

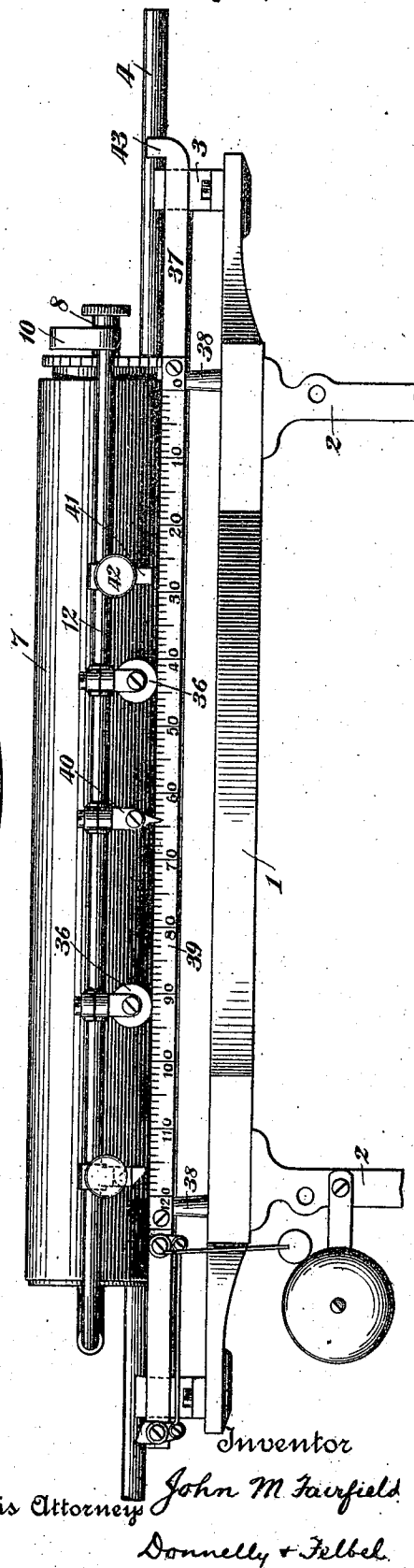
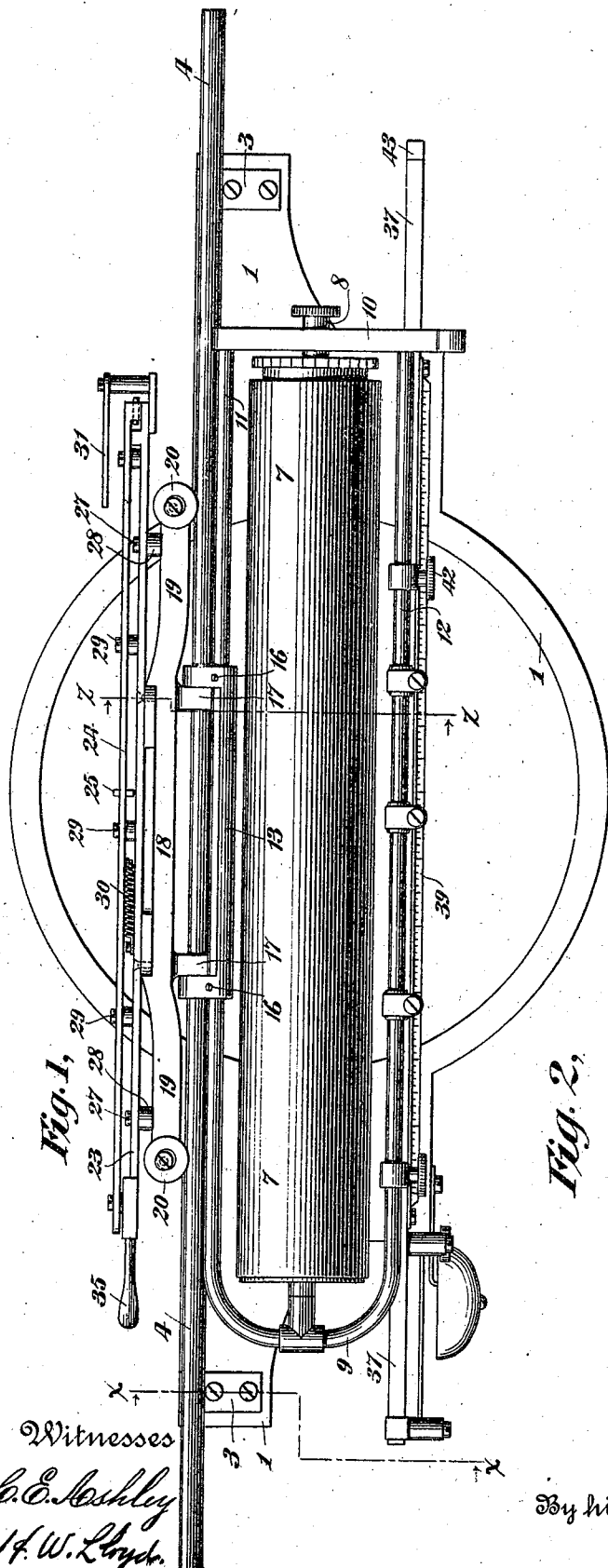
(No Model.)

