

No. 654,604.

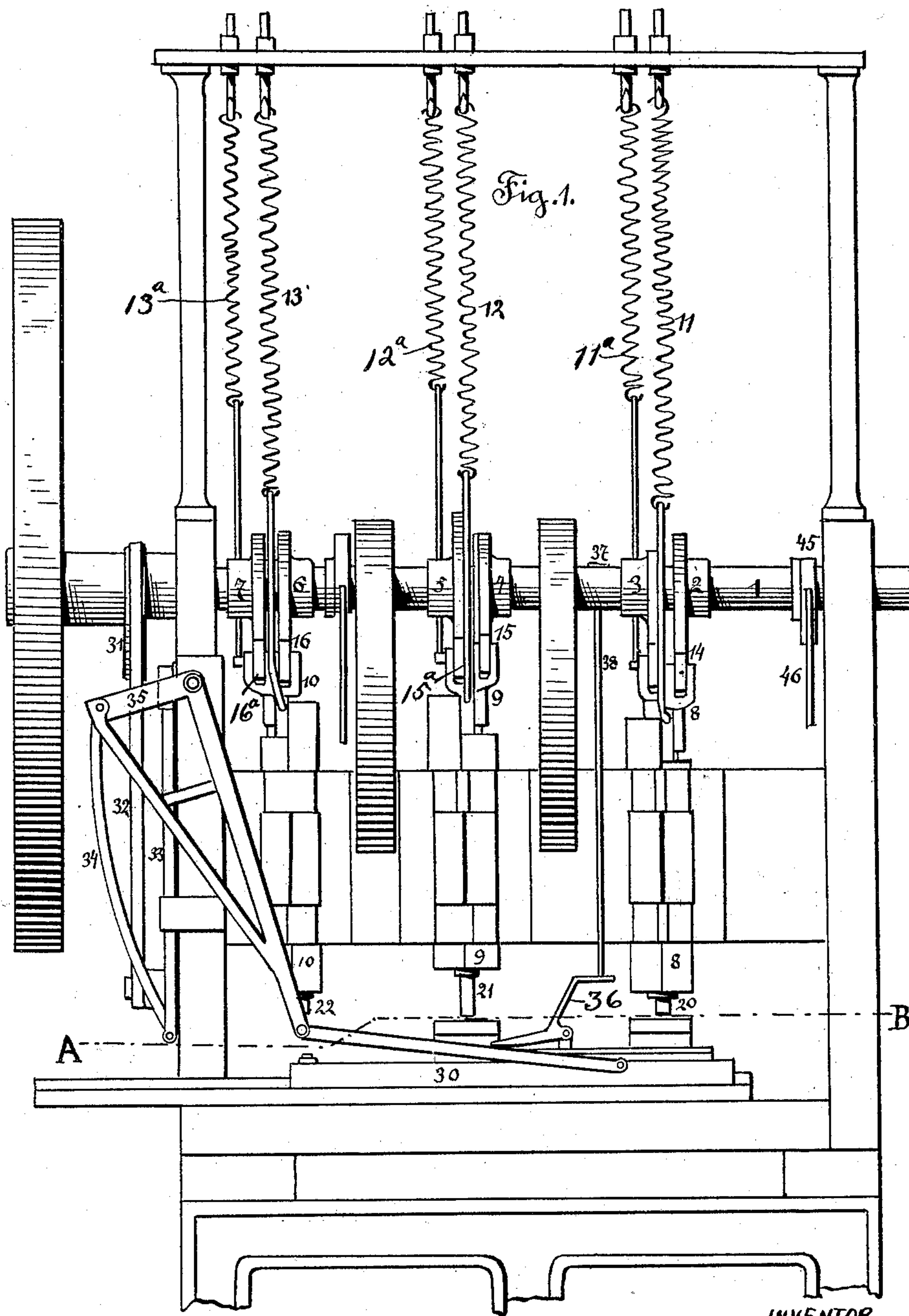
Patented July 31, 1900.

W. CARON.
BUTTON MACHINE.

(Application filed Apr. 6, 1899.)

(No Model.)

6 Sheets—Sheet 1.



WITNESSES:

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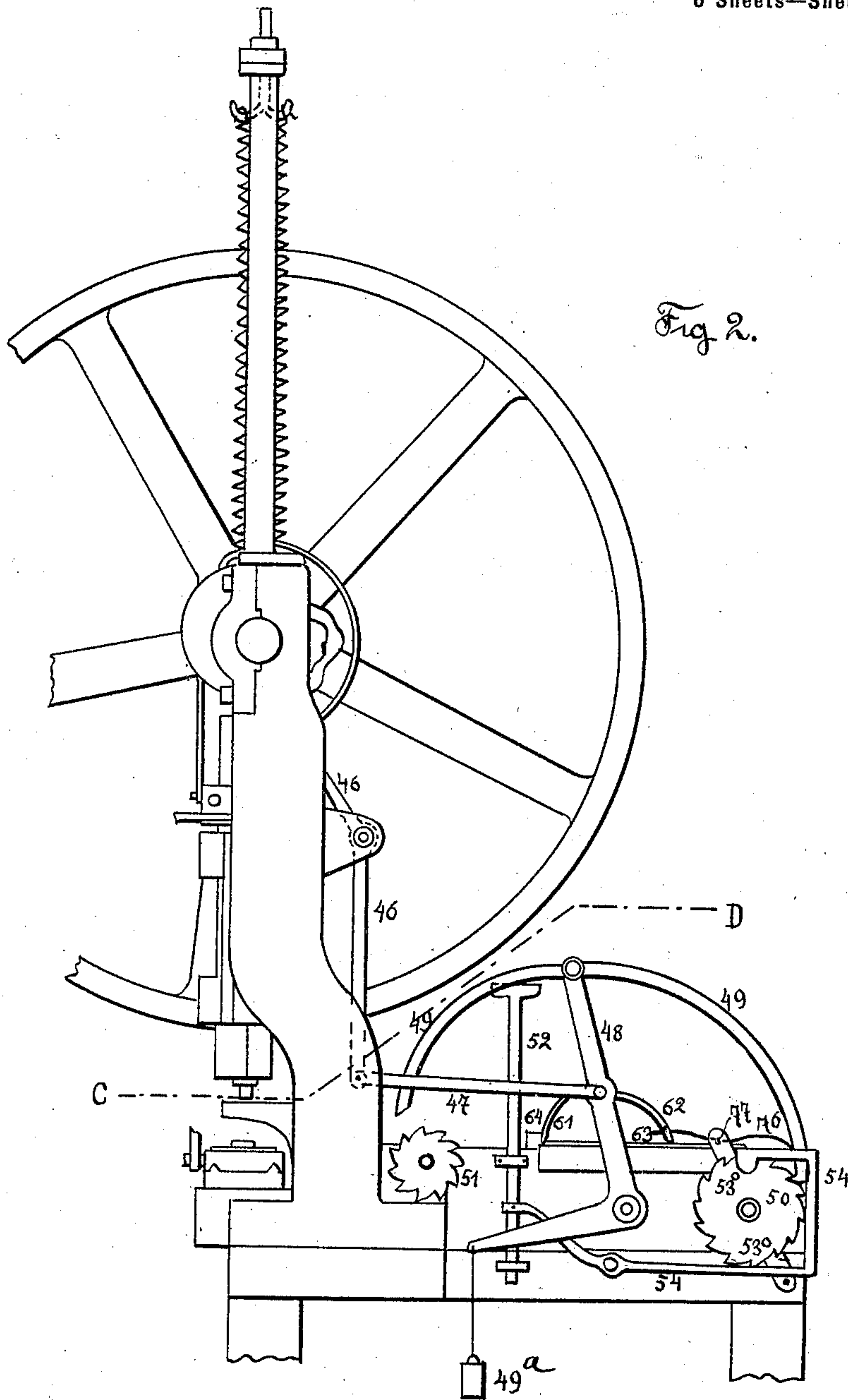
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6 Sheets—Sheet 2.



