April 6, 1937. C. R. MABON 2,075,993

PAPER SUPPLY CONTROLLING ATTACHMENT FOR TYPEWRITING MACHINES AND THE LIKE

Filed March 12, 1935 2 Sheets-Sheet 1

Fig. 1.

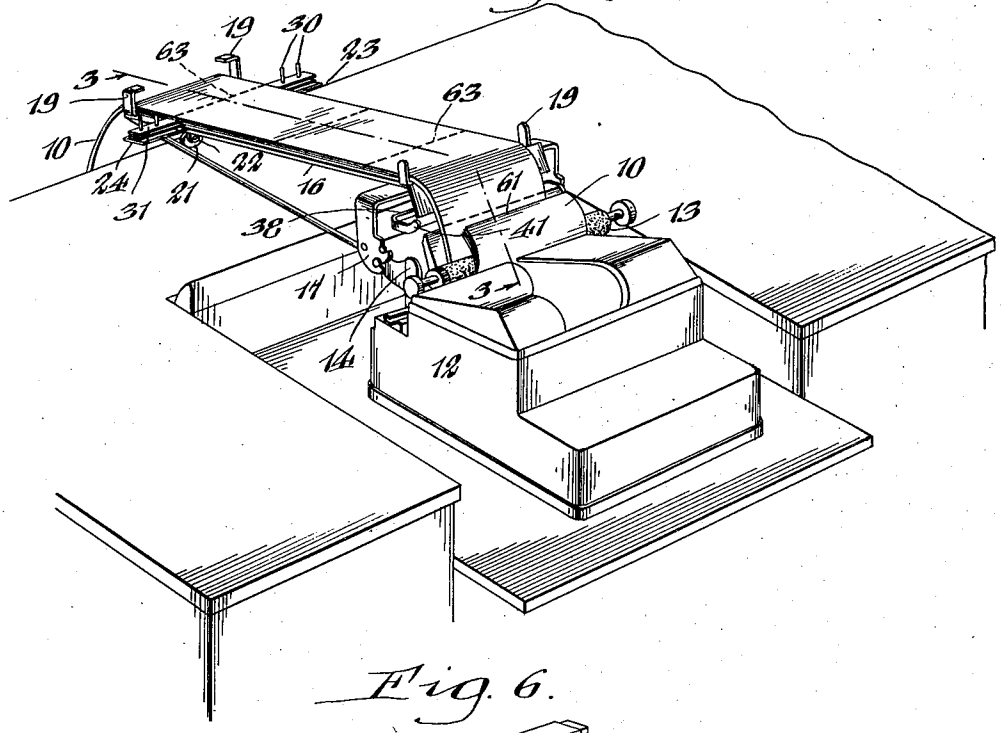
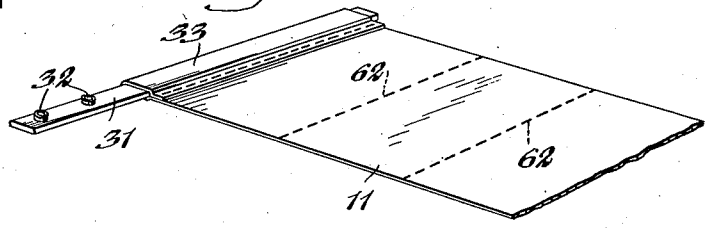


Fig. 6.



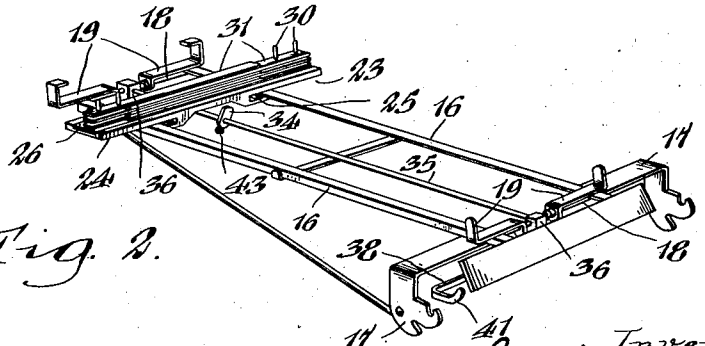


Fig. 2.

