

J. C. McLAUGHLIN.
TYPE WRITING MACHINE.
APPLICATION FILED JULY 15, 1908.

925,373.

Patented June 15, 1909.

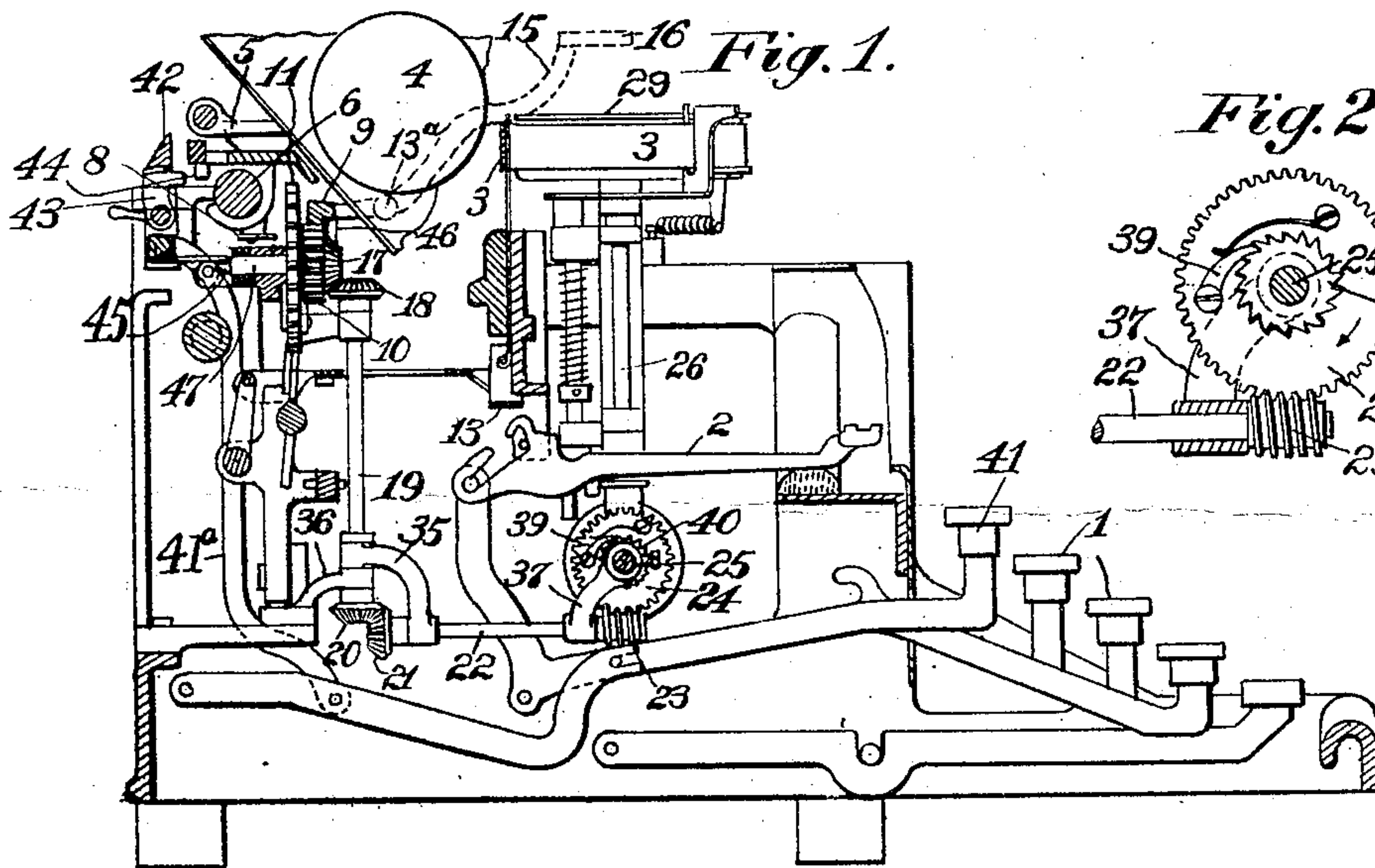


Fig. 2.

