May 15, 1934. J. A. B. SMITH 1,958,645

TYPEWRITING MACHINE

Filed March 30, 1932 2 Sheets-Sheet 1

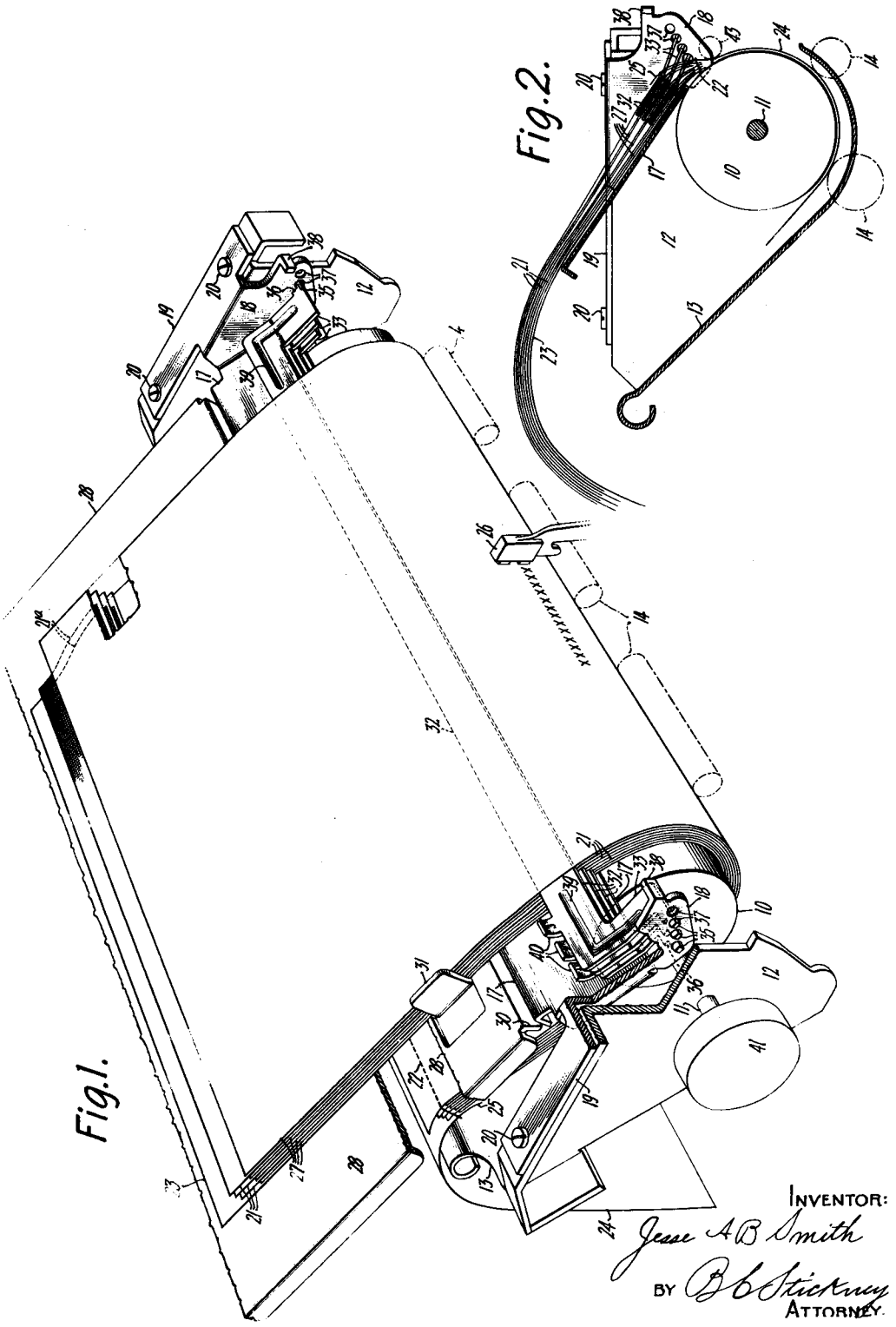


Fig.1.

Fig.2.

INVENTOR:
Jesse A B Smith
BY B & Stickney
ATTORNEY.

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Fig.3.

