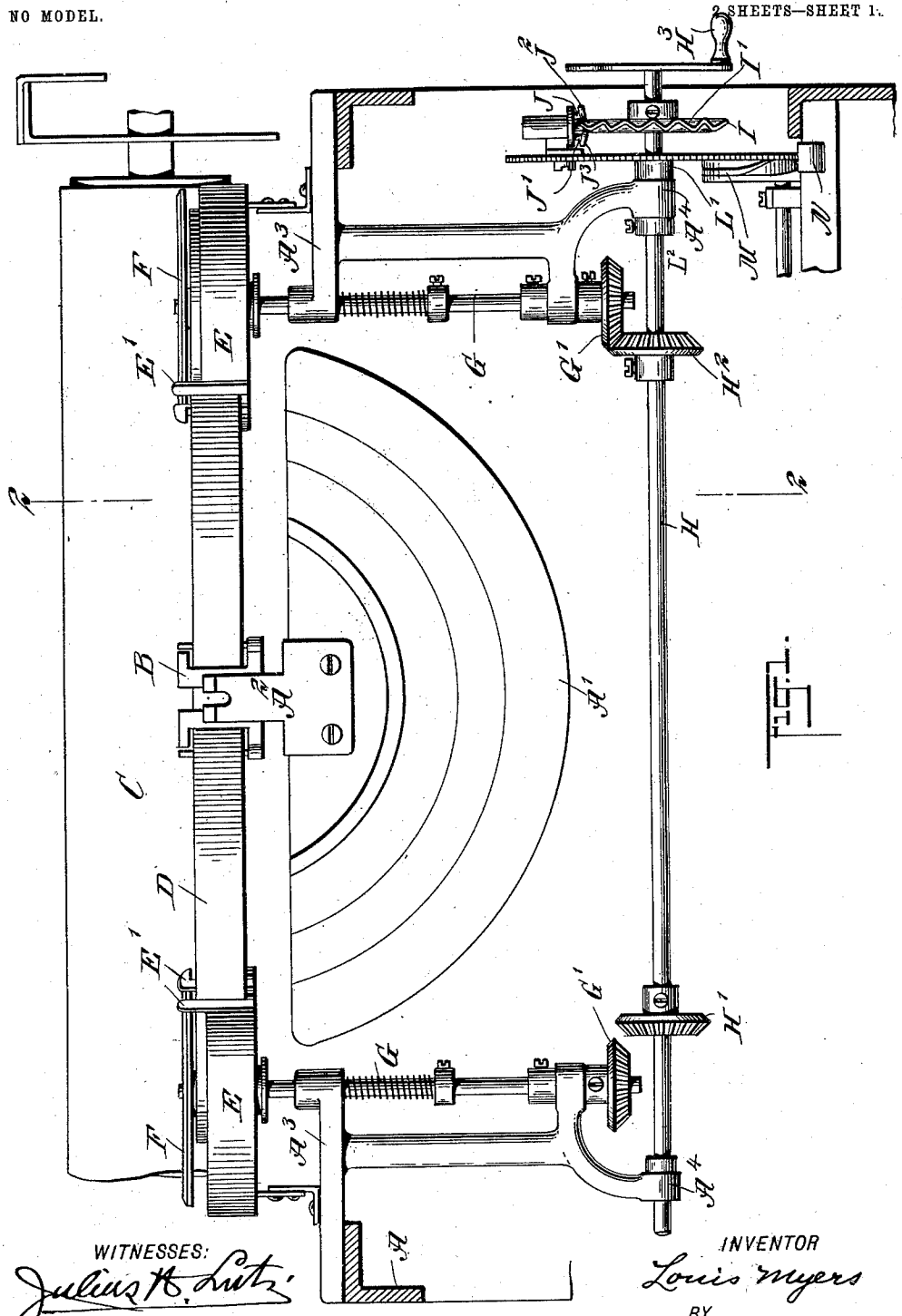
No. 748,208. PATENTED DEC. 29, 1903.

L. MYERS.

RIBBON REVERSING MECHANISM FOR TYPE WRITERS.

APPLICATION FILED JUNE 6, 1903.

NO MODEL. 2 SHEETS—SHEET 1.