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PAPER SUPPLY CONTROLLING ATTACHMENT FOR TYPEWRITING MACHINES AND THE LIKE

Filed March 12, 1935 2 Sheets-Sheet 2

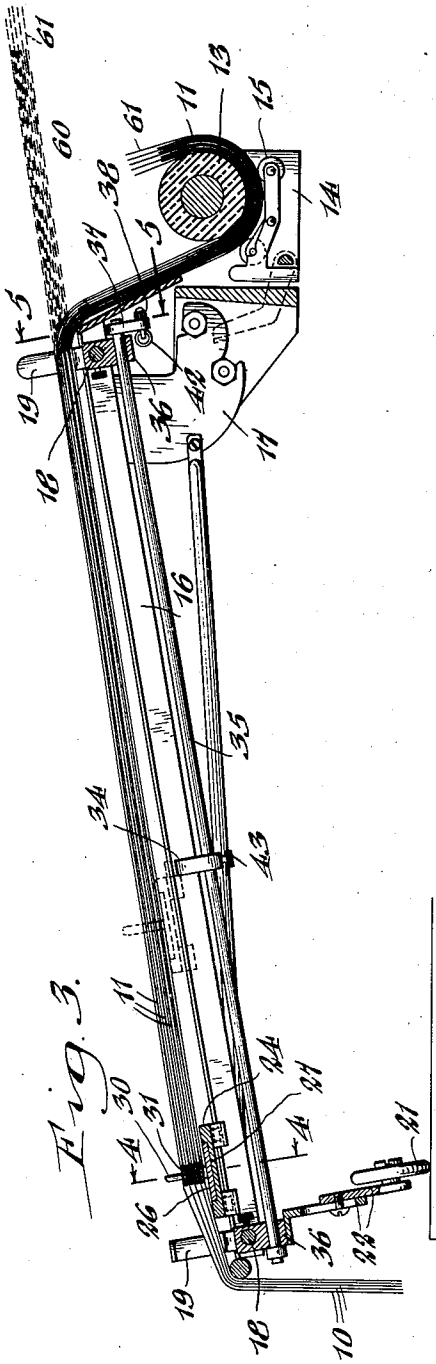


Fig. 3.

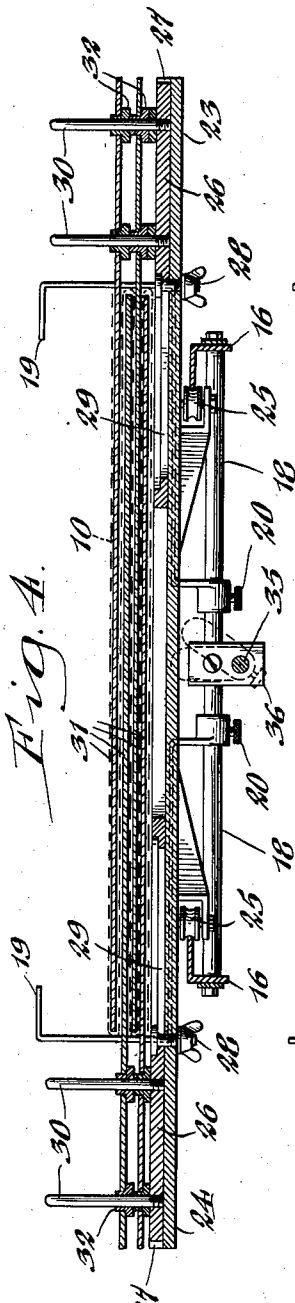


Fig. 4.

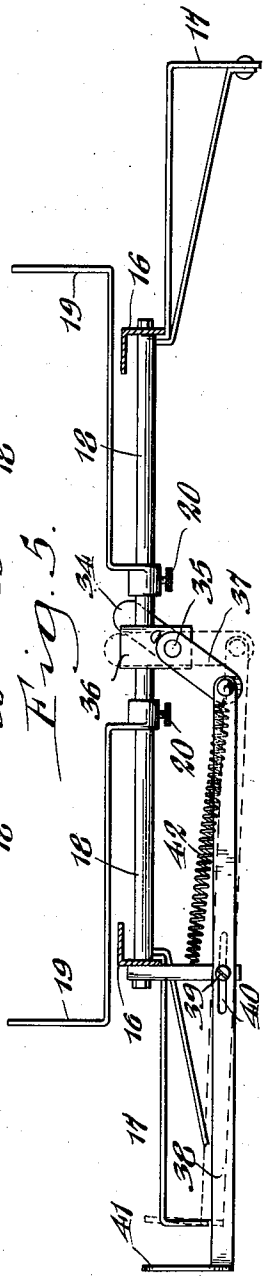


Fig. 5.