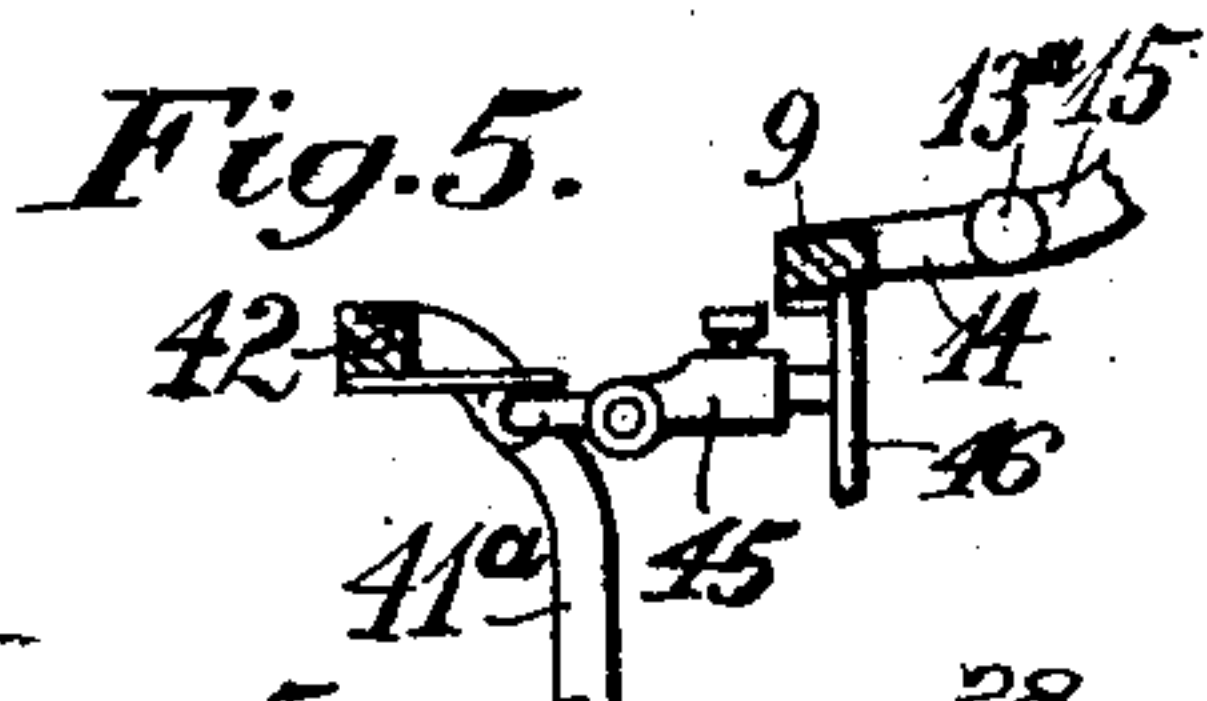
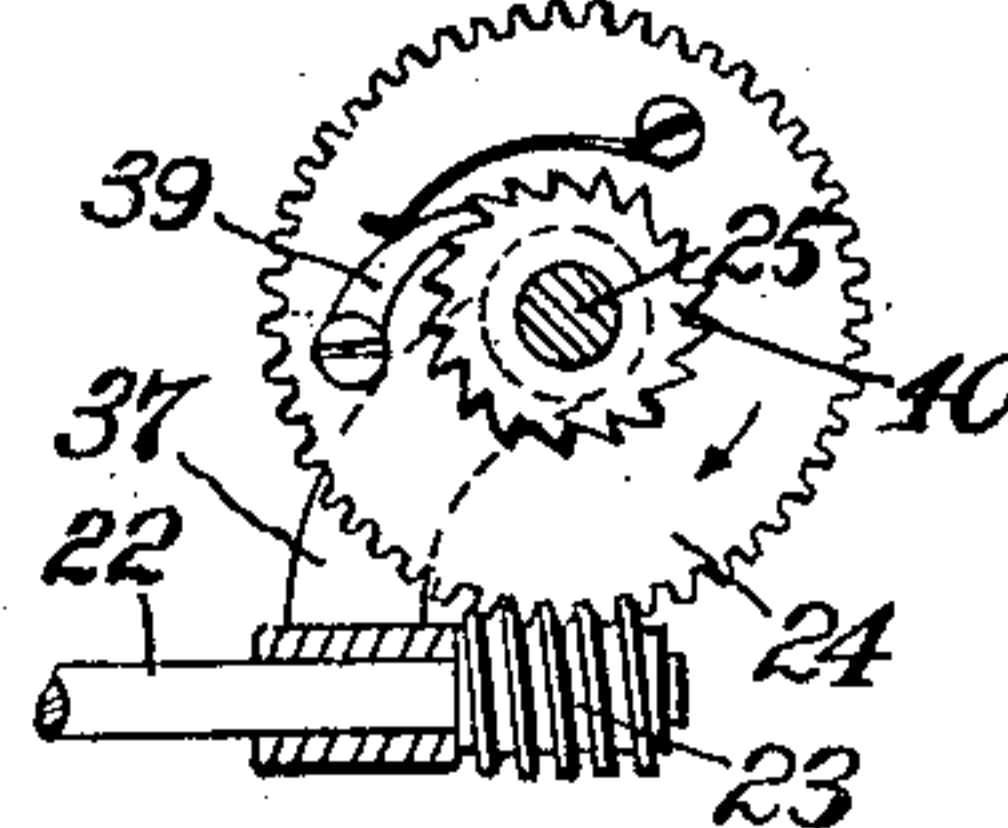


