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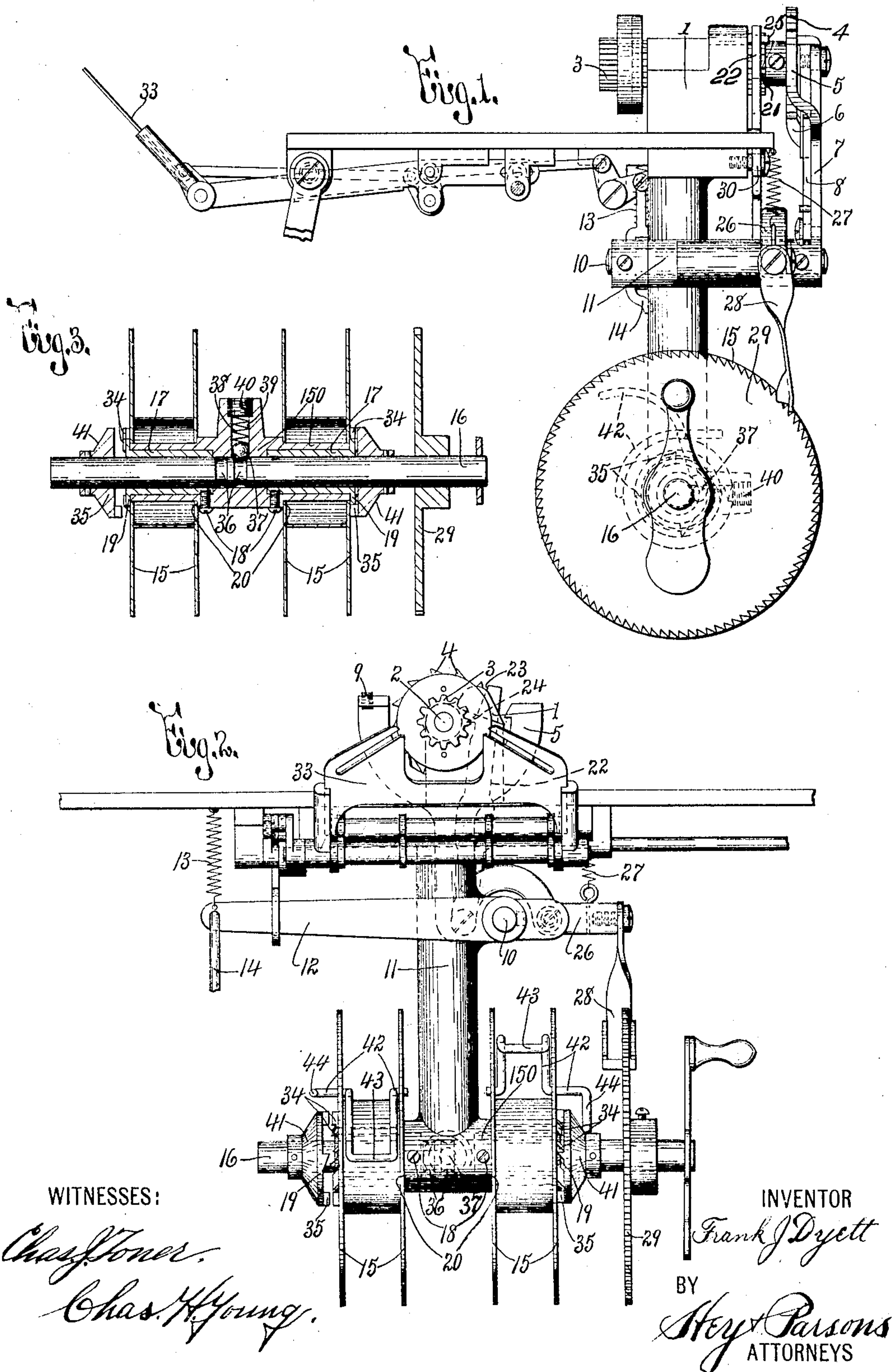
PATENTED MAR. 17, 1908.

F. J. DYETT.

TYPE WRITING MACHINE.

APPLICATION FILED APR. 21, 1904.