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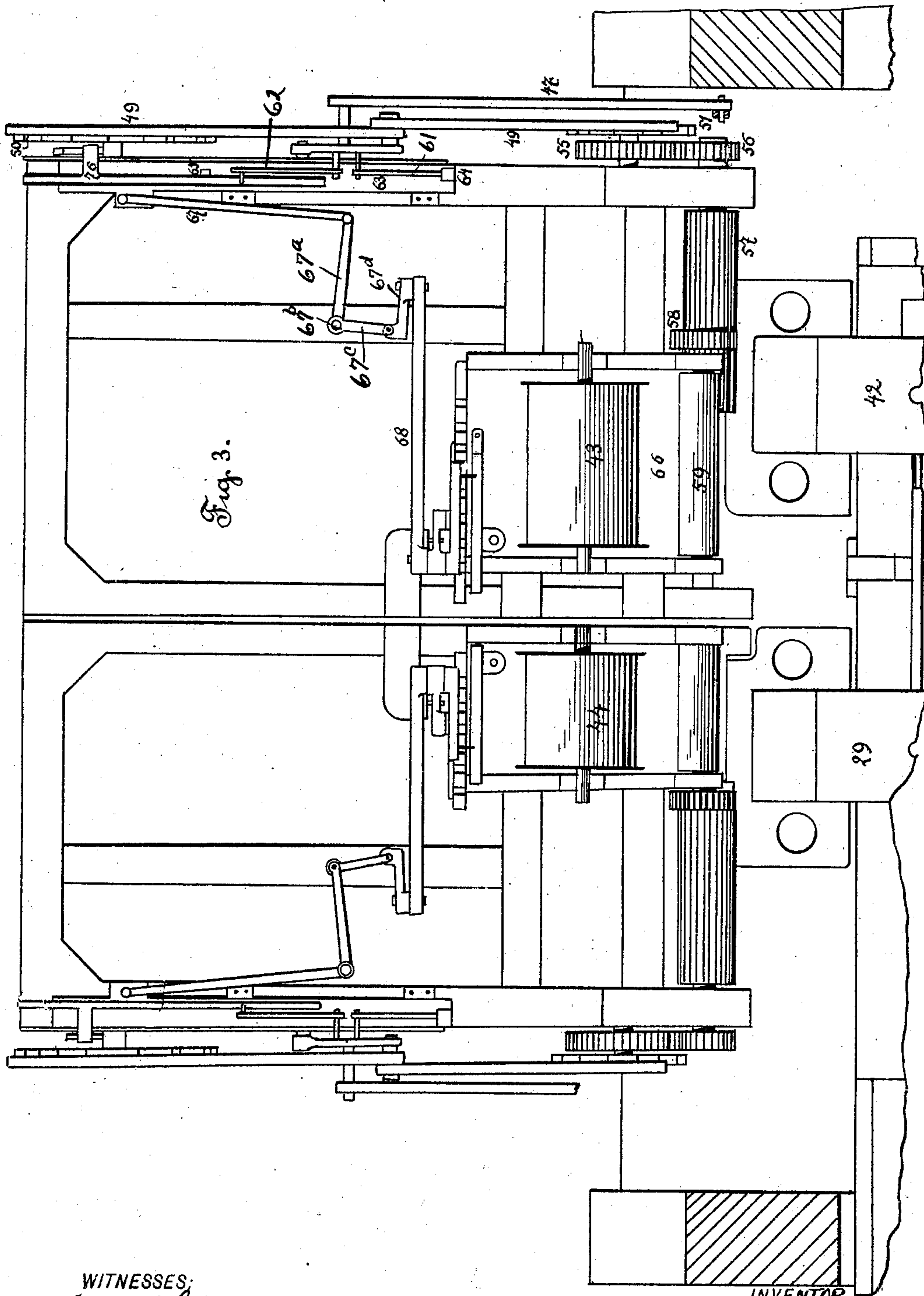
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6 Sheets—Sheet 3.



