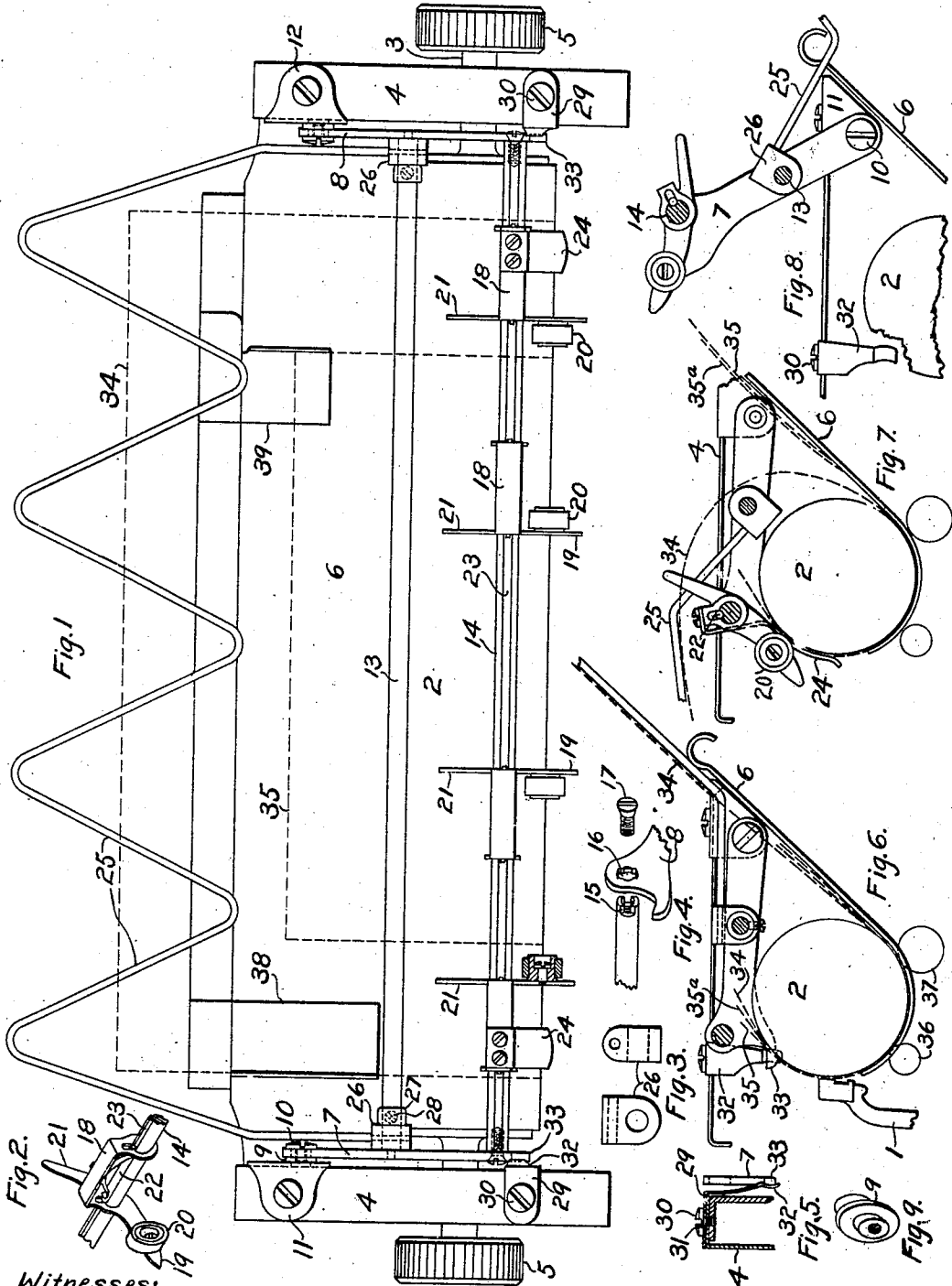


W. E. BARNARD.
TYPE WRITING MACHINE.
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Witnesses:
Wm J. Chipman
John C. Leifert.

Inventor:
Walter E. Barnard,
By R. B. Stickney,
Attorney.

UNITED STATES PATENT OFFICE.

