

987,097.

Patented Mar. 14, 1911.

3 SHEETS—SHEET 1.

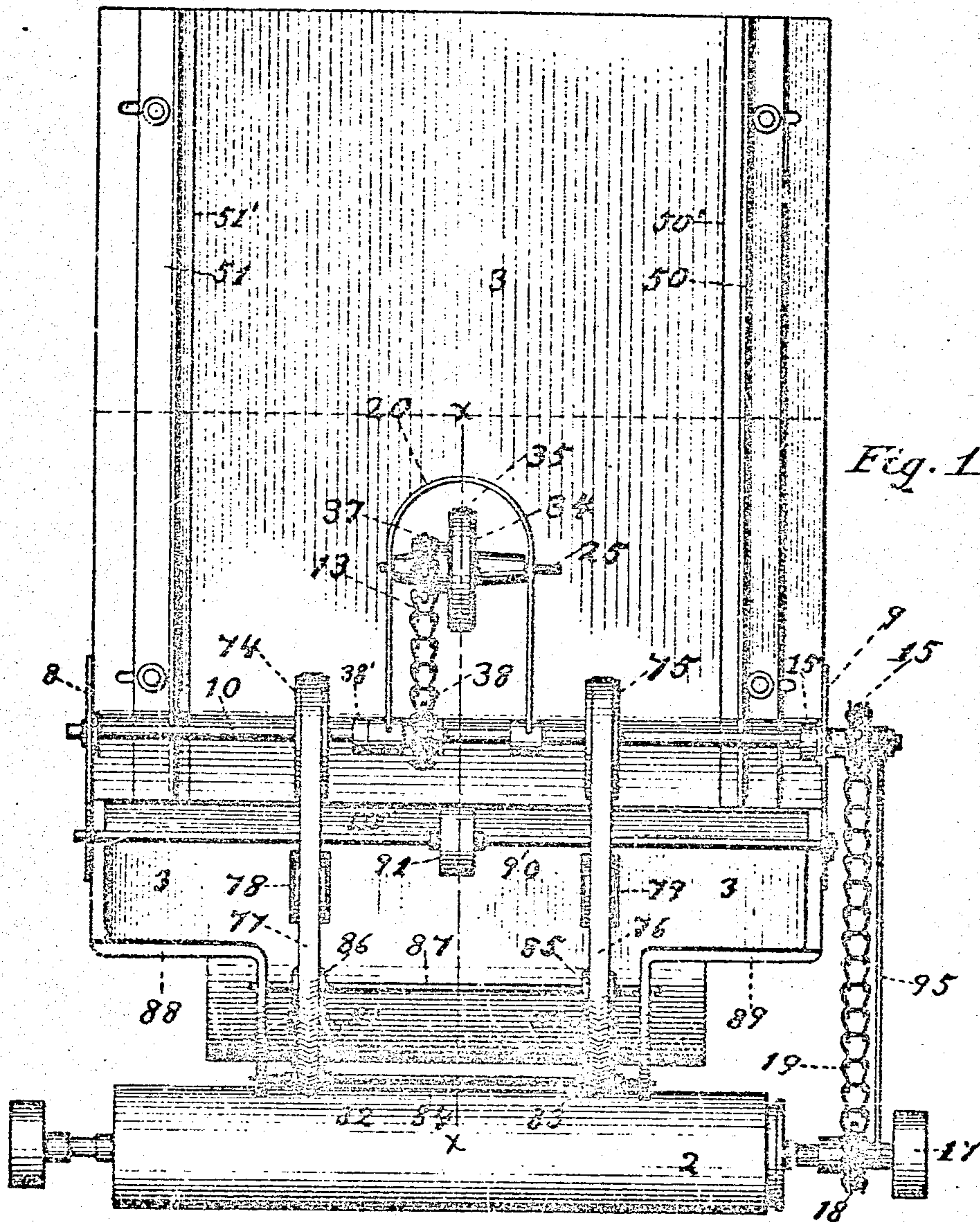


Fig. 1.

