J. A. B. SMITH.

TYPE WRITING MACHINE.

APPLICATION FILED NOV. 4, 1913.

1,107,372.

Patented Aug. 18, 1914.

2 SHEETS—SHEET 1.

Fig. 2.

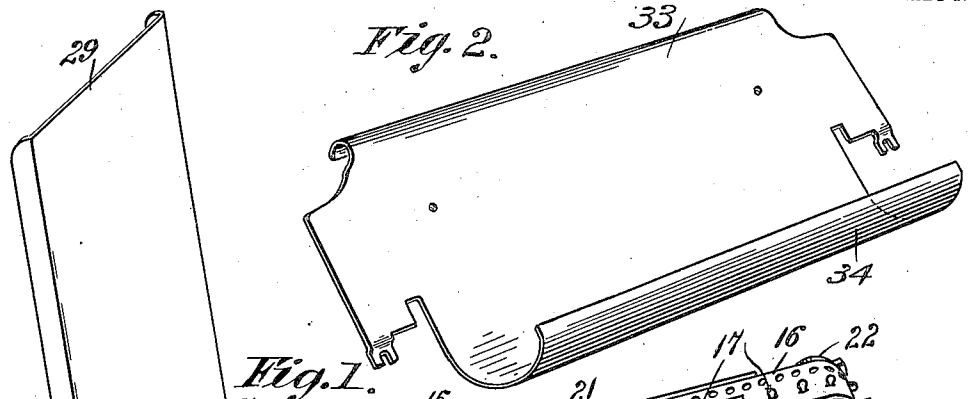


Fig. 1.

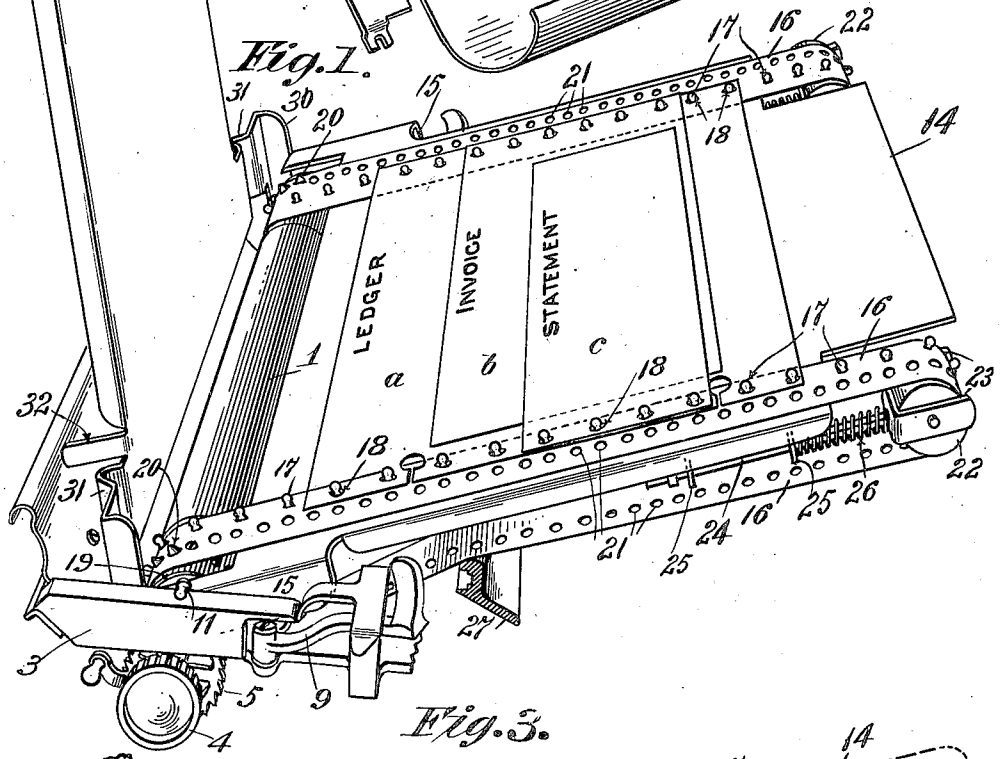
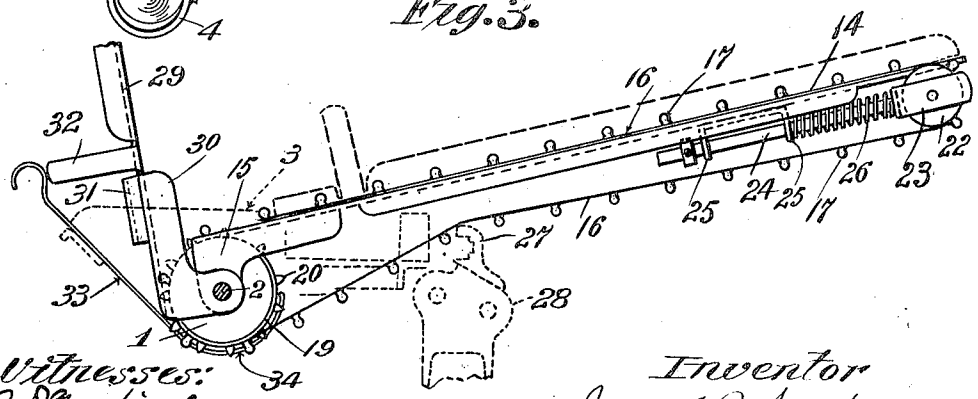


