

**Sept. 2, 1958**

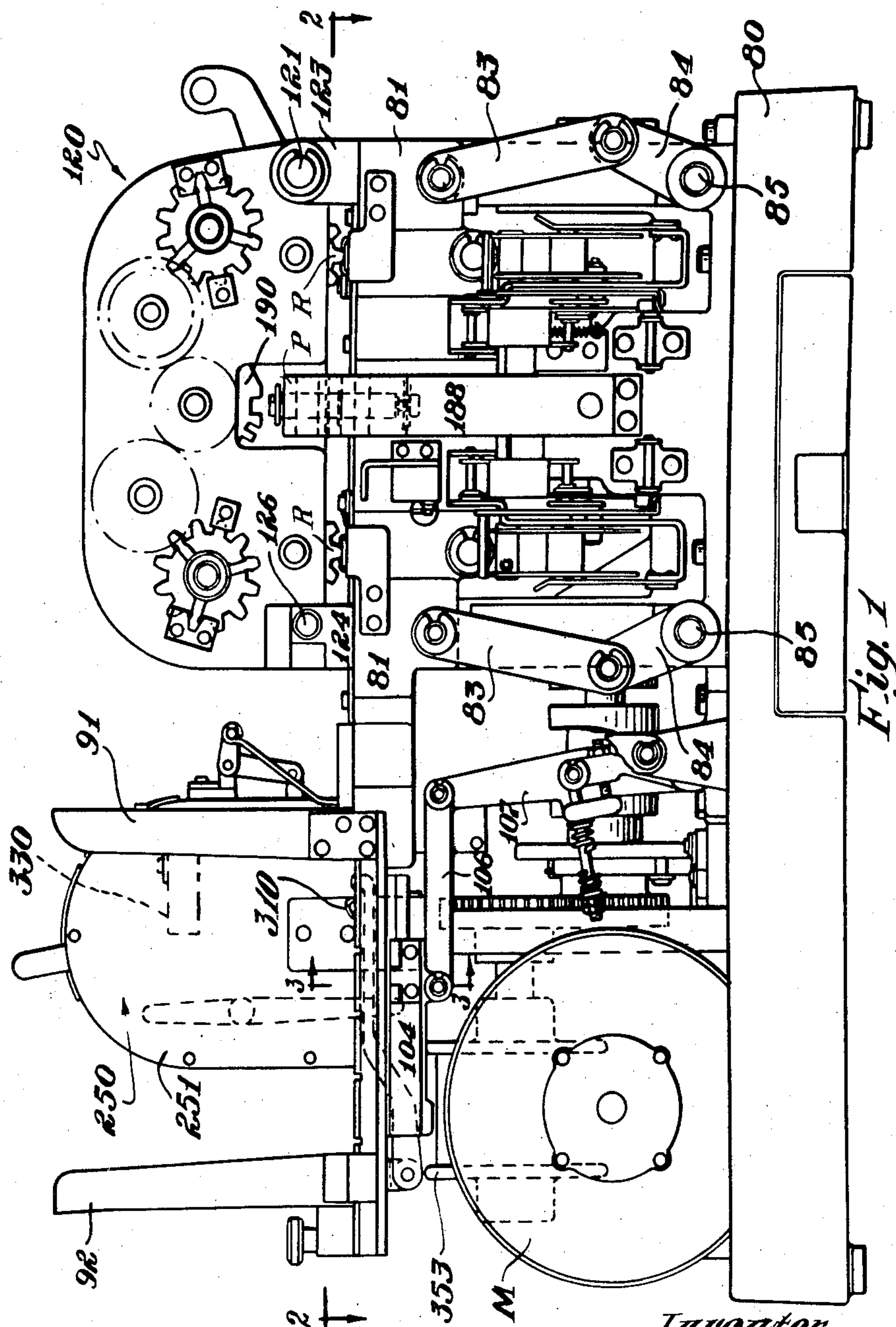
**A. M. SWETT**

**2,850,208**

**TAG MACHINE**

Filed March 11. 1955

3 Sheets-Sheet 1



*Inventor*  
*Alan M. Swett*  
*by Roberts, Cushman & Grover*  