2 SHEETS—SHEET 1.

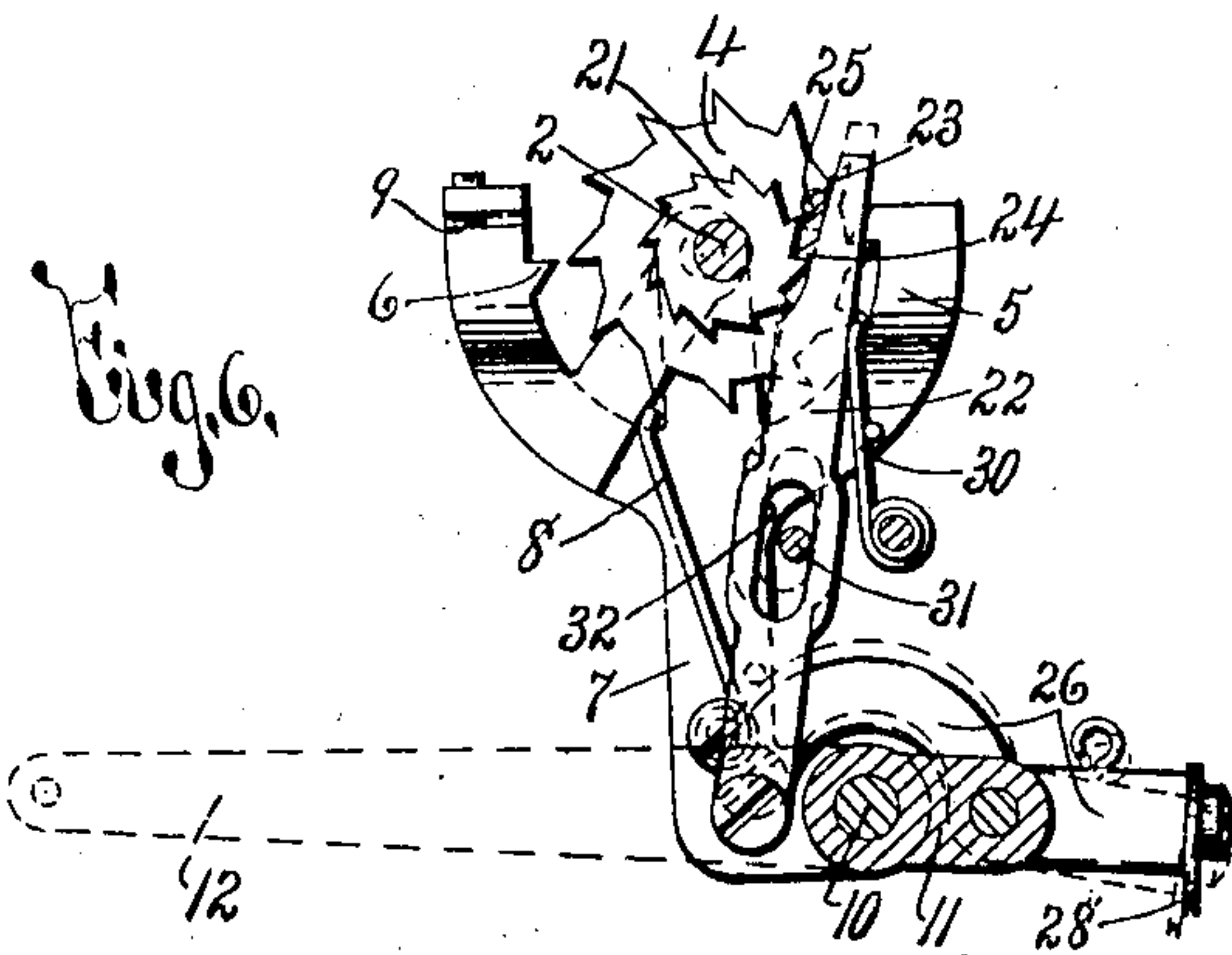
