Aug. 30, 1932. J. A. B. SMITH 1,874,823

TYPEWRITING MACHINE

Filed July 22, 1931 2 Sheets-Sheet 1

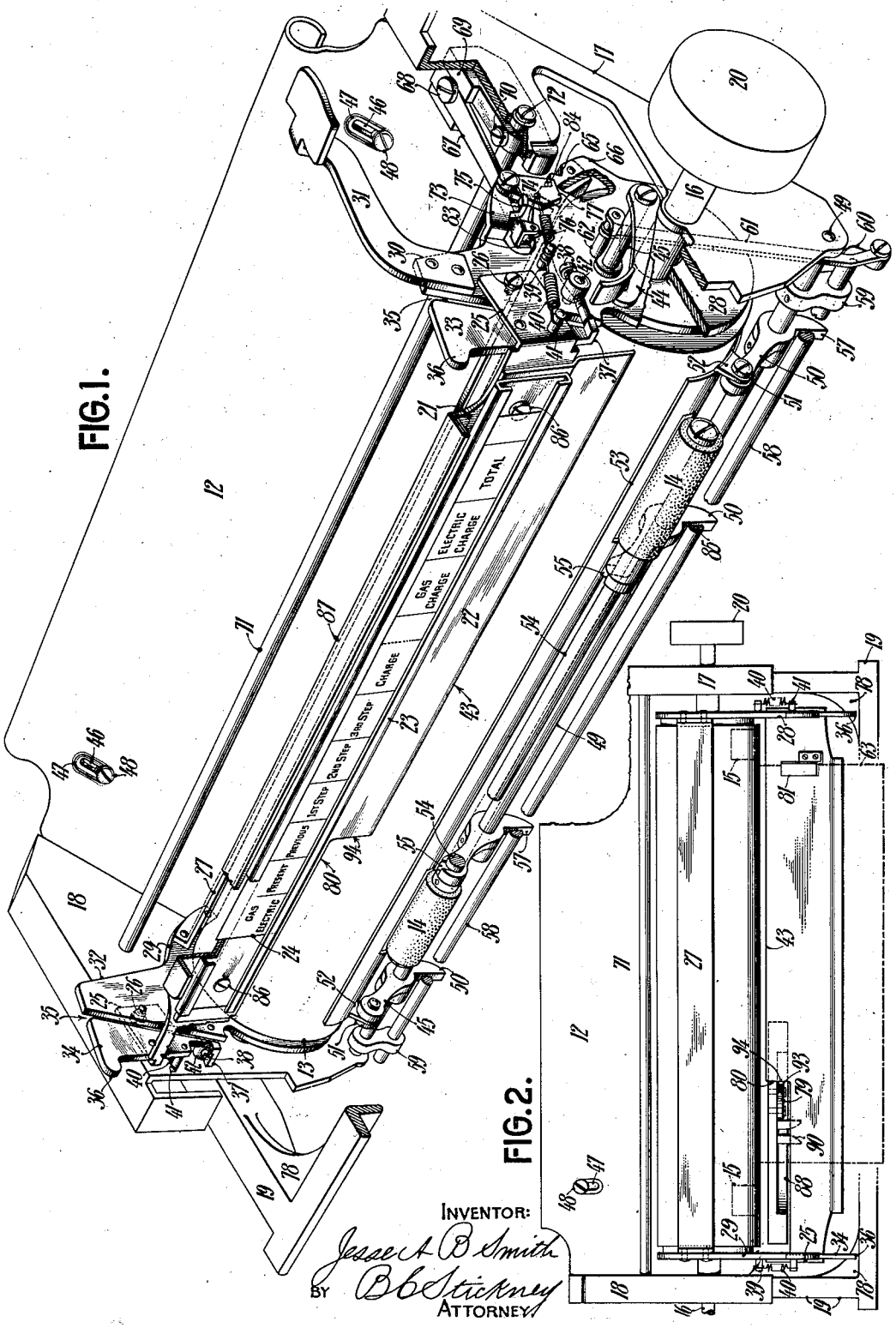


FIG. 1.

FIG. 2.

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FIG. 3.