2 Sheets—Sheet 1.

J. M. FAIRFIELD.
TYPE WRITING MACHINE.

No. 478,228.

Patented July 5, 1892.



(No Model.)

2 Sheets—Sheet 2.

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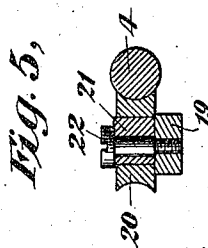
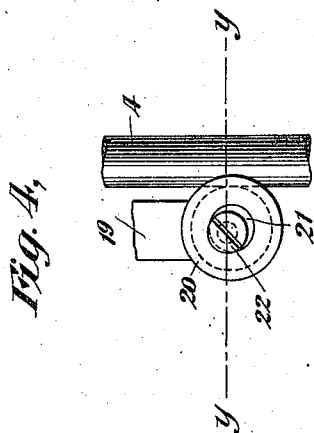


Fig. 6,

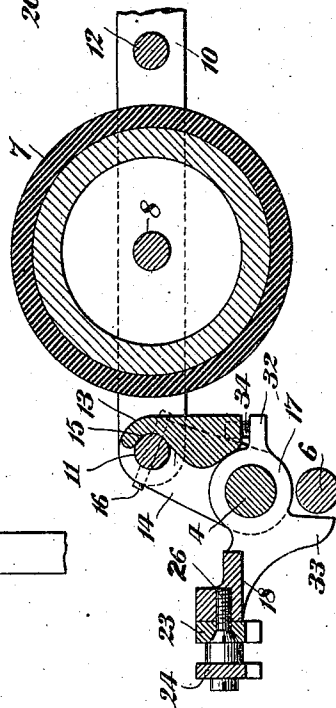
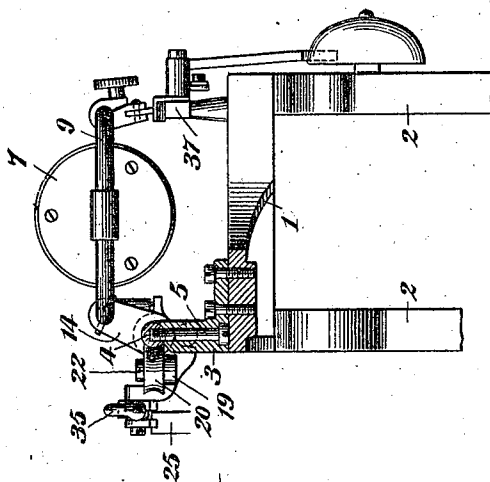


Fig. 3,



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN M. FAIRFIELD, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE
AMERICAN WRITING MACHINE COMPANY, OF SAME PLACE.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 478,228, dated July 5, 1892.