*Att'ys.*

Sept. 2, 1958

A. M. SWETT

2,850,208

TAG MACHINE

Filed March 11, 1955

3 Sheets-Sheet 2

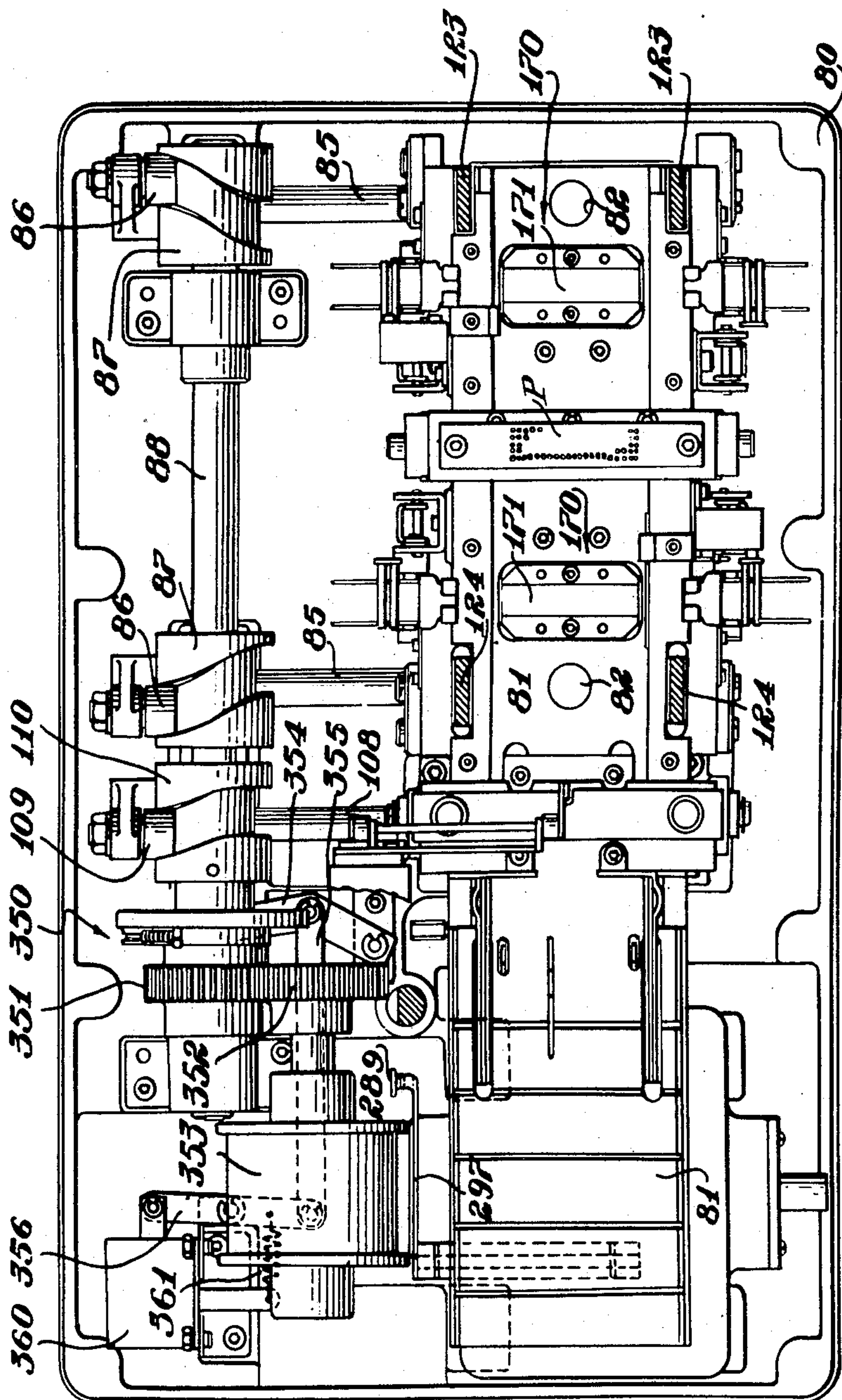


Fig. 2

Inventor  
Alan M. Swett  
by Roberts, Cushman & Hoover  
Att'ys.

