No. 650,438. Patented May 29, 1900.

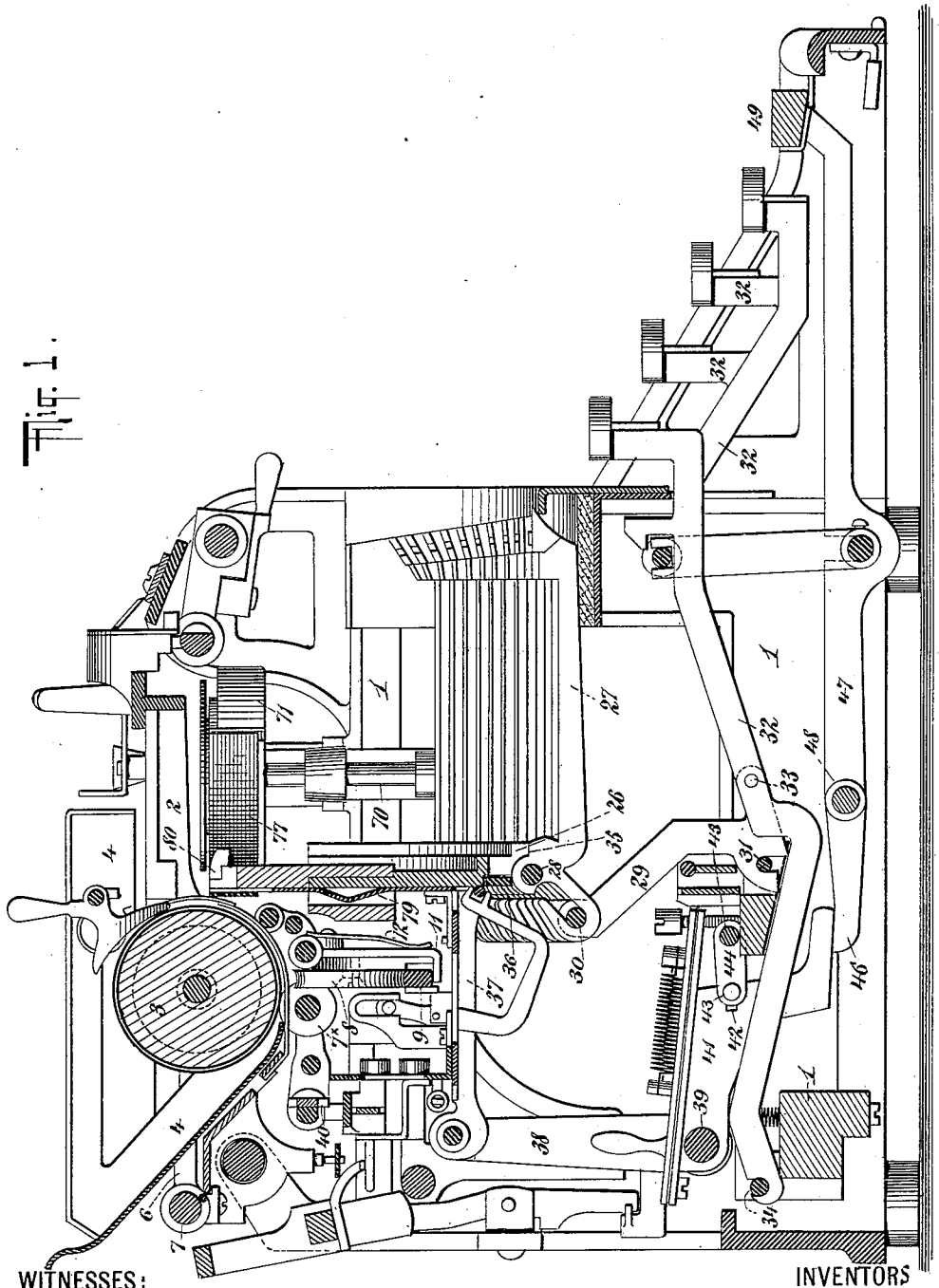
H. L. & F. X. WAGNER.

RIBBON MECHANISM FOR TYPE WRITERS.