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 4.

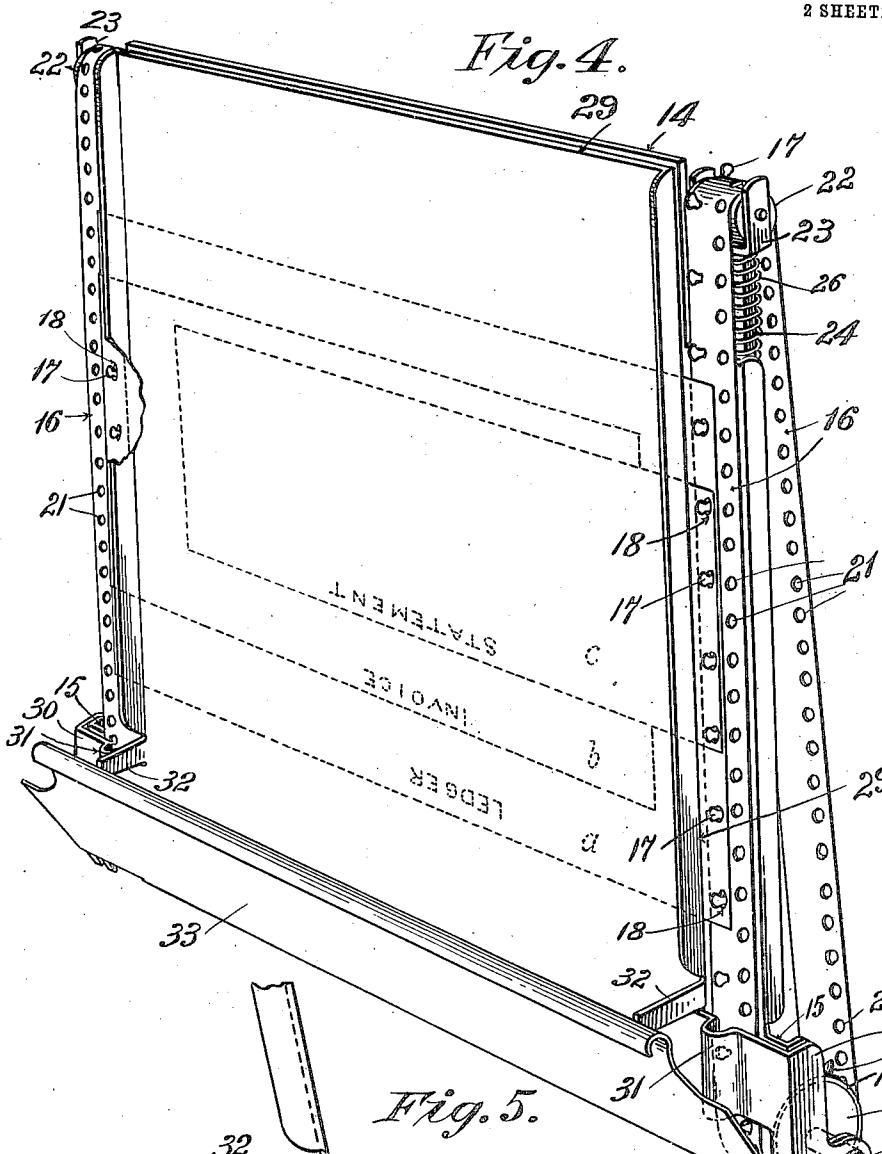
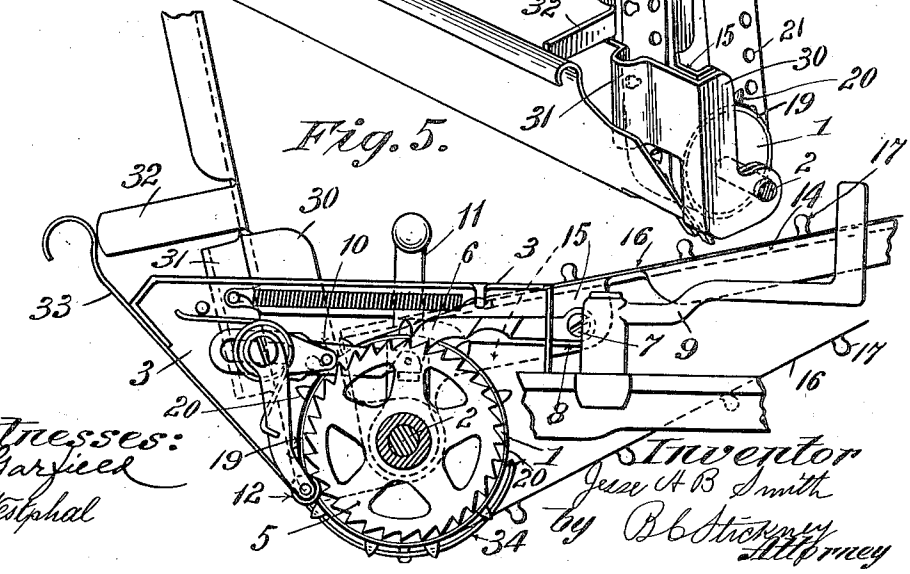