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Patented Apr. 6, 1937 2,075,993

UNITED STATES PATENT OFFICE

2,075,993

PAPER SUPPLY CONTROLLING ATTACHMENT FOR TYPEWRITING MACHINES AND THE LIKE

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Application March 12, 1935, Serial No. 10,684

18 Claims. (Cl. 197—126)

This invention relates generally to typewriting machines but more particularly to improvements in the devices or attachments designed for use in the typing of printed bill or invoice forms of the kind consisting of a plurality of superposed webs or continuous sheets interleaved with carbon sheets and intended to be torn off in sections from the body of the web, after the completion of the typing thereof.

In typewriter attachments of this character, the webs of paper and interleaved carbon sheets are fed along a supporting frame or rearward extension of the typewriter-carriage and around the platen thereof with the carbon sheets fastened at their rear edges to a carriage or truck which is mounted on said frame for movement toward the platen together with the webs or sheets during line-spacing operations and which is movable rearwardly to its initial position after adjustment is made for operation with a fresh portion of the sheets to be typed.

One of the objects of my invention is the provision of an attachment of this character which is so designed and constructed as to facilitate the operation of shifting the typed web-sections or forms to a position clear of the carbon sheets to sever them from the body of the web and at the same time assure the proper registration of the carbon sheets with the next web-section to be typed.

Another object of the invention is to provide simple and reliable means for maintaining the webs or sheets with their interleaved carbons in proper and correct register as they are fed along the attachment to the typewriter, and further to render such means readily adjustable to accommodate bill-forms and the like of different widths, as well as to effectually prevent lateral displacement of the carbon sheets.

A further object is the provision of a typewriter attachment of this character having a gravity-operated truck or carriage designed to constantly hold the form-sheets with the interleaved carbons in a firm and taut condition.

A still further object of the invention is to provide an adjustable stop means for limiting the forward movement of the truck during the relative shifting of the work sheets and carbon sheets after the typing of one form and prior to the typing of the next form.

In the accompanying drawings:—

Figure 1 is a perspective view of a typewriting machine showing the improved attachment applied thereto. Figure 2 is a detached perspective view of the attachment. Figure 3 is an enlarged vertical longitudinal section thereof taken substantially in the plane of line 3—3, Figure 1. Figure 4 is an enlarged cross section taken on line 4—4, Figure 3. Figure 5 is a cross section taken substantially in the plane of line 5—5, Figure 3. Figure 6 is a perspective view of one of the carbon sheets and its attaching holder or blade.

Similar characters of reference indicate corresponding parts throughout the several views.

The present invention is primarily intended for use in connection with the typewriting of bill or invoice forms and the like composed of a series of continuous webs or strips of paper 10, superposed or interleaved with carbon sheets 11 for making duplicate copies. These forms or manifold sheets are folded like a fan with the folds arranged lengthwise of the forms and suitable perforations are provided to facilitate the tearing off of a typed form from the body of the web.

Referring now to the drawings, 12 indicates the typewriter having the usual letter-feeding platen 13 mounted on the carriage 14, and 15 indicates the customary gripper rolls for holding the paper against the platen.

The improved attachment is mounted on the carriage 14 to travel therewith and extends rearwardly therefrom, the same preferably consisting of an inclined table or frame for guiding or feeding the sheets to be typed to the platen and composed of spaced longitudinal rearwardly inclined rails or tracks 16 provided at their front ends with brackets 17 for detachably connecting the attachment to the typewriter-carriage in any suitable and appropriate manner. Tie rods 18 are connected to the front and rear ends of the rails to hold them in parallel relation. Adjustably mounted on these rods for movement toward and from each other to accommodate different widths of paper are paper guides 19 which are held in a set position by screws 20. As shown in Figures 1 and 3, the frame or table projects at its front end above the platen 13 and slopes downwardly and rearwardly therefrom over the typewriter desk, being supported on the latter by one or more rollers or wheels 21 depending from the rear end of the frame and mounted on vertically-adjustable brackets 22 whereby the slope or pitch of the tracks may be adjusted as desired.