Sept. 2, 1958

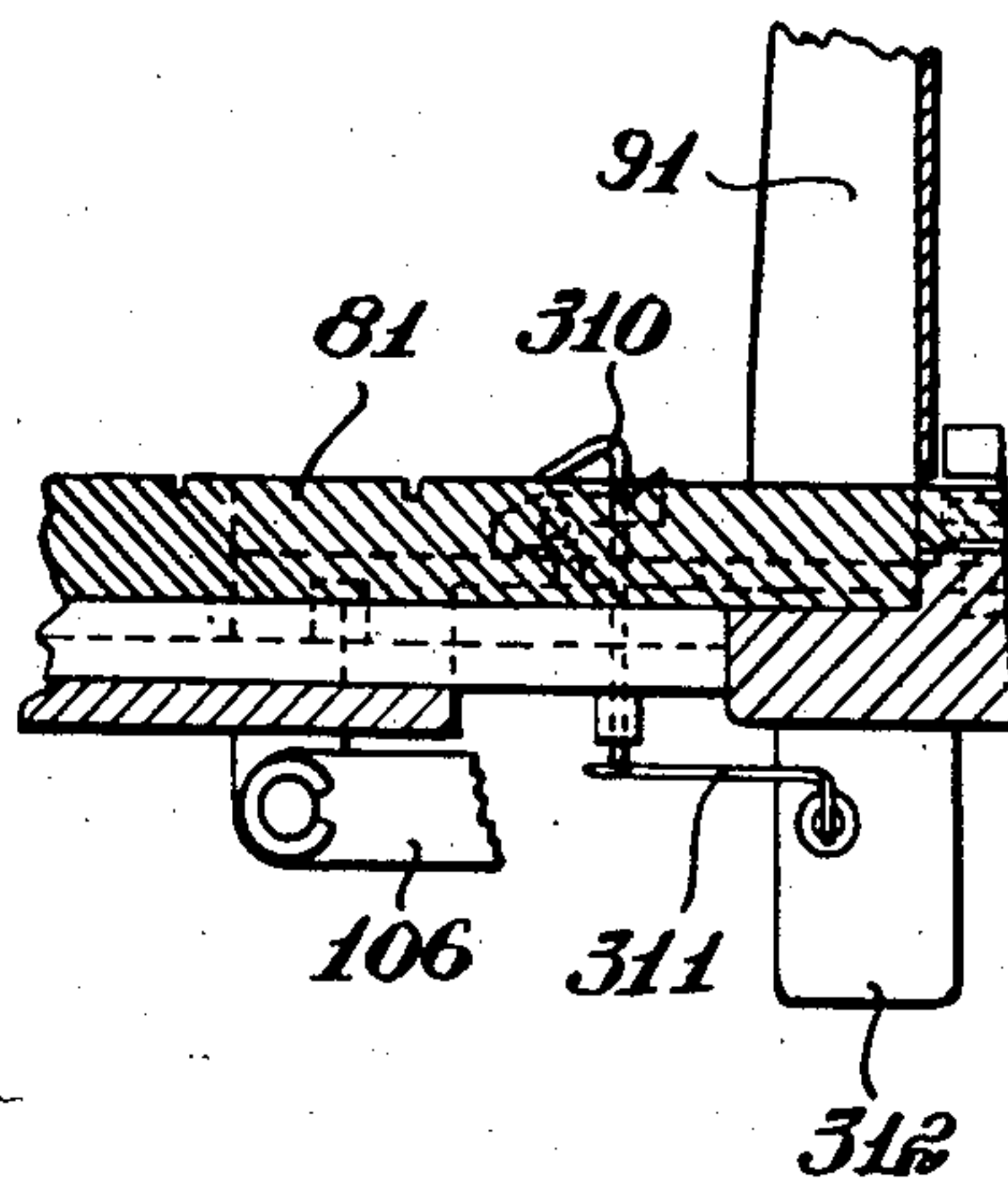
