

(No Model.)

F. W. OVERHISER.

RIBBON MECHANISM FOR TYPE WRITING MACHINES.

No. 542,532.

Patented July 9, 1895.

Fig. 1.

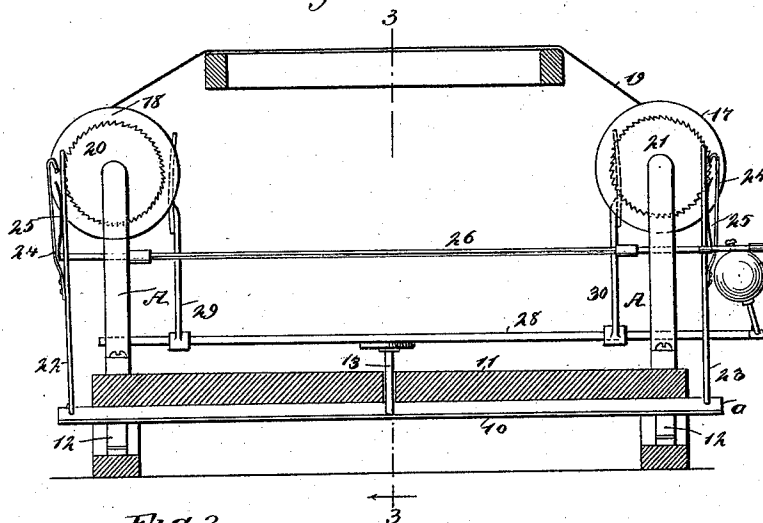


Fig. 6.

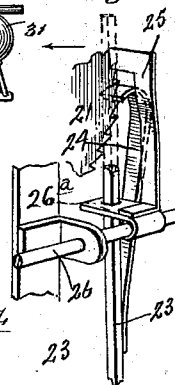


Fig. 2.

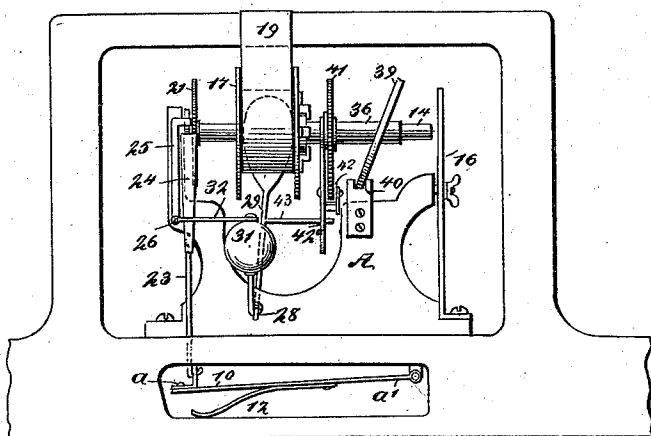


Fig. 4.

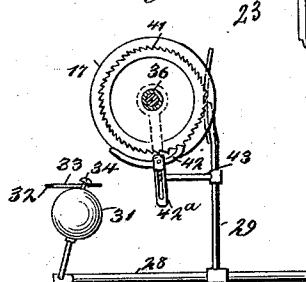


Fig. 3.

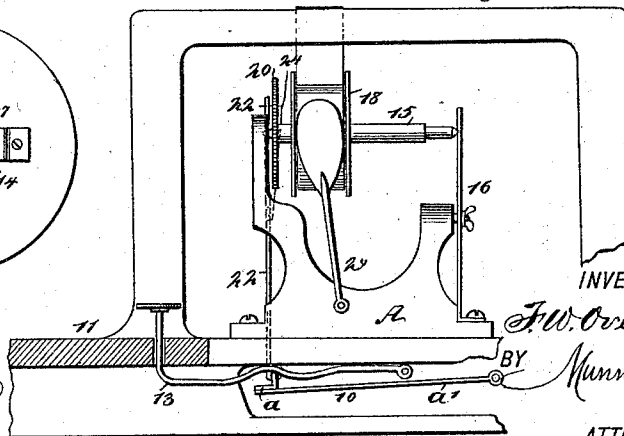
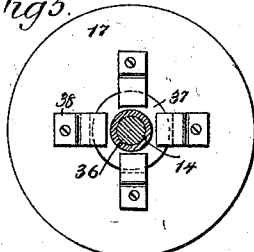


Fig. 5.



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RIBBON MECHANISM FOR TYPE-WRITING MACHINES.

