

No. 860,028.

PATENTED JULY 16, 1907.

S. M. HAWLEY.
PAPER FEEDING MECHANISM.

APPLICATION FILED MAR. 22, 1906.

2 SHEETS—SHEET 1.

Fig. 3.

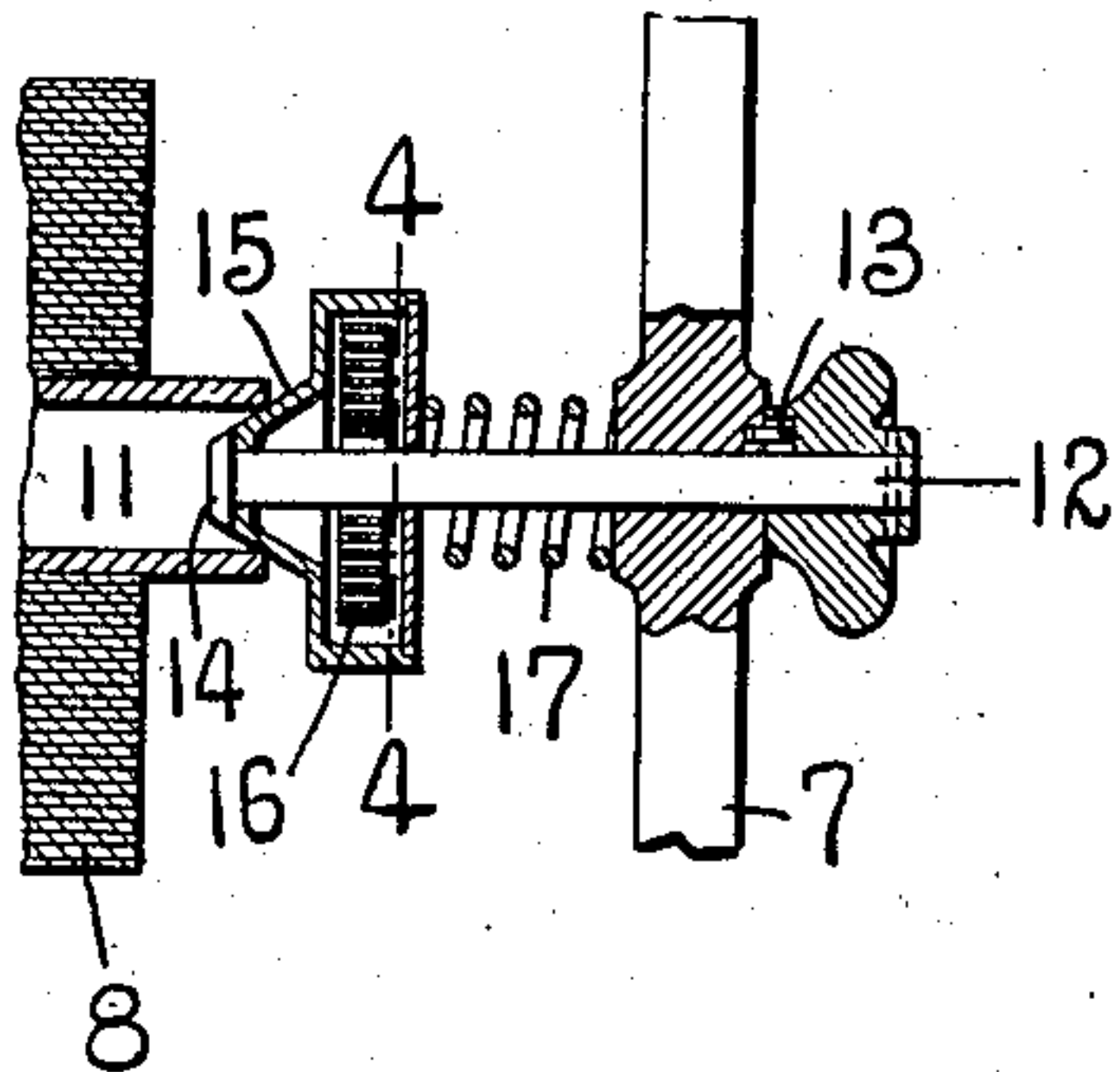


Fig. 4.