WALTER E. BARNARD, OF HARTFORD, CONNECTICUT, ASSIGNOR TO UNDERWOOD TYPE WRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WALTER E. BARNARD, a citizen of the United States, residing in Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to the paper-carrying and feeding devices of typewriting machines, and particularly to means for handling the paper in the operation known as "condensed billing." In this class of work a long sheet is retained in the machine, while a shorter sheet is removed and a third sheet inserted, the long sheet preserving a carbon record of the entries made on the smaller sheets.

A main object of the invention is to provide simple, inexpensive and efficient means to feed and guide the paper around the platen, and to retain the long record sheet in the machine during the removal and insertion of the smaller or original sheets, and also to facilitate the handling of the sheets.

A further object is to provide means to facilitate the filling-out of what is known as a "check-with-stub" form, consisting of, first, a number of checks joined in sheet form, and second, a sheet for keeping a carbon record of the checks, to take the place of the usual check stubs. In filling out such forms, it is necessary to write at the extreme side edges of the paper, which heretofore has not been found practicable when the sheets were held in smooth contact with the platen by their side edges, as is usual in front strike writing machines.

In carrying out my invention, I hinge upon the platen-frame another frame, consisting of a pair of arms connected by rods extending along the platen, one of said rods carrying paper-feeding and guiding devices which are adjustable along the platen. Each of these feeding and guiding devices comprises a yoke, one arm of which has opposite fingers. One of the fingers extends down to guide the leading edge of the paper, and has a roller to feed the paper after it has left the usual bottom feed rollers, and also to retain the long record sheet in the machine during the removal and insertion of the small or original sheets. The other finger extends up to form a handle to manipulate the yokes or swing them about the rod, and

thereby move the rollers against and away from the platen. The yokes have spring-pressed rollers or keys to engage a groove extending along the yoke-supporting rod, to lock them thereon when the rollers are running upon the platen.

The long record sheet hangs over the back of the machine, where it is in the way when removing and inserting the smaller sheets, and to overcome this disadvantage I hinge upon the frame an auxiliary paper table which is movable to and fro. When a small or original sheet is to be removed and a new sheet inserted, the auxiliary paper table and the record sheet resting thereon are thrown forward over the platen, and the smaller or original sheets may then be readily removed and inserted. The frame, together with the paper feeding and guiding devices and auxiliary table, may be swung up away from the platen to facilitate the insertion and removal of the long record sheets. I also provide means to lock the frame when the rollers are running upon the platen.

In the accompanying drawings, Figure 1 is a plan view of a platen frame and platen of an Underwood front strike writing machine with my improvements applied thereto. Fig. 2 is a perspective of one of the paper feeding and guiding devices. Fig. 3 is a detail of the means for mounting the auxiliary paper table upon the frame. Fig. 4 is a detail of the means for securing the yoke-carrying rod in the arms. Fig. 5 is a detail of the frame-locking means. Fig. 6 is a sectional side elevation of a platen frame and appurtenances, showing an original and a record sheet in position on the platen to begin a line of writing. Fig. 7 is a view similar to Fig. 6 but with the auxiliary paper table thrown forward, and showing the manner of inserting an original sheet with carbon. Fig. 8 is a view similar to Figs. 6 and 7, but showing the frame swung up away from the platen. Fig. 9 is a detail of the bushing for hinging or pivoting the arms upon the platen frame.

Type bars 1 strike on the front of a platen 2 mounted by means of an axle 3 in the platen frame ends 4, and rotatable by the usual finger wheels 5, secured to the ends of the axle 3. A paper table 6 between the ends of the platen frame extends upwardly in rear of the platen.

The paper feeding and guiding devices

are mounted upon a frame comprising a pair of arms 7, 8, pivotally secured by bushings 9 and screws 10 to brackets 11, 12 mounted upon the platen frame ends, said arms connected by rods 13, 14, one forward of the other. The ends of the rod 14 have flats 15 to fit corresponding holes 16 in the arms 7, 8, and secured by screws 17, to prevent rotation.

The paper feeding and guiding devices comprise yokes 18, journaled on the rod 14 and adjustable along the same. One arm of each yoke has opposite fingers, one finger 19 extending downwardly and forwardly to guide the leading edge of the paper around the platen, and having rollers 20 pivoted thereto to run upon the platen, and the other finger 21 extending upwardly to serve as a finger lever to swing the yokes about the rod 14, and thereby throw the rollers 20 into and out of engagement with the platen.

The yokes are provided with spring-pressed rolls or keys 22 engaging a groove 23 extending along the rod 14, to lock the yokes when the rollers are running upon the platen.

