Nov. 10, 1925.

1,560,738

J. A. B. SMITH

TYPEWRITING MACHINE

Filed Oct. 20, 1923

2 Sheets-Sheet 1

Fig. 1.

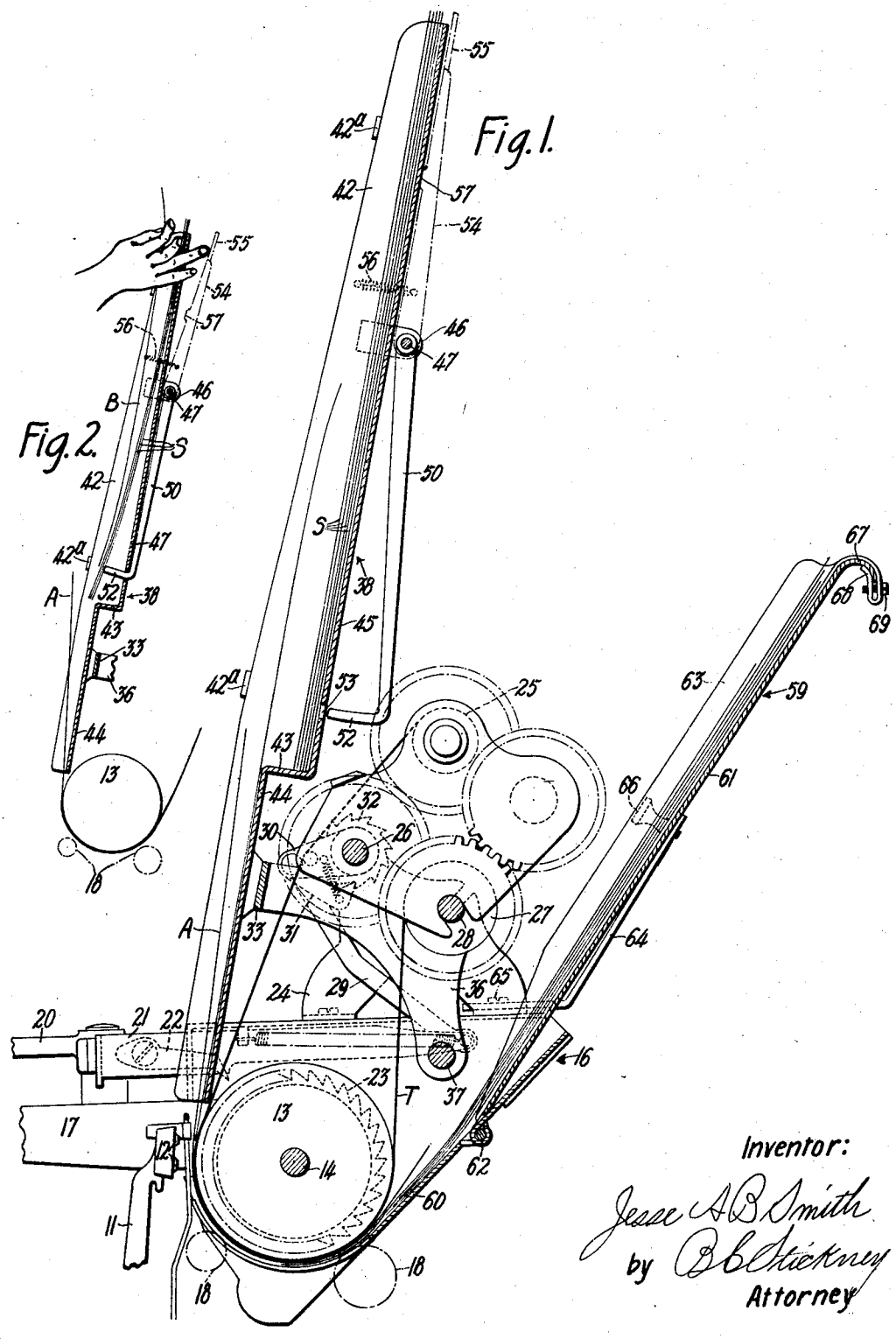


Fig. 2.