SPECIFICATION forming part of Letters Patent No. 542,532, dated July 9, 1895.

Application filed March 24, 1893. Serial No. 467,501. (No model.)

To all whom it may concern:

Be it known that I, FRED W. OVERHISER, of Cold Spring, in the county of Putnam and State of New York, have invented a new and useful Improvement in Type-Writing Machines, of which the following is a full, clear, and exact description.

My invention relates to an improvement in type-writing machines, and especially to the control of the ribbon-feed and provision for transverse feed operated in connection with the controlling mechanism.

The object of the invention is to provide a simple, durable, and efficient method of automatically reversing the movement of the inking-ribbon, and also to provide for a transverse movement of the ribbon, which is automatically operated in connection with the reversing mechanism, so that while the machine is in operation the ribbon will have a constant movement, such movements being so made that every portion of the ribbon is brought automatically in contact with the type, thus insuring the uniform wearing of the ribbon over all its surfaces without any attention whatever from the operator.

A further object of the invention is to provide an automatic reverse and transverse feed attachment that may be applied to any ordinary type-writing machine in which the ribbon is fed from spools located on shafts and driven by any suitable mechanism.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a transverse section through the keyboard or frame of a type-writing machine, illustrating the application of my invention thereto. Fig. 2 is an end view of the machine and of the devices connected therewith. Fig. 3 is a section taken essentially on the line 3 3 of Fig. 1, and Figs. 4, 5, and 6 are detail views of several portions of the machine.

In carrying out the invention a frame 10 is pivoted or hinged beneath the bed 11 of the machine. This frame extends from end to

end of the machine, and its front bar extends beyond the ends of the machine ordinarily, the said front bar being designated as *a*, while the side bars of the frame are designated as *a'*. The frame is normally held in an upper or elevated position by means of springs 12, which have bearing upon the frame of the machine, and likewise preferably upon the side bars of the pivoted frame 10.

The frame 10 is pressed downward at every movement of the key-levers, since the key-levers rest upon the frame, and one of said levers is illustrated in the drawings and is designated as 13. At each end of the bed of the machine a standard *A* is located. The standards are each adapted to journal the ends of shafts, one shaft being designated as 14 and the other shaft as 15. In order that objects may be placed upon the shafts a portion of the standard is removable or adjustable, permitting access to be readily obtained to one extremity of a shaft, and to that end one of the bearings of a shaft on each standard is solid with the standard-base, while the other bearing (designated as 16) is connected with the standard-base by means of a set-screw or like device.

On the shaft 14 a spool 17 is mounted to slide, yet the said spool turns with the shaft, and a second spool 18 is mounted in like manner upon the opposite shaft 15. The spools 17 and 18 are adapted to carry an inking-ribbon 19, one end of the ribbon being attached to each spool, and the ribbon is carried over the frame of the machine in any well-known manner.

It is the object of this invention to provide a means whereby when the ribbon has been wound upon one spool to a predetermined extent it will immediately automatically commence to unwind from that spool and wind up upon the opposite spool. The shaft 15 is provided at or near one end with a ratchet-wheel 20, and the shaft 14 is in like manner provided with a similar wheel 21. The shafts are made to revolve more or less every time a key-lever is pressed and the frame 10 actuated. Consequently there is a connection between each shaft and the lower or hinged or pivoted frame 10, and the driving connection preferred is that shown in the drawings, which consists in a rod being projected upward from

the outwardly-extending ends of the lower frame 10, the rods being designated as 22 and 23. Each rod is provided with a dog 24, the dogs being ordinarily firmly secured to the rods, and these dogs are adapted to act upon the ratchet-wheels, and when the frame 10 is pressed downward the rods are carried down also, and consequently through the medium of the dogs the ratchet-wheels will be revolved and turn the shaft; but both of the shafts are not rotated when the lower frame 10 is depressed. In fact the said frame acts upon one of the shafts, but never upon both at the same time, as when a dog is in engagement at one end of the machine the dog at the opposite end will be out of contact with its wheel.

A spring 25 acts as a detent to hold whatever motion is imparted to the ratchet-wheel by the dogs 24, and the said spring is secured upon a horizontal rod or connecting-bar 26, which rod or connecting-bar extends from one side of the machine to the other, it having guided movement in the standards A, as shown in Fig. 1, or in standards or brackets conveniently placed to receive it.