(Application filed Mar. 13, 1899.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.



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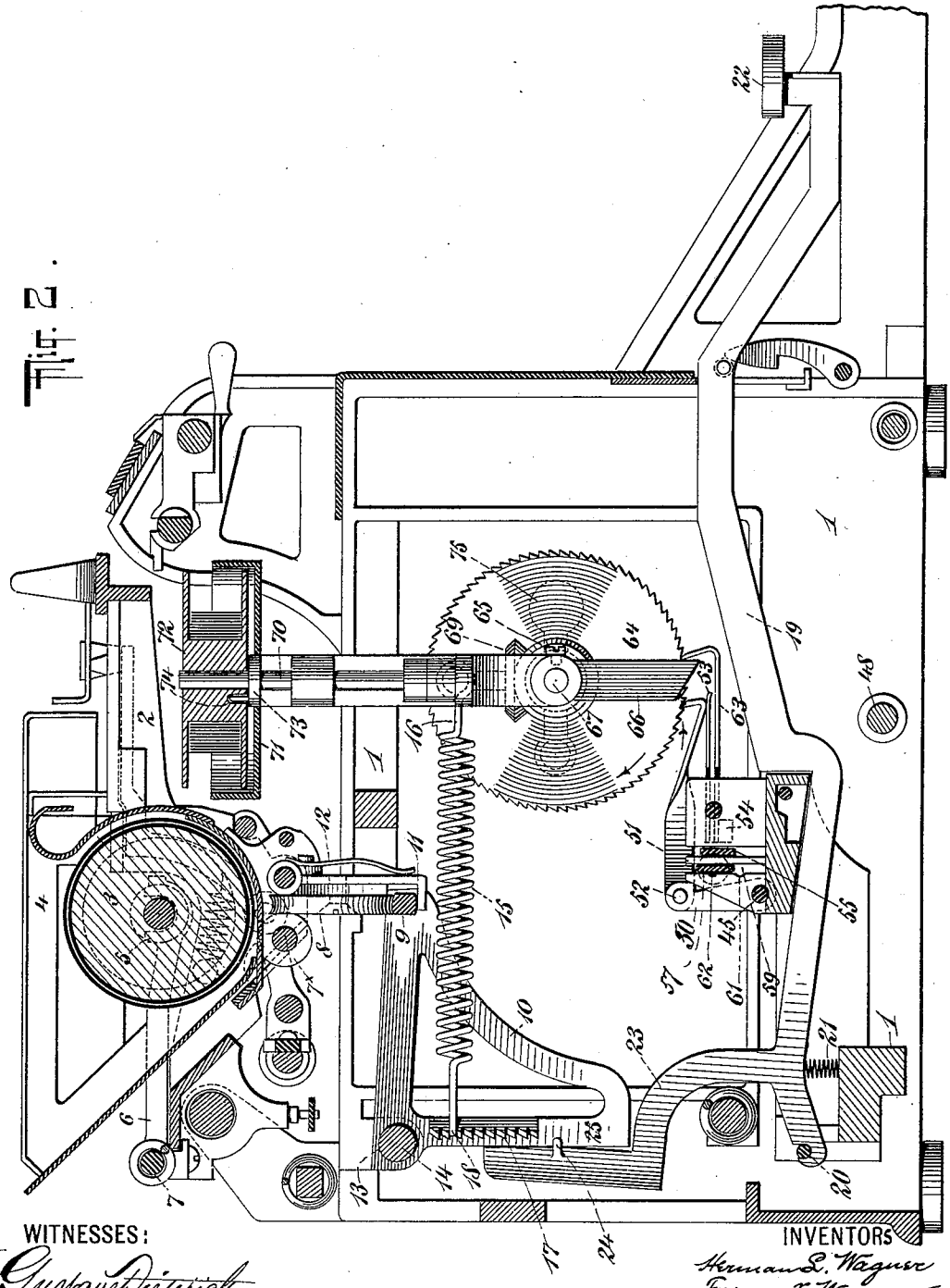
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Fig. 3.

