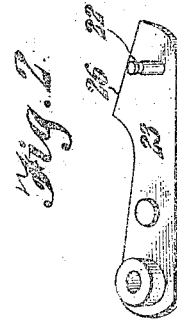
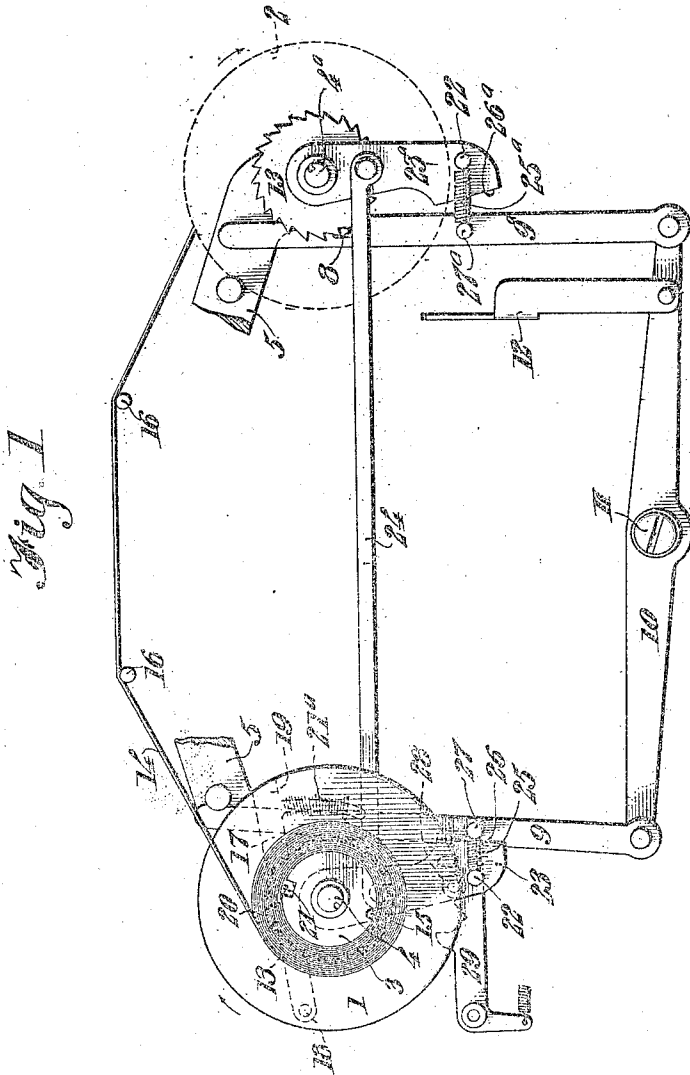


C. V. WILGUS.
 RIBBON MECHANISM.
 APPLICATION FILED OCT. 16, 1911.

1,063,405.

Patented June 3, 1913.

