Nov. 17, 1964 W. L. DOLLENMAYER 3,157,266

PAPER ACTUATED BAIL

Filed April 19, 1963

FIG. 1

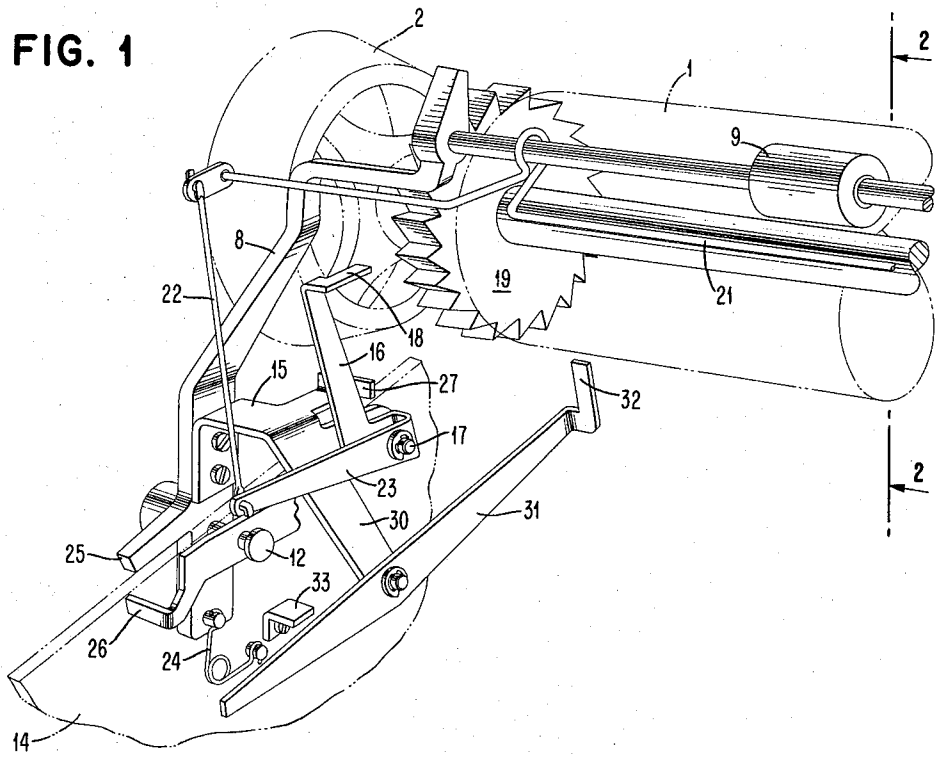
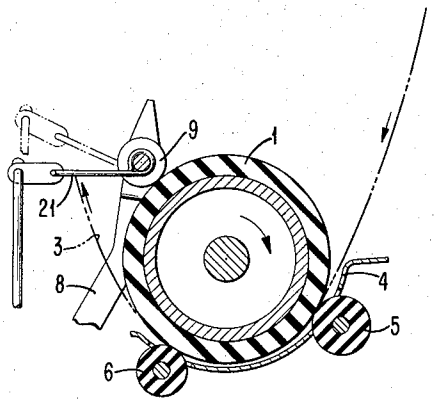


FIG. 2



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United States Patent Office 3,157,266 Patented Nov. 17, 1964

3,157,266

PAPER ACTUATED BAIL

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Filed Apr. 19, 1963, Ser. No. 274,196
5 Claims. (Cl. 197—138)

This invention relates to paper handling mechanisms for typewriters, and more particularly to mechanisms which operate automatically as a sheet of paper is advanced about a platen for moving the sheet into engagement with the front of the platen and holding it in such position.

As a sheet of paper is fed about a typewriter platen by rotating the latter, the forward portion of the sheet normally advances in a path which is tangent to the platen at points near its lower front surface. A paper bail is spring urged against the upper front surface of the platen, and this bail is usually lifted manually while the leading edge of the paper is directed under it. The bail is then released so it holds the paper against the portion of the platen surface which is engaged by type elements. By providing a mechanism which is triggered by the leading edge of the paper to effect a driving of the paper bail away from the platen as the sheet advances and then driving the bail again toward the platen after the sheet has passed between them, a positioning of the paper against the face of the platen is obtained without any manual operation of the bail.