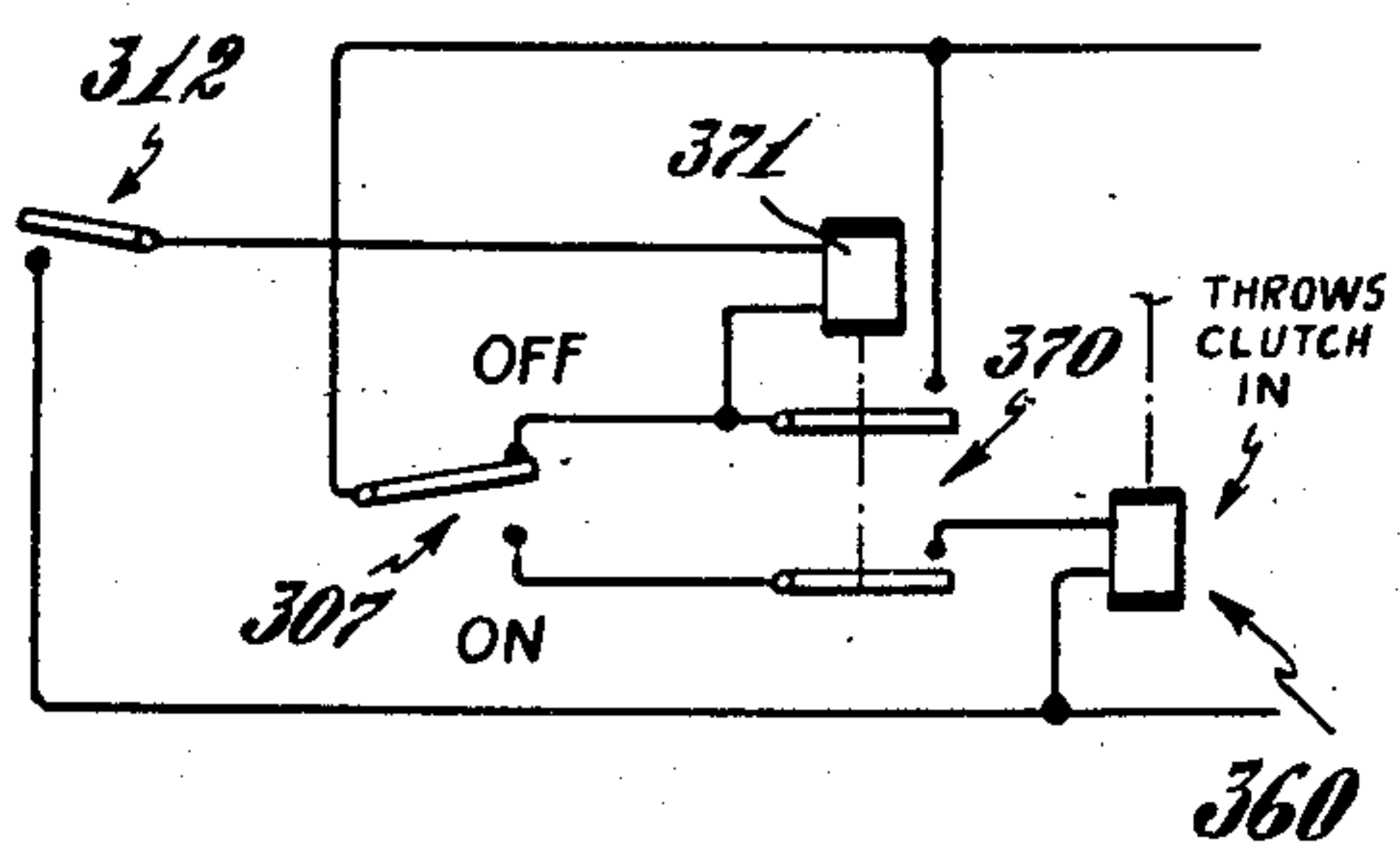
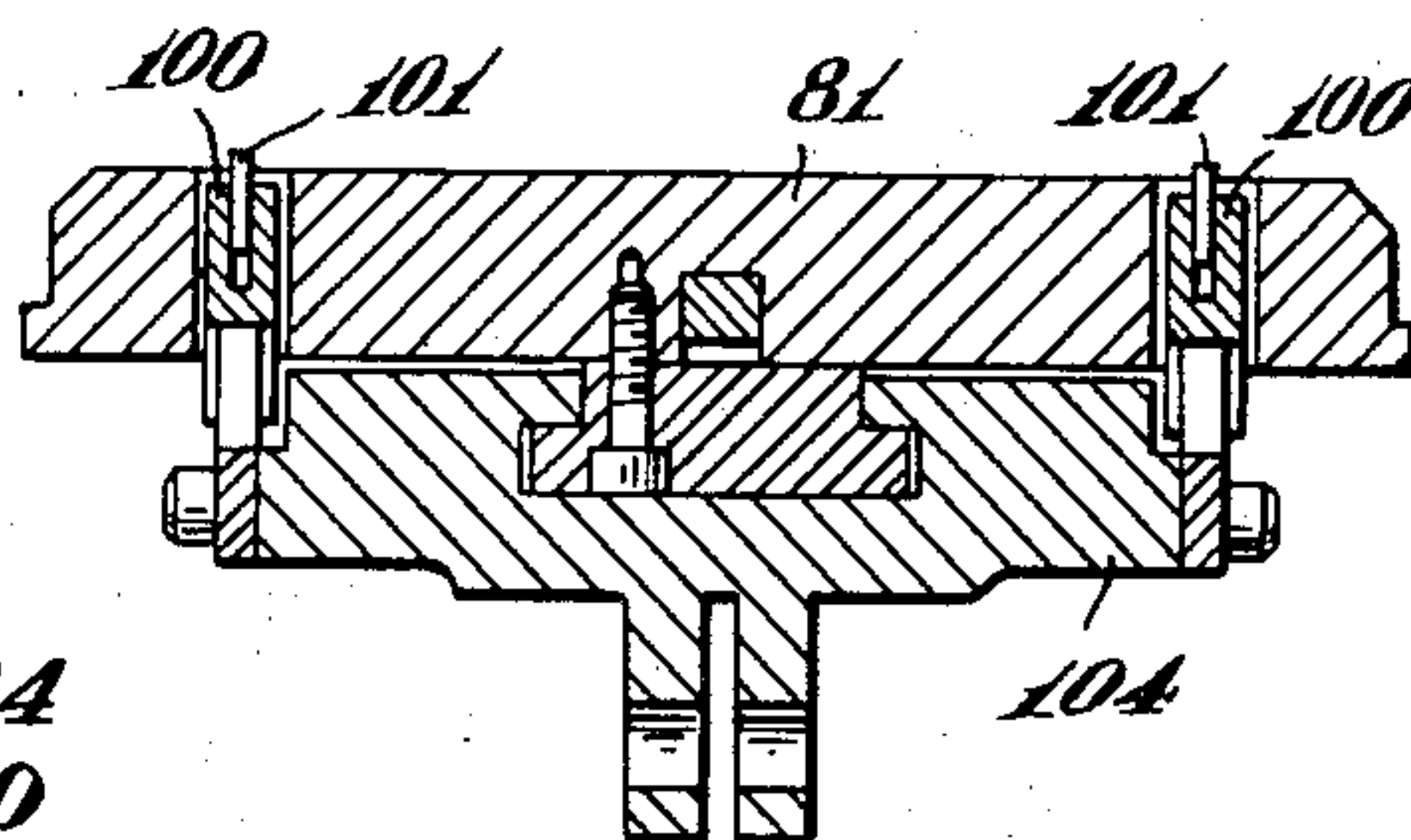