Witnesses

2 Witnesses
 Susan A. R. McWille,
 Margaret J. Carlisle.

Inventors

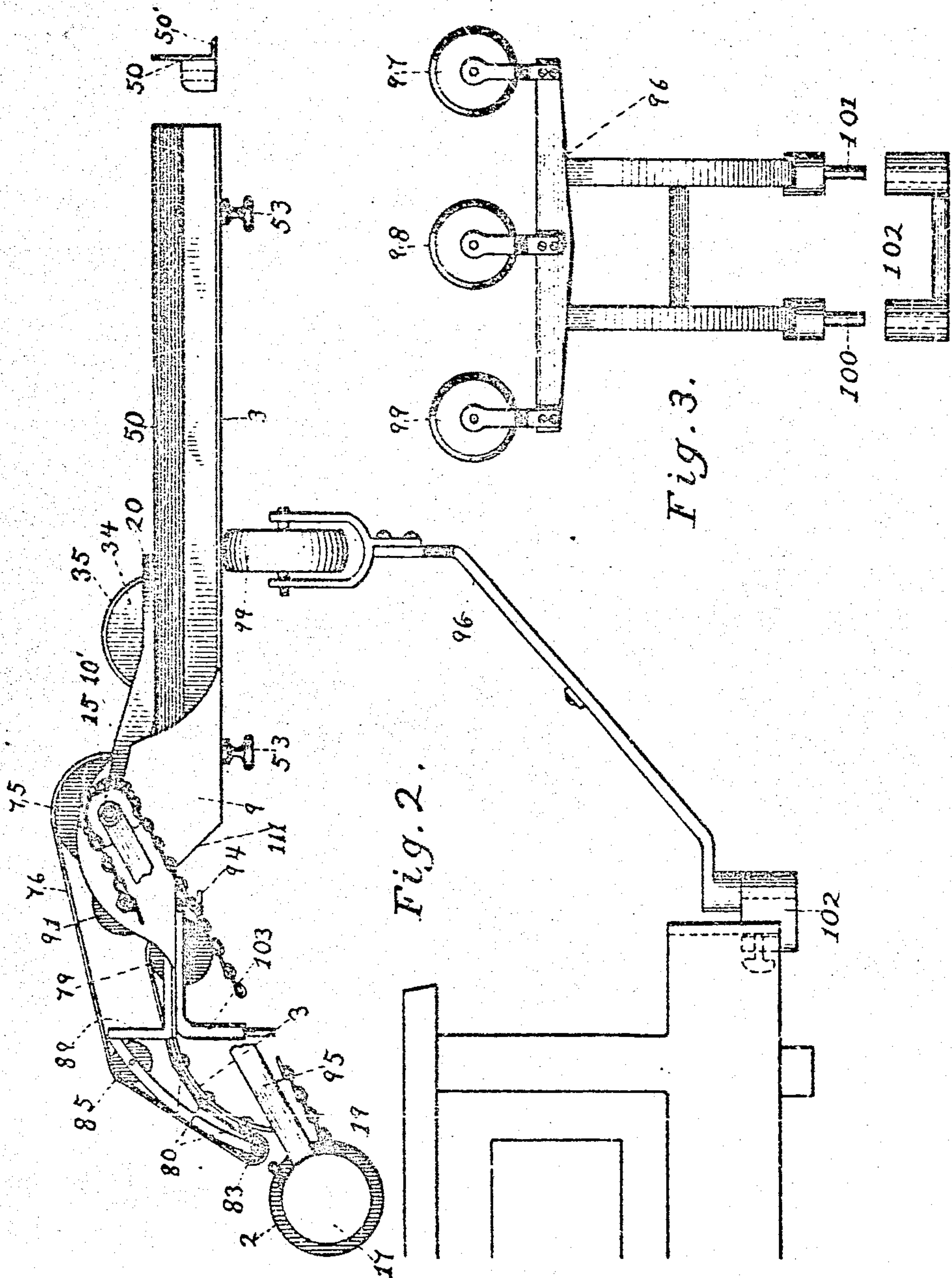
William H. McRae
Robert B. McRae.

W. H. & R. B. McARDLE.
SHEET AND ENVELOP FEEDER FOR TYPE WRITERS.
APPLICATION FILED JUNE 29, 1910.

987,097.

Patented Mar. 14, 1911.

3 SHEETS—SHEET 2.



WITNESSES:

Jessie A. R. McArdle,
Margaret J. Carlisle.

INVENTORS

William H. McArdle
Robert B. McArdle

987,097.

Patented Mar. 14, 1911.

3 SHEETS-SHEET 3.

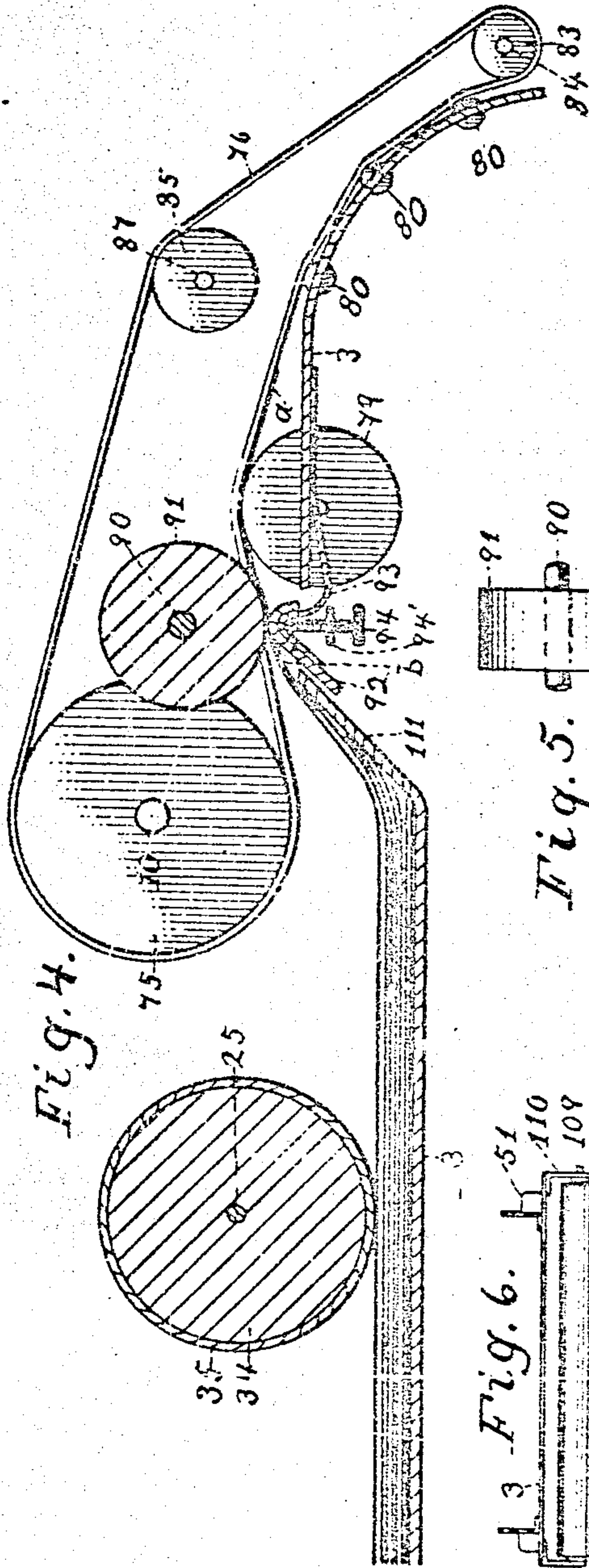


Fig. 4.

