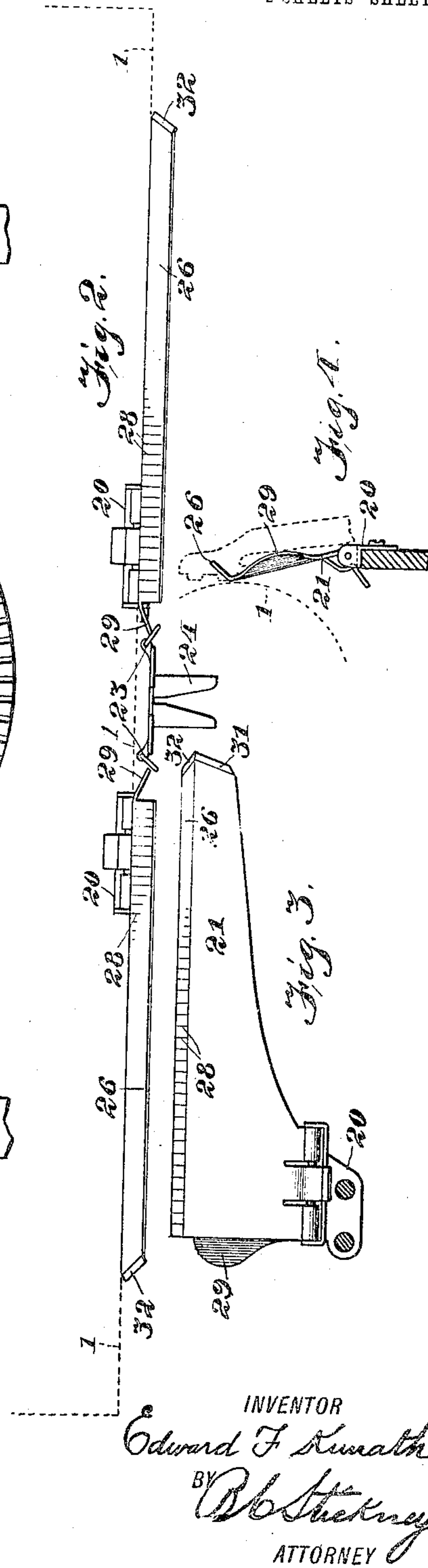
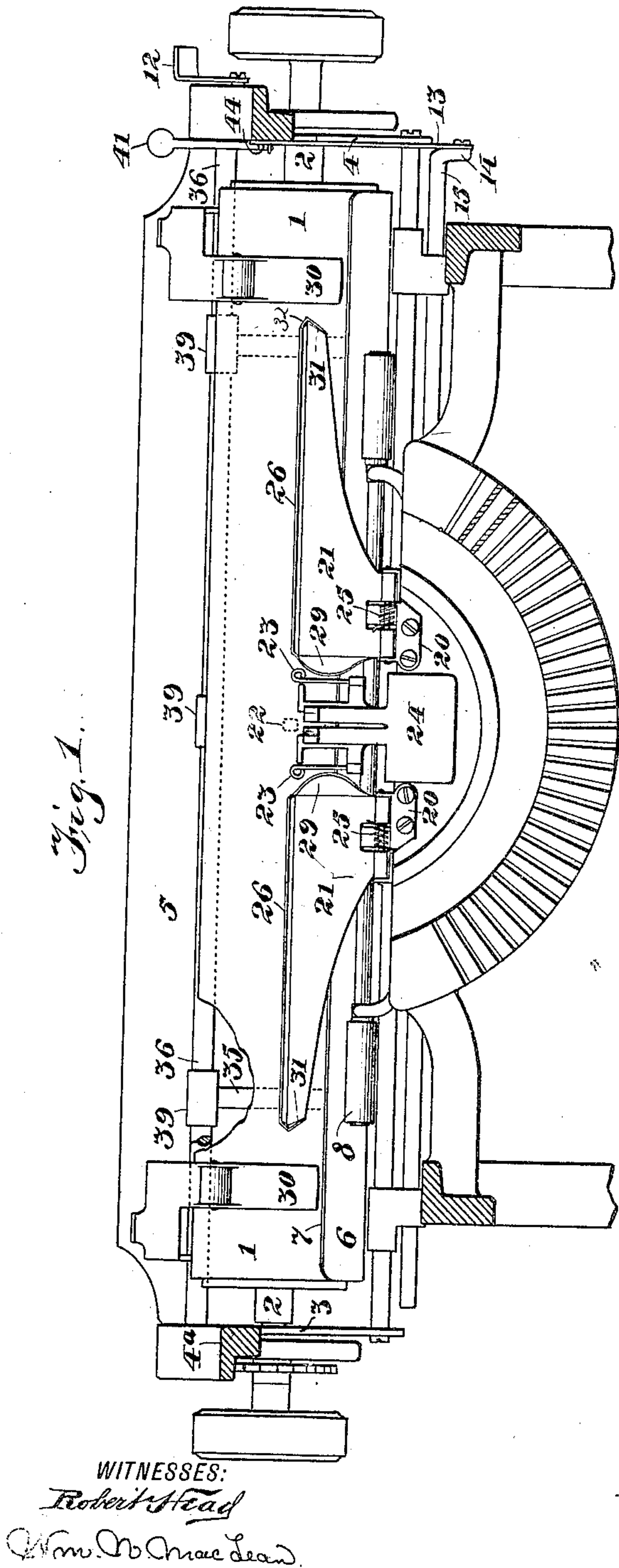


No. 817,923.