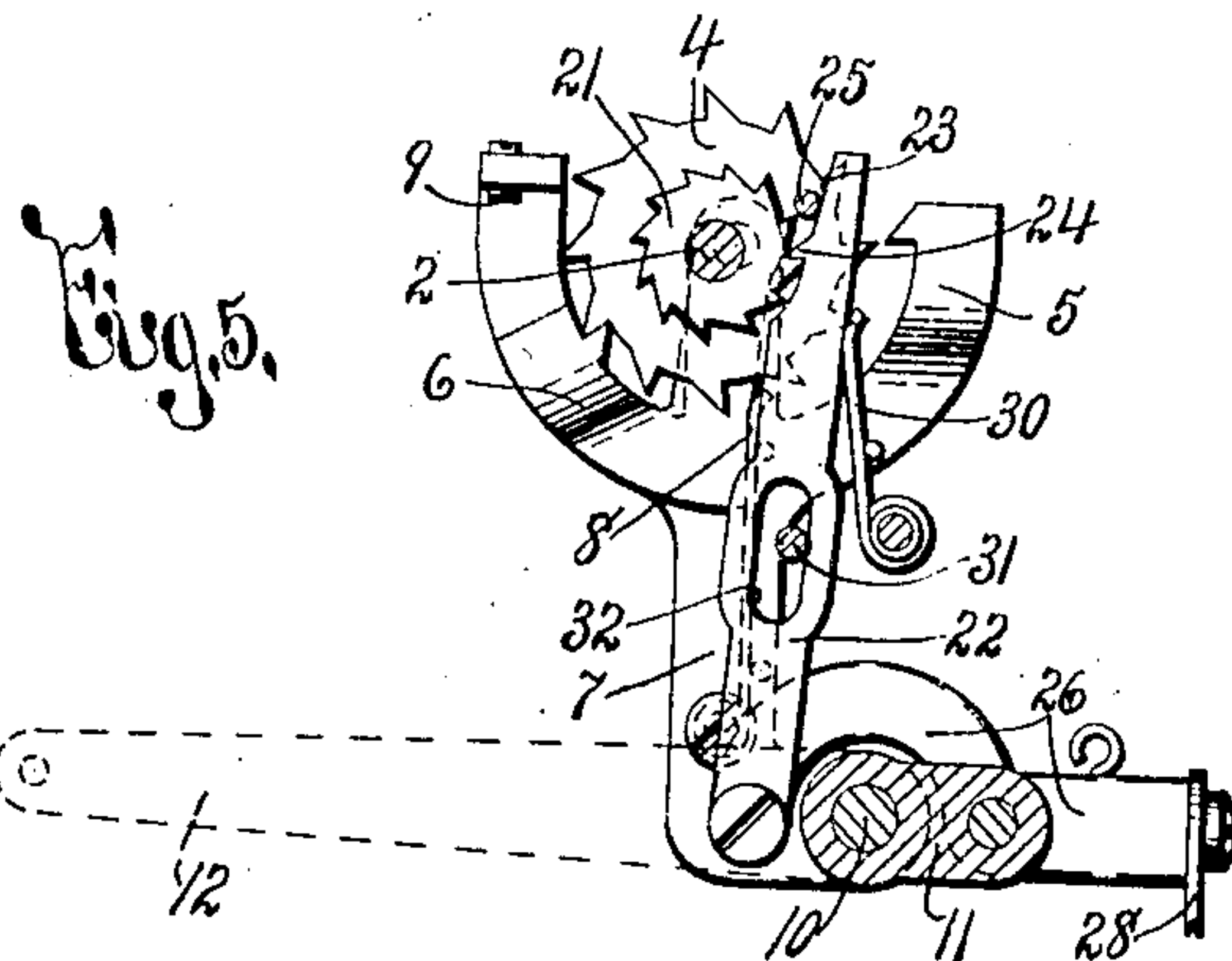
