

No. 696,629.

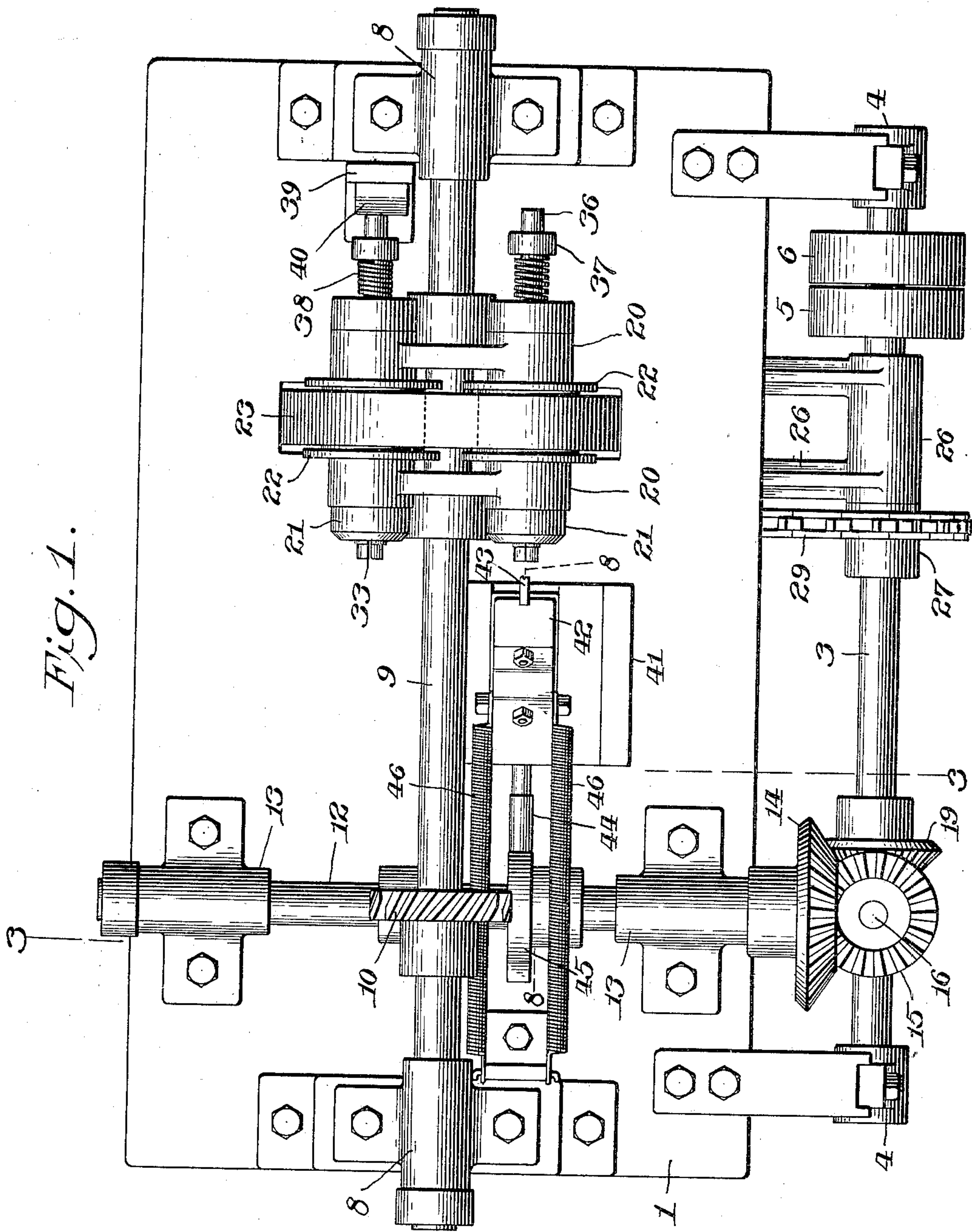
Patented Apr. 1, 1902.

M. GARBEIL.
MACHINE FOR MAKING BUTTONS.

(Application filed Nov. 16, 1901.)

(No Model.)