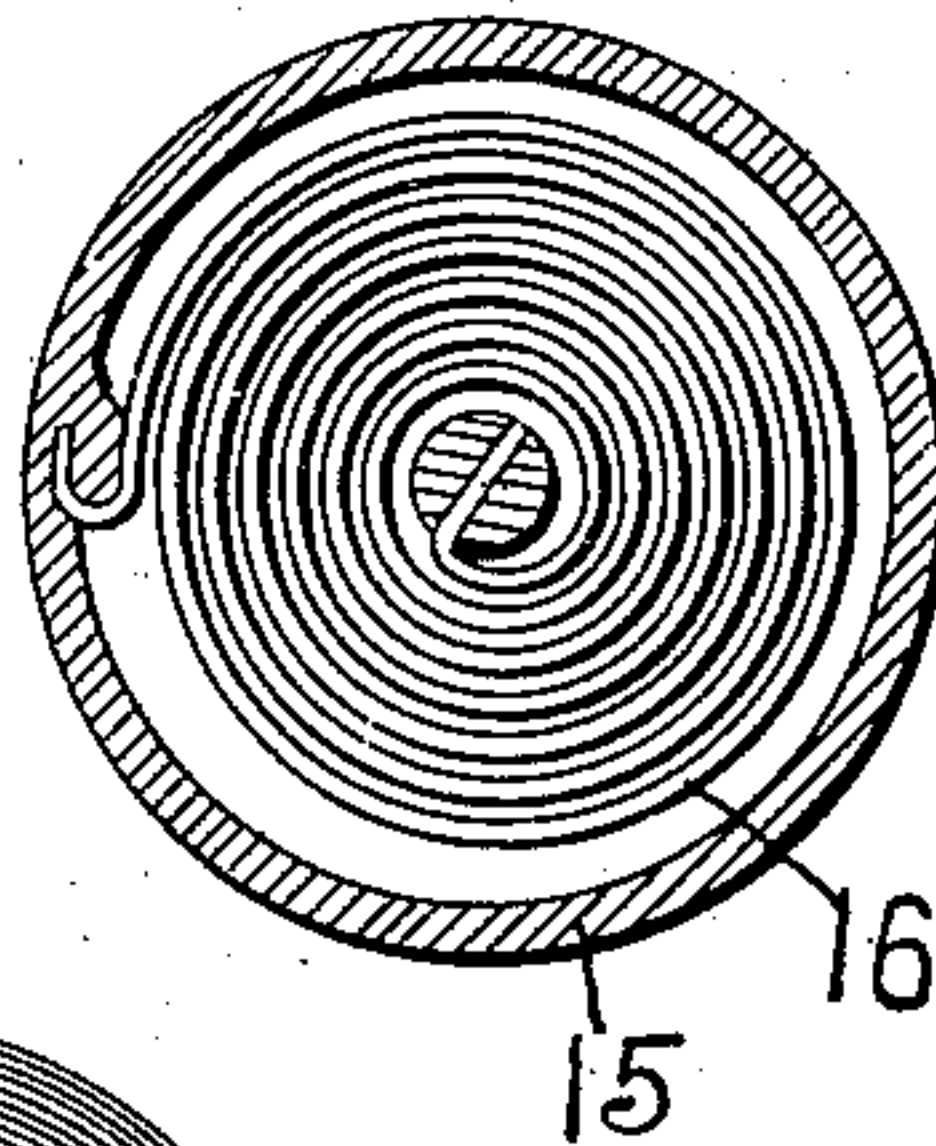


Fig. 2.

