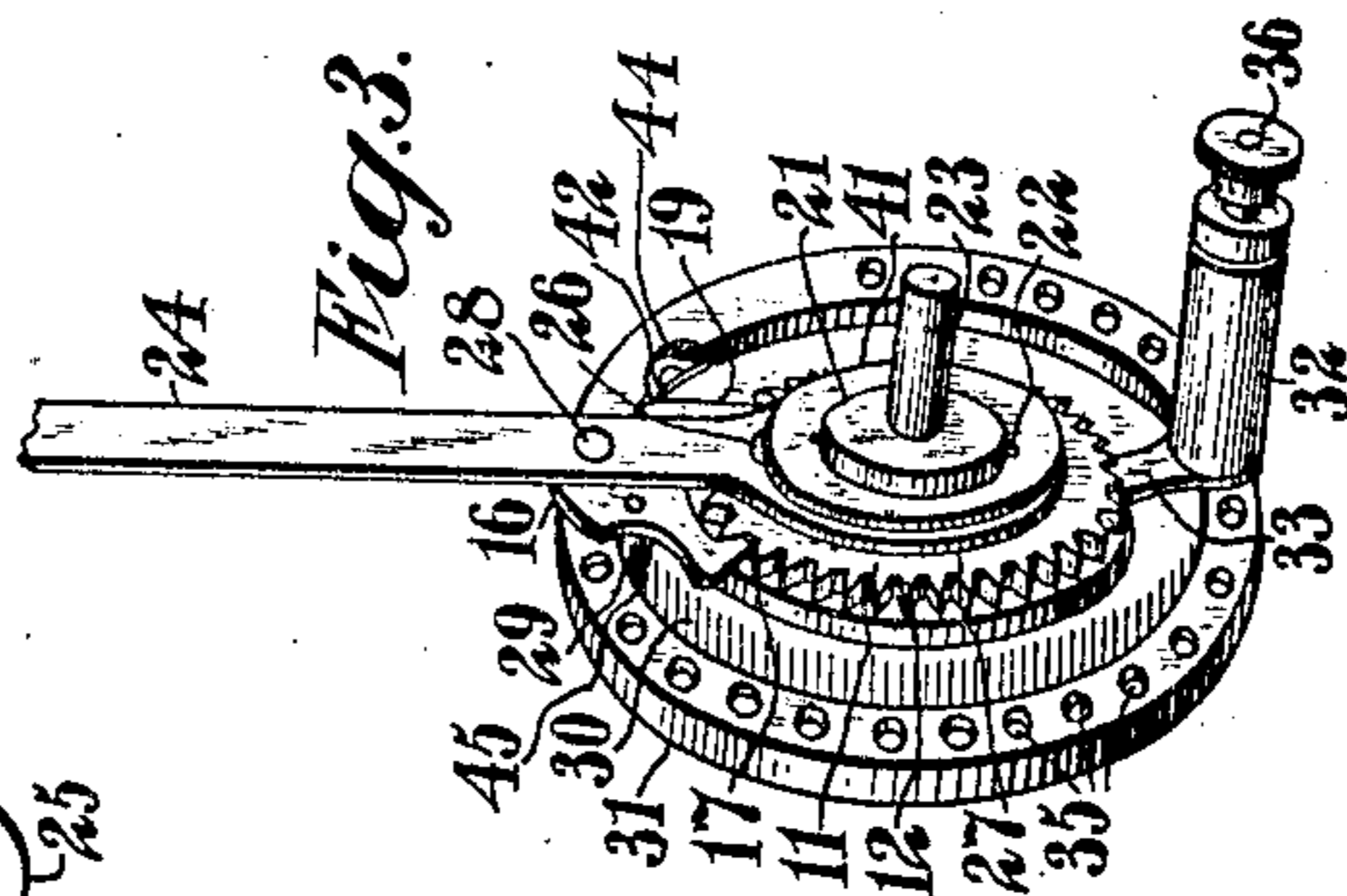
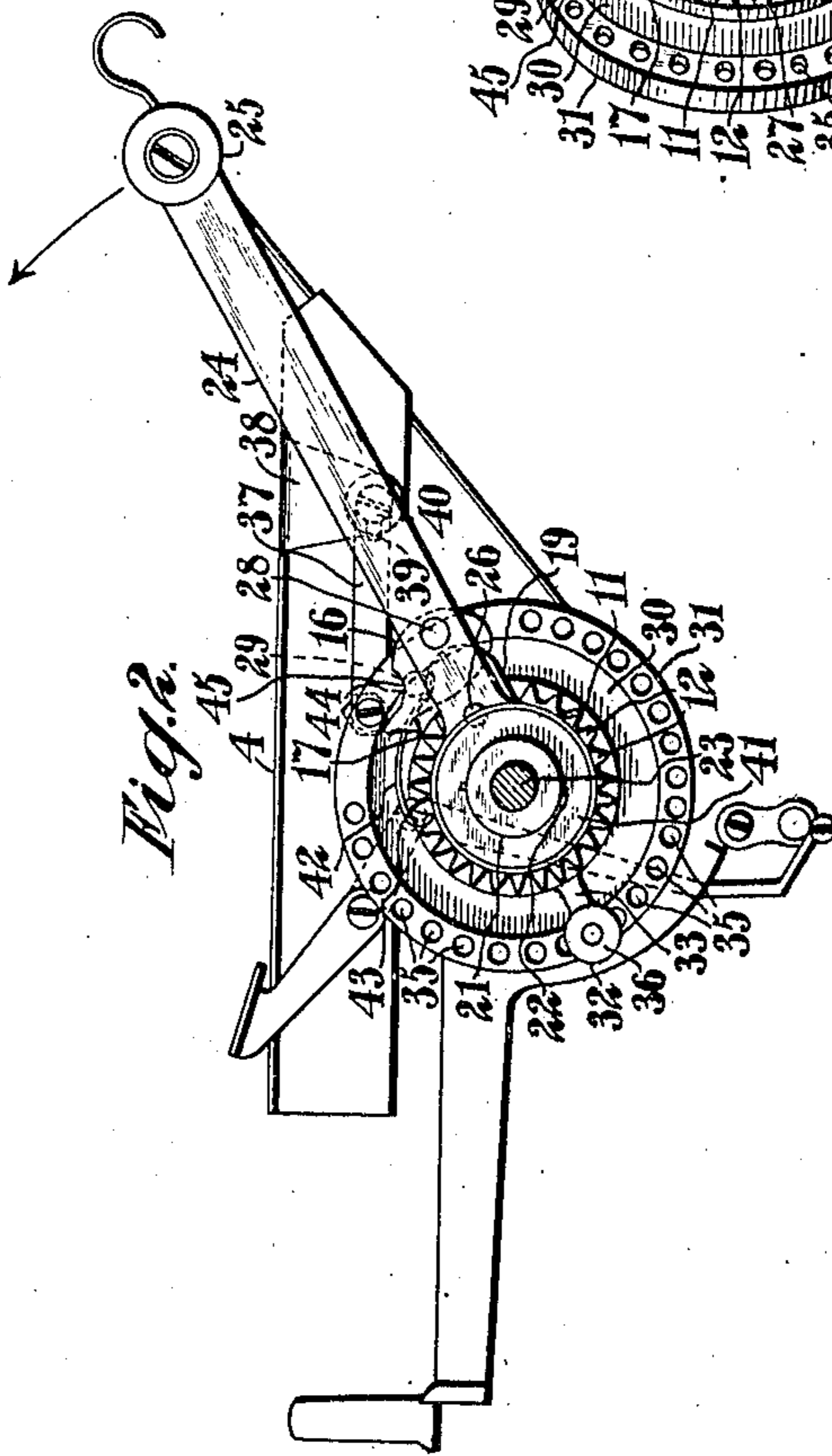
