

No. 685,753.

Patented Nov. 5, 1901.

C. N. FAY.

TYPE WRITING MACHINE.

(Application filed Dec. 10, 1900. Renewed Sept. 9, 1901.)

(No Model.)

2 Sheets—Sheet 1.

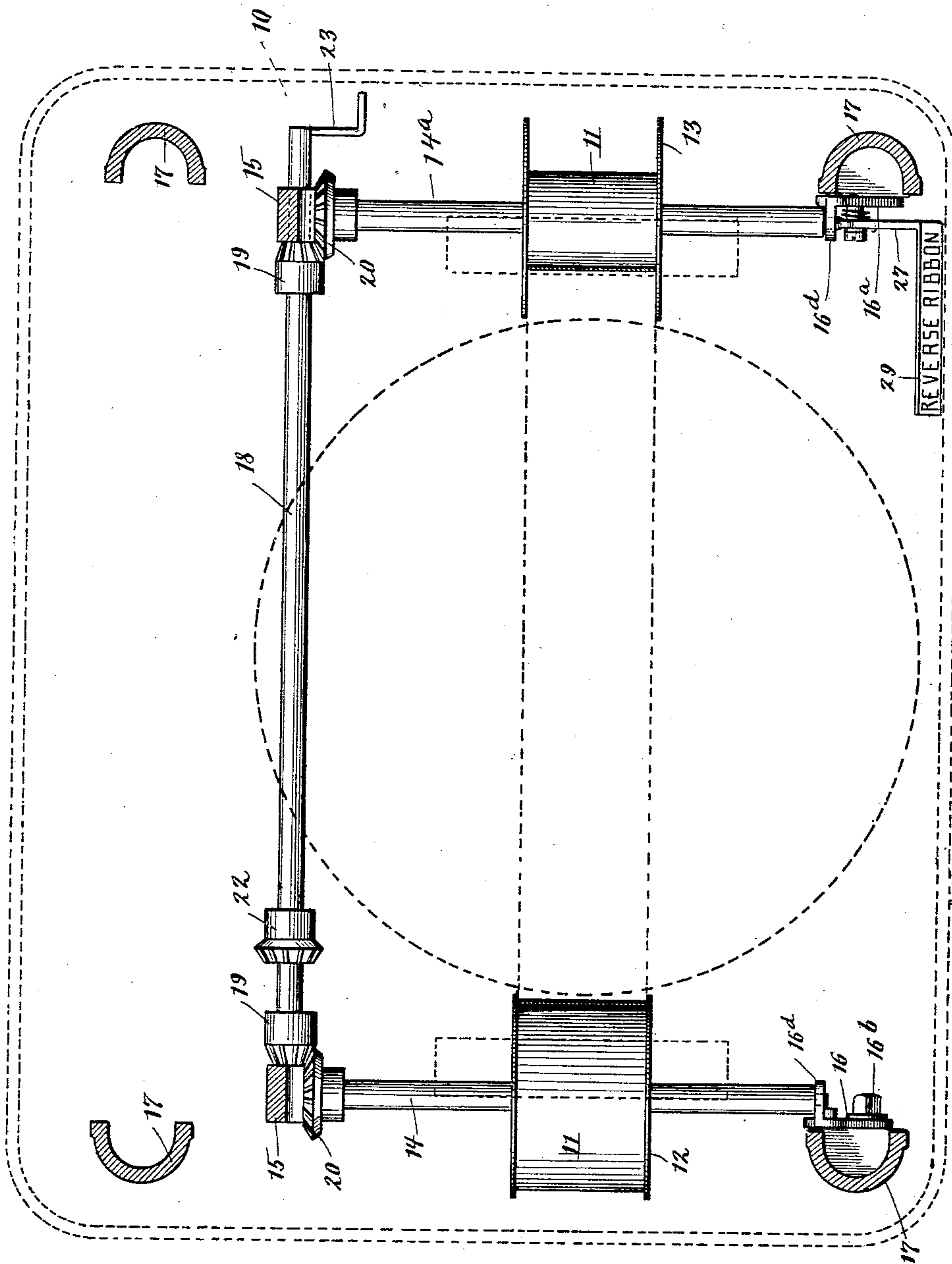


Fig. 1

Witnesses:

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TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 685,753, dated November 5, 1901.