2 SHEETS—SHEET 1.



WITNESSES:
awgardes
co. h. reitz

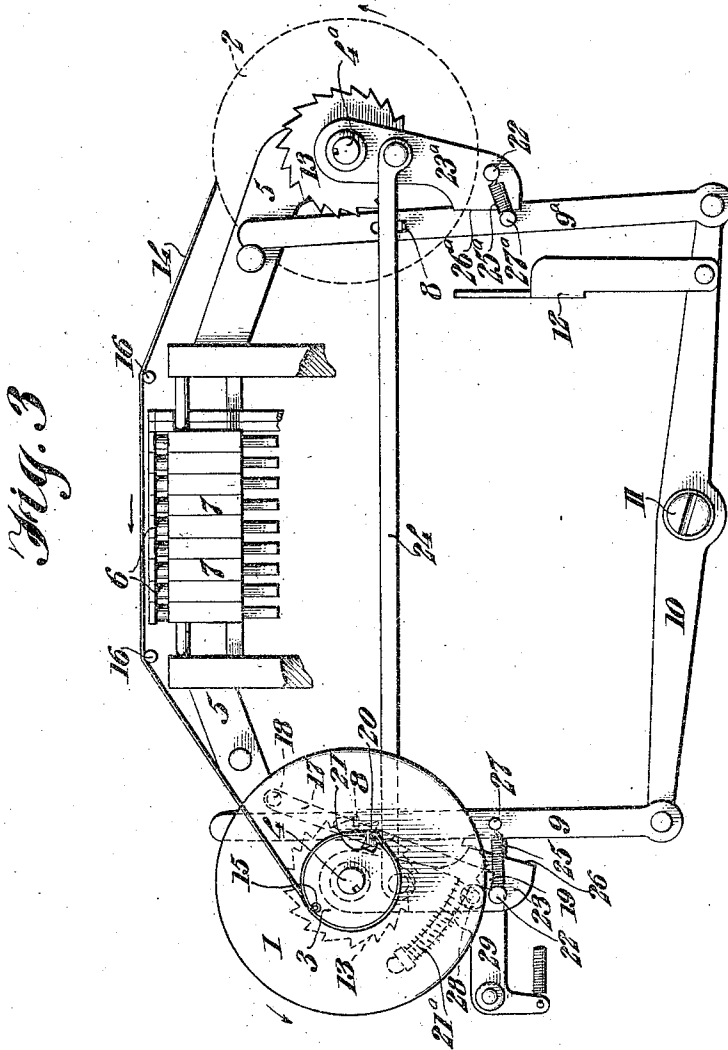
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CHARLES V. WILGUS, OF KINGSTON, PENNSYLVANIA, ASSIGNOR TO THE ADDER MACHINE COMPANY, OF WILKES-BARRE, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

RIBBON MECHANISM.

1,063,405.

Specification of Letters Patent.

Patented June 3, 1913.

Application filed October 16, 1911. Serial No. 655,013.

To all whom it may concern:

Be it known that I, CHARLES V. WILGUS, a citizen of the United States, residing at Kingston, Luzerne county, Pennsylvania, have invented new and useful Improvements in Ribbon Mechanisms, of which the following is a specification.

This invention relates to improvements in ribbon mechanisms and more particularly to means to automatically reverse the direction of feed of the ribbon.

The invention is an improvement on the mechanism shown in United States Letters Patent to Wales 796,024, August 1, 1905, wherein the ribbon spools are splined on shafts which have ratchets fast thereto. Pawls connected to the opposite arms of an oscillatory bar driven from any suitable source, engage the ratchets on the respective shafts to turn the spools. To permit the ribbon to be wound from one spool onto the other, one or the other of said pawls is held idle by a shiftable mechanism which comprises a pair of reversing levers connected to operate together and flexibly connected to the respective pawls by grasshopper springs. Trip arms controlled by the ribbon, contact one or the other of said reversing levers to swing one toward its pawl whereby its grasshopper spring is compressed and acts against its pawl to disengage the latter from its ratchet and to hold said pawl idle. Such swinging movement of one reversing lever is communicated to the remaining lever to tension its grasshopper spring to draw its pawl into mesh with the ratchet driving the remaining spool whereby the latter is turned. A latch holds the levers where adjusted until the ribbon is unwound from the full spool whereupon the trip arm connected with that spool again shifts the levers to reverse the ribbon feed.

One object of the present invention is to simplify and improve the ribbon reversing mechanism and to provide a device which may be easily and quickly assembled without necessitating adjustment, whereby a considerable saving of time and labor is effected.

Another object is to effect the positive disengagement of the operative pawl from its ratchet, and to positively maintain said pawl in idle position.

Other advantages will be more fully set forth hereinafter and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan, showing the ribbon feeding from left to right, parts being omitted. Fig. 2 is a detail perspective of a reversing lever. Fig. 3 is plan, showing the ribbon feed reversed, the reversing mechanism having just completed its stroke.