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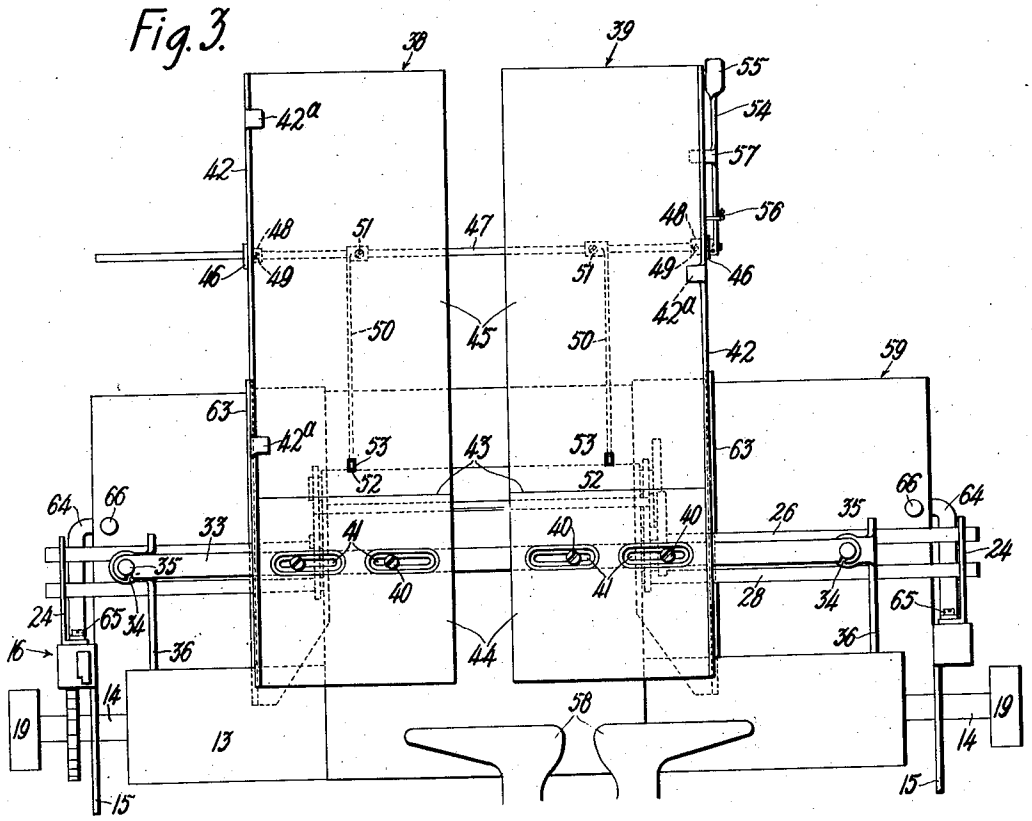
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2 Sheets-Sheet 2

Fig. 3.



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Patented Nov. 10, 1925. 1,560,738

UNITED STATES PATENT OFFICE.

JESSE A. B. SMITH, OF STAMFORD, CONNECTICUT, ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

TYPEWRITING MACHINE.

Application filed October 20, 1923. Serial No. 669,667.

To all whom it may concern:

Be it known that I, JESSE A. B. SMITH, a citizen of the United States, residing in Stamford, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Typewriting Machines, of which the following is a specification.

This invention relates to means in a typewriting machine for assisting the typing of individual monthly payrolls day by day, in which operation it is required to insert the individual pay-roll sheets one by one to the appropriate date line each day for typing the current entry. The invention is also useful for other purposes.

It is desirable to arrange the pay-roll sheets in a definite order, say alphabetically, and to preserve this order until the sheets have been fully typed, so that the memoranda from which each day's entries are typed may be arranged in similar order. This obviates the necessity for shuffling through the memoranda for the data to be typed on the sheets. It is also desirable to reduce as much as possible the handling of the sheets, both in introducing them and removing them from the machine, since the amount of time required in handling the sheets is necessarily very large as compared with the time required for the actual typing of the usual single-line entries.

In accordance with the present invention, provision is made of a hopper on the carriage above and at the front of the platen for holding the sheets in conveniently accessible position for introduction to the platen, and provision is also made of a chute for guiding the sheets from the hopper down to the platen at the front thereof. The pay-roll sheets are arranged in the hopper in the order in which they are to be typed, and are fed to the machine one by one, each sheet being fed into the machine by the use of the preceding sheet as a front-insertion guide. To facilitate the feeding of the sheets from the hopper to the platen, provision is made of sheet-ejecting mechanism, comprising a rock-shaft, on the back of the hopper, downwardly-extending sheet-ejecting arms on the rock-shaft to push the lower ends of the work-sheets out of the hopper, and an upwardly-extending handle on the rock-shaft which includes a finger-piece adjacent the upper end of the hopper.