Application filed March 23, 1892. Serial No. 426,078. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. FAIRFIELD, a citizen of the United States, and a resident of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

In machines having wide carriages great difficulty has heretofore been experienced on account of the sway, vibration, or skew of the carriage, which, as is well known, results in imperfect alignment in the printing.

The main object of the present invention is, therefore, to obviate this difficulty and provide efficient means for steadying, supporting, and properly guiding the paper-carriage of a type-writing machine.

In the accompanying drawings, illustrating the several improvements, Figure 1 is a top plan view of so much of a type-writing machine as is necessary to show the improvements. Fig. 2 is a front elevation of the same. Fig. 3 is a vertical cross-section taken at the line *xx* of Fig. 1. Fig. 4 is an enlarged detail view to show the construction of the guiding and steadying rollers. Fig. 5 is a vertical section taken at the line *yy* of Fig. 4, and Fig. 6 is an enlarged vertical cross-section taken at the line *zz* of Fig. 1.

In the several views the same part will be found designated by the same numeral of reference.

The machine illustrated is of that description commonly known as the "Caligraph," to which the improvements made the subject-matter hereof have been applied.

1 designates the top plate or type-ring, secured to suitable frame-work 2. At each end of the top plate is attached by screws a standard or bracket 3, the upper end of which is grooved to receive the under side of a carriage guide-rail 4. This rail is secured to said standards near its ends by means of screws 5, which pass up vertically through said standards and engage threaded holes on the under side of the guide-rail. Below said guide-rail and parallel therewith is arranged a rod 6, the ends of which are supported in the brackets or standards. The guide-rail is

longer than the rod 6, its ends being prolonged to extend on each side beyond the brackets or standards.

7 designates the usual cylindrical platen, mounted to turn on an axle 8, supported at its ends in the end bars 9 and 10 of the carriage-frame, consisting, essentially, of said end bars and a back rod 11 and a front rod 12.

13 designates a yoke-piece, which is provided with downwardly and rearwardly extending arms 14, the lower ends of which are perforated to slide upon the guide-rail 4. Through perforations in the upper ends of said arms the back rod 11 of the carriage-frame is passed; said rod between said arms preferably resting in a groove or depression 15, formed in the yoke-piece. In order to prevent the back rod 11 from turning in the upper ends of the arms, pins 16 are passed through said arms and through the back rod, thus securely fastening the rod to said arms and preventing any motion of the carriage about said rod as a pivot or center. The construction is such that when it may be desired to lift the platen to inspect the work on the under side thereof the movement takes place about the guide-rail as a center or pivot. Hinged upon the guide-rail by two eyes 17, arranged between the arms 14, is a rack-bar frame or support 18, which at each end is formed or provided with a comparatively long arm 19, bearing at its end an anti-friction roller 20, which is grooved to match the curvature of the guide-rail and which runs in contact with said guide-rail on its rear side during the back-and-forth movements of the carriage. In order to maintain these rollers in proper working relation to the guide-rail, they are each preferably mounted to turn about a cam or eccentric 21, which is secured to and upon the arm 19 by a screw 22. In setting the rollers for action the eccentrics are turned to carry the rollers against the guide-rail with the requisite degree of pressure or contact. The screws are then tightened, the heads or flanges of the screws bearing down upon the tops of the eccentrics and holding them stationary upon the arms 19, thus leaving the rollers free to rotate about the eccentrics.

So far as the main feature of this invention

is concerned the provision for adjustment of the rollers may be eliminated; but inasmuch as it has been found in practice that it is rather a difficult matter to so make the parts that the rollers will always contact with or bear with the proper degree of pressure against the guide-rail if mounted upon mere pivots it is highly desirable to provide some means for adjusting the rollers to the guide-rail in the manner described.