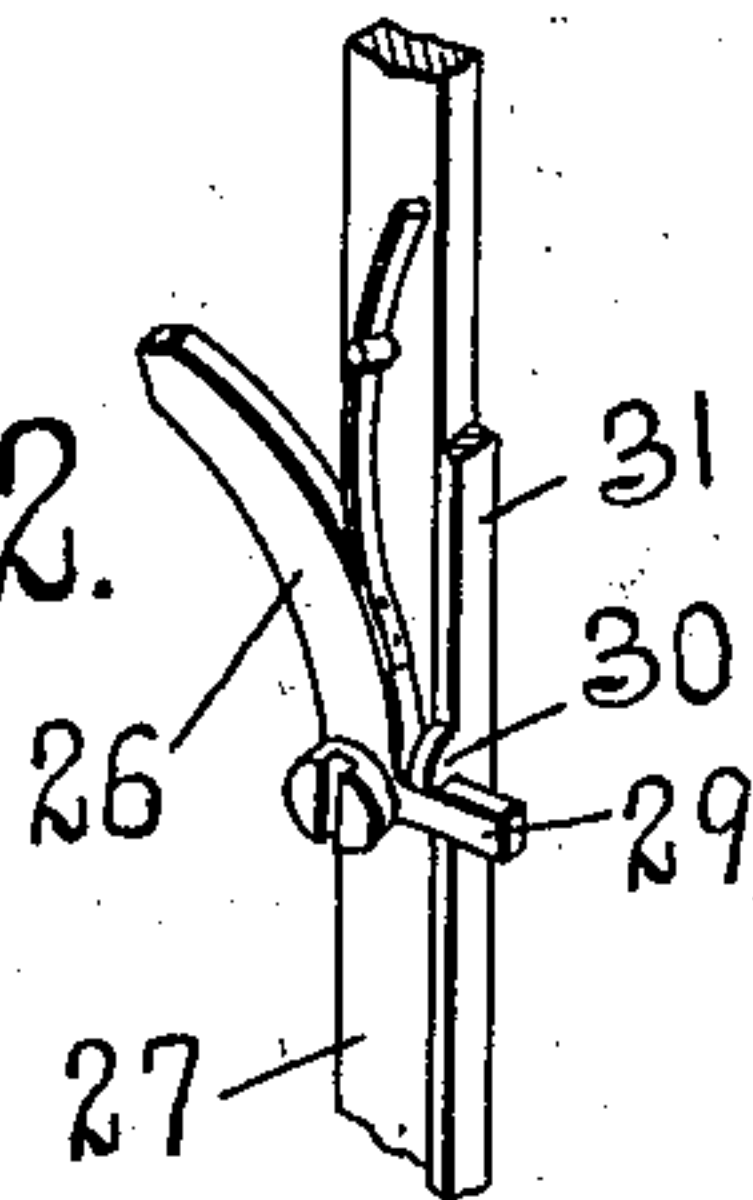
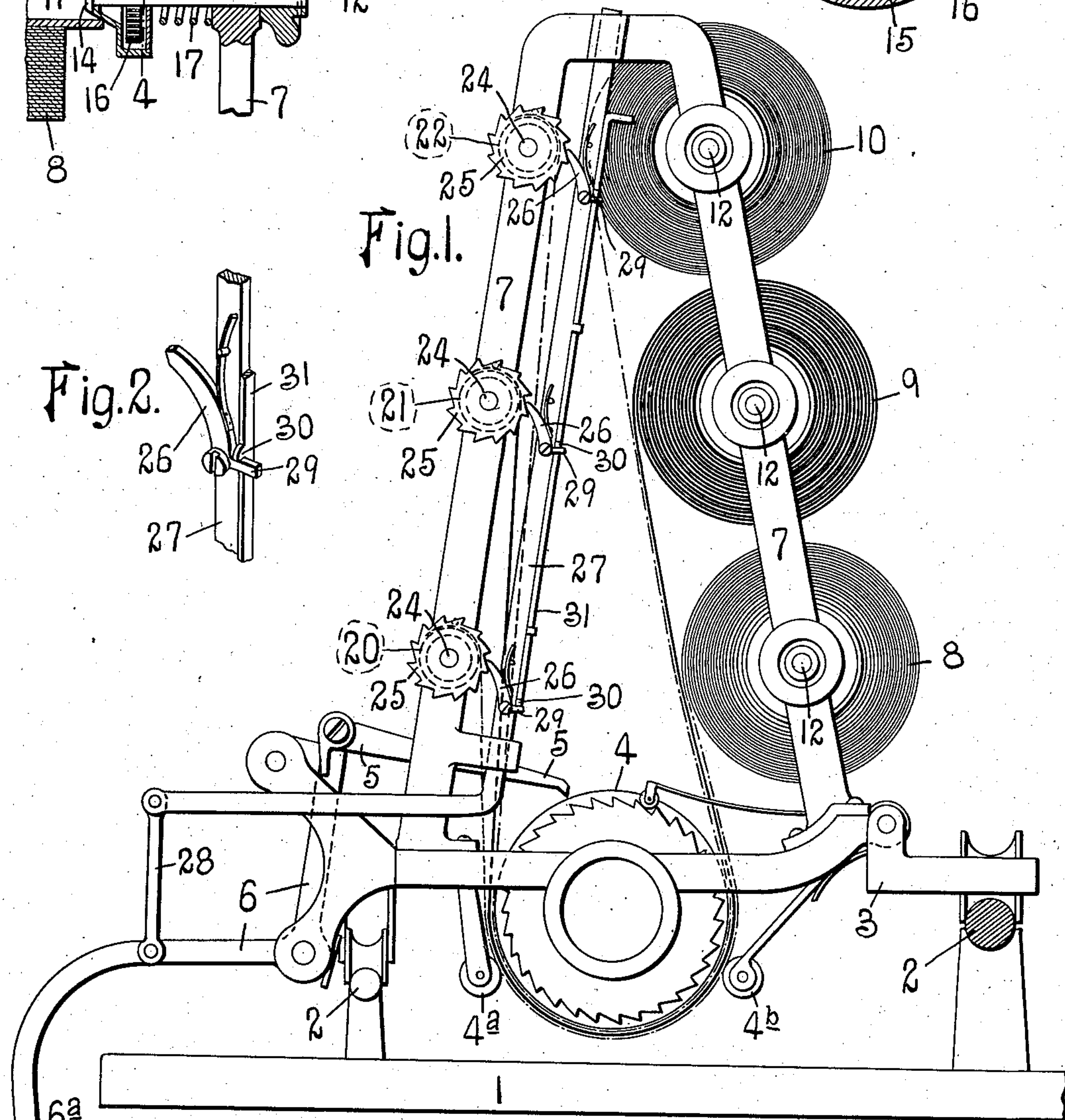


Fig. 1.



