

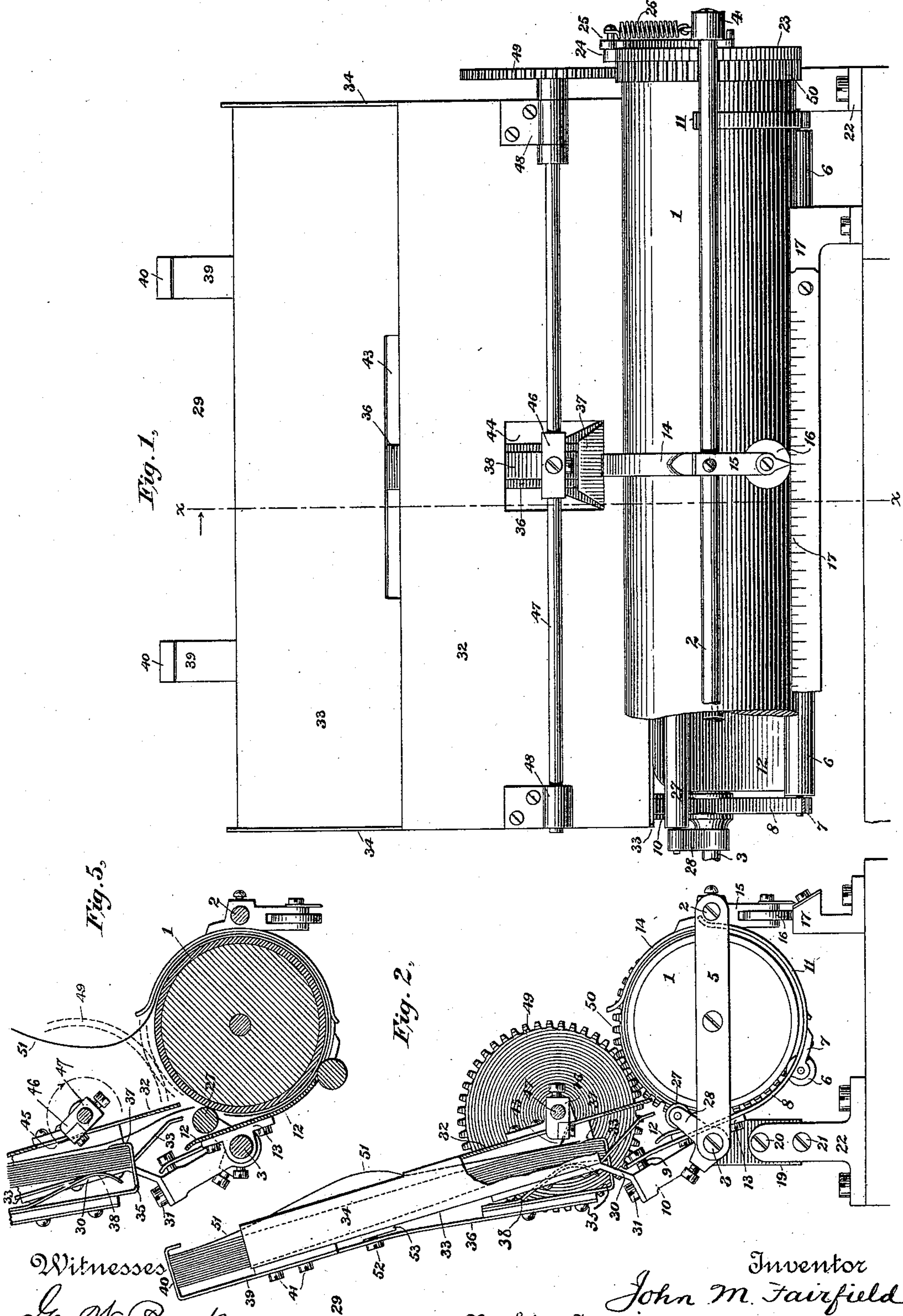
(No Model.)

2 Sheets—Sheet 1.

J. M. FAIRFIELD.
TYPE WRITING MACHINE.

No. 456,234.

Patented July 21, 1891.



Witnesses
Geo. W. Breech.
Edward Thorpe.