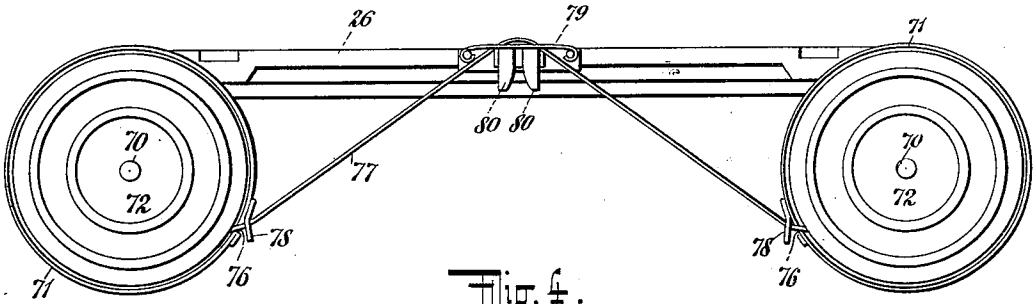


Fig. 4.

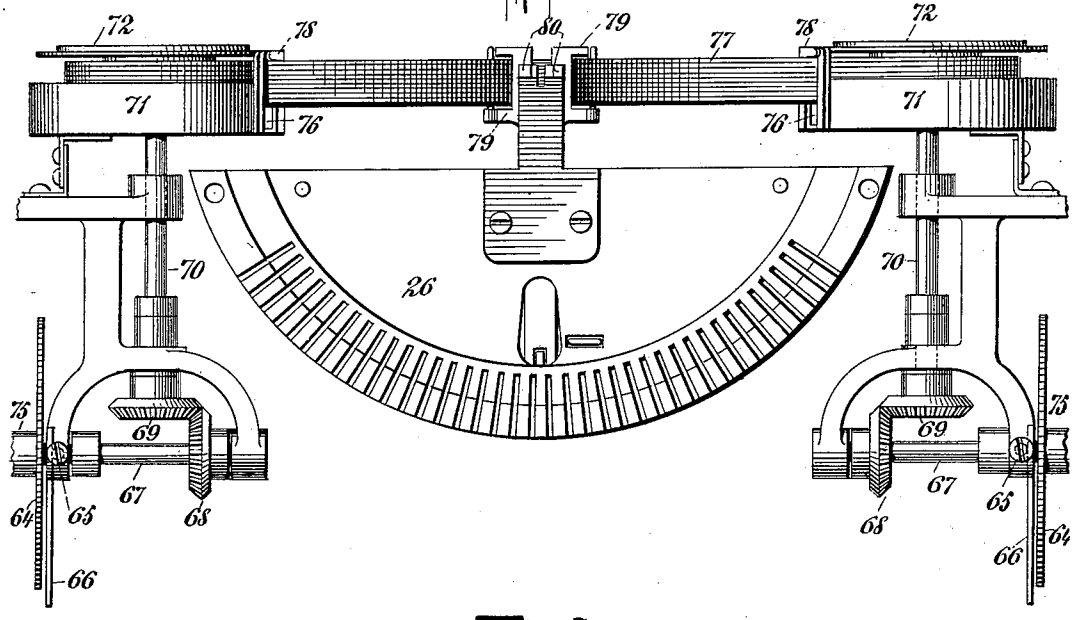
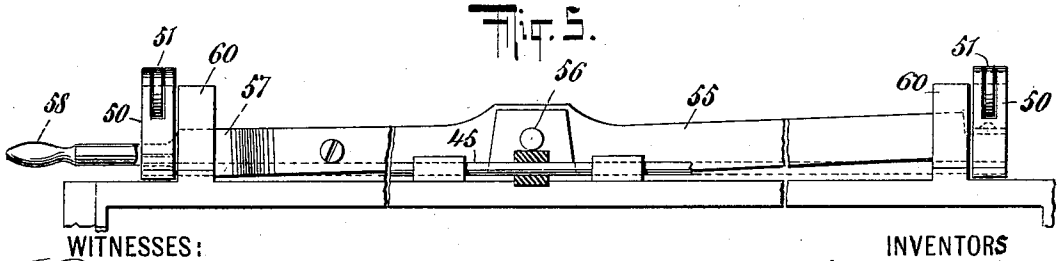


Fig. 5.



