

No. 842,291.

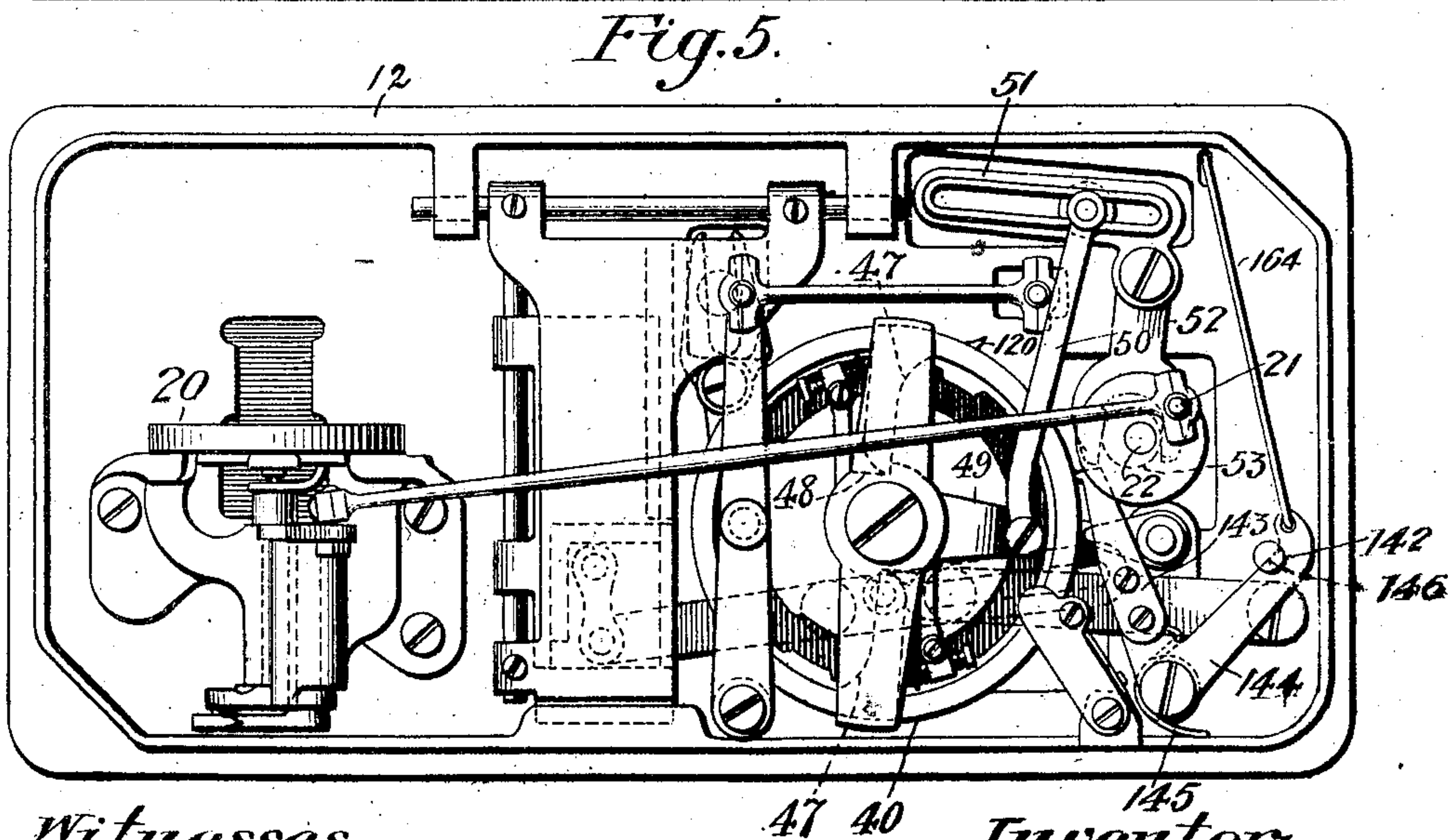