Slidably mounted on the frame-rails 16 for movement toward and from the platen 13 is a shiftable web and carbon paper carrier or truck, indicated generally by the numeral 23, which travels forwardly over the rails as the sheets are advanced by the platen during the typing operation and which is adapted to travel rearwardly by gravity due to the rearward inclination of the rails 16 so as to pull the carbons, when released from the platen, to a normal position for typing the next web-section. This truck preferably includes a base plate 24 disposed crosswise of the rails 16 and is provided at its opposite sides with grooved guide rollers 25 which engage the inner edges of the rails to afford a free gliding action of the truck thereover. Mounted on this base

plate at opposite sides thereof for adjustment toward and from each other crosswise of the frame-rails are slide bars or holders 26 on which supporting bars for the carbon sheets 11 are detachably mounted, these bars or holders engaging a longitudinal channelway 27 formed in the top side of the base plate, as shown in Figure 3. These holders are held in an adjusted or set position by clamping bolts 28 applied to the base plate and engaging longitudinal slots 29 formed in the holders.

Rising from the holders 26 are posts 30 to which a plurality of holder-bars or strips 31 for the carbon sheets 11 are removably applied, each bar being provided adjacent one end with a pair of spacing collars 32 which fit the companion posts and which serve to properly space the bars one above another in the manner shown in Figure 4. The carbon sheets are provided with an attaching loop or fold 33 at one end whereby the same may be readily slipped on and off their holder-bars. The latter are attached at their alternate opposite ends to the corresponding posts 30 with their free ends facing in opposite directions and terminating short of the imaginary guide lines determined by the paper guides 19, when the parts are properly adjusted or pre-set to accommodate a given width of form sheet to be typed. This resulting alternate, over-lapping arrangement of the holder-bars 31 provides a sinuous or zig-zag space between the bars for the reception of the respective leaves or folds of the fanfolded form sheets 10 in interleaved relation with the carbon sheets 11. The folds of the fanfolded form sheets extend about the free ends of the bars 31, as shown by dotted lines in Figure 4, thereby tending to prevent the lateral displacement of the form sheets as well as the carbons and maintaining them in proper registration at all times. These bars possess sufficient resilience in their assembled position to effectually retain and clamp the form sheets with the carbons so that they are moved forwardly and rearwardly as a unit with the truck during the typing and re-setting operations of the form sheets, the gravity action of the truck due to the rearward inclination of the tracks 16 assuring the firm and taut holding of the sheets for use. It is to be further understood, however, that the form sheets can be shifted forwardly independently of the carbon sheets and the bars 31 when it is desired to remove a typed form from the body of the sheets, during which operation a new form section is simultaneously brought into interleaved relation with the previously used portions of the carbons.

Upon typing the foremost sections of the form sheet, the same is fed forwardly so as to be free from the platen, and to effect its removal from the remainder of the sheet such section is pulled clear of the interleaved carbon sheets so that it may be readily severed, the carbon sheets terminating short of the free edges of the sheet-section, as shown in Figure 3, so that the operator may grasp those edges without holding the carbon sheets. During this pulling operation, the next set of forms is simultaneously brought into relation with the previously used sections of the carbon sheets and in this connection it may be desired to hold or anchor the truck 23 against forward movement, so that while the carbon sheets remain in a definite position, the manifold form sheet can be shifted forwardly relative to the carbon sheets. For the purpose of so anchoring the truck and limiting its forward movement during this act of pulling the next section of the form sheet to a position for typing, I provide an adjustable, operator-controlled stop preferably consisting of a retractible stop arm or member 34 adapted to be projected into the path of travel of the truck-base 24 and mounted for longitudinal adjustment on a rock shaft 35 disposed substantially centrally between and below the plane of the truck-rails 16 and journaled at its ends in bearing blocks 36 fixed to the tie rods 18 of said rails, as shown in Figures 3 and 4. At its front end this shaft has a rock lever 37 connected to an actuating bar or link 38 disposed transversely at the front end of the track-frame and guided thereon through the medium of a pin and slot connection 39, 40. The free end of this actuating bar terminates in a forwardly projecting handle 41 disposed for convenient manipulation by the operator. A spring 42 connected to the rock lever 37 tends constantly to urge the stop arm 34 to a retracted position below the plane of the truck-base 24, as seen by full lines in Figure 5. When the operator desires to arrest the forward movement of the truck for the purpose hereinbefore mentioned, he shifts the bar 38 to the right which in turn rocks the stop arm 34 to a position in the path of travel of the truck, the front edge of the truck-base 24 abutting such stop arm in the manner shown by dotted lines in Figure 3.