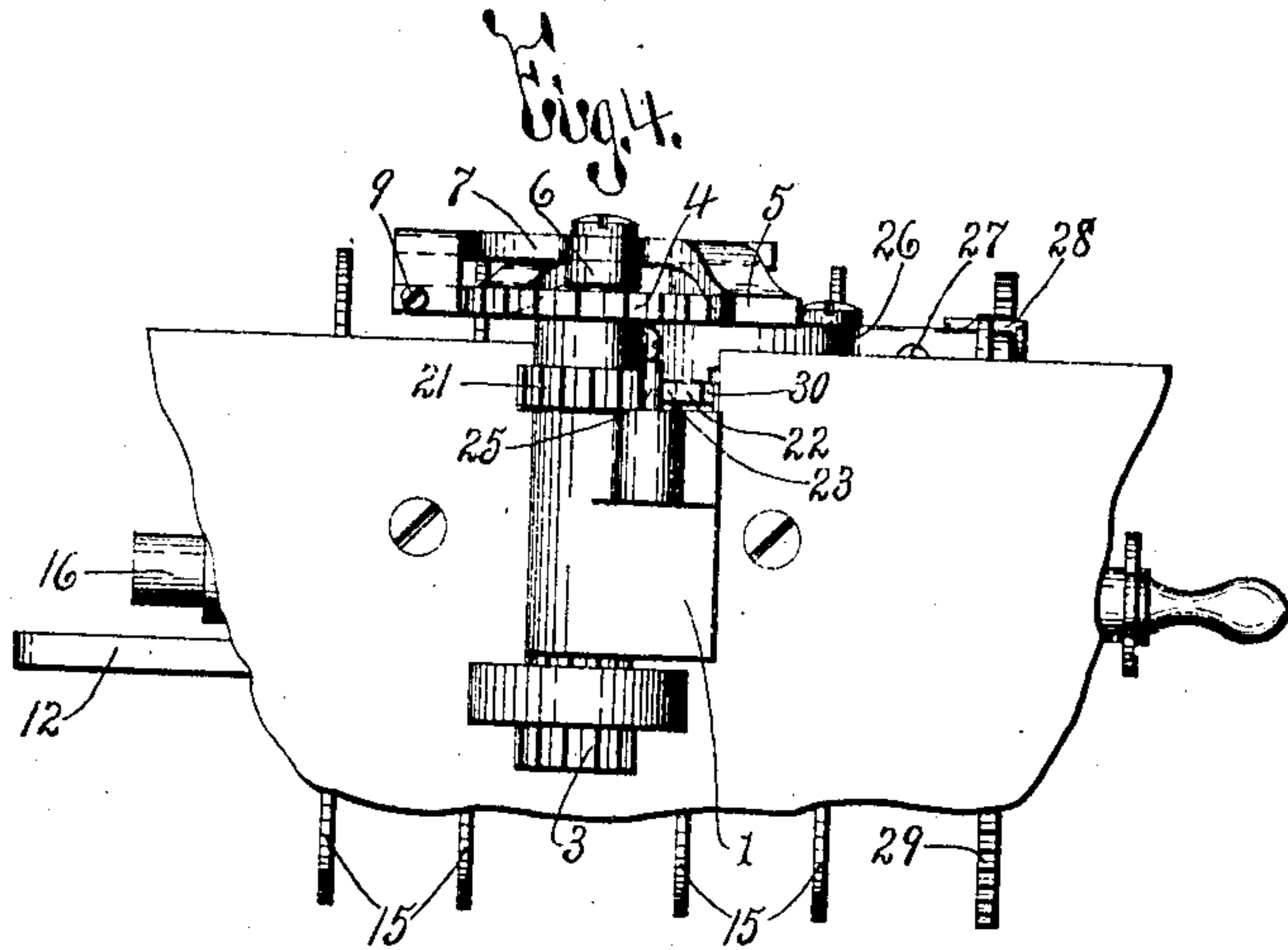