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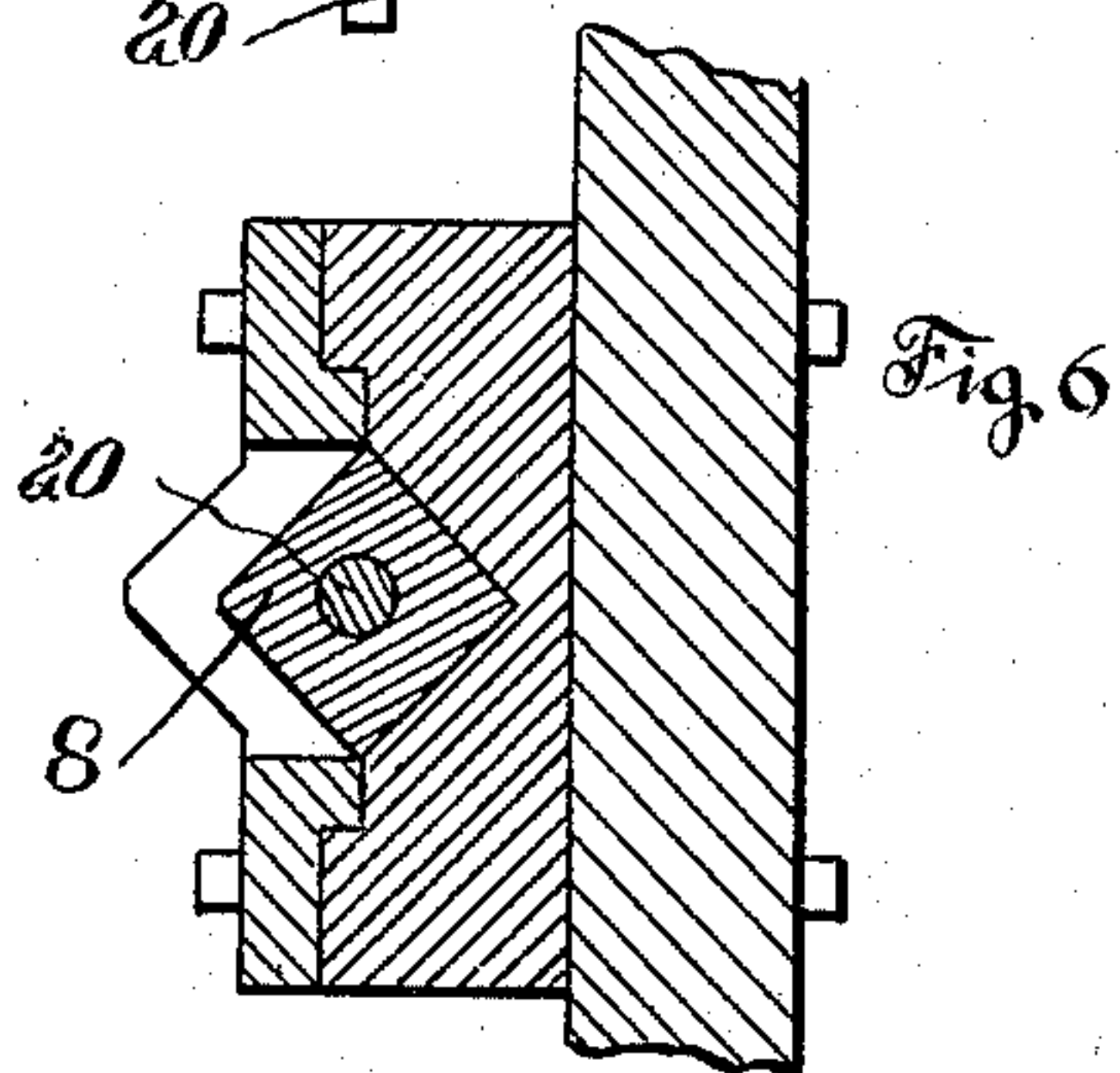