When the foremost portions of the carbon sheets 11 become worn, the same can be cut from the body of the sheets to bring the adjoining unused portions into use. This results in a shortening of the carbon sheets, bringing the zone of movement of the truck 23 forwardly and making it accordingly desirable to adjust the stop arm 34 forwardly on its shaft 35. This stop arm has a set screw 43 for setting it in a fixed position on the shaft, the extent of the adjustment from an initial setting of the arm to the next setting being substantially equal to the length of the used or torn off portions of the carbon sheets. In all positions of the truck, however, the rearwardly inclined tracks 24 tend constantly to urge the truck rearwardly by gravity to such position as is determined by the tautness of the manifold sheets.

Having typed the advance set of forms, the gripper rolls 15 may be released by the customary device employed in typewriters to free the paper or worksheets 10 from the cooperative grip of the rotary platen 13. This may result in retrograde movement of the worksheets under the influence of the gravity-retracted carbon carrier 23 and the carbon sheets as they shift along the tracks 16 which are inclined to the horizontal. It is preferred, however, to release the gripper rolls 15 and thereupon manually to pull the advance ends of the worksheets and interleaved carbons rearwardly from around the platen 15 and straighten them out, as shown diagrammatically at 60 in Fig. 3. Then the advance, protruding ends 61 of the worksheets 10 are gripped by the operator (without gripping the carbons) and the worksheets advanced from the supply until the typewritten set of forms has cleared the ends of the carbon sheets, whereupon the typewritten set is torn from the web on the adjacent transverse weakened lines. The forward shift of the carbon-carrier will be arrested by the stop 34, thus permitting the worksheets to be advanced relative to the carbon sheets, until the next set of forms is drawn into copying relation to the advance area of the car-

bon sheets, before the typed set of forms is torn off. Having torn off the typed set, the next set, with its interleaved carbons, may be introduced at the rear of the platen 13, and fed therearound by rotating the platen, first restoring the gripper rolls 15 into cooperative feed relation to the platen. During the operation of introducing this new set of forms, the carbon carrier may automatically recede and take up whatever slack may occur in the rearward reach of the multiply web. During typing the rear reach of worksheets is held smooth and relatively taut by the gravity actuated carbon sheets and their carrier.

Both the carbon sheets and the worksheets are preferably provided with transverse weakened lines as indicated at 62 and 63 to facilitate the tear-off operation. When an advance set of carbons is torn off to eliminate the used carbon sections, the stop 34 may be adjusted to position closer to the platen to accommodate the shorter length of carbon sheet. The carbon-carrier acts in the nature of a weight to retract the carbon sheets and the worksheets.

The tracks 16 are movably supported by the roller 21, and are reciprocally shiftable with the carriage of the typewriter in its letter-spacing movements, and the carbon carrier is shiftable toward and from the rotatable platen, the stop 34 being located intermediate the opposite ends of the track 16.

Whereas the attachment possesses marked advantages for use with a work web or worksheets of the fanfolded type, it is to be understood that the invention is not limited but may be utilized with work webs composed of separate individual record strips or sheets in superposed manifolding relation to each other with interleaved carbon sheets or strips.

I claim as my invention:—

1. In a typewriting machine, the combination with means for feeding superposed work sheets, of a holder for interleaved carbons movable with the sheets, a truck for said holder movable toward and from said feeding means, and a guide track for said truck and work sheets extending rearwardly from said feeding means, said track being inclined downwardly and rearwardly and tending constantly to urge the truck rearwardly by gravity.

2. A typewriting machine, comprising a platen around which the work sheets feed and having a rearwardly and downwardly inclined guide means extending from the feed side of the platen, a truck mounted on said guide means for movement toward the platen during the feeding of the work sheets about the same and movable by gravity from the platen, and holders for carbons applied to said truck, the work sheets being interleaved with the carbons to move bodily therewith toward the platen.