Ribbon spools 1 and 2 are splined by their hubs 3 on shafts 4, 4^a journaled in a frame 5, and located on opposite sides of the points of impact of types 6 against a platen (not shown). Said types are mounted in type carriers or heads 7 and may be arranged in the manner shown in the well-known Wales calculating machine, though this invention is not restricted to that machine.

Teeth 8, on pawls 9, 9^a, jointed to the opposite arms of a bar 10, which is pivoted at 11 intermediate its ends and oscillated by a link 12 driven from any suitable source of power, engage ratchets 13 splined or keyed on the respective shafts 4, 4^a to turn the latter and feed the ribbon 14 in one direction or the other. The ends of the ribbon are secured to the hubs 3 of the respective spools, as at 15, and pass around guides 16 on opposite sides of the printing line.

The direction of feed of the ribbon is controlled by a reversing mechanism comprising spring-pressed trip arms 17, eccentrically pivoted at one end, as at 18 to the respective spools 1 and 2 and of sufficient length so that their free ends 19 may project beyond the peripheries of the spools (see Fig. 3). Normally, the free ends of said trip arms are held within the peripheries of the spools by the ribbon which, in winding about the hubs 3, coils over pins 20 on said arms and the tension of the ribbon draws said pins into recesses 21 in the hubs 3 (Fig. 1) to swing the trip arms to inactive position. Fig. 1 shows the parts in this position, the pawl 9 being disengaged from its ratchet and idly reciprocating, and pawl 9^a being engaged with its ratchet 13 to turn the ribbon, spool 2 in the direction of the arrow. The ribbon, when unwound from one of the spools, as 1, releases the pin 20 of the arm 17 attached to said spool, to free the arm to the action of its spring 21^a, which swings

the arm outwardly to project its free end beyond the periphery of the spool. As the spool continues to turn (in the direction of the arrow, Fig. 1), said arm strikes a reversing lever 23 or a stud 22 thereon. Said reversing lever is preferably journaled on the shaft 4 and connected by a link 24 to a similar lever 23^a journaled on shaft 4^a and also having a stud 22. Said levers 23, 23^a preferably lie adjacent the respective pawls 9, 9^a to which they are flexibly connected by pull springs 25, 25^a. The arm 17 presses against the lever 23 to rock the latter away from its pawl 9 (Fig. 3) and tension the spring 25 to draw the pawl 9 into engagement with the ratchet on shaft 4 to reverse the direction of feed of the ribbon. The link 24 moves with the lever 23 to rock the lever 23^a toward its pawl, and cause a contact face 26^a on said lever 23^a to strike the pawl 9^a or a projection 27^a thereon, to positively disengage the pawl 9^a from its ratchet and thereby silence the pawl, to permit the ribbon spool 2 to turn idly as the ribbon is drawn off and wound on spool 1.

The reversing lever 23 has a contact face 26 to strike a projection 27 on the pawl 9 when the direction of feed of the ribbon is again reversed.

A detent 28 on one of the reversing levers, as 23, is engaged by a yielding latch 29 to hold the parts where adjusted against accidental displacement. When the ribbon has been uncoiled from spool 2, a trip arm similar to arm 17, shown on spool 1, is freed to strike stud 22 on lever 23^a to again reverse the ribbon feed.

It will be noted that the operative pawl is positively disengaged from its ratchet by the contact of the adjacent reversing lever therewith, instead of by the action of the spring connecting the pawl and lever, and is held disengaged or silenced by said lever which remains in the path of return of the pawl or of the projection thereon, as best shown at the right in Fig. 3.

Furthermore, much time and labor is saved in assembling the ribbon mechanism, by the use of the pull springs 25, 25^a which may be easily and quickly connected to their respective pawls and reversing levers without adjustment of tension.

It will be understood that the parts of the ribbon mechanism on one side are duplicated on the opposite side, though omitted to better illustrate the invention.