PATENTED APR. 17, 1906.

E. F. KUNATH.
TYPE WRITING MACHINE.
APPLICATION FILED DEC 1, 1904

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2

Fig. 5.

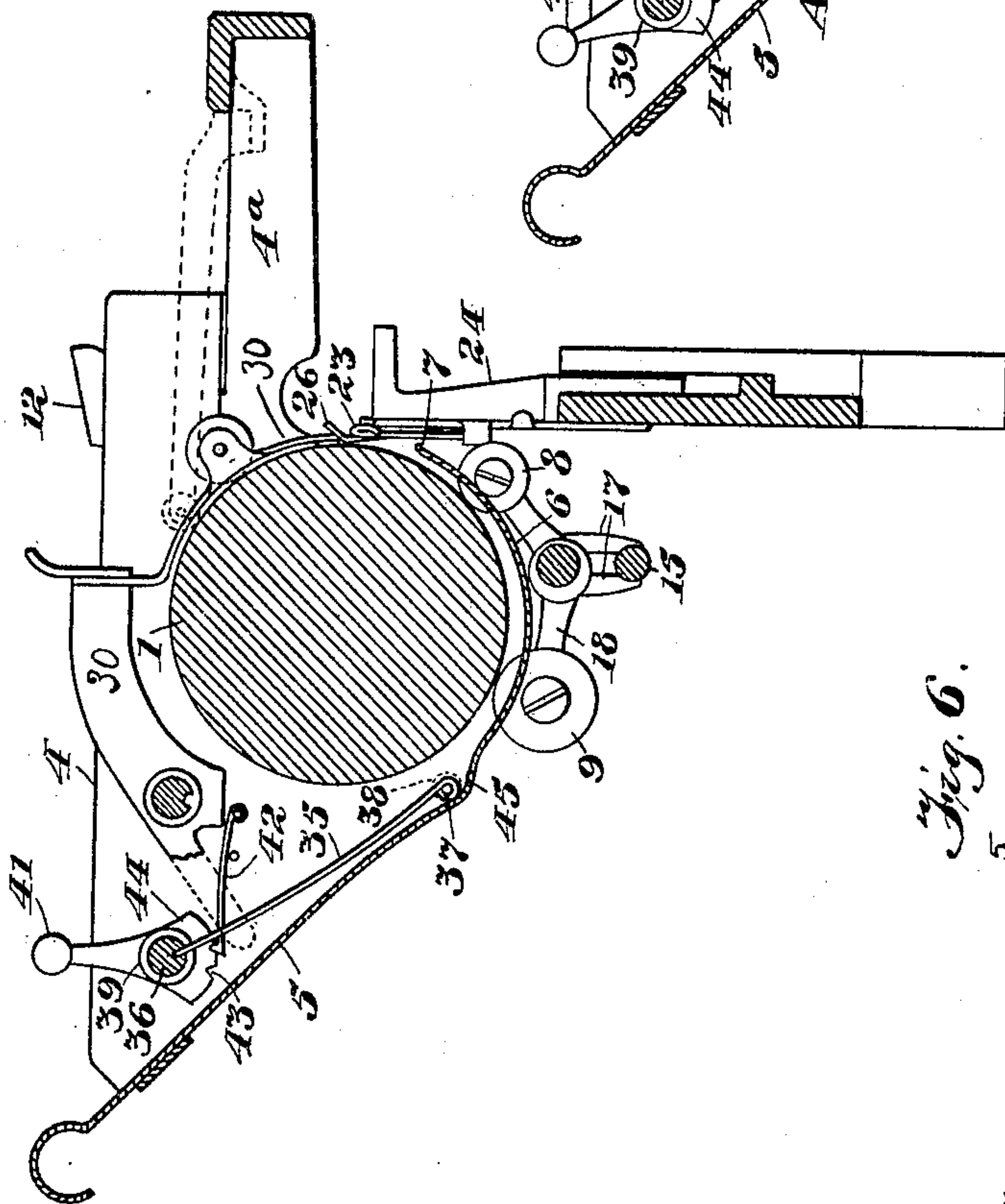


Fig. 7.