3. A typewriting machine, comprising a platen around which the work sheets feed, a downwardly sloping work sheet guiding means extending rearwardly from the feed side of the platen, and a gravity-controlled truck slidingly mounted on said guide means and having carbon sheets carried thereby and interleaved with the work sheets.

4. In a typewriting machine, a platen over which the work sheets feed, a guide means extending rearwardly from the feed side of the platen, a truck mounted on said guide means for movement toward and from the platen, holders for carbon sheets, interleaved with the work sheets, disposed at opposite sides of the truck for adjustment toward and from each other crosswise thereof, a carbon sheet supporting bar detachably attached to each of said holders and extending transversely across said guide means, and means for clamping said holders in a set position of adjustment in accordance with the width of the sheets.

5. In a typewriting machine, a platen over which the work sheets feed, a guide means extending rearwardly from the feed side of the platen, a truck mounted on said guide means for movement toward and from the platen, shiftable carbon sheet holders mounted at opposite sides of the truck for adjustment crosswise thereof toward and from each other, and superposed carbon-carrying-bars detachably connected at their alternate opposite ends to the companion holders, the work sheets being interfolded about the ends of said bars and interleaved with the carbon sheets.

6. In a typewriting machine, a platen over which the work sheets feed, a guide means extending rearwardly from the feed side of the platen, a truck mounted on said guide means for movement toward and from the platen, shiftable carbon sheet holders mounted at opposite sides of the truck for adjustment crosswise thereof toward and from each other and having posts rising therefrom, and superposed carbon-carrying-bars detachably mounted on said holders and having the alternate opposite ends thereof fitted on the companion bar-posts, the work sheets being interfolded about the resulting alternate free ends of said bars and interleaved with the carbon sheets.

7. In a typewriting machine, a platen over which the work sheets feed, a guide means extending rearwardly from the feed side of the platen, a truck mounted on said guide means for movement toward and from the platen and having a guide channel therein extending crosswise of the guide means, shiftable carbon sheet holders fitted in said truck-channel for adjustment toward and from each other, means for clamping said holders in a set position of adjustment, each of said holders having posts rising therefrom, and superposed carbon-carrying-bars detachably connected at their alternate opposite ends to the corresponding posts of the companion holders, the work sheets being interfolded about the alternate unattached ends of the bars and interleaved with the carbon sheets.

8. In a typewriting machine, a platen over which the work sheets feed, a guide means for the work sheets which are shiftable with reference to carbon sheets on the later mentioned carbon-sheet-carrier, a carbon-sheet-carrier mounted on said guide means for movement toward and from the platen, stop means movable into the path of said carrier for arresting its forward movement during the shifting of the work sheets relative to the carbon sheets, and an elongated supporting member having its longitudinal axis disposed lengthwise of the guide means and on which said stop means is mounted for adjustment lengthwise thereof to vary the forward travel of said carrier.

9. In a typewriting machine, a platen over which the work sheets feed, a guide means for the work sheets which are shiftable with reference to carbon sheets on the later mentioned carbon-sheet-carrier, a carbon-sheet-carrier mounted on said guide means for movement toward and from the platen, a rock shaft mounted

on said guide means and having its longitudinal axis extending along the length of said guide means, a stop arm mounted for longitudinal adjustment on said rock shaft against which said carrier is adapted to abut when pulled forwardly for arresting its movement during the shifting of the work sheets relative to the carbon sheets, and means for actuating said rock shaft to bring its stop arm into and out of arresting position.

10. In a typewriting machine, a platen over which the work sheets feed, a guide means for the sheets extending rearwardly from the feed side of the platen, a carbon-sheet-carrier mounted on said guide means for movement toward and from the platen, the carbon sheets being interleaved with the work sheets to move in unison therewith during the typing operation and the work sheets being manually shiftable relatively to the carbon sheets after the typing operation to bring a new section of the form sheets into typing position, a rock shaft mounted on said guide means and having a longitudinally adjustable stop arm thereon against which said carrier is adapted to abut when pulled forwardly for arresting its movement during the shifting of the work sheets relative to the carbon sheets, means for holding said stop arm in its adjusted position, a spring for normally urging said stop arm to an inoperative position, and an actuating lever for rocking said shaft to bring its stop arm into an operative position.