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2 SHEETS—SHEET 2.



WITNESSES:

*Chas. H. Young.*  
*Chas. H. Young.*

INVENTOR

*Frank J. Dyett*  
BY  
*Herb Parsons*  
ATTORNEYS



# UNITED STATES PATENT OFFICE.

FRANK J. DYETT, OF ILION, NEW YORK.

## TYPE-WRITING MACHINE.

No. 881,910.

Specification of Letters Patent.

Patented March 17, 1908.

Application filed April 21, 1904. Serial No. 204,166.

*To all whom it may concern:*

Be it known that I, FRANK J. DYETT, of Ilion, in the county of Herkimer and State of New York, have invented a certain new and useful Type-Writing Machine, of which the following is a specification.

My invention relates to type-writing machines, and particularly to means for advancing the ribbon step by step, and for automatically reversing its direction of travel or feed, and the object thereof, is to provide a ribbon-feeding mechanism which is particularly simple in construction and highly efficient in operation.

To this end, the invention comprises the combination and arrangement of component parts to be hereinafter set forth and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 shows in side elevation a fragmentary part of a type-writing machine including one embodiment of my ribbon-feeding mechanism. Fig. 2 is a front elevation of the same. Fig. 3 is a sectional view, partly in elevation, of the ribbon-spools and adjacent parts, taken axially of said spools. Fig. 4 is a top plan of parts seen in Figs. 1 and 2. Fig. 5 and 6 are detail views, partly in section, of the escapement-mechanism for the paper-carriage, and a portion of the means for transmitting motion from said mechanism to the ribbon-spools.

1 is a part of the frame of a type-writing machine, and 2 is a shaft journaled in the frame 1, and having one end provided with a member, as a pinion 3, for engaging the ordinary paper-carriage, not illustrated, and its other end provided with a member, as a ratchet-wheel 4, of an escapement-mechanism for controlling the rotation of the shaft 2. Suitable means, as a spring, not shown, is connected to the paper-carriage and constantly tends to feed the same, and to thus rotate the shaft 2 connected to said carriage by the pinion 3. The ratchet-wheel 4 is here shown as cooperating with two detents, one 5, being fixed to the upper end of a rocking upright or arm 7, and the other 6, being pivoted to said upright or arm, and engaged by a spring 8 for forcing the same into engagement with a stop 9. A rock-shaft 10 is fixed to the lower end of the upright or arm 7, is journaled in a post 11 depending from the frame 1, and is provided with a fixed horizontally-extending arm 12 which is held in its normal position by any desirable

means, as a spring 13, connected to the frame 1, and is rocked from such position by a link 14 connected to suitable means, as the universal key-actuated bar, not illustrated, of the machine. As the shaft 10 is rocked on its axis, the detents 5, 6 are alternately engaged with the ratchet-wheel 4, and thus serve to permit the same to rotate or advance step by step. It is thought unnecessary to further describe this escapement-mechanism, as it is not an essential feature of the present invention, but forms the subject-matter of my pending application Sr. No. 216,790 filed July 16, 1904. It will be understood, however, that any desirable escapement-mechanism may be used to control the rotation of the shaft 2, and thereby the feed of the paper-carriage.

15 are ribbon-spools, here illustrated as supported at opposite sides of the post 11 upon a barrel 150 extending transversely at the lower end of the post, and having its opposite ends slightly reduced in diameter to form spindles for the spools. A suitable shaft 16 rotates the spools and is preferably journaled in the barrel 150. The diameter of the bore of the barrel is usually enlarged at each end to provide annular spaces about the shaft 16 for the reception of sleeves 17, which fit therein, are removably held in place by screws 18 extending radially through the barrel and engaging the inner ends of the sleeves, and are provided with outwardly-extending flanges 19 at their outer ends. Said spools 15 are confined between the flanges 19 and annular shoulders 20 on the barrel 150, and are thus prevented from endwise movement on said barrel.

In the illustrated embodiment of my invention, power-transmitting means is interposed between the escapement-mechanism, previously described, and the shaft or revolvable member 16, for imparting to said shaft a step by step rotary movement as the escapement-mechanism is actuated. As here shown, this power-transmitting means, comprises a ratchet-wheel 21 mounted on the shaft 2, an upright vertically-reciprocating or vibrating pawl 22 having its upper end provided with an inclined surface 23 and with a tooth 24 arranged beneath the surface 23 and normally engaged with the wheel 21, a stationary knockoff 25 for cooperating with the inclined surface 23, a lever 26 pivoted to the post 11 intermediate of its ends and hav-



ing one extremity connected to the lower end of the pawl 22 and its other extremity connected to a spring 27, a pawl 28 depending from said other extremity of the lever 26, and a ratchet-wheel 29 fixed to the shaft 16 and engaged by the free end of the pawl 28. The pawl 22 is forced into engagement with the ratchet-wheel 21 by a spring 30 and is guided in its movement by a pin 31, which is received in a slot 32 provided in the pawl 22 intermediate of its ends. Although said power-transmitting means is particularly simple and efficient, it will be understood by those skilled in the art, that any other suitable means may be utilized for transmitting motion from the escapement-mechanism for the paper-carriage, to the member for rotating the ribbon-spools.