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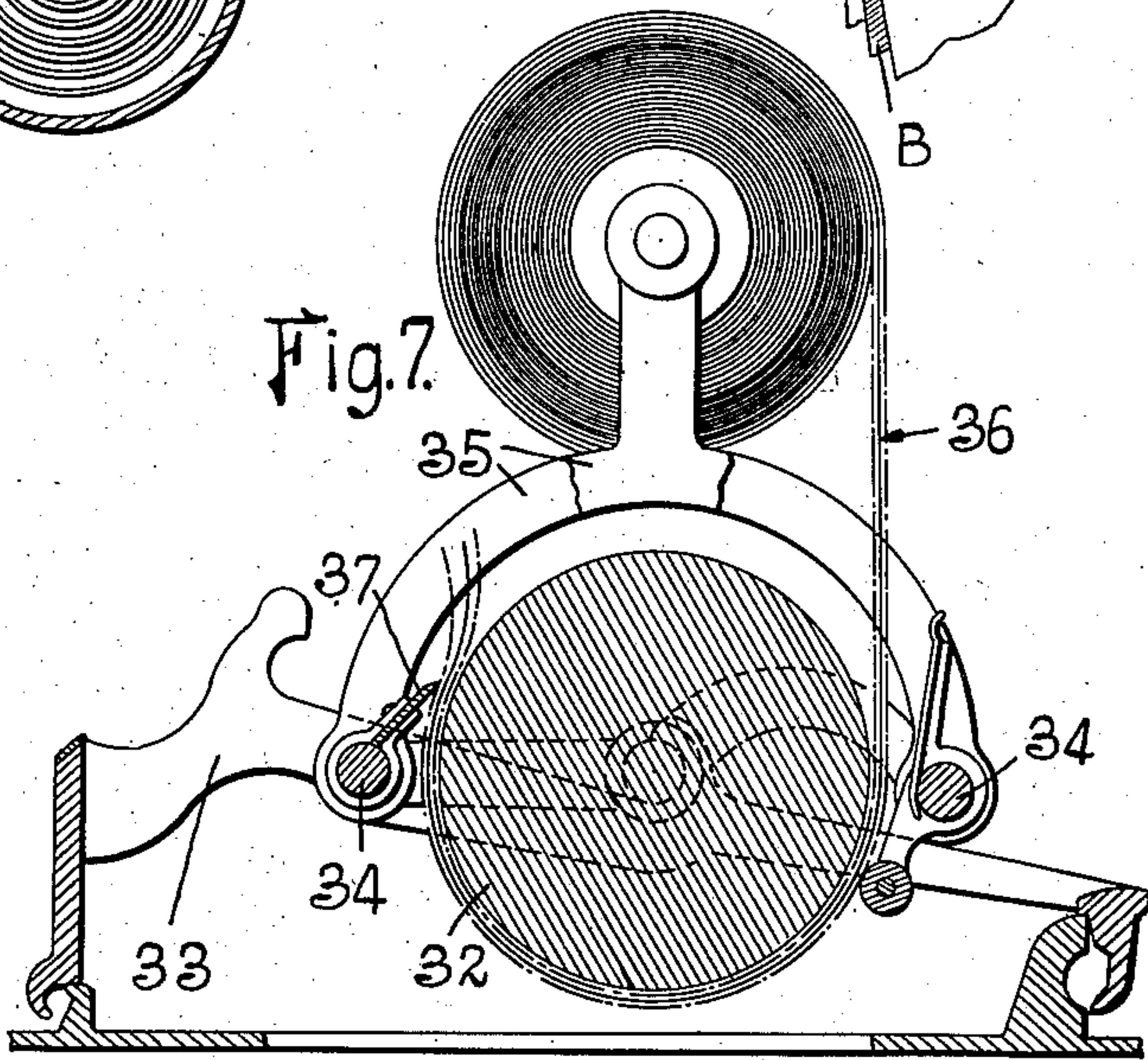
