F. A. ROBINSON.

TYPE WRITING MACHINE.

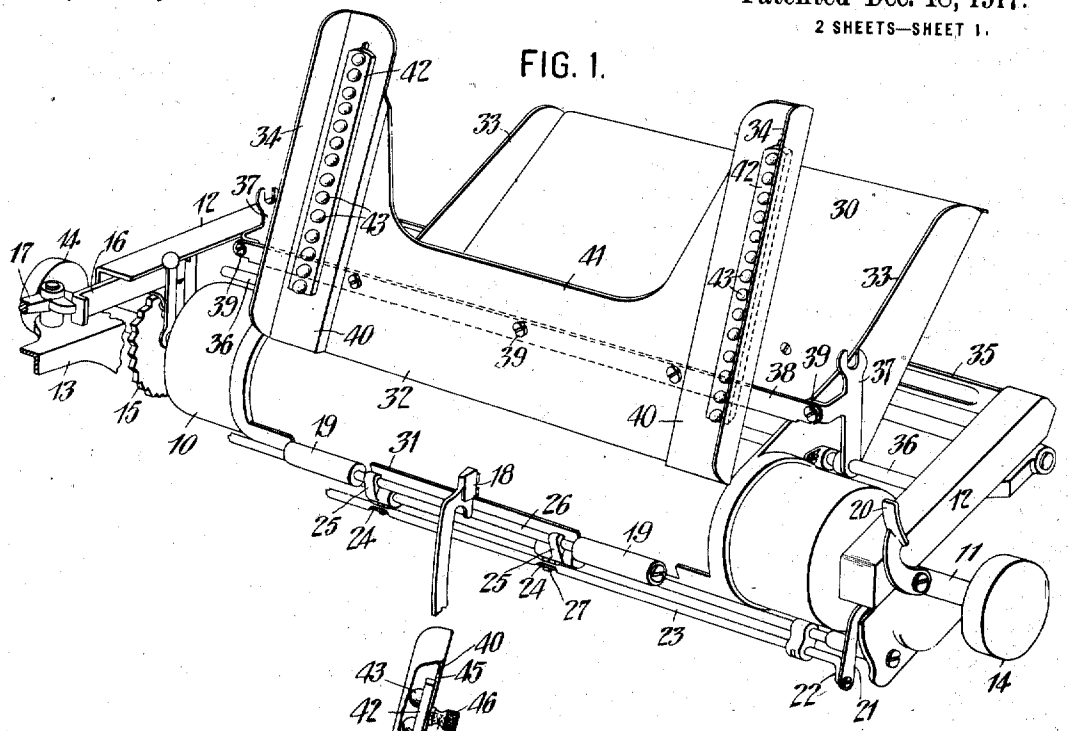
APPLICATION FILED APR. 29, 1916.

1,250,356.

Patented Dec. 18, 1917.

2 SHEETS—SHEET 1.

FIG. 1.