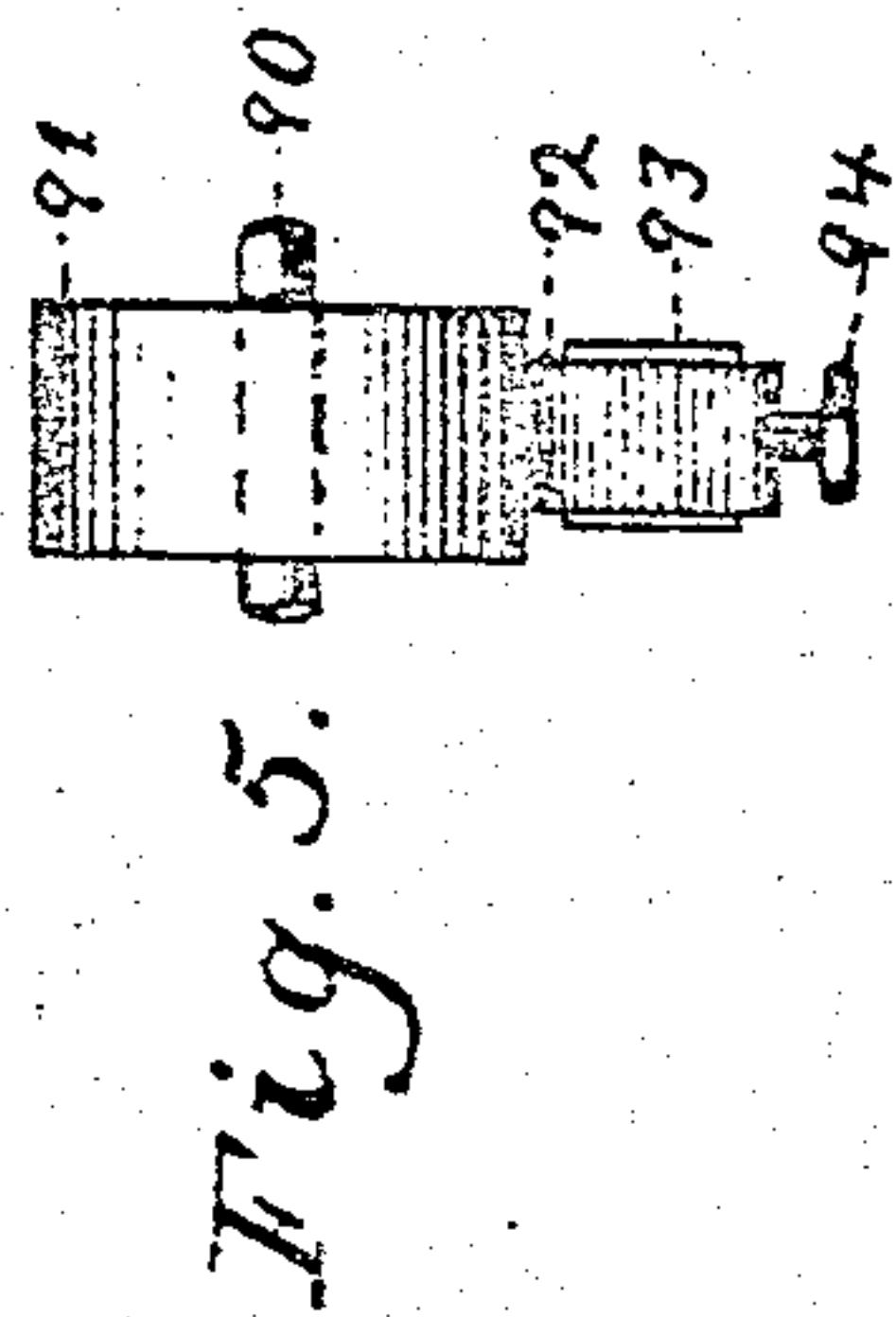


Fig. 5.