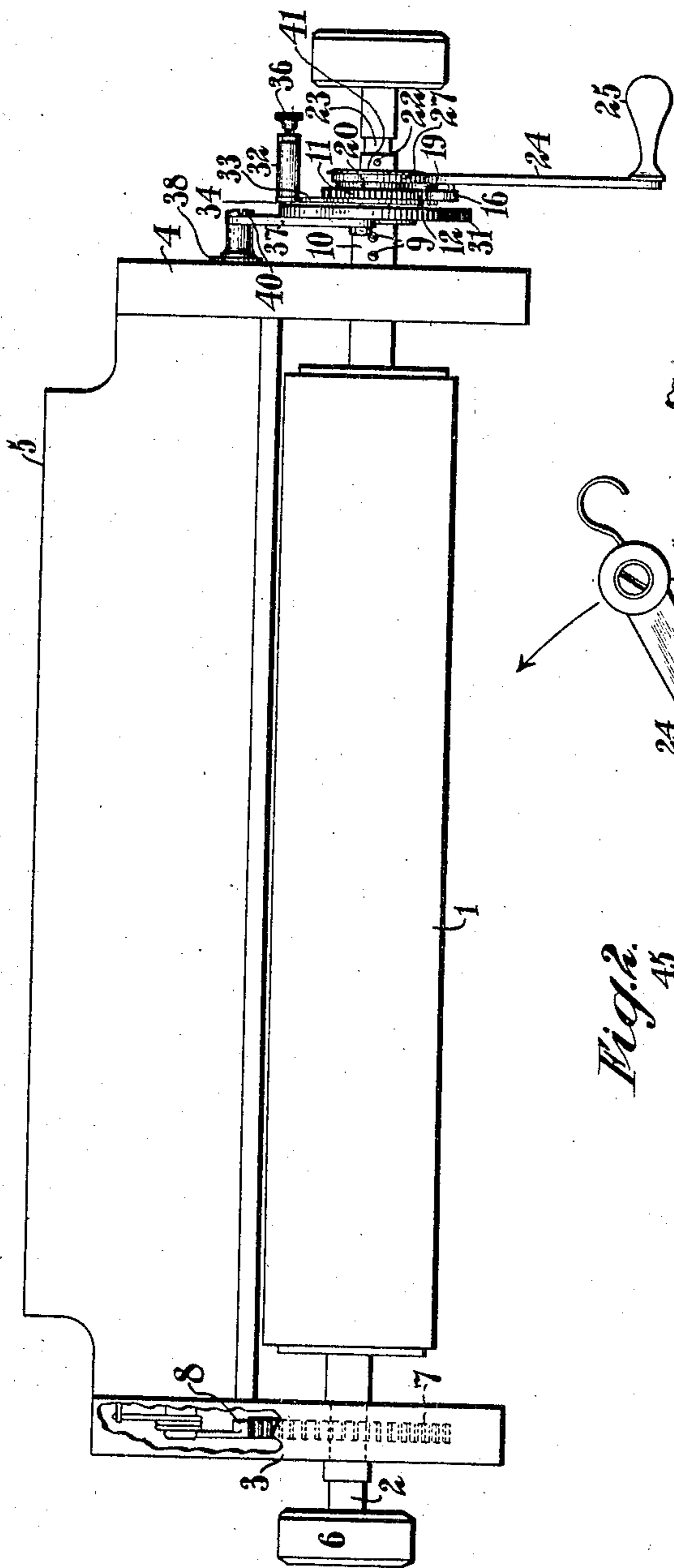


