E. THOMAS.

TYPE WRITING MACHINE.

APPLICATION FILED JUNE 19, 1917.

1,326,306.

Patented Dec. 30, 1919.

3 SHEETS—SHEET 1.

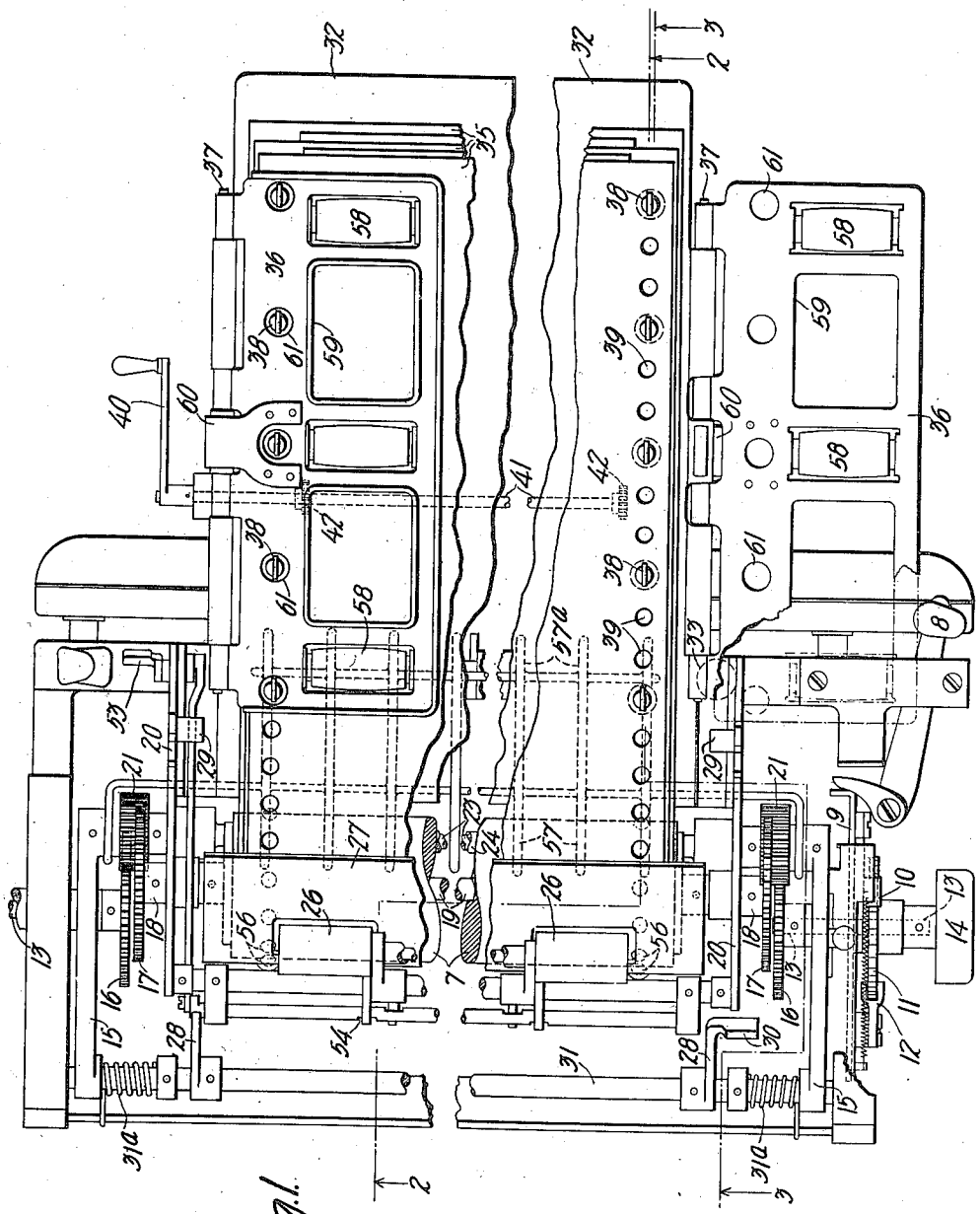


Fig. 1.