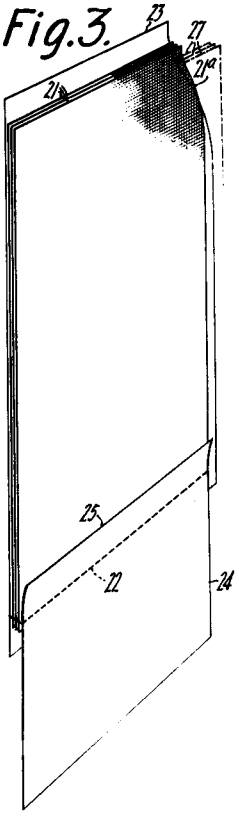


Fig.4.

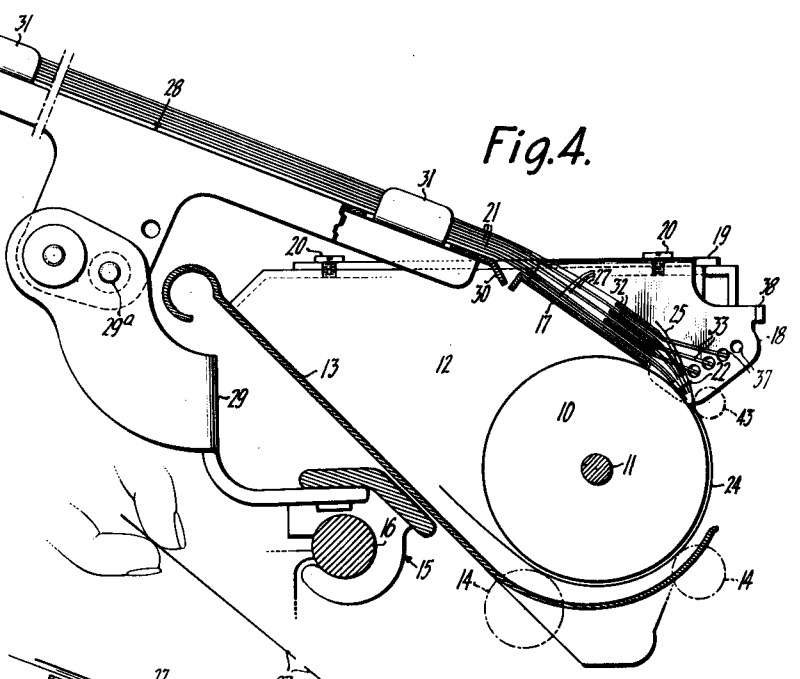


Fig.5.

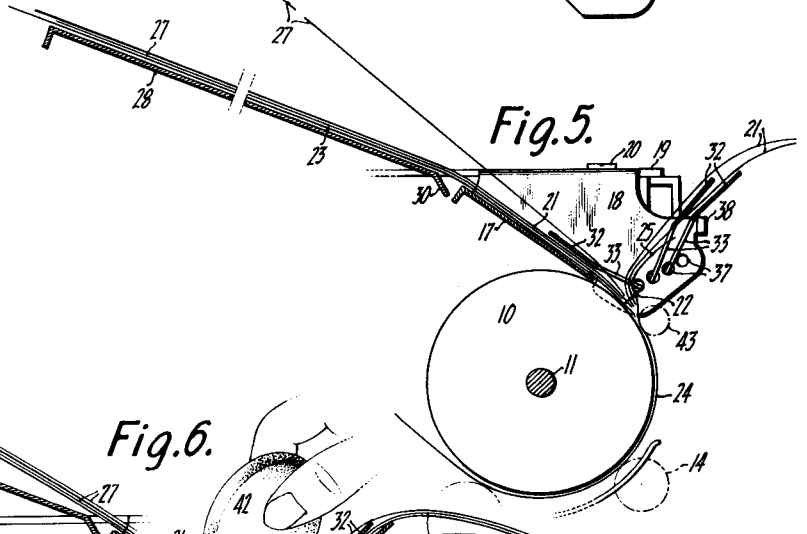
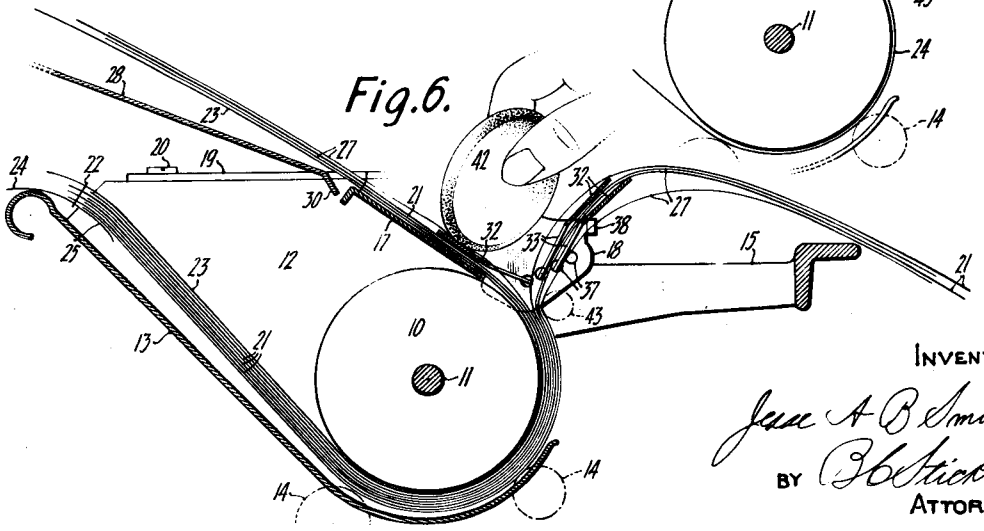