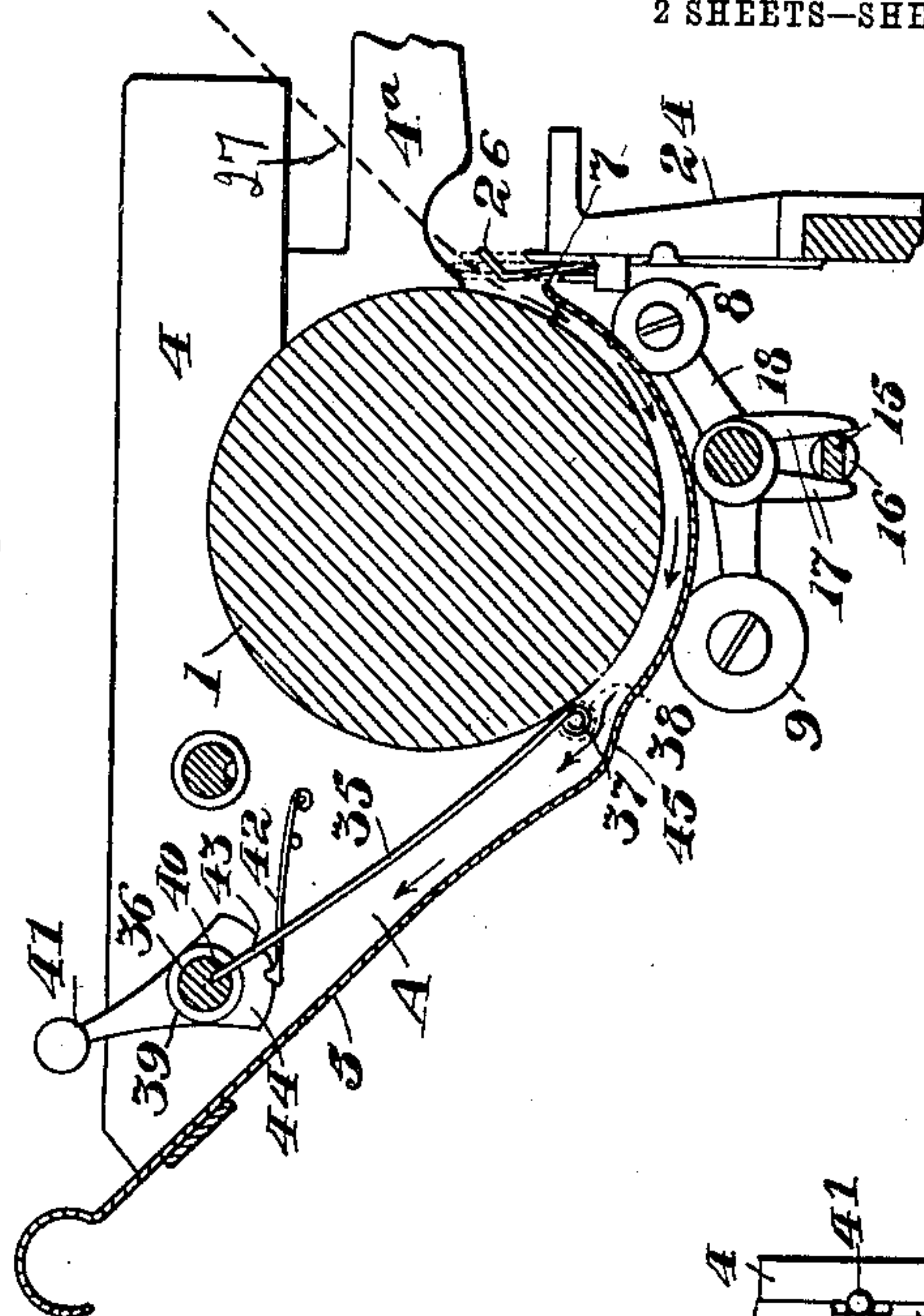
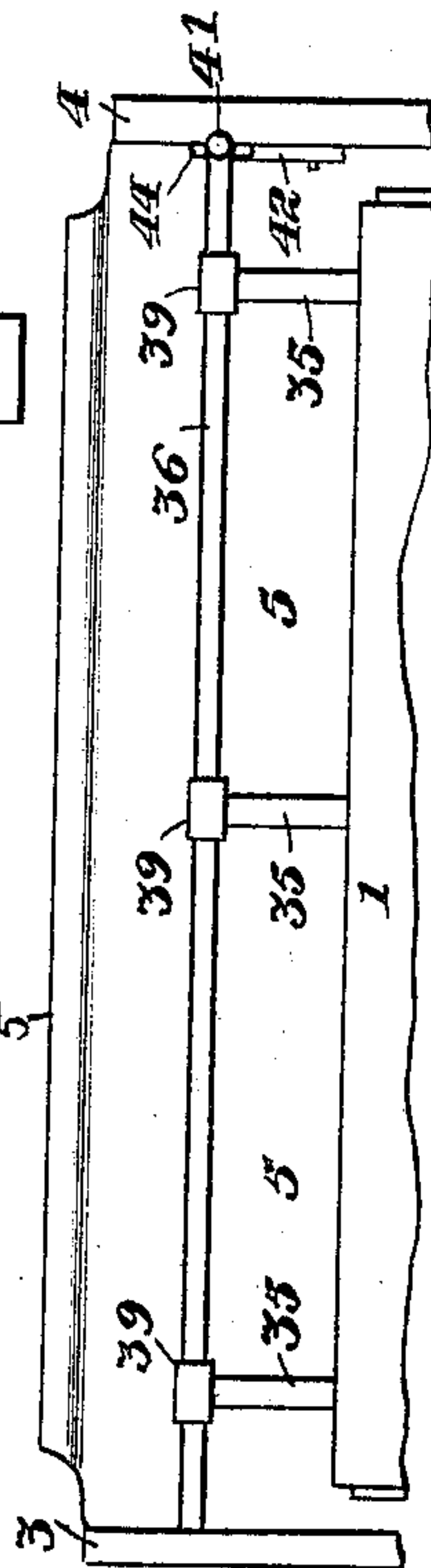