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Julius Orchestine

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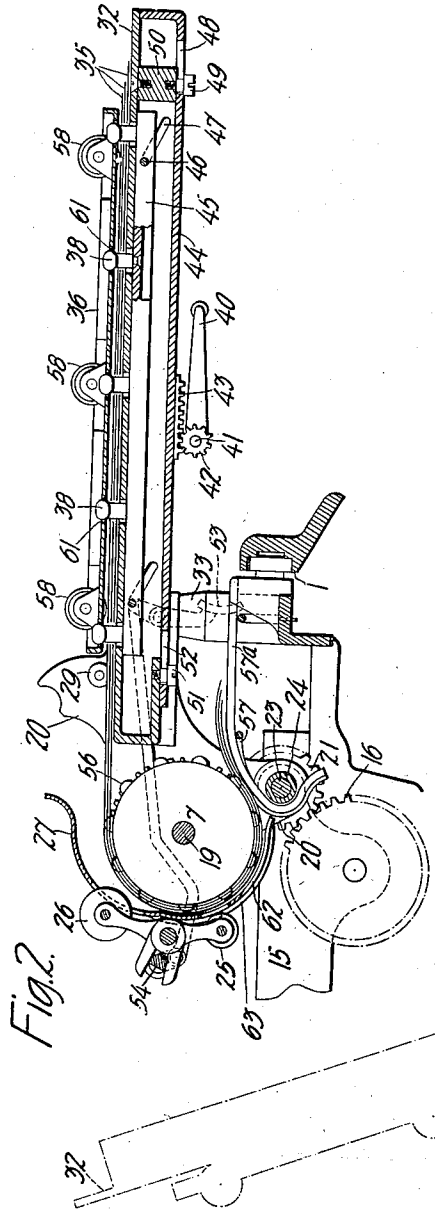


Fig. 2.

Fig. 3.

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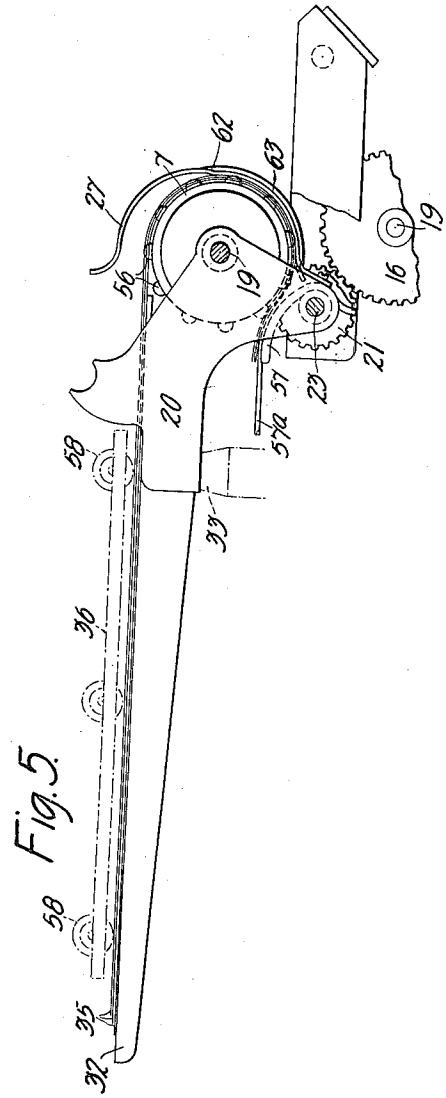


Fig. 5.