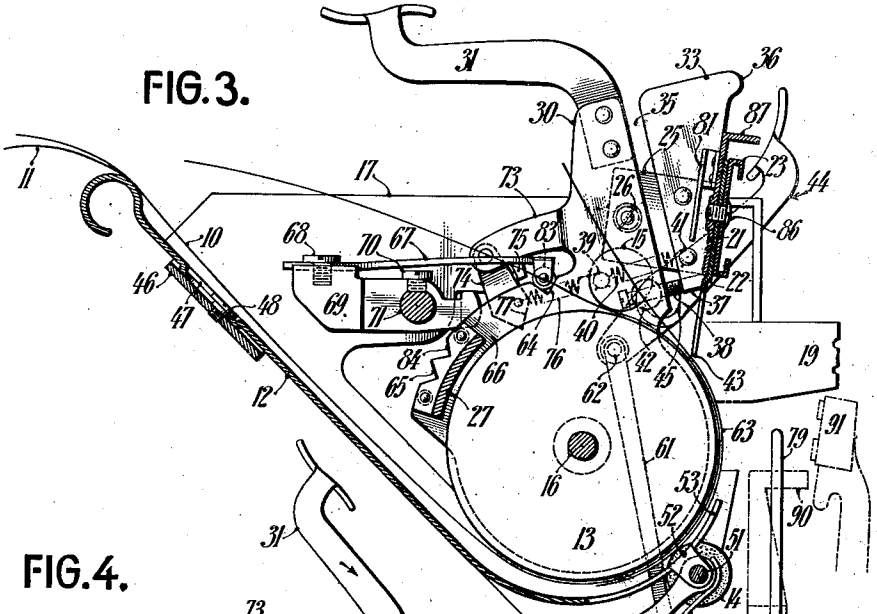


FIG. 4.

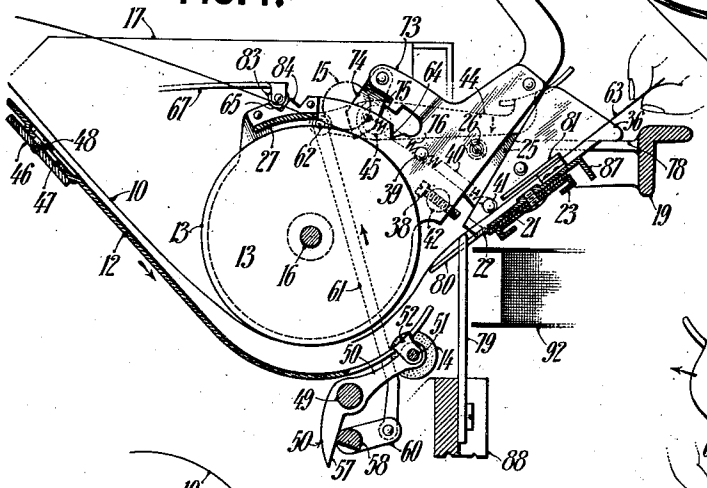


FIG. 5.

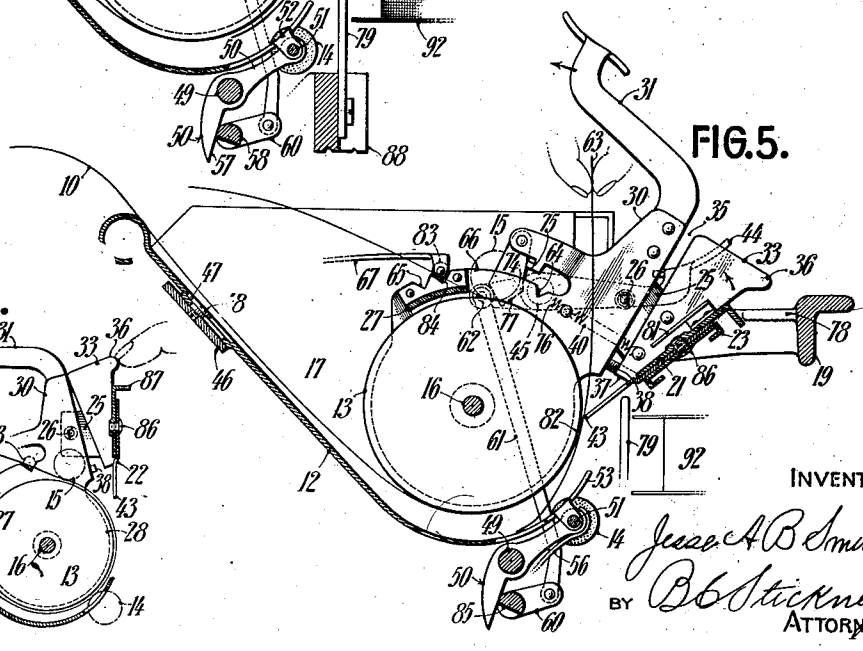


FIG. 6.

