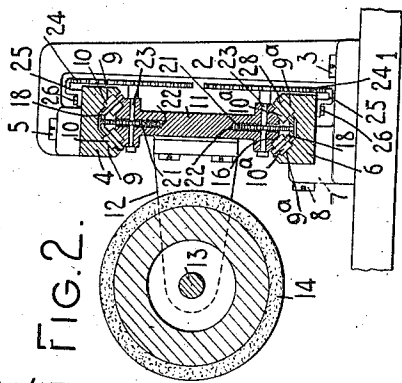
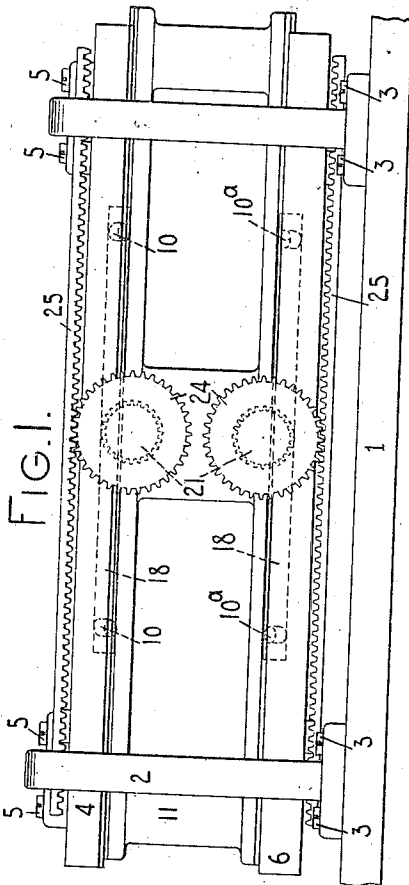


Patented Mar. 28, 1911.

987,813.



WITNESSES:

E. M. Wells
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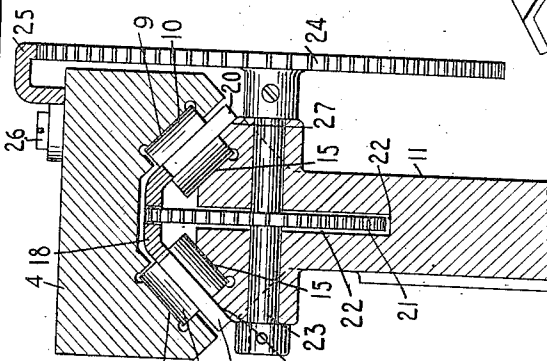


FIG. 3

INVENTOR.

Charles P. Mosher

By Jacob F. Fild

HIS ATTORNEY

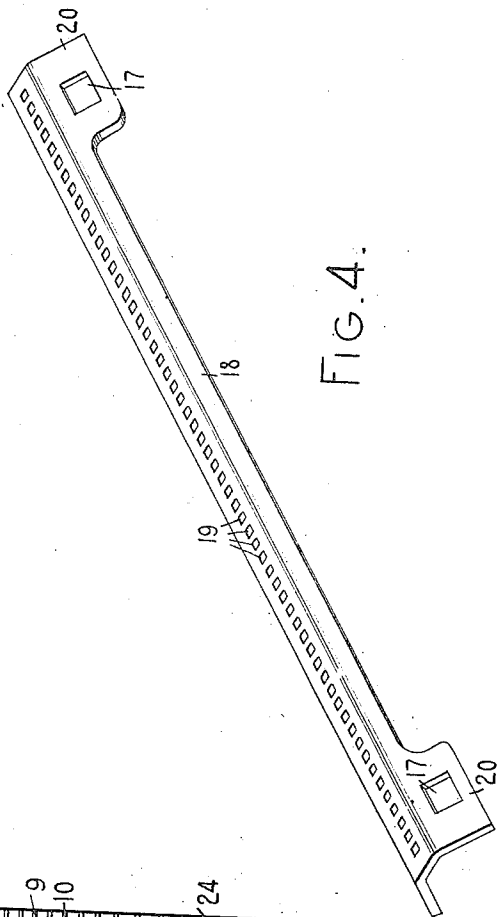


FIG. 4.

UNITED STATES PATENT OFFICE.

CHARLES PHILO MOSHER, OF NEW YORK, N. Y., ASSIGNOR TO UNION TYPEWRITER COMPANY, OF ILION, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

987,813.

Specification of Letters Patent. Patented Mar. 28, 1911.

Application filed December 14, 1910. Serial No. 597,352.