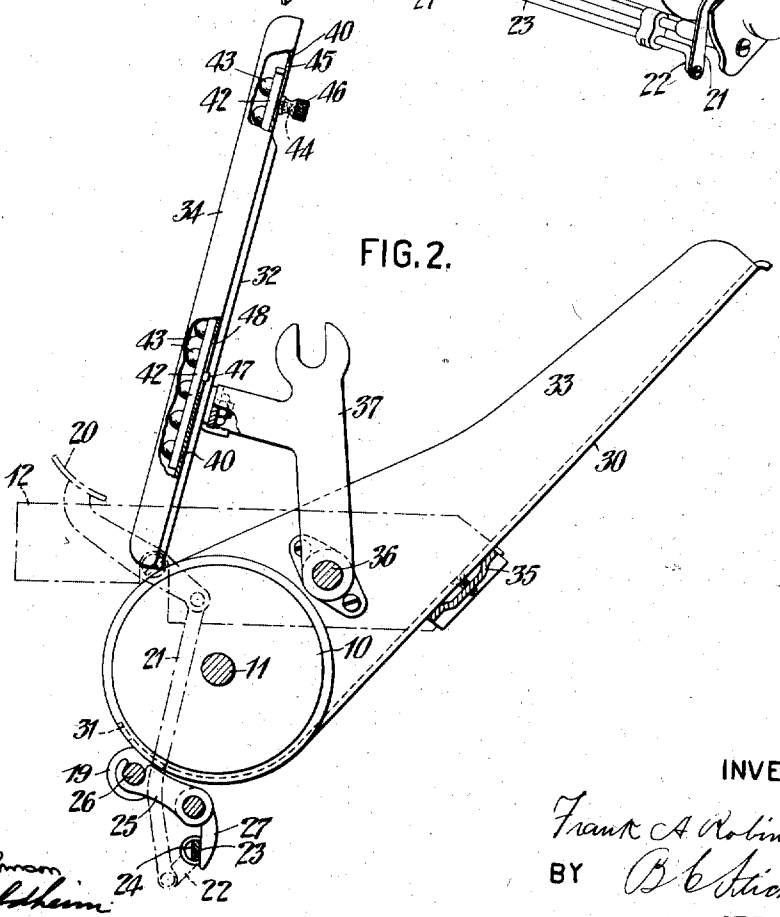


FIG. 2.

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2 SHEETS—SHEET 2.

FIG. 3.

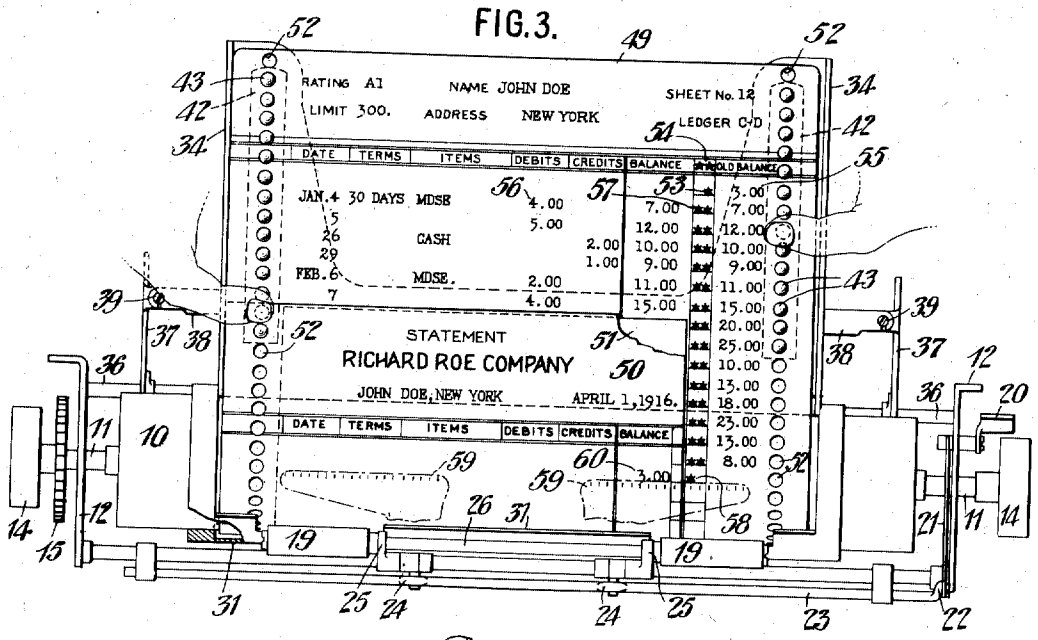


FIG. 5.