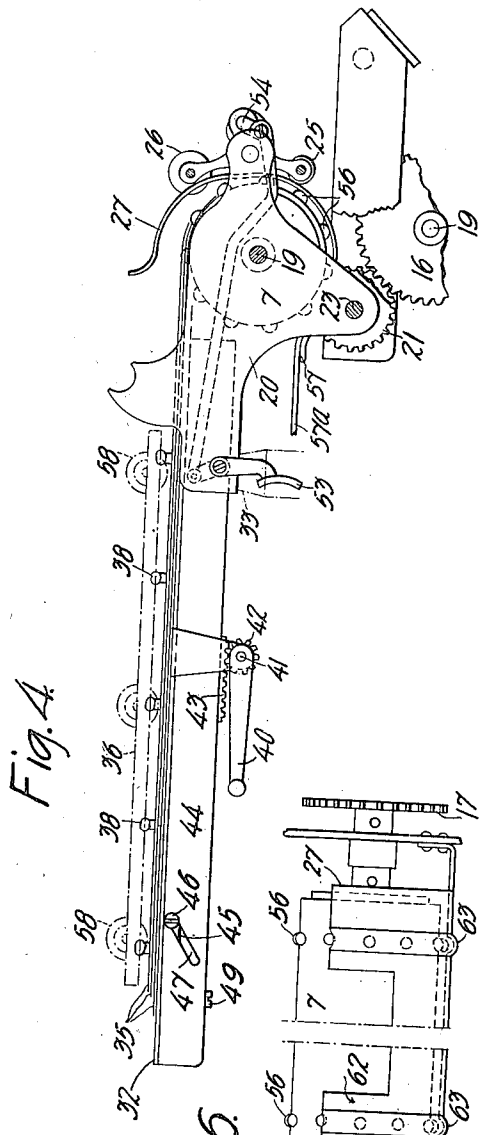


Fig. 4.

Fig. 6.

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UNITED STATES PATENT OFFICE.

EDWARD THOMAS, OF NEW YORK, N. Y., ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

TYPE-WRITING MACHINE.

1,326,306. Specification of Letters Patent. Patented Dec. 30, 1919.

Original application filed January 4, 1917, Serial No. 140,488. Divided and this application filed June 19, 1917. Serial No. 175,555.

To all whom it may concern:

Be it known that I, EDWARD THOMAS, a citizen of the United States, residing in New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to revoluble platen typewriting machines, in which provision is made for collating work-sheets of various sizes and shapes in various relative positions, preparatory to making simultaneous original and carbon type impressions on the collated sheets.

In the Underwood typewriting machines now manufactured for this purpose, the sheets are collated by impaling them upon a pair of endless bands provided with studs, to engage perforations or notches in the side edges of the work-sheets and the collated sheets are advanced by means of said bands which run around the platen; the bands extending for considerable distance away from the platen to give room for collating sheets.

According to one form of my present invention, the sheets may be collated upon a table in their natural reading positions, that is, face up and with the bottoms of the sheets nearest the operative, and the use of the bands thus rendered unnecessary.

In carrying out the present invention, the platen of an Underwood front-strike typewriting machine may be lifted bodily by bringing the rear side thereof to the top, and the sheets are then laid upon the table, which then lies adjacent to the elevated platen, so that the faces of the sheets are uppermost and the leading ends of one or more of the sheets lie upon the platen. The sheets are so placed that the platen may cause them to advance, the platen itself being, for this purpose, provided with a set of pins which are adapted to engage openings in the work-sheets, thus alining the sheets and causing them to advance with the platen. The table may include studs which are advantageously in two rows, one row being along each side of the table, on which studs the sheets may be impaled by means of the usual notches or perforations on the side edge. These studs are preferably disappearing, so that after the sheets are collated, the studs may be withdrawn.

If platen feed rolls are employed, said rolls may be of the usual removable form, and adapted to be removed from the platen when the table studs are projected and thrust against the platen when the table studs are withdrawn. This causes the platen feed rolls to press the work-sheets against the platen with the result that the work-sheets are positively held in place upon the platen by the studs thereon.

The collating table may be provided with flaps hinged at one or both sides thereof, the flaps being provided with feed rolls, so that the sheets feed easily from the collating table when drawn along by the platen, but at the same time are held against falling from the table by the feed rolls on the table. The collating table may be fixed to the frame which swings the platen to its upper position, and may deliver the sheets to a rear paper shelf which occupies nearly the position of an ordinary paper shelf and apron. As the sheets pass around the platen in the ordinary writing position, they may be guided by wire fingers, which are fixed in the typewriter carriage and are adapted to guide sheets from the paper apron up and over the front of the machine to keep the sheets from being entangled with the parts at the front of the machine.

