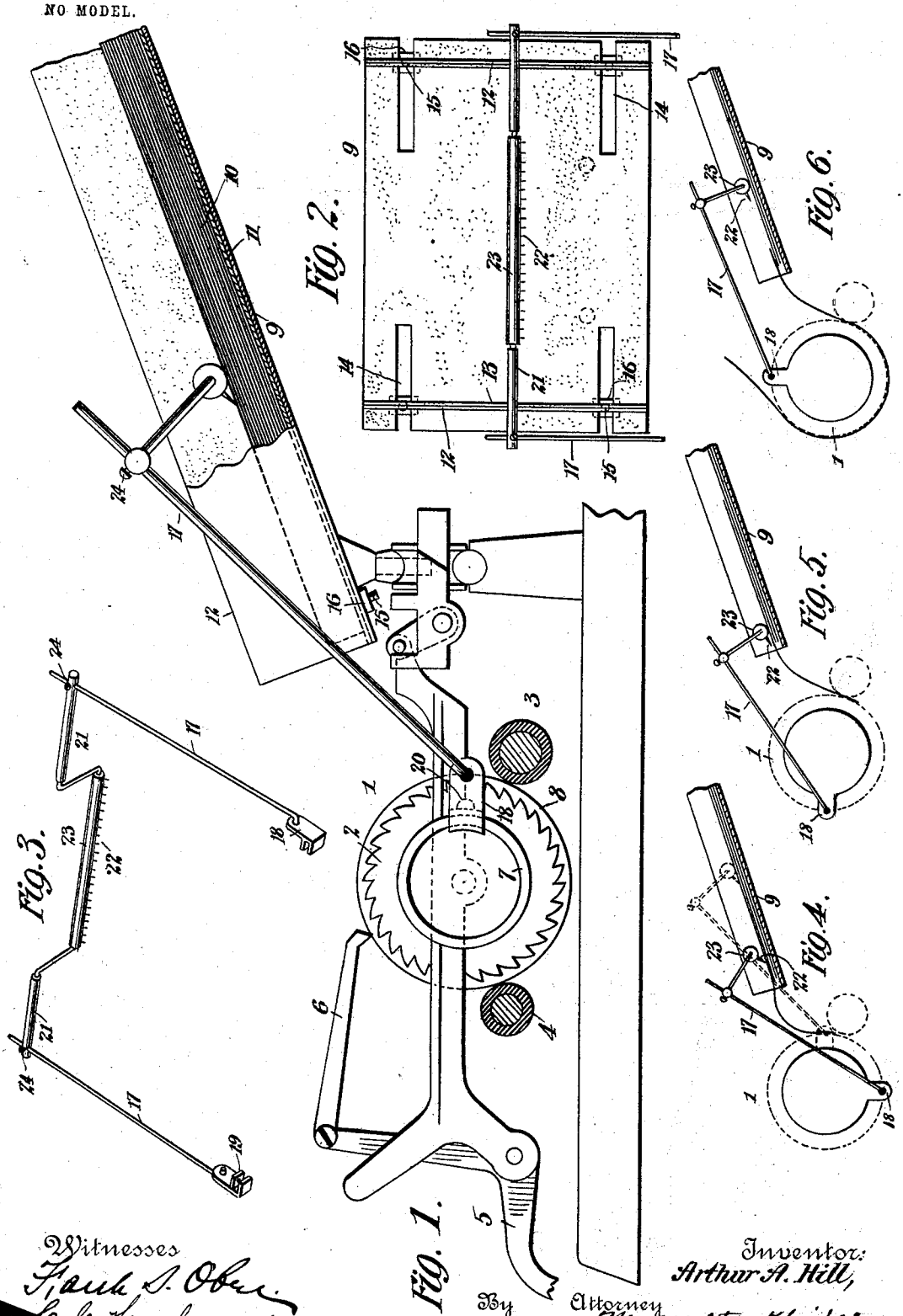
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A. A. HILL.

PAPER FEEDING DEVICE FOR TYPE WRITING MACHINES.

APPLICATION FILED MAY 27, 1903.

NO MODEL.



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UNITED STATES PATENT OFFICE.