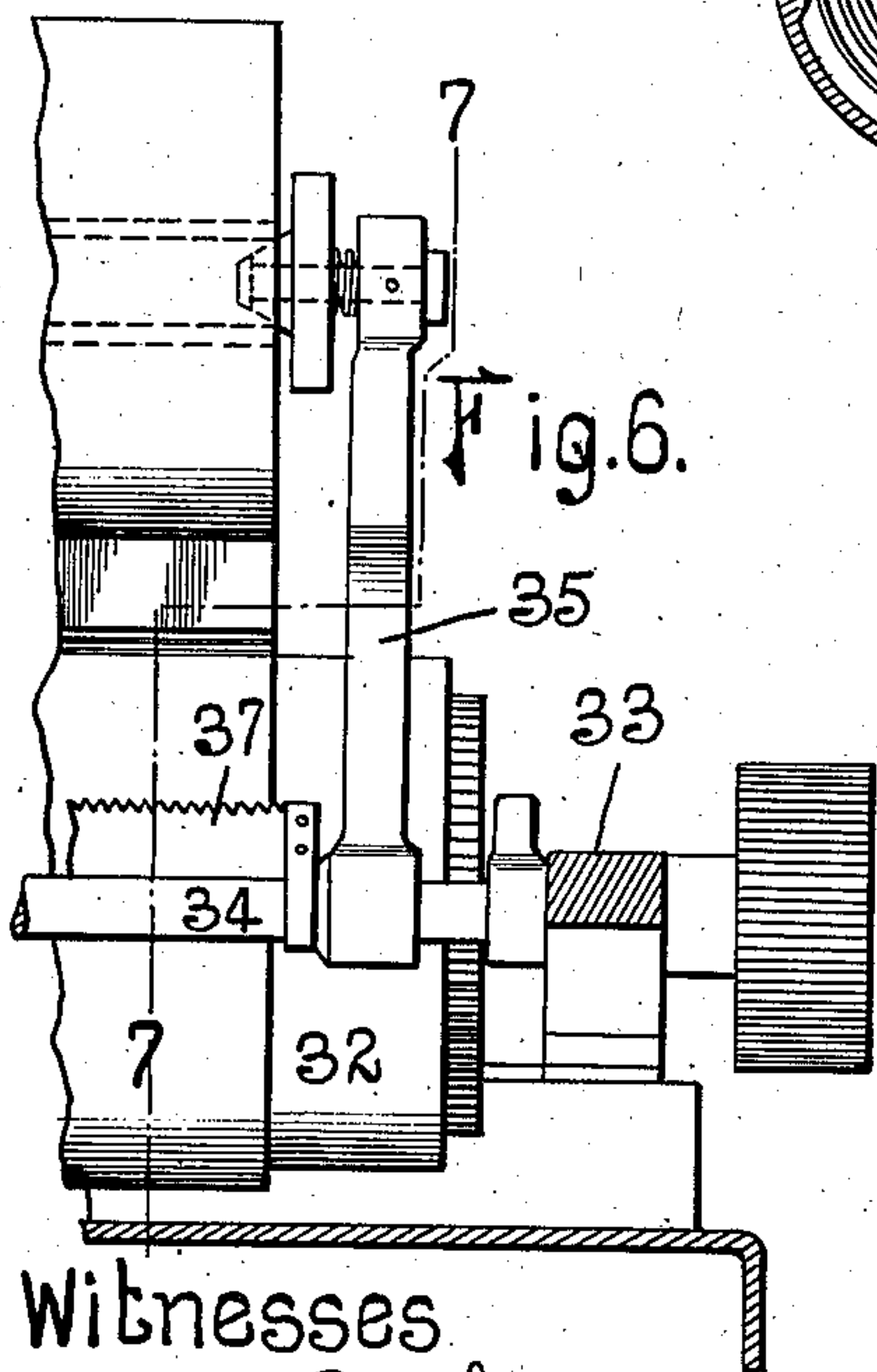
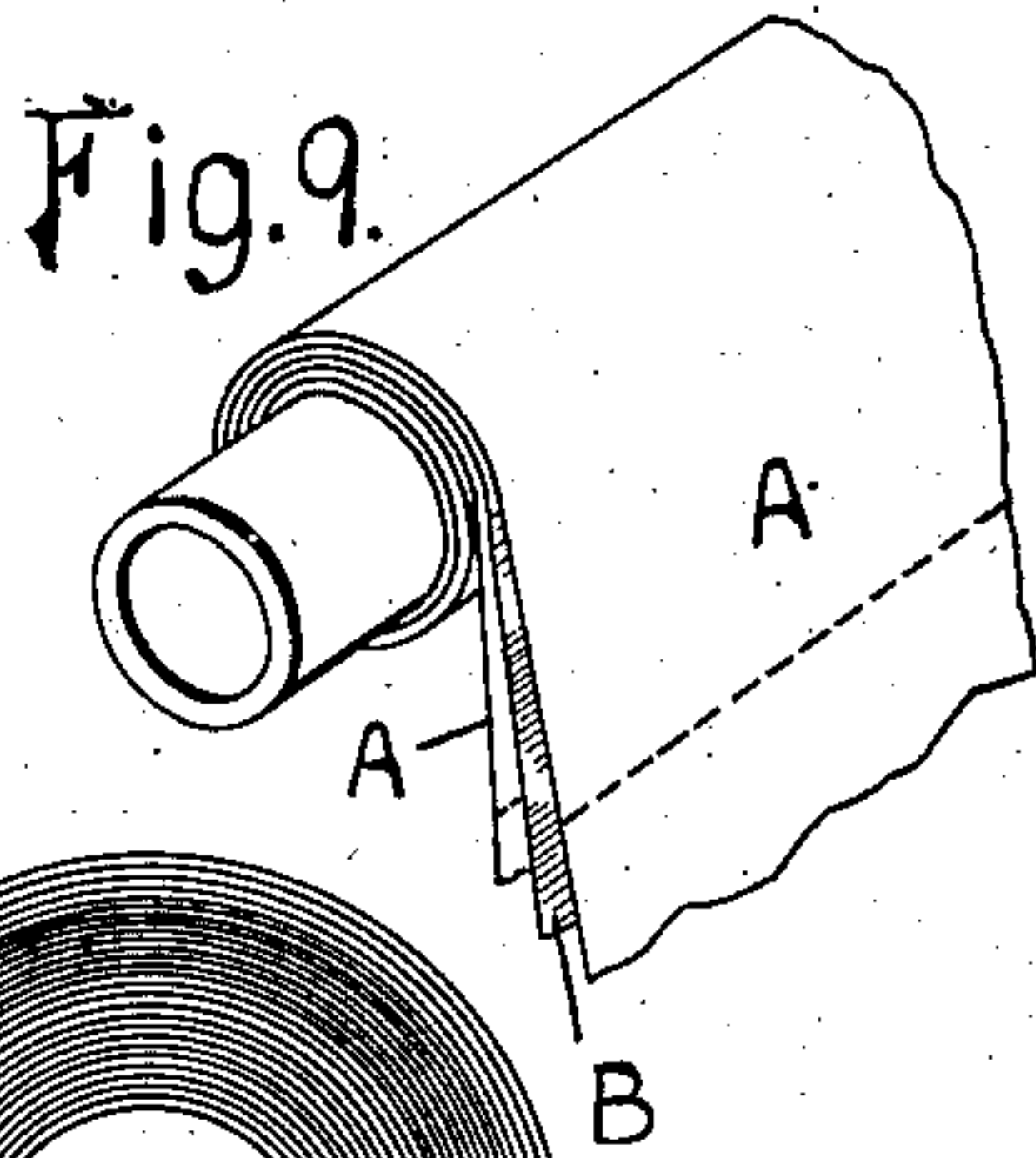