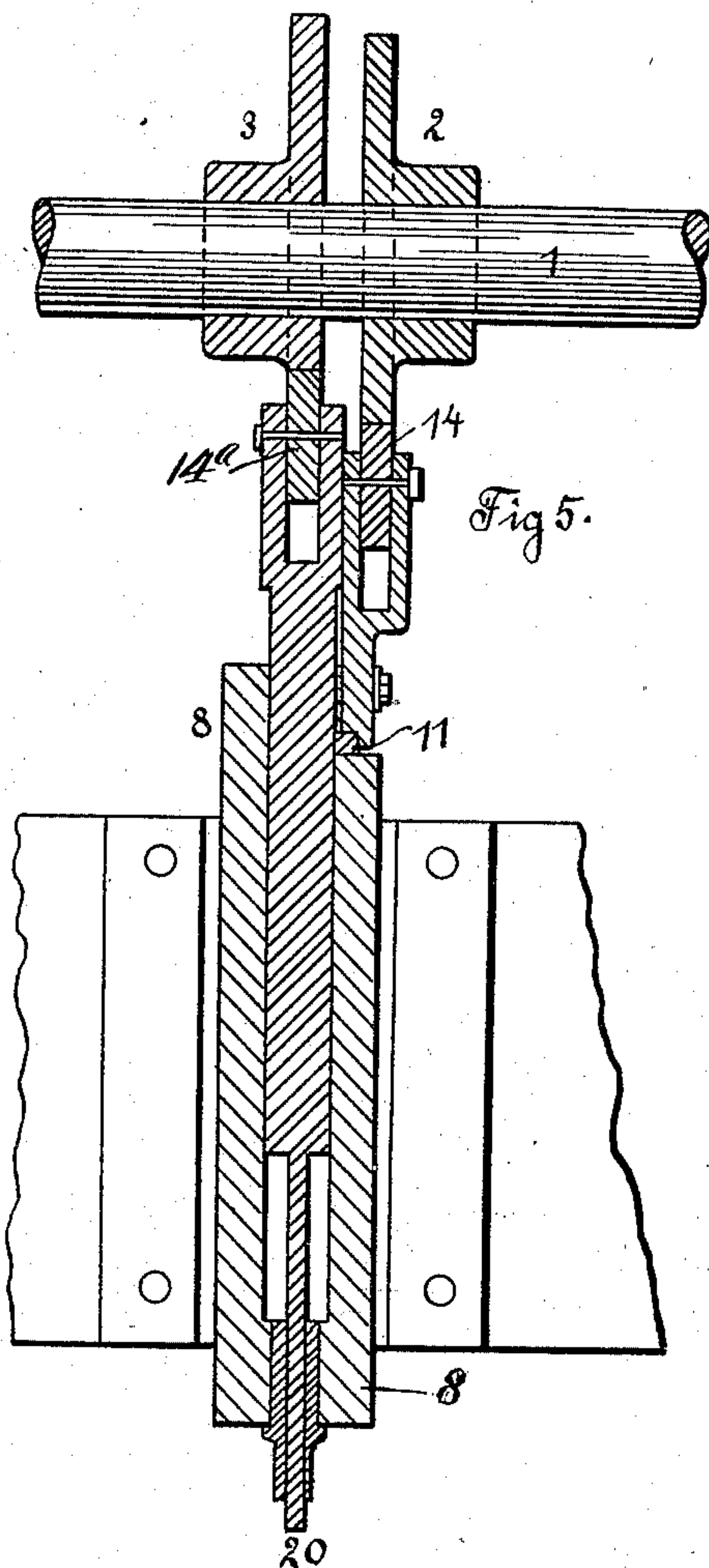
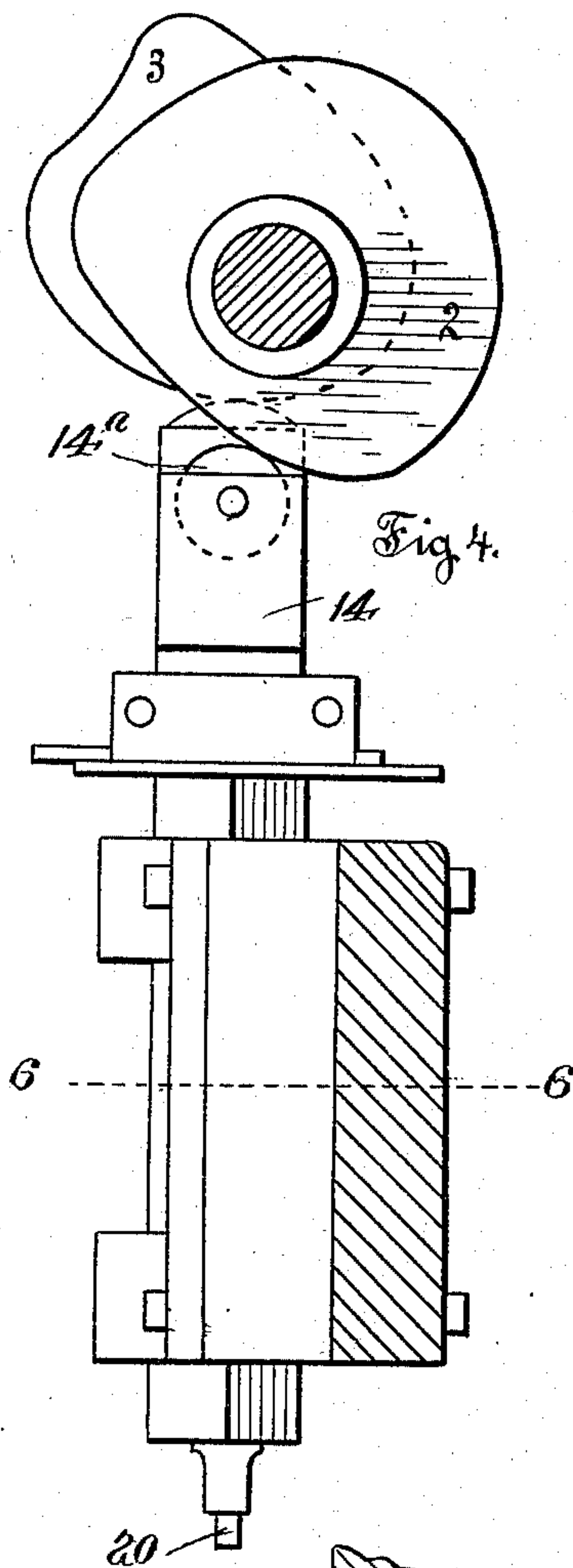
Patented July 31, 1900.