ARTHUR A. HILL, OF NEW YORK, N. Y.

PAPER-FEEDING DEVICE FOR TYPE-WRITING MACHINES.

SPECIFICATION forming part of Letters Patent No. 746,631, dated December 8, 1903.

Application filed May 27, 1903. Serial No. 158,935. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR A. HILL, a citizen of the United States, residing at New York city, New York, have invented certain new and useful Improvements in Paper-Feeding Devices for Type-Writing Machines, of which the following is a specification.

My invention relates to paper-feeding devices for type-writing machines, the object of the same being to provide a simple and cheaply-constructed attachment for such machines which will automatically and successively feed or deliver thereto sheets of paper from a pile on an adjacent supporting-table.

The details of the invention will hereinafter appear, and the novel features thereof will be set forth in the claims.

In the drawings forming part of this specification, Figure 1 is a sectional side elevation of a portion of a type-writing machine, showing my improved automatic paper-feeding device applied thereto. Fig. 2 is a plan view of the paper-supporting table. Fig. 3 is a perspective view of the feeding device detached from the machine, and Figs. 4, 5, and 6 are detail views showing the device in different positions at various stages of the feeding operation.

Like reference-numerals indicate like parts in the different views.

My improved feeding device has been shown in connection with the paper-carriage of the well-known Remington type-writing machine, although it is equally well adapted for use upon other makes of writing-machines, as well as upon printing-presses and the like.

The platen or impression-cylinder 1, having the ratchet 2 thereon, the friction-rolls 3 and 4, coöperating with said platen, the line-spacing lever 5, and the pawl 6, connected to said lever and coöperating with the ratchet 2, are all of the usual and well-known construction and form no part of the present invention. The platen 1 is shown as made with a central metallic tube 7 and an outer covering 8, of hard rubber or other like material, the said tube 7, projecting beyond the ends of the covering 8, forming an annular flange or projection at each end of the platen.

My invention includes a paper-supporting table 9, which is connected to the paper-carriage of the machine, is slightly inclined, and has its forward or delivery end located adjacent to the platen 1. On this table is placed a stack or pile 10 of paper sheets to be fed or delivered one by one to the machine. These sheets may be telegraph-blanks, envelops, or other blank sheets of paper. To prevent the slipping of the pile of sheets longitudinally, the upper surface of the table 9 is supplied with a layer 11 of cloth or other suitable material. The said table is further provided with side pieces 12 for preventing the lateral displacement of the sheets. Each of said side pieces may be provided with a layer 13 of fabric or other suitable material to prevent accidental slippage of the sheets. The side pieces 12 are capable of lateral adjustment on the table 9 to accommodate the device for use with sheets of paper, envelops, or the like of different widths. To provide for this adjustment, the said table is formed with slots 14 extending parallel to the front and rear edges thereof, and the lower edges of the side pieces 12 are provided with screw-threaded pins or projections 15, which fit and are movable within said slots. Clamping-nuts 16 are provided on the pins 15 for locking the side pieces 12 in their adjusted positions. By this construction it will be observed that the only thing necessary to do in order to change the width of the table, or rather the degree of separation of the side pieces 12, is to loosen the nuts 16, move the side pieces in one direction or the other, and then tighten said nuts, so as to clamp said side pieces to said table 9.

The feeding attachment proper consists of a pair of substantially parallel arms 17, which are provided with means whereby they may be connected eccentrically to the ends of the platen or cylinder 1 with provision for pivotal movement. As a simple means of effecting this connection with the platen I employ the two clamps 18, to which the arms 17 are pivoted, each of said clamps consisting of a metallic plate having parallel flanges 19 thereon adapted to straddle or embrace the projecting end of the tube 7 and a set-screw 20, extending through an opening in one of