Fig. 6.



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UNITED STATES PATENT OFFICE.

EDWARD F. KUNATH, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO
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CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

No. 817,923.

Specification of Letters Patent.

Patented April 17, 1906.

Application filed December 1, 1904. Serial No. 235,099.

To all whom it may concern.

Be it known that I, EDWARD F. KUNATH, a citizen of the United States, residing in Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to means for adjusting, guiding, and feeding the paper around the cylindrical platens of type-writing machines; particularly those of the "front-strike" variety, and is of advantage where it is desired to insert a sheet or sheets backwardly from the front of the platen, especially if one or more sheets are already in the machine.

It is often desired to insert a sheet at the front of the platen—as, for instance, where there is to be written only one line or letter, and that at the bottom edge of the sheet, or where sheets have been bound together and it is desired to add some writing upon one of the sheets, or where it is desired to remove a bill and replace it with a fresh bill-head while a carbon-sheet and a long record-sheet remain in the machine, as in "condensed billing" or where it is desired to insert a narrow sheet and make a carbon record thereof upon a much wider sheet. These objects may be accomplished by making provision for inserting the sheet backwardly, and to this end I have altered the usual deflector-plate, which curves around beneath the platen and contacts therewith, so that it is separated from the platen, and when the usual pressure-rollers are released a passage is left beneath the platen for the ready insertion of the leading edge of a backwardly-inserted sheet from the front of the platen back to the paper-shelf. I have also made provision for holding carbon and record sheets stationary against the rear side of the platen during the insertion of a fresh sheet or bill-head.

The present improvements relate more particularly, however, to means for facilitating the introduction of the sheet between the platen and the curved deflector-plate at the front edge of the latter and to means for holding the carbon and record sheets stationary against the rear side of the platen in such a

manner as to leave a free passage for the backwardly-inserted sheet up along the paper-shelf, so that, if desired, said sheet may be pushed back far enough to permit writing near its top edge.

To facilitate the introduction of a sheet at the front of the platen, I provide a plate extending along the platen and sloping upwardly and forwardly therefrom and serving to guide the leading edge of the sheet down between the platen and the deflector-plate, which curves therebeneath. Said sloping plate is provided with graduations, which appear upon its upper surface, so that it serves the function of the usual front scale, its edge where it contacts with the platen being preferably coincident with the bottom of the printing-line on the platen for convenience in adjusting the paper so that the writing will fall in the proper place thereon.

Between the back of the platen and the usual paper-shelf I mount a series of grippers or paper-fingers, which extend down between the lower part of the paper-shelf and the platen and are adapted to bear lightly against the latter to hold sheets stationary thereon, while a passage is left between said grippers and the paper-shelf, so that the leading edge of the backwardly-inserted sheet may slide freely back and up along the paper-shelf as far as may be desired. When a sheet is inserted from the back, it is passed between said grippers and the platen, and means are provided for throwing the grippers back away from the platen when not in use and also for adjusting them along the platen independently of one another.

In the accompanying drawings, Figure 1 is a sectional front elevation of the carriage and part of the framework of an "Underwood" front-strike writing-machine provided with my present improvements. Fig. 2 is a plan illustrating the relation of my novel front scale to the platen. Fig. 3 is a rear elevation of one-half of the front scale or of one of the pairs of scales which are pivoted to a bracket secured to the framework of the machine and do not travel with the carriage. Fig. 4 is an end elevation of one of the scales, showing its relation to the platen. Fig. 5 is a sectional end elevation of the platen and car-

riage, showing the platen in its lower or normal case-shift position and the rear grippers thrown away from the platen, the pressure-rolls beneath the platen being also in normal position, so that the parts are in position to write upon single sheets inserted at the back of the platen in the usual manner. Fig. 6 is a plan illustrating paper-shelf, grippers, and appurtenances. Fig. 7 is a view similar to Fig. 5, but showing the platen shifted up to upper-case position to facilitate the introduction of a sheet at the front of the platen; the pressure-rolls beneath the platen being released or thrown down to permit the sheet to be pushed back beneath the platen and the grippers being shown thrown against the platen to hold stationary any paper that may be already in the machine and also to afford a passage up along the paper-shelf for the backwardly-moving sheet.