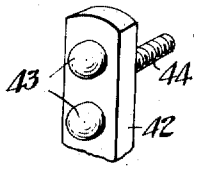
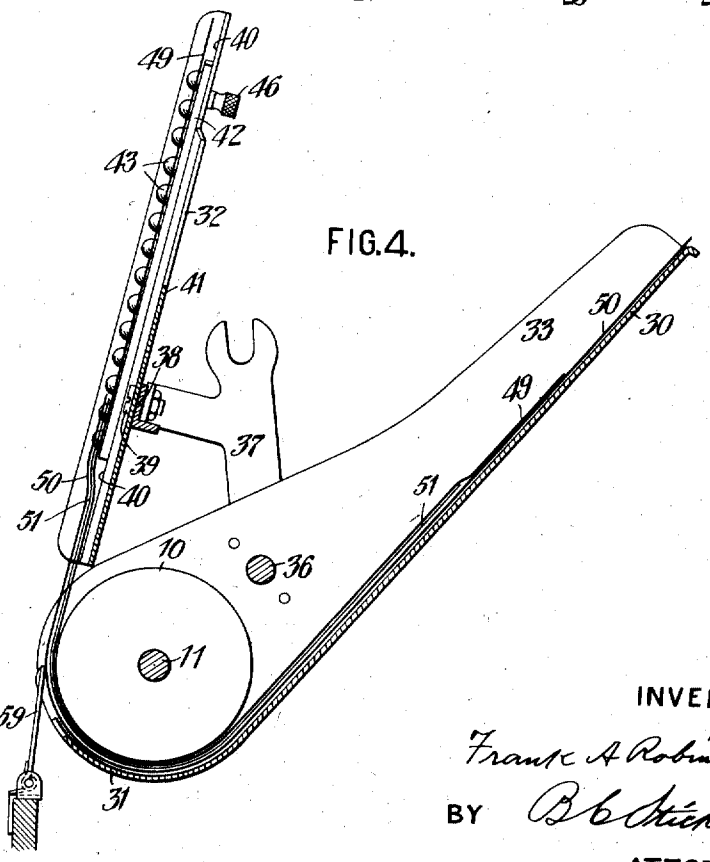


FIG. 4.



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UNITED STATES PATENT OFFICE.

FRANK A. ROBINSON, OF BROOKLYN, NEW YORK, ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

TYPE-WRITING MACHINE.

1,250,356. Specification of Letters Patent. Patented Dec. 18, 1917.

Application filed April 29, 1916. Serial No. 94,331.

To all whom it may concern:

Be it known that I, FRANK A. ROBINSON, 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 typewriting machines provided with means to enable a number of work-pieces to be quickly arranged on the platen, particularly where the work-pieces are of different widths and arranged with their leading edges at different positions of advancement, as is common, for example, in making entries on statements, bills, or the like, arranged on the platen together with a loose-leaf ledger sheet, or other record sheet.

This invention is an improvement on the invention disclosed in the co-pending application, Serial No. 89,303. Said application shows a paper chute or guide at the introductory side of the platen, on which the work-pieces may be placed, and advanced around the lower surface of the platen to bring their leading ends onto a sheet-collating board extending upwardly from the front face of the platen.

The present invention provides improved means to assist in quickly and accurately adjusting and gaging the sheets on the collating board and then holding them against accidental displacement. For this purpose there is provided a sheet-holding and gaging device or devices, each of which may comprise a graduated series of sheet-holding bosses or studs arranged in a row at the collating board, and adapted to enter correspondingly positioned openings provided in the margins of the work-sheets. Said bosses may be arranged at line-space intervals, so that a work-sheet may be held thereby at any one of a series of positions, each a line-space distance in advance of the preceding position. Thus a sheet placed on the machine from time to time to receive typewritten entries, can each time be quickly adjusted to the gaging bosses so that the new typewritten entry will be at an exact line-space distance from the last preceding line.

As shown, each sheet-holding and gaging device comprises a bar provided with a row of bosses, the bar being mounted on the face of the collating board and adjustable thereon toward and from the printing line, whereby said device may be adjusted to a ruled sheet or printed form, so that the horizontal rulings or positions for printing lines on the sheet will register with the printing line of the machine.

The holding and gaging devices are of value in justifying and holding work, which may comprise a number of sheets of different widths, arranged one over the other, as for example, a ledger sheet, and a statement or bill, superposed on the collating board. The first sheet placed on the board may be quickly adjusted thereon and held by a row or rows of said studs entering corresponding openings in the margin or margins of the sheets. The sheet may be held in position by one hand of the operator, while with the other hand the overlying sheet, which may be of less width, is adjusted over the first sheet. A plurality of the gaging bosses hold the overlying sheet square with the platen and in register with the first sheet, thus overcoming the usual difficulty of alining the overlying sheet and holding it from shifting until the sheets are clamped to the platen.