said flanges and coöperating with said tube 7 for locking the device thereto. Adjacent to the opposite or rear ends of the arms 17 the same are connected to each other by a cross-piece 21, which constitutes a support for the sheet-engaging means 22. This sheet-engaging means has been shown as a series of needles or pointed projections secured to and extending laterally from a sleeve 23 on the cross-piece 21. I do not limit myself, however, to the needles or to the direct attachment of any form of sheet-engaging means to the cross-piece or to the sleeve thereon. When the feeding device is in operation, a reciprocating and rocking movement is imparted to the sleeve 23 and the needles 22 thereon, and the same move over the top of the pile 10 of sheets on the table 9 toward and away from the platen 1, feeding said sheets successively toward said platen. As said sheets may vary in length, however, it is important that means be provided for adjusting the cross-piece 21 on the arms 17 so that the sheet-engaging means may move in proper relation to the sheets to be fed to the machine. One means for accomplishing this adjustment has been shown in the drawings, the same consisting in the provision of openings in the cross-piece 21, through which the arms 17 pass, and set-screws 24, extending through said cross-piece and coöperating with said arms. The cross-piece 21 has also been shown as provided with an offset or cranked portion at a point intermediate its ends, on which the sleeve 23 is mounted. This is to enable the needles 22 to be brought into operative relation with the top sheet on the table 9 without interference between said cross-piece and the side pieces 12 of said table.

It has been stated that the needles 22 extend laterally from the sleeve 23, to which they are secured. They also extend toward the platen 1 in a plane substantially parallel with the arms 17.

From the foregoing description it is thought that the operation of my device will be readily understood. Briefly stated, however, it is as follows: The table 9 is mounted upon the paper-carriage, substantially as shown in Fig. 1 of the drawings, and a pile or stack of envelops, telegraph-blanks, or other sheets placed thereon. The feeding device proper is also connected up, substantially as shown in said figure of the drawings, by securing the clamps 18 to the projecting ends of the tube 7. The arms 17 are then thrown rearwardly, and the sleeve 23 or the needles 22 thereon rest by gravity on the top sheet of the pile 10. Assuming the parts to be in the positions shown in Fig. 1 of the drawings, with the clamps 18 located between the top and bottom of their stroke on the rear side of the platen, the needles 22 on the sleeve 23 will be in gripping engagement with the top sheet of the pile 10 on the table 9. Now as the platen 1 is rotated by the operation of the line-spacing lever 5 the clamps 18 will be moved downwardly toward the position shown in Fig. 4 in the drawings, the cross-piece 21, the sleeve 23, and the needles 22 will be moved toward the platen 1, and the top sheet of the pile 10 will be moved therewith. At this time the sleeve 23 or the cross-piece to which it is connected will be raised from the pile of sheets. The rotation of the platen 1 is a step-by-step or intermittent movement, and the movement of the sheet operated upon by the feeding device will be a similar movement, corresponding exactly therewith. The continued rotation of the platen 1 will cause a continued movement of the sheet until just before the positions of the parts shown in Fig. 5 are reached. At this time the forward end of the sheet being delivered will have passed between the platen 1 and the roller 3, and thereafter said sheet will be moved by the direct contact of the platen therewith. When the positions shown in Fig. 5 are reached, the needles or sheet-engaging means 22 will have disengaged themselves from said sheet by reason of the fact that as the arms 17 pass across the axis of the platen 1 a rocking or turning movement will be imparted to the sleeve 23. The continued rotation of the platen 1 toward the position shown in Fig. 6 of the drawings causes the rearward movement of the feeding device over the upper surface of the pile of sheets 10. During this movement of the feeding device no contact takes place between the needles or sheet-engaging means 22 and any of the sheets. Consequently the pile remains in unaltered condition. As soon, however, as the platen approaches the position shown in Fig. 1 of the drawings the sleeve 23 is rocked or turned downwardly and the needles 22 are brought into operative relation to the upper sheet of the pile. The needles slightly penetrate the surface of the sheet, and the return movement of the feeding device toward the platen 1 causes a corresponding movement of the upper sheet of the pile toward said platen.

The feeding device is entirely automatic in its operation, may be readily attached to any of the well-known makes of type-writing machines, and as it is connected to the usual paper-feeding mechanism of the machine it cooperates therewith and delivers a fresh sheet thereto as soon as the sheet which has been printed is discharged therefrom. The device therefore dispenses with the necessity for handling separate sheets of paper, which with the ordinary machines consumes a great amount of time and is annoying by reason of the delay that is caused.

