A. T. BROWN.

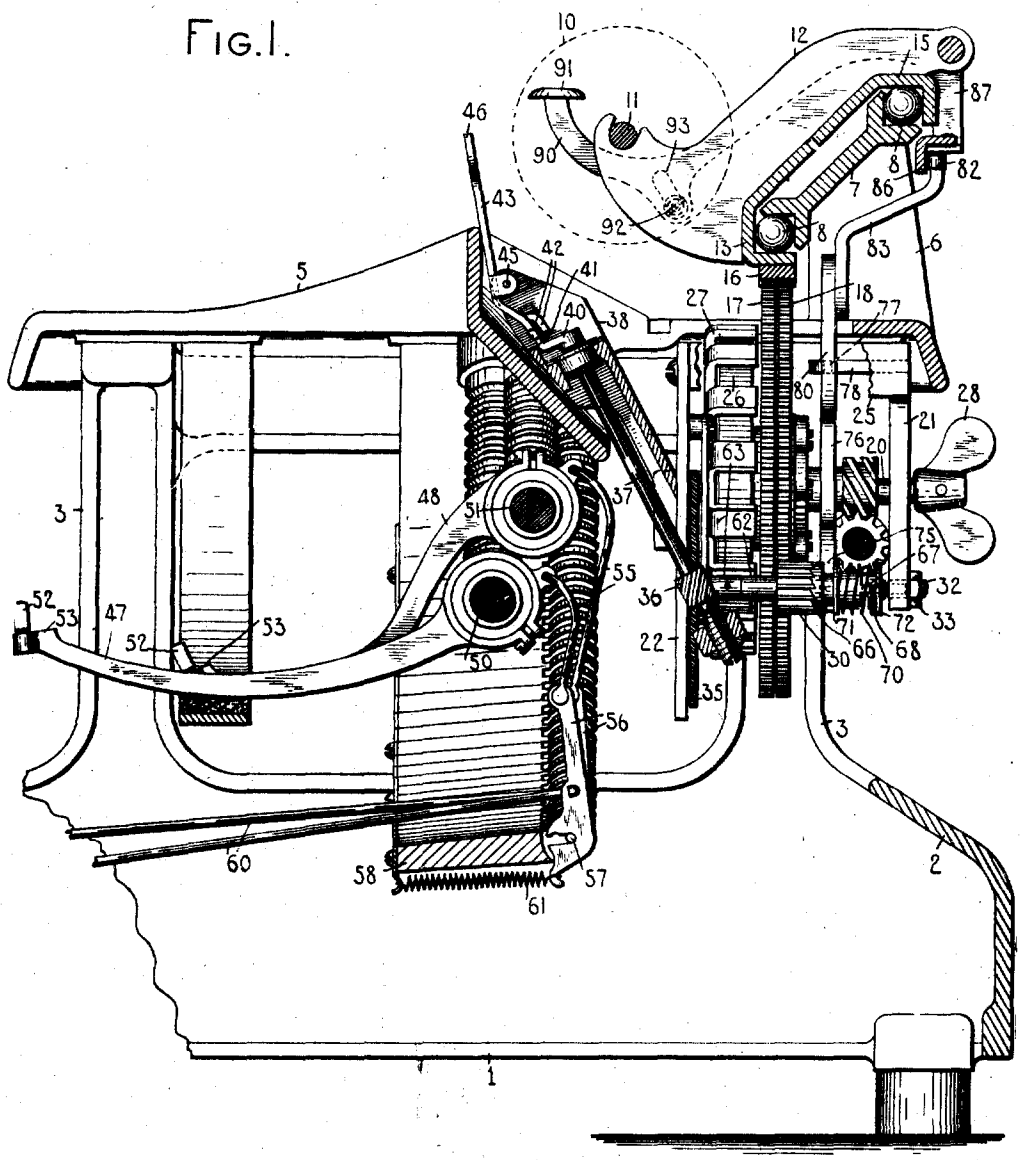
TYPE WRITING MACHINE.