WITNESSES:

Julius A. Lutz

John Lotka

INVENTOR

Louis Myers

BY

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his ATTORNEYS

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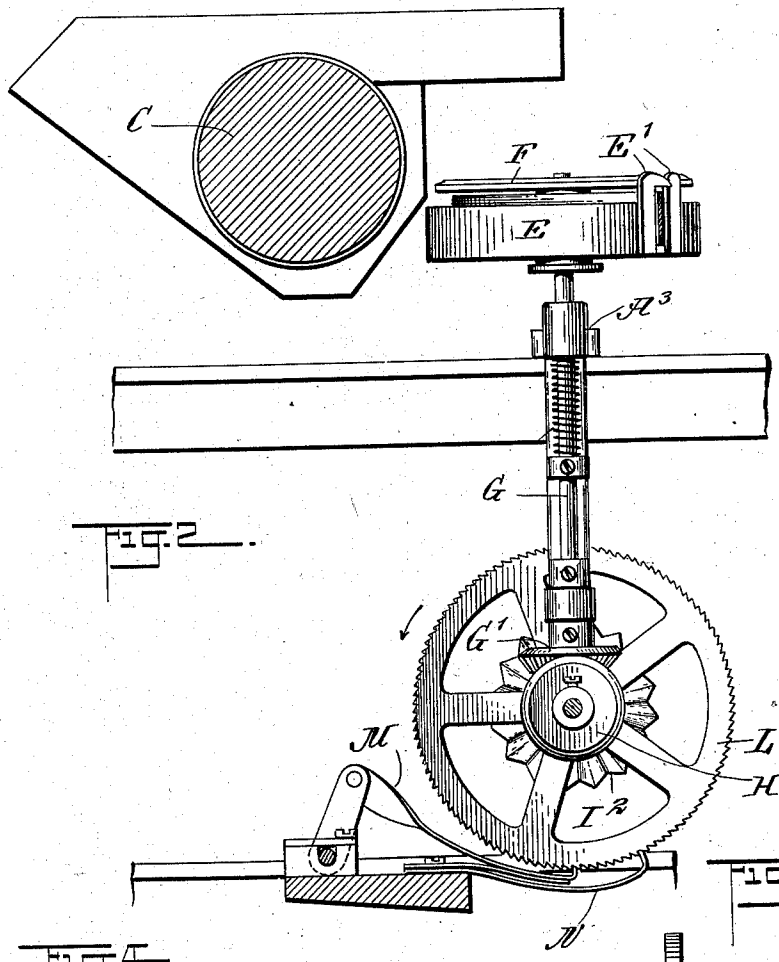


Fig. 2.

Fig. 5.

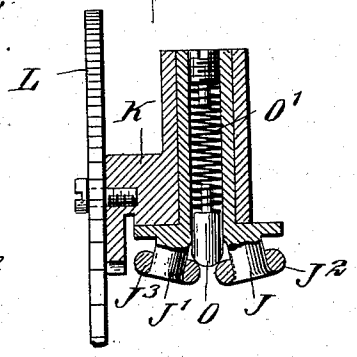


Fig. 4.

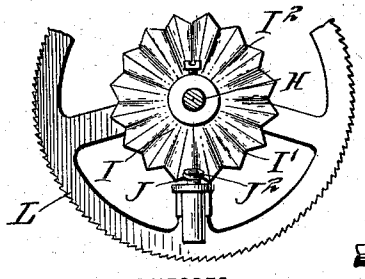
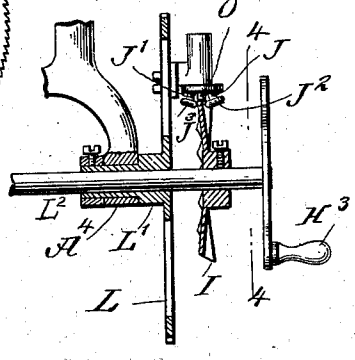


Fig. 3.



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No. 748,208. Patented December 29, 1903.

UNITED STATES PATENT OFFICE.

LOUIS MYERS, OF HARTFORD, CONNECTICUT, ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

RIBBON-REVERSING MECHANISM FOR TYPE-WRITERS.