The invention has been described in the form which is deemed by me at this time to be the preferable one. It is realized, however, that the device is susceptible of modification in its details. I do not, therefore, limit myself to any of the details of construction shown and described, except as defined in the appended claims.

Having now described my invention, what I claim is—

1. An automatic paper-feeding device for writing or printing machines, comprising a support and sheet-engaging means connected therewith, one of said parts being always in engagement with the pile of sheets, and means for rocking and bodily moving said support in opposite directions, whereby said sheet-engaging means is turned down into operative relation with the pile of sheets, is advanced with one of said sheets, is turned up out of operative relation with said pile, and is returned to its original position, the said sheet-engaging means being moved longitudinally, in line with the surface of the pile of sheets, during the feeding operation.

2. An automatic paper-feeding device for writing or printing machines, comprising a support, sheet-engaging means connected therewith, the movement of said parts in one direction being limited solely by their engagement with the pile of sheets, and means for rocking and bodily moving said support in opposite directions, whereby said sheet-engaging means is moved down into operative relation with the pile of sheets, is advanced with one of said sheets, is moved up out of operative relation with said pile, and is returned to its original position, the said sheet-engaging means being moved longitudinally, in line with the surface of the pile of sheets, during the feeding operation.

3. An automatic paper-feeding device for writing or printing machines, comprising a support, sheet-engaging means connected therewith, and means for bodily moving and for rocking said support and thereby alternately throwing said support and said sheet-engaging means into and out of engagement with the pile of sheets with which they coöperate, the said sheet-engaging means being moved longitudinally, in line with the surface of the pile of sheets, during the feeding operation, as and for the purpose set forth.

4. An automatic paper-feeding device for writing or printing machines, comprising an arm, means for connecting said arm eccentrically to a rotary part, with provision for pivotal movement, a cross-piece connected to and movable with said arm, and sheet-engaging means connected with said cross-piece, one of the latter parts being always in engagement with the pile of sheets, and said sheet-engaging means being moved longitudinally, in line with the surface of the pile of sheets, during the feeding operation, as and for the purpose set forth.

5. An automatic paper-feeding device for writing or printing machines, comprising a support, laterally-extending sheet-engaging means secured thereto, one of said parts being always in engagement with the pile of sheets, and means for rocking and bodily moving said support in opposite directions, whereby said sheet-engaging means is turned down into operative relation with the pile of sheets, is advanced with one of said sheets, is turned up out of operative relation with said pile, and is returned to its original position.

6. An automatic paper-feeding device for writing or printing machines comprising a support, laterally-extending sheet-engaging means secured thereto, the movement of said parts in one direction being limited solely by their engagement with the pile of sheets, and means for rocking and bodily moving said support in opposite directions, whereby said sheet-engaging means is turned down into operative relation with the pile of sheets, is advanced with one of said sheets, is turned up out of operative relation with said pile, and is returned to its original position.

7. An automatic paper-feeding device for writing or printing machines, comprising a support, sheet-engaging means carried thereby, and means for bodily moving and for rocking said support and thereby alternately throwing said support and said sheet-engaging means into and out of engagement with the pile of sheets with which they coöperate, as and for the purpose set forth.

8. An automatic paper-feeding device for writing or printing machines comprising an arm, means for connecting said arm eccentrically to a rotary part, with provision for pivotal movement, a cross-piece secured to and movable with said arm and laterally-extending sheet-engaging means secured to said cross-piece, one of the latter parts being always in engagement with the pile of sheets, as and for the purpose set forth.

9. An automatic paper-feeding device for writing or printing machines, comprising a pair of arms, means for connecting said arms eccentrically to a rotary part, with provision for pivotal movement, a cross-piece connecting said arms, and laterally-extending sheet-engaging means secured to said cross-piece, one of the latter parts being always in engagement with the pile of sheets, as and for the purpose set forth.

10. An automatic paper-feeding device for writing or printing machines, comprising a pair of arms, clamps pivoted thereto for connecting said arms eccentrically to a rotary part, a cross-piece connecting said arms, and laterally-extending sheet-engaging means secured to said cross-piece, one of the latter parts being always in engagement with the pile of sheets, as and for the purpose set forth.