Fig. 5.



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UNITED STATES PATENT OFFICE.

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

TYPE-WRITING MACHINE.

1,107,372. Specification of Letters Patent. Patented Aug. 18, 1914.

Application filed November 4, 1913. Serial No. 799,053.

To all whom it may concern:

Be it known that I, JESSE A. B. SMITH, a citizen of the United States, residing in Brooklyn borough, in the county of Kings, city 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 sheet-supporting and feeding devices of typewriting machines, especially those having revoluble platens, and particularly to means for facilitating the assembling or collating of work-sheets, one upon another, in a variety of relationships; and carrying them without disarrangement to printing position on the platen.

One of the main objects of the present invention is to provide means for conveniently assembling the sheets and for securely conducting them to printing position, that is to say, that in which the first blank line on the sheet is at the printing point on the typewriting machine.

It has been proposed to extend endless bands from the revoluble platen of a typewriting machine, and to arrange the sheets or work members upon these bands, which extend away from the platen far enough to accommodate the heights of the sheets, and then to advance the bands and sheets, carrying the latter first away from the platen, and then downwardly and then forwardly under the platen and up in front thereof.

The sheets are usually provided with ruled lines, and it is desired to position them with reference to these ruled lines, and hence it is a desideratum that the faces of the sheets should be visible to the operator as he adjusts them on the machine.

One of the objects of the invention is to improve the construction of the machine with a view to simplifying the operation of collating the sheets, avoiding the necessity of carrying the sheets up and away from the platen after they are collated, and permitting them to be fed forward without change of direction to the platen.

In carrying out the present improvements in their preferred form, a sheet-collating board or table is arranged upon the typewriter in such a manner that it may be moved from normal position and caused temporarily to occupy a nearly horizontal position; and stud-carrying endless bands extend along the side edge portions of this board or table, the studs of one band registering with those on the other, and spaced to correspond with the evenly spaced perforations usually provided in the work sheets along their side margins, whereby the sheets are gaged and connected to the bands to be carried to the platen.

One reach of each endless band extends from the remote pulley or support to the delivery side of the platen, and the other to the introductory side thereof, and it is upon these normally inaccessible introductory reaches of the bands that the sheets are collated by the present invention.

The sheets may be collated upon the board with their side edge perforations engaging the studs or gages of the bands; the tops of the sheets being nearest to the platen, the sheets lying with their faces up. In other words, the sheets are laid upon the back of the board instead of on the front side thereof as heretofore. After the sheets are collated, the board may be swung up to normal position, the sheets being arranged with their leading edges downward and near the platen. By rotating the platen, the bands are caused to advance the sheets down to and around the under side of the platen, and up in front thereof, when the writing may proceed in the usual way.