Whenever the escapement-mechanism permits the shaft 2 to advance a single step, the ratchet-wheel 21 engaged with the tooth 24 elevates the pawl 22 against the action of the spring 27, and simultaneously depresses the pawl 28, and advances the ratchet-wheel 29 and the shaft 16 a corresponding step. During the upward movement of the pawl 22, the inclined surface 23 coacts with the stationary projection or knockoff 25, and gradually moves the upper end of said pawl from the ratchet-wheel 21, until just before the shaft 2 reaches the limit of an advance step, at which time, the pawl 22 has been moved sufficiently by the part 25 to disengage the tooth 24 from the wheel 21; whereupon the spring 27 returns the pawls 22 28 and the lever 26 to their normal position. The part 25 thus forms means for consecutively disconnecting from the escapement-mechanism the means for transmitting motion from said mechanism to rotate the ribbon-spools.

In the construction of ribbon-feeding mechanism herein disclosed, the ribbon passes from one of the spools 15, over a suitable guide 33 and then back to the other spool. The guide 33 serves to support the ribbon between the type and the platen during the printing action of the type, but it is thought unnecessary to describe said guide, as the same forms no part of the present invention.

My feeding mechanism preferably operates to feed the ribbon in reverse directions, this result being accomplished by connecting the spools 15 alternately to the shaft or driving member 16, and by utilizing one spool as a supply for the ribbon, while the other is connected to the shaft and acts as a winding spool. The connections between the spools 15 and the shaft 16 are here illustrated as clutch-surfaces 34 on the outer sides of the spools, and clutch-sections 35 spaced a greater distance apart than the surfaces 34 and provided on the shaft 16 which is shiftable axially in order to alternately

engage the sections 35 with the surfaces 34. Said shaft 16 is frictionally held in its adjusted position by a lock comprising, shoulders 36 on the shaft 16, formed usually by peripheral grooves therein, a radially-movable locking member 37 guided in the barrel 150 and having a rounded engaging end, and a spring 38 which holds the member 37 in engagement with the shoulders 36 and is shown as located in a guide 39 between the member 37 and a plug 40 for closing the outer end of the guide.

I usually provide my ribbon-feeding mechanism with means for shifting the shaft axially automatically at any predetermined point in the feed of the ribbon, as when the same reaches the limit of its movement in either direction. As illustrated this means comprises, inclined surfaces 41 on the shaft 16, and preferably on the outer sides of the clutch-sections 35, and a shifting lever 42 associated with each spool 15 and having a bail or crank-portion 43 located between the sides of the spool, and its ends pivoted in said sides, the outer end or part of each lever being provided with an extension 44 coacting with the contiguous inclined surface 41. The ribbon is attached near each of its ends to the bail or crank-portions 43 of the levers 42, or is provided with means to coact with said bail or crank-portions. As either end, or other predetermined portion, of the ribbon begins to unwind from the supply-spool, it lifts the bail-portion 43 of the lever 42 connected thereto, or with which it coacts, and the end extension 44 of said lever is then engaged with the corresponding surface 41 and thus shifts the shaft 16 and disengages the same from the spool previously operating to wind the ribbon, and connects said shaft to the spool previously used as a supply for the ribbon.

The construction and operation of my type-writing machine will now be readily understood upon reference to the foregoing description and the accompanying drawings, and it will be obvious to those skilled in the art, that more or less change may be made in the construction and arrangement of the component parts thereof without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a type-writing machine, the combination with escapement-mechanism for the carriage including a shaft carrying a pinion for engaging the carriage; of ribbon-spools, and driving mechanism therefor, interposed between the same and said escapement-mechanism, comprising a ratchet-wheel movable with said shaft, a pawl coacting therewith, and mechanism actuated by the movement of said pawl, substantially as and for the purpose set forth.



2. In a type-writing machine, the combination with escapement-mechanism for the carriage including a shaft carrying a pinion for engaging the carriage; of ribbon-spools, and driving mechanism therefor, interposed between the same and said escapement-mechanism, comprising a ratchet-wheel movable with said shaft, a reciprocating pawl movable as one body coacting therewith, and mechanism actuated by the movement of said pawl, substantially as and for the purpose described.

