-plate 17. The upper left-hand end of the lever 40 abuts against the under side of an arm 43, fast to the slide 21, and is kept in contact with said arm by a spiral spring 44, fast at one end to the frame of the machine and at the other end to the link 38, Fig. 3. The cutters 20 and 31 are both removable from their respective carriers in order that cutters of dif-

ferent lengths for different-sized buttonholes may be used in the machine.

The operation of the cutting mechanism hereinbefore specifically described is as follows: The fabric is held in position by the fabric-clamp 19 upon the top of the work-plate 16. The operator moves the slide 21 and upper cutter 20 downwardly by means of the arm 27 and handle 28. As said slide is pushed downwardly in this manner the lever 40 is rocked upon its pivot by the arm 43, fast to said slide 21, and through the link 38, which is thus moved toward the right, Fig. 3, the lower cutter 31 is rocked by its carrying-arm 32, the incline 36 riding up on the incline 37, thus rocking the arm 32 upon its pivotal studs 33 and forcing the lower cutter upwardly through the slot 45 in the work-plate 16 against the under surface of the fabric. The fabric is now firmly gripped between the two cutters and the operator gives a rotary motion to the cam 23, thus causing the incline 24 on said cam to ride downwardly upon the incline 25, formed upon the under side of the stationary plate 26, and forcing the fabric downwardly, the lower sharp-edged die-cutter being thus forced through the fabric until it meets the descending lower face of said upper cutter. It will be understood that during this last motion of the upper cutter the lower cutter remains stationary and the upper cutter forces the fabric downwardly in a straight line against the cutting edge of the lower cutter.

It will be seen by reference to Fig. 1 that the cutters operate close to the needle-throat during the cutting of the fabric and that the fabric-clamp is in position to begin the sewing of the buttonhole as soon as the cutters are removed by reversing the motion of the cam 23, handle 28, and arm 27, hereinbefore described.

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

1. In a buttonhole-sewing machine, a work-plate provided with a slot, a reciprocatory cutter located above said work-plate, a pivotally-supported cutter located beneath said work-plate, and mechanism connecting said upper and lower cutters, whereby said cutters are moved toward or away from each other.

2. In a buttonhole-sewing machine a work-plate provided with a slot, a reciprocatory slide located above said work-plate, a cutter fast to said slide, a rotary part mounted upon said slide, and a stationary part fast to the frame of said machine, one of said parts having an inclined face adapted to engage the other of said parts, whereby said cutter is moved toward said work-plate during the rotation of said rotary part.

3. In a buttonhole-sewing machine a work-plate provided with a slot, a reciprocatory slide located above said work-plate, a cutter

fast to said slide, a cam rotatably mounted upon said slide, and a stationary part fast to the frame of said machine, said cam having an inclined face adapted to engage said stationary part, whereby said cutter is moved toward said work-plate during the rotation of said cam.

4. In a buttonhole-sewing machine a work-plate provided with a slot, a reciprocatory slide located above said work-plate, a cutter fast to said slide, a cam rotatably mounted upon said slide, a handle fast to said cam, and a stationary plate, said cam and plate having inclined faces adapted to engage with each other, whereby said cutter is moved toward said work-plate during the rotation of said cam.

5. In a buttonhole-sewing machine a work-plate provided with a slot, a reciprocatory slide located above said work-plate, a cutter fast to said slide, a rotary part mounted upon said slide, and a stationary part fast to the frame of said machine, one of said parts having an inclined face, adapted to engage the other of said parts, whereby said cutter is moved toward said work-plate during the rotation of said rotary part, a pivotally-supported cutter located beneath said work-plate, and mechanism connecting said slide and pivotally-supported cutter, whereby said cutters are moved toward or away from each other.

6. In a buttonhole-sewing machine a work-plate provided with a slot, a reciprocatory slide located above said work-plate, a cutter fast to said slide, a cam rotatably mounted upon said slide, and a stationary part fast to the frame of said machine, said cam having an inclined face adapted to engage said stationary part, whereby said cutter is moved toward said work-plate during the rotation of said cam, a pivotally-supported cutter located beneath said work-plate, and mechanism connecting said slide and pivotally-supported cutter, whereby said cutters are moved toward or away from each other.

7. In a buttonhole-sewing machine a work-plate provided with a slot, a reciprocatory slide located above said work-plate, a cutter fast to said slide in alignment with said slot, a pivotally-supported arm, a cutter fast thereto beneath said work-plate, and mechanism connecting said slide and arm whereby, when a reciprocatory motion is imparted to said slide said arm will be rocked upon its pivot and said cutters will be moved toward or away from each other.

8. In a buttonhole-sewing machine, a reciprocatory slide, a cutter fast thereto, a pivotally-supported arm, a cutter fast to said arm, and a rotary lever having an inclined face adapted to engage the incline upon said arm during the rotation of said cam and move said arm and cutter toward said slide and cutter.

9. In a buttonhole-sewing machine a reciprocatory slide, a cutter fast thereto, a pivotally-supported arm, a cutter fast to said arm, a rotary lever having an inclined face adapted to engage an incline upon said arm, and mechanism actuated by said slide to rotate said cam and move said arm and cutter toward said slide and cutter. 5

10. In a buttonhole-sewing machine a work-plate provided with a slot, a reciprocatory slide, a cutter fast thereto and in alignment with said slot, a cam rotatably mounted upon said slide, having an incline, adapted to engage a stationary part of said machine, 15 whereby said cutter is moved toward said

work-plate by the rotation of said cam, a pivotally-supported arm, a cutter fast to said arm, a rotary cam having an inclined face adapted to engage an incline upon said arm, mechanism actuated by said slide to rotate said last-named cam and move said arm and cutter toward said slide and cutter. 20

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN KIEWICZ.

Witnesses:

CHARLES S. GOODING,
ANNIE J. DAILEY.