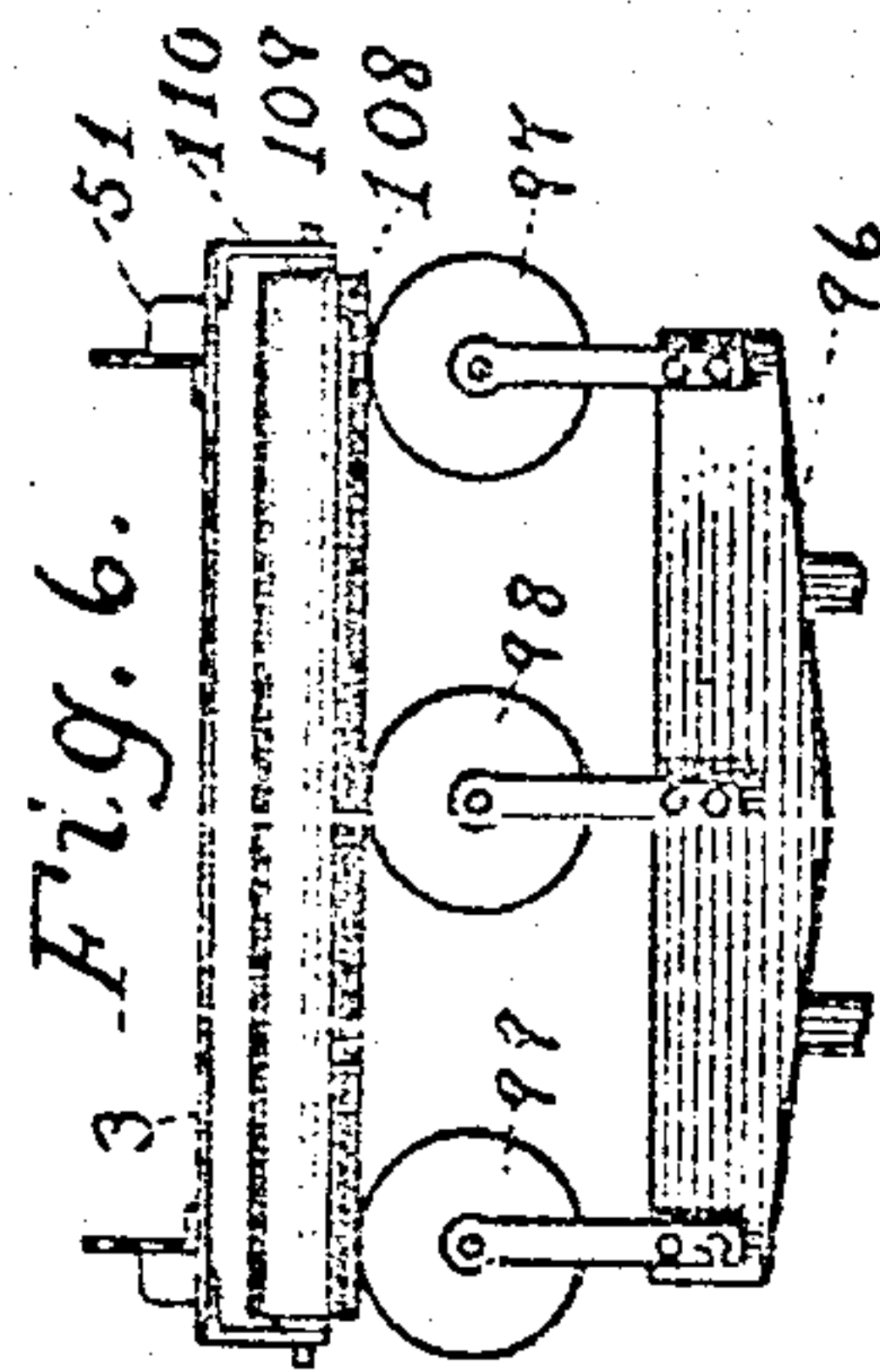


Fig. 6.

Fig. 10.

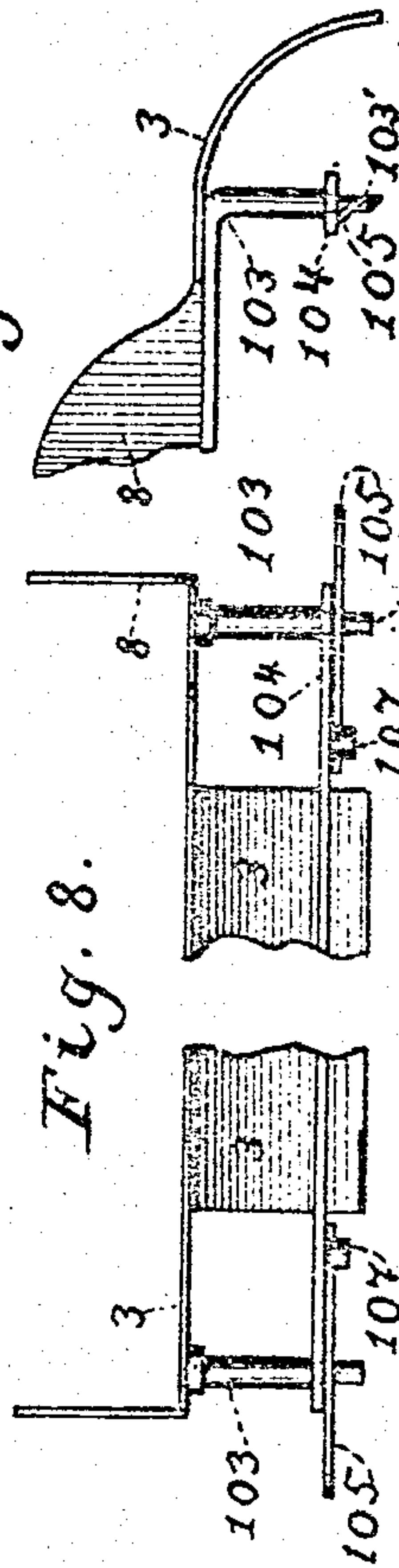


Fig. 8.