No. 871,595.

PATENTED NOV. 19, 1907.

C. E. KELLEY.
TYPE WRITING MACHINE.
APPLICATION FILED MAR. 14, 1907.

2 SHEETS—SHEET 1.



Witnesses:
K. Frankfort.
H. E. Fleischer.

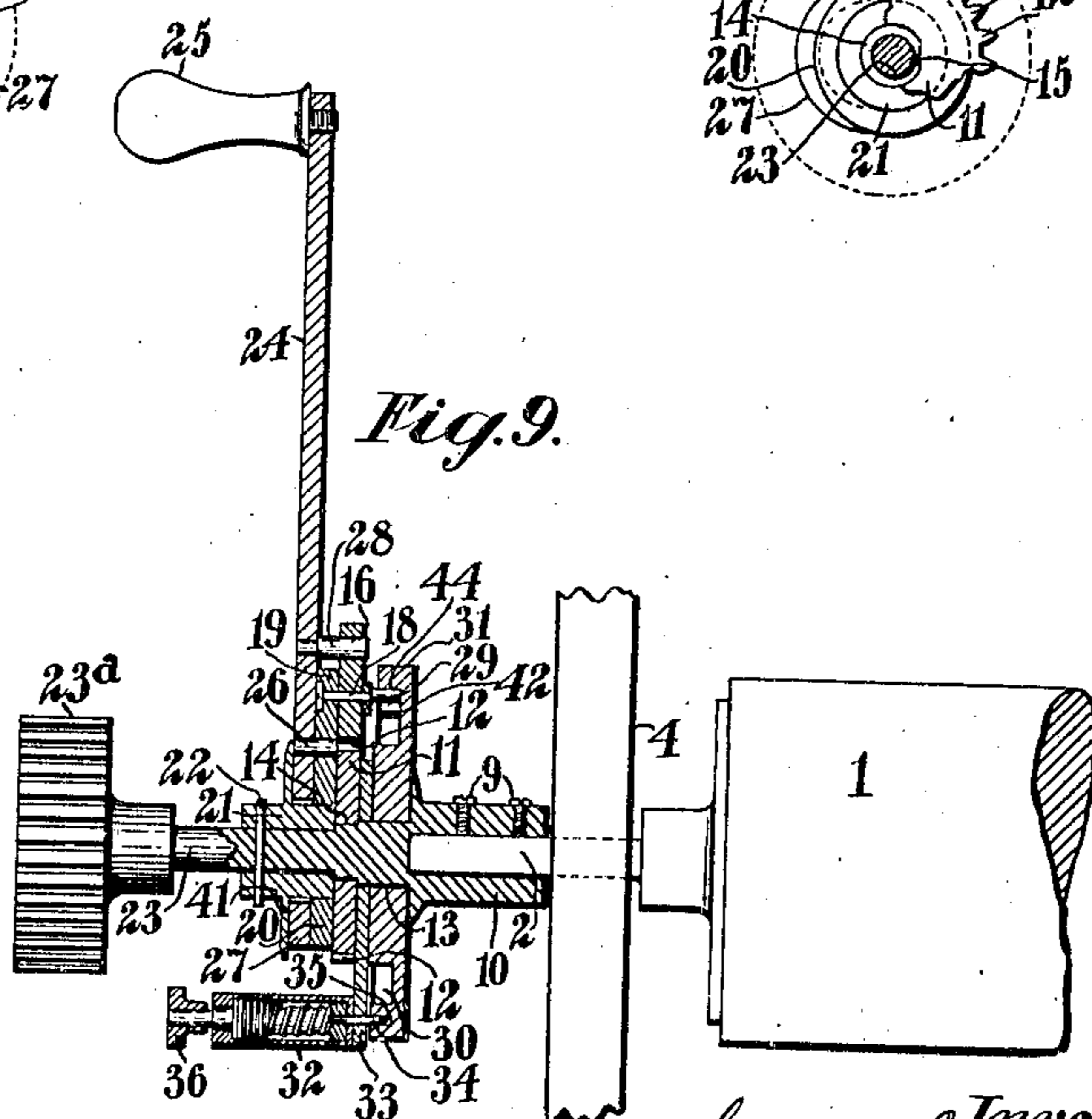
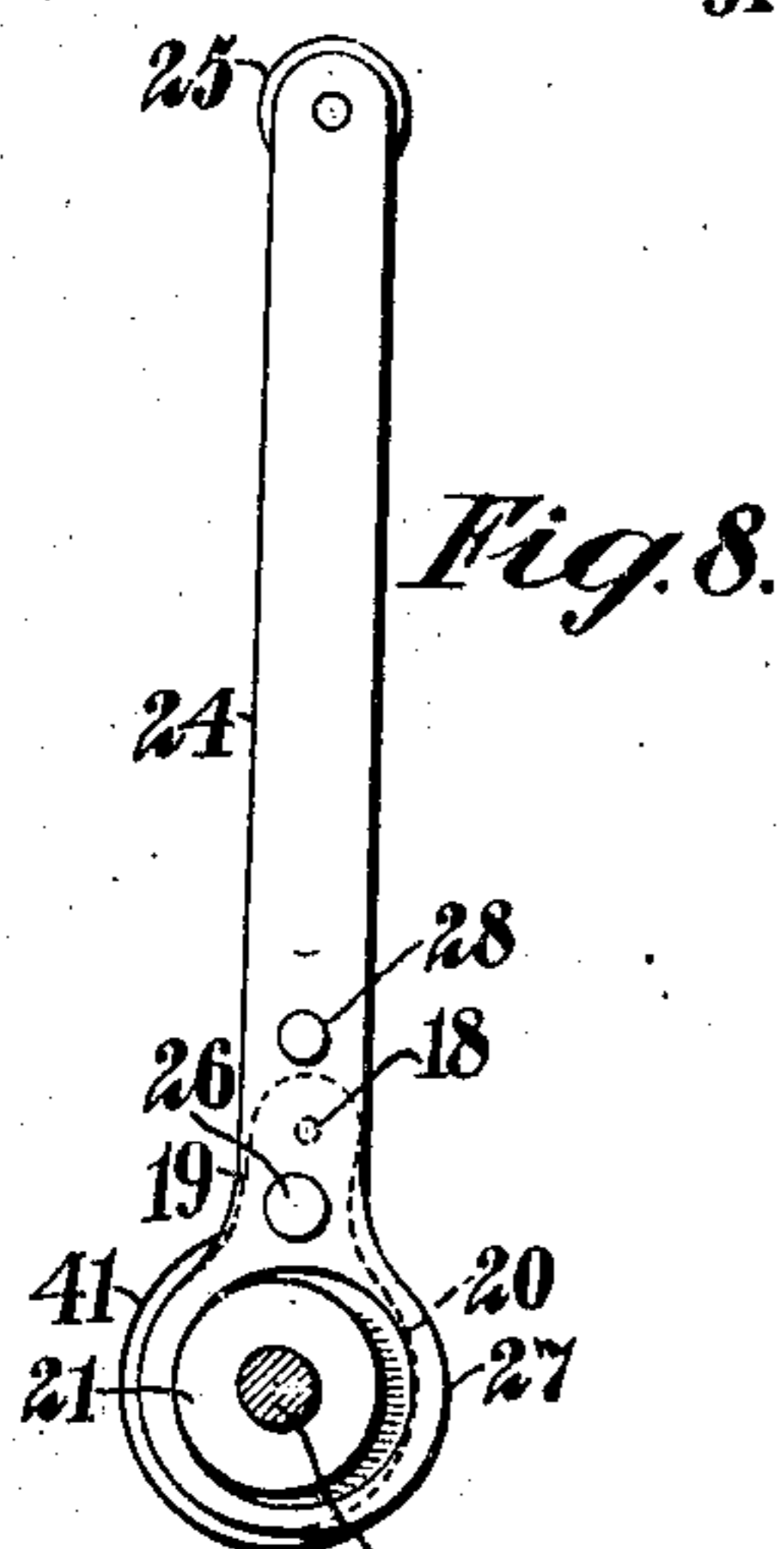
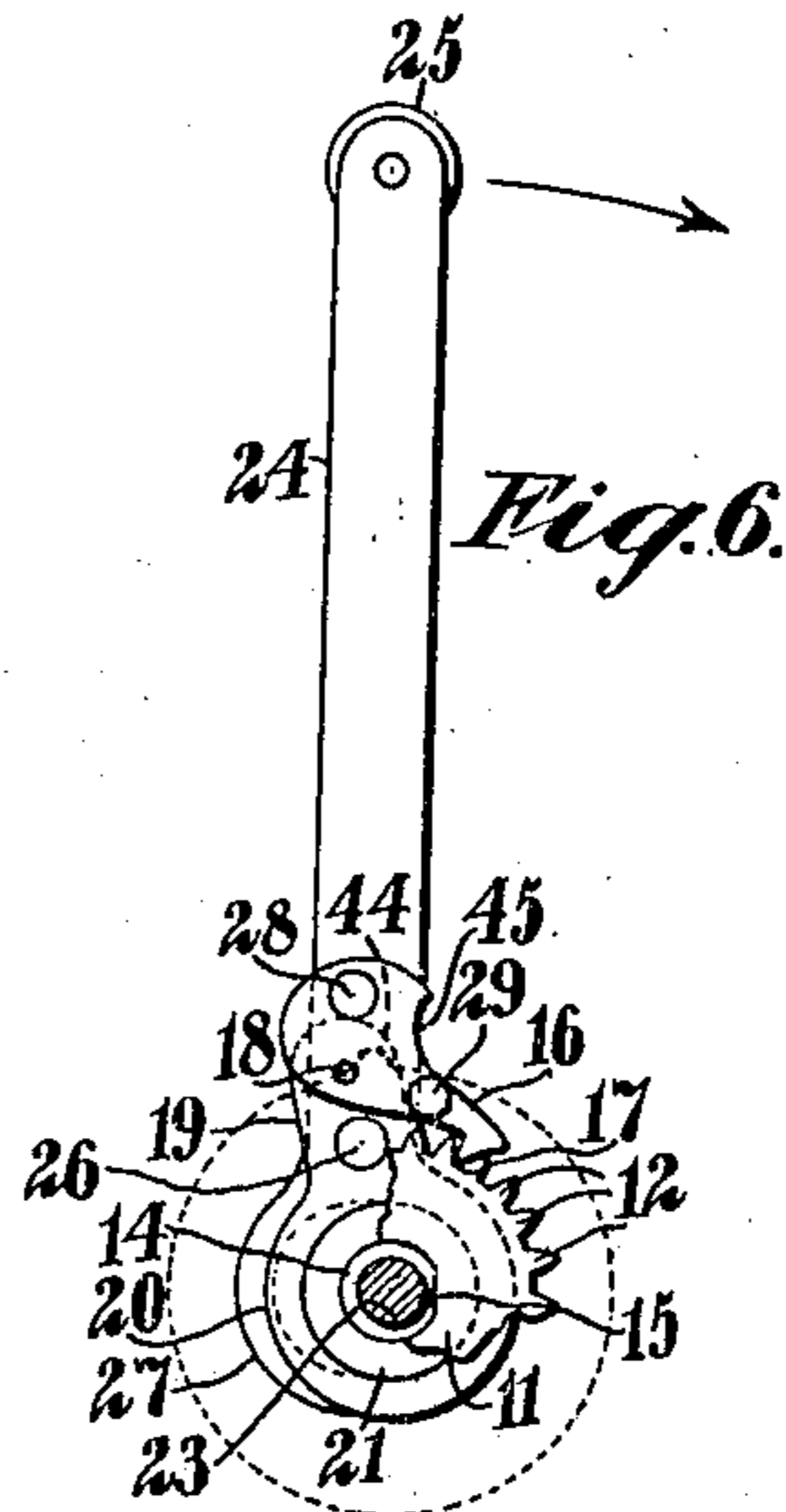
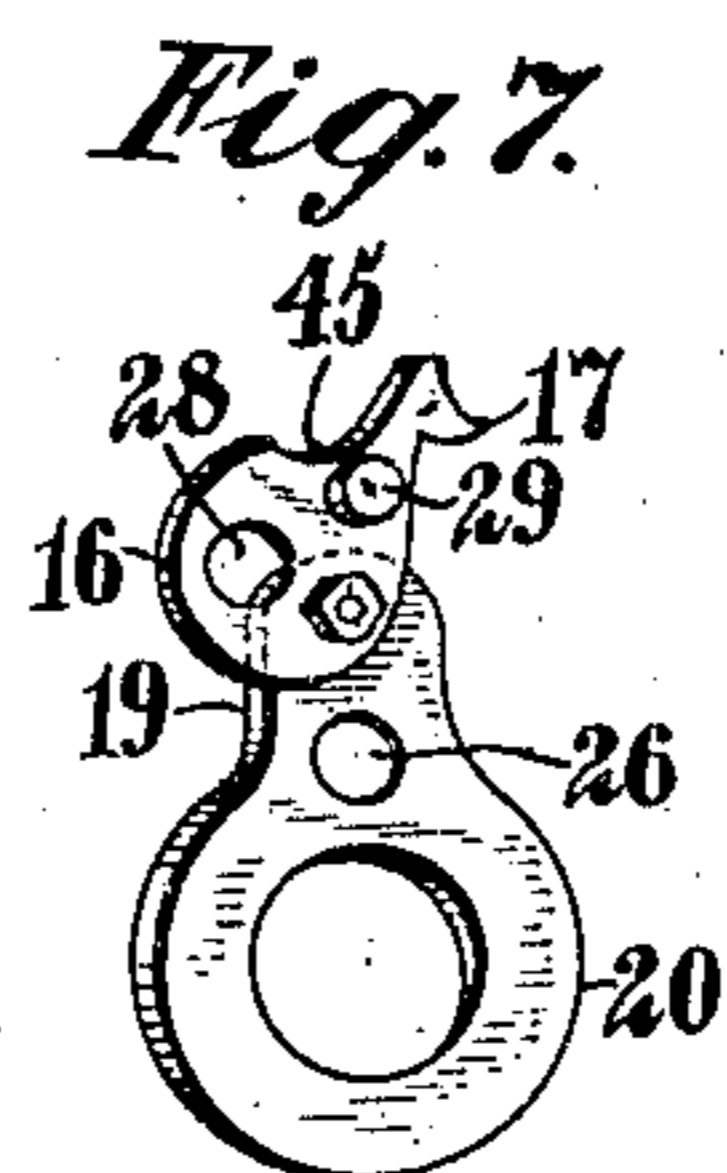