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UNITED STATES PATENT OFFICE.

HERMAN L. WAGNER AND FRANZ X. WAGNER, OF NEW YORK, N. Y., ASSIGNORS TO THE WAGNER TYPEWRITER COMPANY, OF SAME PLACE.

RIBBON MECHANISM FOR TYPE-WRITERS.

SPECIFICATION forming part of Letters Patent No. 650,438, dated May 29, 1900.

Original application filed July 7, 1897, Serial No. 643,688. Divided and this application filed March 13, 1899. Serial No. 708,952. (No model.)

To all whom it may concern:

Be it known that we, HERMAN L. WAGNER, residing in New York, (Brooklyn,) Kings county, and State of New York, and FRANZ X. WAGNER, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Ribbon Mechanism for Type-Writers, of which the following is a specification.

This application is a division of our application, Serial No. 643,688, filed July 7, 1897.

Our invention relates to ribbon mechanism for type-writers; and said invention consists in the novel arrangement and combination of parts to be hereinafter described and claimed.

The object of the invention is to provide efficient means for supporting and operating the ribbon-spools in such a manner as to prevent the ribbon from escaping therefrom.

In the accompanying drawings, wherein like characters indicate corresponding parts in the various views, Figure 1 is a central transverse vertical section of the machine. Fig. 2 is a transverse vertical section of the machine, taken to one side of the center thereof. Fig. 3 is a top detail view of the ribbon-spools and certain of the parts which cooperate therewith. Fig. 4 is a face view of the same. Fig. 5 is a detail rear view of the hand-operated controlling-lever for controlling the direction of feed of the ribbon, as will be hereinafter described.

In the accompanying drawings, 1 represents the framing of a type-writing machine, in which the various working parts are mounted. The machine is provided with a reciprocating carriage 2, which has a vertically-shiftable platen 3, carried by an independent casing 4, and is supported, together with its casing, in bearings 5, (see Fig. 2,) carried by links 6, which are secured to a rod 7, one of said links being provided at each end of the machine. Coöperating with the platen 3 are various feed-rollers $7^{\times}$, carried by the platen-casing. These parts are carried or supported upon a roller 8, which is carried by the platen-casing 4 and bears upon a rail 9, each end of which is connected to a bell-crank lever 10. In order to prevent the roller 8 and the parts supported thereby from moving away from the rail 9 when the parts are shifted vertically, we provide a pivoted arm 11, which is carried by the platen-casing and takes under the rail, as clearly shown in Figs. 1 and 2 of the drawings. A spring 12 bears upon the pivoted arm 11 and tends to normally maintain the said arm in the position illustrated. The platen-supporting levers 10 are pivoted to the framing of the machine, as indicated at 13, and are themselves united by a rock-shaft 14, so that motion transmitted to one of the levers will cause the one at the opposite end of the framing to receive a corresponding movement. The platen-supporting levers 10 and the parts supported thereby are normally maintained in the elevated position by the retractile spring 15, which is secured to a fixed portion of the framing at one end, as indicated at 16, and is adjustably connected to a rack 17, carried by one of said levers, as indicated at 18, in order to regulate the tension exerted by said spring. This connection is preferably brought about by a hook-like portion formed on the free end of a spring, which is adapted to engage the rack, as indicated in Fig. 2 of the drawings. A shift-key lever 19 is pivoted, as indicated at 20, and is normally maintained in the elevated position by a spring 21. This shift-key lever is provided with a shift-key 22 and with an upwardly-projecting arm 23, which carries a stud 24 on each side thereof, which is adapted to prevent the displacement of the arm 23 from the position where it will contact with the depending arm 25 of one of the levers 10. One or more of these shift-key levers may be provided to shift the platen to the upper-case position, and the form of lever shown or any such suitable means may be employed for this purpose.