Fig.6.



INVENTOR:

Jesse A B Smith

BY B B Stickney

ATTORNEY.

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UNITED STATES PATENT OFFICE

1,958,645

TYPEWRITING MACHINE

Jesse A. B. Smith, Stamford, Conn., assignor to Underwood Elliott Fisher Company, New York, N. Y., a corporation of Delaware

Application March 30, 1932, Serial No. 601,908

19 Claims. (Cl. 197—181)

This invention relates to typewriters, and particularly to devices for facilitating the making of erasures, and it is particularly valuable when the work-sheets are interleaved with carbons.

Heretofore, in making erasures in the typewriter, a shield has been inserted behind the work-sheet on which an erasure is to be made, to prevent blurring and injury of the underlying sheets by the pressure of the eraser.

An object of the invention is to provide a device which obviates the necessity of repeated insertion and withdrawal of a shield. It is contrived to interleave one or more strips of shielding material with the carbons, and to leave such strips, together with the carbons, in place; such practice being feasible and useful where the carbons are assembled in a pack, as set forth in my pending application, Serial No. 549,812, filed July 10, 1931.

In the use of such pack, the carbon-sheets remain in place in the typewriter, while successive sets of work-sheets are interleaved therewith, typed upon and withdrawn. The shielding strips are preferably in superposed relation without overlapping edges, and extend the full length of the type-platen. It is further contrived therefore to swivel or hinge the shielding strips, so that after an erasure has been made on one work-sheet, its underlying shield-strip may be swung out of the way (forwardly) to permit erasing on the next work-sheet.

In thus gaining access to the next work-sheet by swinging the shielding strip, there is afforded a further advantage, inasmuch as such swinging of the shield facilitates folding the intervening carbon-sheet forwardly of the platen sufficiently to adequately uncover said next sheet for the erasing operation thereon.

The shield-strips are stampings, preferably of thin spring-tempered sheet-metal. The shield-strips are hinged or pivoted in such manner that they may be closely superposed, thereby avoiding undue bulkiness of the assembled pack.

To this end, the superposed strips in their interleaved positions with the pack overlie the type-platen, and are suitably inclined according to the direction of the pack from the delivery side of the platen toward an interleavement table inclining upwardly from and behind the platen. At their ends the shield-strips may have arms with pivoting formations, whereby they are pivoted in suitable side members, which may be attached to or form part of the ends of the platen-shift-frame. Spanning said side members and underlying the work-pack, so as to form a backing or support for the thin shields when erasing is done, there is provided a table sloping upwardly and rearwardly in accordance with the direction of the work-pack from the platen to the front edge of the aforesaid interleavement table.

The strips, being made of thin springy material, may be bowed, so that the distance between their pivoting ends is contracted; the strips so contracted may then be slipped between suitable bearings in the platen-frame ends, in which they are received as the strips straighten themselves out. Each platen-frame end may have a sufficient number of such bearings to accommodate a corresponding number of strips.

Other features and advantages will hereinafter appear.

In the accompanying drawings,

Figure 1 is a perspective view of a platen-carriage illustrating the novel erasing shield-strips interleaved with the plies of a work-pack.