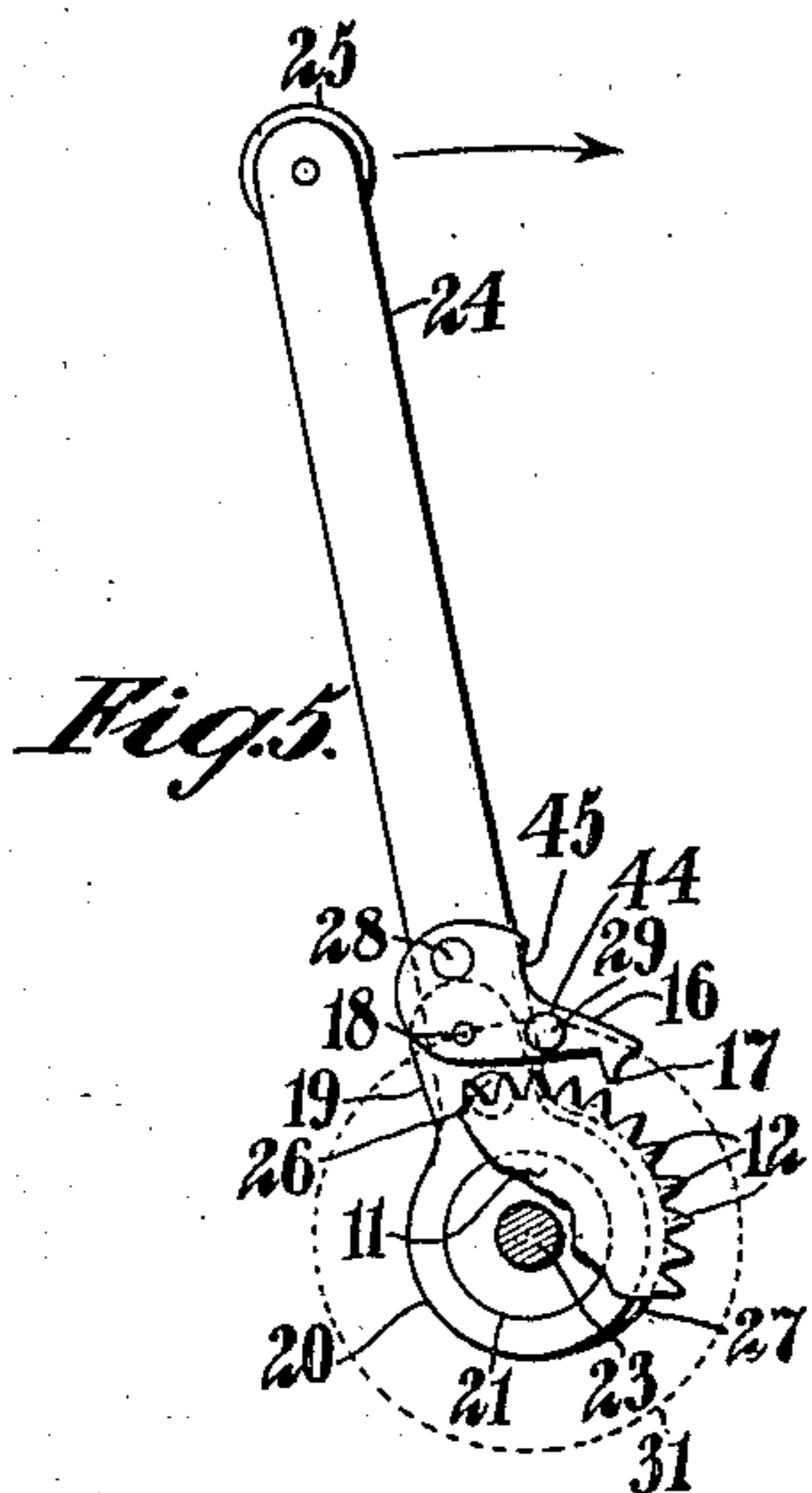
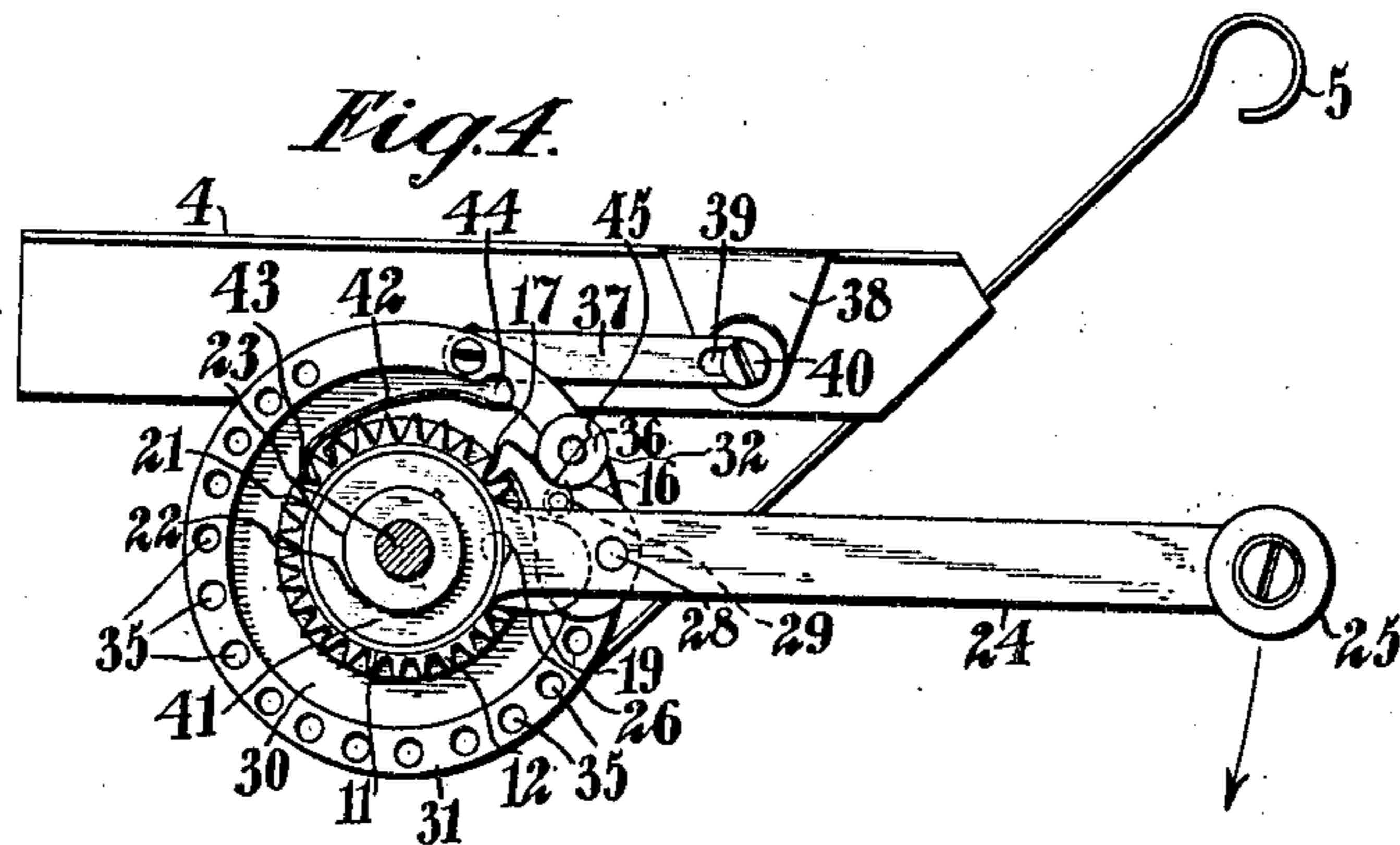
Inventor
Charles E. Kelley
By his Attorney,
O. C. Stickney