The sheet-collating board may be hinged to swing upon the same axis as the platen, and the lower edge of the board may extend close to the platen, so that the sheets may, if desired, be assembled with their leading edges near the platen; and sheets of great length may be used with relatively short collating boards, since the bottom portions of the sheets may overhang the free end of the collating board. The latter, when down in position for collating the sheets, may overhang the front of the typewriter; and from thence it is swung upwardly and rearwardly to a position entirely back of the introductory side of the platen, so that said board would be substantially tangent to the platen itself to direct the sheets into the bight of the platen and usual sheet-guiding paper shelf or plate which extends downwardly at the rear of the platen and curves forwardly around under the same and up in front thereof. The usual sheet-feeding rolls may be

omitted. There may also be provided a sheet-retaining or supporting board or plate which may extend upwardly and rearwardly from the introductory side of the platen, or from the paper shelf which is usually arranged in rear of the platen, the purpose of this board or plate being to retain the sheets when the collating board is swung up and back to working position. The collating board preferably swings back and rests upon said supporting board, the sheets thus being confined between two boards, so that liability of derangement of any sheet is avoided, this device being especially useful with sheets which are too narrow to be caught by the gage studs at both edges of the collating board. In some cases this sheet-retaining board may also be hinged and may swing forwardly and down upon the sheets that are arranged upon the collating board, so that said sheets are clipped or confined between the two boards during the time that they are being swung upwardly and rearwardly to working positions; and for this purpose the retaining board may also be hinged upon the platen axle. In many cases, however, the retaining board may be stationary upon the platen frame.

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, with the present invention combined therewith, the collating board being thrown forward into position for adjusting the work-sheets thereon. Fig. 2 is a perspective view of the paper shelf. Fig. 3 is a sectional end elevation view of the parts shown in Fig. 1, and also shows in dotted lines the retaining board thrown forwardly. Fig. 4 is a rear perspective view, the parts being in their normal position for advancing the work-sheets. Fig. 5 is a view similar to Fig. 3, but on a larger scale showing additionally the line-space mechanism.

The rotary platen 1 is fixed to a platen shaft 2 journaled in the ends of a platen frame 3. The platen may be rotated either by the usual hand wheels 4 fixed on the ends of the shaft 2, or by line-space mechanism which may comprise a ratchet wheel 5 fixed to the platen axle and rotated by a pawl 6 pivoted at 7 to a slide 8, the latter actuated by a line-space lever 9, which also serves to return the carriage. The throw of the pawl may be regulated as usual by a gage 10 adjustable by a hand lever 11 to vary the point at which the pawl 6 is permitted to move downwardly into engagement with the ratchet wheel, and thus determine the effective throw of the pawl. The usual spring-pressed detent 12 engages the ratchet wheel to hold the platen at line-space intervals and prevent accidental movement.

A sheet-collating board or table 14, on which the work-sheets are supported and adjusted prior to being fed around the platen, normally extends upwardly and rearwardly from the introductory side of the platen, but may be swung forwardly to an approximately horizontal position, as shown in Fig. 1, to permit the work-forms or work-sheets to be arranged thereon. The board 14 is preferably hinged to swing about the platen axis, and for this purpose is provided with bearing brackets 15 which may be integral with the board and journaled on the platen axle 2. The board 14 may be made of sheet metal or other suitable material.

Associated with the board 14 are a pair of carriers in the form of endless bands 16 for supporting and feeding the work-sheets or forms around the platen. Each of these bands, which may be made of thin flexible sheet metal, carries a series of gages in the form of pins or studs 17 on which the work-sheets are impaled, the sheets being provided with marginal perforations 18 for this purpose. The bands 16 are driven directly from the platen, and in order to secure a positive drive, to prevent creeping or slipping of the bands on the platen, or lateral displacement of the bands, the platen is provided with sprocket wheels or rings 19 carrying sprocket teeth 20 which run in correspondingly-spaced perforations 21 in the bands 16. The teeth or pins 20 are tapered, so as to be properly guided into the openings 21. The ends of the platen are reduced to receive the rings 19 which are fixed thereto, and are of such size that bands 16 aline with the platen surface.