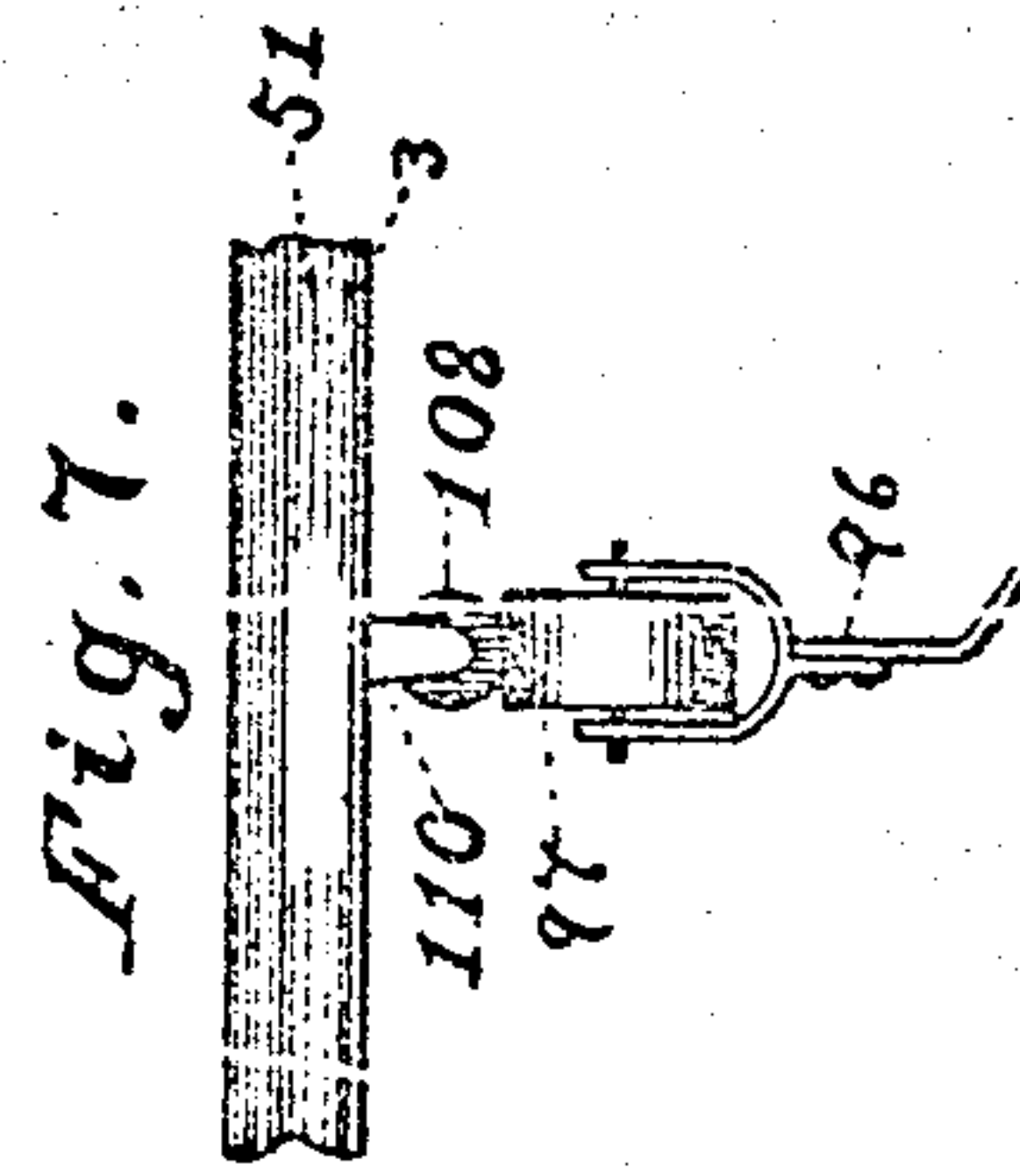
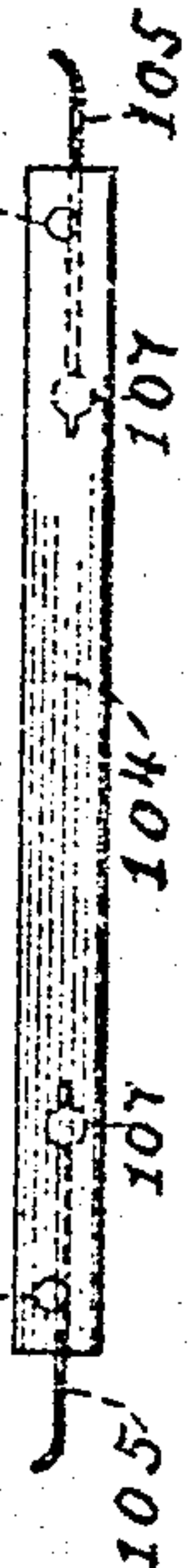


Fig. 7.

Fig. 9.



WITNESSES:

Jessie A. P. McArdle,
Margaret J. Carlisle

INVENTORS

William H. McArdle
Robert B. McArdle

UNITED STATES PATENT OFFICE.

WILLIAM H. McARDLE AND ROBERT B. McARDLE, OF CAMDEN, NEW JERSEY.

SHEET AND ENVELOP FEEDER FOR TYPE-WRITERS.

987,097.

Specification of Letters Patent.

Patented Mar. 14, 1911.

Application filed June 29, 1910. Serial No. 569,598.

To all whom it may concern:

Be it known that we, WILLIAM H. McARDLE and ROBERT B. McARDLE, citizens of the United States, residing at Camden, in the county of Camden and State of New Jersey, have invented certain new and useful Improvements in Sheet and Envelop Feeders for Type-Writers, of which the following description, in connection with the accompanying drawings, is a specification.