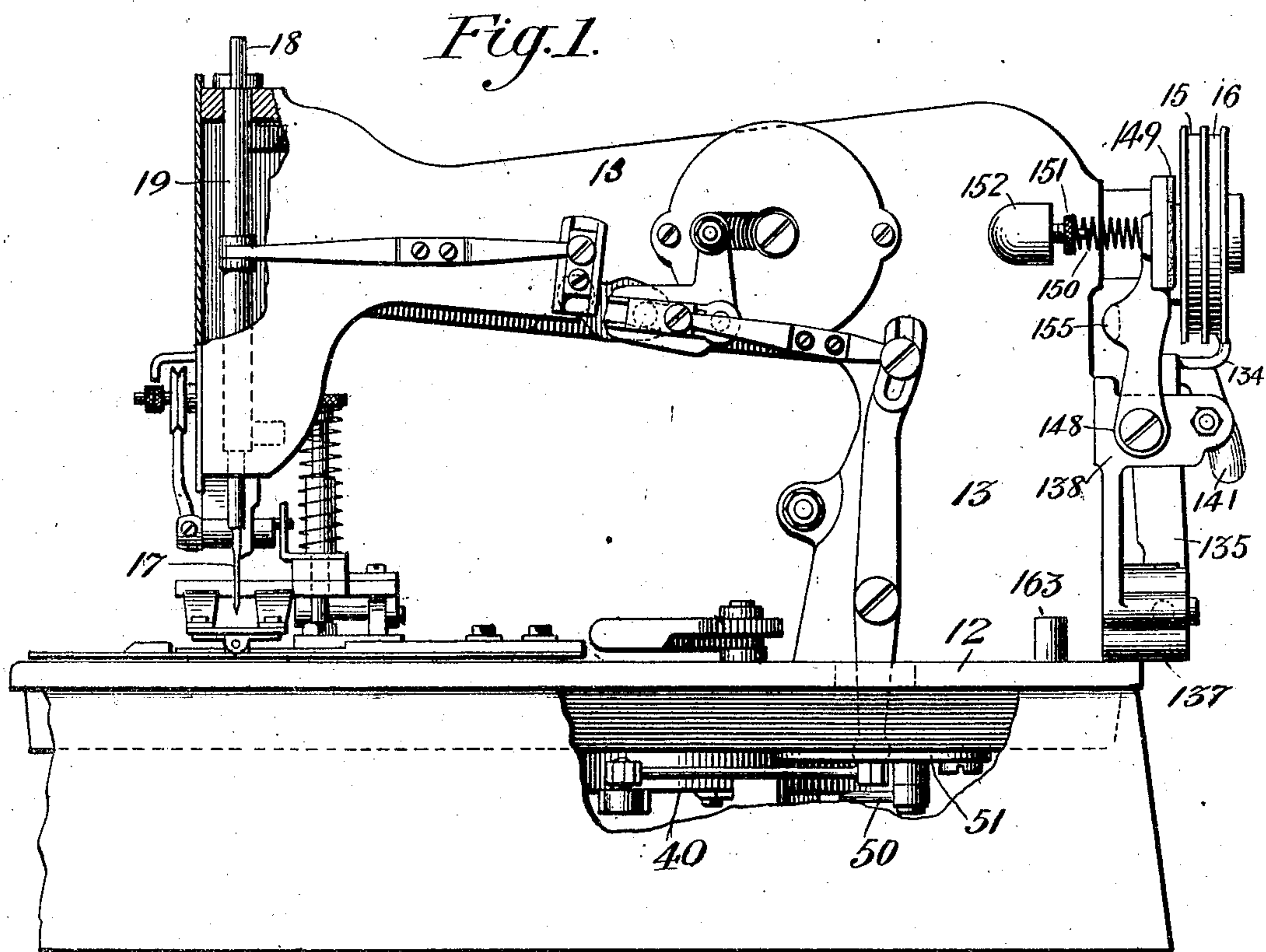
PATENTED JAN. 29, 1907.