Fig. 3.

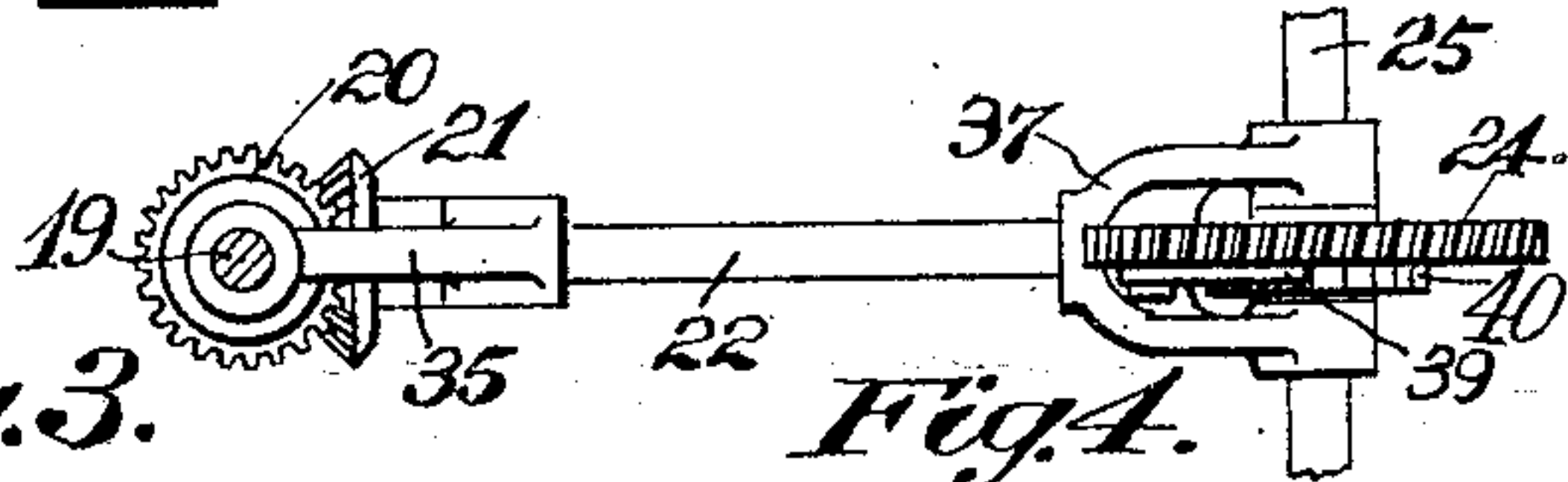


Fig. 4.