This invention is intended as an improvement on the class of paper feeding mechanism shown in our United States Patent Number 985,428, dated February 28th, 1911, wherein, as described, a frame or plate carrying a pile of sheets in an approximately horizontal position, is connected to and travels with the carriage of a typewriter, the other end of said frame being supported by means independent of the typewriter carriage, and from which the sheets are consecutively propelled to the typewriter by rotary frictional members in contact with the topmost sheet. Our objects in this improvement being, first, to provide an approximately horizontal paper carrying frame with a discharging end shaped to guide the sheets downwardly to such typewriters as are by the peculiar construction of their paper receiving mechanism unfitted to receive sheets in a horizontal position; second, to provide means for forwarding and preventing the sheets from laterally shifting while passing around said bend; third, to provide means for separating all other sheets from the sheet immediately engaged by the feeding mechanism and detaining them until each is consecutively engaged by the feeding mechanism; fourth, to provide means for supplementing the separating and detaining mechanism by preventing the entire pile of sheets from advancing to the frame at one time; fifth, to provide more suitable means for supporting the outer end of said paper carrying frame; sixth, to provide means in conjunction with said supporting means by which the paper carrying frame may be permitted to travel longitudinally to accommodate the backward and forward horizontal shift of some typewriters when shifting to capital letters or numerals and vice versa; seventh, to provide a convenient and instantaneous means for connecting the paper carrying frame to the car-

riage of the typewriter; eighth, to provide an improved form of paper guide for the sheets in said frame; ninth, to provide auxiliary means for advancing the sheets after leaving the separator.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts hereinafter fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size and minor details of the structure may be made without departing from the principle or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a top view of our improvement. Fig. 2 is a side elevation of same showing bracket and rollers for supporting outer end of the paper carrying frame. Fig. 3 is a rear elevation of the bracket and rollers used for supporting the frame. Fig. 4 is an elevation of the improvement when cut longitudinally along the line *x*, said line being broken off at its junction with the line *y* shown in Fig. 1. Fig. 5 is a rear elevation view of the separating and detaining mechanism shown in Fig. 4. Fig. 6 is a rear elevation of the supporting means for allowing the longitudinal movement of the paper carrying frame. Fig. 7 is a side elevation of the same. Fig. 8 is a means for connecting a paper carrying frame conveniently and instantly to a typewriter carriage. Fig. 9 is a top view of the part of same that is permanently secured to the carriage of the typewriter, to which the paper carrying frame may be connected. Fig. 10 is a side elevation of Fig. 8.

Similar numerals of reference are used to indicate corresponding parts throughout the several figures of the drawings.

In the drawings, 2 is the platen of a typewriter, 3 is a paper carrying frame having two vertically extending ears or sides 8 and 9 which provide bearings for the shafts 10 and 90; 10 is the main shaft rotatably mounted in bearings carried by the slots 10' in the sides of frame 8 and 9, shown in Fig. 2, and from which the motion is transmitted to the various parts of the feeding mechanism.

15 is a sprocket rigidly mounted on the end of 10 to rotate same, and it in turn receives its motion by means of the link belt 19 from a sprocket 18 attached to the twirler or handle of the typewriter platen 2; 15 also serves in conjunction with the collar 15' to hold the shaft 10 against lateral movement in its bearings.

On the shaft 10 is loosely pivoted a swinging frame or yoke 20 carrying in its free end the shaft 25 which is removably secured by a threaded portion at one end screwing into a threaded bearing in 20; it is made thus conveniently removable to facilitate the replacing of the frictional periphery 35 of the sheet feeding wheel 34 when said periphery is unfitted for further use. The said sheet feeding wheel 34 is rotatably mounted on the shaft 25 and may be rotated by means of a sprocket 37 carried by its hub meshing with the link belt 73 which also meshes with the sprocket 38 rigidly mounted on the shaft 10, or by any other suitable means. 38 also serves in conjunction with the collar 38' to keep the frame 20 from lateral movement on the shaft 10.

50 and 51 are paper guides having a flange 50' on the side next the sheets, better shown in end view of same in Fig. 2, extending under the sides of the sheets and forming part of the surface by which the sheets are supported, thus making a guide absolutely without interstices into which the corner of a sheet might catch while being advanced by the feeding mechanism. These guides are clamped to the frame 3 with the clamps 53.

Rigidly mounted on the shaft 10 are two pulleys 74 and 75 which carry and propel the bands or tapes 76 and 77. Mounted on the under side of the frame 3 and extending upwardly through openings in same are two idle rollers or pulleys 78 and 79, between which and the said bands the sheets pass and are gripped and propelled forward, forming an auxiliary to the main feeding mechanism, and also preventing the sheets from laterally shifting after leaving the guides 50 and 51. In the bend at the front of the frame 3 are three idle rollers 80 rotatably mounted thereon between which and the band 76 the sheets are gripped while passing around the bend to both advance same and keep them from laterally shifting until gripped by the receiving mechanism of the typewriter; 81 are three similar rollers for the same purpose for the band 77. The bands or tapes are supported at the lower end of the bend by the rollers or pulleys 82 and 83 rotatably mounted on the shaft 84 which is supported at its ends in the bifurcated ends of the arms 88 and 89, and is held in place like the shaft 10 by the tensions of the bands 76 and 77. It is thus secured, as well as the shaft

10, to be readily removable to facilitate the replacing of the bands when same are unfit for further service. The arms 88 and 89 are secured to the front of the frame 3 at each side, and are also intended to carry a shaft 87 on which are loosely mounted two pulleys or rollers 85 and 86 which engage the upper or returning portion of the bands and prevent them from engaging their lower part traveling in the opposite direction. The shaft 87 is secured by means of a threaded portion screwing into a threaded bearing in one of the arms 88 or 89 to make it readily removable for facilitating the removal of the bands. These bands and their concomitant mechanism together with the bend in the frame 3, may, with but minor modifications in form and proportion, be used and made a part of an envelop and card feeding device such as shown and described in our United States Patent Number 985,429, dated February 28th, 1911.