E. B. ALLEN.

STOP MOTION DEVICE FOR SEWING MACHINES.

APPLICATION FILED JAN. 29, 1906.

2 SHEETS—SHEET 1.



Witnesses:

C. M. Sweeney
J. D. Klinge

Inventor:

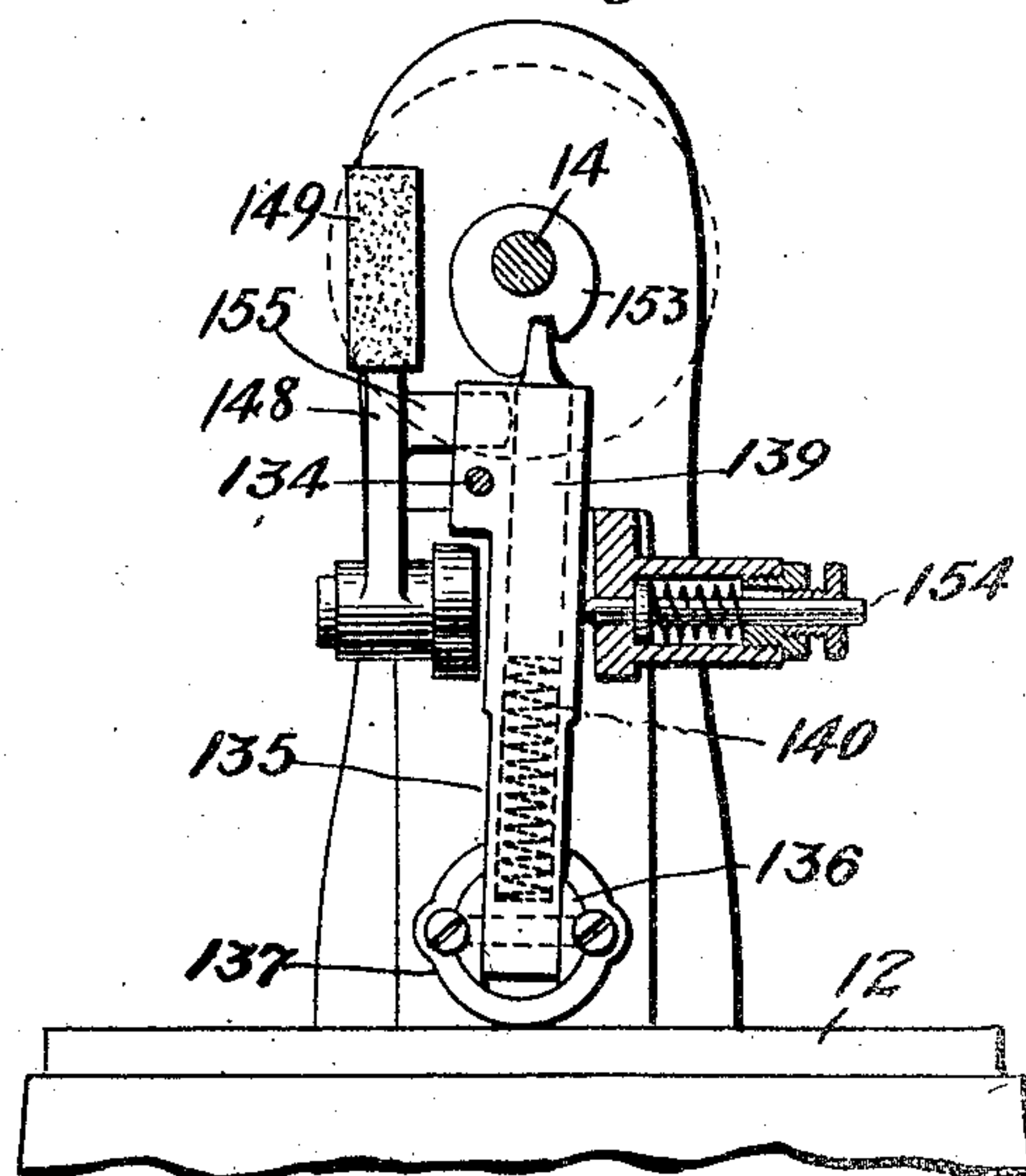
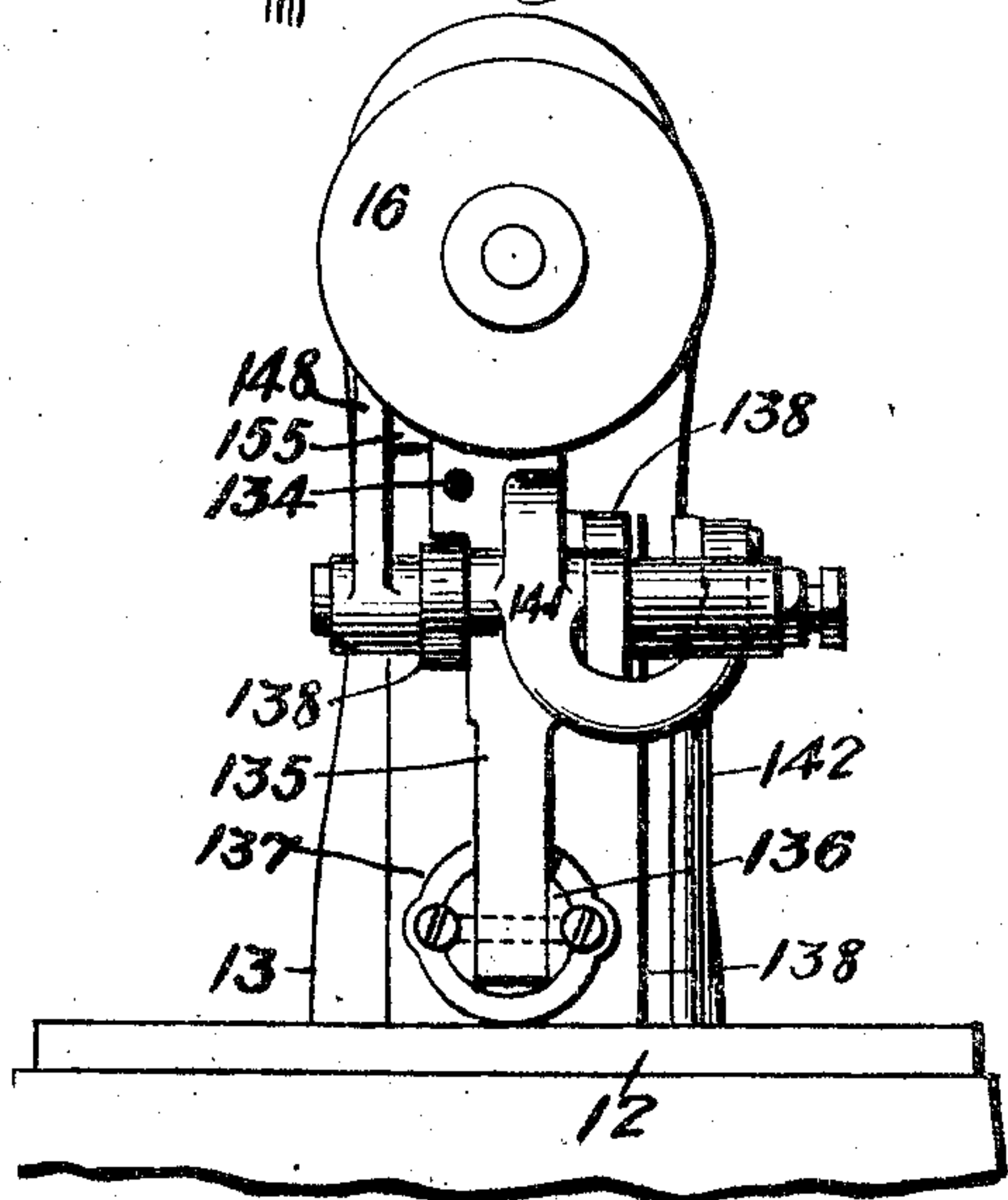
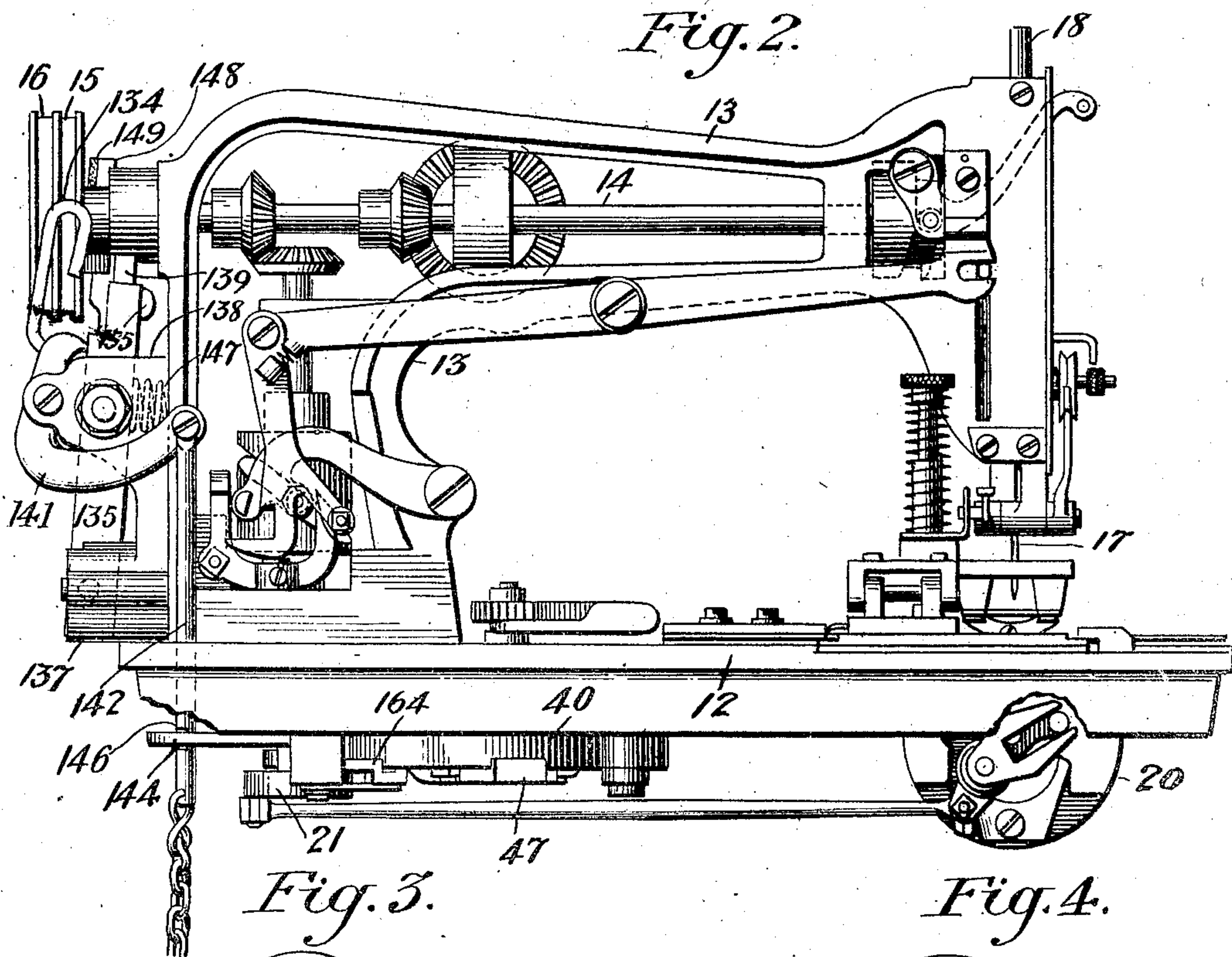
Edward B. Allen
by *Klinge* Attorney.