3. In a type-writing machine, the combination with escapement-mechanism for the carriage including a shaft carrying a pinion for engaging the carriage; of ribbon-spools, and driving mechanism therefor, interposed between the same and said escapement-mechanism, comprising a ratchet-wheel, a pawl coacting therewith, a lever carrying said pawl, and mechanism actuated from said lever, substantially as and for the purpose specified.

4. In a type-writing machine, the combination with escapement-mechanism for the carriage including a shaft carrying a pinion for engaging the carriage; of ribbon-spools, and driving mechanism therefor, interposed between the same and said escapement-mechanism, comprising a ratchet-wheel, a pawl coacting therewith, a lever carrying the same, a second pawl carried by said lever, and mechanism actuated thereby, substantially as and for the purpose set forth.

5. In a type-writing machine, the combination with escapement-mechanism for the carriage including a shaft carrying a pinion for engaging the carriage; of ribbon-spools, and driving mechanism therefor, interposed between the same and said escapement-mechanism, comprising a ratchet-wheel, a pawl coacting therewith, a lever carrying the pawl at one end, a second pawl carried by the opposite end of the lever, and mechanism actuated by the second pawl, substantially as and for the purpose described.

6. In a type-writing machine, the combination with escapement-mechanism for the carriage including a rotating member; of ribbon-spools, and driving mechanism therefor, interposed between the same and said rotating member, comprising a ratchet-wheel, a pawl coacting therewith, a lever carrying the pawl, a second pawl carried by said lever, mechanism actuated by the second pawl including a shaft, and clutch-members interposed between the shaft and spools for connecting the spools alternately to the shaft, substantially as and for the purpose described.

7. In a type-writing machine, the combination with escapement-mechanism for the carriage including a rotating member; of ribbon-spools, and driving mechanism therefor, interposed between the same and said rotating

member, comprising a ratchet-wheel, a pawl coacting therewith, a lever carrying the pawl at one end, a second pawl depending from the opposite end of the lever, a toothed-wheel operated by the second pawl, a shaft having axial shifting movement and carrying said toothed wheel, and clutch-members interposed between the shaft and spools, designed to be alternately brought into and out of engagement with the latter, substantially as and for the purpose specified.

8. A ribbon-feeding mechanism for type-writing machines for feeding the ribbon in reverse directions, comprising ribbon-spools, a driving member, one of said parts having movement relatively to the other in a direction lengthwise of the axis of one of the parts, means for automatically shifting one of the parts, carried by the spools, means for rotating the driving member, and means for transmitting the rotary movement thereof to the spools, substantially as and for the purpose set forth.

9. In a typewriting machine, the combination with ribbon-feeding mechanism including two spools, an axially-shiftable driving shaft and clutch members carried thereby for engaging the spools; of devices pivoted to the spools and controlled in their pivotal movement for shifting the shaft by the ribbon during the feeding movement of the ribbon, substantially as and for the purpose specified.

10. In a type-writing machine, the combination with ribbon-feeding mechanism, including two spools, an axially-shiftable driving shaft, and clutch-members carried thereby for engaging the spools; of devices pivoted to the spools and actuated by the ribbon in the feed of the latter for shifting said shaft, substantially as and for the purpose specified.

11. In a type-writing machine, the combination with ribbon-feeding mechanism, including two spools, an axially-shiftable driving shaft, and clutch-members carried thereby for engaging the spools; of devices pivoted at their ends to the spools and having bail- or crank-portions actuated by the ribbon to shift said devices for shifting the shaft, substantially as and for the purpose set forth.

12. In a type-writing machine, the combination with ribbon-feeding mechanism, including two spools, an axially-shiftable shaft, and clutch-members carried thereby for engaging the spools; of devices pivoted to the spools having intermediate portions for engagement with the ribbon and end extensions for shifting the shaft, substantially as and for the purpose set forth.

