

C. L. SMITH.
SIGNATURE GATHERER.

APPLICATION FILED DEC. 16, 1907. RENEWED AUG. 4, 1909.

934,365.

Patented Sept. 14, 1909.

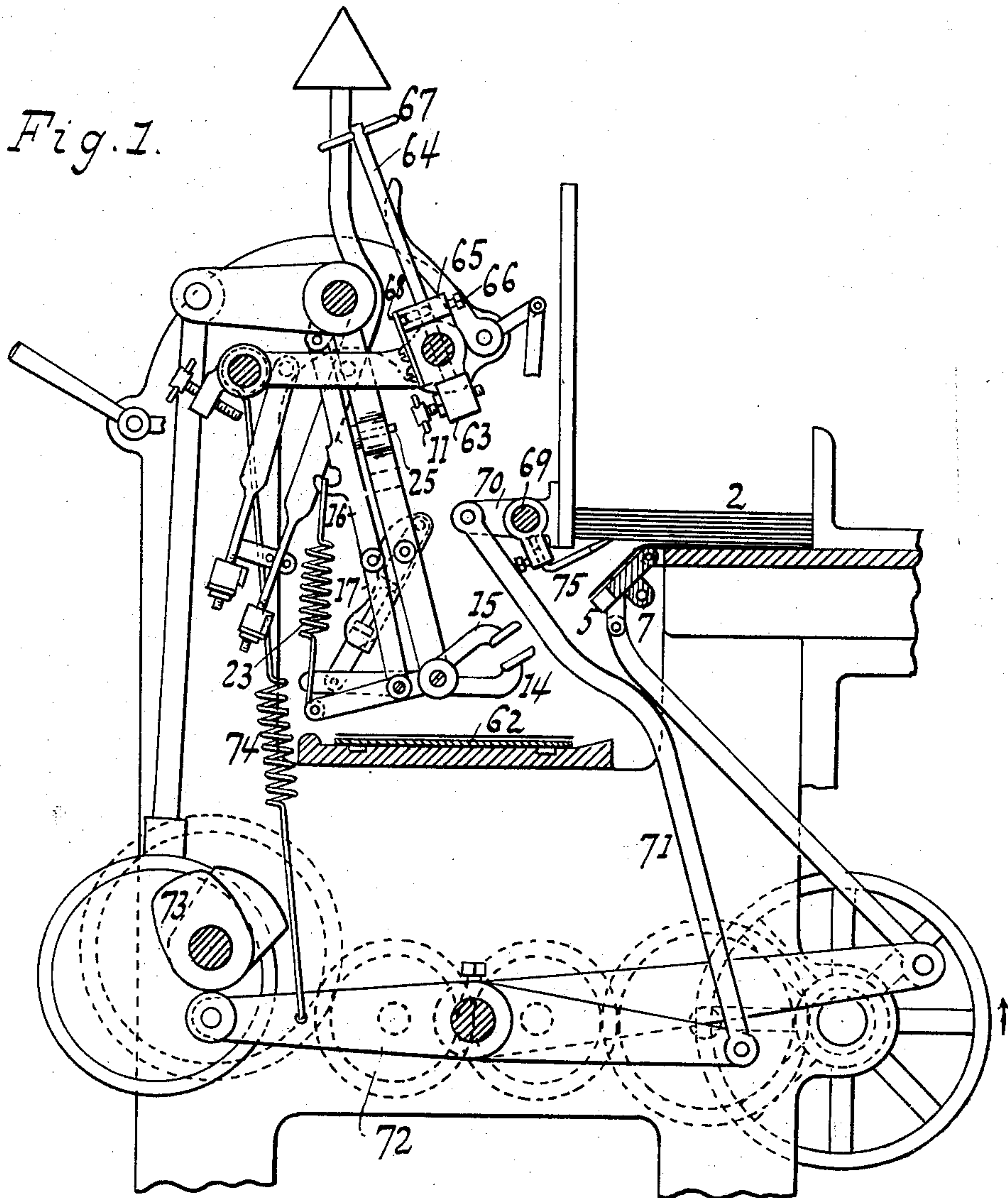
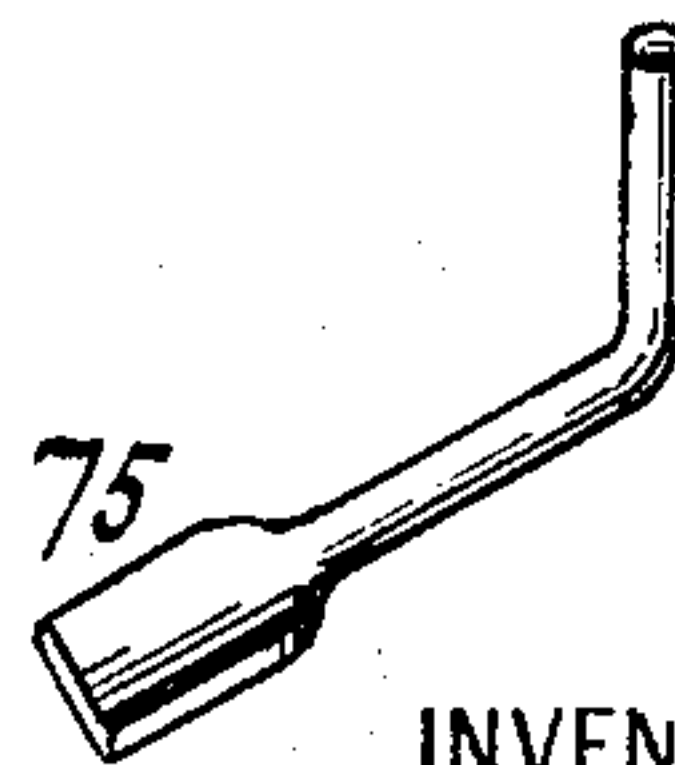