Inventor
John M. Fairfield
By his Attorney
Jacob Felbel

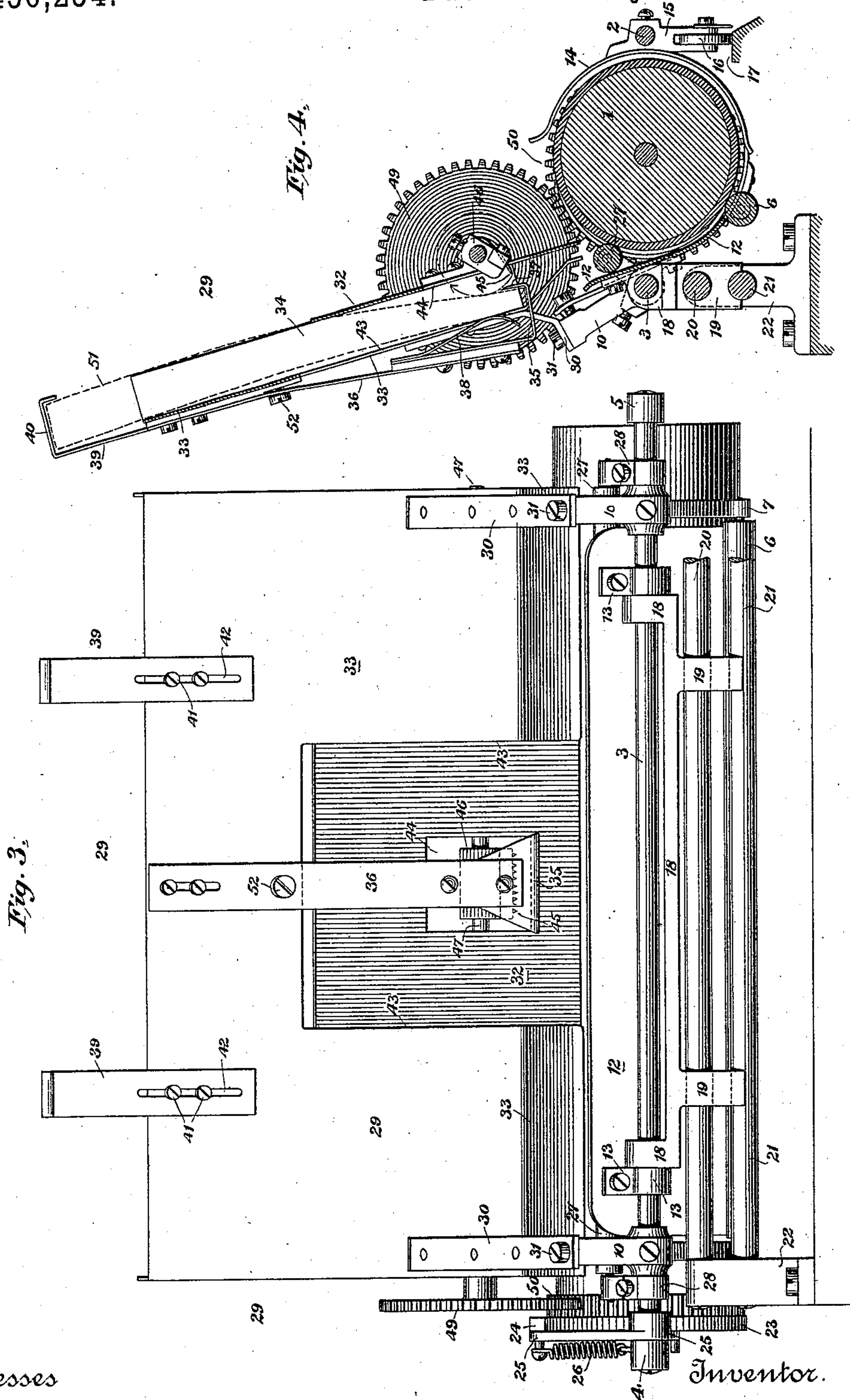
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UNITED STATES PATENT OFFICE.

JOHN M. FAIRFIELD, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE
AMERICAN WRITING MACHINE COMPANY, OF SAME PLACE.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 456,234, dated July 21, 1891.