APPLICATION FILED JUNE 20, 1906. RENEWED MAY 8, 1908.

903,444. Patented Nov. 10, 1908.

2 SHEETS—SHEET 1.

FIG. 1.



WITNESSES:

J. B. Reeves.

R. H. Strother.

INVENTOR.

Alexander T. Brown

BY

Jacobs & Bell

ATTORNEY.

A. T. BROWN.

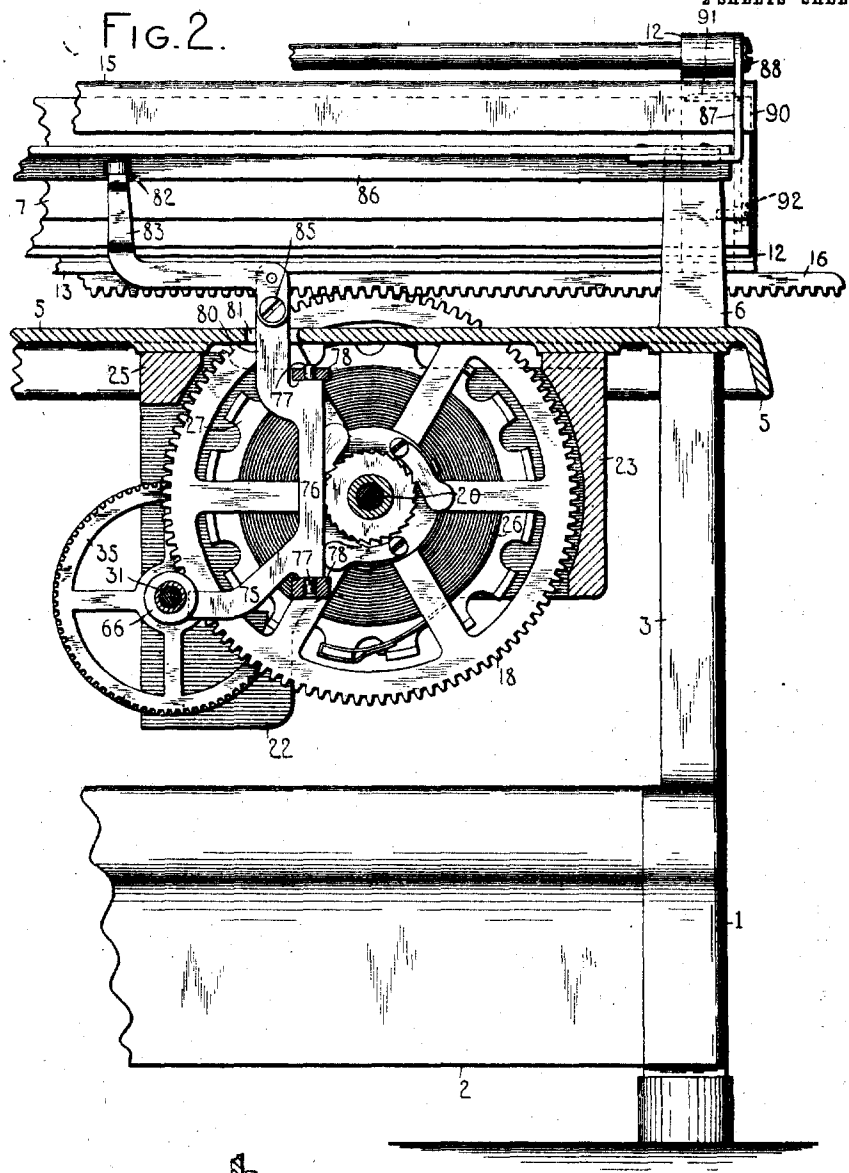
TYPE WRITING MACHINE.

APPLICATION FILED JUNE 20, 1906. RENEWED MAY 8, 1908.