The upper bights of the bands 16 run on rollers 22 which are yieldingly supported adjacent the upper ends of the board 14, which forms a supporting frame for the rollers 22. Each roller 22 is journaled in the bifurcated end 23 of a rod 24 located behind and parallel with the board 14, said rod being slidably mounted in a bracket 25 fixed to the board 14. A coil spring 26 mounted on said rod is compressed between the bracket 25 and the head 23 of the rod, thereby maintaining continual tension on the bands 16, and keeping them taut. The rearward leads of the bands 16 are in contact with or close proximity to the sheet-collating board 14, preferably running over the face of the board along the lateral edges, so as to form therewith a practically flat surface for supporting the work-sheets. When the board 14, and with it the bands 16, is swung forward, it is supported by a front bar 27 on the machine frame 28. In this position the supporting board 14 is nearly horizontal, so that its upper or rear face is in convenient position for adjusting the work-sheets or forms thereon. The latter are placed in position, as indicated in Fig. 1, on the back of

the board 14, with interposed manifolding sheets, and may comprise, for example, a loose-leaf ledger sheet *a*, an invoice sheet *b*, and a statement *c*, positioned with their leading edges in different positions of advancement, and so adjusted that an entry on the statement sheet will appear at the proper position on the ledger and invoice sheet.

It will be noted in Fig. 1 that some of the forms may be too narrow to be supported on pins at both sides of the board 14, but the pins on one side alone serve to accurately position and hold the sheet. When the sheets are thus positioned, the board 14 is swung upward, and by rotating the platen the work-sheets are brought to printing position thereon. As the sheets are placed on the rear side of the board 14 with their leading edges near the platen, the latter need only be rotated through a comparatively short distance to bring the sheets to position for printing, in contrast to an arrangement in which the forms are placed on the front of the support and carried upward away from the platen and over the top of the support and then down to the platen. In the present invention, the travel is short and there is no danger of the forms being displaced by being carried over the top of the support.

In order to maintain the sheets in position on the board 14, and prevent sagging, an additional sheet-retaining board or table 29 may be provided, said retaining board being located directly behind the board 14. The retaining board 29 may also be pivotally mounted on the platen axle 2 by means of brackets 30 integral with the board, and which extend outside the brackets 15. The brackets 30 may be formed with rearwardly projecting bends 31 forming passageways for the studs 17. When the work-sheets have been placed in position as indicated in Fig. 1, the retaining board 29 may be swung forward against the work-sheets to hold them in adjusted position, and the two boards then swung back as a unit, the rearward movement of the boards being limited by rearwardly projecting lugs 32 formed on the retaining board 29, and engaging the stationary paper shelf 33. The paper shelf 33 is located behind the platen and is provided with a curved extension 34 beneath the platen, and in close proximity thereto, to form a guide for the work-sheets. As the latter are positively fed forward by the pins 17 and the feeding bands 16, the usual feed rolls beneath the platen may be dispensed with, and the paper guide 34 may extend continuously along the platen.

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 rotary platen, of a frame pivotally mounted for swinging about the platen axis, and normally extending upwardly and rearwardly from the platen, but movable about said axis to a position to bring its rear side uppermost to serve as a collating table, endless carriers on said frame, and means whereby work-sheets may be connected to said carriers to be fed thereby to the platen.

2. The combination with a rotary platen, of a frame mounted to swing about the platen axis, an endless carrier supported on said frame and extending around the platen, means on said carrier by which a work-sheet may be attached thereto, and means for causing it to be fed thereby to and around the platen.

3. The combination of a rotary platen and a swinging work-sheet support extending upwardly and rearwardly from the platen and movable to a forwardly inclined position to receive work-sheets on the rear or upper face thereof, and means to feed the work-sheets from said support to printing position on the platen.

4. The combination of a rotary platen and a swinging work-sheet support extending upwardly and rearwardly from the platen and movable to a forwardly inclined position to receive work-sheets on the rear or upper face thereof, an endless carrier on said support and running around the platen, and means whereby a work-sheet may be connected with said carrier to be fed to and around the platen.

5. The combination with a rotary device, of endless carriers extending around the rotary device, means to positively drive said carriers from the rotary device, a support for said carriers, independent rollers on said support around which the carriers extend, means to apply tension to said rollers and thereby tension the carriers, and means to support work-sheets on the carriers; said support with said carriers being movable to position to permit the collation of work-sheets upon the rear side of said support.

6. The combination with a rotary platen, of a frame, endless carriers on said frame, each having one loop extending around the platen axle and driven thereby, and spring-actuated tension rollers mounted on the frame and engaging the opposite loops of the carriers; said support with said carriers being movable to position to permit the collation of work-sheets upon the rear side of said support.

7. The combination with a rotary platen, of a work-sheet supporting board, endless belts each having a loop extending around the platen and driven thereby, each belt having one lead extending along the said board, and independent spring-actuated tension rollers mounted on said board and

engaging the opposite loops of said belts; said support with said carriers being movable to position to permit the collation of work-sheets upon the rear side of said support.