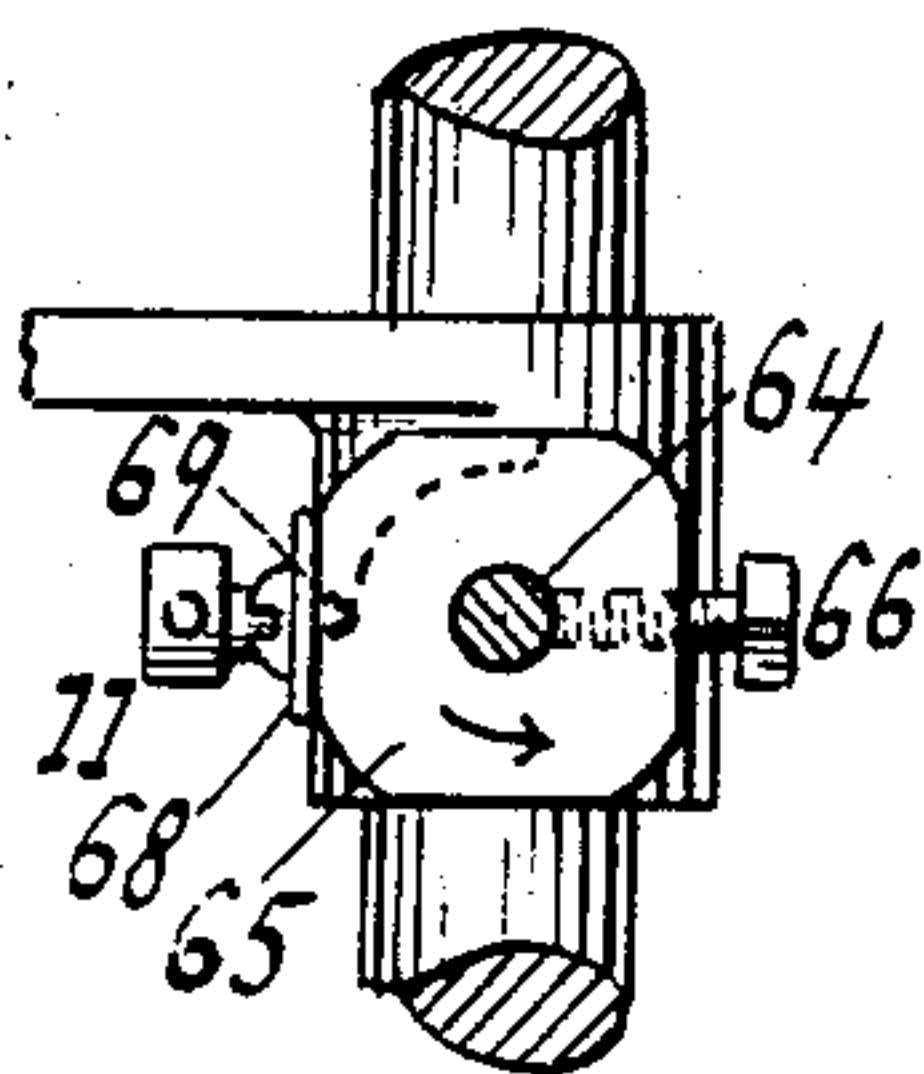
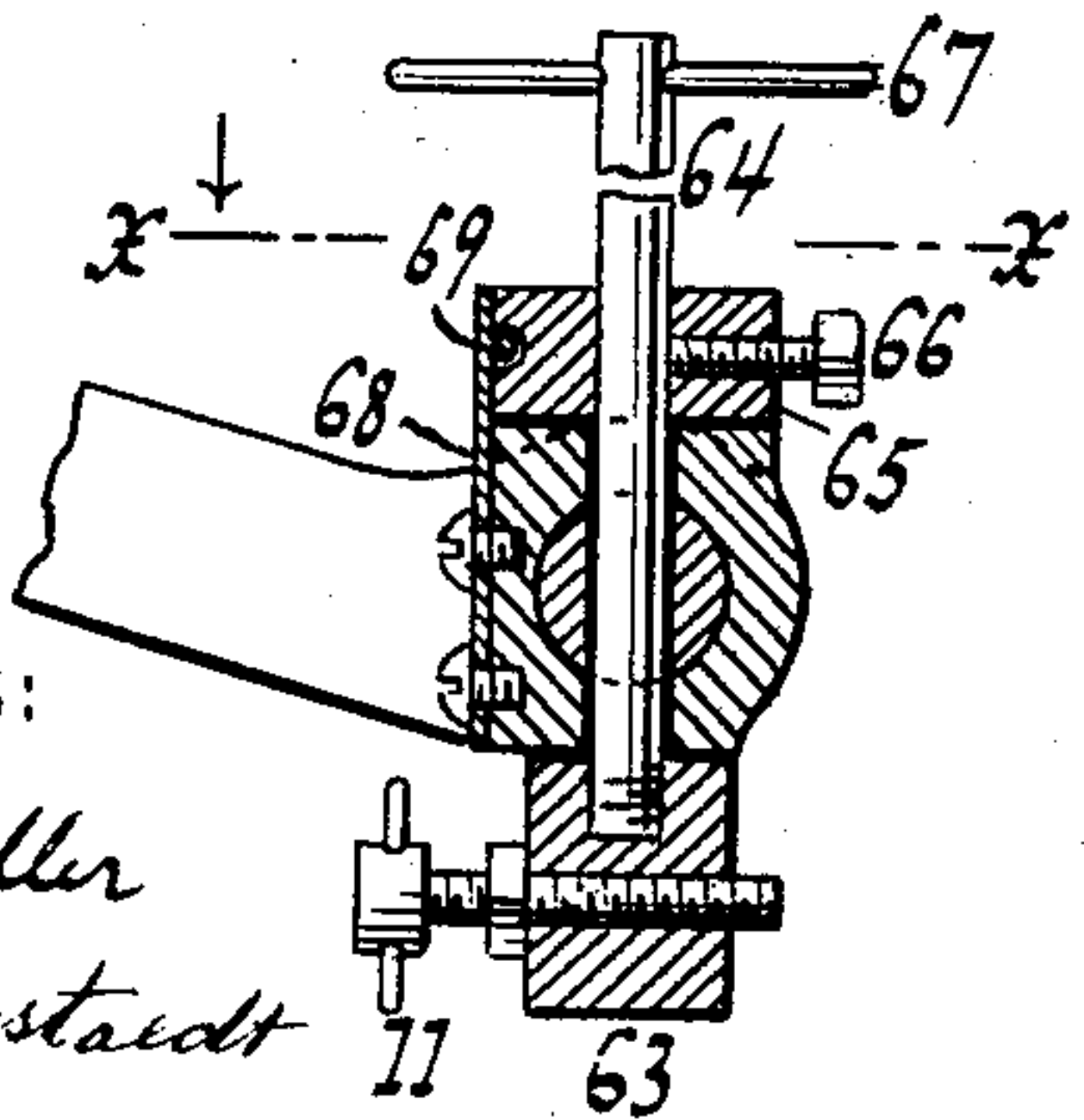