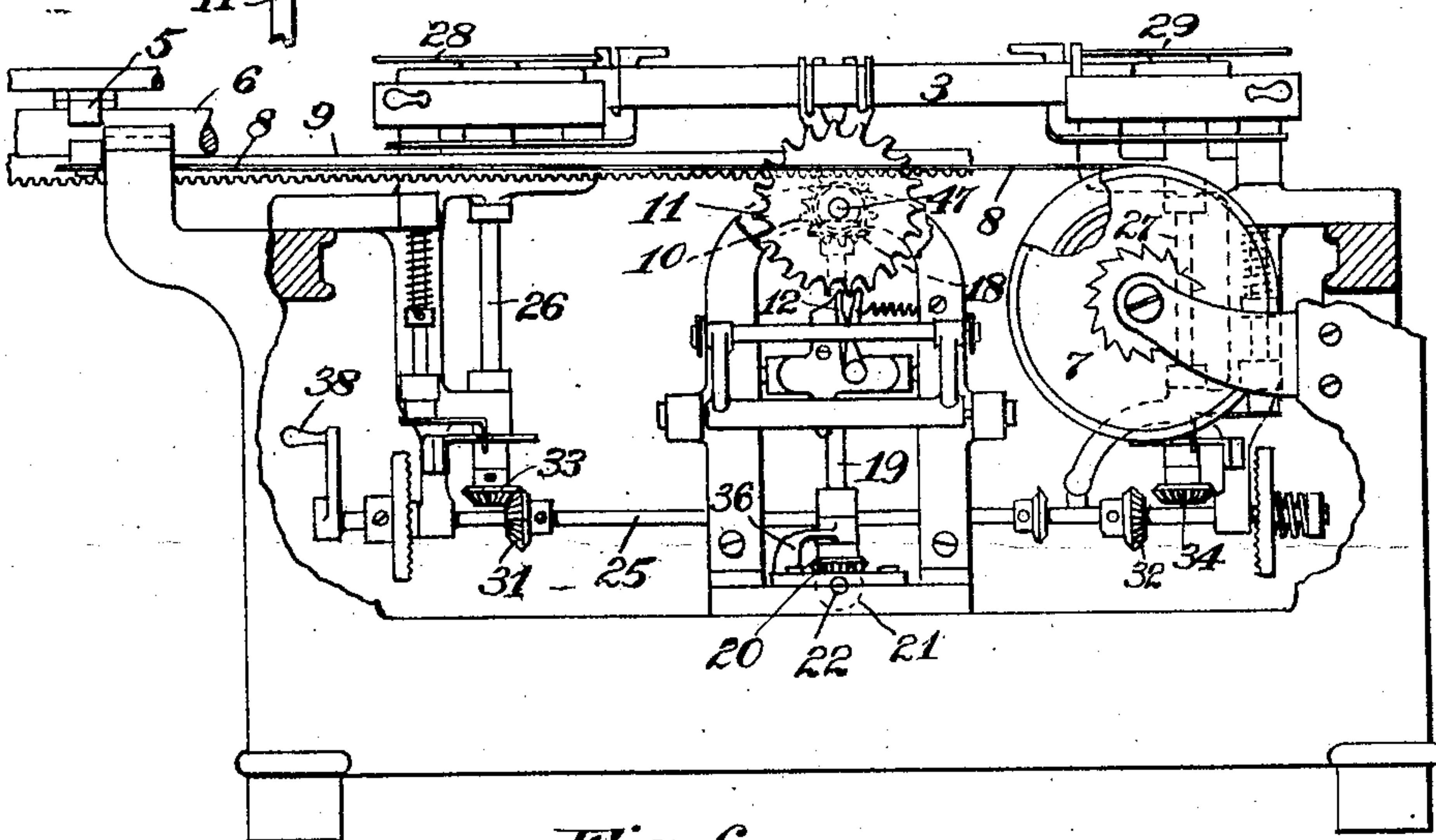