4 Sheets—Sheet 1.



WITNESSES:

A. V. Group
H. J. Deaton

INVENTOR

Max Garbeil
BY *John R. Allen*
ATTORNEY

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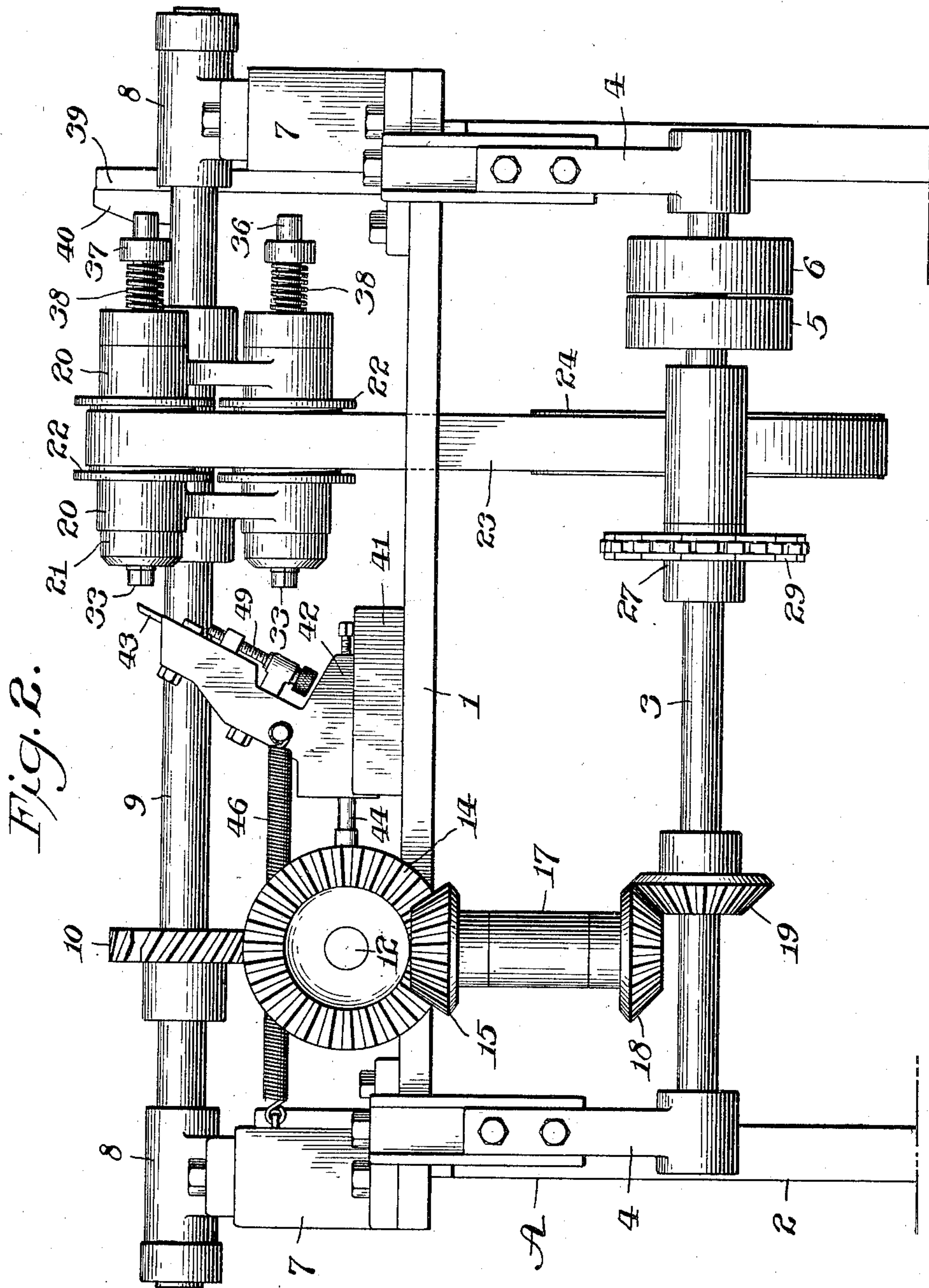
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4 Sheets—Sheet 2.



WITNESSES:

A. V. Group
H. J. Lenton

INVENTOR

Max Garbeil
BY John F. Nolan
ATTORNEY

No. 696,629.