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(Application filed Apr. 6, 1899.)

(No Model.)

6 Sheets—Sheet 4.



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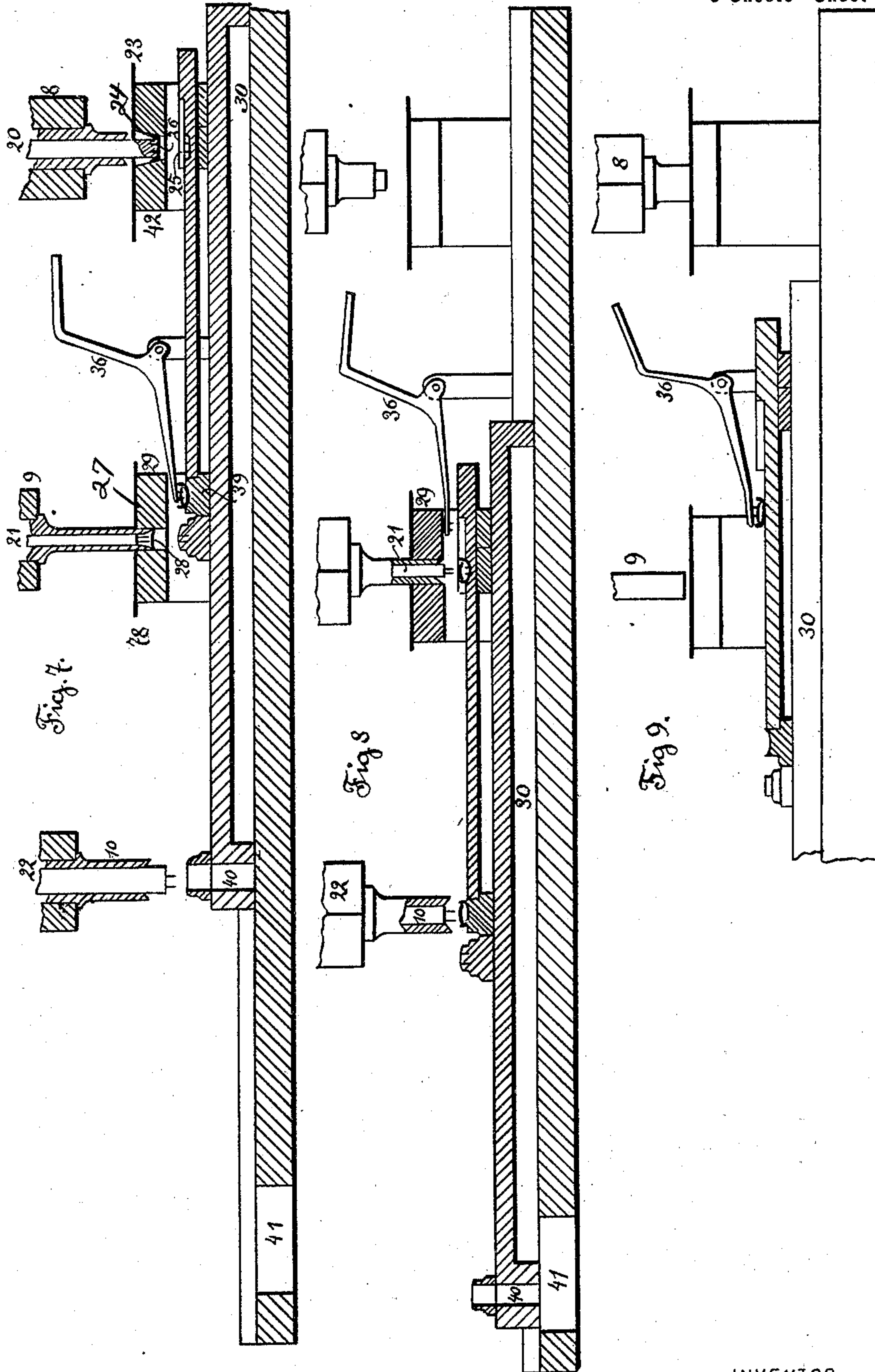
Patented July 31, 1900.

W. CARON.
BUTTON MACHINE.

(Application filed Apr. 6, 1899.)

(No Model.)

6 Sheets—Sheet 5.



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No. 654,604.

Patented July 31, 1900.

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(Application filed Apr. 6, 1899.)

(No Model.)

6 Sheets—Sheet 6.

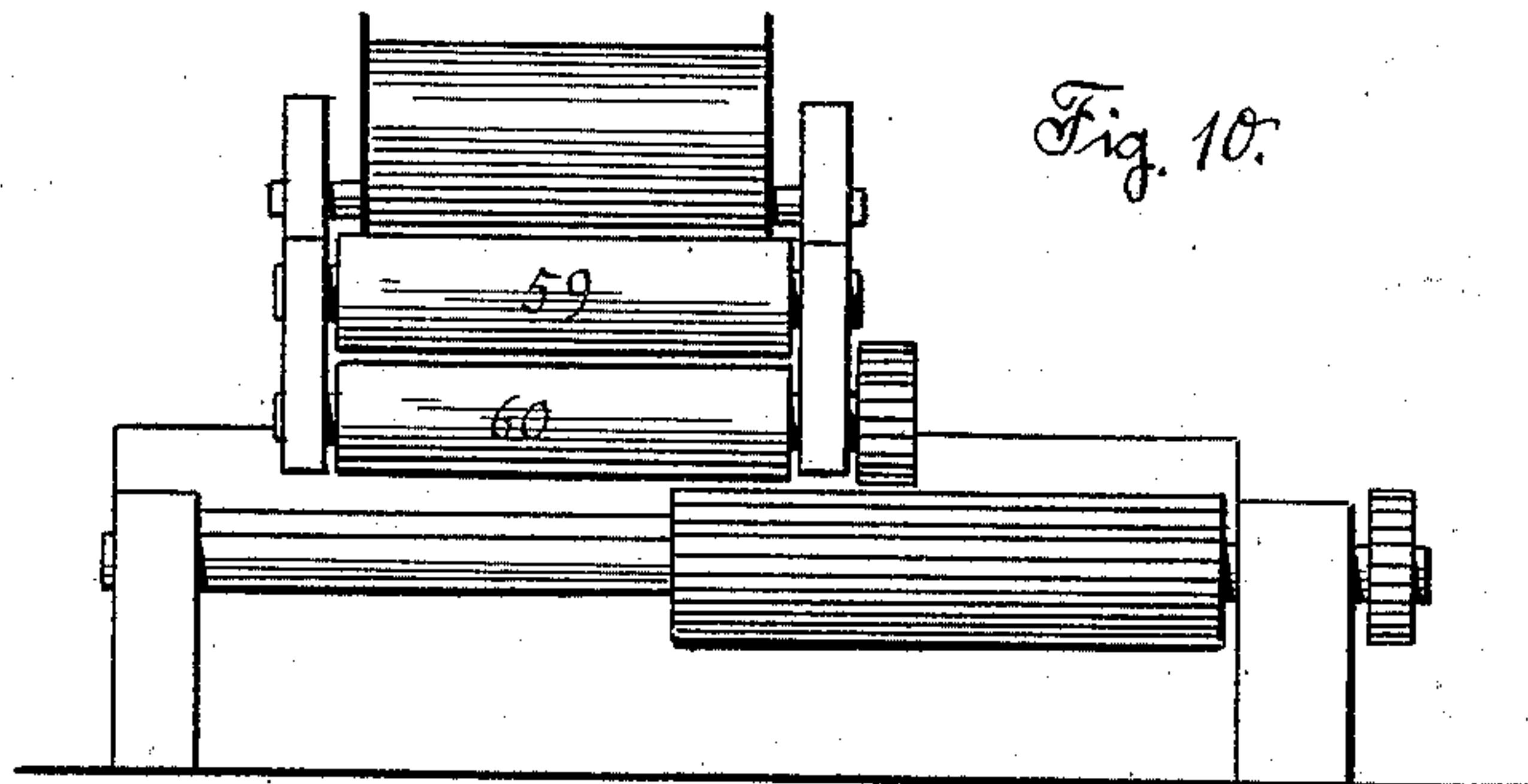


Fig. 10.