Pivoted in a segmental plate 26 is a series of type-bars 27, as indicated at 28. Each of these type-bars is pivotally connected to a link 29, as indicated at 30, and the links 29 are pivoted to a fixed portion of the machine, as indicated at 31, and are each connected at the lower end thereof to a key-lever 32, as in-

dicated at 33. The key-levers are pivoted to a fixed portion of the machine, as indicated at 34. Each of the type-bars 27 is provided with an abutment 35, (see Fig. 1,) which is adapted to bear against a segmental universal bar 36 and transmit motion thereto before the type on the type-bar comes in contact with the paper on the platen. This segmental bar 36 is connected to a reciprocating table 37, which is pivotally connected to arms 38, secured to a rock-shaft 39. The table 37, just described, carries suitable feed-pawls, which are adapted to coöperate with a rack 40, carried by the paper-carriage, and a reciprocation of the table will give a step-by-step feed movement to the carriage in the ordinary manner.

The mechanism so far described constitutes the usual construction of a well-known "Underwood" type-writing machine, and only a general description thereof is therefore given in order that a better understanding of the present invention may be had. Rigidly connected to the rock-shaft 39 is a toe 41, which is provided with a slot 42, in which a crank-pin 43 engages. This crank-pin 43 is carried by an arm 44, rigidly connected to a rock-shaft 45. The lower end of this toe 41 coöperates with the free end 46 of a spacing-lever 47, which is pivoted, as indicated at 48, and is provided at its outer end with the usual spacing-key 49. By this arrangement it will be observed that a rocking motion is transmitted to the rock-shaft 45 when the spacing-key 49 is depressed or when any one of the finger-keys connected with the key-levers 32 is operated. This latter result is brought about by the reciprocation of the table 37 by a type-bar 27, just before the type thereon comes in contact with the paper on the platen. The motion transmitted to the table 37 to feed the carriage oscillates the arm 38, which is rigidly connected to the rock-shaft 39, and thus transmits motion to the toe 41, which oscillates the rock-shaft 45. Connected to the rock-shaft 45, near each end of the machine, is an arm 50, to which a pawl 51 is pivoted, as indicated at 52. This pawl 51 is supported at its free end upon a spring 53, which is connected to a block 54, that is united to a bar 55. This bar 55 extends across the machine from end to end and is pivoted at the center thereof, as indicated at 56 in Fig. 5 of the drawings. Connected to the bar 55 is a spring-arm 57, which is provided at its free end with a handle 58 and is adapted to move in a slot 59 in the upright extension 60 (see Fig. 5) of the framing. This slotted portion 59 of the upright extension 60 is recessed, as indicated at 61, and a corresponding projection 62 is carried by the spring-arm 57 and adapted to engage in either one of the recesses 61 to maintain the bar 55 in either of the adjusted positions. The block 54, connected to each end of this pivoted bar 55, likewise carries a non-reciprocating pawl 63, and each of which is adapted to coöperate with a corresponding ratchet-wheel 64. It will thus be understood that the pawls 51 and 63 at one end of the machine are maintained out of engagement with their coöperating ratchet-wheel when the pawls at the other end of the machine are in engagement with their corresponding ratchet-wheel and that a movement of the hand-operated bar 55 will simultaneously throw the pawls at one end of the machine out of engagement with their coöperating ratchet-wheel when the pawls at the other end of the machine are thrown into engagement with their coöperating ratchet-wheel. Adjustably secured, as by means of a set-screw 65, to a fixed portion of the framing is a cam 66, which projects beyond the periphery of a ratchet-wheel, as indicated in Fig. 2 of the drawings, and against which the reciprocating pawl 51 is adapted to bear in its movement in the direction of the arrow in Fig. 2. One of these cams 66 is provided for each of the ratchet-wheels 64, and when a pawl 51 is reciprocated the free end thereof is adapted to contact in its forward movement with its corresponding cam 66 and to disengage the pawl from its ratchet-wheel. It is obvious that an adjustment of the cam 66 will cause the reciprocating pawl 51 when in its operative position to disengage the ratchet-wheel during any desired extent of the movement of the pawl in a direction opposite to that of the feed and will prevent a reëngagement of said pawl with the ratchet-wheel until it again comes in contact with a point on the cam where it was thrown out of engagement. Thus a reciprocating pawl may be caused to engage adjacent teeth or may be allowed to travel the distance of two or more teeth before it engages a ratchet-wheel to step it intermittently the distance of one or more teeth, as desired. When one of the pawls 51 is in the inoperative or lowered position, it will be maintained out of contact with its coöperating ratchet-wheel 64, and the reciprocation of the pawl will be ineffective to transmit motion to the ratchet-wheel. Each of the ratchet-wheels 64 is connected to a spindle 67, which carries a bevel-gear 68, that meshes with a corresponding bevel-gear 69, which latter bevel-gear is connected to a suitably-mounted vertical or substantially-vertical spindle 70, that projects through a spool-casing 71 and is adapted to receive the spool 72 thereon. This spindle 70 has a flange 73 secured thereto, and from this flange projects a pin 74, that is adapted to engage in a corresponding recess in the ribbon-spool, or other suitable means may be employed to form a connection between the spindle and the ribbon-spool in order to operate the same. We preferably provide each of the ratchet-wheels 64 with a handle 75, by means of which either of the ratchet-wheels can be rotated by hand independently of the automatic operation thereof to move the ribbon by hand in either direction in accordance with the handle which is operated.