Other features and advantages will hereinafter appear.

In the accompanying drawings:

Figure 1 is a front perspective view, showing a paper carriage of an Underwood typewriting machine, with the present invention applied thereto.

Fig. 2 is a part sectional end elevation of the same.

Fig. 3 is a front elevation showing the method of adjusting the work on the machine.

Fig. 4 is a sectional end elevation, showing the work in adjusted position.

Fig. 5 is a fragmentary view of a gage bar.

The roller platen 10, has its axle 11 journaled in a platen frame 12, said frame mounted for case-shifting movement on the carriage frame 13. The platen may be rotated by hand wheels 14 on the platen axle, or by means of the usual line-spacing mechanism, comprising a line-space ratchet wheel 15 fixed to the platen axle and driven step

by step by means of a dog on a reciprocating slide bar 16 actuated by a line-spacing lever 17. Types 18 operated by the usual mechanism, strike against the front face of the platen to print on the work-sheets. Feed rolls 19 bear against the platen and cooperate therewith to advance the work-sheets when the platen is rotated. The feed rolls may be thrown off the platen by means of a key 20 connected through a link 21 to a rock arm 22 on a rock shaft 23. The latter is provided with flats 24, which when the key 20 is depressed, operate levers comprising arms 27 and 25. The arms 25 carry a shaft 26, on which the feed rolls are mounted. When the shaft 23 is rocked, the arms 27 are moved rearwardly by the flats 24, to move the feed rolls off the platen.

The means for positioning the work-sheets on the platen will now be described. Such means comprises a paper chute or guide 30 at the introductory side of the platen. Said chute has at its lower end an extension 31 curved around the platen, and spaced therefrom to provide a passage-way for the work-sheets, so that when a sheet is placed on the chute it may be pushed forward and guided around the lower surface of the platen, and upwardly past the printing line, to bring its leading edge on a sheet-collating table 32. The chute 30 is provided with end flanges 33 for gaging the lateral edges of the work-pieces, the collating board 32 also being provided with sheet-gaging end flanges 34, which are preferably in alinement with the gages 33. The chute 30 may be supported by a bar 35, extending between the platen frame ends and forming part of the platen frame. The chute may be further supported by a tie rod 36 of the platen frame, which rod extends through openings in the flanges 33.

The sheet-collating board or table 32 may be supported by brackets 37 mounted on the rod 36, to which brackets is secured a bar 38 extending lengthwise of the platen and connected by screws 39 to the collating board. The bar 38 may be slotted to receive the screws 39, permitting the board to be adjusted toward or from the platen. The collating board is formed with sheet-supporting surfaces 40 at its ends, which surfaces are off-set or raised with respect to the central or body portion 41 of the board. The surfaces 40 are also extended upwardly a substantial distance beyond the central portion of the board, to provide ample support for the work, and to facilitate the adjustment of the work on said board. The construction thus far described may be substantially like that disclosed in the co-pending application 89,303, above referred to.