An object of this invention is to provide an improved mechanism for handling a sheet of paper as it is advanced about the platen of a typewriter or similar office machine.

Another object is to provide a mechanism which is triggered by the leading edge of a sheet of paper as it is fed about the platen of a typewriter for driving a bail so it moves the paper against the face of the platen and holds it in such position.

Yet another object is to provide a mechanism which is conditioned by the leading edge of a sheet of paper to drive a bail away from the platen as it is rotated to advance the sheet and then to drive the bail toward the platen upon continued rotation of the platen to advance the sheet between itself and the bail.

The foregoing and other objects, features and advantages of the invention will be apparent from the following more particular description of a preferred embodiment of the invention, as illustrated in the accompanying drawings.

In the drawings:

FIG. 1 is a perspective view of the improved mechanism for driving a bail to different positions relative to a typewriter platen.

FIG. 2 is a cross sectional view taken on the plane of the line 2—2 in FIG. 1 and showing a sheet of paper being advanced about the platen to act on a trigger mechanism for effecting a driving of the bail.

As shown in FIGS. 1 and 2, a platen 1 of a typewriter or similar office machine may be provided with a knob 2 by which it is rotated manually for feeding a sheet of paper 3 to positions in which it may be typed upon. If desired, the platen may be rotated instead by any suitable power actuated means. The top edge of the sheet is inserted between the back side of the platen and a guide plate 4 which direct it to rear feed rolls 5 engaging the platen through openings in the guide plate. Feed rolls 5 are rotated by their frictional engagement with the platen and grip the paper sheet for advancing it to points at which front feed rolls 6 act on the platen for assisting the the advance of the sheet. If nothing more was provided, the forward portion of the sheet would advance for a short distance in a path which extends substantially tangent to the platen at points adjacent the front feed rolls, as shown in FIG. 2. Since the paper must lie smoothly against the forward surface of the platen during typing, there is provided a bail 8 carrying rollers 9 under which the leading edge of the paper is directed so it is held against the platen adjacent the upper portion of its forward surface. A positioning of the paper under the rollers 9 has been accomplished in the past by lifting the bail and directing the paper under it manually after the paper was advanced far enough to be gripped between the rollers and the platen.

The present mechanism provides for a driving of the bail relative to the platen after it is triggered by the leading edge of the paper sheet. As shown in FIG. 1, the bail 8 is pivotally supported by a stud 12 extending through an opening in a side plate 14 of the typewriter. A bracket 15 is connected to the bail and has a pawl 16 pivotally mounted upon it at 17. Formed on the pawl is a flange portion 18 which is engageable with teeth on a ratchet wheel 19 fixed to the platen. It will be noted that the pivot point 17 is spaced radially from the stud 12 in a direction extending toward the lower portion of the platen. Rotatably supported on the transverse portion of the bail 8 is a light wire bail 21 which is connected by a link 22 to an arm 23 on the pawl 16. The bail 21 extends forwardly from the platen into the path of the paper as shown in FIG. 2.

As the sheet of paper is fed into typing position by rotating the platen, the leading edge of the paper engages the bail 21 and rocks it in a direction to engage the flange 18 on pawl 16 with the ratchet wheel 19. Continued rotation of the platen causes the pawl to be pulled upwardly for effecting a rotation of the bail 8 in a counterclockwise direction. Connected to the lower end of an arm on the bail 8 is a toggle spring 24 which acts after slight rotation of the bail to throw it counterclockwise until a projection portion 25 engages an abutment 26. Formed on the bracket 15 is a flange 27 underlying the pawl 16. As the bail 8 swings counterclockwise under the action of the spring 24, the flange 27 engage the pawl 16 and knocks it off the tooth of the ratchet wheel.