Application filed December 10, 1900. Renewed September 9, 1901. Serial No. 74,709. (No model.)

To all whom it may concern:

Be it known that I, CHARLES N. FAY, a resident of Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a full, clear, and exact description.

My present invention relates particularly to the ribbon-movement of a type-writing machine, and has for its main object to provide a signal device, visual or otherwise, whereby the operator may be informed when the ribbon has been unwound from either of the ribbon-spools or has ceased to travel.

My invention consists in the features of improvement hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a plan view of that portion of a type-writing machine embodying my invention, the top of the machine being shown in dotted lines. Fig. 2 is a vertical sectional view of the same, and Fig. 3 is an end view. Fig. 4 is a detail view of the support for the ribbon-spool shaft.

10 represents the top plate of a type-writing machine having a circular opening therein, around which the usual type-levers (not shown) are pivoted.

11 represents the usual inking-ribbon secured in any suitable manner and wound upon the spools 12 and 13 and adapted to be fed through slots in the top plate 10 and across the central opening in any well-known manner. The ribbon-spools are mounted upon shafts 14 and 14^a, which in turn are supported by the brackets 15, depending from the top plate 10, and the brackets 16 and 16^a, secured to the front uprights 17, which serve to support the top plate. The supports 16^a are secured in place against the inner face of the uprights 17 by the screws and bolts 16^b and 16^c and are provided with bent ears 16^d, in which ears bearings are located for the ends of the shafts 14 and 14^a. A drive-shaft 18 is also mounted in the brackets 15 and is provided with beveled gears 19, engaging the beveled gears 20 upon the shafts 14 and 14^a. The shaft 18 is also provided with a beveled gear 22, which is connected to the carriage-driving mechanism of the type-writer. (Not shown.) By this means and by a reversing

mechanism (not shown) the shafts 14 14^a are driven so that the ribbon may be alternately fed in opposite directions and wound from one of the spools and onto the other by the step-by-step carriage-feed. The shaft 18 is provided with the usual handle 23, whereby the ribbon may be fed manually. Any of the well-known forms of ribbon-feed mechanisms may be used in this connection, and it will not be necessary, therefore, to more fully illustrate and describe such device. The ribbon-feed mechanism is also provided with some form of reversing-switch whereby the direction of the feed of the ribbon is changed. These reversing mechanisms are well known and need not be described or shown.

The shaft 14^a is provided at one end with a short pintle 24, which is journaled in a vertically-slotted bearing 25 in the ear 16^d of the support 16^a and extends therethrough to engage a notch 26 in the vibratory signal-arm 27, pivoted to the support 16^a. Adjacent the notch 26 is a projection 28 on the arm 27, by which the pintle 24 is prevented from being disengaged from the notch 26. The upper end of the arm 27 is provided with a portion 29, bent at right angles thereto, forming a plate which bears the words "Reverse ribbon." The normal position of the signal-arm and plate, as shown in Figs. 1, 2, and 3, is such that the plate bearing the words "Reverse ribbon" is located beneath the depending flange of the top plate 10 at the right-hand portion of the front of the machine. When, however, the ribbon has been entirely unwound from either of the spools, the continued operation of the ribbon-feed will cause a strain to be placed upon the ribbon. The spool 12 and the shaft 14^a will be raised slightly by this pull, and thereby depress the signal-arm, through the medium of the pintle 24 and notch 26, from beneath the depending flange of the top plate, as shown in dotted lines in Fig. 2. In this position the signal-plate will be instantly seen by the operator at the right-hand portion of the front of the machine. When the signal has been observed and the direction of the carriage-feed reversed by the operator, the strain upon the ribbon will be relieved and the shaft 14^a and signal-arm actuated thereby will return to the normal position. A spring 30 may be

employed about the pivot of the signal-arm 27 and bearing against said arm, so that the pull of the ribbon will act in opposition to said spring and so that said spring will assist
 5 in returning shaft 14^a and signal-arm 27 to the normal position. If desired, a counter-balance-weight may be employed instead of the spring 30.