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2 SHEETS—SHEET 2.



Witnesses:

C. M. Sweeney
J. D. Klinge

Inventor:

Edward B. Allen
by *Stimpson*
Attor.

UNITED STATES PATENT OFFICE.

EDWARD B. ALLEN, OF ELIZABETH, NEW JERSEY, ASSIGNOR TO THE SINGER MANUFACTURING COMPANY, A CORPORATION OF NEW JERSEY.

STOP-MOTION DEVICE FOR SEWING-MACHINES.

No. 842,291.

Specification of Letters Pat.

Patented Jan. 29, 1907.

Application filed January 29, 1906. Serial No. 298,435.

To all whom it may concern:

Be it known that I, EDWARD B. ALLEN, a citizen of the United States, residing at Elizabeth, in the county of Union and State of New Jersey, have invented or discovered certain new and useful Improvements in Stop-Motion Devices for Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to that class of stop-motion devices for sewing-machines by means of which such machines may be automatically stopped after groups of a desired number of stitches have been made, as in stitching buttonholes, sewing on buttons, forming bars or tacks, and in other similar sewing operations requiring the formation of groups of a predetermined number of stitches, the invention having for its object to provide a stop-motion device or mechanism of the class referred to which will include a friction-pad so arranged and operated that the machine may be brought almost to a full stop by said pad before a positive stopping device comes into operation to finally arrest the movement of the driving-shaft of the machine, thereby reducing the shock or jar incidental to the final stopping operation to a minimum.