Projecting downwardly from the bracket 15 is an arm 30 having a pawl 31 pivotally attached to its lower end. At the right end of the pawl is a flange 32 which is engageable with a tooth on the lower side of the ratchet wheel 19. Arranged about a tail portion of the pawl is an abutment 33 which is engaged by the tail portion as the arm 30 swings upwardly in a counterclockwise direction while the bail 8 swings away from the platen. Engagement of the pawl 31 with the abutment 33 causes a swinging of the pawl relative to the arm 30 until the flange 32 engages a tooth on the ratchet wheel. The paper bail 8 is then in its extreme position away from the platen. Further rotation of the platen causes the pawl 31 to be driven longitudinally for effecting a rocking of the bail 8 toward the platen. After a slight turning of the bail in this direction, the toggle spring 24 again acts to throw the bail against the platen. As the bail swings under the action of the toggle spring, the pawl 31 is moved free of the ratchet wheel to the position shown in FIG. 1.

It will be noted that the first portion of the movement by bail 8 in either direction relative to the platen results from the action of the ratchet wheel 19 on either pawl 16 or pawl 31. As the ratchet wheel rotates to drive these pawls, the platen operates to advance the sheet of paper. By the time the bail swings toward the platen under the action of the toggle spring, the paper sheet has been advanced far enough so its upper portion lies between the bail and the platen. The paper is engaged by

the rollers 9 on the bail 8 and is wrapped smoothly about the face of the platen.

While there is shown herein one form which my invention may assume in practice, it will be understood that it may be modified and embodied in various other forms without departing from the spirit and scope of the appended claims.

What is claimed is:

1. A bail mechanism for holding a sheet of paper against the platen of a typewriter comprising, in combination:

a bail engageable with said platen and movable to a position free of the latter;

means actuated by the leading edge of a sheet of paper as it is advanced by rotating said platen for effecting a swinging of said bail to a position free of said platen;

and means operating on further rotation of said platen in a paper feeding direction for driving said bail into engagement with said platen, said sheet of paper lying in the path of said bail as it moves toward said platen so the paper is engaged thereby and moved into engagement with said platen.

2. A bail mechanism for holding a sheet of paper against the platen of a typewriter comprising, in combination:

a bail engageable with said platen and movable to a position free of the latter;

a ratchet wheel fixed to said platen for rotation therewith;

a pawl mounted on said bail and engageable with said ratchet wheel for driving said bail to a position free of said platen;

means actuated by the leading edge of a sheet of paper as it is advanced by rotating said platen for engaging said pawl with said ratchet wheel;

and means operating on further rotation of said platen in a paper feeding direction for driving said bail into engagement with said platen, said paper sheet having advanced in the meantime to a position between said bail and said platen.

3. The mechanism of claim 2 in which said means operating on further rotation of said platen comprises a second pawl mounted on said bail and moving into engagement with said ratchet wheel as said bail moves to a position free of said platen.

4. A bail mechanism for moving and holding a sheet of paper against the platen of a typewriter comprising, in combination:

a bail engageable with said platen and movable to a position free of the latter;

a ratchet wheel fixed to said platen for rotation therewith;

a first pawl pivotally mounted on said bail and engageable with said ratchet wheel for effecting movement of said bail away from said platen;

a toggle spring effective after predetermined movement of said bail under the action of said first pawl for forcing said bail away from said platen;

means operating after said toggle spring becomes effective for disengaging said first pawl from said ratchet wheel;

a second pawl pivotally mounted on said bail and engageable with said ratchet wheel for effecting movement of said bail toward said platen;

means operating as said bail moves outwardly under the action of said toggle spring for engaging said second pawl with said ratchet wheel;

and means actuated by the leading edge of a sheet of paper as it is advanced by rotating said platen for engaging said first pawl with said ratchet wheel.

5. The mechanism of claim 4 in which said toggle spring acts after predetermined movement of said bail toward said platen for yieldingly forcing said bail into engagement with said platen, said second pawl being moved to a position free of said ratchet wheel as said bail moves into engagement with said platen under the action of said toggle spring.

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