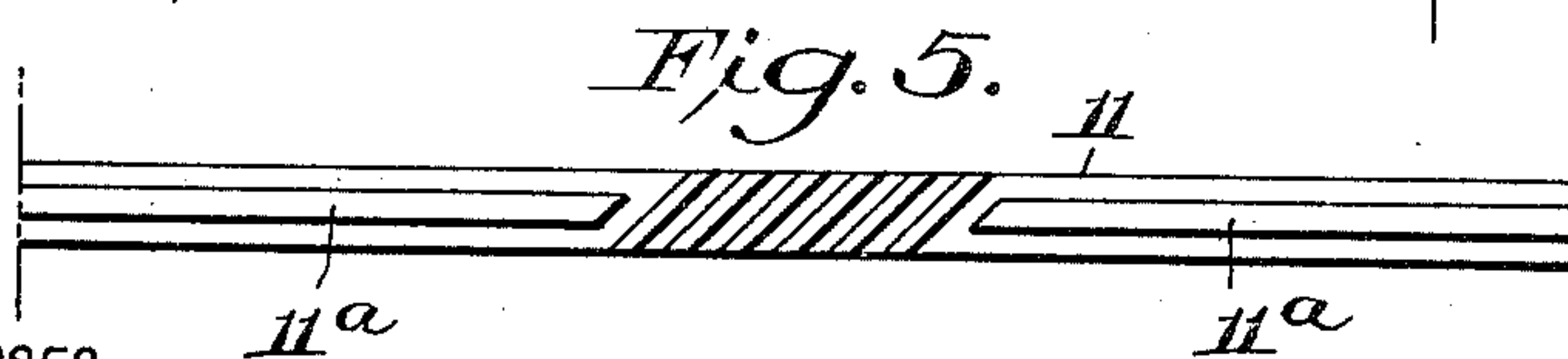
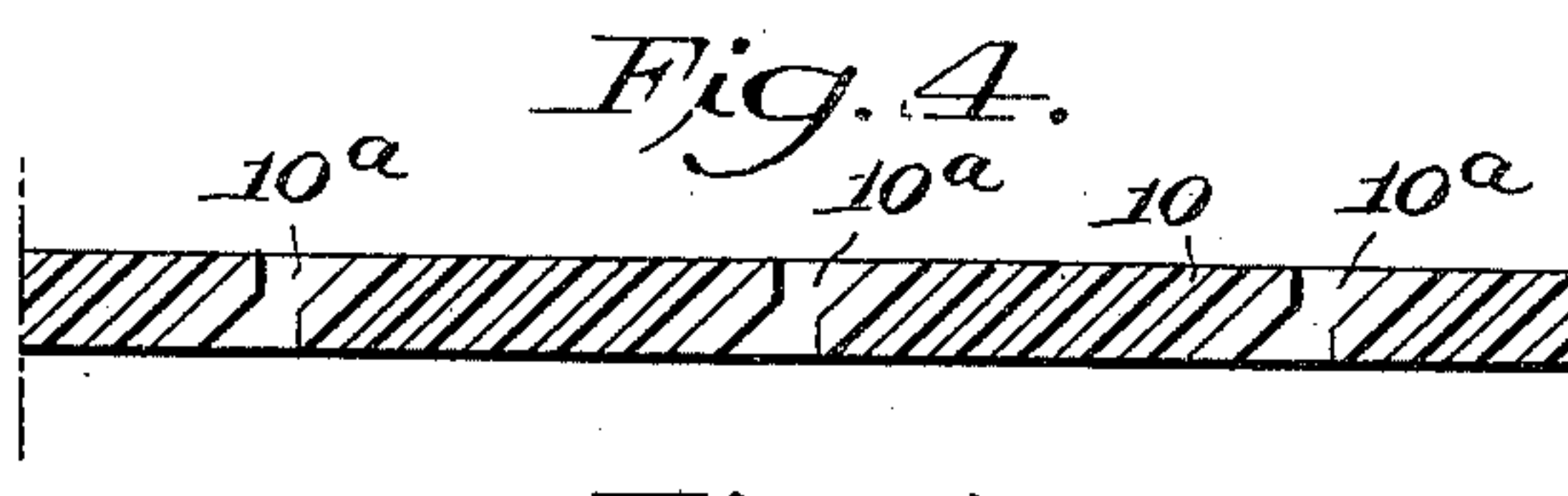
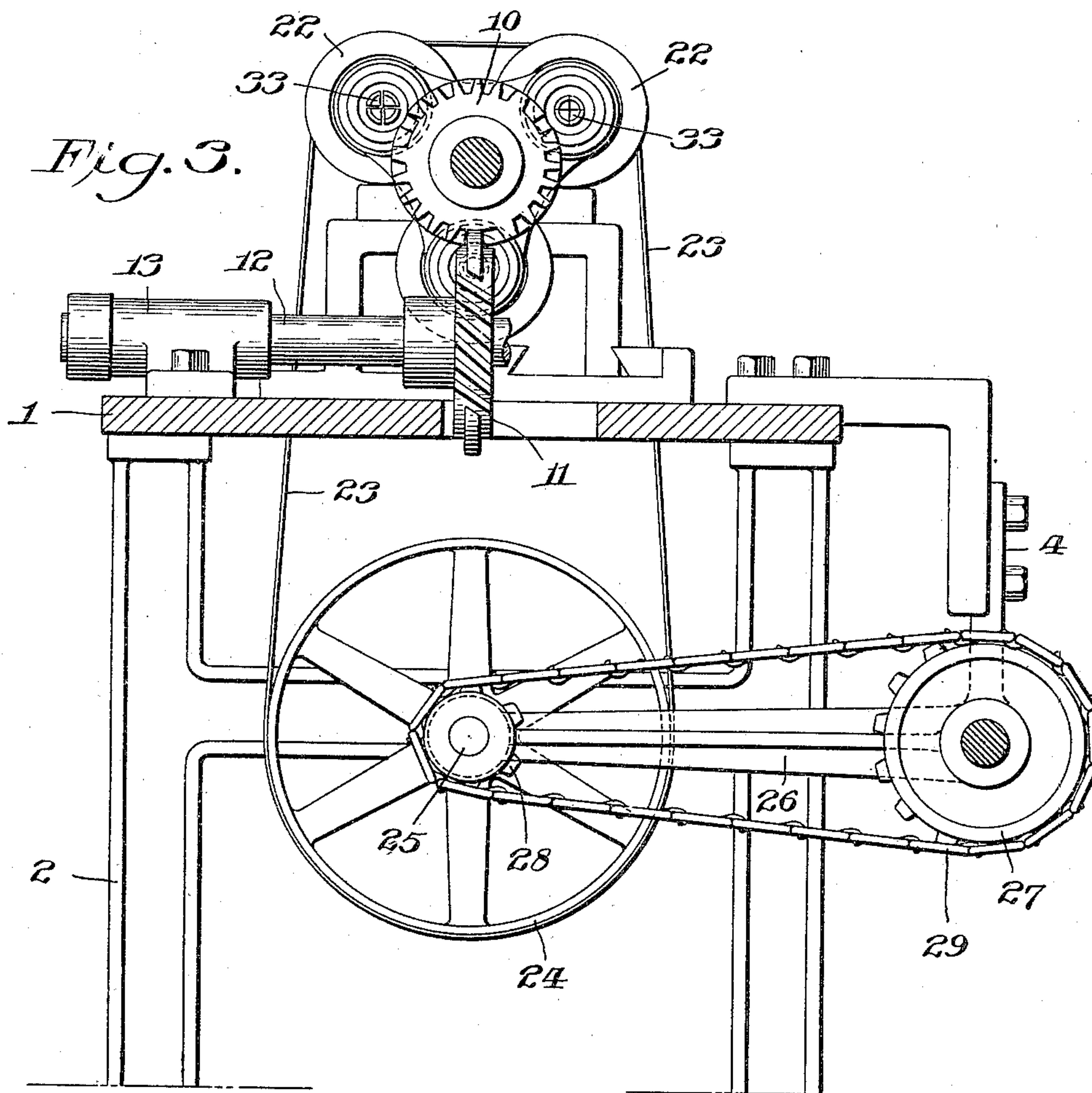
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4 Sheets—Sheet 3.