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UNITED STATES PATENT OFFICE

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TYPEWRITING MACHINE

Application filed July 22, 1931. Serial No. 552,349.

This invention relates to typewriting machines, and more particularly to front-insertion devices used therefor.

There is provided at the front of the platen a rocking paper-table, which may be swung around the platen and presented angularly thereto in three different angular operative positions in front thereof.

When raised in its normal position, said rocking table will hold, by means of its lower edge, the work-sheet, fast over the record-sheet, against the platen above the printing line, and guide the same around the front part of the platen during line-spacing.

When down in its fully depressed position, the table will act as a chute to aid in the downward front insertion of a work-sheet.

In an intermediate position, said table will have its lower edge visible over the table, serving as an aligning gage for the typed line.

When said table is restored up to its normal position, and will hold this work-sheet fast in its aligned position, its lower edge will act as a sliding deflector, bending said work-sheet over the record-sheet around the platen and above the printing line.

Another object of the present invetnion is to provide very simple means for moving the active lower edge of said front table a short distance away from the platen when it is desired to insert in the machine either the record-sheet or a work-sheet.

The front paper-table extends the entire length of the platen, and has a rockable support hinged on the platen-shaft. Adjustable means limit the relative displacement of said table with respect to its support to an angle giving ample free space between the platen and the lower edge of said table for an easy insertion of a record or work sheet.

I provide also a spring, co-operating with said adjustable means, for holding yieldingly the work-sheet bent over the record-sheet around the platen in the normal and aligning positions of said table, for restoring automatically the lower edge of the front table in its operative position when the front table is raised from its inserting position into its aligning position, and for readily and accurately adjusting the operative position of said edge relatively to the platen.

A circular part of said rockable support is provided with ratchet-teeth co-operating with a spring-pawl, fixed to the platen-frame, which holds this rockable support fast in each of its three operative positions, and which determines angularly these positions.

Other features and advantages will hereinafter appear.

In the accompanying drawings,

Figure 1 is a perspective view of the carriage of an Underwood typewriting machine having my invention applied thereto.

Figure 2 is a partial diagrammatic top plan view of the same, showing furthermore certain other parts of the machine involved in the operation of the front-insertion device of the invention.

Figure 3 is a fragmentary cross-sectional view showing the front table in normal printing position.

Figures 4 and 5 are views similar to Figure 3, showing the front table in its inserting and aligning positions respectively.

Figure 6 is a partial section showing diagrammatically how the front table is manually held for facilitating the insertion of the record-sheet.

A record-sheet 10, covered with a carbon-sheet 11, is inserted from the rear over a paper-table 12 around the front part of a platen 13. Releasable lower feed-rolls 14 and upper lateral feed-rolls 15 hold these two sheets in operative position over the platen 13. The shaft 16 of the platen 13 is journaled in the end-plates 17, 18 of the platen-carriage 19 and carries the usual knob 20.

According to the invention, a front paper-table in two parts 21, 22, provided with a front holder or slide 23 for a heading-strip or column-scale 24, is hinged by means of end-flanges 25 of its upper part 21 about pivots 26 secured to a bail rockable about the platen.

This bail comprises a bar or brace 27, co-

axially curved with respect to the platen 13, and two end-arms 28, 29, loosely mounted on the shaft 16 at both ends of the platen 13.

The arm 28 presents a tapering upward projection 30, on which is fixed a handle 31, while the arm 29 presents a similar projection 32.

Inversely tapering plates 33, 34, opposite said projections 30, 32, are screwed to the inner sides of the flanges 25, a gap or slot 35 being formed between each corresponding plate and projection. These plates 33, 34 present a front-projecting nose 36 at their larger top-ends and outwardly-projecting abutments 37, for a pair of adjusting set-screws 38, at their lower ends or points.