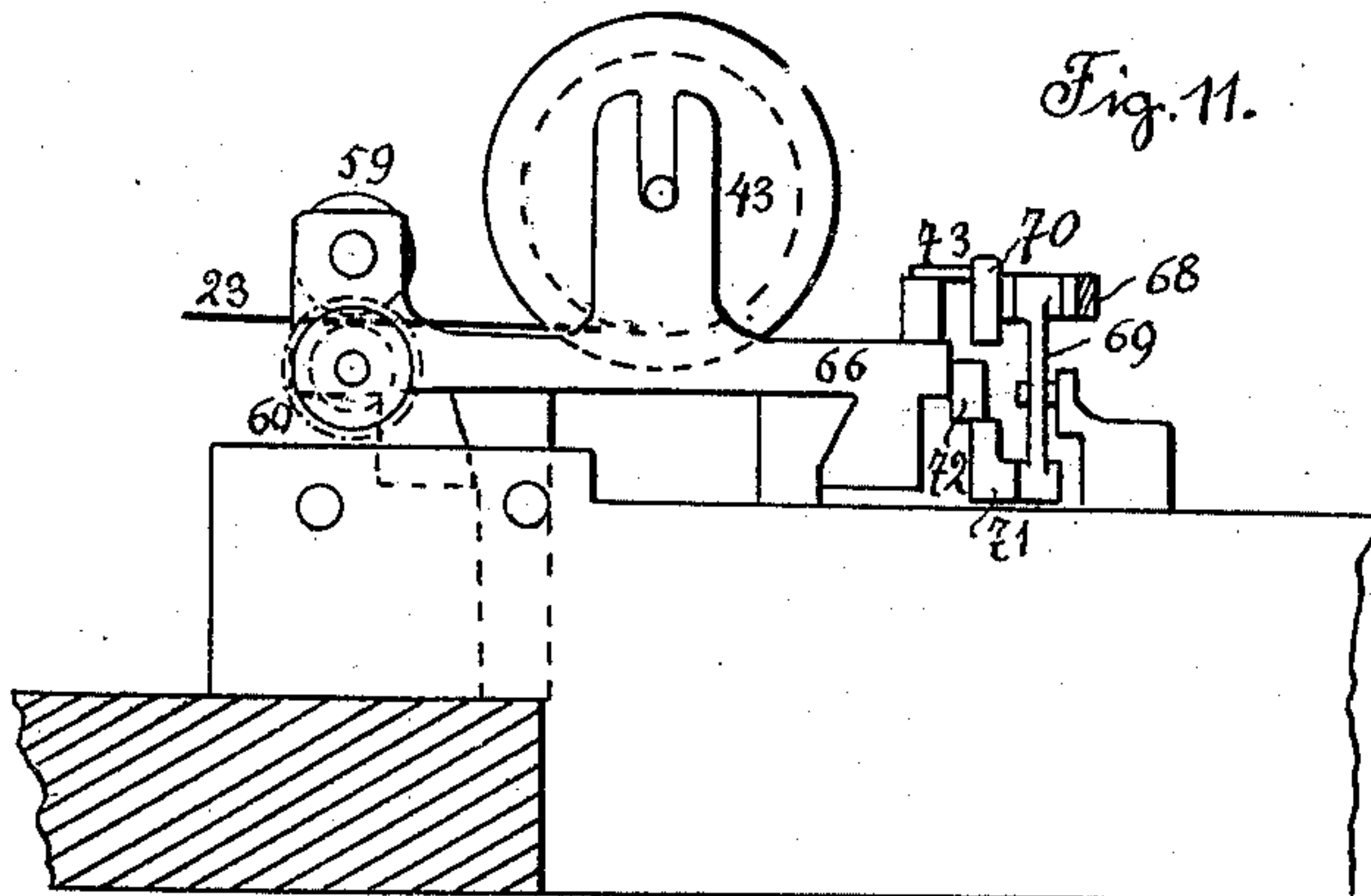


Fig. 11.