In another form of the invention the platen feed rolls may be omitted and the paper apron so formed that sheets, collated on the collating table, may be slid forward to the platen, which will impale them on the pins, and the apron will hold them against the pins by a part of the apron which is adjacent the pins, but lies closer to the surface of the platen than the points of the pins, thereby preventing any sheet once impaled on the platen pins from escaping therefrom unless it is led away from the platen either at the front or at the back of the paper table.

This application is a division of my application No. 140,488, filed January 4, 1917, (now Patent No. 1,274,106, dated July 30, 1918.)

Other features and advantages will hereinafter appear.

In the accompanying drawings,

Figure 1 is a plan view of an Underwood typewriting machine modified to some extent as shown in the patent to Wernery &

Smith, No. 1,132,055, with the collating table thrown down to collating position and sheets collated thereon.

Fig. 2 is a sectional side view of the same, section being taken on line 2—2 of Fig. 1.

Fig. 3 is a view similar to Fig. 2, but showing the writing position of the collating table in dotted lines, and also showing the pins of the collating table withdrawn, section being taken on line 3—3 of Fig. 1.

Fig. 4 is a view similar to Fig. 2, but taken from the opposite side of the machine.

Fig. 5 is a view of another form of my invention, but otherwise like Fig. 4.

Fig. 6 is a rear view of the paper apron and platen seen in Fig. 5.

The carriage of a typewriting machine slides on the usual rails 1 and 2, under the control of any suitable form of escapement mechanism, so that type-blocks 3, on type-bars 4, may print one after another, at letter-space intervals. If desirable, case-shifting mechanism may be used, which, however, is advantageously in the form of a shiftable type-basket to avoid the burden of shifting the added weight of the collating devices, although the weight of said devices may be very much less than in those hitherto employed. Upper and lower-case characters 5 and 6 are, therefore, formed on the type-block 3.

The typewriter carriage includes the usual rotatable platen 7, which, by connections hereinafter described, is adapted to be rotated in line-space intervals by the usual handle or lever 8 operating the slide 9, which, through the pawl 10, turns the line-space detent wheel 11. In order to accurately aline the platen at line-space intervals, the usual line-space detent 12 is provided to cooperate with the line-space wheel 11. In order that the line-space wheel 11 may rotate the platen, said wheel is fixed to a stub shaft 13 provided with the usual knob 14 and journaled in the frame 15 of the carriage, and said stub shaft is geared level to the platen, so that any rotation of the line-space wheel will rotate the platen precisely the same amount. The gearing between the shaft 13 and the platen 7 includes a gear wheel 16 fast to the stub 13, and an identical gear wheel 17 fast on an extension 18 of the platen axle 19, said axle 19 being journaled on each end in a supplementary swing frame 20. In order that the two gear wheels 16 and 17 may always rotate together, they mesh with a single broad pinion 21, which is journaled above and in front of the platen 7. In order that the two ends of the platen may always move together, the opposite end of the platen axle 19 is similarly journaled in the swing frame 20 and is geared to a second stub shaft 13 carrying a knob 14. The connections at this other end of the platen include pinions which are identical with the pinion 16, 17 and 21, mentioned above. The two pinions 21 are fast on a common shaft 23, which is journaled in the carriage frame 15, and serves as a journal on which the swing frame 20 swings. The shaft 23 is provided with a sleeve 24 which forms part of the swing frame 20. The swing frame 20, in one form of the present invention, not only carries the platen 7, but also carries the usual front and rear pressure rolls 25 and 26, and a paper apron 27, the latter, when in writing position, occupying a position approximately that of the usual Underwood paper table and apron.

For the purpose of writing, the platen occupies the position of the platen in an ordinary Underwood typewriting machine, indicated in dotted lines in Fig. 3. For the purpose of locking the platen in this position to enable writing to be accurately and neatly done, the swing frame 20 is adapted to be locked down by a pair of catches 28, which are adjacent opposite ends of the swing frame 20, and are adapted to catch on studs 29 on said frame. In order to release these catches, there is provided at the left-hand side of the machine, a handle 30 formed as an extension on one of the catches 28. This releases both catches simultaneously because they are both fast on a common shaft 31, which is provided with springs 31ª embracing it, tending to hold the catches in effective position over the studs 29.