Fig. 2.

Fig. 3.

Fig. 4.



WITNESSES:

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SIGNATURE-GATHERER.

934,365.

Specification of Letters Patent. Patented Sept. 14, 1909.

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To all whom it may concern:

Be it known that I, CHARLES L. SMITH, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented new and useful Improvements in Signature-Gatherers, of which the following is a specification.

This invention is applicable to signature gathering machines for example as shown in my U. S. patent application Serial No. 350,224, allowed December third 1907 or in U. S. patent of George M. Kent and Charles L. Smith No. 811,509, dated 30 January 1906. If such a machine is started the signature passing onto the belt or delivery nearest the delivery end is delivered by itself and has to be put aside as not forming a complete book such book requiring several signatures or sheets. At the next step or operation of the machine a second signature or sheet has been fed to such point as to have a first signature superposed thereon and then these two signatures are in turn delivered. Thus by succeeding steps the machine is gradually brought to condition to feed at each step a pile of signatures sufficient to form a complete book.

This invention provides means for enabling gripper or feed mechanisms nearest the delivery end of the machine to be held out of operation and to come successively or one by one into operation. Such invention is set forth in the following specification and claims and illustrated in the annexed drawing in which:—

Figure 1 is a sectional side elevation of a signature gathering machine embodying this invention. Fig. 2 is a sectional view of a trip holder. Fig. 3 is a section along $x x$ Fig. 2. Fig. 4 shows a pile lifter.

The expression signature is used as being generally employed although a signature might be on occasion a single leaf as a fly leaf.

The grippers each consist of two jaws 14 and 15 to take the lowermost signature from under a pile 2. The lowermost signature has its leading edge bent by pivoted plate 5 having a suction device 7. This leading edge of the signature is thus in position to be taken by the gripper for this bottom signature to be withdrawn and deposited on the delivery. The delivery can be of any suitable kind for example a traveling belt

62. The jaw 15 which pivots or opens and closes is moved toward and from the other jaw at suitable moments, its closing movement or snap being given by a spring 23 when the toggle joint 16 and 17 is flexed by contact with stop or stud 11 causing slide or pin 25 to press against the toggle arms. This stud or trip 11 is mounted in a block 63 carried by a stem 64 swiveling in a suitable part as one of the bars or braces of the machine or frame work. Such bar or brace is shown in section. This stem 64 is held rotatively in place or held from slipping down or out of place by a block 65 secured to the stem by a screw 66. A handle or cross piece 67 enables the stem to be easily swiveled or manually operated. By giving the stem with stop or adjusting device 11 a quarter turn one way or the other the stop can be brought to position to be engaged or struck by pin 25 or be brought out of reach or register with such pin. The pin 25 if arrested or stopped will flex the toggle to allow the gripper jaw to close. When the stop 11 is in the position shown in Figs. 1 to 3 it will be in line with the pin 25. When given a quarter turn the stop 11 will be out of line and the jaws or grippers 14 and 15 when open will stay so or not grip.