11. An automatic paper-feeding device for writing or printing machines, comprising a pair of arms, means for connecting said arms eccentrically to a rotary part, with provision for pivotal movement, a cross-piece connecting said arms, laterally-extending sheet-engaging means secured to said cross-piece, one of the latter parts being always in engagement with the pile of sheets, and means for adjusting the position of said cross-piece on said arms, as and for the purpose set forth.

12. An automatic paper-feeding device for writing or printing machines, comprising a

pair of arms, means for connecting said arms eccentrically to a rotary part, with provision for pivotal movement, a cross-piece connecting said arms, and laterally-extending needles or projections secured to said cross-piece, one of the latter parts being always in engagement with the pile of sheets, as and for the purpose set forth.

13. An automatic paper-feeding device for writing or printing machines, comprising a pair of arms, means for connecting said arms eccentrically to a rotary part, with provision for pivotal movement, a cross-piece connecting said arms, having an offset or cranked portion thereon, and laterally-extending needles or projections secured to said cranked portion, as and for the purpose set forth.

14. An automatic paper-feeding device for writing or printing machines, comprising a pair of arms, clamps pivoted thereto for connecting said arms eccentrically to a rotary part, a cross-piece connecting said arms, and laterally-extending needles or projections secured to said cross-piece, one of the latter parts being always in engagement with the pile of sheets, as and for the purpose set forth.

15. An automatic paper-feeding device for writing or printing machines, comprising a rod or bar, a series of transversely-extending needles or projections secured thereto, one of the latter parts being always in engagement with the pile of sheets, and means for rocking said rod or bar and imparting a reciprocating movement thereto, as and for the purpose set forth.

16. An automatic paper-feeding device for writing or printing machines, comprising a sheet-supporting table, a rod or bar, a series of transversely-extending needles or projections secured thereto, one of the latter parts being always in engagement with the pile of sheets, and means for rocking said rod or bar and imparting a reciprocating movement thereto longitudinally of said table, as and for the purpose set forth.

17. An automatic paper-feeding device for writing or printing machines, comprising a sheet-supporting table having side pieces thereon, a pair of arms, means for connecting said arms eccentrically to a rotary part, with provision for pivotal movement, a cross-piece connecting said arms having an offset or cranked portion thereon, to avoid interference with said side pieces, and laterally-extending needles or projections secured to said cranked portion, as and for the purpose set forth.

18. The combination with a rotary cylinder and a sheet-supporting table, of an arm eccentrically pivoted to said cylinder, a support carried by said arm, and laterally-extending sheet-engaging means secured to said support, one of the latter parts being always in engagement with one of the pile of sheets on said table, as and for the purpose set forth.

19. The combination with a rotary cylinder and a sheet-supporting table, of an arm eccentrically pivoted to said cylinder, a support carried by said arm, laterally-extending sheet-engaging means secured to said support, one of the latter parts being always in engagement with one of the pile of sheets on said table, and means for adjusting the position of said support on said arm, as and for the purpose set forth.

20. The combination with a rotary cylinder and a sheet-supporting table, of a pair of arms eccentrically pivoted to said cylinder, a cross-piece connecting said arms, and laterally-extending sheet-engaging means secured to said support for separately and successively withdrawing the sheets from said table, one of the latter parts being always in engagement with the pile of sheets, as and for the purpose set forth.

21. The combination with a rotary cylinder and a sheet-supporting table, of a pair of arms eccentrically pivoted to said cylinder, a cross-piece connecting said arms, and laterally-extending needles or projections secured to said cross-piece, one of the latter parts being always in engagement with the pile of sheets, as and for the purpose set forth.

22. The combination with a rotary cylinder and a sheet-supporting table having side pieces thereon, of a pair of arms eccentrically pivoted to said cylinder, a cross-piece connecting said arms having an offset or cranked portion thereon, to avoid interference with said side pieces, and laterally-extending needles or projections secured to said cranked portion, as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ARTHUR A. HILL.

Witnesses:
WM. M. STOCKBRIDGE,
M. W. NOLAN.