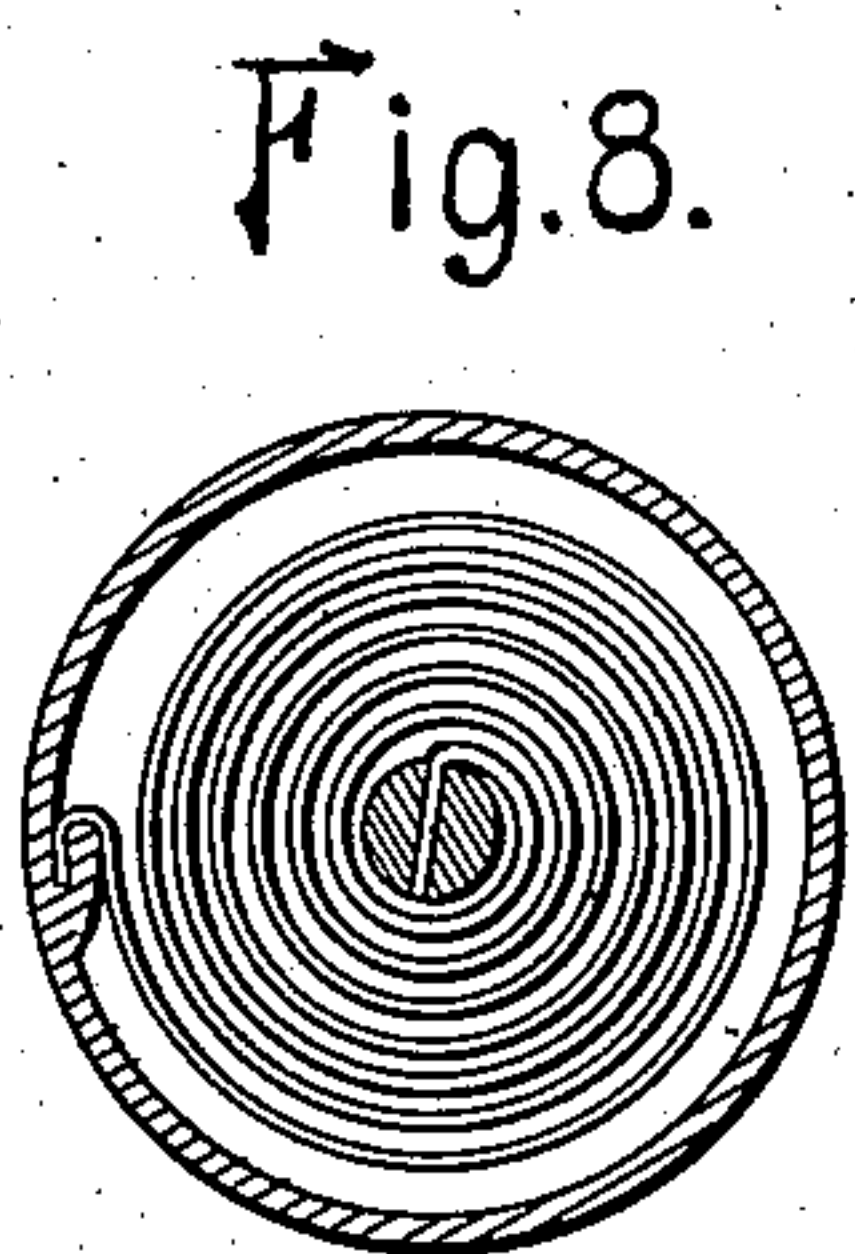
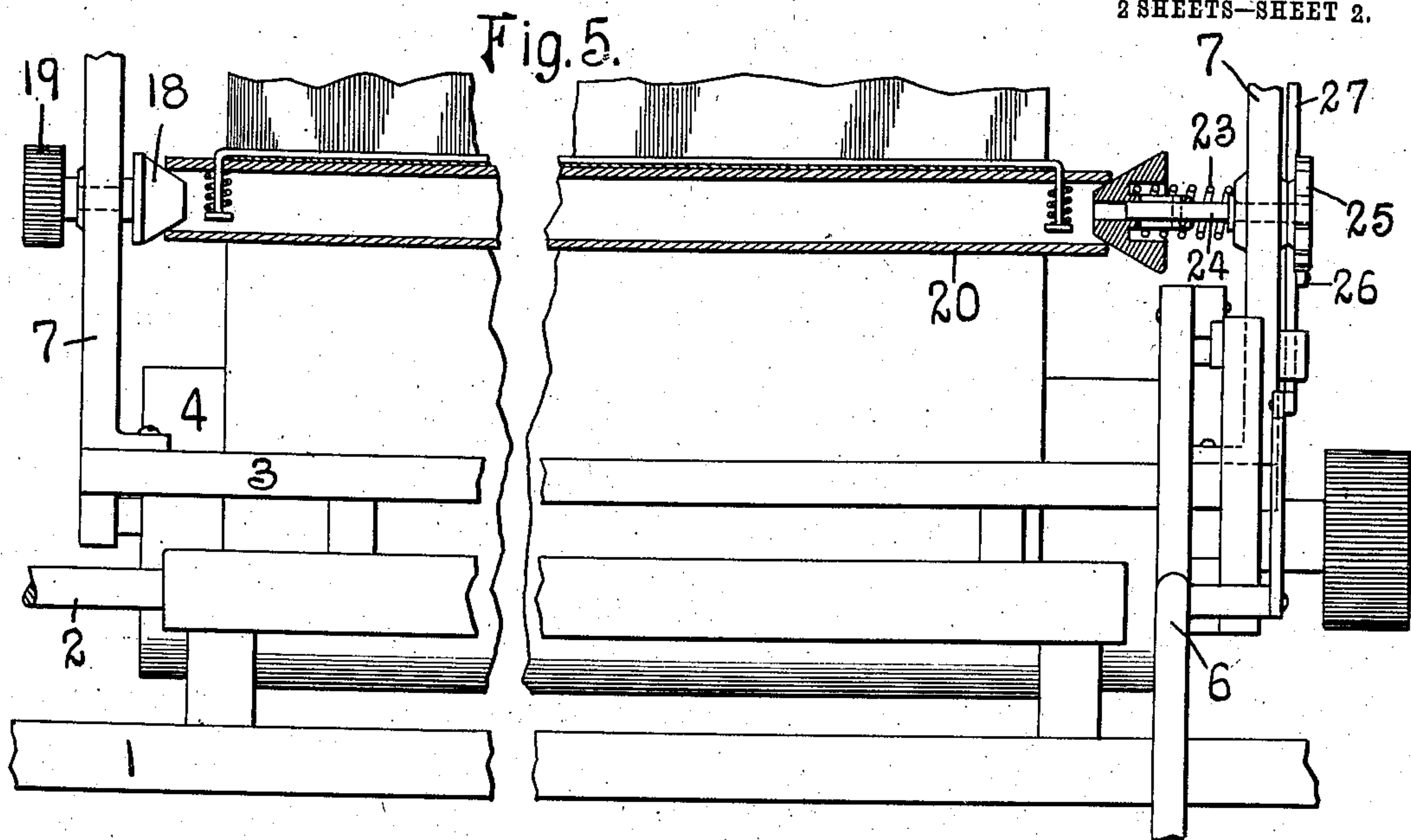
No. 860,026.