SPECIFICATION forming part of Letters Patent No. 748,208, dated December 29, 1903.

Application filed June 6, 1903. Serial No. 160,372. (No model.)

To all whom it may concern:

Be it known that I, LOUIS MYERS, a citizen of the United States, and a resident of Hartford, Hartford county, Connecticut, have invented certain new and useful Improvements in Ribbon-Reversing Mechanism for Type-Writers, of which the following is a specification.

My invention relates to type-writing machines, and particularly to those in which the impression is effected through the medium of a ribbon which is fed intermittently, so as to present a new surface to the type, and reversed whenever the end of the ribbon is reached. Various mechanisms have been devised for the purpose of securing an automatic reversal of the ribbon-feed whenever an end of the ribbon is reached.

The object of my present invention is to provide a mechanism of this character which will be of superior simplicity and efficiency.

To this end my invention consists of the features hereinafter specified in the claims, such features being embodied in the machine illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of a type-writer with parts omitted, so as to more clearly disclose my invention. Fig. 2 is a sectional elevation on line 2 2 of Fig. 1. Fig. 3 is a detail of the reversing mechanism proper with parts in longitudinal section. Fig. 4 is a sectional elevation on line 4 4 of Fig. 3; and Fig. 5 is a detail of a portion of the reversing mechanism proper, drawn upon an enlarged scale.

A indicates the frame of the type-writer; A′, the segment to which the type-bars are pivoted; A^2, the type-bar guide located adjacent to the printing-point; B, the central guide for the ribbon, and C the platen of the carriage. The ribbon D passes through said central guide B and through lateral guides E′ to ribbon-spool holders E. The spools F are carried in any approved manner by shafts G so as to rotate therewith, said shafts being journaled in brackets A^3. At the lower end of each shaft is located a pinion G′, preferably a bevel-pinion. These pinions are adapted to be engaged by mating pinions H′ H^2 upon a reversing-shaft H, slidable lengthwise in bearings A^4, so as to carry one or the other of the pinions H′ H^2 into engagement with the adjacent pinion G′. It will be understood that the pinions H′ H^2 are so arranged that only one of them will be in operation at a time, and I prefer to adopt the usual arrangement in which the pinions H′ H^2 are located between the pinions G′ and are adapted to rotate them in opposite directions. So far as above described the construction need not differ from that usually employed in the Underwood type-writer; but I desire it to be understood that my invention is applicable to other type-writers also.

On the shaft H may be secured a handle H^3 for turning the shaft manually, as when it is desired to start a ribbon. On the said shaft is further rigidly secured the switch I, which, as shown, consists of a disk corrugated, as at I′, so that some portions of it are nearer the pinions G′ than others. These corrugations are engaged by a shifting member, which in the particular structure shown consists of two arms J J′, between which the disk I is received, said arms being preferably provided with rollers J^2 J^3 to reduce friction. These arms are rigidly carried by a bracket K, secured to the ratchet-wheel L, to which an intermittent feed movement is imparted by any suitable mechanism, as the usual feed-pawl M, acting in conjunction with a retaining-pawl N. The ratchet-wheel or feed-wheel L is loosely mounted on the shaft H and turns in one of the bearings A^4, the shaft being carried by said bearing through the medium of the hub of the feed-wheel L. A movement of said wheel lengthwise of the shaft is prevented in any suitable manner, as by collars L′ L^2. It will be understood that the feed-wheel is thus capable of turning relatively to the shaft H and switch I. Normally, however, the switch and shaft rotate in unison with the feed-wheel on account of the

frictional engagement of the wheels J^2 J^3 with the corrugations I'. When the end of the ribbon is reached, a sudden increased resistance will be opposed to the turning of the shaft H, and, in fact, said shaft will soon become stationary as the ribbon becomes taut. The feed-pawl M will, however, continue to rotate the feed-wheel L and two arms J J'. The action of these arms or of the wheels J^2 J^3, carried thereby, on the corrugations I' will cause the switch I to be moved lengthwise—that is, parallel to the axis of the shaft H—and since the switch I is rigidly secured to the shaft the latter will be moved to change the engagement of the pinions H' H^2 with the pinions G'—that is, the pinion which was in mesh will be thrown out of gear, and vice versa. This will reverse the direction of the ribbon-feed in the usual manner. It will be understood that the lateral deflection or deviation of the corrugations I' should be about equal to the amount of longitudinal travel that must be given to the shaft H in order to bring about a reversal of the ribbon-feed.