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2 SHEETS—SHEET 2.



Witnesses: 23
H. Frankfort
H. E. Fleischer

Inventor
Charles E. Kelley
By his Attorney,
B. B. Stickney

UNITED STATES PATENT OFFICE.

CHARLES E. KELLEY, OF WATERBURY, CONNECTICUT, ASSIGNOR TO UNDERWOOD TYPE-WRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

No. 871,595.

Specification of Letters Patent.

Patented Nov. 19, 1907.

Application filed March 14, 1907. Serial No. 362,361.

To all whom it may concern:

Be it known that I, CHARLES E. KELLEY, a citizen of the United States, residing in Waterbury, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to the special paper-feeding devices of typewriting machines designed to facilitate the writing of bills and simultaneously recording them in the manner commonly known as condensed charging; and the present invention is in the nature of an improvement upon the mechanism disclosed in the United States Patent No. 819,785 and upon that disclosed in the pending application of Harry S. McCormack, No. 371,377, filed May 2, 1907.

It is usual to construct the machine so that the platen may be line-spaced or otherwise rotated either forwardly or backwardly to an unlimited extent, while at any time, by manipulating a special crank or the like, the platen may be rotated back to receive a new bill, and then forward to bring the bill to printing position. In order to effect this movement of the platen, it is usual first to press a special finger-piece to effect the connection between the crank and the platen and then to swing the crank; the latter being usually locked in normal position, and being released by the same movement of the special finger-piece that connects the crank to the platen. This two-fold manipulation is found highly objectionable to the typewriter operator who is engaged in writing accounts at high speed, and who is consequently liable to make errors in the figures, if compelled to devote undue attention to the manipulation of the paper feeding devices.

The object of the present invention, is to avoid the necessity of the two-fold manipulation above referred to; and to this end, I preferably arrange yielding means to hold the crank in a normal position of disuse, and contrive to cause a single swinging movement of the crank both to release it from said yielding means and connect it to the platen, and also to rotate the platen. It is thus possible by a single movement of the crank, without prior manipulation of any releasing device or any connecting device, to rotate the platen back to the desired position, whereby much mental labor on the part of the operator is

saved, and liability of confusion and mistakes avoided.

In the preferred form of the invention, the crank is mounted upon the platen axle, or rather upon an arm which is journaled upon said axle, the crank being pivoted upon the arm and being movable with the arm around the platen axis. A pawl is pivoted to the arm and also to the crank, and the latter is permitted to a limited movement independently of the arm sufficient to swing the pawl into engagement with a toothed wheel, which is rigidly connected to the platen. The engagement of the pawl with the wheel is mechanically maintained until the crank is returned to normal position, when a spring disengages the pawl from the wheel, and also serves to latch the crank in its normal position.

In the accompanying drawings, Figure 1 is a plan view of the platen frame of an "Underwood" typewriting machine having my improvements applied thereto. Fig. 2 is an end elevation of the platen-controlling devices made the subject of this application; the crank being shown in a normal position of disuse, to permit rotation of the platen in either direction independently of the crank. Fig. 3 is a perspective view of the platen-controlling mechanism. Fig. 4 is a view similar to Fig. 2, but showing the crank as connected to the platen and as having rotated the same backwardly for the insertion of a bill in the machine. Figs. 5 and 6 are sectional elevations looking at the crank from the opposite side from Fig. 4; Fig. 5 showing the parts in the normal position, as at Fig. 1, and Fig. 6 showing them as having moved from the Fig. 5 position sufficiently to connect the crank to the platen to rotate the latter. Fig. 7 is a perspective view of an arm and a platen-driving pawl pivoted thereto. Fig. 8 illustrates the pivoting of the crank to an arm, which is journaled concentrically with the platen axle. Fig. 9 is a sectional rear elevation of the platen-controlling mechanism taken axially of the platen.