The usual vertically-shiftable cylindrical platen 1 is journaled by its axle 2 in ends 3 4 of the platen-frame, mounted upon a carriage 4^a, said ends being joined by a plate 5, which inclines forwardly and downwardly and forms a paper-shelf in rear of the platen. This plate also curves forwardly beneath the platen and up in front thereof, forming a deflector 6, which may be yielding, and lies a short distance below the platen to make a free passage for paper backwardly and sideways when inserted from the front, the plate having a slight outward flare or dip 7 at its front edge to facilitate the introduction of the edge of the paper or to guard the same from slipping down in front of said deflector.

Forward and rear pressure-rolls 8 and 9 project up through the deflector-plate 6, the latter preferably underlying the whole of the platen. These pressure-rolls are releasable by means of a depressible key 12, usually pivoted upon the right-hand end 4 of the platen-frame and connected by a link 13 to crank 14 upon release-shaft 15, the latter usually having flats or recesses 16, normally occupied by arms 17, which project from pressure-arms 18, that normally bear upon the shafts or axles of the rolls. When the key 12 is depressed, the shaft 15 is rocked, causing the arms 17 to vibrate, so that the rolls fall away from the platen, as at Fig. 7. When the rolls are thrown off, a sheet may be inserted backwardly at the front of the platen and pushed back as far as desired.

To facilitate the introduction of a sheet at the front of the platen, I pivot upon brackets 20 a pair of plates 21, one at each side of the printing-point, (indicated at 22,) suitable ribbon-vibrating devices being provided at 23 between said plates, as well as the usual type-guide 24. Each plate is provided with a spring 25, which presses it toward the platen, and at its upper edge is bent upwardly and forwardly from the platen, as at 26. The bottom of this sloping portion 26 con-

tacts with or lies close to the platen along a line coincident with the bottom of the printing-line upon the platen, so as to facilitate adjustment of the paper after insertion, the two sloping plates 26 being in line with each other, as seen at Fig. 1, and of an extreme length (taken together) approximating the length of the printing-field on the platen, so that the leading edge of a sheet of any suitable width may be readily introduced, as seen at 27, Fig. 7, between the platen and the sloping plates 26, the latter guiding the edge of the sheet so that it passes readily down between the platen and the deflector 6. It will be understood from a comparison of Figs. 5 and 7 that normally the plate 26 lies close to the platen; but when the latter is shifted up to upper-case position a passage is left between the platen and said plate 26 for the insertion of the paper.

Upon the top surface of plate 26 graduations 28 may be provided at letter-space intervals, so that said plate may serve as a scale, these graduations being easily seen by the operator, owing to the forward slope of the scale. At their inner ends the plates 21, which extend nearly vertically from their pivots up in front of the platen, are provided with fenders 29 to insure that the plates shall always ride over the usual paper-guiding fingers 30, that extend down in front of the platen and are adjustable therealong, and at the outer ends of plates 21 fenders 31 may be provided for the same purpose, the ends of the scales or scale-sections being also bent to form fenders 32.

In case it is desired to insert a sheet at either front or back of the platen while one or more sheets are already in the machine without disturbing the position of the latter sheets grippers or paper-pressing fingers 35 are caused to press said sheets against the rear side of the platen, as at Fig. 7. These grippers may be adjusted independently of one another along a rock-shaft 36, both the rock-shaft and the grippers being between the paper-shelf 5 and the platen and the grippers extending down from the rock-shaft, to which they are splined, and terminating near the bottom of the platen in rounded heads 37, although, if desired, rolls may be provided upon these grippers, as at 38, Fig. 5. At its upper end each gripper is fixed to a collar 39, adjustable along the shaft, and projects into a groove 40, extending along the shaft. Upon the shaft is fixed a finger-piece 41, whereby all the grippers may be swung simultaneously against the platen or away therefrom. A spring-detent 42 engages either of two notches 43, formed in a small plate 44, fixed to the rock-shaft to hold the grippers yieldingly against the platen, Fig. 7, or away therefrom, Fig. 5, the grippers normally lying in a recess 45, formed in the lower portion of the paper-shelf and extending the length

thereof. Normally the grippers are thrown back out of use, as at Fig. 5, and the paper is inserted forwardly between the grippers and the platen, and when the grippers are thrown against the paper on the platen, as at Fig. 7, a passage A is left for the insertion of a sheet either backwardly, as shown by the arrows, or forwardly, as desired, without disturbing the sheets already in the machine.

10 In the operation known as "condensed billing," in which the carbon records of several bills appear in succession upon a single long record-sheet, there may be inserted into the machine in the usual way the record-sheet, the carbon-sheet, and the bill-head, the parts being in the positions seen at Fig. 5. After writing the bill it is drawn out, the release-key 12 being usually slightly depressed in order to facilitate the withdrawal of the bill. Then the finger-piece 41 is pushed back, thereby swinging the fingers 35 forwardly to grip the paper against the platen—that is, the carbon-sheet and the record-sheet. Then a fresh bill may be inserted backwardly, as indicated by the arrows at Fig. 7, the release-key 12 being first pressed all the way down and the platen-frame being also elevated by the usual means. The paper thus inserted is adjusted approximately to the required position. If desired, it may be inserted at the rear of the machine and thrust forwardly. The release-key 12 is then restored to its normal position, bringing the pressure-rolls 8 9 again into operation. Then the platen-frame may be dropped to normal position. If upon examination the freshly-inserted sheet is found not to be in the proper position, the key 12 may be again depressed to cast off the rolls and the paper nicely adjusted by means of the scale 26. Thereupon the release-key 12 may be lifted and the writing proceed.