95 is a bar extending from the hub of the typewriter platen twirler to the shaft 10 to prevent the link belt, or other belt which may be used, from exerting too much tension between the side of the frame 3 and the typewriter platen twirler.

Referring now especially to Fig. 4, the sheets when being propelled forward by the feeding wheel 34 are pushed up the incline 111 of the frame 3 against the bands 76 and 77, the lower peripheries of which are traveling in the same direction as the sheet, and which act as a guide to the sheet to the members 91 and 92, after passing between which it is gripped by the rollers 78 and 79 and the said bands and advanced to the typewriter. 91 is a non-frictional member flaring upwardly on the side next the main feeding mechanism, and may be stationary or rotatably mounted in the frame 3 between the main feeding or sheet starting mechanism and the discharging end of the frame; it is shown in the more preferable form as being rotatably mounted on a shaft 90 which is carried by the vertical sides of the frame 3. Adjustable vertically beneath the member 91 is mounted a frictional surface having a flare downwardly on its side next the sheet starting mechanism, the said frictional surface, preferably rubber, 92 is mounted on the spring piece 93 secured at one end to the frame 3 so that the tension bears against the point of a screw 94 which turns in the threaded portion of the piece 94' which may either be the frame 3 itself or attached thereto. The mechanism thus described is constructed and intended to engage but a fraction of the width of a sheet at a point intermediate the sides of the sheet.

In Fig. 4 is shown a pile of sheets carried by the frame 3, with the feeding wheel bearing on the top sheet, said top sheet being shown as having passed through the sepa-

rating mechanism and gripped by the idle rollers and bands, its front end being at the point *a*. The second sheet is shown being detained by 92, designated by *b*.

5 The ends of the sheets to be fed are often curled or wrinkled and will enter with difficulty, if at all, into a separator having a slot engaging the entire width of the sheet. To remove this objection, the principle of
10 our separator is to provide a short open-ended or endless slot with a length considerably less than the width of the sheet, set at a point intermediate the edges or sides of the sheet and adapted to engage a central
15 portion of the same, leaving the greater portion of the sheet free and unobstructed on either side of the separator; the member coming in contact with the sheet which is immediately engaged by the feeding mechanism, being non-frictional, and the member
20 engaging any other sheets trying to pass simultaneously, being frictional and adapted to detain same until each sheet consecutively comes into immediate engagement with the feeding mechanism. The one member being adjustably placed the distance of the thickness of a sheet from the other, and allowing unimpeded passage to but a single sheet at a time. Between the sheet starting
30 mechanism and the said separating mechanism is an incline or step 111 in the frame 3 for the purpose of preventing the entire pile of sheets from advancing simultaneously to the said separating mechanism.

35 Referring to Figs. 2 and 3, permanently clamped to the base of the rear of the typewriter is a piece 102 containing two sockets to receive the pins 100 and 101, said pins being part of a bracket 96 which sets parallel with the carriage of the typewriter,
40 having idle rollers or wheels rotatably mounted in its upper part. The said rollers 97, 98 and 99 revolve parallel with the traverse of the frame 3 and bear with their peripheries on the under side of the frame 3, supporting same and allowing it to slide along with the typewriter carriage. The bracket is readily removable, being held
45 merely by its own weight into the sockets of 102.

Referring now to Figs. 6 and 7, in such cases where the shift of a typewriter carriage is backward and forward horizontally, we use an addition to the parts already described, consisting of a rotatable cylindrical
55 roller 108 having its bearing on the shaft 109 which is mounted in the angle pieces 110 secured to the under side of the paper carrying frame. Said roller 108 resting on the peripheries of the rollers 97, 98 and 99,
60 its axis being at right angles to the axes of said rollers, allowing it to travel from side to side of said rollers while it slides longitudinally over the said rollers. In this way
65 the entire frame 3 is allowed to shift with

the typewriter carriage with but little resistance.

In Figs. 8, 9 and 10 we show detail views of a method of connecting a device such as
ours to the carriage of a typewriter. The 70 piece 104 is permanently attached in some convenient and suitable way to the said carriage, according to the peculiar construction thereof. At each end of the bar or piece
104 are holes 106 which receive the reduced 75 portion 103' of the pieces 103, 103 being rigidly secured to the frame 3. The reduced portions 103' have a notch in their periphery into which snaps the spring 105, said
spring being carried by 104. The springs 80 engaging the said notches prevent the paper carrying frame from being jolted out of connection with the typewriter carriage by the concussions of same when writing, and by
85 merely pushing back the springs with the finger, the frame can be freely lifted off of the typewriter.

We have described our invention as being especially adapted for feeding sheets of paper, but it is obvious that envelopes or postal
90 cards could as readily be fed without materially altering the method of operation of the device.

Having thus described our invention, what we claim as new and desire to secure by 95 Letters Patent, is—

1. The combination with a typewriter, of a laterally movable frame for horizontally carrying a pile of sheets or envelopes, the dis-
charging end of said frame being bent in 100 such way as to guide the sheets or envelopes downwardly to the typewriter platen, idle rollers or pulleys rotatably mounted on said bend of frame, driven traveling bands or
105 tapes extending around said bend and bearing on said idle rollers between which the sheets pass, guides carried by the frame for keeping the sheets or envelopes in the proper position until gripped by said bands and
110 idle rollers, means for feeding the sheets or envelopes to the bands, means for operating the bands, and means for preventing more than one sheet or envelop from feeding to the bands at one time.