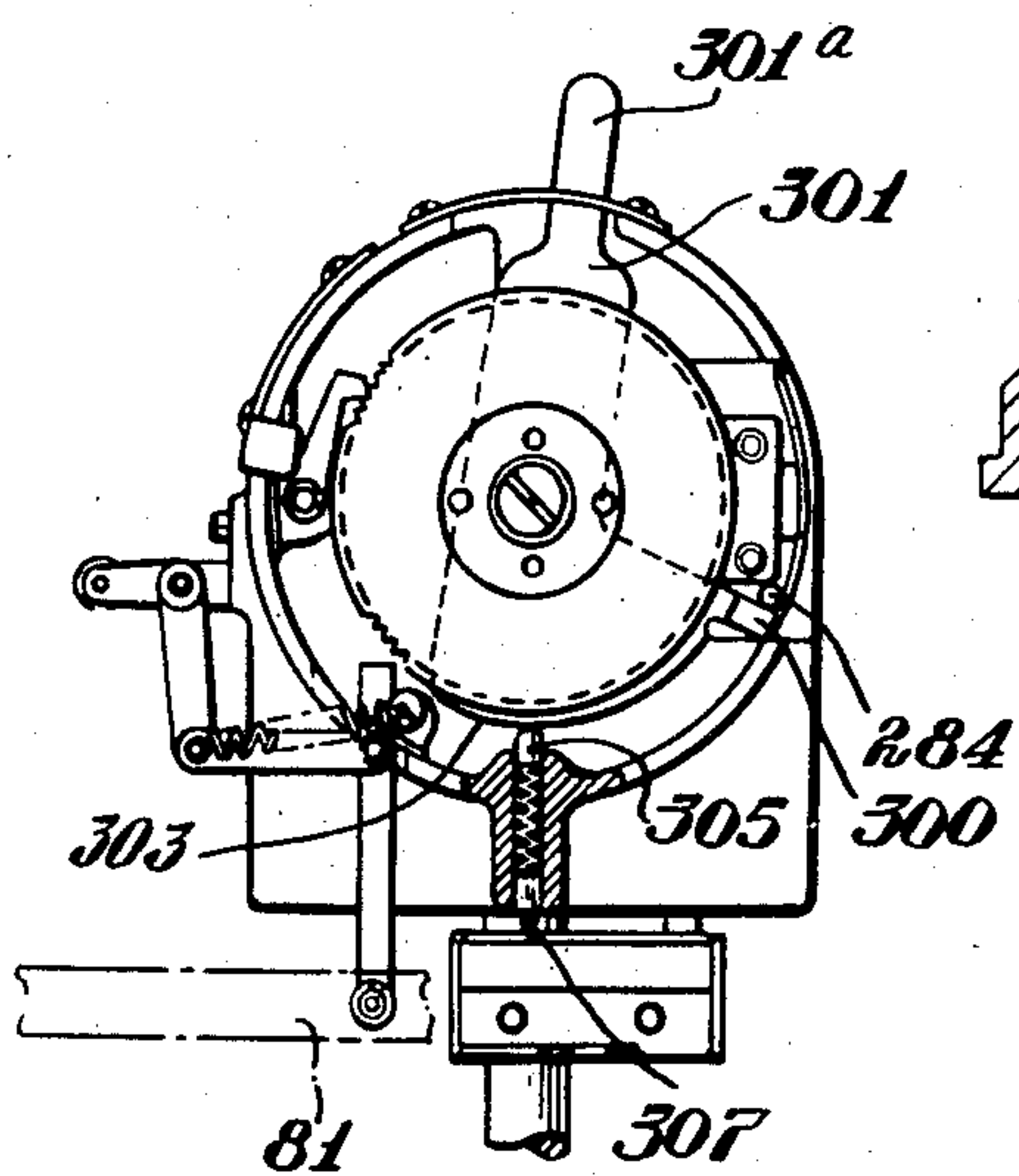
A. M. SWETT