My improvements will also be found of advantage in manipulating sheets in other ways and for other purposes.

Variations may be resorted to within the scope of the invention, and portions of the improvements may be used without others.

Having thus described my invention, I claim—

1. In a type-writing machine, the combination with the revoluble platen and the paper-shelf in rear thereof, of releasable means beneath the platen for holding the paper against the same so as to cause the paper to turn with the platen, and independent means mounted between the platen and the paper-shelf for holding paper against the rear side of the platen while said releasable means are released; said independent means having a yielding construction to permit introduction of paper between the same and the platen, and being so mounted that a passage is also left for paper between said independent means and the paper-shelf.

2. In a type-writing machine, the combination with a revoluble platen, of means beneath the platen and including a releasable pressure-roll, for feeding and guiding paper around the under side of the platen, said feeding and guiding means being so constructed that a sheet may be inserted backwardly at the front of the platen and pushed down and back beneath the platen while the latter is stationary, and a gripper mounted between the platen and the paper-shelf and normally standing away from the platen so that paper may be inserted between said gripper and the platen, but movable away from the paper-shelf so as to bear against the paper on the platen and leave an open passage for the upward movement along the paper-shelf of the backwardly-inserted sheet.

3. In a type-writing machine, the combination with a revoluble platen and paper-guiding means which permit the introduction of sheets at both back and front of the platen, of a paper-shelf, a gripper mounted between the platen and the paper-shelf and normally standing in rear of the platen so that paper may be inserted between the gripper and the platen, but movable forwardly so as to bear against the paper on the platen and leave an open passage for the movement of a sheet between the gripper and the paper-shelf, and means for holding the gripper either against the platen or out of contact therewith at will.

4. In a type-writing machine, the combination with a revoluble platen, a paper-shelf in rear thereof, and paper-guiding means which permit the introduction of sheets at both back and front of the platen, of a gripper mounted between the paper-shelf and the platen, and means, including a finger-piece, for moving said gripper toward and away from the platen; a passage for paper being left between the paper-shelf and the gripper when the latter lies against the platen.

5. In a type-writing machine, the combination with a revoluble platen and a paper-shelf in the rear thereof, of a gripper mounted between the paper-shelf and the platen, a finger-piece for moving said gripper, and means for detaining the gripper either against the platen or away therefrom; a passage for paper being left between the paper-shelf and the gripper when the latter lies against the platen.

6. In a type-writing machine, the combination with a revoluble platen and a paper-shelf in rear thereof, of a rock-shaft mounted forwardly of the paper-shelf, and a paper-pressing device extending down from said rock-shaft between the paper-shelf and the platen.

7. In a type-writing machine, the combination with a revoluble platen and a paper-shelf in rear thereof, of paper-guiding means which permit the insertion of paper at both back and front of the platen, a rock-shaft mounted forwardly of the paper-shelf and extending

parallel with the platen, a paper-pressing device extending down from said rock-shaft between the paper-shelf and the platen, and means operating upon said rock-shaft for
5 holding said paper-pressing device either against the platen or away therefrom.

8. In a type-writing machine, the combination with a revoluble platen and a paper-shelf in rear thereof, said paper-shelf being extended forwardly and curving around the under side of the platen and separated therefrom to permit backward insertion of paper, of a paper-pressing device mounted between
10 said paper-shelf and the platen at the rear side of the latter, and means for holding said paper-pressing device either against the platen or away therefrom; the construction being such that when said paper-pressing device is against the platen a clear space is left
15 between said device and said paper-shelf; and said paper-shelf being provided with a recess to receive the lower end of said pressing device when the latter is moved from the platen.

9. In a type-writing machine, the combination with a revoluble platen, a paper-shelf, and paper-guiding means which permit the introduction of sheets at both back and front of the platen, of a gripper or finger mounted
20 in rear of the platen and adjustable therealong, and constructed to hold paper stationary against the platen during the introduction into the machine of another sheet.