2. The combination with a typewriter, of 115 a support for carrying a pile of sheets carried by the carriage of the typewriter, a transverse rotatable shaft carried by the said support, a swinging frame loosely
120 mounted on said shaft, a paper feeding roller carried by the free end of said frame, a sprocket carried by the feed roller, a link belt meshing with said sprocket, a sprocket carried rigidly by said transverse shaft and
125 meshing with said link belt, means for rotating the transverse shaft, means for preventing more than a single sheet from feeding at a time, and means for keeping the sheets in the proper position while being fed.

3. The combination with a typewriter, of 130

a frame for carrying a pile of sheets having its discharging end bent downwardly toward the paper receiving part of a typewriter carriage and having vertically extending sides, an open slot in said sides in which are loosely mounted the bearings of a transverse rotatable shaft, means for operating said shaft, pulleys or rollers rigidly carried by said shaft, bands or tapes carried by said pulleys and extending to and around the bend at the discharging end of the frame, idle pulley rollers carried by a shaft having its ends fitting into bifurcated ends of arms secured to said frame, idle rollers carried by the frame and bearing on the bands between which the sheets pass, means for feeding the sheets to the said bands and idle rollers, means for keeping the sheets in position while feeding, a member having a non-frictional surface mounted in the frame between the said bands and the feeding means having a frictional member mounted beneath it between which the sheets pass and are prevented from feeding more than a single one at a time, and means for connecting the said frame to the typewriter carriage.

4. The combination with a typewriter, of a paper and envelop supporting frame having prongs at its discharging end removably fitting into holes in a piece carried rigidly secured to the typewriter carriage, means for preventing said prongs from jolting out of said holes, means for feeding the sheets or envelops to the typewriter, means for keeping same in the proper position while being fed, means for preventing more than a single envelop or sheet from feeding at a time, and means for supporting the outer end of said sheet and envelop supporting frame.

5. The combination with a typewriter, of a sheet carrying frame carried by the carriage of the typewriter, means for feeding the sheets to the typewriter, and means for preventing more than a single sheet from feeding at a time consisting of a mechanism adapted to allow the free passage of the corners of the sheets and to engage said sheets at their middle portion only, said mechanism being carried by the said frame between the sheet feeding mechanism and the discharging end of the frame, substantially as described.

6. The combination with a typewriter, of a sheet carrying frame carried by the carriage of the typewriter, means for feeding the sheets to the typewriter, auxiliary means for feeding the sheets after being started by the main feeding mechanism, and means for intercepting the sheets while feeding to prevent more than a single sheet from passing at a time, said means consisting of two members set at an adjustable distance from each other between which the sheets pass, said mechanism being adapted to allow the free passage of the corners of the sheets and to

engage said sheets at their middle portion only, substantially as described.

7. The combination with a typewriter, of a laterally movable support for a pile of sheets or envelops one end of said support being carried by the carriage of the typewriter, the other end of said support having a cylindrical idle roller mounted on its under side rotatable at right angles to the lateral travel of said support to provide for a longitudinal movement of the support without interfering with its lateral travel, substantially as described, means for supporting the said cylindrical roller and allowing of the lateral travel of the sheet support, means for feeding the sheets from the said support, and means for preventing more than a single sheet from feeding at a time.

8. The combination with a typewriter, of a sheet supporting frame carried by the carriage of the typewriter, said frame having a closed or stationary bottom upon which the sheets rest, a rotatable shaft mounted in the frame, rollers or pulleys rigidly carried by the shaft, bands or tapes carried by the said rollers or pulleys, rollers carried by the discharging end of the said frame, said rollers also carrying said bands or tapes, idle rollers carried by the said frame and bearing upon said bands or tapes, the sheets passing between said idle rollers and said bands or tapes, all substantially as described, means for feeding the sheets to the said bands or tapes and idle rollers, and means for preventing more than a single sheet from feeding at a time.

9. The combination with a typewriter, of a sheet supporting frame carried by the carriage of the typewriter, means for feeding the sheets toward the typewriter, and means for intercepting the sheets while feeding to prevent more than one from advancing at a time, said means consisting of two members set at an adjustable distance apart and forming an aperture between them through which the sheet passes, both of said members being adapted to allow free passage to the corners of the sheet by engaging the sheet at its middle portion only.

10. In a device for feeding sheets or envelops, the combination with a sheet supporting frame, of means for feeding the sheets or envelops from the frame, and means for intercepting the sheets while feeding to prevent more than one sheet from advancing at a time, said means consisting of two members placed between the feeding means and the discharging end of the frame and set at an adjustable distance apart, forming between them an aperture through which the sheet passes, one of said members being frictional and stationary, the other member being non-frictional and either stationary or rotatable, both of said members being adapted to allow free passage to the

corners of the sheet by engaging the sheet
at its middle portion only, said members
operating independently of the feeding
means, and auxiliary means for advancing
5 the sheets in conjunction with the main
feeding means.

In witness whereof, we have hereunto

affixed our signatures in presence of two
witnesses.

WILLIAM H. McARDLE.
ROBERT B. McARDLE.

Witnesses:

Wm. V. FISHER,
V. E. DAVENPORT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