2,850,208

TAG MACHINE

Filed March 11, 1955

3 Sheets-Sheet 3



Inventor  
Alan M. Swett  
by Robert Rushman & Groves  
Att'ys.



1

2,850,208

## TAG MACHINE

Alan M. Swett, Milton, Mass., assignor to Dennison Manufacturing Company, Framingham, Mass., a corporation of Massachusetts

Application March 11, 1955, Serial No. 493,774

5 Claims. (Cl. 221-14)

This invention relates to tag machines and more particularly to the control of such a machine. The invention is shown as applied to a tag machine such as disclosed in the assignee's patent application Number 493,754 filed on March 11, 1955, by Arnold R. Bone and Donald D. Sloan for Method and Apparatus for Operating on Sectional Tag Material, to which reference may be had for full details of construction and operation of the machine. The present application, for simplicity, omits many of the parts of that machine that are not directly concerned with its control.

In said Bone and Sloan application sectional tags are fed section by section from a magazine past counting and indicia-applying devices. At each cycle of operation of the machine the tag material is advanced to the extent of one section, and a bed carrying the tag material rises and subjects the tag material to the action of the counting and indicia-applying devices. In the machine shown in the said Bone and Sloan application the indicia-applying devices comprise two selectively settable printing devices and a punching device adapted to punch coded indicia corresponding to certain of the printed indicia.

The present invention which is disclosed in said Bone and Sloan application but not claimed therein provides a mechanism for control of the machine particularly adapted to prevent starting of the cyclic operation of the machine, including operation of the tag feeding means and operation of the printing and punching means, upon mere replenishment or partial replenishment of an exhausted supply of tag material in the magazine.

In the accompanying drawings,

Fig. 1 is a side elevation of the machine;

Fig. 2 is a view taken generally in plan, at the level of the top of the bed of the machine, that is, generally on the line 2-2 of Fig. 1, but with some parts omitted;

Fig. 3 is a vertical transverse sectional view taken on the line 3-3 of Fig. 1;

Fig. 4 is a fragmentary view mainly in vertical longitudinal section, showing a portion of the left end of the bed;

Fig. 5 is a side view of the counter assembly, taken from a point of view opposite to that of Fig. 1 and with certain parts omitted, and

Fig. 6 is a simplified wiring diagram.

The machine includes a stationary base 80 and vertically reciprocable bed 81, the bed 81 carrying a suitable tag magazine comprising for example guide elements 91 and 92. The left guide element 92 is adjustable along the bed to accommodate tags of various numbers of sections.

The bed 81 is vertically slidable on posts 82, Fig. 2, under the control of toggles comprising upper and lower links 83 and 84, Fig. 1. Lower toggle links 84 are fast upon shafts 85 which are oscillated through cam followers 86, Fig. 2, and cams 87 upon a main camshaft 88.

The bed 81 carries longitudinally reciprocable feed bars 100, Fig. 3, carrying feed pawls 101 adapted to engage in the feed slots of the tags. Feed bars 100 are con-

2

nected to a feed slide 104, Figs. 1 and 3, which is connected by a link 106 and crank 107, Fig. 1, to a shaft 108, Fig. 2. Shaft 108 is oscillated through a cam follower 109 and cam 110 on the main camshaft 88, Fig. 2. The stroke of reciprocation of feed bars 100 and their pawls 101 is such as to advance the tag material one tag section per cycle, and as indicated above, each cycle also raises and lowers the vertically reciprocable bed.

It will be understood that the feed bars 100 extend approximately the length of the bed 81 and carry additional pairs of feed pawls at appropriate intervals, the various feed pawls being adapted to advance the tags step by step from the magazine to the discharge end of the machine.