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UNITED STATES PATENT OFFICE.

SARAH M. HAWLEY, OF ST. LOUIS, MISSOURI.

PAPER-FEEDING MECHANISM.

No. 860,026.

Specification of Letters Patent.

Patented July 16, 1907.

Application filed March 22, 1906. Serial No. 307,488.

To all whom it may concern:

Be it known that I, SARAH M. HAWLEY, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Paper-Feeding Mechanisms for Type-Writing Machines, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevational view of my improved paper feeding mechanism; Fig. 2 is a detail view of one of the operating pawls; Fig. 3 is a sectional view through one of the supply rolls and its support; Fig. 4 is an enlarged sectional view on the line 4—4 of Fig. 3; Fig. 5 is a front elevational view, partly in section, of the construction shown in Fig. 1; Fig. 6 is a front elevational view of a modified form; Fig. 7 is a sectional view on the line 7—7 of Fig. 6; Fig. 8 is a vertical cross sectional view of the modification shown in Fig. 7; and Fig. 9 is a detail view of the supply roll.

This invention relates to a new and useful improvement in paper feeding mechanisms for typewriting machines, the object being to provide one or more rolls of paper and carbon capable of lateral movement with the carriage and its platen, whereby one or more copies may be produced. Incidental to the above, means are provided for exerting a tension on the supply rolls to take up the slack in the paper or carbon whenever the platen is reversely rotated, and means are also provided to release the paper feeding pawls on the paper-receiving rolls to permit backward movement of the paper.

With these objects in view, the invention consists in the construction, arrangement and combination of the several parts, all as will be hereinafter explained and afterwards pointed out in the claims.

In the drawings, in Figs. 1 to 5 inclusive, I have shown my improved device as applied to the well-known Remington typewriter in which there are separate feeding rolls for the paper and carbon, and also separate receiving rolls for said continuous sheets.

In these views, 1 indicates the frame of the machine on which are supported tracks 2.

3 is the laterally movable carriage operating upon said tracks and carrying the usual platen 4. Platen 4 has a ratchet wheel at one end with which coöperates a feed pawl 5 on one member of a bell crank lever 6, whose other member terminates in an operating handle 6^a.

7 indicates a frame secured to the carriage of the machine and constituting a mount for the paper rolls.

8 and 10 are the rolls from which issue the sheets of paper designed to receive impressions from the type, while 9 is a roll of carbon paper whose sheet is fed between the rolls 8 and 10 in a well-understood manner.

Each of these rolls 8, 9 and 10 is provided with a hollow spool 11, see Fig. 3.

12 indicates a rod slidingly mounted in the frame 7 and having a hand wheel at one end, said wheel being provided with a recess coöperating with a pin 13 whereby the hand wheel and rod may be locked against rotation in one of their positions. The inner end of rod 12 is provided with a head 14 against which bears a cone-ended spring housing 15 containing a coil spring 16, one end of which is connected to the spring housing and the other end to the rod 12. A spring 17 tends to hold the spring housing 15 against the head 14 and also to hold the hand wheel inwardly so that the pin 13 is received in the recess thereof, whereby the rod 12 is locked against rotation. The opposite end of the spool 11 is supported upon a rotatable cone 18 connected to an operating handle 19, as shown in Fig. 5.

In mounting the rolls 8, 9 and 10 in position one end of the spool is fitted upon the cone 18 and the rod 12 is pulled outwardly, which permits the coned portion of the spring housing to be fitted into the opposite end of the spool. Upon being released the spring 17 forces the coned portion of the spring housing into the spool and likewise the rod 12 inwardly, in which position the pin 13 enters the recess in the hand wheel and the rod is prevented from rotating. When the paper is drawn from the rolls 8, 9 and 10 the spring 16 is wound, due to frictional engagement between the spool 11 and coned portion of the spring housing, and consequently tension is constantly exerted on the paper or carbon, as the case may be, so as to hold the same taut. This construction also enables the rolls 8, 9 and 10 to rewind the paper to the extent of the spring action, in the event that the paper is turned back under the platen 4. The friction between the spool 11 and the coned portion of the spring housing is such that when the spring 16 is wound the roll is permitted to continue its unwinding movement, keeping the spring 16 wound up, however, so as to exert its constant tension on the paper and be in readiness to absorb any slack in the event that the printing platen is reversely rotated.