The operator in inserting a new work-sheet into the machine first brings the leading edge of the old work-sheet above the floor of the hopper if it is not already so positioned. The upper margin of the work-sheet to be inserted is then grasped between the forefinger and thumb of the operator, the remainder of the stack is pressed by the middle finger of the same hand against the rear wall of the hopper to prevent its dislodgment, and the lower ends of all of the work-sheets are pushed clear of the hopper-floor by actuating the finger-piece for that purpose with the ring-finger. The outer work-sheet is then allowed to drop down a chute to a position between the typed work-sheet and the platen, and the finger-piece is released to permit the return of the other work-sheets to their original positions in the hopper. If the line to be typed on the newly-inserted sheet falls behind the previously-typed sheet, the newly-inserted sheet may be held by pressing it against the rear wall of the hopper while the platen is reversely rotated until the upper edge of the previously-typed sheet uncovers the desired writing line, after which the sheets may be fed in unison. The platen is then rotated backward to bring the last previously-typed line of the newly-inserted sheet to the printing point. The line-space lever is then operated, and this brings a line of writing exactly one line-space from the last previous line to the printing point, and also line-spaces a tally-strip that passes between the work-sheet and the platen, the tally-strip serving as a composite record of all the entries.

The work-sheets are discharged at the rear of the platen, and are automatically accumulated in the order of typing, which is the same order in which they were arranged in the hopper, without attention from the operator. To enable this to be done, provision is made of a sheet-accumulating receptacle at the rear of the platen. This receptacle includes the usual rear paper-table, an extension thereof to accommodate sheets of the required length, and side walls. The side walls are adjustable independently of each other to vary the width of the receptacle in accordance with the width of the work and to locate said walls in alignment with the side walls of the hopper and guide-chute.

When the day's entries are completed, the

sheets may be again placed in the hopper, without any rearrangement, whatever, and may be typed again in the same sequence as before.

Features of the invention relate also to the construction and mounting of the hopper, guide-chute and ejector. The hopper and the front-insertion chute are made in two independently adjustable sections to accommodate work of different widths. Such adjustability of the sections may also be utilized to locate the hopper and chute in different desired fields of the platen and in the desired relation to the tally-strip. The rock-shaft forming part of the sheet-ejecting mechanism serves also as a brace for the sections of the hopper to prevent their sagging toward each other under the weight of the work-sheets. The sheet-ejecting arms are adjustable along the rock-shaft to enable them to pass through openings formed in the rear wall of the hopper in various adjusted positions of the hopper-sections.

The hopper and front-insertion chute are mounted on a bar which is detachably supported on brackets at the front of the machine. The hopper and front-insertion chute may therefore be quickly removed from the machine when not desired for use.

Other features and advantages will hereinafter appear.

In the accompanying drawings,

Figure 1 is a sectional side elevation of a part of a bookkeeping machine having the present improvements applied thereto.

Figure 2 is a sectional side elevation on a smaller scale, showing the manner in which the sheet to be inserted is separated from the pack and directed to the platen.

Figure 3 is a front elevation, on the same scale as Figure 2, of substantially the same portion of the machine shown in Figure 1.

Upon depression of type-keys (not shown), type-bars 11 are swung upwardly and rearwardly to cause types 12 to print against a cylindrical platen 13. The platen 13 is journaled by its axle 14 in end plates 15 of a platen-frame 16 mounted in a traveling carriage 17. Feed-rolls 18, which are controlled by the usual cast-off means (not shown), co-operate with the platen 13 to feed the work-sheets, the platen being arranged to be rotated by either of the knobs 19 or by line-space mechanism comprising a line-space lever 20, a line-space slide 21, a pawl 22 and a ratchet-wheel 23 fast to the platen-axle 14.