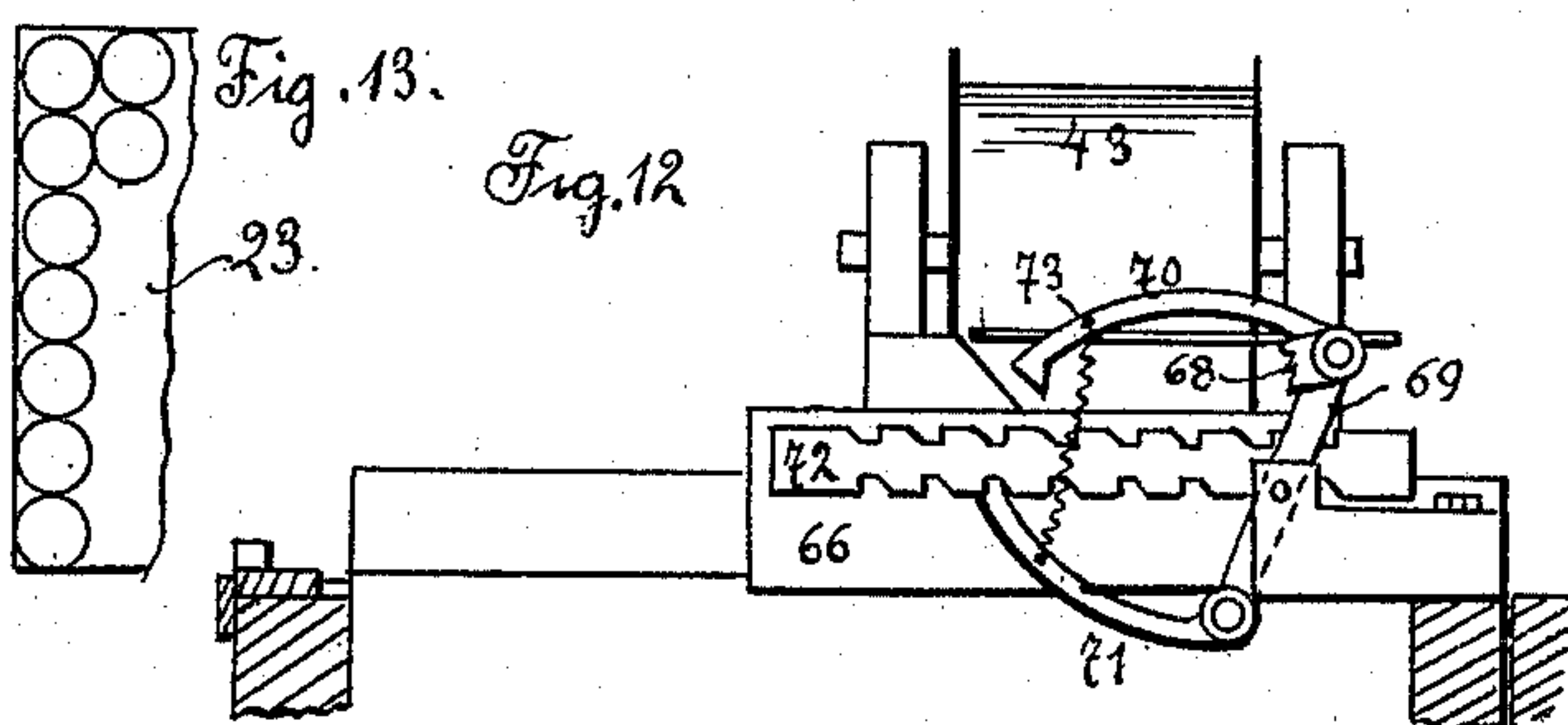


Fig. 13.

Fig. 12.

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UNITED STATES PATENT OFFICE.

WALTHER CARON, OF BARMEN, GERMANY.

BUTTON-MACHINE.

SPECIFICATION forming part of Letters Patent No. 654,604, dated July 31, 1900.

Application filed April 6, 1899. Serial No. 711,971. (No model.)

To all whom it may concern:

Be it known that I, WALTHER CARON, a subject of the King of Prussia, German Emperor, and a resident of Barmen-Rittershausen, in the Kingdom of Prussia and Empire of Germany, have invented certain new and useful Improvements in Button-Machines, of which the following is a specification.

The object of the present invention consists of a machine which is capable of producing in a finished state two-part buttons automatically from the raw material.

The essential novelty of the machine consists in the special construction and operation of the mechanisms acting relatively one to another which render it possible to produce and deliver a finished button from the machine at each revolution of the driving-shaft. Consequently the workman has nothing more to do than to provide the machine at relatively-long intervals of time with fresh material—namely, strips of tin-plate.

In the accompanying drawings the machine is illustrated as follows:

Figure 1 is a front elevation; Fig. 2, a side elevation; Fig. 3, a section on the line A B, Fig. 1, and C D, Fig. 2. Fig. 4 is an enlarged detail view of one of the stamps. Fig. 5 is a detail sectional view of the same parts at right angles to Fig. 4. Fig. 6 is a section on line 6 6 of Fig. 5. Fig. 7 is an enlarged sectional detail view illustrating the action of the stamps and slide. Fig. 8 is a similar view showing the slide in a different position. Fig. 9 is a further detail illustrating the action of lever 36. Figs. 10, 11, and 12 are detail views of the strip-feeding means, and Fig. 13 is a plan view of the strip from which the blanks are cut.

Upon the driving-shaft 1, Fig. 1, are placed three pairs of non-circular disks 2 3, 4 5, 6 7, by means of which a threefold stamping mechanism is actuated. These three stamps are similar in general construction, and a description of one will answer for all.

Referring to the first stamp, (see Figs. 1, 4, and 5,) 8 designates an outer or principal stamp, which is drawn normally upward by the action of a spring 11, so that an anti-friction-roller 14, carried on its upper end, is held in contact with the disk or cam 2. Within the hollow center of this main stamp 8 is

guided an inner stamp 20, which is also under tension of a spring 11^a and has a roller 14^a pressed thereby against the disk or cam 3, so as to be operated by the said cam. The other main stamps are indicated, respectively, at 9 and 10, being operated by the disks 4 and 6 bearing on the rollers 15 and 16 and depressing the stamps against the tension of the respective springs 12 and 13, while the inner stamps are indicated at 21 and 22 and are depressed by the cams 5 and 7 acting on the rollers 15^a and 16^a against the tension of springs 12^a and 13^a. These six stamps form the button from the strip of metal in the following manner: The stamp 8 cuts a round disk out of a strip of plate 23. The stamp 20 presses the cut-out blank through the conical hole 24, whereby a vertical edge is set up thereon. The counter-stamp 25 possesses as many pins as the button is required to have holes for the purpose of sewing it to the garment. These pins fit in corresponding apertures of the stamp 20. By means thereof the blank 26, having a set-up edge which is designed to form the upper part of the button, is perforated with openings. During the effecting of this operation by the first stamp the second stamp is simultaneously forming out of another strip of tin-plate 27 the correspondingly-smaller under part 28 of the button by stamping it out by means of the stamp 9. The blank is then perforated by the pins of the stamp 21 and remains hanging from the said pins until the return stroke of the said stamp 21. At this moment a displacement of the carrier 30, Figs. 7 and 9, to the left takes place, carrying with it the upper part 26 of the button. This motion is effected by means of a bar actuated by the driving-shaft 1, Fig. 1, as follows: The eccentric disk 31, placed upon the said shaft, reciprocates the bar 33 in guides by means of the bar 32. This bar 33 in turn operates another bar 34, which engages with the shorter lever-arm of a triangle 35, the longer lever-arm whereof is conveniently connected to the slide 30. When the blank 26, forming the upper part of the button, has been passed by means of the left motion of the carrier 30, Fig. 7, exactly beneath the stamp 9 21, the said stamp 21 retreats and disengages the under part of the button from its pins against the sloping