In the accompanying drawings, Figures. 1 and 2 are opposite side elevations of a buttonhole-stitching machine embodying the present invention. Figs. 3 and 4 are rear end elevations of the machine, Fig. 4 being partly in section, so as to show some parts which are hidden in Fig. 3. Fig. 5 is a bottom view of the machine shown in the other figures.

Referring to the drawings, 12 denotes the work-plate, 13 the arm of the machine, and 14 the main shaft journaled in the upper part of said arm and provided at its rear end with the fast and loose pulleys 15 16. The stitch-forming mechanism of the machine is of an old and well-known character and comprises the needle 17, carried by the needle-bar 18, having a crank and pitman connection (not shown) with the forward end of the main shaft 14, so as to reciprocate vertically in a horizontally-swinging frame or gate 19, said needle cooperating in the usual manner with an oscillating shuttle working in the shuttle-race 20 and operated from a crank 21 at the lower end of the vertical shaft 22, geared

to the main shaft, (see Fig. 2,) so as to rotate coincidentally therewith.

The present machine includes means for imparting horizontal movements to the swinging needle-bar frame or gate 19 for the purpose of making overseaming or overedge stitches and also includes a buttonhole-cutting mechanism and a work-clamp; but as these and some other features of this machine are not herein claimed, but are included in the joint application of myself and William E. Goodyear, filed January 8, 1906, Serial No. 295,077, only so much of the present machine as will be necessary to an understanding of the stop-motion mechanism thereof need be herein described.

The feed-wheel 40, which is connected with the work-clamp so as to impart proper feeding movements thereto, is intermittently rotated by clutch-dogs 47, gripping the flange of said wheel in a well known manner, and operated by a rocking hub 48, having an arm 49, connected by a link 50 with the slotted arm 51 of a bell-crank lever, the other arm 52 of which is forked to embrace an eccentric 53 on the vertical shaft 22.

Adjacent to the fast and loose pulleys 15 and 16 on the main or driving shaft 14 is a belt-shifter 134, carried by the stop-motion lever or stopping-lever 135, pivoted to swing in and out on a rocking block 136, held in a hub 137 on a bracket 138, attached to the arm 13 of the machine. Within the lever 135 is a vertically-movable plunger 139, yieldingly pressed upward by a spring 140. Pivoted in suitable ears in the bracket 138 is a setting and holding lever 141, the short upper arm of which is arranged to engage the stopping-lever 135 to force the latter inward, as shown in Fig. 2, when the rod 142, attached to the longer arm of said lever and which is to be connected with a suitable treadle, is depressed. Beneath the bed-plate of the machine is a two-armed tripping-lever 143 144, the arm 143 of which is provided with a toe-piece to be engaged by the tripping lug or projection 120 on the intermittently-rotating feed-wheel 40 when the machine is to be stopped, the other arm 144 of said lever being held by the stress of the spring 145 in a notch 146 in the treadle-rod 142 to hold the parts in the running position of the machine against the stress of the spring 147, serving to force the stopping-lever outward when the said

lever 143 144 is tripped by the lug or projection 120, and the arm 144 of said lever is thus removed from the holding-notch in the rod 142.