Tally-strip mechanism similar to that disclosed in the patent to Hart, No. 1,281,160, dated October 8, 1918, may be provided, the tally-strip T serving as a composite record of all the day's entries. Briefly, such tally-strip mechanism is mounted on brackets 24 upon the ends of the platen-frame 16, and includes a receiving spool 25 which is driven through suitable gearing from a shaft 26 journaled in the brackets 24. The shaft 26 is rotated step by step by the line-space mechanism to draw the tally-strip T from a delivery spool 27 that is loosely mounted on a rod 28 journaled in the brackets 24. Connections for this purpose comprise a link 29 connected to the line-space slide 21, an arm 30 loose on the shaft 26, a pawl 31 on the arm 30, and a ratchet-wheel 32 fast on the shaft 26, and against which the pawl 31 is yieldingly pressed. It will be understood that the operation of the line-space lever 20 advances the inserted pay-roll sheet A and the tally-strip T in unison.

For use in storing a stack S of pay-roll sheets in conveniently accessible position ready for typing, and for guiding them to the platen at the front thereof, a combined front guide chute and hopper is mounted at the front of the platen by means of a transverse bar 33, having slotted ends 34 to engage with headed studs 35, mounted on brackets 36 supported by a transverse rod 37, connecting the ends of the platen-frame 16, and by the shaft 26 and rod 28. The combined guide chute and hopper comprises two separate sections 38 and 39, each mounted for adjustment along the bar 33 by means of headed screws 40 which are threaded into the bar 33 and are received in slots 41 in the sections 38 and 39. The sections 38 and 39 have continuous side members 42 extending down to the platen 13, which serve as side guides or gages for squaring the sheets and directing them to the desired field of the platen, and which also serve as the side walls of the hopper. The sectional hopper itself includes, in addition to the side members 42, a bottom or floor portion 43 extending backward and slightly downward from the upper end of the chute 44, and a rear wall portion 45 extending upward and rearward from the floor-portion 43. Fingers 42^a are turned in from the side members 42 to prevent accidental dislodgment of the work-sheets from the hopper.

Ears 46 on the side members 42 of the hopper project to the rear thereof and form bearings for a rock-shaft 47 that extends longitudinally of the platen. Collars 48 may be adjustably secured by set screws 49 upon the rock-shaft 47 to abut the ears 46 and prevent the sagging of the hopper-sections 38 and 39 toward each other under the weight of the work-sheet stack S. Downwardly-extending arms 50 are adjustably secured by set screws 51 upon the rock-shaft 47, and have forwardly-extending fingers 52 at their lower ends which may be projected through holes 53 in the rear wall 45 of the hopper to thrust the lower end of the stack S clear of the hopper-floor 43 when introducing the first sheet B thereof

at the front of the platen. An operating handle 54 fast on the rock-shaft 47 extends upwardly therefrom at one side of the hopper, and has at its upper end a finger-piece 55 whereby the rock-shaft 47 may be rocked to cause the lower ends of the work-sheets to be thrust forward clear of the hopper-floor 43. A return spring 56 is connected to the handle 54 and to the hopper for restoring the handle and the connected rock-shaft 47 and arms 50 to their normal positions when the handle is released by the operator. Such normal positions are determined by engagement of a stop 57 on the handle with the rear wall of the hopper.

The finger-piece 55 is so located that the operator may grip the upper margin of the first work-sheet B between the thumb and forefinger, clamp the remainder of the stack S against the rear wall 45 of the hopper with the middle finger of the same hand, and actuate the handle 54 with the ring-finger of the same hand. This operation is illustrated in Figure 2 of the drawings. With the parts in the positions indicated in Figure 2, the operator releases his grip on the first work-sheet B, dropping said sheet down the chute 44 between the sheet A in the machine and the platen 13. He then releases the finger-piece 55, permitting the other work-sheets to return to their original positions in the hopper, and rotates the platen backward by means of one of the knobs 19 to draw the new sheet B down to locate its old writing line at the printing point. The tally-strip T is not affected by this backward feeding of the platen. The newly-inserted sheet B may be adjusted accurately by reference to wing-scales 58 and then line-spaced to locate the next succeeding writing line at the printing point. This line-spacing also advances the tally-strip T to bring a blank line upon it to the printing point. When the writing on the sheet B has been completed the sheet B is used as a front-insertion guide for the succeeding sheet, and is finally discharged at the rear of the platen into a sheet-accumulating receptacle 59. This receptacle includes the usual rear paper-table 60, an extension or floor member 61 hinged thereto by a rod 62, and side walls 63. The floor-member is supported in part by brackets 64 mounted on the ends of the platen-frame, the brackets 64 being secured to the platen-frame by screws 65 which also help to secure the tally-strip brackets 24 in place. Thumb-screws 66 secure the floor-member 61 to the brackets 64. The floor-member 61 has a rearwardly-curved upper end 67, and the upper ends of the side walls 63 are similarly curved and are bent back upon themselves, as seen at 68 in Figure 1, to embrace the curved end 67 of the floor-member 61. Screws 69 pass through the plies of the side walls 63, beyond the end 67 of the floor-member, where they are superposed for drawing said plies toward each other to clamp the side walls adjustably upon the floor-member.