As it is desirable in some instances to separate the paper and carbon after the printing thereon has been effected I mount spools 20, 21 and 22 in the front portion of the frame, which spools coöperate with rotatable coned supports similar in construction to the cones 18 above described except that at one side, as shown in Fig. 5, I arrange springs 23 behind the cones so as to force them inwardly, thus permitting a longitudinal movement with respect to their shafts 24 to which they are connected by a slot and pin connection, and are thus prevented from independent rotation. On the ends of these rods 24 are ratchet wheels 25.

26 are pawls coöperating with the ratchets 25, said pawls being mounted on a rod 27 whose lower end is bent forwardly and connected by a link 28 to the op-

erating handle 6^a. In this manner whenever the handle 6^a is operated to line-space the paper, the rod 27 is lifted and rotates the ratchet wheels 25 and their connected shafts 24 so as to wind up the paper and carbon on the spools 20, 21 and 22. Each of the pawls 26 is provided with a heel portion 29 with which cooperate projections 30 on a rod 31. By depressing this rod all of the pawls 26 are simultaneously lifted away from their ratchets and consequently the platen 4 may be reversely rotated in the event that it is desired to make a correction to a line already written. The platen 4 cooperates with the usual idle rollers 4^a and 4^b which hold the paper firmly to the platen and thus permit the platen to control the advance movement of the paper as well as its return movement.

In Figs. 6 to 9 inclusive I have shown a modified form of my invention, the same being applied to the well-known Smith-Premier typewriter. In this typewriter, as is well-known, the carriage frame does not swing but the platen 32 moves forwardly and backwardly on tracks 33 so as to make the writing visible to the operator, a quarter turn being given to the platen in its forward and backward movement. There are rods 34 on each side of the platen forming supports for the paper guides and idle rollers, and these rods move with the platen. It is upon these rods that I mount brackets 35 for supporting the roll of paper and interposed carbon 36. This roll, as shown in Fig. 9, consists of two or more strips of paper A with an interposed carbon sheet or sheets B between, and I prefer to perforate or roulette the sheets of paper A, whereby the same may be severed as they issue from the machine. To assist in removing the finished sheets I arrange a knife blade 37 on the front rod 34 as shown. To keep the roll of paper with its interposed carbon sheet or sheets taut, I may provide a tension device similar in construction to that shown in Fig. 3.

While I have illustrated two forms of my invention especially adapted for two well-known makes of typewriting machines, it is obvious that there are other makes of typewriting machines to which my invention, with perhaps slight changes, would be applicable; also, that my improvement could be used to advantage in connection with adding machines where it was desired to obtain a carbon copy of the list of items recorded by the machine.

I have not illustrated in the drawings an alarm mechanism which indicates when the bottom of a sheet is reached, but as this is common and well-known in the art it will be understood that its use will be advantageous in connection with my improved paper feeding mechanism.

While I prefer to use a strip or strips of carbon paper for producing the manifold copy or copies it should be understood that an inking ribbon or a continuous strip of other suitable material could be interposed between the strips of paper without departing from

the spirit of my invention, one of the principal features of which consists in using in combination with the paper-feeding mechanism of a typewriting or similar machine, a roll consisting of a plurality of strips of paper with a continuous strip of material for producing a copy interposed between the strips of paper and wound therewith. As previously stated, one or all of the strips of paper are provided at intervals with some means for indicating where the paper is to be severed to divide it into sheets, and if desired the strip of copying material may be provided at intervals with non-copying portions which divide said strips into sections of approximately the length of a sheet of paper. These rolls are supplied to the trade as articles of manufacture so that practically no time is consumed in placing the paper in operative position in the machine.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. In a paper feeding mechanism for typewriting machines, the combination with a supply roll mounted on a hollow spool, of a rotatable cone supporting one end thereof, a spring housing carrying a coned portion which projects into the opposite end of said spool, a rod on which said spring housing is mounted, a coiled spring surrounding the rod outside of the housing and connected to said rod and to said housing, a handle on the outer end of said rod, means for locking the rod against rotation, and a spring for holding said rod in its locked position and for forcing the coned portion of the housing into frictional engagement with the end of the hollow spool; substantially as described.
2. In a paper feeding mechanism for typewriting machines, the combination with a plurality of receiving rolls mounted on a vertical support and provided with ratchets, pawls cooperating with said ratchets, a member carrying all of said pawls, and means for moving said member whereby all of the pawls engage the ratchets on the rolls and actuate them simultaneously; substantially as described.
3. In a paper feeding mechanism for typewriting machines, the combination with a plurality of supply rolls, of tension devices cooperating with each for re-winding the sheets fed therefrom, paper-receiving rolls provided with ratchets, a pawl cooperating with the ratchet of each roll, a platen, line-spacing mechanism cooperating with said platen, and a connection between said line-spacing mechanism and the pawls for each receiving roll, whereby all of said rolls are actuated simultaneously with the platen; substantially as described.
4. In a paper feeding mechanism for typewriting machines, the combination with a plurality of receiving rolls, of a ratchet wheel for each roll, a bar carrying pawls cooperating with said ratchets, and means independent of said bar for simultaneously releasing all of said pawls from engagement with their ratchet wheels; substantially as described.

In testimony whereof, I hereunto affix my signature, in the presence of two witnesses, this seventeenth day of March 1906.

SARAH M. HAWLEY.

Witnesses:

F. R. CORNWALL,
GEORGE BAKWELL.