11. An attachment for typewriters, comprising a sheet guiding table adapted for connection at one end to the typewriter carriage and extending rearwardly therefrom, a carbon supporting carriage or truck mounted upon said sheet guiding table for movement therealong toward and away from the typewriter carriage for supporting a carbon sheet in transfer relation with the record sheets, said table inclining downwardly and rearwardly from the typewriter carriage so that said carbon supporting carriage will move rearwardly on said table by gravity, and a vertically adjustable support depending from the rearward end of said table for guiding and supporting contact with a supporting surface.

12. An attachment for typewriters, comprising a work sheet-guiding table adapted for connection at one end to the typewriter-carriage and extending rearwardly therefrom to assume an inclined position to the horizontal, a truck mounted on said table for movement toward the typewriter-platen in response to its line-spacing operations and tending to move in the opposite direction by gravity, and carbon sheet holders mounted on said truck, the work sheets being interleaved with the carbon sheets.

13. An attachment for typewriters, comprising a work sheet-guiding table adapted for connection at one end to the typewriter-carriage and extending rearwardly therefrom to assume a rearwardly inclined position to the horizontal, a truck mounted on said table for movement toward the typewriter-platen in response to its line-spacing operations and tending to move in the opposite direction on said inclined table by gravity, a stop adjustable to a position in the path of the truck for arresting its forward movement, means for operating said stop independently of the typewriter platen to and from arresting position and carbon sheet holders mounted on said truck, the work sheets being interleaved with the carbon sheets and shiftable forwardly relatively thereto in the arrested position of the truck to displace the typed sheet-sections clear of the carbons and to bring the adjoining unused sheet-sections into interleaved relation with such carbons.

14. In a machine of the character described, in combination, a guide for the worksheets, a truck mounted on said guide for forward and rearward movements, holders for carbon sheets disposed at opposite sides of the truck and mounted for adjustment toward and from each other, a support carried by each of said holders, a plurality of carbon sheet supporting bars supported by the support of each of said holders, spacers connected to each of said supports for spacing the respective supporting bars, and means for clamping said holders in different adjusted positions.

15. In a machine of the character described, in combination, a guide for the worksheets, a truck mounted on said guide for forward and rearward movements, holders for carbon sheets disposed at opposite sides of the truck and mounted for adjustment toward and from each other, a support carried by each of said holders, a plurality of carbon sheet supporting bars supported by the support of each of said holders, spacers apertured to receive said support of each of said holders and seated in apertures in said supporting bars for supporting the latter and having parts larger than said apertures positioned beneath the supporting bars, and means for clamping said holders in different positions of adjustment.

16. In a machine of the character described, in combination, a carbon carrier, a track on which said carrier is mounted for backward and forward movements, a rotary shaft having its axis of rotation extending along said track, a stop for said carbon carrier mounted on said shaft for rotation therewith and independent manual means for rotating said shaft so as to move said stop to and from its operative position.

17. In a machine of the character described, in combination, a carbon carrier, a track on which said carrier is mounted for backward and forward movements, a rotary shaft having its axis of rotation extending along said track, a stop for said carbon carrier mounted on said shaft for rotation therewith, independent manual means for rotating said shaft so as to move said stop to and from its operative position, and means for mounting said stop for adjustment into different operative positions along said shaft.

18. In a machine of the character described, in combination, a carbon carrier, a track on which said carrier is mounted for backward and forward movements, a rotary shaft having its axis of rotation extending along said track, a stop for said carbon carrier mounted on said shaft for rotation therewith, an independently operated operating element connected to said shaft for rotating it to move said stop into operative carrier-stopping position, and a spring connected to rotate said shaft in the opposite direction.

CARL ROBERT MABON.

CERTIFICATE OF CORRECTION.

Patent No. 2,075,993. April 6, 1937.

CARL ROBERT MABON.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 4, second column, line 2, claim 13, beginning with the comma and words ", the work sheets" strike out all to and including "carbons" in line 8, of said claim; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 1st day of June, A. D. 1937.

(Seal)

Henry Van Arsdale
Acting Commissioner of Patents.