As the pay-roll sheets are discharged from the platen 13 by the backward rotation thereof, they are automatically stored in the accumulating receptacle 59 in the order in which they have been typed, and when a considerable number of the sheets has been accumulated, the operator removes them from the machine.

It will be seen that the sheets are thus maintained in the same order from day to day, so that they can be put through the machine again and again in the same sequence without having to be rearranged.

The location and arrangement of the hopper enables the sheets to be placed in it facing outward, toward the operator. This affords a safeguard against errors since the operator can see at a glance whether the card he is about to insert corresponds with the memorandum from which he is to copy. Should the operator inadvertently pass two sheets around the platen together, he will be likely to discover the discrepancy between the work-sheet and the memorandum at once and correct it before any typing has been incorrectly done.

It will thus be understood that I have provided a device for mounting and successively feeding sheets or cards to the platen of a typewriter, wherein the sheets are supported resting against an upright holder, with a bottom support engaging the lower edges of the sheets; and means are further provided for moving the sheets, or the front sheet, away from such bottom support; and which means is controlled by a member operable at the upper part of the holder, in convenient position to be engaged by the fingers of the operator. By means of this arrangement the front sheet is easily separated from the other sheets and released to fall by gravity into the chute that will direct it to the platen of the machine.

Variations may be resorted to within the scope of the invention, and portions of the improvements may be used without others.

Having thus described my invention, I claim:

1. A typewriting machine arranged to facilitate the passing of a succession of work-sheets through the machine in the same sequence again and again, having, in combination, a traveling carriage, a revoluble platen journaled therein, a work-sheet hopper above the platen for storing the work-sheets preparatory to typing in the order in which they are to be typed, means for guiding the work-sheets from the hopper to the platen at the front thereof, and an accumulating receptacle on the carriage at the rear

of the platen in which the work-sheets are automatically accumulated in the same order in which they were arranged in the hopper, wherefore they may be placed again in the hopper and typed in the same order without rearrangement.

2. A typewriting machine arranged to facilitate the passing of a succession of work-sheets through the machine in the same sequence again and again and to produce a composite record of the entries made on all of them, having, in combination, a traveling carriage, a revoluble platen journaled therein, a hopper on the carriage above the platen for holding the work-sheets preparatory to typing, means for guiding the work-sheets from the hopper to the front of the platen, tally-strip mechanism, platen-feeding means for rotating the platen independently of the tally-strip mechanism to draw the last previously written line on the inserted work-sheet down to printing position while the tally-strip is stationary, line-spacing mechanism arranged to line-space the tally-strip and work-sheet together, and an accumulating receptacle at the rear of the platen to receive the work-sheets and accumulate them automatically in the same order in which they were arranged in the hopper.

3. In a typewriting machine, in combination, a traveling carriage, a revoluble platen journaled therein, tally-strip mechanism directing a tally-strip to a definite field of the platen, and a combined hopper and work-guiding chute on the carriage for storing work-sheets preparatory to typing and for directing them one by one to the platen, said combined hopper and work-guiding chute being adjustable longitudinally of the platen to cause a predetermined field of the work-sheets to be superposed on the tally-strip.

4. In a typewriting machine, in combination, a traveling carriage, a revoluble platen journaled therein, a hopper above the platen for storing work-sheets preparatory to typing, said hopper having side walls extending down to the platen, means for adjusting the width of the hopper between the side walls to direct work-sheets of different widths, an accumulating receptacle at the discharge side of the platen for accumulating the work-sheets without attention from the operator, said receptacle having side walls, and means for adjusting the side walls of the accumulating receptacle in accordance with the adjustment of the side walls of the hopper.