8. The combination with a rotary platen, of a swinging work-sheet supporting board normally extending upwardly and rearwardly from the platen, said board mounted to swing forward to an approximately horizontal position to permit work-sheets to be placed on its face which is uppermost when in such position, endless bands extending along the side edges of said board and connected to be driven by the platen, and means whereby a driving connection of the work-sheets with said bands may be effected when the work-sheets are thus positioned.

9. The combination with a rotary platen, of a swinging frame movable to abnormal position to serve as a collating table, an endless carrier supported on said frame, means whereby work-sheets may be attached to said carrier, and a retaining board to prevent displacement of the work-sheets when the carrier is in normal position.

10. The combination with a rotary platen, of a swinging work-sheet supporting board movable into position to have work-sheets placed thereon, a retaining board to engage the work-sheets, and means to feed the work-sheets to the platen.

11. The combination with a rotary platen, of a work-sheet supporting board, a retaining board, said boards separable to permit work-sheets to be placed on the supporting board, and means to carry the sheets to the platen.

12. The combination with a rotary platen, of a work-sheet supporting board, a guard or retaining board, said boards mounted to be separated to permit work-sheets to be placed on the supporting board, endless belts extending along the edges of the supporting board and around the platen, and means on said belts to receive and feed the work-sheets forward to the platen.

13. In a front strike writing machine, the combination of a rotary platen, a work-sheet retaining board extending upwardly and rearwardly from the introductory side of the platen, a work-sheet supporting board pivoted to swing about the platen axis, and normally lying over and in front of the said retaining board, said supporting board movable to a forwardly extending position to permit work-sheets to be positioned thereon, endless belts mounted to travel along said supporting board and to swing therewith, and means whereby the work-sheets may be connected to said belts.

14. The combination with a rotary platen, of means, including a work-sheet supporting board, for collating and carrying sheets to the platen and a work-sheet retaining board, said boards superposed to retain work-sheets therebetween, and hinged for rotation independently of each other about a common axis.

15. The combination of a rotary platen, a work-sheet supporting board, a work-sheet retaining board, said boards superposed to retain work-sheets therebetween, and hinged to the platen axle to rotate together or independently, bands driven by the platen and extending along the supporting board, and pins on said bands adapted to receive the work-sheets by means of perforations in the side edges of said sheets.

16. In a typewriting machine, the combination with a platen, of a sheet-collating board or support associated with said platen to receive the sheets face up with their bottom edges toward the operator, means extending along said board for engaging the sheets and carrying them, top edges foremost, to the platen; said board mounted to occupy a prone position overlying the platen when the sheets are collated thereon, and tiltable upwardly and rearwardly together with the collated sheets and said sheet-carrying means, and a guard or keeper to extend along said board when the latter is in normal position, to retain the sheets upon said carrying means.

17. In a typewriting machine, the combination of a revoluble platen, means associated therewith to support a work-sheet extended horizontally before the operator, said supporting means movable with the sheet to a vertical feed position with relation to the platen, and means to carry the sheet down to said platen and around its under side and up away therefrom.

18. In a typewriting machine, means for collating work-sheets, advancing them to the printing point, and effecting line-feeding movements thereof, including a rotary platen, a swinging frame, a carrier swinging with said frame and also movable thereon, and means on said carrier for engaging work-sheets to feed them toward the platen; said feeding means being movable by said frame from inaccessible position to accessible position.

19. The combination with a rotary platen, of a frame mounted pivotally co-axially with the platen, to swing forwardly from normal position to receive the sheets, and means on said frame mounted to travel to the platen to carry the work-sheets thereto.

20. The combination with a rotary device, of an introductory work-sheet support normally extending from said device and having means to deliver work-sheets to said rotary device, and means supporting said support to permit it to swing forward to permit work-sheets to be placed thereon.

21. The combination of a rotary device, a frame mounted at the introductory side of

the device and movable from normal position forwardly to a cumbent position to receive the work-sheets, and a traveling sheet-carrier extending from said rotary device along said frame, and having means for engaging the work-sheets to advance them to said rotary device.

22. The combination with a rotary platen, of a work-sheet supporting board pivoted to swing about the platen axis from a rearward position to a forwardly-extending position, and work-sheet advancing means movable with said board to position to receive the sheets with their edges in proximity to the platen, and maintain them in such position while the support is swung rearwardly, said advancing means extending to and around the platen for feeding the work-sheets forward thereto and up in front thereof.