WITNESSES:

A. V. Group
H. J. Fenton

INVENTOR

Max Garbeil.
BY *John K. Nolan*
ATTORNEY

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(Application filed Nov. 16, 1901.)

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4 Sheets—Sheet 4.

Fig. 6.

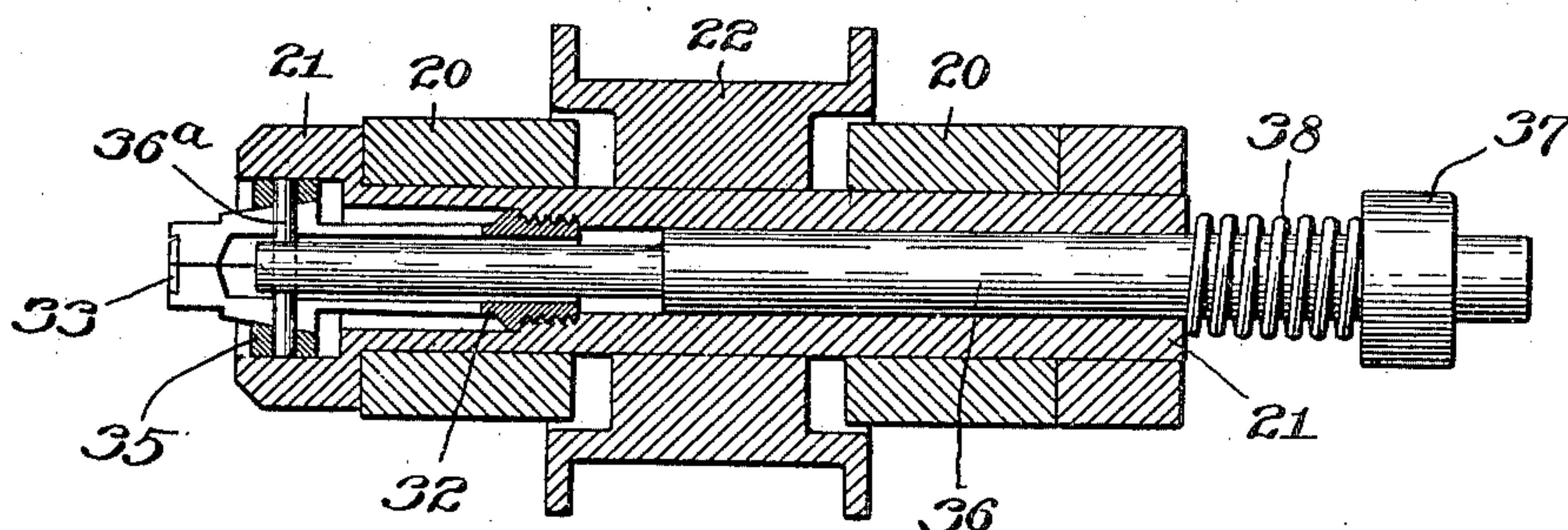


Fig. 7.