sides of the stamp 9. Consequently the said part of the button is deposited exactly within the upper part of the said button, Fig. 8. After this the carrier 30 again returns to the right. The two parts of the button lying loosely together are after moving a little to the right prevented from taking part in the farther right motion of the carrier 30 by being held fast by the lever 36, Fig. 7. When the carrier 30 has again resumed its right final position and commences again to move toward the left, a projection 37, Fig. 1, on the driving-shaft 1 pushes down a bar 38, which rests upon the other lever-arm of the lever 36, and thus enables the button parts to again participate in the left motion of the carrier 30. By this means the two parts of the button, lying one loosely upon the other, which now rest upon the part 39 pass under the last stamp 10 22, Figs. 7 and 8. In this position the correct relative position of the parts one to another is assured by means of the engagement of the blunt pins of the stamp 22 in the openings of the upper and lower blanks of the button. After this the stamp 10 is depressed, and thereby the hitherto perpendicular edge of the upper part of the button is gradually bent down over the under part thereof, and thereby the connection of the two parts is secured. As the pins of the stamp 22 hold somewhat tightly in the holes of the button, the finished button will be lifted by the rising of the stamps 10 22, and will only then be pushed off by the further rising of the stamp 22. When the recess 40 of the guide 30 is underneath the stamps 10 22 by means of this recess 40 the button is farther carried to the left until at the final left position of the carrier it falls out of the machine through the hole 41 in the frame.

Although the button is only finished after three revolutions of the driving-shaft, each revolution discharges a finished button out of the machine, because there are continuously three buttons under operation.

The supply of the raw material to the machine is effected as follows: Behind the supports 42 and 29, Figs. 7 and 3, there are placed two rollers 43 44, Fig. 3, from which are unrolled the strips of tin-plate out of which the blanks for the buttons are stamped. Each strip is so wide that seven blanks can be stamped out of it side by side. A double motion is therefore necessary: First, the tin-plate strip must move forward, and, secondly, it must be moved six times sidewise. The first motion is attained, like all the other motions, by means of the shaft 1, on which is keyed an eccentric 45, Fig. 1. Against the track of this eccentric 45 is pressed the upper part of a two-armed lever 46, Fig. 2, by means of the bars 47 and 48 and the weight 49^a. Consequently the hook 49, secured in pivots attached to the counterweighted lever 48, makes a motion at each revolution of the driving-shaft 1 and advances the wheel 50 one tooth farther, and the front part of the

hook 49 does not come into contact with the teeth of the wheel 51, because it is held up by the lever 52. Only after each seventh revolution of the shaft the lever 52 is depressed by means of the pin 53 and lever 54, the hook 49 advances the wheel 51 another tooth, and consequently moves correspondingly the wheels or rollers 55 56 57 58, Fig. 3, and the strip 23, Figs. 10 and 11, is pushed forward by the opposite motion of the rollers 60 59. The sidewise motion of the strip is likewise effected by means of the weighted lever 48, Fig. 2. To this are attached two pawls 61 62, which oscillate a bar 63 by contacting with the projections 65 64, Fig. 3. To the bar 63 is pivoted one end of a link 67, the other end of which connects with the arm 67^a of a bell-crank lever pivoted to the machine-frame at 67^b. The other arm 67^c of the bell-crank lever is connected with the bar 68 by an intermediate piece 67^d, by means of which a reciprocating movement is imparted to the bar 68. This bar 68 produces the sidewise motion of the catches 70 71 on pivots fixed to a two-armed lever 69, Fig. 12. These catches engage in a tooth-rack 72, which is fastened to the roller-support 66, capable of being displaced sidewise on prisms or bars. When the catch 71 engages, it causes the piece 66 to move, and consequently the roller 43, carrying with it the tin-plate, which passes under the stamp six times sidewise to the left once at each revolution of the driving-shaft. After this the sidewise motion must cease once, so that time is given for the above-described forward motion of the tin-plate strip. This is effected by disengaging the hook 62, Fig. 2. The stop projection 77, wheel 50, raises the leaf-spring 76, Fig. 3, and consequently also the hook 62, resting, by means of a pin, upon it. The bar 63, and consequently also the carrier 66, stand still. During the left motion of the plate the hook 70 was held out of action by means of a pin 73 thereof resting upon a tin-plate rail 74. At the final position, however, to the left the pin falls through the jerk of the bar 68 over the right end thereof, and the catch 70 is actuated and draws the carrier 66, with the tin-plate roller 43, to the right.

In like manner as above described for the supply of the material to the stamps 8 and 20 the supply to the stamps 9 21 is effected, only of course the strips on the roller 44 do not need to have the full width which is possessed by those on the roller 43.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In combination, the two sets of inner and outer stamps for simultaneously stamping the two parts of a button from separate strips of metal and perforating the same, the reciprocating slide for assembling said parts, and the third pair of inner and outer stamps for uniting said assembled parts, substantially as described.

2. In combination, the two pairs of forming-stamps arranged to stamp the separate portions of a button from separate strips of metal, each of said stamps comprising a main forming-stamp and an inner perforating-stamp, a third set of inner and outer stamps for uniting the formed blanks, a shaft common to all said stamps and carrying cams for operating the same, and a carrier for receiving the blanks from the first two stamps and assembling and conveying them to the third stamp, substantially as described.

3. In combination, the forming and joining stamps with means for operating them, the reciprocating slide or carrier arranged to convey the blanks from one stamp to the other, a lever having an arm adapted to retain the blanks against movement until the proper time, and means for operating said lever to release the blanks, substantially as described.

4. In a machine for making buttons from metal strips, the combination with the forming-stamps, of means for imparting to the strip a repeated transverse movement and an intermittent forward movement comprising a transversely-movable carrier, feed-rolls journaled therein, a gear-wheel connected with one of said feed-rolls and movable with the carriage, and a gear journaled in fixed bearings and meshing with said first-named gear, said second gear being of a length corresponding to the length of movement of the carriage substantially as described.

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

WALTHER CARON.

Witnesses:

R. E. JAHN,

OTTO KÖNIG.