Figure 2 is a side view of the platen-carriage showing how the invention may be used without the interleavement table, and also showing the carbon-pack interleaved with the work-sheets and erasing strips, the assembled pack being in the position in which the work-sheets were introduced.

Figure 3 is a perspective view showing the carbon-pack which is used with the invention.

Figure 4 is an enlarged side view of the platen-carriage similar to Figure 2, and shows the interleavement table.

Figure 5 is a side view illustrating how the carbon-sheets may be folded forwardly to facilitate the insertion of work-sheets in the carbon-pack.

Figure 6 is a side view of the platen-carriage illustrating how an erasure is made on an underlying work-sheet while the overlying work-sheets, carbons and erasing shields are swung forwardly for easy access to the sheet on which the erasure is being made.

The invention is illustrated as applied to the paper-carriage of an Underwood typewriter, in which a platen 10 mounted on an axle 11 is journaled in a case-shift frame formed by end plates 12, and a rear insertion paper-table 13. Said paper-table 13 is diagrammatically shown as extending forwardly and downwardly and then around the bottom of the platen, as seen in Figure 2. Pressure feed-rolls 14 bear against the bottom of the platen to co-operate with said platen in rolling the work-sheet-web around the platen.

The platen-shift-frame is mounted for up-and-down case-shift movement by the usual means

not shown, in a letter-feeding carriage-frame 15, partially shown in Figures 4 and 6, said frame traveling on a front track, not shown, and a rear track 16.

Overlying the platen 10 and extending in a tangential direction therefrom to slope upwardly and rearwardly from the delivery side is a table 17 formed integral with and spanning upturned side plates 18. Said side plates 18 have outwardly-bent flanges 19 for attachment to the platen-frame plates 12 by screws 20.

A carbon-pack of the character shown in my aforesaid pending application is made up, as shown in Figure 3, of a suitable number of carbon-sheets 21 sewn together at their lower edges by stitching 22, which also secures to the carbon-sheets a backing-sheet 23 and a front sheet 24. Said front sheet 24 extends upwardly from one side of the stitching 22 to form a tab 25, the remainder of the sheet 24 extending below said stitching to form a tab extending downwardly from the bottom of the carbons, as indicated. The carbon-pack is positioned around the platen preparatory to interleaving work-sheet plies therewith, and for such interleavement said carbon-pack is advanced, so that the stitching 22 is above the printing line of the platen, said printing line being at the front of the platen, as indicated in Figure 1, which shows one of the usual type-bars 26. The carbon-pack is held in its work-sheet receiving position by means of the tab 24, which in said position is held against the platen 10 by the pressure rolls 14.

To facilitate the interleavement of work-sheets 27 with the carbon-sheets 21, the rear of the pack may rest upon a suitable interleavement table 28, supported on brackets 29 extending from the traveling carriage-frame 15. Said interleavement table 28 slopes upwardly and rearwardly from the rear edge of the table 17 which is adjacent, as best seen in Figure 4, to the beveled front edge 30 of the interleavement table. Side gages 31 extend from the surface of the interleavement table 28 at the left side of the work-pack to position said pack laterally. The interleavement table 28 may have less slope than the erasing table 17, to minimize the tendency of the sheets resting thereon to slide forwardly. Said interleavement table may also be tiltable about the centers 29^a of the brackets 29, as set forth in my aforesaid pending application.

A number of erasing strips 32 depending on the number of carbon-sheets employed are interleaved with said sheets, as best seen in Figures 1 and 4, and in their normal positions lie superposed one above the other substantially parallel with the table 17. Each of said strips 32 has at either end a forwardly-extending arm 33, Fig. 1. Extending outwardly and laterally from said arms 33 are branches on the outer ends of which are formed trunnion-tongues 35 and shoulders 36. By bowing a strip to shorten the distance between the tongues 35, said tongues may be inserted into holes 37 of the side-plates 18. Thus the strips 32 are hinged or swiveled to swing forwardly, on occassions when an erasure is to be made, as shown in Figure 6, or when work-sheets are to be inserted, as shown in Figure 5. The bearing holes 37 are positioned preferably in the manner indicated in the drawings, so that they are in front of the work-pack.