To limit the swivel of the stem 64 a spring 68 having a screw or stud 69 is applied. The stud 69 engages into an arc shaped groove in the block 65 secured to stem 64. At one point the groove can have a seat or slight depression into which spring 68 can hold stud 69 to prevent stop 11 being accidentally swiveled out of operative position, but leaving the swivel 64 free to be turned by a certain pressure of the hand. The swivel requires a certain force for its turning by reason of the friction of the spring 68 against faces or angles of the block and by reason of the action of stud 69. The shoulders formed by the terminals of the groove in the block form stopping means to limit the motion of swivel 64.

The signature gatherer is arranged as usual. A suitable number of grippers 14 and 15 with respective parts including stops 11 are installed. The stops 11 nearest the delivery end of the belt 62 as well as all the following except the last or the one farthest from the delivery point are put to inactive position or made to face away from their

respective pins 25. The machine is then started and the farthest gripper draws off a signature from the pile to belt 62. The stop 11 following the farthest one is then turned to active position or to face its respective pin 25 and this following gripper then delivers a signature onto the preceding signature on the delivery belt. By thus turning the stops 11 successively into action as required no delivery will be made from the delivery end of the machine until signatures for a complete book are superposed.

When the machine is to be stopped the stops 11 can be successively turned off or out of action, beginning with the one farthest from the delivery point of the machine and continuing on successively until the stop 11 at the delivery end of the machine is reached. The stops or their swivels are independent so that they can be set each as called for.

In order to relieve the lowermost signature when being withdrawn from the weight of the superposed pile a lifter for the pile is provided. The lifter 75 in shape of a finger is secured or set in a pivot or shaft 69 actuated by arm 70 and link 71 connected to lever 72 operated by cam 73. As gripper 14 and 15 pulls the bottom signature the lifter is made to lift the pile. The gripper can then easily withdraw the lowermost signature and is not liable to slip or loose its hold. As the lifter is oscillated or withdrawn it allows the pile to settle to then return and again lift the pile from that signature which is now at the bottom. The cam 73 moves lever 72 in one direction and a returning spring 74 is suitably applied to return the lever. By arranging the lifter to lift the pile in line with the path of oscillation of the gripper the weight of the superimposed pile is effectively lifted at the proper moment from the bottom signature as it is being withdrawn.

What I claim is:—

1. In a signature-gathering machine, a gripper made to swing to and from the signature, means for closing the gripper, and a manually controlled swiveling stem for supporting a part of said closing means, said stem made to swivel on an axis transverse to the swing of the gripper.

2. In a signature gathering machine a gripper made to swing to and from the signature, a toggle joint for opening and closing the gripper, and a manually controlled swiveling stem with an adjusting device for controlling the toggle joint said stem being made to swivel on an axis transverse to the swing of the gripper.

3. A signature gathering machine having a gripper movable to and from the signature, a trip cooperating with the gripper to cause the latter to close, and a swiveling stem for supporting the trip, said stem being made to swivel on an axis transverse to the movement of the gripper.

4. A signature gathering machine having a gripper, a trip cooperating with the gripper to cause the latter to close, and a swiveling stem for supporting the trip, said swiveling stem having an annular portion and a friction spring for preventing accidental shift.

5. A signature gathering machine having a gripper, a trip cooperating with the gripper to cause the latter to close, and a swiveling stem for supporting the trip, said trip having a groove forming stop-shoulders and a stop for engaging the shoulders.

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

CHARLES L. SMITH.

Witnesses:

CHRISTIAN ALMSTAEDT,
WILLIAM MILLER.