5 Pivotaly mounted on the bracket 138 is a brake-lever 148, carrying a soft or non-metallic friction-pad 149, arranged to press against the inner face of the fast pulley 15 near the periphery of said face, said pad being forced
10 toward said pulley by a spring 150, the stress of which may be varied by the adjusting-pin 151, tapped in a lug 152 on the arm 13 and having a nut or collar against which said spring abuts. Fast on the main shaft 14 is
15 a stopping cam or tappet 153, to be engaged by the plunger 137 when the machine is to be stopped, and pressing against the stopping-lever to soften the impact of the blow of the stopping-tappet against the said plunger
20 or to absorb a part of the shock of such blow is a spring-pressed cushioning-pin 154. The brake-lever 148 is provided with an arm 155, extending behind the stopping-lever 135, so that when said lever is forced inward to
25 the position shown in Figs. 1 and 2 and the parts are in the running position of the machine the said lever will hold the friction-pad 149 away from the face of the fast pulley; but when the stopping-lever is moved
30 outward to stopping position said pad will be pressed by the spring 150 against said pulley to arrest its movement. As the stopping-lever will be tripped in stopping the machine nearly a full revolution of the main
35 shaft before the tappet 153 strikes the plunger 137, the speed of rotation of the shaft 14 will be so slackened or reduced by the friction-pad 149 by the time the final stop is to occur that the jar or impact will be softened
40 to any desired degree, depending on the adjustment of said spring, and such adjustment of said spring may be made that the final blow or shock in stopping will be hardly perceptible.

45 The stop-motion device may be tripped manually by a laterally-movable push-button 163, connected by a link 164 with the arm 144 of the holding and tripping lever.

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

1. In a stop-motion device, the combination with a rotary shaft having fast and loose pulleys thereon, of a belt-shifter, holding
55 means for retaining said belt-shifter in position so that the driving-belt will run on said fast pulley, automatic means for tripping the said holding means and for moving said belt-shifter, to transfer the driving-belt from said
60 fast pulley to said loose pulley, a positive stopping device for said shaft, and a friction-pad which is operated independently of the said positive stopping device and which is released when the said belt-shifter is moved to
65 transfer the said driving-belt to said loose

pulley, the said friction-pad being arranged that when thus released it will be forced against said fast pulley to arrest or retard the rotation thereof before the said positive stopping device comes into operation, so as to soften the jar or shock of the final stop.

2. In a stop-motion device, the combination with a rotary shaft having fast and loose pulleys thereon, of a belt-shifter, holding
75 means for retaining said belt-shifter in such position that the driving-belt will run on said fast pulley, automatic means for tripping said holding means and for moving said belt-shifter, to transfer the driving-belt from said
80 fast pulley to said loose pulley, a positive stopping device for said shaft comprising a stopping-lever, a friction-pad which is operated independently of the said stopping-lever and which is released when the said belt-
85 shifter is moved to transfer said driving-belt to said loose pulley, a spring which serves to force said friction-pad against said fast pulley, and adjusting means for varying the stress of said spring to cause more or less ar-
90 resting or retarding action to be exerted by said friction-pad before the said positive stopping device comes into operation; whereby the jar or shock of the final stop may be softened to any desired degree.

3. A stop-motion device comprising a driven shaft, a positive stopping device therefor, an independently-mounted and independently-operated arresting or retarding
100 device for said shaft, and common means for tripping said arresting or retarding and positive stopping devices into action to effect their successive operation upon the driven shaft.

4. A stop-motion device comprising a
105 driven shaft, a positive stopping device therefor, an independently-mounted and independently-operated arresting or retarding device for said shaft, common means for tripping said arresting or retarding and positive
110 stopping devices into action to effect their successive operation upon the driven shaft, and a cushioning device for the said positive stopping device.

5. A stop-motion device comprising the
115 combination with a driven shaft and a wheel or pulley fixed thereto, of a positive stopping device for said shaft comprising a stopping-lever, an arresting or retarding device separate from and operated, for its retarding
120 function, independently of said stopping-lever and consisting of a spring-pressed pad arranged to press against said wheel or pulley, and common means for bringing said arresting or retarding and positive stopping devices
125 into action to effect their successive operation upon the said driven shaft.

6. A stop-motion device comprising the combination with a driven shaft and a wheel
130 or pulley fixed thereto, of a positive stopping

device for said shaft comprising a stopping-
lever, an arresting or retarding device sepa-
rate from and operated, for its retarding
function, independently of said stopping-le-
5 ver and consisting of a spring-pressed pad ar-
ranged to press against said wheel or pulley,
common means for bringing said arresting or
retarding and positive stopping device into
action to effect their successive operation

upon the said driven shaft, and cushioning ro
means for the said stopping-lever.

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

EDWARD B. ALLEN.

Witnesses:

HENRY A. KORNEMANN,
HENRY J. MILLER.