13. A reversible feeding mechanism for type-writing machines, comprising ribbon-spools having clutch-surfaces, a driving shaft shiftable relatively to the spools axially



thereof, means for rotating the shaft, clutch-members carried by the shaft spaced a greater distance apart than the clutch-surfaces of the spools, and means carried by the spools for shifting the shaft to bring one of said clutch-members into engagement with the clutch-surface of one spool and move the other clutch-member out of engagement with the clutch-surface of the other spool, substantially as and for the purpose set forth.

14. A reversible feeding mechanism for type-writing machines, comprising ribbon-spools having clutch-surfaces, a driving shaft shiftable relatively to the spools axially thereof, means for rotating the shaft, clutch-members carried by the shaft having inclined surfaces, and means coacting with the inclined surfaces for shifting said clutch-members, substantially as and for the purpose described.

15. In a reversible ribbon-feeding mechanism for type-writing machines, the combination with ribbon-spools, a driving shaft, and clutch-members associated with each spool for coupling the same to the shaft; of a part carried by each spool coacting with the adjacent clutch-member to shift the same, substantially as and for the purpose specified.

16. In a typewriting machine, the combination with a top-plate, of escapement mechanism supported by the top-plate above the upper face thereof, a post depending from the top-plate, ribbon spools supported by the post at the lower end thereof, and power-transmitting means between the escapement mechanism and the ribbon spools for rotating said spools, substantially as and for the purpose set forth.

17. In a typewriting machine, the combination with a top-plate formed with a substantially horizontal bearing on its upper side, escapement mechanism comprising a shaft journaled in said bearing, a post depending from the top-plate, spools supported by the post, and power-transmitting means between said shaft and the spools for rotating the spools, substantially as and for the purpose described.

18. In a ribbon-feeding mechanism for type-writing machines and in combination, a main frame, a post, a barrel at the end of the latter, ribbon-spools journaled thereon, a driving member journaled in the barrel, clutch-connections interposed between the driving member and the spools, a lever pivoted to said post, an operating pawl therefor carried thereby, and actuating means for the driving member interposed between said member and the lever, substantially as and for the purpose specified.

19. The combination in a type-writing machine, of ribbon-spools, a ratchet-wheel with means for rotating the same, and means interposed between said spools and ratchet-

wheel for rotating the former from the latter comprising, a lever, a pawl pivoted at one end thereto, means for holding said pawl in engagement with the ratchet-wheel, and a knockoff-device coacting with the pawl, substantially as and for the purpose set forth.

20. The combination in a type-writing machine, of ribbon-spools, a ratchet-wheel with means for rotating the same, and means interposed between said spools and ratchet-wheel for rotating the former from the latter comprising, a lever, a pawl having a reciprocatory movement carried by said lever, a spring for holding the pawl in engagement with said ratchet-wheel, and a stationary projection forming a knockoff-member coacting with said pawl, substantially as and for the purpose described.

21. The combination in a type-writing machine, of ribbon-spools, a ratchet-wheel with means for rotating the same, and means interposed between said spools and ratchet-wheel for rotating the former from the latter comprising, a lever, a pawl pivoted at one end to said lever and having an engaging tooth and an inclined surface at its free end, means for holding the tooth in engagement with the ratchet-wheel, and a knockoff-device coacting with said inclined surface to shift the tooth out of engagement with the ratchet-wheel, substantially as and for the purpose specified.

22. The combination in a type-writing machine, of ribbon-spools, a driving member therefor, a pivoted lever, means for actuating the driving member as the lever is vibrated, and means for vibrating said lever comprising a ratchet-wheel with means for rotating the same, a pawl carried by the lever having a tooth for engagement with the ratchet-wheel, means for holding the tooth in engagement, and a knockoff-device coacting with the pawl above said tooth, substantially as and for the purpose described.

23. In combination in a type-writing machine, ribbon-spools, a driving member therefor, a pivoted lever, means for actuating the driving member as the lever is vibrated, and means for vibrating said lever, comprising a ratchet-wheel with means for rotating the same, a substantially vertically-disposed pawl, means for preventing the displacement of the pawl, and a connection between the pawl and the lever, substantially as and for the purpose specified.

In testimony whereof, I have hereunto signed my name in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 31st day of March, 1904.

FRANK J. DYETT.

Witnesses:

D. LAVINE,  
S. DAVIS.