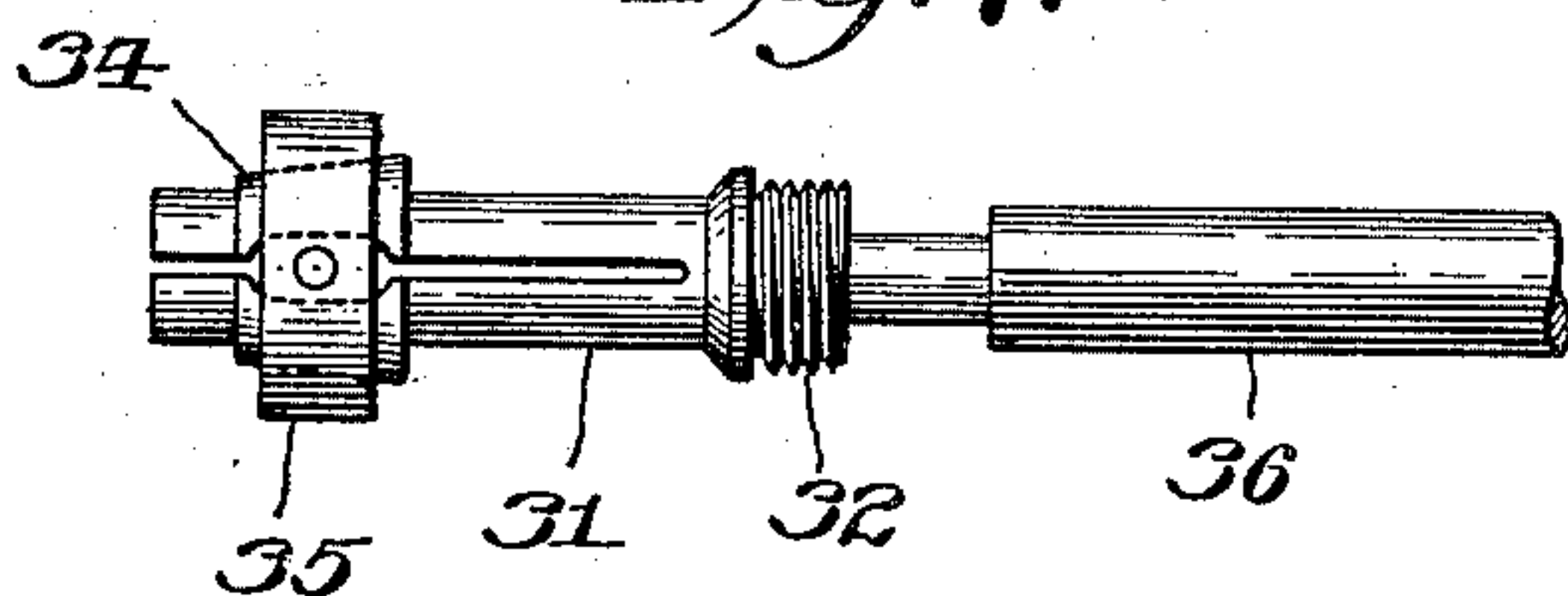
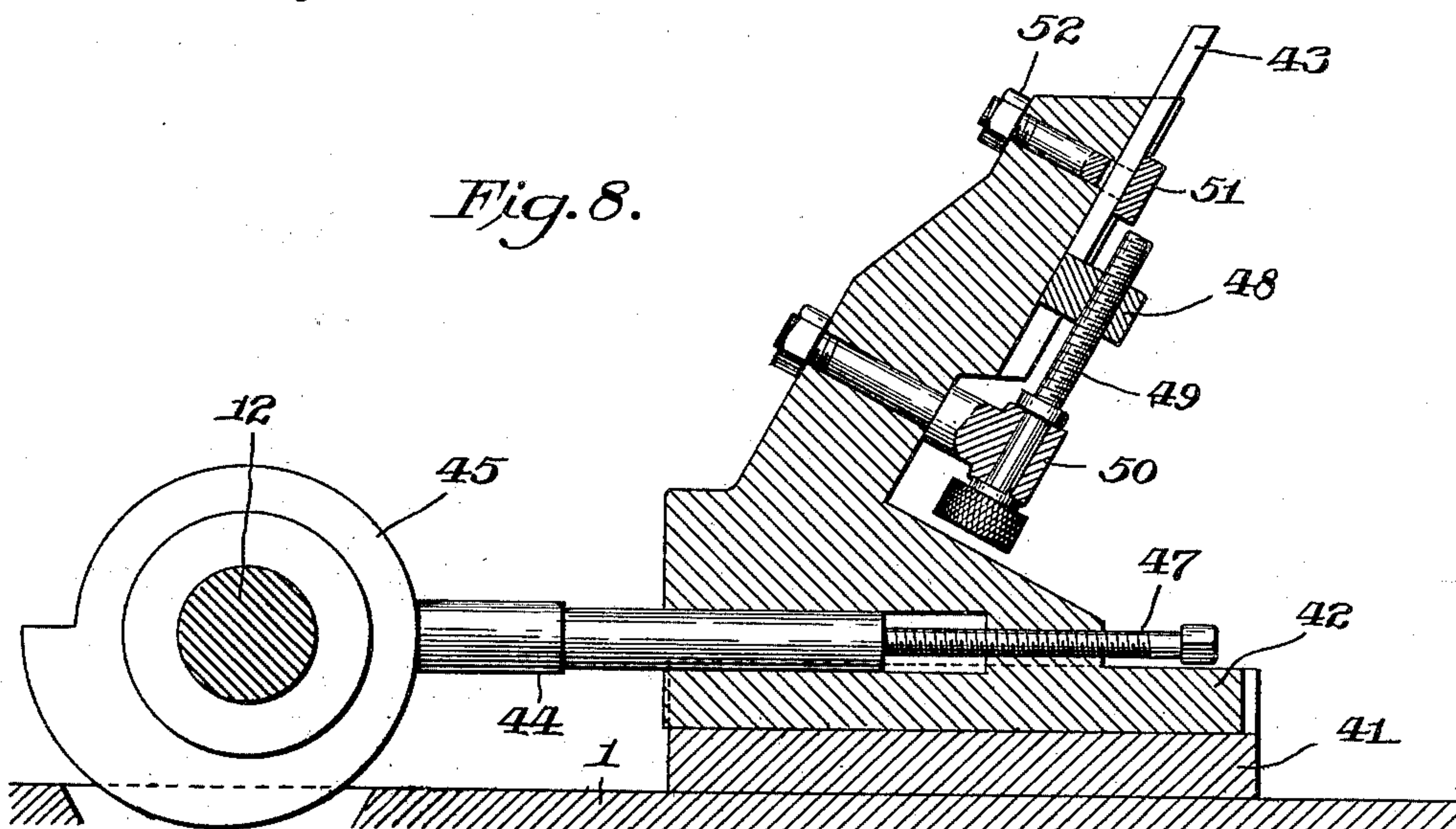