In the present instance I have shown two pairs of roller-carrying yokes, one pair inside the other, the outside pair to retain the wide record sheet in the machine, said sheet being made wider than the original; so as to be engaged by the outside rollers.

To facilitate the guiding of the record sheet to the rollers at the side edges, I mount upon said outside yokes spring fingers 24 extending down around the platen, and conforming substantially to the curvature thereof.

The inside pair of yokes retain the smaller sheet and the carbon; after said sheets have left the usual bottom feed rolls, and permit writing on the bottom edge.

An auxiliary paper table 25 is mounted upon the rod 13 to have to and fro movement by means of bearing blocks or hinge ears 26, said blocks secured by collars 27 and set screws 28.

Brackets 29 are adjustably secured upon the platen frame ends by screws 30 engaging the slots 31 in said brackets. Spring fingers or latches 32 thereon extend down inside of the platen frame ends, to engage with catches 33 on the arms 7, 8, to lock the frame down when the rollers are running upon the platen.

The three sheets, viz., the record sheet 34, the original or bill 35, and the carbon 35^a, are introduced together between the platen 2 and the usual feed rollers 36, 37. The record sheet 34 may be adjusted at the left hand edge to a side guide or gage 38, adjustably mounted upon the paper table 6. The leading edge of said sheet 34 is guided, by means of the spring fingers 24 and the downwardly-projecting fingers 19 on the outside

pair of yokes 18, between the platen 2 and the feed rollers 20 pivoted on said outside yokes. The original sheet 35 and carbon 35^a may be adjusted at the right-hand edge to the side guide or gage 39, also adjustably mounted on the paper table 6. The leading ends of 35 and 35^a are guided by the downwardly-projecting fingers 19 on the inside pair of yokes 18, between the platen 2 and the rollers 20 pivoted on said inside yokes 18.

When a bill has been written, and it is desired to remove the same and insert another bill, the paper table 25 is thrown forward over the platen, and with it the record sheet 34. The feed rollers 36, 37 are then cast off from the platen, and the bill with the carbon removed, the record sheet being held in place on the platen by the rollers 20 on the outside yokes, Fig. 7. Another sheet with carbon is then introduced around the platen, the feed rollers 36, 37 are thrown in engagement with the platen, and the auxiliary paper table 25 is thrown back to the Fig. 6 position, when the writing of the new bill may be proceeded with. The operation is repeated until the record sheet is filled, when the yoke-carrying frame is swung up away from the platen, Fig. 8, and the record sheet removed.

The gage 39 is adjusted along the paper table 5 so that the right hand edge of the sheets 35 35^a may be made to register with a line running the length of the record sheet 34 near the right hand edge; whereby successive entries are caused to register column-wise on the record sheet.

When filling out "check-with-stub" forms, in which case it is necessary to write on the extreme side edges of the paper, the forms are fed around the platen in the usual manner, but instead of being held against the platen at the side edges, as is usual in front strike writing machines, they are held at the leading edge by the auxiliary rollers 20 just above the line of writing.

Having thus described my invention, I claim:

1. In a typewriting machine, the combination with a platen frame, rear paper table and platen, of a frame hinged upon the platen frame carrying rollers to run upon the platen, an auxiliary paper table hinged to the roller frame, and means to lock the roller frame when the rollers are running upon the platen.

2. In a typewriting machine provided with a platen frame having ends, a platen and a paper table, the combination of a pair of brackets mounted upon the platen frame ends, arms pivoted to said brackets and connected by a pair of rods, one forward of the other, roller-carrying yokes journaled on the forward rod and adjustable therealong, and an auxiliary paper-table mounted on the other rod.

3. In a typewriting machine provided with a platen frame having ends, a paper table and a platen, the combination of arms pivoted to said ends and connected by a pair of rods lying above and along the platen, one forward of the other, the forward rod mounted against rotation, yokes journaled on the forward rod and adjustable therealong, rollers carried by said yokes to run upon the platen, and an auxiliary paper-table mounted on the rear rod; said arms movable to swing the rollers and auxiliary paper-table up away from the platen.

4. In a typewriting machine, the combination with a platen frame having ends and a platen, of arms pivoted to the platen frame ends and connected by a rod, yokes yieldingly splined independently of one another upon said rod and each carrying a roller to run upon the platen, said arms movable to swing the rollers up away from the platen, and spring latches mounted upon the platen frame ends and engaging with noses or catches on the arms to lock the frame when the rollers are running upon the platen.