While the devices 20 are made in the form of rollers in order to prevent friction as much as possible, it is not essential that they be so made. What is required is a construction which affords to the carriage a longer support or bearing, in order that the twisting or skewing strains to which the carriage is subjected, more particularly at the beginning and ending of its travel, may be avoided. In providing for this increased support or bearing for the carriage it will be observed that the guide-rail has been extended on each side past the bracket or standard and that the arm 19 on each side of the rack-bar frame is made of a length substantially equal to that of the extension on each side of the guide-rail. By arranging the rollers or bearers 20 at the extremities of the arms 19 it will be observed that the bearing or support of the carriage is considerably increased and is continued, practically, to the extremities of the guide-rail 4 when the carriage is at either end of its line of travel. In other words, when the carriage is at the extreme right the right-hand roller or bearer 20 extends out to the right-hand end of the guide-rail, and when the carriage is at the extreme left of the machine the left-hand roller or bearer extends out to the left-hand end of the guide-rail. The travel of the carriage is limited in either direction by the standards or brackets or by stops or pins secured thereto, against which the lower ends of the arms 14 abut. From the above it will be understood, therefore, that the bearers 20 may be made in the form of slides instead of rollers, since in either case they would perform the function of supporting and steadying or guiding the carriage during its excursions. Although it is preferred to have the bearers grooved, as shown, it is not absolutely essential.

23 designates the stationary feed-rack, and 24 the reciprocatory spring-actuated feed-rack of the Caligraph, both said racks being adapted to co-operate with a spacing-dog 25 in the usual manner. The rack 23 is affixed to the frame or support 18 by screws 26. It is also affixed to the arms 19 by screws 27, which take into a lug 28, formed on each arm. Thus the arms 19 serve the function, also, of assisting in the support of the feed-rack. The rack 24 is slotted, as usual, and connected to the rack 23 by means of screws 29, a spring 30 being connected at one end to the rack 23 and at the other end to the rack 24 to throw the latter toward the left when the spacing-

dog is vibrated forwardly into the rack 23. To the fixed rack is connected a link 31, which, as heretofore, is connected to the driving-power of the machine.

The eyes 17 of the hinged rack-bar frame are provided each in front of the guide-rail with a forward projection 32 and in rear of the guide-rail and the rod 6 with a downward lug or projection 33. When the carriage is down in working position, a screw or pin 34, extending from the yoke-piece, bears upon each of said projections 32, so that the weight of the carriage may operate to rock slightly the rack-bar frame and lift slightly the feed-racks in order to relieve the spacing-dog of the weight of the feed-racks and their support. But for this construction the feed-racks would drop to such an extent that the bases of the notches of the racks would bear upon the top edge of the spacing-dog, which would be objectionable, for it would increase the friction and destroy the perfect operation of the feed of the carriage.

During the time that the carriage is down in working position the lugs or projections 33 stand slightly away from the rod 6; but when the carriage is turned up for inspection of the work and the screws 34 are moved away from the projections 32, thus allowing the feed-rack support to drop, the lugs or projections 33 come in contact with the rod 6 and relieve the spacing-dogs of some of the weight of the rack-bar frame and of the carriage, which in its upturned position rests upon the rack-bar frame.

When it may be desired to release the carriage from the escapement mechanism, the rack-bar frame may be swung up about its hinged connection with the guide-rail and the carriage thus moved quickly forward or backward, the rack 23 being preferably provided with a handle 35 to facilitate the raising of the racks. So far as the main feature of the invention is concerned the rack-bar frame need not be hinged.

The front rod of the carriage is provided with two anti-friction rollers 36, which ride upon a track or way 37, mounted on supports 38, rising from the top plate. This track or way is preferably extended on each side a considerable distance beyond the supports 38 in order to provide a longer support for the front side of the carriage.