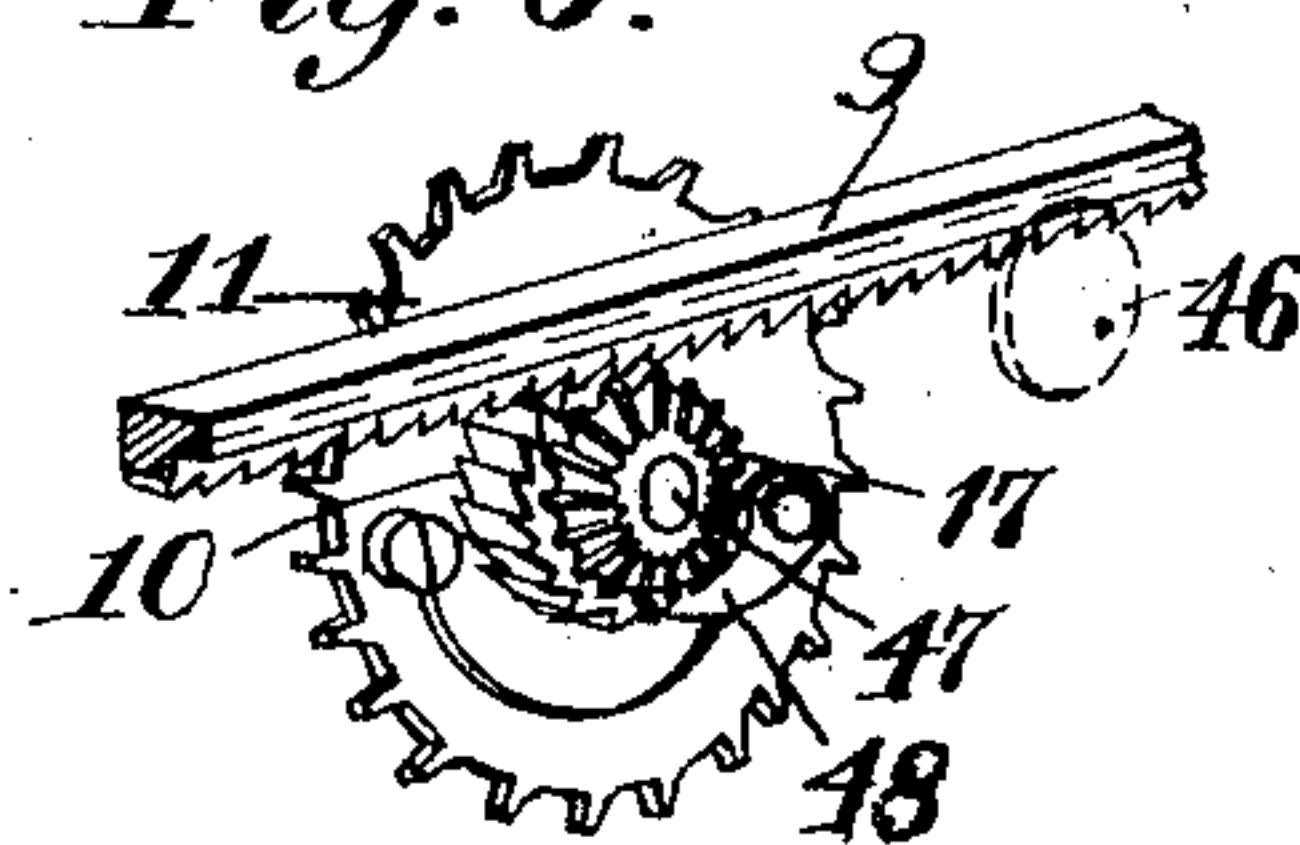