The arms 33 of the several flaps or erasing shield-strips 32 are herein shown as being of graded lengths, so that the strips, when superposed, as shown in Figure 4, are in alignment. That is to say, they are not offset from one another. This avoids the necessity of rotating the platen to register each work-sheet with its underlying strip as would be required if the strips were offset one from the other. It will be understood, however, that if uniformity of the blanks forming the strips 32 and arms 33 is desired, the strips may be offset, and in such case may also be of a width to avoid such rotation of the platen. Each plate 18 may have an inwardly-bent ear 38 to serve as a stop for limiting the forward swing of the erasing strips 32.

The strips 32 are preferably made of thin spring metal, such as spring steel or spring bronze, and near their ends the strips may have beading 39 which serves, when the strips are in normal superposed positions, to slightly separate one strip from the other, and thereby prevent binding of the work-sheets and carbons between the strips. Each strip may also have at one end a finger-piece 40, whereby the strip may be readily picked up for swinging forwardly. The finger-pieces 40 may be offset one from the other, as indicated in Figure 1, and numbered.

It will be seen from Figure 6 that the table 17 serves as a backing or support for the thin erasing shield strips 32, when erasing is done. The strips 32 not only serve as erasing shields, but may also facilitate the insertion of the work-sheets by supporting the forwardly-folded carbons, as indicated in Figure 5.

In Figures 5 and 6, 23 is the backing sheet and 24 is the front sheet of the pack which forms the tab 25. Figure 5 illustrates the manner in which the work-sheets 27 may be inserted one by one in the carbon-pack. Figure 5 shows the bottom work-sheet 27 already inserted and lying with the superposed carbon-sheet 21 and the underlying backing sheet 23 upon the interleavement table 28 before the next sheet is inserted by the operator's hand, as shown in said Figure 5. The corresponding erasing-shield strip 32 will also, before such insertion of the next sheet, have been swung rearwardly, as shown in Figure 5, to lie against the carbon-sheet 21 already lying on the interleavement table 28. It will be noted that, preparatory to the interleavement of any of the work-sheets 27, all the carbon-sheets 21 and all the erasing-shield strips 32 will have been swung forwardly to rest against the stops 38 in the manner indicated in Figure 5.

When a manifolded error is to be erased, all of the erasing-shield strips 32 are in the superposed positions, indicated in Figure 1. The first erasure may be on the uppermost work-sheet, the bottom edge of which it will be noted rests within the tab 25, or the first erasure may be on the bottom sheet, as will be explained. After the erasure is made thereon, said uppermost work-sheet is swung forwardly to uncover the next underlying work-sheet, the intervening carbon-shield strip 32 and carbon-sheet being also swung forwardly to uncover said next underlying sheet on which the erasure is then made. This latter work-sheet is then in turn swung forwardly as are the immediately underlying carbon-shield strip 32 and carbon-sheet to uncover the next work-sheet so that erasure may be made thereon. The remaining work-sheets are similarly uncovered and erasures made thereon, after which the sheets, carbons and shield strips which were swung forwardly are returned to lie against the tables 17, 28 again, and the platen is rotated to

bring the erased spot to the printing line for typing the correction.

It will be understood that preparatory to making erasures, the platen was to be rotated to position the work-sheet spot where the erasure is to be made over the erasing-shield strips 32. Figure 6 illustrates particularly how a work-sheet to which an eraser 42 is applied is adequately uncovered by swinging the erasing-shield strips 32 and the work-sheet plies 21, 27 forwardly, as provided for in the invention.

Instead of starting the erasure on the uppermost work-sheet it may be started on the bottom work-sheet. In this case all the work-sheets, carbons and strips 32 overlying said bottom sheet are swung forwardly to uncover said bottom sheet, and the erasure is made thereon. The next strip 32 is then swung back over the bottom sheet on which the erasure was just made, and it will be noted that such swinging of said next strip back carries the corresponding carbon-sheet with it. Thus, handling of said corresponding carbon-sheet is minimized, and there is consequently less liability of the operator's fingers becoming soiled.

It will be noted that the organization provides for disposing the shield-strips 32 in sufficiently close proximity to the printing line, so that in the great majority of cases, in which, as is well known, the writing does not extend closely to the bottom of the page, as in letter writing for example, the bottom of the work-sheet may be still held by the front feed pressure rolls 14. Should it be necessary, however, in occasional cases to erase a manifolded error close to the bottom of the work-sheet, any possible disarrangement of the sheets, caused by the erasing operation, may be corrected after all the erasures have been made on the several sheets by realigning said sheets with the side gages 31 and stitching 22 with which said sheets were originally registered.