The connecting-rod has limited lateral movement endwise, and the said rod near each end is provided with a bracket 26^a. (See Fig. 6). The vertical rods 22 and 23 which carry the dogs are passed loosely upward through the brackets, and therefore when the connecting-bar 26 is carried in direction of one end the dog at the end of the rod, which travels outward, will be disengaged from its ratchet-wheel, while the dog at the opposite end of the machine will be carried into an engagement with the ratchet-wheel, with which it is to be connected. This shifting of the connecting-rod is automatically accomplished, and it is preferably effected in the following manner:

A shifting-bar 28 is held to slide in suitable bearings above the bed of the machine and below each of the end shafts 14 and 15 at a point near their centers, and the shifting rod or shaft 28 is adapted to have endwise movement. The said shifting bar or shaft is also provided with two upwardly-extending arms, designated as 29 and 30, which arms are fixed at their lower ends upon the shaft, while their upper ends are made fan-shaped, as shown in Fig. 2, and each fan-section of each arm is located opposite a spool in such manner that the fan-section of the arms will have a constant bearing upon the ribbon-roll upon the spools, thus insuring the ribbon winding upon the spools in a perfect manner, while the shaft, having end movement, will be carried in direction of one or the other of its extremities, according to whichever of the spools becomes substantially filled, and consequently the arm engaging with the ribbon on that spool is forced in direction of the body of the machine. The shifting shaft or rod 28 is provided at one of its ends with a ball 31 or other form of weight pivotally connected therewith, the weight 31 being adapted to act in the nature

of a pendulum, and the ball by its movement is also adapted to act upon the connecting-rod 26, controlling the movements of the dogs. To that end a plate 32, is projected from an extremity of the said connecting-rod, and the plate at its inner end is provided with a longitudinal slot 33, as shown in Fig. 4, and in this slot a stud 34, formed upon the top of the ball or weight, has free movement. Therefore, when the rod is carried, for example, in direction of the shaft 15 the weight will fall outward and carry the connecting-rod in the same direction, thus causing the dog operating the shaft 15 to be put in engagement with the ratchet-wheel of that shaft, while the opposite dog is carried out of engagement with its ratchet-wheel, and such end movement of the shifting rod or shaft will take place the very moment that the spool on the shaft 14 has received as much ribbon as it is intended to carry, and by reason of the shifting of the dogs the shaft 15 will be revolved, carrying the comparatively empty spool, and the ribbon will be wound thereon. As soon as the ribbon has comparatively filled the spool on the shaft 15 the shifting-shaft will have been again actuated by the arm engaging with the spool being filled and the dogs will be again shifted and the ribbon wound upon the shaft 14. This movement takes place automatically and constantly, insuring a regular and positive movement of the ribbon at all times, and consequently the type never fails to be inked.

In order that the ribbon shall wear uniformly throughout—that is to say, in order that the entire transverse as well as longitudinal surface of the ribbon shall be brought in contact with the type—the spools are shifted laterally while they are winding or unwinding. This is ordinarily accomplished by loosely mounting a sleeve 36 upon the shaft 14 and providing the sleeve with a head 37, which head is loosely mounted in a socket 38 formed on the spool 17 of that shaft, as shown in both Figs. 2 and 5. This sleeve carries a cam-disk 39, which disk stands diagonally upon the shaft and runs in a channel 40 formed permanently upon one of the standards A, as shown in Fig. 2. Thus as the sleeve bearing the cam-disk is made to turn it will slide back and forth along the shaft 14, carrying with it spool 17, and this reciprocating motion of the spool 17 is transmitted to the spool 18 by the rock-shaft motion of the rod 28 and the arms 29 and 30 acting between the flanges of the spools.

The turning of the cam-disk 39 is insured by a spur-wheel 41, mounted upon the sleeve 36, and a gravity-pawl 42, which engages with the teeth on the under side of the wheel 41, as shown in Fig. 4. The gravity-pawl is suspended from or attached to a pendulum or strap 42^a, which pendulum is swung to and fro by the bracket or bar 43, projected from the fan-arm 29 located opposite the spool on the shaft 14, and engaging in a slot in the strap or pendulum 42^a. By this swinging of the pendulum or

strap, through the reciprocating motion of the shaft 28, the gravity dog or pawl is made to engage with the teeth of the wheel 41, as above described, thereby turning the sleeve and cam-disk always in one direction and imparting reciprocating motion to the spools, as previously described.

The improvement is exceedingly simple and is capable of being applied to any form of type-writing machine.