In order to secure a quick throw of the switch, I may secure upon the bracket K a spring-pressed plunger O, adapted to engage the periphery of the switch-disk I, which in this case is made with a series of rises and depressions I^2, registering with the corrugations I'. Normally—that is, when the shaft and the feed-wheel L are coupled to rotate in unison—the plunger O will rest at the bottom of one of the depressions I^2. When the shaft is arrested at the time the ribbon has been wound off entirely, the feed-wheel by its continued rotation will cause the plunger O to travel up the incline of one of the rises at the periphery of the switch I, and as soon as the highest point of the rise is passed the spring O', acting on the plunger O, will quickly throw the switch and with it the shaft, so as to reverse the connection of said shaft with the ribbon-spool spindles.

If at any time it is desired to reverse the ribbon by hand, this can be done readily by turning the handle H^3 in the direction indicated by the arrow in Fig. 2, the ratchet-wheel L being unable to follow the shaft on account of its engagement with the pawl M.

Various modifications may be made without departing from the nature of my invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a type-writing machine or the like, the combination of the ribbon-spool spindles, a longitudinally-slidable shaft adapted to drive one or the other of said spindles, mechanism for driving said shaft, and a switch connecting the driving mechanism with the shaft to normally cause them to rotate together and to shift the shaft lengthwise when one of the ribbon-spool spindles comes to a standstill.

2. In a type-writing machine or the like, the combination of the ribbon-spool spindles, movable mechanism for driving one spindle or the other, a driving device for operating said movable mechanism, and a switch for normally transmitting motion from the driving device to said movable mechanism, and for shifting said movable mechanism when one of the said spindles comes to a standstill.

3. In a type-writing machine or the like, the combination with the ribbon-spool spindles, of a longitudinally-movable shaft adapted to drive one or the other of said spindles, a switch secured to said shaft and provided with lateral deflections or corrugations, a feed-wheel held against longitudinal movement, and a clutch connection carried by said feed-wheel and engaging the switch to normally cause the switch to rotate with the feed-wheel, and to bring about a longitudinal movement of the shaft and switch when the shaft is detained in its rotary movement by the stoppage of one of the ribbon-spool spindles.

4. The combination, in a type-writing machine or the like, of two ribbon-spool spindles, a longitudinally-movable shaft adapted to drive one or the other of said spindles, a switch secured to said shaft and provided with lateral deflections or corrugations, also with peripheral rises and depressions, a feed-wheel held against longitudinal movement and mounted to rotate about the same axis as said shaft, a clutch member carried by said feed-wheel, and arranged to engage the corrugations of the switch, and a spring-pressed member, likewise carried by the feed-wheel and engaging the periphery of the switch.

5. In a type-writer or like machine, the combination with a permanently-acting driving device, of a movable mechanism adapted for connection with one end portion of the ribbon or the other, and arranged to become stationary when the ribbon comes to a standstill, and ribbon-reversing mechanism operated by the movement of the driving device relatively to said movable mechanism, when the latter becomes stationary, and means for normally transmitting motion from the driving device to said movable mechanism.

6. The combination in a type-writing machine or the like, of a reversing-shaft adapted to feed the ribbon in one direction or the other and to become stationary when the ribbon is at a standstill, a permanently-acting driving device, mounted to turn about the same axis as the said shaft and a clutch connection between said shaft and the driving device to normally cause them to rotate in unison and to shift the shaft when it becomes stationary.

7. The combination with the rotary ribbon-spool spindles and mechanism arranged for driving connection with one or the other of said spindles, of a permanently-operating driving device for normally giving said mechanism its driving motion, and a reversing

mechanism, operated by the stoppage of one of the ribbon-spool spindles and of said mechanism, in conjunction with the continued motion of the driving device, for reversing the driving connection of said mechanism with reference to the ribbon-spool spindles.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LOUIS MYERS.

Witnesses:
EUGENE EBLE,
JOHN A. KEHLENBECK.