903,444. **Patented Nov. 10, 1908.**

2 SHEETS—SHEET 2.

FIG. 2.



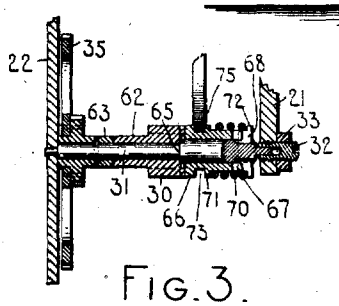


FIG. 3.

WITNESSES:

J. B. Reeves.

R. H. Strother.

INVENTOR.

Alexander T. Brown

BY

Jacob Fehl

ATTORNEY.

UNITED STATES PATENT OFFICE.

ALEXANDER T. BROWN, OF SYRACUSE, NEW YORK.

TYPE-WRITING MACHINE.

No. 903,444. Specification of Letters Patent. Patented Nov. 10, 1908.

Application filed June 20, 1906, Serial No. 322,585. Renewed May 8, 1908. Serial No. 431,663.

To all whom it may concern:

Be it known that I, ALEXANDER T. BROWN, citizen of the United States, and resident of Syracuse, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to typewriting machines and it has for its principal object to provide improved carriage release mechanism for such machines.

My invention consists in certain features of construction and combinations and arrangements of parts, all of which will be fully set forth herein and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a front to rear vertical sectional view of a part of a typewriting machine having my invention embodied therein. Fig. 2 is a rear elevation of a part of the typewriting machine, certain parts being shown in section. Fig. 3 is a fragmentary view of part of the mechanism in vertical section through the axis of a shaft forming part of the carriage feed mechanism.

My invention is applicable to various styles of typewriting machines but I have here shown it applied to a front-strike typewriter.

The main frame of the machine shown in the drawings, comprises side pieces 1 connected together at their rear ends by a back plate 2. Posts 3, rising from or forming part of the side plates 1, support a top plate 5 from which rise two posts or standards 6 which support a stationary carriage rail 7 having its opposite edges grooved, forming ball races for anti-friction balls or rollers 8.

The platen 10 has a shaft 11 by which said platen is supported in a carriage comprising end pieces 12 connected together by carriage rails 13 and 15 which coöperate with the balls 8 and the stationary rail 7 to support the carriage.

A feed rack 16 is secured to the under side of the lower forward carriage rail 13 and has meshing therewith two gear wheels 17 and 18, both mounted on a shaft 20 which is journaled in frame plates 21 and 22 forming part of a framework which is secured to the under side of the top plate 5. This framework comprises members 23 and 25 extending in fore and aft direction and connecting the plates 21 and 22. The carriage is propelled across the machine by a spring 26 coiled about the shaft 20 and within a spring drum 27. One end of the spring 26 is operatively connected in any suitable manner with the gear wheel 17 and the other end of said spring is connected with the shaft 20 by turning which, one way or the other, the tension on the spring may be regulated. The rear end of said shaft has a thumb piece 28 mounted thereon for this purpose.

The escapement mechanism is geared to the gear 18 which meshes with a pinion 30 mounted on a shaft 31 (Fig. 3) which is journaled at its forward end in the frame plate 22 and at its rear end in an adjustable screw 32 threaded through the frame plate 21 and provided with a lock nut 33. The shaft 31 carries a skew gear 35 that meshes with a skew pinion 36 mounted on the lower end of a shaft 37 that extends at an inclination upward and toward the front of the machine to a point beneath the platen opposite the printing point. The shaft 37 is journaled in a bracket 38 which is secured to the front face of the frame plate 22 and at its upper end said shaft carries an arm 40 having an upwardly projecting tooth 41 with which two feed dogs 42 coöperate. Said feed dogs are mounted on or constitute the lower end of a lever 43 that is pivoted at 45 to the bracket 38 and the upper end 46 of which forms a small universal bar adapted to be struck by the type bars when the latter are thrown to the printing point.