I am aware that various visual signals have
 10 been arranged to be operated by an obstruction attached to the ribbon; but I believe I am the first to mount the ribbon-spool and shaft to which one end of the ribbon is secured so that it is capable of a slight move-
 15 ment transversely of the pull of the ribbon when the ribbon is unwound from either spool. When an obstruction upon the ribbon is used, it is necessary to employ two signals, one for each end of the ribbon, while
 20 in my device this is obviously not necessary.

It is obvious that I could employ other means than a visual signal to indicate to the operator that the ribbon-reverse switch should be actuated. For example, an audible signal
 25 could be used or the movable shaft 14^a used to operate a line-lock for the key-levers, or, indeed, the movement of this shaft could be utilized to operate an automatic ribbon-reversing switch. I do not, therefore, wish to
 30 be limited to the exact details of construction set forth, which may be varied by the mechanic's skill without departure from the essentials of the invention.

Having thus described my invention, what
 35 I claim as new, and desire to secure by Letters Patent, is—

1. In a type-writing machine, the combination with a vibratory signal, of an inking-ribbon movable lengthwise in opposite direc-
 40 tions, and a part to which said ribbon is secured, arranged to actuate said signal when the ribbon has traveled a predetermined distance in either direction.

2. In a type-writing machine, the combination with a vibratory signal, of an inking-ribbon movable lengthwise in opposite direc-
 45 tions, and a movable part to which one end of said ribbon is secured, arranged to actuate said signal when the ribbon has traveled a predetermined distance in either direction.
 50

3. In a type-writing machine, the combination with a vibratory signal, of an inking-ribbon, a pair of spools upon which said ribbon is alternately wound and unwound, one
 55 of said spools being movable transversely to its axis, and means connected to said movable spool for actuating said signal.

4. In a type-writing machine, the combination of an inking-ribbon, a pair of spools upon
 60 which said ribbon is alternately wound and unwound, one of which spools being movable

in a direction transverse to its axis, connections between said ribbon and said spool, whereby the latter is moved transversely when
 said ribbon is unwound from either spool, 65 and a part arranged to be shifted by said spool.

5. In a type-writing machine, the combination of an inking-ribbon, a pair of spools upon which said ribbon is alternately wound and
 70 unwound, shafts for said spools, one of which shafts is movable transversely, connections between said ribbon and said spool, whereby said shaft is moved transversely when said
 ribbon is unwound from either spool, and a 75 part arranged to be shifted by said shaft.

6. In a type-writing machine, the combination with an inking-ribbon, of a pair of spools to which said ribbon is secured, and upon which said ribbon is alternately wound and
 80 unwound, shafts for said spools, one of said shafts having a slotted bearing, whereby said shaft is moved transversely when said ribbon is unwound from either of said spools, and a part arranged to be shifted by said 85 shaft.

7. In a type-writing machine, the combination with a vibratory signal, of an inking-ribbon, a pair of spools to which said ribbon is secured and upon which said ribbon is alter-
 90 nately wound and unwound, shafts for said spools, one of which shafts has a slotted bearing and which engages said signal, whereby the latter is operated when the ribbon is unwound from either spool. 95

8. In a type-writing machine, the combination with a vibratory, pivoted, signal-arm, of an inking-ribbon, a pair of spools to which said ribbon is secured and upon which said
 ribbon is alternately wound and unwound, 100 shafts for said spools, one end of one of said shafts having a pintle, a slotted bearing for said pintle, a notch in said pivoted signal-arm with which the end of said pintle en-
 gages, whereby said signal is operated when 105 said ribbon is unwound from either of said spools.

9. In a type-writing machine, the combination with a shiftable member, of actuating means therefor comprising an inking-ribbon
 110 movable lengthwise in opposite directions, a bodily-shiftable part to which said ribbon is secured arranged to be shifted by the pull thereof when said ribbon has traveled a predetermined distance in either direction, and 115 operative connections between said part and said shiftable member.

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Witnesses:

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