Fig. 6.



Witnesses:
P. W. Pittman,
John Q. Seifert.

Inventor:
John C. McLaughlin.
By his Attorney
D. B. Stickney.

UNITED STATES PATENT OFFICE.

JOHN C. McLAUGHLIN, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO UNDERWOOD TYPE-WRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

No. 925,373.

Specification of Letters Patent.

Patented June 15, 1909.

Application filed July 15, 1908. Serial No. 443,577.

To all whom it may concern:

Be it known that I, JOHN C. McLAUGHLIN, 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 the ribbon-winding mechanisms of typewriting machines, and particularly to those in which the ribbon is wound by means of the same spring which drives the letter-feeding carriage, and in which the ribbon mechanism is disconnected from the carriage automatically whenever the latter is released to be run forward rapidly by its spring, so as to avoid rapid feeding of the ribbon and liability of injury to the ribbon, or derangement of the winding and automatic reversing devices.

The principal object of the invention is to produce a simple and effective means for releasably connecting the ribbon-winding and reversing devices to the carriage, to be released automatically, as aforesaid.

One of the leading features of my invention consists in taking advantage of the rotary movement of the usual carriage escapement mechanism for imparting a rotary movement to the ribbon-winding mechanism, whereby simplicity of structure and operation is secured, particularly because one movement of the carriage-release key (or of the usual tabulating key) releases the carriage from both the escapement and the ribbon-winding mechanism, such movement usually consisting in the lifting of the rack from the pinion. In other words, the simple expedient of connecting the master ribbon-winding shaft to the escapement pinion secures not only the benefit of driving the ribbon from the carriage propelling spring, but also the advantage of avoiding the necessity of providing a special releasing mechanism to disconnect the ribbon-winding shaft from the carriage-driving spool, since the carriage-releasing devices are caused to do double duty by simultaneously releasing the ribbon-winding devices.

Other features and advantages will herein-after appear.

In the accompanying drawings, Figure 1 is a sectional elevation from front to rear of an Underwood front strike writing machine, provided with my improvements, the parts being shown in normal positions. Fig. 2 is a sectional elevation from front to rear of the master ribbon-winding shaft, a worm-wheel thereon, and clutching devices between the worm wheel and the shaft. Fig. 3 is a rear elevation of the machine. Fig. 4 is a plan of a part of the train of gearing that drives the ribbon spools; the master-shaft being shown midway between its extreme shifts. Fig. 5 is a detail of the means to release the paper carriage by means of the usual tabulator key. Fig. 6 is a perspective view of the usual rack bar, pinion and escapement wheel, with the addition of the initial drive gear or pinion of the improved ribbon mechanism.

Keys 1 cause type bars 2 to strike through a ribbon 3 against the front side of a platen 4, which is mounted upon a carriage 5. The carriage is guided upon rails, one of which is seen at 6, and is propelled by means of a spring barrel 7 connected to the carriage by a strap 8. Upon the carriage is mounted a rack 9, which meshes with a pinion 10, the latter connected to an escapement wheel 11, controlled by dogs 12 which vibrate at the type strokes, said dogs being connected to a universal bar frame 13, which is directly reciprocated by the type bars. The rack bar 9 is hinged upon the carriage at 13^a by means of a pair of arms 14, one of which is prolonged at 15 and carries a key 16, depression of which lifts the rack 9 from the pinion 10 to release the carriage from the control of the escapement mechanism. As so far described the parts are in common use in said machine.

To wind the ribbon 3, I fix to the spindle forwardly of the pinion 10 a bevel pinion 17, which meshes with a bevel pinion 18 mounted upon the top of a vertical shaft 19. Upon the bottom of the latter is mounted another bevel pinion 20, to mesh with a similar pinion 21 on the rear end of a shaft 22, the latter carrying at its forward end a worm 23, to

mesh with a worm wheel 24 mounted loosely upon the transverse master driving shaft 25. Said master driving shaft 25 performs the usual function of driving a pair of vertical shafts 26, 27, carrying spools 28, 29, on which the ribbon 3 is wound. The master shaft 25 is shiftable endwise to connect and disconnect the bevel pinions 31 and 32 thereon from bevel pinions 33 and 34 mounted on the spool shafts 26, 27. The worm wheel 24 shifts with the shaft 25, this movement being accommodated by swiveling the shaft 22 in a bracket or arm 35, which can turn about the shaft 19; both the shaft and the swiveled arm 35 being supported upon a step 36 provided upon the framework. The forward end of the shaft 22 is hung by an arm or arms 37 upon the shaft 25 to shift therewith.