When the catches 28 are released, the swing frame 20 may be swung up, thus carrying or rotating a collating table 32, which is fast thereto, forwardly and downwardly to a convenient position for the operative to adjust work-sheets thereon. In Figs. 2 and 3, this position is shown as horizontal, and the collating board 32 is supported at that angle by resting on rubber-tipped bumpers 33 mounted on the typewriter carriage.

When the collating table 32 is in the horizontal position shown in Figs. 2, 3 and 4, work-sheets 35 may be adjusted thereon after the wings 36, which are hinged at 37 to the edge of the collating table 32, are swung to one side out of the way. Before adjusting the work-sheets on the table, it is usually advantageous to project the pins 38, so that the work-sheets, which are provided with holes 39, may be readily and accurately adjusted by means of the pins. To project these pins 38, the operative draws forward a handle 40 to rotate a shaft 41 on which the handle is mounted, so that pinions 42 fast to said shaft will drive forward rack bars 43, with which they are in mesh, said rack bars being formed on a slidable plate 44, with the result that the pins 38 are projected because the plate 45, on which they are mounted, carries follower pins 46, which engage a slanting cam slot 47 on the turned-up edges

of the plate 44. The plate 44 lies beneath the collating table 32 when said table is in the horizontal position shown in Figs. 2, 3, etc., and is guided by slots 48 in the plate 44, which slots engage screws 49 mounted in lugs 50 on the outer end of the collating table 32. The plate 44 is supported at its end nearest the platen by a headed screw 51, which engages a slot 52 in the plate 44, and is threaded into a turned-over end of the sheet metal which forms the plate 32.

While the work-sheets 35 are being adjusted on the table 32, the feed rolls 25 and 26 are usually free from the platen, having been thrown off previous to the beginning of the adjustment of the work-sheets by means of the usual handle 53, which is effective on the usual cam 54, which controls said rolls. With the rolls thus thrown off, a paper apron 27, which in the writing position of the platen is behind and underneath it, will guide work-sheets around the platen. The work-sheets may be shoved rearwardly across the table, and owing to their springiness will usually spring clear of the platen pins 56, which are spaced around the platen and are adapted to engage the perforations 39 in the work-sheets, or, if desired, may serve as edge gages for the sheets.

In order to prevent the work-sheets from catching on the shaft 23, there are provided fingers 57 as extensions of the apron, which extend up in front of the platen farther than the apron usually extends, so as to guide the work-sheets not only past the shaft 23, but onto the wires 57ª which extend from said fingers 57 and overlie the front of the carriage, thus preventing work-sheets pushed around to the position seen in Fig. 2, from becoming entangled with the mechanism in front of the typewriting machine.

After the work-sheets are adjusted by means of the collating board pins 38, the wings 36 are folded down onto the work-sheets with the result that feed rolls 58, rotatively mounted in said wings, bear against the work-sheets and hold the work-sheets in position. The wings themselves are considerably cut away, as seen at 59, to enable them to be made lighter, the edges of the cut-away portions being up-turned to lend stiffness to the wings.

In order to hold the wings so that the rolls 58 will press work-sheets with sufficient strength against the collating board 32, the hinges 37 include detent springs 60, which are adapted to press the wings against the collating board 32 when the wings lie against the board, but which in the open condition of the wings, seen at the bottom of Fig. 1, support the wings against falling into the typewriting mechanism.

After the wings 36 have been folded down, the pins 38 are withdrawn from the collating board by a reverse movement in the handle 40, and the feed rolls 25 and 26 are thrown into place to hold the work-sheets against the platen. With some kinds of work-sheets, the throwing of the feed rolls against the platen will advantageously proceed the withdrawal of the pins 38, then the collating board 32 is swung upward to the dotted-line position of Fig. 3, in which position it is caught by the catch 28, and the work-sheets are ready to be written on and to be advanced either by the platen knob 14 or by the line space lever 8. Since the feed rolls 25 and 26 hold the work-sheets against the platen, it is impossible for the work-sheets to escape from the platen pins 56, and therefore the sheets when once alined are held positively alined by said pins 56.