The track or way is preferably provided with a scale-bar 39, which, as shown, is graduated or marked from "0" up to "120," indicating that one hundred and twenty characters may be printed upon a line, which is nearly twice as many as can be written with the ordinary machine. On the front rod is an index or pointer 40 to co-operate with said scale and indicate the progress of the carriage in the usual way. Upon the front rod is also mounted an adjustable stop 41, which is clamped to the rod by a set-screw 42, and which is adapted to strike against a stop 43.

on the end of the track or way to govern or regulate the width of margin at the left of the sheet being written upon.

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

1. In a type-writing machine, the combination, with the guide-rail and the paper-carriage, of a yoke-piece connected to said paper-carriage and arranged to slide on said guide-rail and a rack-bar frame having at each end an arm extending in the direction of travel of the paper-carriage and provided with a bearer for contact with the said guide-rail.

2. In a type-writing machine, the combination, with a guide-rail and a paper-carriage, of a yoke-piece secured to said carriage and hinged upon said rail and a rack-bar frame also hinged upon said rail and provided at each end with an arm having a bearer for contact with said rail.

3. In a type-writing machine, the combination of the top plate, the standards, the guide-rail secured to said standards and projecting beyond the same, the yoke-piece hinged to said guide-rail, the paper-carriage secured to said yoke-piece, the rack-bar frame hinged to said guide-rail, and the arms 19, extending on each side from said rack-bar frame and provided each with a bearer for contact with said guide-rail.

4. In a type-writing machine, the combination of the guide-rail, the stop-rod arranged beneath and parallel therewith, the yoke-piece hinged upon said guide-rail and provided with vertical contact pins or screws, and the rack-bar frame hinged upon the said guide-rail and provided with forwardly-extending projections adapted to be acted upon by said pins or screws to slightly elevate the said feed-racks when the carriage is down in working position.

5. In a type-writing machine, the combination of the guide-rail, the stop-rod arranged beneath and parallel therewith, the yoke-piece hinged upon said guide-rail, the paper-carriage rigidly connected to said yoke-piece, and the rack-bar frame provided with downward projections adapted to contact with said

stop-rod when the carriage is turned up and back and rests upon the rack-bar frame.

6. In a type-writing machine, the combination of the guide-rail seated in grooves in the upper ends of standards and prolonged to extend beyond said standards, the yoke-piece hinged upon said guide-rail, the paper-carriage rigidly connected to said yoke-piece, the rack-bar frame connected to said guide-rail, and the arms 19, extending outwardly in opposite directions from said rack-bar frame and provided each with a bearer adapted to travel in contact with said guide-rail past the standard to or near the free unsupported end of the guide-rail.

7. In a type-writing machine, the combination of the guide-rail, the yoke-piece hinged thereto, the paper-carriage rigidly connected to the yoke-piece, the rack-bar frame connected to the guide-rail, and the arms 19, made integral with the rack-bar frame and provided each with grooved anti-friction rollers adapted to ride in contact with said guide-rail.

8. In a type-writing machine, the combination of the guide-rail, the yoke-piece, the platen, and the rack-bar frame provided with the arms 19, bearing each an anti-friction roller, and means for adjusting said roller to said guide-rail.

9. In a type-writing machine, the combination, with the guide-rail, the yoke-piece, the platen, the rack-bar frame, and the arms 19, of the anti-friction rollers, the adjusting-eccentrics, and the retaining-screws.

10. In a type-writing machine, the combination of a paper-carriage, a guide-rail, a yoke-piece connected to said paper-carriage and arranged to slide on said guide-rail, and a pair of longitudinally-disposed arms connected to the paper-carriage and provided each with a bearer for contact with the said guide-rail.

Signed at Hartford, in the county of Hartford and State of Connecticut, this 21st day of March, A. D. 1892.

JOHN M. FAIRFIELD.

Witnesses:

CHAS. T. WELCH,
HARRY M. HIFFLON.