Below the pivot 26, the right-hand arm 28 of the front-table carrying bail carries a stud 39, to which is anchored a spring 40, fixed at its other end to another stud 41, secured to the outer side of the right-hand flange 25. This spring tends to hold the abutments 37 constantly pressed against the set-screws 38, while these latter may be screwed more or less in studs 42, carried by the arms 28, 29, for readily and accurately adjusting the operative position of the lower edge 43 of the part 22 with respect to the platen 13.

When inserting the record-sheet 10, the operator presses with one finger against one of the noses 36 (Figure 6) in order to facilitate the passage of the sheet between the edge 43 and the platen 13. When released from this pressure the rocking front table 21, 22 is automatically restored to its normal operative position against the set-screws 38 (Figure 3) by the spring 40.

Prior to the front insertion of a work-sheet, the operator moves the carriage 19 rightwardly to the end of its travel and depresses a lever 44, pivoted at 45 to the end-plate 17 of the platen-frame in order to release the feed-rolls 14 from the platen. The rear paper-table 12, which is operatively connected to said rolls 14, is slidably mounted on a support 46 by means of a slot and guide connection 47, 48, so as to be able to follow this release movement.

This feed-roll-release mechanism comprises a rock-shaft 49, journaled in the end-plates 17, 18, and serving as a fulcrum for levers 50. The two outer levers 50 are hinged at 51 to ears 52 carried by the apron 53 of the table 12, while a rod 54, carrying the rolls 14, is loosely mounted in slots 55, provided in the inner levers 50.

Springs 56, acting on the upper ends of said levers 50, urge the feed-rolls 14 towards the platen. The levers 50 present along their lower arms a flat portion 57 co-operating with a cam-shaft 58, journaled in brackets 59, secured to the rock-shaft 49.

This cam-shaft 58 is bent at its right-hand end so as to form a crank-arm 60, connected by a link 61 to a stud 62 fixed to the feed-roll-release crank-lever 44.

To insert a work-sheet 63 at the front of the machine, the operator first brings the front table from its normal position shown in Figures 1 and 3 into its inserting position shown in Figures 2 and 4, by swinging the handle 31 in clockwise direction. These two positions are yieldingly determined by two ratchet-teeth 64, 65, provided in a circular part 66 of the right-hand arm 28 and co-acting with a spring-pawl 67, fixed by screw 68 in a bracket 69, which in turn is secured by screw 70 on a rod 71 fixed into the two end-plates 17, 18 by end-screws 72.

Above the circular part 66 and concentric therewith, the right-hand arm 28 presents a circular projection 73, to the free end of which is hinged an arm 74, the use of which will be described hereinafter. This arm 74 is normally pressed against a stop 75 by a spring 76, anchored to the stud 39.

As, when the feed-rolls 14 are released, the stud 62, which is inwardly prolonged, lies in the way of the point 77 of said arm 74, the spring 76 is made relatively very weak with respect to the springs 56, in order that said arm 74 may swing over said stud 62 when the front table is depressed without acting upon the feed-roll-release mechanism.

Near the end of this downward movement of the front table and its supporting bail, the noses 36 are stopped by corner-ribs 78 of the carriage 19, which lie in their way, thereby rocking the front table 21, 22 about the pivots 26 until the end of this movement, thereby providing a large front-inserting throat between the platen and the lower end of the paper-table. The parts are held in their sheet-inserting position shown in Figure 4 against the action of the spring 40, due to the action of the pawl 67.

While the front table 21, 22 is in this lowermost position, ready for the insertion of a work-sheet 63, the plane of its part 22 intersects the upper end of a safety-stop or guard 79, fixed to the main frame of the machine, and intersects the platen below the printing line. To enable the front table to reach this position without colliding with said guard 79, a cutaway 80 is made in the left-hand lower portion of the part 22.

The work-sheet 63 is inserted at the front of the machine, and is guided by a lateral gage 81, secured upon the upper part 27 of the front table. It must be noticed that this work-sheet is usually much narrower than the record-sheet, and that the lateral upper feed-rolls 15 work on the end-portions of the platen overlapping said work-sheet, i. e., work only for the record-sheet 10 (Figure 2).