Fig. 8.



WITNESSES:

A. V. Group
H. J. Henton

INVENTOR

Max Garbeil

BY

John R. Nolan

ATTORNEY

UNITED STATES PATENT OFFICE.

MAX GARBEIL, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO ABRAHAM GARBEIL AND MAX GARBEIL, OF PHILADELPHIA, PENNSYLVANIA, CO-PARTNERS TRADING AS GARBEIL BROS. CO.

MACHINE FOR MAKING BUTTONS.

SPECIFICATION forming part of Letters Patent No. 696,629, dated April 1, 1902.

Application filed November 16, 1901. Serial No. 82,606. (No model.)

To all whom it may concern:

Be it known that I, MAX GARBEIL, a citizen of the United States, residing in the city and county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Machines for Making Buttons, of which the following is a specification.

This invention relates to machines for the manufacture of buttons of mother-of-pearl, horn, or similar material, my principal object being to provide a simple and efficient construction and organization of mechanism whereby the application of the disks or blanks to, their treatment upon, and subsequent removal from the machine may be expeditiously effected.

The invention, as generally stated, comprises a novel construction and arrangement of work-holding chucks and supporting and actuating mechanism therefor, together with tool supporting and operating devices and certain other novel features of construction and combinations of parts, which will be hereinafter particularly described and claimed.

In the drawings, Figure 1 is a plan of my improved machine. Fig. 2 is a side elevation thereof. Fig. 3 is a transverse section, as on the line 3 3 of Fig. 1. Figs. 4 and 5 are developments of the upper and lower gear-wheels, respectively, for effecting the intermittent rotation of the chuck-bearing shaft. Fig. 6 is a longitudinal section, enlarged, through one of the chucks and its adjuncts. Fig. 7 is an elevation of one of the chucks removed from its sleeve or casing. Fig. 8 is a vertical section, enlarged, through the tool-holder and its supporting and operating parts, as on the line 8 8 of Fig. 1.