5. In a typewriting machine, in combination, a revoluble platen, a hopper above the platen for storing work-sheets preparatory to typing, a chute for guiding the work-sheets downward to the platen, manually operable ejecting mechanism for moving the lower edge of a sheet to be inserted in the machine clear of the hopper bottom and into position to be guided along the chute, and means for accumulating the work-sheets as they are discharged by the platen in the same order in which they were arranged in the hopper.

6. In a typewriting machine, in combination, a traveling carriage, a platen-frame, a revoluble platen journaled therein, a sheet-accumulating receptacle at the discharge side of the platen comprising a paper-shelf extending to and around the platen, an extension of said shelf hinged thereto, brackets on the ends of the platen-frame to assist in supporting said extension and to fix the position thereof, and side walls on the extension adjustable therealong to adapt the receptacle to accumulate sheets fed around different fields of the platen and to accumulate sheets of different widths.

7. In a typewriting machine, in combination, a traveling carriage, a platen therein, a hopper mounted on the carriage above the platen for holding a quantity of work-sheets in conveniently accessible position for introduction around the platen, said hopper comprising a floor portion for supporting the sheets on edge and a rear wall against which the sheets normally rest, a chute for directing the sheets from the hopper down to the platen, and a manually operable ejector for moving the lower edge of a sheet to be inserted clear of the hopper floor and into position to pass down the chute.

8. In a typewriting machine, in combination, a traveling carriage, a platen therein, a hopper on the carriage above the platen to hold work-sheets in conveniently accessible position for introduction to the platen, a sheet-guiding chute for directing the sheets from the hopper to the platen, said hopper comprising a floor to support the work-sheets on edge and a rear wall against which the work-sheets rest, and a work-sheet ejector comprising means for thrusting the lower ends of the work-sheets clear of the hopper and an operating handle adjacent the upper end of the hopper, the arrangement being such that the operator while clamping the upper ends of all but the first of the work-sheets against the rear wall of the hopper may actuate the handle of the ejector with another finger of the same hand to thrust the lower ends of the work-sheets clear of the hopper and thereby move the first work-sheet to a position to be dropped down the chute to the platen.

9. In a typewriting machine, in combination, a traveling carriage, a platen therein, a hopper on the carriage above the platen to hold work-sheets in conveniently accessible position for introduction to the platen, said hopper comprising right and left sections independently adjustable lengthwise of the platen, and a work-sheet ejector for thrusting the lower ends of work-sheets

supported on edge in the hopper clear of the hopper to facilitate the introduction of one of said sheets to the platen, said ejector comprising a rock-shaft, rock-shaft bearings on the hopper sections, and collars adjustably fixed on the rock-shaft to abut the bearings on the hopper sections, whereby the rock-shaft serves as a brace to prevent sagging of the hopper sections toward each other under the weight of the work-sheets.

10. In a typewriting machine, in combination, a traveling carriage, a platen therein, a hopper on the carriage above the platen to hold work-sheets in conveniently accessible position for introduction to the platen, said hopper comprising right and left complemental sections independently adjustable lengthwise of the platen, said sections jointly forming a rear wall for the hopper against which the work-sheets in the hopper rest, the rear wall having openings, and an ejector for thrusting the lower ends of the work-sheets clear of the hopper to facilitate the introduction of one of them to the platen, the ejector comprising a rock-shaft, members on the rock-shaft arranged to act through the openings in the rear wall, and means for securing the ejector members in different adjusted positions on the rock-shaft corresponding to the adjustments of the hopper sections.

11. In a typewriting machine, in combination, a traveling carriage, a platen therein, a hopper on the carriage above the platen to hold work-sheets in conveniently accessible positions for introduction to the platen, said hopper comprising right and left complemental sections, an ejector to facilitate the removal of work-sheets from the hopper one by one, comprising a rock-shaft, and cooperating means on the hopper sections and on the rock-shaft to enable the rock-shaft to serve also as a brace for the hopper sections to prevent sagging of the sections toward each other.

12. In a typewriting machine, in combination, a traveling carriage, a platen therein, a hopper on the carriage for holding a quantity of work-sheets in conveniently accessible position for introduction to the platen, and an ejector for assisting the introduction of the work-sheets to the platen one by one, comprising right and left ejecting arms and common operating means for said arms.