It will often be found advantageous to have a separate row of pins 56 on each end of the platen, so that work-sheets, which extend only part way of the length of the platen, will be preserved in proper alinement. It will be observed that it is impossible for work-sheets to get out of alinement when thus held by the pins 56, since said pins are relatively close together and every work-sheet will necessarily engage at least two adjacent pins on one end of the platen. Since the pins 56 are usually placed quite close together and at aliquot distances around the platen, the perforations 39 on the work-sheets must be spaced to correspond therewith.

If desired the apron 27 may include a transparent celluloid portion to enable the work-sheets to be seen as they pass beneath the upper end thereof, as viewed in Fig. 2. The wings 36 are provided with openings 61 to register with the pins 38, so that when the wings 36 are thrown down, the work-sheets are positively centered by the pins 38, owing to the fact that the openings 61 carry the work-sheets away below the upper ends of the pins.

In some cases, it may be advantageous to omit the feed rolls and to depend exclusively on the platen pins 56 for holding the work-sheets in position as the platen rotates. This object may be conveniently attained by having the apron 27 extend down close to the surface of the platen at 62, as seen in Fig. 2, except that the apron is arched at 63 directly over the pins 56 to permit the pins to turn freely without being struck by the apron. In this case, the part 62 of the apron which is close against the platen holds the work-sheets so close to the platen that they cannot possibly escape from the pins 56. When this structure is employed as in other cases it will often be found unnecessary to have collating board pins 38, so that the typist depends absolutely on the pins 56 for alining the work-sheets.

A device of this character is shown in Fig.

5, in which the collating table 32 is provided with wings 36, which include rolls 58, said rolls serving to hold the work-sheets against falling down behind the machine during the operation of writing.

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. In a typwriting machine, the combination with a typewriter carriage and a revoluble platen therein, of a collating board, a frame including said collating board, adapted to be swung down in front to horizontal position to deliver work-sheets to the platen from said position, and pins on the platen for holding work-sheets positioned when delivered thereto.

2. In a typewriting machine, the combination with a typewriter carriage and a revoluble platen therein, of a collating board, a frame including said collating board, adapted to be swung down in front to horizontal position and to deliver work-sheets to the platen from said position, pins on the platen for holding work-sheets positioned when delivered thereto, and devices for holding work-sheets against the collating board when in collating position, said devices adapted to be swung to one side to permit work-sheets to be adjusted upon the board.

3. In a typewriting machine, the combination with a typewriter carriage and a revoluble platen therein, including impaling pins, of a collating board, a frame including said collating board, adapted to be swung down in front to horizontal position and to deliver work-sheets to the platen from said position, and impaling pins forming part of said collating board adapted to be projected therefrom for adjusting a work-sheet, and to be withdrawn therefrom to permit a work-sheet to be drawn from a collating board by the platen.

4. In a typewriting machine, the combination with a typewriter carriage and a revoluble platen therein, including impaling pins, of a collating board, a frame including said collating board, adapted to be swung down in front to horizontal position and to deliver work-sheets to the platen from said position, impaling pins forming part of said collating board adapted to be projected therefrom for adjusting a work-sheet, and to be withdrawn therefrom to permit a work-sheet to be drawn from a collating board by the platen, feed rolls for holding work-sheets against the platen, and means whereby said feed rolls may be removed from said platen for the purpose of adjusting work-sheets thereon.

5. In a front-strike typewriting machine, the combination with a typewriter carriage and a revoluble platen therein, of a paper table at the rear of said carriage, pins on said platen, line-space mechanism for said platen, and connections whereby the platen and its table may be swung up to enable the operative to introduce work-sheets horizontally onto the platen and beneath said table.

6. In a front-strike typewriting machine, the combination with a typewriter carriage and a revoluble platen therein, of a paper table at the rear of said carriage, pins on said platen, line-space mechanism for said platen, connections whereby the platen and its table may be swung up to enable the operative to introduce work-sheets horizontally onto the platen and beneath said table, pressure rolls swinging with said platen, and connections whereby said pressure rolls may be swung toward or from said platen, while said platen is in its swung position.