A represents the supporting-frame, comprising the bed 1 and standards 2. 3 is the main shaft, having its bearings in brackets 4 on said frame and being equipped with the fast and loose pulleys 5 6, respectively. On the respective ends of the bed are pedestals 7, provided with suitable boxes 8, in which are journaled the respective ends of a longitudinally-disposed shaft 9. Keyed or otherwise secured on this shaft is a spiral gear 10 of special construction, with which coacts a

special gear 11 on a lower transverse shaft 12, having its bearings in brackets 13 on the bed-plate. On one end of the shaft 12 is a bevel-wheel 14, in mesh with a similar wheel 15 on a vertical shaft 16, having its bearings in a bracket 17, depending from the bed-plate. The lower end of the shaft 16 carries a bevel-wheel 18, which also coacts with a similar wheel 19 on the main shaft. Hence when power is applied to the main shaft the motion is transmitted therefrom through the intermediate gearing to the transverse shaft 12 and thence through the gears 11 and 10 to the longitudinal shaft 9. The construction of the gears 10 11 is such that the shaft 9 is intermittently rotated thereby and also temporarily locked at the end of each step or movement. In the present instance the shaft 9 makes one-third of a revolution during each movement thereof. The peripheries of the two gears are shown developed in Figs. 4 and 5, by reference to which it will be observed that at regular intervals the spiral or inclined teeth of the upper wheel 10 are reinforced and mutilated—that is, at each place two adjacent teeth are thickened and foreshortened on opposite sides of the wheel to afford a transverse interdental space, as indicated at 10^a, and it will also be observed that the lower wheel is provided with a few spiral teeth only, the remainder of the periphery being provided with a circumferential rib 11^a. When the teeth of the lower wheel are in engagement with the teeth of the upper wheel, the latter is rotated thereby one-third of a revolution; but when the rib of the lower wheel registers with the transverse interdental space such rib locks the upper wheel in place until the teeth reengage the teeth of the upper wheel, in which case the latter is turned another third of a revolution, when it is again interlocked with the rib, as before, and so on the upper wheel is intermittently turned and locked by the lower wheel.

Affixed to the shaft 9 are two heads 20, which conjointly constitute a chuck-bearing frame, in which are journaled at equidistant points from the axis of the shaft three rotatable sleeves 21, Fig. 6, each of which sleeves is provided in the space between the two

heads with a flanged wheel 22. Passing about the uppermost wheels is a belt 23, which also passes around a large driving-wheel 24 below the bed-plate. The wheel 24 is carried by a shaft 25, journaled in the free end of a frame 26, which is sleeved on the main shaft. On the two shafts are sprocket-wheels 27 28, respectively, which are geared together by a chain 29, whereby the shaft 25 is positively driven from the main shaft and the motion is transmitted from the shaft 25 to the flanged wheels 22, about which the belt 23 passes, thereby rapidly revolving the sleeves carrying said wheels. It will be seen that the frame 26 will rise and fall during the intermittent rotation of the chuck-frame and that the belt 23 will be thereby maintained in operative engagement with the two uppermost wheels in the latter frame.

At the inner ends of the respective sleeves are chucks 30, which are adapted to receive and hold button-blanks. Each of these chucks comprises a longitudinally-split tube 31, provided with a screw-threaded portion 32, that is screwed into an internally-threaded portion of the sleeve. The split portion of the tube projects beyond the sleeve and constitutes a series of clamping-jaws, which are socketed, as at 33, for the reception of the button-blank. The normal tendency of the jaws is to separate or open, and hence means are provided to close the same and effect the clamping of the work therebetween. To this end the jaws are formed near their acting portions with beveled surfaces 34, which are embraced by a correspondingly-beveled annulus 35, which is slidingly fitted within the forward end of the sleeve. By retracting this annulus the beveled surface thereof coacting with those of the jaws will force the jaws together, and by returning the annulus the jaws being free will resume their open or normal position. Extending axially through the sleeve and the chuck-tube is a spindle 36, provided at its forward end with a transverse pin 36^a, which is connected with the annulus. The rearward end of the spindle extends outwardly of the sleeve and is provided with a collar 37, between which and the sleeve is interposed a stout spring 38, that tends normally to retract the spindle and annulus, and thereby close the jaws. By this construction it will be seen that the acting or clamping portions of the chucks occupy at all times the same vertical plane regardless of variations in the diameter of the blanks applied thereto and that therefore the position of such blanks in respect to the turning-tool (hereinafter described) to which they are presented is always uniform.