Application filed May 10, 1890. Serial No. 351,218. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. FAIRFIELD, a citizen of the United States, and a resident of 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.

My invention has for its main object to provide means for feeding automatically separate sheets of paper to the platen or impression-cylinder of a type-writing machine, and has been devised more especially for feeding telegraph-blanks one at a time; and my invention consists in certain features of construction and combinations of devices, all as will be hereinafter more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a front elevation or portion of a type-writing machine embodying my improvements. Fig. 2 is an end view of the same, partly broken away to show the construction and arrangement of certain of the parts. Fig. 3 is a rear elevation of the same. Fig. 4 is a vertical section taken at the line *x x* of Fig. 1; and Fig. 5 is a similar section with the sheet-picker in a different position and a sheet or blank represented as dropping from its box or holder after having been released or removed by the picker.

In the several views the same part will be found designated by the same numeral of reference.

I have shown my invention applied to the machine known as the "Caligraph;" but it of course may be used in connection with type-writing machines of other construction or design.

1 represents the cylindrical rubber-covered platen or impression-cylinder, which, as usual, is journaled in the paper-carriage. The front rod of the paper-carriage is designated by 2, the rear rod by 3, and the end bars by 4 and 5.

6 represents the usual rubber-covered feed-roll, journaled in hangers 7 on spring-arms 8, whose rear ends are connected by adjusting screws 9 to supports or brackets 10, attached to the rear carriage-rod 3, and whose front ends extend up partially around the platen at its ends to form paper-guides 11.

12 designates the usually employed paper-table, secured by lugs or brackets 13 to the rear carriage-rod 3, and 14 the center paper-guide, attached to a bracket 15, connected to the front carriage-rod 2. In the last-mentioned bracket is mounted the carriage-supporting roller 16, which travels upon the fixed track or way 17 at the front of the machine.

18 designates a yoke, which is attached to the rear carriage-rod 3 and provided with two depending lugs or arms 19, that embrace and travel upon two parallel guide-rails 20 and 21, arranged in stands 22 at the end of the machine-frame.

At the right-hand end of the platen is provided a ratchet-wheel 23, with which engages a dog or check 24 on the upper end of an arm 25, pivoted upon the rear carriage-rod and provided with a spring 26 to hold the dog or check normally in engagement with the ratchet-wheel 23, and thus secure the platen against accidental rotation.

A line-space lever, as usual, is mounted upon the front carriage-rod, and is provided with a driving-pawl for engagement with the ratchet-wheel 23 to effect the rotation of the platen with a step-by-step movement.

Between the paper-table and the platen is arranged a rubber roller 27, which is journaled at its ends in brackets 28, secured to the rear carriage-rod.

29 designates the paper or blank holder, which is secured to the carriage by means of arms or brackets 30, attached by screws 31 to the upper ends of the supports 10. The blank-holder is peculiarly constructed. 32 designates its front plate or wall, 33 its rear plate or wall, and 34 its end walls.

35 designates the paper-support, which is provided with an arm 36, whereby it is attached adjustably by screws to the back wall 33 of the blank holder and guide. The paper-support is provided at its front with a ledge or flange 37 and at its rear with a spring 38, which keeps the lower ends of the blanks pressed against said ledge or flange. To the rear wall 33 is attached two arms 39, having forwardly-projecting flanges or portions 40, which serve as stops or abutments for the upper edges of the blanks. These arms are fastened by screws 41, and are slot-

ted, as seen at 42, to provide for vertical adjustment for sheets of different lengths. The rear wall or plate 33 is cut away, as seen at 43, for the admission into the box-like holder 5 and guide of the paper-support 35. The front wall or plate 32 does not extend as high as the rear one, and it is provided about centrally with an opening 44 for the admission and operation of the blank picker or extractor, which consists, preferably, of a series of sharp points or needles 45, secured to a holder or support 46, mounted upon a shaft 47, which rotates in bearings 48, attached to the plate 32. The shaft 47 is provided at one end with a gear-wheel 49, which meshes with a companion gear-wheel 50, attached to the platen or its shaft.

51 designates the sheets or blanks of paper. These are inserted so as to rest at their bottom edges upon the paper-support 35, and so as to be held at their lower portions between the ledge 37 and the spring 38, while the upper edges of the sheets are arranged to abut against the tops or flanges 40, substantially in the manner illustrated.