Figure 2 indicates how the interleavement table 28 may be omitted or replaced by the table 17 which supports the erasing-shield strip 32 as aforesaid. The table 17 in such cases may be suitably wide as shown to serve as an interleavement table.

The platen may be provided at each end with the usual platen-knob 41 for rotating the platen. A front finger roll or rolls 43 supported in any suitable well-known manner may co-operate to direct the work-pack around the platen.

After the typing on the work-sheets is finished, the platen is rolled back to bring the pack to the position seen in Figures 2 and 5. The carbons 21 and backing sheet 23 may have their upper right corners clipped along a curved line 21^a, to expose enough of the upper right corners of the work-sheets, so that the latter may be grasped at said corners without touching the carbons for withdrawing all the work-sheets with one sweep of the hand. The upper edges of the carbons 21 may project above the work-sheets sufficiently so that in most cases said upper edges do not leave the strips 32 when writing near the top of the work-sheets.

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. The combination with a cylindrical platen and a platen-frame, of a plurality of pivoted flaps journaled in the ends of said frame for interleavement between the plies of a manifolding work-sheet pack traveling around said platen, said flaps being arranged to serve individually as erasing shields for corresponding carbon-sheets of said pack, and being pivoted to swing individually to uncover successive work-sheets.

2. The combination with a cylindrical platen and a platen-frame, of a plurality of pivoted flaps journaled in the ends of said frame for interleavement between the plies of a manifolding work-sheet pack traveling around said platen, said flaps being arranged to serve individually as erasing shields for corresponding carbon-sheets of said pack, and being pivoted to swing individually to uncover successive work-sheets, and a table, mounted on said frame, arranged to underlie said pack and support said flaps against deflection in the erasing operation.

3. In a front-strike typewriting machine, the combination with a cylindrical platen and a platen-frame, of a plurality of pivoted flaps journaled in the ends of said frame for interleavement between the plies of a manifolding work-sheet pack traveling around said platen, said flaps in superposed arrangement on the delivery side of the platen above the printing line to serve individually as erasing shields and being pivoted to swing forwardly to uncover successive work-sheet plies.

4. In a front-strike typewriting machine, the combination with a cylindrical platen and a platen-frame, of a plurality of pivoted flaps journaled in the ends of said frame for interleavement between the plies of a manifolding work-sheet pack traveling around said platen, said flaps in superposed arrangement on the delivery side of the platen above the printing line to serve individually as erasing shields and being pivoted to swing forwardly to uncover successive work-sheet plies, and stops to limit the forward swinging of said flaps.

5. The combination with a platen-frame having end members in which a cylindrical platen is journaled, of a work-sheet table extending longitudinally of said platen and being attached to said members, and a plurality of erasing shields superposed on said table and supported thereon for interleavement with a work-pack traveling around said platen.

6. The combination with a platen-frame having end members in which a cylindrical platen is journaled, of a work-sheet table extending longitudinally of said platen and being attached to said members, and a plurality of erasing shields superposed on said table and movably supported thereon for interleavement with a work-sheet pack traveling around said platen.

7. The combination with a platen-frame having end members in which a cylindrical platen is journaled, of a work-sheet table extending longitudinally of said platen and being attached to said members, and a plurality of erasing shield-flaps spanning said table lengthwise of the platen, said platen-frame end members being provided with a series of bearings in which said flaps are pivoted to lie normally superposed on said table, for interleavement with a work-pack traveling around said platen, the pivotal connection of said flaps to said end members being arranged for easy removal and replacement of said flaps.

8. The combination with a platen-frame having end members in which a cylindrical platen is journaled, of a work-sheet table extending longitudinally of said platen and being attached to said members, and a plurality of erasing shield-flaps spanning said table lengthwise of

the platen, said platen-frame end members being provided with a series of bearings in which said flaps are pivoted to lie normally superposed on said table, for interleavement with a work-pack traveling around said platen, said flaps having arms of graded lengths, carrying pivoting formations, so that when received in said bearings, the erasing shield-areas of the several flaps, when superposed on said table, are not offset one from the other.

9. The combination with a platen-frame having end members in which a cylindrical platen is journaled, of a work-sheet table extending longitudinally of said platen and having upturned ends arranged for attachment to said platen-frame end members, and a plurality of erasing shield-flaps normally superposed on said table for interleavement with a work-pack traveling around the platen, said flaps being pivoted in said table-ends to swing individually away from and to said table.