10. In a type-writing machine, the combination with a revoluble platen, of means beneath the platen and including a releasable main pressure-roll, for feeding and guiding paper around the under side of the platen; said feeding and guiding means being so constructed as to permit a sheet to be introduced at the front of the platen and passed rearwardly beneath the same; and a plurality of grippers or pressure-fingers independently adjustable along the platen and mounted to bear against the rear side thereof.
45

11. In a type-writing machine, the combination with a revoluble platen and means for guiding paper forwardly beneath and up in front of and back over the platen, said feeding and guiding means including releasable members and being so constructed as to permit a sheet to be introduced at the front of the platen and passed rearwardly beneath the same, of an auxiliary paper-pressing device adjustable along the platen and mounted to press the paper against the platen and hold it stationary during the introduction of an additional sheet.
55

12. In a type-writing machine, the combination with a frame of a platen journaled therein, releasable paper-pressing means beneath the platen for causing the paper to move with the platen, a series of devices in rear of the platen and independently adjustable therealong, for holding paper stationary
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against the platen while said releasable paper-pressing means are released, and a finger-piece connected to said series of devices for controlling the same.

13. In a type-writing machine, the combination with a revoluble platen and a paper-shelf in rear thereof, of means for guiding paper around the under side of the platen, and means mounted between the paper-shelf and the platen and adjustable along the latter, for holding paper against the platen.
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14. In a type-writing machine, the combination with a revoluble platen and a paper-shelf in rear thereof, of means for guiding paper around the under side of the platen; said guiding means including a releasable roller and being so constructed as to permit a sheet to be introduced from either back or front of the platen; and means mounted between the paper-shelf and the platen and adjustable along the latter, for holding paper against the platen; said adjustable paper-holding means being so constructed that a clear passage for paper is left between the same and said paper-shelf.
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15. In a type-writing machine, the combination with a revoluble platen and paper-guiding means which permit the introduction of sheets at both back and front of the platen, of a paper-shelf, and a series of grippers mounted between the platen and the paper-shelf and adjustable independently of one another along the platen and normally standing in rear thereof so that paper may be inserted between the grippers and the platen, but movable forwardly so as to bear against the paper on the platen and leave an open passage for the movement of a sheet between the grippers and the paper-shelf.
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16. In a type-writing machine, the combination with a revoluble platen, a paper-shelf in rear thereof, and paper-guiding means which permit the introduction of sheets at both back and front of the platen, of a series of grippers mounted between the paper-shelf and the platen and adjustable along the latter, and means common to said grippers for moving them simultaneously toward and away from the platen; a passage for paper being left between the paper-shelf and the grippers when the latter lie against the platen.
110

17. In a type-writing machine, the combination with a revoluble platen and a paper-shelf in rear thereof, of a rock-shaft mounted forwardly of the paper-shelf, a series of grippers or paper-pressing fingers splined to said rock-shaft so as to be adjustable therealong independently of one another, and a spring device operating upon said rock-shaft to hold said grippers against the platen.
120

18. In a type-writing machine, the combination with a revoluble platen and a paper-shelf in rear thereof, of paper-guiding means beneath the platen and including a releasable
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pressure-roll and permitting the introduction of sheets at both back and front of the platen, a rock-shaft mounted between the paper-shelf and the platen, a series of grippers splined to said rock-shaft so as to be adjustable therealong, a finger-piece for turning said rock-shaft, and yielding means for holding said grippers either against said platen or away therefrom; a passage for paper being left between the paper-shelf and the grippers when the latter rest against the platen.

19. In a type-writing machine, the combination with a revoluble platen and a paper-shelf in rear thereof, said paper-shelf being extended forwardly and curving around the under side of the platen and separated therefrom to permit introduction of the paper at the front of the platen, of a rock-shaft between the paper-shelf and the platen, a series of grippers adjustable along said rock-shaft but mounted thereon so as to turn therewith, and means for holding said grippers against the platen or away therefrom at will; said paper-shelf being formed with a recess extending substantially its entire length, for receiving the lower ends of said grippers when the latter are moved back.

20. In a front-strike writing-machine, the combination with a platen, and means for guiding and feeding paper forwardly thereunder, of a front platen-scale extending longitudinally of the platen and sloping upwardly and forwardly therefrom, to afford a guide for the insertion of paper backwardly at the front of the platen.

21. In a front-strike writing-machine, the combination with a platen and means for feeding paper forwardly thereunder, of a plate wholly below the printing-line and extending longitudinally of the platen in front thereof and sloping upwardly and forwardly therefrom, to facilitate the introduction of sheets backwardly at the front of the platen; said plate and said platen being relatively movable to afford a passage for the paper.

22. In a front-strike writing-machine, the combination with a platen and means for feeding paper forwardly thereunder, of a plate wholly below the printing-line and extending longitudinally of the platen in front thereof and sloping upwardly and forwardly therefrom, to facilitate the introduction of sheets backwardly at the front of the platen, and a spring pressing said plate toward the platen.

23. In a front-strike writing-machine, the combination with a revoluble platen, of a releasable pressure-roll for feeding the paper forwardly under the platen, a deflector curving around the under side of the platen in such relation thereto as to permit the ready introduction of a sheet from the front of the platen, and means wholly below the printing-line and sloping upwardly and forwardly from the front side of the platen and coöper-

ating therewith to guide the leading edge of a backwardly-inserted sheet between said curved deflector and the platen.