From the foregoing it will be understood that the motion transmitted to the reciprocating pawls in the manner described will operate to move the ribbon the distance of one or more teeth of the ratchet-wheel 64, as desired, at each operation of a key-lever or spacing-key and that the non-reciprocating pawl 63 which coöperates with each ratchet-wheel will when in the operative position maintain the wheel against reverse movement when the pawl 51 is being fed in the direction of the arrow in Fig. 2 of the drawings.

The improved means for supporting the ribbon-spools to prevent the escape of the ribbon therefrom will now be described. It has been common heretofore to support ribbon-spools so that the laminæ or layers of ribbon will be vertically supported upon the spools, and should the ribbon become slack there would be a liability of the ribbon dropping from the spools. Special reference being had to Fig. 2 of the drawings, it will be seen that each of the ribbon-spools 72 is maintained centrally upon the spindle 70, to which it is secured and that below and partly surrounding the ribbon-spool is a casing 71, which is apertured, as indicated at 76, (see Figs. 3 and 4 of the drawings,) for the passage of a ribbon 77, and above the aperture 76 in the ribbon-spool casing projects a guide-finger 78, which prevents the ribbon from being withdrawn upwardly from the spool or casing during the operation of the machine, allowing, however, of the ready removal of the ribbon when the same is carried to a position which it does not normally have when the machine is in operation, as indicated in Fig. 3 of the drawings. It will be observed that by these means the ribbon is prevented from dropping off the spool, the casing acting as a guide for the ribbon in case of slack being had or there being a tendency to unwind. The outward limit of movement of the ribbon being controlled by the casing, a further operation of the machine will tend to take up the slack and automatically tighten and straighten the laminæ of ribbon on the spool. The ribbon is conveyed from spool to spool in any desired manner. In the present instance we have shown it as being conveyed to a ribbon-guide 79, which is likewise preferably provided with arms 80, that constitute a guide for the type-bars.

The invention in this case is illustrated in connection with the well-known "Underwood" type-writing machine, though it should be understood that the invention may be applied to a type-writing machine of any well-known or preferred construction and that various changes in construction and arrangement may be made to adapt the invention to type-writing machines of different types.

Having described our invention, what we claim, and desire to secure by Letters Patent, is—

In a type-writing machine, the combination with a pair of disconnected ribbon-spools of a casing for each of said spools secured against movement to the framing of the machine and each surrounding its spool circumferentially for at least a portion of the extent thereof, each of said casings being in the nature of an open-mouth pocket in which its spool is adapted to rotate and from which said spool may be removed, a substantially-vertical spindle adapted to pass through the perforation in the bottom of each of said pocket-like casings means for connecting a spool to rotate with each of said spindles and means controlled by the spacing mechanism for rotating said spindles in opposite directions.

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