The stationary head 120, Fig. 1, carries selectively settable print rings R located respectively above two platens 171, Fig. 2, which are carried by the bed 81, so that upward movement of the bed carries the tags into printing relation to the print rings. A punch assembly, indicated generally at P also overlies the bed, and upward movement of the bed causes the tags to receive punched, coded indicia. As disclosed in said Bone and Sloan application punch interposers 190, which control the punches of the punch assembly, are interconnected with respective print rings.

The main camshaft 88 is driven through a clutch indicated generally at 350, Fig. 2 gears 351, 352 and a gear reduction unit 353 driven by an electric motor M, Fig. 1.

Clutch 350 is of the type in which the driving and driven members will remain in engagement as long as this is permitted by a controlling member which is movable into clutch-disengaging position and adapted to index the driven member of the clutch at a definite point in its rotation. In the present machine the driven member and camshaft 88 are indexed at a point corresponding to the end of a feeding and bed-reciprocating cycle of the machine, to leave the machine stopped with its bed down. A clutch controlling member 354 is connected by a link 355 and lever 356 to the armature of a solenoid 360. A spring 361 acts through the lever 356 to urge the clutch controlling member to move to cause the clutch to disengage and index the driven camshaft 88 when the solenoid 360 is deenergized. Energizing the solenoid 360 on the other hand permits the clutch to engage and permits the camshaft 88 to rotate.

The machine includes settable counting mechanism adapted to stop the cyclic operation of the machine upon the completion of printing and punching of a predetermined number of tags. This counting mechanism is not claimed by the present application, but a portion thereof is shown in Fig. 5 because of the inclusion in the counter assembly of a switch 307 forming a part of the electric circuit of the present invention and a manual means for operating said switch.

Switch 307 is in an "on" position during the running of the machine but is moved to its "off" position by the counter attaining a predetermined count as disclosed in said Bone and Sloan application. Without going into details about the counter, it may be mentioned that the counter includes a pivoted control member 301, turned clockwise by an element 284 of the counter mechanism engaging with a projection 300 on member 301 upon the attainment of the predetermined count, this control member 301 having a cam surface 303 adapted to engage and depress a plunger 305 to move the switch 307 to its "off" position as in Fig. 5.

The control member 301 also serves as a manual control for the switch 307 and may be turned by an upstanding handle 301a to move the switch 307 to its "off" position at any time during the operation of the machine, and may also be turned by its handle 301a to restore the switch 307 to its "on" position. As will hereinafter appear, switch 307 is controlled manually



through the handle 301a to start the cyclic operation of the machine.

As will hereinafter appear the starting of the cyclic movement of the machine is under the control of an automatic switch, such control being conditioned however upon manual operation of the handle 301a to allow the switch 307 to assume its "on" position.

The machine further includes a switch 312 responsive to presence of tags in the magazine and means controlled thereby for actuating said automatic switch. Referring to Figs. 1 and 4 a feeler 310 extends upwardly into the magazine in position to engage the bottommost tag therein and is urged upwardly by an arm 311 of the switch 312. A weight 330, Fig. 1, is vertically slidable in the magazine and presses the tags down, holding the feeler 310 down and the magazine switch 312 in its closed or "on" position. Weight 330 is suitably hollowed out on its bottom side to permit the feeler 310 to rise slightly when no tag is present between the feeler and weight. Thus the switch 312 opens when the last tag is fed from the magazine.

Referring to the diagram of Fig. 6 the solenoid 360, when energized, permits engagement of the clutch 350, permitting continued cyclic operation of the feed bars and vertical reciprocation of the bed. The solenoid 360 may conveniently be referred to as a controller for the feeding means and for the printing and punching means because when the solenoid is deenergized all these means stop operating.

The automatic switch, controlling the solenoid 360 comprises the lower contacts of the switch indicated at 370 in the diagram of Fig. 6. It will be seen that the operating circuit for the solenoid 360 includes the lower contacts of the automatic switch 370 in the closed or "on" position of the switch and also includes the manually controlled switch 307 in the "on" position of this latter switch.

The automatic switch however is normally urged to its open or "off" position and only closed when its actuating coil 371 is energized.

A starting circuit, for energizing the coil 371 and closing the automatic switch includes the magazine switch 312 and the manual switch 307 in the "off" position of this latter switch.

A holding circuit for energizing the coil 371 of the automatic switch includes the upper contacts of the switch 370 and the magazine switch 312. The upper contacts of switch 370 as shown in the diagram thus constitute a holding switch.

The starting circuit and the holding circuit thus have a common portion, the actuating coil 371 and the magazine switch 312 being in this common portion.