When the handle 31 is then swung back as indicated by the arrow in Figure 5, the rocking table 21, 22 is restored against the screws

38 by the action of the springs 40, and thereby the edge 43 presses the inserted work-sheet 63 towards the platen above a tangent 82 (Figure 5). As the lower edge of said sheet 63 leans then against the apron 53, the sheet 63 is thus sufficiently bent to be provisionally held fast in clamped position merely by this pressure. This backward movement of the front table is stopped when a roller 83 of the pawl 67 is engaged into a third tooth 84 of the ratchet 66 (Figure 5).

Looking downwardly above the front table 21, 22, the operator may then use the edge 43 as a horizontal aligning gage and adjust the work-sheet 63 in vertical position with respect thereto.

As, in this aligning position of the front table, the edge 43 lies horizontally at a small distance below the printing line, the underlining by this visible edge of the line to be typed will accurately indicate to the operator when this vertical adjustment is done.

The handle 31 is then swung further backward until the roller 83 of the pawl 67 enters the tooth 64 of the ratchet 66. The work-sheet 63 is thereby bent rearwardly over the carbon-sheet 11 by the edge 43, acting then as a sliding deflector around the platen, whilst the point 77 of arm 74, then in abutting relation with the stop 75, starts to restore the rolls 14 in their operative position, by pushing down the stud 62 of the feed-roll-release mechanism, this operation being continued by the mere action of the springs 56 as soon as the flat portion 85 of the cam-shaft 58 engages the flat portions 57 of the levers 50.

The work-sheet 63 (Figure 3) is now firmly held against the record-sheet above the printing line by the edge 43, the amount of friction necessary therefor being readily adjustable by means of the set-screws 38.

The top of the sheet 63 is let loose above the platen between the lateral upper rolls 15, while the bottom thereof is then clamped, together with the record-sheet 10 and the interleaved carbon-sheet 11, between the platen and the feed-rolls 14.

The machine is now ready for typing and line-spacing.

As in its operative position (Figures 1 and 3), the front table may hide more or less the top of the sheet 63, carrying the usual column-headings, the sliding strip 24 carries an exact duplicate of said headings or captions, and is preferably cut directly from one sheet similar to sheet 63.

The slide or holder 23 for said strip 24, as well as the lower part 22 of the front table, are both readily interchangeable, as they may be easily detached together from the upper part 21 thereof, by merely unscrewing two screws 86.

The upper part 21 of the front table is provided with a stiffening rib or ridge 87.

A segment 88 is fastened rigidly on the main frame-member 89 and carries a type-guide 90 and the safety-stop 79. 91 indicates diagrammatically a type-bar, and 92 a ribbon-spool of the machine.

When the carriage 19 is inadvertently moved toward the left with the front table still in its depressed inserting position, a rounded part 93 of the safety-stop 79 will cooperate with a ramp 94 of the front table, and thus act as a cam to lift this front table over the top of said stop, i. e., above the type-guide 90 and the ribbon-spool 92.

On the other hand, if the front table is depressed by mistake, prior to moving the carriage 19 to the right, it strikes only the top of said same safety-stop 79, and thus no harm can be done to the ribbon or to the type-guide 90.

To remove, after typing, the work-sheet 63 from the machine, the operator merely depresses the lever 44 and the handle 31 again and withdraws this sheet. During this rotation of the front table and this release of the feed-rolls 14, which thus takes place, the record-sheet 10, with its carbon-sheet 11, is held immobilized in printing position by the clamping action of the lateral upper rolls 15.

After removal of the work-sheet 63, the front table lies thus obliquely in the inserting position shown in Figure 4, and is ready for the insertion of a new work-sheet upon the sloping chute formed by the parts 21, 22 of the front table.

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 typewriting machine, in combination, a platen, a carriage therefor, a platen-shaft, a front paper-table pivotally mounted on said shaft for rocking movement about said platen to one side of the printing point of the machine, releasable lower feed-rolls normally engaging said platen, and instrumentalities carried by said front table for facilitating the insertion of a work-sheet from the front of the machine when said lower feed-rolls are released, for ascertaining a ready and accurate adjustment of said work-sheet in printing position on said platen and for holding said work-sheet against the platen above the printing line during typing.