23. The combination with a rotary platen, of a work-sheet supporting board mounted to swing forwardly over the platen to a cumbent position, endless carriers extending over said board, and means whereby work-sheets may be attached to said carriers, to be fed thereby toward the platen.

24. The combination with a rotary platen, of an introductory sheet carrier, a retaining board or guard, said carrier movable away from said board to permit work-sheets to be placed on the carrier, and said carrier movable to advance the sheets to the platen.

25. The combination with a rotary platen, of a work-sheet support, a retaining board in rear thereof, said work-sheet support movable forwardly independently of said board, to permit work-sheets to be placed on the support, a work-sheet carrier driven by the platen and extending along the support, and means whereby work-sheets may be attached to said carrier while supported on said support.

26. The combination of a rotary platen, a work-sheet supporting board normally out of position for work-sheets to be collated thereon, a work-sheet retaining board, said boards movable together or separately from normal positions; said supporting board being mounted for movement to a position for work-sheets to be collated thereon, and a sheet carrier mounted on said supporting board to advance the work-sheets to the platen.

27. In a typewriting machine, the combination with a revoluble platen, of a sheet-collating support associated with said platen and mounted to extend forwardly over the platen to form a table to receive the sheets face up with their bottom edges toward the operator, and means connected to the platen and extending along said board for engaging the sheets and advancing them, top edges foremost, to the rear side of the platen as the latter advances in line-feeding direction.

28. In a typewriting machine, the combination with a platen, of a sheet-collating board or support associated with said platen, and means connected to the platen and extending along said board for engaging the sheets to carry them, top edges foremost, to the platen as the latter rotates forwardly, said board mounted for movement to a prone position overlying the platen to permit sheets to be collated thereon face up, with their bottom edges toward the operator, and for an upward and rearwardly tilting movement, together with said sheet-carrying means.

29. In a typewriting machine, the combination with a rotary device, of a sheet-collating support associated with said device and movable to prone position to receive the sheets face up with their bottom edges toward the operator, means connected to the rotary device and extending along said board for engaging the sheets and carrying them, top edges foremost, to the rotary device, said support tiltable upwardly and rearwardly from its prone position, together with said sheet-carrying means, and a guard for retaining the sheets when the support is tilted up.

30. In a typewriting machine, the combination with a platen, of a sheet-collating support associated with said platen to receive the sheets face up with their bottom edges toward the operator, means connected to the platen and extending along said support for engaging the side margins of the sheets superposed in various relations and carrying them, top edges foremost, to the platen as the latter rotates forwardly, and a guard or keeper to extend along said support to retain the sheets upon said carrying means.

31. The combination with a revoluble platen, of sheet-collating and feeding means running around the platen and extending away therefrom, and having means for engaging the side margins of work-sheets, to position the sheets relatively to the printing line on the platen as they are laid down in various superposed relations, face upward and with their bottom edges toward the operator, said feeding means including means for carrying the superposed sheets, with their leading edges foremost, first to the rear of the platen and then down around the same and up in front thereof, and then away from the platen with their leading edges uppermost and their faces in front and in view of the operator.

32. The combination with a revoluble platen, of a belt device to run around the same and having means to engage the side margins of variously superposed sheets, to

position them relatively to the printing line on the platen, said belt device mounted for bodily movement, while connected to said platen, from normal position forwardly to accessible position to receive the sheets on its rear side with their faces uppermost, and when in normal position mounted to carry the sheets, leading edges foremost, to the rear of the platen and down around the same as the platen advances, and thence up in view of the operator; the rear side of said belt device being normally inaccessible or inconvenient for placing sheets thereon.

33. The combination with a revoluble platen, of a belt device to run around the same and having means to engage the side margins of variously superposed sheets, said belt device having front and rear reaches and mounted for bodily movement, while connected to said platen, from normal position forwardly to position for the rear reach to receive the sheets on its rear side with their faces uppermost, said rear reach being normally inaccessible, and said belt device when in normal position mounted to carry the sheets, leading edges foremost, to the rear of the platen and down around the same as the platen advances, and thence up in view of the operator, and means to position and retain the sheets upon said belt device in proper relation to the printing point.

34. In a typewriting machine, the combination with a revoluble platen, of means for collating sheets and advancing them to and around the platen, including means normally inaccessible but movable to a position over and forwardly of the platen to receive the sheet face up with its leading edge at the rear, said sheet-receiving means movable to carry the sheet rearwardly and present its leading edge to the platen to be carried around the same with its face in front, said sheet-receiving means comprising catches for the sheet whereby the latter may be initially and correctly positioned relatively to the printing line on the platen.