5. In a typewriting machine, the combination with a platen frame, platen and paper table, of a frame hinged to the platen frame ends and carrying rollers to run upon the platen, an auxiliary paper table also carried by said frame; the latter movable toward and away from the platen; and spring-fingers to engage and lock the frame when the rollers are running upon the platen.

6. In a typewriting machine provided with a platen frame, paper table, platen and paper-feeding devices, the combination of a frame hinged upon the platen frame above the platen, comprising a pair of arms connected by a pair of rods extending along the platen, one forward of the other, yokes mounted upon the forward rod and carrying rollers to run upon the platen, an auxiliary paper table mounted upon the rear rod, and locking means to lock the frame when the rollers are running upon the platen.

7. In a typewriting machine provided with a platen frame, paper table and platen, the combination of a frame hinged to the platen frame and carrying rollers to run upon the platen, and also carrying an auxiliary paper-table, said frame movable to swing the rollers and auxiliary table upward away from the platen.

8. In a typewriting machine provided with a platen frame, paper table, platen, and paper-feeding devices, the combination of a frame hinged inside the platen frame ends above and rearwardly of the platen and carrying rollers to run upon the platen, and an auxiliary paper table also connected to said frame, said frame movable to swing the rollers and auxiliary paper table upward away from the platen, and said auxiliary

paper table having independent forward and backward movement.

9. In a typewriting machine, the combination with the platen frame, paper-table, platen and paper-feeding devices, of a frame pivoted to the ends of the platen frame above and back of the platen and comprising a pair of arms connected by a rod, rollers carried by said rod to run upon the platen, and an auxiliary paper table pivoted to said frame, said frame movable to swing the rollers and paper table up away from the platen, and said auxiliary paper-table having independent backward and forward movement.

10. In a typewriting machine provided with a platen frame, paper table, platen and paper-feeding devices, the combination of a frame pivoted to the ends of the platen frame, yokes journaled upon said frame and carrying rollers to run upon the platen, and an auxiliary paper table also connected to the frame; said frame movable to swing the rollers and auxiliary paper table upward away from the platen, and said yokes movable independently to throw the rollers into and out of contact with the platen.

11. In a typewriting machine provided with a platen frame, paper table, platen and paper-feeding devices, the combination of a frame hinged to the platen frame ends and comprising a pair of arms connected by a rod secured against rotation, a yoke journaled on said rod and adjustable therealong, one of the arms of the yoke having opposite fingers, one extending down to guide the leading edge of the paper as it is fed around the platen and having a roller pivoted thereto to run upon the platen, and the other extending upward to swing the yoke about the rod to throw the rollers into and out of contact with the platen; and a paper-guiding finger secured upon the yoke extending down around the platen and conforming substantially to the curvature thereof.

12. In a typewriting machine provided with a platen frame, paper table, platen and paper-feeding devices, the combination of a pair of arms pivoted to the platen frame ends in front of the paper table and connected by a rod extending above and along the platen, and an auxiliary paper table mounted on said rod, said arms movable to swing the auxiliary paper table up away from the platen, and said table movable to and fro independently on the rod.

13. In a typewriting machine, the combination with a platen frame and a platen, of a yoke journaled on a rod above the platen and adjustable therealong, one of the arms of the yoke having oppositely extending fingers, one extending down to guide the leading edge of the paper, and having a paper-feeding roller pivoted thereto, and the other finger extending upward to swing the rollers

into and out of engagement with the platen, and a spring-finger mounted upon the yoke to guide the paper around the platen to said paper-feeding roller, said finger extending
5 down around the platen and conforming substantially to the curvature thereof.

14. In a typewriting machine, the combination with a platen frame and a platen, of a yoke journaled on a rod above the platen
10 and adjustable therealong, one of the arms having oppositely-extending fingers, one extending downward to guide the leading edge of the paper, and having a roller pivoted thereto to run upon the platen, and the other
15 finger extending upward to throw the roller

into and out of engagement with the platen, and a finger mounted upon the connecting leg of the yoke to guide the paper between the platen and roller, said finger extending
20 down around the platen and conforming substantially to the curvature thereof; and said yoke having a spring-pressed roller engaging in a groove running along its supporting rod to lock the yoke when the roller is running upon the platen.

WALTER E. BARNARD.

Witnesses:

W. M. BYORKMAN,
L. D. BROUGHTON.