Rising from the bed-plate rearwardly of the chuck-frame is a post 39, provided with a cam 40, that lies in the path of the rearward ends of the spindles during the intermittent rotation of said frame. Thus the spindles successively engage the opposing cam and are pressed inwardly thereby to effect the release

of the chuck-jaws. At each dwell of the frame the spindle is maintained retracted by the action of the cam, and the jaws controlled by the particular spindle are therefore in open position for the reception of a button-blank. In the next succeeding movement of the chuck-frame the spindle, escaping the cam, resumes its normal or retracted position, and the blank is thus clamped by and between the jaws. At the same time another spindle engages the cam and the above-described operation is repeated, and so on successively the advancing spindles engage and escape the opposing cam. Mounted on the bed forwardly of the chuck-frame and on the side thereof diametrically opposite to that where the cam is located is a slide-rest 41, to which is fitted a slide 42, carrying a turning bit or tool 43, that is designed to act upon and shape the face of the rapidly-rotating button-blank opposite thereto in one of the uppermost revolving chucks. The slide is reciprocated toward and from the chuck-holder at predetermined intervals in a manner to act upon the successive blanks during the stages of rest of the intermittently-rotatable holder. When the chucks are opened through the instrumentality of the cam 40, as above described, the turned buttons are removed therefrom by the attendant, and other blanks to be turned are then applied to the open chucks. In the present instance the slide-rest is provided with a rearwardly-extending rod 44, which is maintained yieldingly in contact with a cam 45 on the shaft 12 by means of a retracting spring or springs 46, secured to the slide and to one of the pedestals 7, the peripheral contour of the cam being such as to effect the progressive advancement of the slide toward the button-blank and then to release the slide to permit the spring to retract the latter. A set-screw 47, fitted in the slide, acts against the opposing extremity of the rod to permit relative adjustment between the rod and slide. (See Fig. 8.)

The tool 43 is fitted to an inclined guide-way in the forward face of the slide and is therein adjustable in respect to the plane of the button-blank, as need may require. The butt of the tool rests upon a tapped block 48, through which extends a suitably-disposed set-screw 49, carried by a bracket 50, bolted or otherwise secured to the slide, whereby when said screw is manipulated the block may be raised or lowered, as desired, to accomplish the corresponding adjustment of the tool. This tool extends freely through a transversely-slotted bolt 51 in the slide, so that by properly turning the screw-nut 52 of the bolt the tool may be released preparatory to adjustment and may then be clamped in the predetermined position of adjustment.

I claim—

1. In a button-making machine, the combination with a tool and support therefor, of a chuck-bearing frame, a series of chucks therein, means for intermittently rotating said

frame to advance the chucks successively in proximity to the tool, pulleys on said chucks, a driven pulley below the same, a band passing about the latter pulley and the chuck-pulleys, a movable support for said driven pulley, said support acting automatically to maintain the band taut about the pulleys, and means for actuating said driven pulley.

2. In a button-making machine, the combination with a tool and support therefor, of a chuck-bearing frame, a series of chucks therein, and means for intermittently rotating said frame to advance the chucks successively in proximity to the tool, pulleys on said chucks, a driven pulley below the same, a belt passing about the latter pulley and the chuck-pulleys, a main shaft, a rock-frame sleeved thereon for the support of the shaft of the driven pulley, and gearing between the main shaft and the pulley-shaft.

3. In a button-making machine, the combination with a tool and support therefor, of a shaft, a chuck-bearing frame thereon, a series of rotatable sleeves in said frame, normally closed chucks in said sleeves, means for intermittently rotating said frame, and means for successively opening the chucks during the movement of said frame, the last-named means including longitudinally-movable spindles arranged within said sleeves and connected with the chucks, and a stationary cam mounted in the path of said spindles and adapted to be engaged thereby during the rotation of the chuck-bearing frame.

4. In a button-making machine, a chuck comprising a sleeve or casing, a series of clamping-jaws therein having beveled surfaces, a beveled annulus coacting with such

surfaces, an axial spindle extending between said jaws and connected with the annulus, and a spring tending to retract said annulus and maintain the jaws in closed or clamping position.

5. In a button-making machine, a chuck-bearing frame, means for intermittently rotating the same, and a series of chucks in said frame comprising each a sleeve or casing, a series of externally-beveled clamping-jaws in said sleeve or casing, a beveled annulus coacting with the beveled portions of the jaws, an axial spindle extending through said sleeve or casing and between the jaws, a connection between said spindle and the annulus, and a spring tending to retract said spindle and annulus and thereby to maintain the jaws in closed or clamping position, in combination with a cam mounted in the paths of the respective spindles and adapted to be engaged thereby during the rotation of the chuck-bearing frame.

6. In a button-making machine, the combination with a tool and tool-support, of a shaft, a chuck-bearing frame thereon, a series of chucks in said frame, a spiral gear on said shaft provided at intervals with transverse interdental spaces, a coacting gear provided with a series of teeth and a peripheral rib, as described, and means for rotating the latter gear.

In testimony whereof I affix my signature in presence of two witnesses.

MAX GARBEIL.

Witnesses:

ANDREW V. GROUPE,
JOHN R. NOLAN.