The construction is such that when any type bar is thrown to the printing point the tooth 41 escapes from the feed dogs and the shaft 37 is thus permitted to make a complete rotation, and the gearing is such that this permits the carriage to move a distance corresponding to a single letter-space.

The type bars 47 and 48 are mounted on two segments 50 and 51 respectively by means of ball bearings coöperating with peripheral grooves in said segments. Each of the type bars carries at its free end a type 52, and near its free end each of the type bars has a part 53 adapted to strike the universal bar 46 and operate the escapement mechanism. The type bars are operated by links 55 each connected at one end to the type bar and at the other end to a sub-lever 56 pivoted at 57 to a sub-lever segment 58. The sub-levers 56 are operated by links 60 connected with the keys and are returned to normal position by springs 61. It has not

been thought necessary to fully illustrate nor describe the type bar system as it forms no part of the present invention nor of the escapement and carriage feed mechanism which mechanism is not claimed herein but is claimed in my pending application, Serial No. 347,104 filed Dec. 10, 1906. The inclined carriage and the roller bearings therefor shown in the present application are claimed in my pending application Serial No. 305,053 filed March 9, 1906.

As far as the present invention is concerned any suitable form of carriage and type bar mechanism and any suitable form of escapement mechanism may be employed.

The pinion 30 is not rigidly mounted on the shaft 31 but is loosely mounted on said shaft except that said pinion is not free to move endwise of the shaft. Such endwise motion toward the front of the machine is prevented by the engagement of the hub 62 of said pinion with a hub 63 that is rigidly mounted on the shaft 31 and which carries the gear wheel 35.

In order to prevent motion of the pinion 7 toward the back of the machine the forward part of the shaft 31 on which said pinion is mounted is made of reduced diameter, thus forming a shoulder 65 against which the rear end of the pinion abuts.

The rear end of the pinion 30 is formed with ratchet clutch teeth which engage with like teeth on the forward end of a sleeve 66 mounted to turn with, but adapted to slide along, the shaft 31. Relative rotation of the shaft 31 and sleeve 66 is prevented by teeth 67 projecting from the rear end of said sleeve into slots formed in a flange 68 formed on the shaft 31. This connection, however, enables the sleeve 66 to receive a slight sliding movement along the shaft. The sleeve 66 is pressed toward the pinion 30 by a spring 70 compressed between flanges 71 and 72 formed on the sleeve 66 and on the flange 68 respectively. The clutch teeth between the pinion 30 and the sleeve 66 are each formed with one abrupt and one inclined face so that as the carriage is moved toward the left the pressure comes on the abrupt faces and the pinion cannot turn without turning the sleeve 66 and shaft 31, but when the carriage is moved toward the right the pressure comes on the inclined faces of the clutch teeth which cam the sleeve toward the rear of the machine and permit the pinion to turn independently of the shaft.

In order to release the carriage from the step-by-step feed mechanism so as to leave said carriage free to be moved in either direction I have provided means for forcing the sleeve or clutch member 66 toward the rear of the machine against the tension of the spring 70. To this end said sleeve is formed with a peripheral slot 73 in which there projects the end of an arm 75 forming part of a rocking member that is pivoted to swing on a vertical axis. Said rocking member comprises an upright part 76 having pins 77 at its upper and lower ends which project into suitable openings in brackets 78 that project toward the front of the machine from the frame plate 21. Near its upper end the upright portion 76 of the rocking member has an arm 80 that projects upward through a slot 81 in the top plate 5. This arm has the form shown in Figs. 1 and 2; that is to say, it extends toward the middle of the machine and upward and toward the back of the machine and it has an anti-friction roller 82 mounted on its upper free end. As shown in the present instance, this upwardly and rearwardly extending part of the arm 80 is made in a separate piece 83 which is secured to the arm 80 by a screw 85 or in any suitable manner. The roller 82 stands behind a yoke bar 86 which extends lengthwise of the carriage and is rigidly mounted on arms 87 that are pivoted to the carriage on shouldered and headed screws 88. One of the arms 87 forms part of a release key lever which also comprises a forwardly extending arm 90 having a release key 91 mounted thereon. I have shown only one release key, namely, that at the left-hand side of the carriage, but it will be obvious that a similar key may be mounted on the other end of a carriage if desired. The motion of the lever 90 about its pivot 88 is limited by a screw 92 that passes through a slot 93 in the lever 90 and is threaded into the end piece 12 of the carriage. If the key 91 be depressed the yoke bar 86 will be moved toward the rear of the machine, thus moving the arm 83 and the arm 80 of the rocking member toward the rear of the machine. The arm 75 will obviously partake of this motion and will move the clutch member 66 toward the rear of the machine, thus releasing the pinion from said clutch member and leaving it free to turn independently of the shaft 31.