The usual cylindrical platen 1 of an Underwood typewriting machine is fixed upon an axle 2 journaled in the ends 3, 4, of a platen frame 5, the end of the axle projecting through the platen frame end 3 having a finger-wheel 6 thereon by means of which the platen may be rotated forwardly or

backwardly to an unlimited extent. h
 platen is also provided with the usual line-
 spacing devices, of which a toothed line-
 space wheel 7 and a yielding detent 8 there-
 5 for are seen at Fig. 1. Said line-space
 wheel is advanced intermittently by a pawl
 and lever, not shown. Upon the other pro-
 jecting end of the platen axle, is secured by
 screws 9, a hub or sleeve 10, to which is
 10 rigidly secured a wheel 11 having on its pe-
 riphery teeth 12 equal in number with those
 of the line-space wheel 7, said wheel always
 revolving together with the platen. The
 sleeve 10 has a portion 13 of reduced
 15 diameter, and beyond that a portion 14
 still more reduced in diameter to receive said
 wheel 11, the part 14 being formed with a flat
 part 15, Fig. 6, and the wheel being formed
 with a hole to fit so that the hub 10 and the
 20 platen are compelled to turn with the wheel.
 The wheel is rotatable by means of a
 pawl 16 having a tooth 17 to engage the
 teeth 12 of the wheel, but normally dis-
 engaged therefrom, as seen at Figs. 2 and 5,
 25 to permit independent rotation of the wheel
 11 and platen 1. Said pawl is pivoted at 18
 upon an arm 19 having a hub 20 loosely
 journaled upon a collar 21 fixed by a pin 22
 upon a supplemental platen axle 23, which
 30 is integral with the hub 10, but is more re-
 duced in diameter than the portion 14 upon
 which the wheel 11 is mounted. During the
 common operations of the platen, the collar
 21 turns freely within the motionless-hub 20
 35 of the arm 19.

The backward and forward rotation of the
 platen for billing purposes, is effected by
 means of a crank 24 having a handle 25 and
 pivoted at 26 upon said arm 19. The crank
 40 and arm, as well as the pawl 16, may swing
 altogether around the platen axis, but the
 crank, pawl and arm are capable of limited
 relative movements, whereby the pawl is
 engaged with and disengaged from the wheel
 45 11. The relative movement of the crank 24
 upon the arm 19 is very slight, being limited
 by an eye 27 formed upon the crank below
 the pivot 26 and loosely surrounding the
 collar 21. The pawl 16 is pivoted at 28 to
 50 the crank 24 at a point above the pivot 18 or
 more remote than 18 from the platen axis 2;
 and by a movement of the crank about the
 pivot 26 from the Figs. 5 and 8 position to
 the Fig. 6 position, said pawl is swung into
 55 engagement with the toothed-wheel 11;
 there being an accompanying slight motion
 of the arm 19 in the direction of the arrow,
 Fig. 6.

The pawl is maintained mechanically in
 60 engagement with the wheel 11 by means of a
 pin 29 projecting from the pawl, to engage
 the guiding inner surface 30 of an annular
 member 31, which is fixed to the platen
 frame, said guiding surface being concentric
 65 with the platen axis and serving to lock the

pawl in the Fig. 2, 3, 4 and 6 position rela-
 tively to the wheel 11.

The length of the stroke of the platen ef-
 fected by the crank 24 is determined by
 means of a stop 32, fixed upon an arm 33 70
 contiguous to the member 31 and swinging
 freely about the shoulder 13 of the sleeve 10,
 and held in any desired position by means of
 a releasable pin 34 to engage any of a series
 of holes 35 in the member 31 and provided 75
 with a finger-piece 36 whereby it may be
 withdrawn from any of said holes, so that the
 stop may be adjusted to any point around
 the rim 31. The latter is loose upon the
 member 13, but is held against rotation by a 80
 link 37 connected to an ear 38 on the platen
 frame; the slot 39 being provided in said link
 to be engaged by a fastening screw 40 to per-
 mit slight rotative adjustment of the mem-
 ber 31. The eye 27 and the hub 20 are con- 85
 fined against the wheel 11 by means of a
 washer 41 formed upon the collar 21, Fig. 9,
 so that the entire structure is very compact
 and of comparatively little weight.

The crank 24 and its associated parts are 90
 normally held in the Fig. 1 position by
 means of a leaf-spring 42, fixed at one end at
 43 to a part of the member 31 and being ar-
 ranged at the other end to bear normally
 against the projection 29 to press the same 95
 yieldingly into a notch 44 formed in the rim
 31. The stop 32 having been set to the re-
 quired position, as at Fig. 4, the handle 25
 is grasped by the operator to swing the same
 towards the front of the carriage in a direc- 100
 tion indicated by the arrows, Figs. 2, 5 and
 6. The general motion of the crank is about
 the platen axis. The initial movement of
 the crank swings the pawl 16 into engage- 105
 ment with the wheel 11 in the manner al-
 ready described, so that by means of further
 movement of the crank, the wheel 11 and
 platen are caused to rotate therewith in a
 direction to turn the platen backwardly to
 receive a new bill; this motion of the platen 110
 continuing until arrested by the stop 32
 which may engage a notch 45 formed in the
 pawl. Upon the bill being inserted, the
 crank is swung through its return stroke in
 the direction indicated by the arrow, Fig. 4; 115
 the projection 29 riding in contact with the
 surface 34 which keeps the wheel 11 locked
 to the crank 24. Upon the return stroke of
 said crank, as the latter nears its normal po-
 sition, the pin 29 is engaged by the free end 120
 of the spring 42 and snapped up into the
 notch 44, thereby releasing the wheel and the
 platen and also arresting the crank.

Thus, it will be seen, that by a simple
 mechanism, provision is made whereby the 125
 operator, when desiring to rotate the platen
 backwardly, needs only to grasp the crank,
 and swing it in a single direction about the
 platen axis 2 automatically effecting the
 locking of the crank to the platen, and main- 130

taining such lock connection until the crank is swung back again, as far as it will go, whereupon the first line of writing may be begun upon the bill.

5 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:

10 1. In a typewriting machine having a revolvable platen, the combination with a toothed-wheel connected to the platen to revolve therewith, of an arm mounted for revolution with said toothed-wheel, a pawl upon said
15 arm and movable independently thereof and normally out of engagement with said toothed-wheel, and a platen-oscillator distinct from said arm and having means to move said pawl into engagement with said
20 toothed-wheel, and to act through said pawl to rotate the wheel.

2. In a typewriting machine having a revolvable platen, the combination with a toothed-wheel connected to the platen to revolve
25 therewith, of an arm mounted for revolution with said toothed-wheel, a pawl upon said arm and movable independently thereof and normally out of engagement with said toothed-wheel, a platen-oscillator distinct
30 from said arm and having means to move said pawl into engagement with said toothed-wheel, and to act through said pawl to rotate the wheel, and means for maintaining mechanically the engagement of the pawl and
35 wheel, during the excursion of said platen-oscillator away from and back to normal position.