The operation of the machine will be understood to be as follows: As the platen is rotated the gear 50 turns therewith, and through the gear 49 and shaft 47, the pickers are rotated in the path indicated by the arrow in dotted lines at Figs. 4 and 5. When the pickers arrive within the opening 44 and ascend, they contact with the foremost sheet of the pile of paper and draw or carry up its lower portion until the bottom edge of said sheet has been elevated above the top edge of the flange 37. The pickers then part company with said sheet, which by its own weight drops at once in front of said flange, and, passing down between the front plate 32 and the bent lower portion of the back plate 33, its lower or leading end enters the bight of the platen 1 and the feeding-roller 27. As the rotation of the platen is continued, said sheet is carried around with the platen, being guided by the arms 8 and 11 and assisted in its feed by the roller 6. When the pickers come in contact with the paper, they raise only the lower portion thereof in consequence of the upper or tail end of the sheet abutting against the under side of the stops 40. The upper end of the sheet being prevented from rising, the sheet is caused to buckle or belly outward intermediate its ends, and in order to provide for this action the front plate 32 is arranged to terminate at a much lower elevation than the stops 40.

An inspection of Fig. 4 will disclose that the pickers have entered the opening 44 and are ascending. Fig. 2 will show that the pickers have raised a sheet out of the supporter and above the flange 37, and that the pickers are about to pass away from said sheet, while Fig. 5 will show that the pickers have separated from the sheet and that the latter is descending to pass in the bight of the platen and the roller 27. In the last-mentioned view the

sheet of paper previously fed to the platen is shown as still thereon. In practice I time the feed so that as soon as the tail end of one sheet shall have passed out from between the platen and the roller 27 the leading end of another sheet shall drop into the pocket or angle formed by said devices and in position to be seized and fed forward at the next movement or partial rotation of the platen. As the platen is revolved, the sheet is gradually drawn down out of the holder and is guided laterally by the end pieces or walls 34, which likewise act as side guides when the sheet is released by the pickers and is descending by gravity to the platen, thus insuring the proper presentation of the leading edge of the sheet to the platen and its first feed-roll.

In order that the pickers after releasing one sheet (if of extra length) shall not get around again before the rear end of that sheet shall have been fed past the point of contact (or the engaging locality) of the pickers, (which, if permitted to occur, would be detrimental,) I mount the gear 49 eccentrically of its shaft and the gear 50 eccentrically of the axis of rotation of the platen, as shown. By thus arranging the gears 49 and 50 the rotation of the pickers is delayed or slowed up relatively to the rotation of the platen and the feed of the paper, and hence the pickers may be timed to fully clear the tail end of the sheet being written upon and yet be brought around to position to release the next sheet immediately the tail end of the sheet being fed shall have passed beyond the plane of contact of the pickers. Of course the gears 49 and 50 may be arranged concentrically where short sheets are to be fed and where there is no necessity for giving the pickers a retarded movement.

The spring 38 operates to keep the lower ends of the sheets pressed forward at all times for engagement by the pickers. The tension or pressure of said spring may be regulated or adjusted by any suitable means, and the position of the paper-support 35 may be adjusted with reference to the pickers by a set-screw 52, bearing upon the spring or flexible arm 36 and taking into the back plate 33 or an offset 53 thereon.

By my invention it will be seen that I have provided means, in connection with the platen of a type-writing machine, whereby separate sheets of paper arranged in a pile or stack may be fed automatically one at a time to the platen, and that the means for effecting the feeding or presentation of the sheets to the platen are controlled or operated by the movement of the platen to effect the line-space feeding of the sheet of paper being written upon.

As numerous changes in details of construction may be made in the contrivance or means for holding the paper and in the means or mechanism for operating upon the sheets to deliver them one at a time to the platen, I

desire it to be understood that I do not limit myself to exactly what is herein shown and described.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a type-writing machine, the combination, with a platen and its carriage, of a sheet-holder and a sheet-extractor mounted upon said carriage to travel therewith, a toothed gear mounted on the axis of the sheet-extractor, and a toothed gear mounted on the axis of the platen engaging therewith, as set forth.