The master shaft 25 is provided with the usual crank or handle 38 to wind the ribbon manually as desired; and to permit such winding there is provided a clutch-device of common type between the worm wheel 24 and said master shaft, consisting of a spring-pressed pawl 39 upon the worm wheel and a ratchet wheel 40 fixed upon the master shaft, whereby the latter may be rotated either by or independently of the worm wheel.

It will be seen from the foregoing that the ribbon spools are wound by the carriage-winding spring 7, since the carriage rack rotates the pinion 10, which in turn operates the initial driving pinion 17 of the ribbon-winding mechanism; and that whenever the carriage is released by lifting the rack 9 (as by depressing the key 16) it may run freely while both the escapement wheel 11 and the ribbon winding mechanism remain stationary.

This improvement is especially beneficial where a tabulating mechanism is employed, and where it is usual for the carriage to run very rapidly upon the depression of the tabulator key. There is shown in the drawings a tabulating mechanism including a key 41, a column stop rack 42 connected by a link 41^a to said key and carrying a column stop 43 to cooperate with a column-stop 44 on the carriage. A lever 45 is also operated by the tabulator key and carries a roll 46 to lift the rack 9 from the pinion 10 whenever the tabulator key is operated.

In order to avoid movement of the ribbon-winding devices when the carriage is pushed back to the beginning of a new line, without lifting the rack 9 from the pinion, it is preferable to mount the pinion 10 loosely on a spindle 47 to which the initial ribbon-winding pinion 17 is fixed, and to provide a pawl 48 and ratchet between the escapement pinion 10 and the spindle 47. This permits the pinion 10 to turn idly in mesh with the

rack 9 during the return of the carriage. As usual in the Underwood typewriting machine, the pinion 10 is made in one piece with the ratchet wheel. Or in other words, the pinion is thickened, so that the rear portion thereof may serve as a ratchet wheel to be engaged by the pawl 48.

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 typewriting machine, the combination with a power-driven carriage having a rack, of an escapement mechanism including a pinion meshing with said rack, and having a horizontal spindle, a vertical shaft geared at its upper end to said spindle, a shaft geared to the lower end of said vertical shaft and extending forwardly and carrying a worm, a transverse master shaft having a worm wheel in mesh with said worm, and spool shafts operable in alternation by said master shaft; said master shaft being provided with a crank or finger-piece and said worm wheel being connected to said master-shaft by means of a clutch mechanism.

2. In a typewriting machine, the combination with a power-driven carriage having a rack, of an escapement mechanism including a pinion meshing with said rack, and having a horizontal spindle, a vertical shaft geared at its upper end to said spindle, a shaft geared to the lower end of said vertical shaft and extending forwardly and carrying a worm, a transverse master shaft having a worm wheel in mesh with said worm, and spool shafts operable in alternation by said master shaft; the master shaft being shiftable endwise together with said worm and worm wheel.

3. In a typewriting machine, the combination with a pair of spool-shafts, of a master shaft to operate the spool shafts in alternation, said master-shaft provided with a crank or finger-piece, a worm wheel connected to said master-shaft by means of a clutch mechanism, a worm engaging said worm wheel, an escapement mechanism including a pinion connected to said worm to operate the same, and a power-driven carriage having a rack engaging said worm.

4. In a typewriting machine, the combination with a pair of spool-shafts, of a master-shaft to operate the spool-shafts in alternation, said master-shaft provided with a crank or finger-piece, a worm wheel connected to said master-shaft by means of a clutch mechanism, a worm engaging said worm wheel, an escapement mechanism including a pinion connected to said worm to operate the same, and a power-driven carriage having a rack engaging said worm; said master-shaft being

shiftable endwise together with said worm and worm wheel to connect and disconnect from the spool shafts.

5 5. In a typewriting machine, the combination with a power-driven carriage having a rack, of an escapement mechanism including a pinion meshing with said rack, a worm shaft operated by said pinion, a master-shaft having a worm wheel in mesh with said worm

and spool shafts; the master-shaft being 10 shiftable endwise to connect to either spool-shaft, and said worm shaft being swiveled to accommodate the shifting movements of the master-shaft.

JOHN C. McLAUGHLIN.

Witnesses:

K. FRANKFORT,
JOHN O. SEIFERT.