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

1. In a type writing machine, the combination with two shafts, and ribbon spools mounted thereon, of a pawl and ratchet mechanism for operating the shafts, and a sliding bar operated by the winding of the ribbon upon the spools, and a gravity operated connection between said bar and the pawls for alternately throwing them in and out of engagement with their ratchet wheels, substantially as described.

2. In a type writing machine, the combination with two shafts, and ribbon spools mounted thereon, of pawl and ratchet mechanisms for operating the shafts, a sliding bar operated by the winding of the ribbon on the spools, a pendulum on the sliding bar, and a gravity operated connection between the pendulum and the pawls, whereby the pawls will be alternately thrown out of engagement with the ratchet wheels, substantially as described.

3. In a type writing machine, the combination with two shafts provided with ratchet wheels, and ribbon spools on said shafts, of pawls for engaging the ratchet wheels, a sliding rod connected with the pawls for alternately moving them in and out of engagement with the ratchet wheels, a sliding bar operated by the winding of the ribbon on the spools, and a gravity operated connection between said bar and rod for operating the latter from the former, substantially as described.

4. In a type writing machine, the combination with two shafts, ribbon spools mounted to slide thereon, and a pawl and ratchet mechanism for operating the said shafts, of a sliding rod connected with the pawls for alternately moving them in and out of engagement with the ratchet wheels, a sliding bar operated by the winding of the ribbon on the spools, a connection between said bar and rod for operating the latter from the former, and a spool shifting device connected with and operated by the said sliding bar, substantially as described.

5. In a type writing machine, the combination with two shafts, ribbon spools mounted to slide on the shafts, and a pawl and ratchet mechanism for operating the said shafts, of a sliding rod connected with the pawls for alternately moving them in and out of engagement with the ratchet wheels, a sliding bar

provided with upwardly projecting arms engaging the ribbon rolls on the spools, a gravity operated connection between the said bar and rod for operating the latter from the former, and a spool shifting device connected with and operated by the said sliding bar, substantially as described.

6. In a type writing machine, the combination with the two shafts, ribbon spools mounted to slide thereon, and means for alternately operating the said shafts, of a cam on one of the shafts and connected with one of the ribbon spools, a stationary guide with which the cam engages, and means for operating the cam from the shaft operating mechanism, substantially as described.

7. In a type writing machine, the combination with two shafts, spools mounted to slide thereon and means for alternately operating the shafts, of a sliding bar provided with arms projecting between the flanges of the spools, a cam on one of the shafts and connected with the spool thereof, a stationary guide with which the cam engages, and mechanism for operating the cam from the sliding bar, substantially as described.

8. In a type-writing machine, the combination, with spool shafts, spools held to slide thereon and turn therewith, ratchets connecting with the shafts, dogs connected with the ratchets, and a connecting rod uniting the dogs, holding one in action when the other is out, of a shifting shaft operated from the spools, a pendulum connection between the shifting shaft and the connecting medium of the dogs, and a frame connected with the dogs, whereby they are operated when the frame is depressed, as and for the purpose set forth.

9. In a type-writing machine, the combination, with spool shafts, spools mounted to turn with the shafts and to slide thereon, and means, substantially as shown and described, for revolving the said shafts, of a cam loosely mounted upon one of the shafts and having a swivel connection with one of the spools, and a pawl and ratchet mechanism for operating the cam, the cam serving to give lateral movement to both of the spools upon their shafts while said shafts are being revolved, substantially as and for the purpose specified.

10. In a type writing machine, the combination with two shafts, and spools mounted thereon, of a sliding bar provided with arms projecting between the flanges of the spools, a sleeve on one of the spool shafts and provided with a cam and a gear wheel, said sleeve being connected with the spool of the shaft, a pawl engaging the gear wheel and operated from the sliding bar, and means for operating said sliding bar, substantially as described.

11. In a type writing machine, the combination with two shafts, provided with ratchet wheels and spools mounted to slide on the said shafts, of a sliding connecting rod, pawls engaging the ratchet wheels, means for op-

erating the pawls, a sliding bar provided with
arms projecting between the flanges of the
spools, a pendulum connection between the
sliding bar and connecting rod, a sliding cam
5 on one of the shafts, a guide with which the
cam engages, and a pawl and ratchet meech-
anism for operating the cam, said pawl and

ratchet mechanism being operated by the
sliding bar, substantially as herein shown and
described.

FRED W. OVERHISER.

Witnesses:

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MARY F. YEOMANS.