What I claim as new, is

1. In a ribbon mechanism, the combination with ribbon spools, and pawl and ratchet feed mechanisms for the respective spools; of a reversing mechanism to alternately silence one of said feed mechanisms and render the other effective, including reversing levers for the respective spools, said levers connected to operate together; means

to connect the levers with their respective feed pawls; and a ribbon-controlled trip arm for each spool adapted, when released, to shift the reversing levers to cause one of said levers to strike and positively disengage the corresponding feed pawl from its ratchet, and substantially simultaneously therewith, to cause the other lever to engage the remaining feed pawl with its ratchet.

2. In a ribbon mechanism, the combination with ribbon spools; feed mechanism therefor, including ratchets and pawls; reversing levers flexibly connected to the respective pawls; and means connecting the reversing levers, of trip arms controlled by the ribbon and alternately operated to shift the reversing levers, to cause one of said levers to strike the adjacent pawl to positively disengage the latter from its ratchet and effect the engagement of the opposite pawl with its ratchet; and a latch to hold the pawls where adjusted.

3. In a ribbon mechanism, the combination with ribbon spools; feed mechanism therefor, including a ratchet and pawl for each spool, and reversing levers connected to operate together; of trip arms controlled by the ribbon, to shift the levers, and silence one of said pawls; pull springs connecting the reversing levers and pawls to effect the engagement of the other of said pawls with its ratchet; and a latch to hold the feed mechanism where adjusted.

4. In a ribbon mechanism, the combination with ribbon spools; and feed mechanisms therefor, including ratchets and pawls, one of which is idle while the other is effective; of a reversing mechanism comprising reversing levers, means connecting said levers; trip arms controlled by the ribbon to shift the reversing levers to cause one of said levers to strike and positively disengage the operative pawl from its ratchet; pull springs connecting the levers and pawls, one of said springs being tensioned by the shifting of the levers to engage the idle pawl with its ratchet; and a latch to hold the feed mechanism where adjusted.

5. In a ribbon mechanism, the combination with spools; and ribbon feed mechanism, including alternately effective pawls and ratchets; of reversing levers connected to operate together, each lever having a contact face; trip arms controlled by the ribbon, to alternately strike their adjacent reversing levers to shift one of said levers away from the idle pawl and the other into contact with the operative pawl to positively disengage the latter from its ratchet; springs connecting the levers and their adjacent pawls, to draw the respective pawls into engagement with their ratchets when said levers are alternately shifted away from their pawls; and a latch to hold said reversing levers where adjusted against the ten-

sion of their springs, with the contact face of one of said levers in the path of the idle pawl, to maintain the latter inoperative during the feed of the ribbon in one direction.

5 6. A ribbon mechanism comprising a pair of ribbon spools; a ratchet and pawl for each spool; one of said pawls engaging its ratchet to turn the ribbon spool while the
10 other pawl remains idle, the unwinding of the ribbon from one of said spools operating to release a swinging trip which strikes a reversing lever to shift it away from the
15 idle pawl whereby to tension a spring connecting the idle pawl with said lever, to draw said pawl into engagement with its ratchet to wind the ribbon onto the empty spool, the shifting of said lever being communicated through a link to a second reversing
20 lever to cause the latter to strike its adjacent pawl to disengage the latter from its ratchet, a contact face on each lever against which said disengaged pawl rides, to hold said pawl idle during the feed of

the ribbon in one direction, the feed mechanism being held where adjusted by a latch.

7. A ribbon mechanism including a pair of spools, each of which is turned by a pawl and ratchet mechanism, said pawls being alternately held ineffective by the
30 contact therewith of a reversing lever, there being a reversing lever for each pawl, connected thereto by a spring and connected with each other by a link, said levers being
35 alternately operated by ribbon-controlled trip arms for the respective spools which, as the ribbon unwinds, are projected to rock one or the other of the reversing levers to
40 thereby engage its corresponding pawl with its ratchet by tensioning the spring connecting the lever and pawl, while at the same time, the remaining lever strikes and positively disengages its pawl from the corresponding ratchet, and vice versa.

CHARLES V. WILGUS.

In the presence of:—

CHAS. E. KLINK,

FRED E. ALLEN.