2. In a type-writing machine, the combination, with a platen and its carriage, of a sheet-holder and a sheet-extractor mounted upon said carriage to travel therewith, a toothed gear mounted eccentrically on the axis of the sheet-extractor, and a toothed gear engaging therewith mounted eccentrically on the axis of the platen, as set forth.

3. In a type-writing machine, the combination, with a platen and its carriage, of a sheet-supporter and a sheet-extractor mounted on said carriage, means for adjusting the sheet-supporter relatively to the extractor, a spring for maintaining the sheets in proper position relatively to the extractor, and guides for insuring the delivery of the sheets properly to the platen, as set forth.

4. In a type-writing machine, the combination, with a platen and its carriage, of a sheet-holder and a sheet-extractor mounted on said carriage, the said sheet-extractor having a rotary motion and consisting, essentially, of a series of needle-points, as set forth.

5. In a type-writing machine, the combination, with a platen and its carriage, of a sheet-holder and a sheet-extractor mounted thereon, the said sheet-holder being made in the form of a bottomless box and having a sheet-supporter arranged within said box and above its lowermost edge, as set forth.

6. In a type-writing machine, the combination, with a platen and its carriage, of a sheet-holder and a sheet-extractor mounted thereon, the said sheet-holder being made in the form of a bottomless box with its front and rear walls of different heights and provided interiorly with a sheet-supporter arranged to stand above its lowermost portion, as set forth.

7. In a type-writing machine, the combination of a platen and its carriage, of a sheet-holder and a sheet-extractor mounted thereon, the said sheet-holder consisting of a front plate, a rear plate, an abutment, and a sheet-supporter, as set forth.

8. In a type-writing machine, the combination, with a platen and its carriage, of a sheet-extractor mounted on said carriage, a support for the bottom edges of the sheets, and an abutment for the top edges of the sheets, as set forth.

9. In a type-writing machine, the combination, with a platen and its carriage, of a sheet-extractor mounted thereon, a support for the

bottom edges of the sheets, and a vertically-adjustable abutment for the upper edges of the sheets, as set forth.

10. In a type-writing machine, the combination, with a platen and its carriage, of a sheet-holder and a sheet-extractor mounted thereon, the said sheet-holder being in the form of a bottomless box with an opening in front for the admission and operation of the sheet-extractor and having interiorly a sheet-supporter, as set forth.

11. In a type-writing machine, the combination, with a platen and its carriage, of a bottomless sheet-holder and a sheet-extractor mounted thereon, the said sheet-holder consisting of a box-like structure the front plate of which is provided with an opening for the admission and operation of the sheet-extractor and the rear plate of which is also provided with an opening for the admission of a sheet-supporter which is attached to said rear plate, as set forth.

12. In a type-writing machine, the combination, with a platen and its carriage, of a box-like sheet-holder connected to said carriage, a sheet-supporter arranged at the bottom of said sheet-holder, a rotary sheet-extractor connected to said carriage, and gearing between said sheet-extractor and the platen, as set forth.

13. In a type-writing machine, the combination, with a platen and its carriage, of a sheet-holder and a sheet-extractor connected thereto, the said sheet-holder consisting of a bottomless box-like structure with front and back walls of different heights, and having a sheet-supporter for the lower ends of the sheets and an abutment for the upper ends of the sheets, and also a spring for pressing forward the lower ends of the sheets, and the said sheet-extractor consisting, essentially, of a series of needle-points adapted to be rotated, and while ascending to engage with the foremost sheet of the pile and lift its lower end from the sheet-supporter while its upper end is pressing against said abutment, as set forth.

14. A sheet-holder consisting of a bottomless box-like structure with front and rear walls of different heights, a sheet-supporter arranged within and at the lower end of said sheet-holder, and an abutment arranged at the upper portion of said sheet-holder, in combination with a sheet-extractor having an upward motion by which the lower portion of the front sheet of the pile may be lifted from the sheet-extractor while its upper end is held against movement by said abutment, as set forth.

Signed at Hartford, in the county of Hartford and State of Connecticut, this 1st day of May, A. D. 1890.

JOHN M. FAIRFIELD.

Witnesses:

W. I. MORSE,
J. L. FIELDER.