7. In a front-strike typewriting machine, the combination with a revoluble platen and pins thereon, of a collating board for delivering work-sheets to said platen, pins for alining sheets on said collating board, and means for withdrawing said board pins.

8. In a front-strike typewriting machine, the combination with a typewriter carriage and a revoluble platen therein, of pins on said platen, a collating board adapted to deliver work-sheets to said platen, a frame including said platen and said collating board, adapted to be swung to bring the collating board from a normal nearly vertical position to a horizontal position, to permit work-sheets to be adjusted thereon, pins on said collating board, and means for withdrawing said pins from said board.

9. In a front-strike typewriting machine, the combination with a typewriter carriage and a revoluble platen therein, of pins on said platen, a collating board adapted to deliver work-sheets to said platen, a frame including said platen and said collating board, adapted to be swung to bring the collating board from a normal nearly vertical position to a horizontal position, to permit work-sheets to be adjusted thereon, pins on said collating board, means for withdrawing said pins from said board, pressure rolls for said platen, adapted to hold work-sheets thereagainst, and means for moving said rolls toward and from said platen when the collating board is in its horizontal position.

10. In a front-strike typewriting machine, the combination with a typewriter carriage and a revoluble platen therein, of a frame including said platen, adapted to swing said platen up, a collating board forming part of said frame swung to horizontal position when the platen is swung up, pins on said platen, feed rolls for said platen, pins for said collating board, and means for separately operating the feed rolls and the collating board pins.

11. In a front-strike typewriting machine, the combination with a traveling carriage and a revoluble platen therein, of a frame including said platen adapted to swing said platen upwardly, a paper table forming part of said frame, pins on said platen adapted to guide a work-sheet around the platen, and paper guiding devices adapted to receive work-sheets from said table and guide the work-sheets clear of the front mechanism of the typewriter carriage.

12. In a front-strike typewriting machine, the combination with a revoluble platen and pins thereon forming a row extending entirely around the platen, of a paper apron adapted to hold work-sheets close against said platen to make feed-rolls unnecessary, and arched portions of said apron adapted to permit said pins to revolve free of the apron and within it.

13. In a typewriting machine, the combination with a traveling carriage and a swing frame therein, of a revoluble platen mounted in said swing frame, a paper apron forming part of said swing frame, a part of said apron lying close to the platen, pins on said platen, and part of said apron extending away from said platen to permit work-sheets to be inserted on said pins.

14. In a typewriting machine, the combination with a traveling carriage and a swing frame therein, of a revoluble platen mounted in said swing frame, a paper apron forming part of said swing frame, a part of said apron lying close to the platen, pins on said platen, a part of said apron extending away from said platen, to permit work-sheets to be inserted on said pins, and releasable feed rolls forming part of said frame adapted to hold work-sheets on said pins.

15. In a typewriting machine, the combination with a traveling carriage and a swing frame therein, of a revoluble platen mounted in said swing frame, a paper apron forming part of said swing frame, a part of said apron lying close to the platen, pins on said platen, a part of said apron extending away from said platen, to permit work-sheets to be inserted on said pins, a collating table forming part of said frame adapted to be swung down from a normal nearly vertical position to a horizontal position for adjusting sheets, and feed rolls for said table adapted to be removed therefrom for adjusting sheets, but adapted to bear against the table in its vertical position to hold the sheets in place.

16. In a typewriting machine, the combination with a traveling carriage and a swing frame therein, of a revoluble platen mounted in said swing frame, a paper apron forming part of said swing frame, a part of said apron lying close to the platen, pins on said platen, a part of said apron extending away from said platen, to permit work-sheets to be impaled on said pins, a collating table forming part of said frame adapted to be swung down from a normal nearly vertical position to a horizontal position for adjusting sheets. feed rolls for said table adapted to be removed therefrom for adjusting sheets, but adapted to bear against the table in its vertical position to hold the sheets in place, and collating pins for alining work-sheets on said collating table adapted to withdraw from said table.

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