The means for gaging the work-sheets and holding them in adjusted position comprises gaging bars 42, mounted on the surfaces 40, and each provided with a series of rounded or hemispherical studs or bosses 43 to enter a series of circular openings formed in the margin of the work-sheet. The rounded shape of the bosses facilitates the quick adjustment of the sheets thereon, and also permits the sheets to be readily disengaged, that is, the bosses are self-freeing from the sheets. The rows of bosses are parallel with the gages 34, and may be equally spaced, preferably at line-space intervals determined by the spacing of the teeth of the line-space ratchet wheel. There is thus provided a graduated series of sheet-gaging and holding bosses by which a work-sheet may be gaged and held by a number of said bosses, with its leading edge at any one of a number of different positions of advancement beyond the printing line, and while the sheet is retained by the feeding rolls 19; the sheet being then released from said bosses while it is still retained by the feed rolls. As the sheet, in each adjusted position, is held by a number of bosses, it is thereby squared to the printing line on the platen. Each position of adjustment is also an exact line-space distance in advance of the preceding position, which arrangement is of particular value in securing uniform spacing of the typewritten lines on a sheet which is placed on the machine a number of times, each at a different line-space position. Each gage bar 42 is adjustable toward and from the printing line, and to permit such adjustment, is provided with a screw-threaded stem 44 (Fig. 5) which extends through a slot 45 in the collating board to receive a thumb nut 46 behind the board. The gage bar is also provided with a lug 47 projecting downwardly through a slot 48 in the board for guiding the lower end of the bar. By loosening the thumb nut 46, the gage may be adjusted toward and from the platen, and then clamped in adjusted position by screwing up the nut. With this construction, the gage or gages may be adjusted to any horizontally-ruled sheet or printed form, provided with perforations to receive the bosses 43. That is to say, the gage may be adjusted so that when a sheet is gaged thereon, a ruled line or a blank space designed to receive typewritten matter, will register with the printing line on the platen.

Fig. 3 illustrates a method of arranging work on the machine. As here shown, the work comprises a loose-leaf ledger sheet 49 and a statement sheet 50, such as are employed, for example, in a system of bookkeeping where monthly statements may be made of an individual account, each statement comprising various items entered on different days of the month. The statement is placed on the machine, with a ledger sheet containing the record of said account, each

time an item or transaction is entered on said statement. A carbon sheet 51 interposed between the statement and the ledger sheet, transfers the entry to the ledger sheet, so that the items are posted simultaneously with their entry on the statement sheet. The ledger sheet may receive the record copy of the statements for a number of consecutive months.

It will be seen that the sheets have to be arranged on the machine each time an entry is made, and at a different position, and also that the sheets are not always adjusted to the same relative position, so that it is important to provide means enabling the sheets to be quickly adjusted individually to their proper positions, and also to provide for bringing the sheets into accurate register. The present invention provides such means. The ledger sheet is first placed on the machine as above noted, and moved upward over the collating board 32 into position to receive the first line of writing, thereby bringing openings 52 along the side margins of the sheet over the studs 43, so that the studs may project into said openings, whereby the sheet is accurately and definitely positioned on the board. The sheet may be held on the studs by one thumb or finger of the operator, while the other sheet 50 is placed on the chute 30 behind the sheet 49, and advanced to the Fig. 3 position, where a number of openings 52 in its margin, engage studs 43.

The gaging studs 43 assist in the final adjustment of the sheets, and insure refinement of adjustment by accurately and definitely determining the positions of the sheets. They also hold the sheets against sliding on the work table or being shifted out of adjustment. After the sheets are adjusted, the feed rolls 19, which during the arrangement of the sheets are held off the platen, are returned to the platen, and hold the sheets in adjusted position. The sheets being released from the hand of the operator, will spring away from the studs, which, owing to their rounded or tapering form, are self-freeing. This clearing of the sheet from the studs is also aided by the advance of the sheet at the line-spacing operation, since the sheet above the platen and below the racks will tend to bulge out and hence to withdraw from the bosses, if any of them should still engage the sheet.

The ledger and statement sheets, as shown in Fig. 3, have similar rulings and headings, each sheet having columns for debits, credits, balance, old balance, etc., and are designed for use on a combined typewriting and computing machine, comprising mechanism for mechanically effecting computations as the items are written. To clearly set forth the method of using the present invention, the method of entering the items shown on the ledger sheet 49 will first be explained, it being understood that the statement sheets on which these items were simultaneously entered, are not shown on the drawing.