2. In a typewriting machine, in combination, a platen around which a record-sheet may be fed, a carriage therefor, a platen-shaft, a front paper-table pivotally mounted on said shaft for rocking movement about said platen to one side of the printing point of the machine, releasable lower feed-rolls normally engaging said platen, means controlled by the return movement of said front table in its normal printing position for restoring said feed-rolls to operative position, a

slidable rear paper-table coupled to said feed-rolls for facilitating the rear insertion of said record-sheet, upper pressure rolls constantly engaging the side edges of said record-sheet, and instrumentalities carried by said front table for aiding in the front insertion of a work-sheet when said lower feed-rolls are released, for affording a ready and accurate registration of said work-sheet with said record-sheet, for deflecting said work-sheet around the platen over a certain distance above the printing line and for holding said work-sheet against said record-sheet above the printing line during typing.

3. In a typewriting machine, in combination, a revoluble platen, a shaft therefor, a rockable front paper-table loosely mounted on said shaft, and means for yieldingly holding said table fast in various operative positions around the front part of said platen.

4. In a typewriting machine, in combination, a revoluble platen, a shaft therefor, a rockable front paper-table hinged on a supporting bail loosely pivoted on said shaft, and means for yieldingly holding said bail fast in various angular positions around the front part of said platen.

5. In a typewriting machine, in combination, a revoluble platen, a shaft therefor, a rockable front paper-table, comprising an upper part with a stiffening rib and two end-flanges, hinged on a supporting bail loosely pivoted on said shaft, and means for yieldingly holding said bail fast in various angular positions around the front part of said platen.

6. In a typewriting machine, in combination, a revoluble platen, a shaft therefor, a rockable front paper-table, comprising a removable lower part, a removable front slide for a dummy heading strip and an upper part with a stiffening rib and two end-flanges, hinged on a supporting bail loosely pivoted on said shaft, and means for yieldingly holding said bail fast in various angular positions around the front part of said platen.

7. In a typewriting machine, in combination, a revoluble platen, a shaft therefor, a rockable front paper-table hinged on a supporting bail, comprising a bracing bar mounted close to the periphery of said platen and two end-arms, loosely pivoted on said shaft, and means for yieldingly holding said bail fast in various angular positions around the front part of said platen.

8. In a typewriting machine, in combination, a revoluble platen, a shaft therefor, a rockable front paper-table hinged on a supporting bail, comprising a bracing bar mounted close to the periphery of said platen and two end-arms, loosely pivoted on said shaft, and means for yieldingly holding said bail fast in various angular positions around the front part of said platen, the two end-arms of said bail presenting upward tapering projections, upon one of which is secured an operating handle.

9. In a typewriting machine, in combination, a revoluble platen, a shaft therefor, a rockable front paper-table loosely mounted on said shaft, and means for determining three different angular operative positions of said table around the front part of said platen, a normal printing position in which the lower edge of said table acts as a holder pressing a work-sheet towards the platen above the printing line, an inserting position in which said edge is removed away from the platen, and an aligning position in which said edge serves as a horizontal aligning gage underlining the line to be typed on said work-sheet.

10. In a typewriting machine, in combination, a revoluble platen, a shaft therefor, a rockable front paper-table loosely mounted on said shaft, means for determining three different angular operative positions of said table around the front part of said platen, a normal printing position in which the lower edge of said table acts as a holder pressing a work-sheet towards the platen above the printing line, an inserting position in which said edge is removed away from the platen, and an aligning position in which said edge serves as a horizontal aligning gage underlining the line to be typed on said work-sheet, and releasable lower feed-rolls automatically restored to their operative position when said front table is swung back from its aligning position into its normal printing position.

11. In a typewriting machine, in combination, a revoluble platen, a carriage therefor, a platen-shaft, a rockable front paper-table provided with an operating lower edge co-operating with said platen and with two end-flanges hinged on a supporting bail loosely mounted on said platen-shaft, tapering plates fixed on the inner side of said end-flanges and provided with a forward projecting top nose co-operating with a rib of said carriage in order to move the lower edge of said table away from the platen when a work-sheet is to be inserted from the front into the machine, and to restore automatically said edge towards the platen after insertion of said sheet, and means for yieldingly holding said table in three different operative positions around the front part of said platen.