3. In a typewriting machine having a revolvable platen, the combination with a toothed-wheel connected to the platen to revolve
40 therewith, of an arm mounted for revolution with said toothed-wheel, a pawl upon said arm and movable independently thereof and normally out of engagement with said
45 toothed-wheel, a crank distinct from said arm and mounted for revolution with said arm and wheel, a spring for holding said crank stationary and said pawl disengaged during the usual line-spacing movements of
50 the platen, means for enabling a turning movement of the crank to carry said pawl into engagement with said wheel, means for mechanically maintaining the engagement of the pawl and wheel during the excursion
55 of said crank away from and back to normal position, and a stop for limiting the initial stroke of the crank.

4. In a typewriting machine having a revolvable platen and a platen axle, the combination
60 with a toothed wheel fixed upon said axle, of a crank loosely supported to swing about said axle, an arm confined between said crank and wheel and loose upon said axle, a pawl pivoted to said arm and also piv-
65 oted to said crank at a point more remote

from said axle than said arm-pivot, a pin projecting from said pawl, a fixed part having a notch into which said pin is pressed by a spring both to hold the pawl away from the wheel, and also to hold the crank stationary
70 during the usual line-by-line revolution of the platen, said crank being effective to force said pin out of said notch and to engage the pawl with the wheel, and said fixed part having a circular guiding surface concentric with
75 said axle to engage said pin to lock the pawl to the wheel, and a stop to limit the initial stroke of the crank.

5. In a typewriting machine having a revolvable platen and platen axle, the combination
80 with a toothed wheel fixed upon said axle, of a crank loosely supported to swing about said axle, an arm confined between said crank and wheel and loose upon said axle, a pawl pivoted to said arm, and also
85 pivoted to said crank at a point more remote from said axle than said arm-pivot, a pin projecting from said pawl, a fixed part having a notch into which said pin is pressed by a spring both to hold the pawl away from the
90 wheel, and also to hold the crank stationary during the usual line-by-line revolution of the platen, said crank effective to force said pin out of said notch and to engage the pawl with the wheel, and said fixed part having a
95 circular guiding surface concentric with said axle to engage said pin to lock the pawl to the wheel and a stop to limit the initial stroke of the crank, said spring being fixed in the path of said pin opposite said notch, to en-
100 gage the pin and press it into the notch.

6. In a typewriting machine having a revolvable platen and a platen axle, the combination
105 with a toothed wheel fixed upon said axle, of a crank loosely supported to swing about said axle, an arm distinct from said crank and loose upon said axle, a pawl pivoted to said arm, a pin projecting from said pawl, and a fixed part having a notch into which said pin is pressed by a spring both to
110 hold the pawl away from the wheel, and also to hold the crank stationary during the usual line-by-line revolution of the platen, said crank having means to force said pin out of said notch and to engage the pawl
115 with the wheel, and said fixed part having a circular guiding surface concentric with said axle to engage said pin to lock the pawl to the wheel.

7. In a typewriting machine having a revolvable platen, the combination with a toothed
120 wheel connected to the platen, of a crank loosely supported to revolve with said toothed wheel, an arm distinct from said crank and revolvable with said crank and
125 wheel, a pawl pivoted to said arm, means to hold the pawl away from the wheel, and also to hold the crank stationary during the usual line-by-line revolution of the platen, said
130 crank being effective to force the pawl into

engagement with the wheel, and a circular guiding surface concentric with the wheel to lock the pawl to the wheel.

8. In a typewriting machine having a revoluble platen and platen axle, the combination with a toothed wheel fixed upon said axle, of a crank having a support upon said axle, an arm loose upon said axle, a pawl pivoted to said arm, and also pivoted to said crank at a point more remote from said axle than said arm-pivot, a pin projecting from said pawl, and a fixed part having a notch into which said pin is pressed by a spring, to hold the pawl out of mesh with the wheel teeth, said fixed part having a circular guiding surface concentric with said axle to engage said pin to lock the pawl to the wheel, and said crank having play at the end which bears upon the axle, sufficient to permit a pawl-meshing movement of the crank before the revolution of the wheel begins.

9. In a typewriting machine having a revoluble platen and a platen axle, the combination with a toothed wheel fixed upon said axle, of a crank loosely supported upon said axle, a pawl pivoted to said crank, means distinct from said crank to carry the pawl around said axle, a pin projecting from said pawl, and a fixed part having a notch into which said pin is pressed by a spring to hold the pawl away from the wheel, said crank being effective to force said pin out of said notch and to engage the pawl with the wheel, and said fixed part having a circular guiding surface concentric with said axle to engage said pin to lock the pawl to the wheel.

10. In a typewriting machine having a revoluble platen and platen axle, the combination with a toothed wheel fixed upon said axle, of an arm loose upon said axle, a crank pivoted upon said arm, means to limit the vibration of the crank upon the arm, a pawl pivoted to said arm, and also pivoted to said crank, a pin projecting from said pawl, a fixed part having a notch into which said pin

is pressed by a spring both to hold the pawl away from the wheel, and also to hold the crank stationary during the usual line-by-line revolution of the platen, and means to maintain the pawl locked to the wheel during the excursion of the crank from and to normal position.

11. In a typewriting machine having a revoluble platen, the combination with a toothed wheel connected to the platen, of an arm revoluble with said wheel, a crank distinct from and pivoted upon said arm, means to limit the vibration of the crank relatively to the arm, a pawl pivoted to said arm, means to hold the pawl away from the wheel, and also to hold the crank stationary during the usual line-by-line revolution of the platen, said crank being effective to force the pawl into engagement with the wheel, and a circular guiding surface concentric with the wheel to lock the pawl to the wheel.

12. In a typewriting machine having a revoluble platen, a platen axle, and a platen frame in which said platen is journaled, the combination of a toothed wheel fixed upon said axle outside of said platen frame, a collar fixed upon said axle against said toothed wheel, an arm journaled loosely upon said collar, a crank pivoted upon said arm, and confined between the latter, and a part provided upon said crank having an eye or opening, and said collar being within the eye and serving to limit the vibrations of said crank upon said arm, a pawl pivoted to said arm and having a projecting pin, a fixed device upon the platen frame and having a circular surface provided with a notch in which said pin is yieldingly held by a spring, and means to determine the extent of the platen rotating movement of the crank away from and back to normal position.

CHARLES E. KELLEY.

Witnesses:

CHARLES L. ROOT,
EDWIN N. LEVICK.