The ledger sheet having been placed on the machine, and a statement sheet (not shown), arranged thereover, a star 53 is printed in the right-hand side of a column 54 provided for that purpose. This indicates that the computing mechanism has been cleared, ready for a new computation. The previous balance of "$3.00", as shown at 55 (copied from the old ledger sheet), is then printed in the "old balance" column, this number being automatically placed on the computing mechanism as it is printed. The platen is now line-spaced and moved to the right to receive an entry on the statement sheet and ledger sheet, including date, terms, etc., and an amount of "$4.00" written at 56 in the debit column, said amount as it is written being run up on the computing mechanism. The balance of "$7.00" shown by the computing mechanism is now written in the "balance" column, the computing mechanism cleared, and a star 57 printed in the left-hand side of the column 54, thereby showing that the correct balance has been written and the machine cleared for another computing operation. The work may then be removed from the machine and filed away until it is desired to make another entry, when the above order of operations is repeated.

Assuming now that all the entries indicated on the sheet 49 have been made, and that it is desired to make a new entry, the ledger sheet 49 is first placed on the machine and advanced until the last typewritten line, which in the example shown includes the star 58, appears above the wings or gage plates 59, the upper edges of which extend along the printing line. The sheet may now be pressed against the work table by the finger of the operator, so that the bosses 43 enter the perforations in the sheet, thereby squaring it to the platen and holding it in the exact line-space position that it occupied when receiving the preceding entry. The statement sheet 50 is now adjusted over the ledger sheet, so that the last typewritten line of the statement (which in the example illustrated is a balance of "$3.00", shown at 60) is brought to the line-gage plates 59; the statement sheet being quickly and accurately gaged by the bosses 43. The work is now in adjustment for receiving a new entry, which may be made by repeating the order of operations above pointed out.

Although in the example shown, the ledger sheet is wider than the statement sheet and underlies the latter, in practice this order is frequently reversed, the ledger sheet being made narrower than, and placed over the underlying statement or bill.

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, the combination with a revoluble platen, of a sheet-collating board arranged at the delivery side of the platen, and extending therefrom in position to support the leading ends of work-sheets arranged on the platen, a series of sheet-holding bosses arranged in a row at said table, in position to enter perforations provided in the margin of a work-sheet arranged on the platen and said board, and a support for said bosses, said support adjustable on said board toward and from the platen.

2. In a typewriting machine, the combination with a platen, of means for gaging and holding a sheet supported on the platen, said means comprising a gage plate located at the delivery side of the platen, and provided with a series of bosses or studs extending in a row away from the platen and arranged to enter a corresponding row of perforations provided in a side margin of the work-sheet, whereby the latter may be held by a number of said bosses with the leading edge of the sheet at any one of a number of different positions of advancement beyond the printing line, and means to adjust said gage plate toward and from the platen.

3. In a typewriting machine, the combination with a revoluble platen, and releasable feeding means to hold a work-sheet against the platen, of a sheet-collating board arranged at the delivery side of the platen, and extending therefrom in position to support the leading-ends of work-sheets arranged on the platen and held by said feeding means, and a series of sheet-holding bosses from which the sheet is releasable while held by said feeding means, said bosses arranged in a row at the side of said board, in position to enter perforations provided in the side margin of the work-sheet.

4. In a front-strike typewriting machine, the combination with a roller platen, and sheet-feeding means to press thereon, of a sheet-collating board extending upwardly and rearwardly from the platen at the delivery side thereof, and a temporary registering device extending along one side of said board and over which a work-sheet may move as it is advanced beyond the printing line, said registering device comprising a series of self-freeing, shallow, tapered bosses from which the sheet is releasable while it is retained by said sheet-feeding means, said bosses projecting into position to permit a number of bosses to enter correspondingly-arranged openings in the side of the work-sheet.

5. In a front-strike typewriting machine, the combination with a roller platen, and sheet-feeding means to press thereon, of a sheet-collating board extending upwardly and rearwardly from the platen at the delivery side thereof, a temporary registering device extending along one side of said board and over which a work-sheet may move as it is advanced beyond the printing line, said registering device comprising a series of self-freeing, shallow, tapered bosses from which the sheet is releasable while it is retained by said sheet-feeding means, said bosses projecting into position to permit a number of bosses to enter correspondingly-arranged openings in the side of the work-sheet, and a side gage extending along said series of bosses to locate the sheet laterally with its perforations in line with said bosses.

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