12. In a typewriting machine, in combination, a revoluble platen, a shaft therefor, a rockable front paper-table loosely mounted on said shaft, an aligning gage carried by said table, means controlled by the downward movement of said table for moving said aligning gage away from the platen when a work-sheet is to be inserted from the front in the machine, and means for yieldingly holding said table fast in an inserting position, an aligning position, and a normal

printing position at different angles around the platen.

13. In a typewriting machine, in combination, a revoluble platen, a shaft therefor, a rockable front paper-table loosely mounted on said shaft, an aligning gage carried by said table, means controlled by the downward movement of said table for moving said aligning gage away from the platen when a work-sheet is to be inserted from the front in the machine, and a ratchet-and-pawl mechanism for determining the angular displacements of said front table and for yieldingly holding said table fast in three different operative positions.

14. In a typewriting machine, in combination, a revoluble platen, a frame therefor, a platen-shaft journaled in said frame, a rockable front paper-table with end-arms loosely mounted on said shaft, an aligning gage carried by said table, a ratchet formed in one of these end-arms, and a spring pawl carried by said frame and co-operating with said ratchet for yieldingly holding said table fast in various operative positions and for determining the angular displacements of said table.

15. In a typewriting machine, in combination, a revoluble platen, a carriage therefor, a platen-shaft, a rockable front paper-table provided with an operating lower edge co-operating with said platen and with two end-flanges hinged on a supporting bail loosely mounted on said platen-shaft, tapering plates fixed on the inner side of said end-flanges and provided with outwardly-projecting abutments, a pair of set-screws adjustably mounted in studs carried by said supporting bail and co-operating with said abutments for readily and accurately adjusting the operative position of the active lower edge of said front table with respect to the platen, a three-toothed ratchet carried by said bail, and a spring-pawl on said carriage co-operating with said ratchet for yieldingly holding said table fast in three different operative positions.

16. In a typewriting machine, in combination, a revoluble platen, a shaft therefor, a rockable bail hinged to said shaft, pivots carried laterally by said bail, a front table hinged to said pivots, abutments carried by said table, adjusting screws carried by said bail opposite said abutments, and a spring fixed on one side to said bail and on the other side to said table below said pivots for urging said abutments against said screws.

17. In a typewriting machine, in combination, a platen, a shaft therefor, a rockable bail hinged to said shaft, pivots carried laterally by said bail, a front table hinged to said pivots, adjustable means for limiting the relative angular movement of said table with respect to its supporting bail, and springs co-operating with said adjustable means for adjusting the relative position of the lower edge of said table with respect to the platen.

18. In a typewriting machine, in combination, a revoluble platen, a shaft therefor, releasable feed-rolls normally engaging said platen, a rockable front paper-table hinged to a bail loosely mounted on said shaft, a release-mechanism for said feed-rolls, an arm pivoted to said bail and having its free end traveling in the way of a stud connecting two links of said release-mechanism, and a spring normally holding said arm against an abutment provided on said bail in front of said arm in order that said latter may pass over said stud without acting upon the release-mechanism when the front table is depressed and may depress said stud, thereby starting to restore said feed-rolls to their operative position, when the front table is lifted back in its normal position.

19. In a typewriting machine, in combination, a revoluble platen, a shaft therefor, a rockable front paper-table hinged on a supporting bail loosely pivoted on said shaft, a lateral gage mounted on the right-hand side of said table for facilitating the front insertion of a work-sheet into the machine, and means for yieldingly holding said bail fast in various angular positions around the front part of said platen.

20. In a typewriting machine, the combination with a main supporting frame, a platen, a carriage therefor guided across said main frame, a segment fixed on said main frame, a type-guide fixed to said segment and a platen-shaft, of a rockable front table hinged to said platen-shaft for rocking movement about said platen to the right-hand side of said type-guide, a safety-stop carried by said segment and projecting above and on the right-hand side of said type-guide so as to protect said type-guide against undue movements of said front table, and a cut-away being provided in the lower left-hand part of said front table in order that said table may extend over the entire length of the platen without fouling said type-guide.

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