It will be observed that the magazine switch 312, when closed by the presence of tags in the magazine, establishes a connection from one side of the line to the actuating coil 371. However with the automatic switch 370 open, the circuit through the actuating coil 371 is still incomplete so long as the manually controlled switch 307 is in its "on" position. Thus if the machine has stopped because of exhaustion of tags and the consequent opening of the magazine switch 312, replenishment of the tags and closure of the switch 312 will not restart the machine until switch 307 has been placed in its "off" position and, after closure of the magazine switch 312, then manually moved to its "on" position. As indicated above this is done by the operator manually moving the handle 301a. Thus the machine cannot unexpectedly start its feeding and printing and punching motions, for example while the operator is attending to the supply of tags in the magazine.

Having been closed, the automatic switch 370 will be held closed by the holding circuit so long as the power is on and the magazine switch 312 is kept closed by the presence of tags in the magazine. Under these conditions

the switch 307 may be used to stop and start the cyclic movement at will by deenergizing and energizing the solenoid 360. However when the supply of tags exhausts, the switch 307 is no longer able to start the operations of the machine because the automatic switch 370 immediately opens and the starting circuit is deenergized. The operator must then perform a sequence of operations which requires having a supply of tags, or at least one tag, in the magazine with the manual switch 307 in the "off" position and then manually causing the switch 307 to move to its "on" position.

Having been deenergized by opening of switch 312, the coil 371 cannot be reenergized excepting by switch 307 being in the "off" position, which then, for energizing the controller 360, requires a manual movement of switch 307 to "on" position.

I claim:

1. A tag machine comprises a magazine for holding a supply of tags, means for feeding tags from the magazine, manual and automatic devices for controlling the feed means each having "on" and "off" positions, means for moving the automatic device to "on" position in response to the presence of tags in the magazine, and means to prevent the automatic device from starting the feed means when tags are placed in the magazine while the manual device is in the "on" position, said last means including starting means which is operative only when said manual device is in "off" position.

2. A tag machine comprising a magazine for holding a supply of tags, means for feeding tags from the magazine, manual and automatic switches for controlling the feed means each having "on" and "off" positions, a starting circuit connecting the two switches in series, means for moving the automatic switch to "on" position in response to the presence of tags in the magazine, and means to prevent the automatic switch from starting the feed means when tags are placed in the magazine while the manual switch is in the "on" position, said last means including a contact on said manual switch in said starting circuit which is closed only when the manual switch is in "off" position.

3. A tag machine comprising a magazine for holding a supply of tags, means for feeding tags from the magazine, manual and automatic switches for controlling the feed means each having "on" and "off" positions, a starting circuit connecting the two switches in series, control means for controlling the automatic switch, the control means including a magazine switch responsive to the presence of tags in the magazine, and means to prevent the magazine switch from starting the feed means when moved to "on" position while the manual switch is in the "on" position, said last means including a contact on said manual switch in said starting circuit which is closed only when the manual switch is in "off" position.

4. A tag machine comprising a magazine for holding a supply of tags, means for feeding tags from the magazine, manual and automatic switches for controlling the feed means each having "on" and "off" positions, a starting circuit connecting the two switches in series, control means for controlling the automatic switch, the control means including a magazine switch responsive to the presence of tags in the magazine and means responsive to the magazine switch for actuating the automatic switch, and means to prevent the magazine switch from starting the feed means when moved to "on" position while the manual switch is in the "on" position, said last means including a contact on said manual switch in said starting circuit which is closed only when the manual switch is in "off" position.

5. A tag machine comprising a magazine for holding a supply of tags, means for feeding tags from the magazine, a controller for the feed means, manual, automatic, holding and magazine switches for operating the controller, each having "on" and "off" positions, the maga-



zine switch being movable to "on" position by the presence of tags in the magazine, a starting circuit including the manual switch in "off" position and the magazine switch in "on" position, a holding circuit including the holding switch in "on" position and the magazine switch in "on" position, an operating circuit including the controller and the manual and automatic switches in "on" position, the starting and holding circuits having a common portion, and means in the common portion for actuating the automatic and holding switches.

5

10

1,251,286  
1,542,445  
2,349,104  
2,369,298  
2,609,779

720,688

## References Cited in the file of this patent

## UNITED STATES PATENTS

Rodman ----- Dec. 25, 1917  
Grauel ----- June 16, 1925  
Morgan ----- May 16, 1944  
Jongedyk ----- Feb. 13, 1945  
Goldsworthy ----- Sept. 9, 1952

## FOREIGN PATENTS

Germany ----- May 14, 1942