It will be observed that the yoke bar 86 hangs down behind the carriage and the stationary rail 7 and that it directly engages the rocking member, which in turn directly engages the movable clutch member so that the construction of the release device is extremely simple and convenient.

Various changes may be made in the details of construction and arrangement without departing from my invention.

What I claim as new and desire to secure by Letters Patent, is:—

1. In a typewriting machine, the combination of a carriage; carriage feed mechanism comprising an escapement wheel geared to said carriage and an intermediate clutch; and a carriage release device comprising a release key, a yoke frame mounted on the carriage and having a yoke bar adapted to be moved toward the rear of the machine

when the release key is operated, and a rocking member mounted to rock about a vertical axis and having an arm in position to co-act with said yoke bar when the release key is operated and another arm adapted to engage a member of said clutch.

2. In a typewriting machine, the combination of a carriage, a step-by-step feed device for said carriage, a swinging yoke frame having a yoke bar hanging down behind the carriage and adapted to swing toward the back of the machine, a release key connected with said yoke frame, a member mounted on the stationary framework of the machine in position to be moved by said yoke frame, and means operated by said member to release said carriage from said step-by-step feed device.

3. In a typewriting machine, the combination of a carriage; a step-by-step feed device for said carriage, a swinging yoke frame having a yoke bar hanging down behind the carriage and adapted to swing toward the back of the machine, a release key connected with said yoke frame, a pivoted member having two arms, one standing behind said yoke bar in position to be moved by the latter, and means operated by the other arm to release the carriage from said step-by-step feed device.

4. In a typewriting machine, the combination of a carriage; an escapement, including an escapement wheel, for controlling said carriage; a clutch between said carriage and said escapement wheel; a swinging yoke frame having a yoke bar hanging down behind said carriage, a release key connected with said yoke frame; and a member mounted on the stationary framework of the machine in position to be moved by said yoke bar and adapted to operate said clutch to release the carriage from said escapement wheel.

5. In a typewriting machine, the combination of a main frame including a top plate, a carriage mounted above said top plate, a carriage feed device mounted beneath said top plate, and a carriage release device including a movable yoke frame mounted on the carriage and having a contact face which extends substantially throughout the length of the carriage, a rocking member pivoted beneath the top plate and having an arm extending up through said top plate in position to be moved by said yoke frame at any point in the travel of the carriage, and a clutch mounted beneath said top plate and unclutched by said rocking member.

6. In a typewriting machine, the combination of a main frame including a top plate, a carriage mounted above said top plate, a carriage feed device mounted beneath said top plate, and a carriage release device including a movable yoke frame mounted on the carriage, a rocking member pivoted beneath the top plate to swing about a vertical axis and having an arm extending up through said top plate in position to be moved by said yoke frame, and a clutch mounted beneath said top plate and unclutched by said rocking member.

Signed at Syracuse, in the county of Onondaga, and State of New York, this 12th day of June A. D. 1906.

ALEXANDER T. BROWN.

Witnesses:
C. E. TOMLINSON,
GEO. M. BLOWERS.