24. In a front-strike writing-machine, the combination with a revoluble platen, of a deflector curving beneath and up toward the front of the platen and well separated therefrom, and a plate wholly below the printing-line and extending along the front of the platen and sloping forwardly and upwardly therefrom, for facilitating the introduction of a sheet backwardly between the platen and said deflector.

25. In a front-strike writing-machine, the combination with a revoluble platen, and means, including a releasable paper-presser, for feeding paper forwardly beneath the platen, of a front platen-scale extending longitudinally of the platen and sloping upwardly and forwardly therefrom, and provided with graduations upon its upper surface; said scale and said platen being relatively movable to afford a passage for the paper.

26. In a front-strike writing-machine, the combination with a traveling revoluble platen and means for guiding and feeding paper forwardly thereunder, of a plate mounted upon the framework of the machine in front of the platen and extending longitudinally thereof but close thereto, and sloping upwardly and forwardly therefrom, to facilitate the backward insertion of paper.

27. In a front-strike writing-machine, the combination with a platen and its carriage, of a deflector-plate curving beneath the platen but so mounted as to permit the backward insertion of paper from the front of the platen, and a pair of plates mounted in line upon the framework of the machine in front of the platen and extending longitudinally thereof but close thereto, and sloping upwardly and forwardly therefrom, one plate at each side of the printing-point, for guiding the leading edge of a backwardly-inserted sheet between said deflector-plate and the platen.

28. In a front-strike writing-machine, the combination with a revoluble platen, its carriage, and means, including a releasable member, for feeding paper forwardly beneath the platen, of a front platen-scale mounted upon the framework of the machine and sloping upwardly and forwardly from the platen and provided with graduations upon its upper surface.

29. In a front-strike writing-machine, the combination with a revoluble platen, its carriage, and a releasable pressure-roll, of a deflector-plate curving beneath the platen in such relation thereto as to permit the backward introduction of a sheet from the front of the platen, and a pair of front platen-scales one at each side of the platen mounted upon the framework of the machine and slop-

ing upwardly and forwardly from the platen; said scales being provided with graduations upon their upper surfaces, and coinciding with the bottom edge of the line of writing upon the platen, and serving to guide the leading edge of a backwardly-inserted sheet between said deflector-plate and the platen.

30. In a front-strike writing-machine, the combination with a revoluble platen, its carriage, and a releasable pressure-roll, of means cooperating with said roll to feed the paper forwardly beneath the platen, said cooperating means being constructed to permit the ready introduction of a sheet from the front of the platen, a pair of plates pivoted to the framework of the machine in front of the platen and extending up to the printing-line on the platen, and from said printing-line bent upwardly and forwardly to facilitate the backward introduction of a sheet between the platen and said cooperating means, and springs pressing said plates toward the platen.

31. In a front-strike writing-machine, the combination with a revoluble platen, of a releasable main pressure-roll for feeding the paper forwardly under the platen, a deflector curving around the under side of the platen in such relation thereto that a sheet may readily be introduced backwardly from the front of the platen, a plate extending along the front of the platen and sloping upwardly and forwardly therefrom to direct the leading edge of the sheet between the platen and said deflector, and means in rear of the platen for holding sheets against the same during the backward introduction of a sheet.

32. In a front-strike writing-machine, the combination with a revoluble platen and a paper-shelf in rear thereof, of a releasable main pressure-roll for feeding the paper forwardly under the platen, a deflector curving around the under side of the platen in such relation thereto that a sheet may readily be introduced backwardly from the front of the platen, a scale extending along the front of the platen and sloping upwardly and forwardly therefrom to direct the leading edge of the sheet between the platen and said deflector, and a gripper to bear against the paper on the rear side of the platen during the

backward insertion of another sheet; said gripper being movable away from the platen, and a passage for the backwardly-inserted sheet being left between the paper-shelf and the gripper when the latter lies against the platen.

33. In a type-writing machine, the combination with a revoluble platen, of a series of paper-supports one behind another in rear of the platen, each extending upwardly from the lower rear side of the platen, the rearmost support being continued around the under side of the platen and up around the front thereof, but being well separated from the platen, and cooperating with the platen and with the forward support to form a single open continuous passage for guiding sheets thrust around the platen while the latter is stationary and while other sheets are confined motionless between said forward support and the platen.

34. In a type-writing machine, the combination with a revoluble platen, of a series of paper-supports one behind another in rear of the platen and extending upwardly from the rear side thereof, and a plate curving from the rear support around beneath and up in front of the platen and well separated therefrom and extending unbroken beneath the platen for substantially the entire length thereof, and constituting a guide for sheets thrust around the stationary platen.

35. In a type-writing machine, the combination with a revoluble platen, of two paper-supports, one behind another, and both in rear of the platen and extending upwardly from the rear side thereof, and a plate curving from the rear support around beneath and up in front of the platen and well separated therefrom and extending the entire length of the platen and cooperating with the platen to form an open passage to guide sheets thrust around the stationary platen; said forward paper-support and said platen being so related as to cooperate to protect the inner sheet against being disarranged by the thrusting of outside sheets around the same.

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Witnesses:

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