13. In a typewriting machine, in combination, a traveling carriage, a platen therein, a hopper on the carriage for holding a quantity of work-sheets in conveniently accessible position for introduction to the platen, and an ejector for assisting the introduction of the work-sheets to the platen one by one, comprising right and left ejecting arms, means for relatively adjusting said arms in accordance with the width of the work, and common operating means for the arms.

14. In a typewriting machine, in combination, a traveling carriage, a platen therein, a hopper on the carriage for holding a quantity of work-sheets in conveniently accessible position for introduction to the platen, and an ejector for assisting the introduction of the work-sheets to the platen one by one, comprising right and left ejecting arms, a rock-shaft on which the arms are fast, an operating handle fast to the rock-shaft, a finger-piece for actuating the handle to operate the ejector, and means for returning the ejector to its original idle position when the finger-piece is released by the operator.

15. In a typewriting machine, the combination with a carriage and a platen, of a holder on the carriage to support a set of work-sheets in upright position and including a guiding means for directing the sheets to the platen, said support having a bottom rest for the sheets at their lower edges, a rear wall support extending upward from said rest, and means arranged to cause a relative movement of the work-sheets and said bottom rest whereby the front sheet is brought beyond position supported by said rest, and such sheet will fall by gravity when free to drop and be fed to the platen.

16. In a typewriting machine, the combination with a carriage and a platen, of a holder on the carriage to support a set of work-sheets in upright position and including a guiding means for directing the sheets to the platen, said support having a bottom rest for the sheets at their bottom edges, a rear wall support extending upward from said rest, means arranged to cause a relative movement of the work-sheets and said bottom rest whereby the front sheet is brought beyond position supported by said rest, and such sheet will fall by gravity when free to drop and be fed to the platen, and an operating member for said last-mentioned means remote from said rest.

17. In a typewriting machine, the combination with a carriage and a platen, of a holder on the carriage to support a set of work-sheets in upright position and including a guiding means for directing the sheets to the platen, said support having a bottom rest for the sheets at their bottom edges, a rear wall support extending upward from said rest, and control means arranged to dislodge the front sheet from said bottom rest that is manually operable at a place remote from said rest.

18. In a typewriting machine, the combination with a carriage and a platen, of a holder on the carriage to support a set of work-sheets in upright position and including a guiding means for directing the sheets to the platen, said support having a bottom rest for the sheets at their bottom edges, a rear wall support extending upward from said rest, and control means arranged to

dislodge the front work-sheet from the bottom rest and which is manually operable adjacent the upper part of said rear wall.

19. In a typewriting machine, the combination with a carriage and a platen, of a holder on the carriage to support a set of work-sheets in upright position and including a guiding means for directing the sheets to the platen, said support having a bottom rest for the sheets at their bottom edges, a rear wall support extending upward from said rest, means arranged to cause a relative movement of the work-sheets and said bottom rest whereby the front sheet is brought beyond position supported by said rest, and such sheet will fall by gravity when free to drop and be fed to the platen, and an operating member for said last-mentioned means extending to the upper part of the support.

20. In a typewriting machine, the combination with a carriage and a platen, of a holder on the carriage to support a set of work-sheets in upright position and including a guiding means for directing the sheets to the platen, said support having a bottom rest for the sheets at their bottom edges, a rear wall extending upward from said rest, and a sheet ejector comprising means for thrusting the lower edge of the front work-sheet beyond said support whereby such sheet will fall by gravity when free to drop and be fed to the platen.

21. In a typewriting machine, the combination with a carriage and a platen, of a holder on the carriage to support a set of work-sheets in upright position and including a guiding means for directing the sheets to the platen, said support having a bottom rest for the sheets at their bottom edges, a rear wall extending upward from said rest, a sheet ejector comprising means for thrusting the lower edge of the front work-sheet beyond said support whereby such sheet will fall by gravity when free to drop and be fed to the platen, and an operating member for said last-mentioned means extending to the upper part of the support.

22. In a typewriting machine, the combination with a carriage and a platen, of a holder on the carriage to support a set of work-sheets in upright position and including a guiding means for directing the sheets to the platen, said support having a bottom rest for the sheets at their bottom edges, a rear wall extending upward from said rest, and a control member operable rearwardly at the upper part of the support and which will engage the sheets at their lower portions to shift them forward.

JESSE A. B. SMITH.