10. The combination with a platen-frame having end members in which a cylindrical platen is journaled, of a work-sheet table extending longitudinally of said platen and having upturned ends arranged for attachment to said platen-frame end members, a plurality of erasing shield-flaps normally superposed on said table for interleavement with a work-pack traveling around the platen, said flaps being pivoted in said table-ends to swing individually away from and to said table, and a stop or stops projecting from one or both of said end members to hold the flaps in their positions away from said table.

11. The combination with a cylindrical platen and a platen-frame, of an elongate erasing shield made of thin springy material having pivoting formations at its ends, said frame having end members including bearings to receive said formations when said shield is bowed to contract the distance between its pivoting formations, and is then allowed to straighten out so that said formations may be received by said bearings.

12. An erasing shield for use in an apparatus of the character described, said shield including an elongate strip insertable between and extending across work-sheets and of sufficient width to cover an erasing area, and arms at the ends of said strip, each arm having a pivoting formation, the whole shield being formed of thin springy sheet-material, and being substantially flat, each end of the shield having formed therein, however, a raised beading serving to slightly separate one shield from another, when a number of shields are superposed.

13. In a front-strike typewriting machine, the combination with a platen and a platen-frame, of a work-sheet table extending tangentially from the delivery side of the platen in an upwardly and rearwardly sloping direction, said table having side members and being secured to said platen-frame, and an erasing table pivoted to said side members to normally overlie said work-sheet table facewise, and being arranged for interleavement between work-sheets, and to swing facewise forwardly from the work-sheet table, to turn the overlying work-sheet and uncover the underlying work-sheet.

14. In a front-strike typewriting machine, the combination with a platen and a platen-frame, of a work-sheet table extending tangentially from the delivery side of the platen in an upwardly and rearwardly sloping direction, said table having side members and being secured to said platen-frame, an erasing table pivoted to said side members to normally overlie said work-sheet table facewise, and being arranged for interleavement between work-sheets, and to swing facewise forwardly from the work-sheet table, to turn the overlying work-sheet and uncover the underlying work-sheet, and stopping means to limit the forward swing of said erasing table.

15. The combination with a revoluble platen around which a multiple-ply work-pack interviewed with a transfer sheet is positioned, of a pack-supporting table extending from the delivery side of said platen, and a thin erasing shield-strip superposed facewise on said table and swiveled on an axis extending lengthwise of said platen to swing facewise from said table, said strip being arranged for interleavement between the sheets of the work-pack to support the overlying sheet for an erasure, and at the same time shield the underlying work-sheet from being smudged by erasing pressure through the transfer sheet, said table supporting said strip against deflection in the erasing operation.

16. In a manifolding type-impressing machine having a platen, the combination of a plurality of strips forming erasing tables severally insertable between the sheets of a work-sheet pack positioned over the platen, and means pivotally mounting said strips to swing individually in facewise direction about an axis extending transversely of the work-pack and off from the normal work-pack position so as to uncover an underlying work-sheet.

17. In a manifolding type-impressing machine having a platen, the combination of a plurality of strips forming erasing tables severally insertable between the sheets of a work-sheet pack positioned over said platen, means pivotally mounting said strips to swing individually in facewise direction about an axis extending transversely of the work-pack and off from the normal work-pack position so as to uncover an underlying work-sheet, and a work-pack table arranged to support the bottommost sheet for an erasure and also to support said strips against deflection when any one of the latter is used as an erasing table.

18. A typewriting machine including a platen over which a manifolding work-pack may travel and from which said pack may extend in a delivery course, a plurality of erasing tables arranged in said course to extend transversely of, and to be interleaved with, the work-pack sheets, means pivoting said tables so that one or more may be swung off and substantially away from said course to uncover an underlying sheet, and an additional table arranged adjacent said delivery course to support the work-pack and the interleaved erasing tables.

19. A typewriting machine including a platen over which a manifolding work-pack may travel and from which said pack may extend in a delivery course, a plurality of erasing tables arranged in said course to extend transversely of, and to be interleaved with, the work-pack sheets, and means pivoting said tables so that one or more may be swung off and substantially away from said course to uncover an underlying sheet, said tables being superposed, each erasing table having at one end-portion a finger-piece, the finger-pieces of the several tables being offset from one another so as to be readily accessible individually.

JESSE A. B. SMITH.