35. The combination of a revoluble platen, a flexible work-carrier connected thereto to run to the introductory side thereof as the platen advances, said work-carrier provided with catches to engage the side margins of the work-sheets, to permit the work-sheets to be superposed or collated in various relations with reference to the printing line on the platen, and a frame upon which said carrier runs, said frame and carrier normally occupying a position rendering it impracticable to collate sheets on the carrier, and said frame movable with said carrier to bring the carrier to accessible position for collating sheets face upward thereon.

36. The combination of a revoluble platen, a flexible work-carrier connected thereto to run to the introductory side thereof as the platen advances, said work-carrier provided with catches to engage the side margins of the work-sheets, to permit the work-sheets to be superposed or collated in various relations with reference to the printing line on the platen, a frame upon which said carrier runs, said frame and carrier normally occupying a position rendering it impracticable to collate sheets on the carrier, and a sheet-retainer or guard to coöperate with said carrier when the latter is in normal position, and said frame movable with said carrier away from said guard to bring the carrier to accessible position.

37. The combination of a revoluble platen, a pair of endless flexible work-carrying bands connected thereto to run to the introductory side thereof as the platen advances, said bands provided with means upon which the work-sheets may be caught or collated in superposed relations in various relative positions with reference to the printing line on the platen, and a frame upon which said bands run, said frame and bands normally occupying a rear position, and said frame movable forwardly with said bands to bring the latter to accessible positions for collating sheets placed face upward thereon.

38. The combination of a revoluble platen, a pair of endless flexible work-carrying bands connected thereto to run to the introductory side thereof as the platen advances, said bands provided with means upon which the work-sheets may be caught or collated in superposed relations in various relative positions with reference to the printing line on the platen, a frame upon which said bands run, said frame and bands normally occupying a rear position, and said frame movable forwardly with said bands to bring the latter to accessible positions for collating sheets placed face upward thereon, and a guard or keeper from which said frame is separable at the forward movement of said frame, said guard serving to retain the sheets upon both of said bands when the latter are in normal position.

39. The combination of a revoluble platen, a pair of endless flexible work-carrying bands connected thereto to run to the introductory side thereof as the platen advances, said bands provided with means upon which the work-sheets may be caught or collated in superposed relations in various relative positions with reference to the printing line on the platen, a frame upon which said bands run, said frame and bands normally occupying a rear position, and said frame movable forwardly with said bands to bring the latter to accessible positions for collating sheets placed face upward thereon, and a guard or keeper from which said frame is separable at the for-

ward movement of said frame, said guard serving to retain the sheets upon both of said bands when the latter are in normal position, said guard mounted for forward movement to close down upon said bands when said frame is in its forward position.

40. The combination of a revoluble platen, a pair of endless flexible work-carrying bands connected thereto to run to the introductory side thereof as the platen advances, said bands provided with means upon which the work-sheets may be caught or collated in superposed relations in various relative positions with reference to the printing line on the platen, and a frame upon which said bands run, said frame and bands normally occupying a rear position, and said frame movable forwardly with said bands to bring the latter to accessible positions for collating sheets placed face upward thereon, said frame provided with a board extending between said bands upon which to collate the sheets while said frame is in its forward position.

41. The combination with a revoluble platen, of endless bands running over the ends of the platen, and supports over which the bands also run at points remote from the platen, one reach of each band extending from its support to the delivery side and the other reach extending to the introductory side of the platen, each of said bands having spaced positioning devices to engage work-sheets, and said supports and bands normally occupying a rear position and mounted for forward movement to bring to accessible positions the reaches of the bands which extend to the introductory side of the platen, for permitting sheets to be collated upon the last-mentioned reaches.

42. The combination with a revoluble platen, of endless bands running over the ends of the platen, supports over which the bands also run at points remote from the platen, one reach of each band extending from its support to the delivery side and the other reach extending to the introductory side of the platen, each of said bands having spaced positioning devices to engage work-sheets, and said supports and bands normally occupying a rear position and mounted for forward movement to bring to accessible positions the reaches of the bands which extend to the introductory side of the platen, for permitting sheets to be collated upon the last-mentioned reaches, and a guard or keeper for retaining the sheets on the bands when said supports are in rear position, said bands movable away from said guard when moving to forward positions.

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