To all whom it may concern:

Be it known that I, CHARLES P. MOSHER, citizen of the United States, and resident of the borough of Brooklyn, city of New York, in the county of Kings 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 more particularly to means for supporting and guiding the carriage and for maintaining the bearing rollers therefor properly spaced with reference to one another and to the tracks on which they bear.

To the above and other ends which will hereinafter appear, my invention consists in the features of construction, arrangements of parts and combinations of devices to be hereinafter described and particularly pointed out in the appended claims.

In the accompanying drawings wherein like reference characters indicate corresponding parts in the various views, Figure 1 is a rear elevation showing the upper part of the typewriting machine embodying my invention. Fig. 2 is a transverse sectional view of the same. Fig. 3 is a fragmentary transverse sectional view, the section corresponding to Fig. 2, but showing the parts on a larger scale and with some of the parts represented in Fig. 2 omitted. Fig. 4 is a detail perspective view of one of the separators.

I have shown my invention embodied in the present instance in a front-strike typewriting machine in which the carriage is fixed against swinging movement and is wholly supported in the rear of the platen, and in which there is no obstruction to the usual upwardly swinging type bars striking the front face of the platen and an unobstructed view of the printing line is afforded. It should be understood, however, that my invention may be embodied in other styles of typewriting machines.

The top plate 1 of the machine has brackets 2 fixed thereto by screws 3. An upper fixed guide rail 4 is secured by screws 5 to the brackets 2. A corresponding lower fixed guide rail 6 is secured to lugs 7 on the brackets 2; screws 8 being employed to secure the rail 6 in place. These fixed guide rails are alike so that a description of one applies to the other. The guide rail 4 has inclined

tracks 9 formed thereon throughout its entire length for coöperation with cylindrical anti-friction bearing rollers 10. The tracks 9 are inclined in opposite directions and the cylindrical bearing rollers have their axes arranged at corresponding inclinations. The upper tracks 9 are inclined downwardly and outwardly from each other, whereas the lower tracks 9^a are inclined upwardly and outwardly away from each other. The tracks 9 and 9^a are formed as flat, bottomed grooves extending throughout the length of the fixed rails 4 and 6 respectively. There are preferably four bearing rollers 10 for the upper tracks 9 and four bearing rollers 10^a for the lower tracks 9^a as will be seen by an inspection of Figs. 1 and 2.

The carriage comprises a rear guide bar 11 which constitutes the sole support for the carriage through the coöperation of said bar with the bearing rollers 10 and 10^a. Forwardly extending end bars 12 project from the rear guide bar 11 and have bearings in which a platen shaft 13 is received, said platen supporting the usual cylindrical platen 14. The guide bar 11 has oppositely inclined tracks 15 formed at the top thereof, said tracks being inclined and arranged parallel with the tracks 9 on the fixed guide rail 4. The bottom of the bar 11 has tracks 16 formed thereon which correspond to and are parallel with the inclined tracks 9^a on the fixed rail 6. The carriage is thus mounted for movement on the bearing rollers 10 and 10^a to travel from side to side of the machine over the top plate and is fixed against swinging movement and guided firmly by the bearing rollers and the co-operating tracks. The axes of the various bearing rollers are preferably arranged at an angle of about 45°. The tracks at the upper and lower sides of the carriage bar 11 are arranged on opposite sides of a vertical median plane of the carriage bar, so as to efficiently support the weight and receive the thrust of the carriage in the different directions in which force may be applied thereto transversely of its direction of travel.

The upper set of oppositely inclined bearing rolls 10 are received in rectangular openings 17 in a roller separator 18, which is received between the upper fixed rail 4 and the tracks 15. This separator extends longitudinally of the carriage and is pro-

vided intermediate the roller receiving openings 17 and intermediate the oppositely inclined rollers, with a longitudinally extending portion which is formed with a rack 19. The rack is produced by punching out portions of the metal to form a series of interdental openings in the separator, which latter is preferably formed of sheet metal. It will be observed that the portions or ears 20 of the separator, in which the roller receiving openings 17 are formed, are inclined to correspond with the inclination of the faces of the tracks 9 and 15. When the separator is in place the rack 19 is disposed substantially in the vertical median plane of the carriage supporting bar 11 and intermediate the tracks 9 and rollers 10. A pinion or gear 21 is received in a cut-out or recess 22 in the carriage supporting bar 11 and intermediate the tracks 15 formed thereon. This gear or pinion meshes with the rack 19, in order to maintain the bearing rollers 10 properly positioned with reference to the carriage and to the fixed track 4 at all times, and to produce a movement of the separator corresponding to one-half the movement of the carriage in its travel from side to side of the machine, as will hereinafter more clearly appear. The gear 21 is fixed upon a shaft 23 mounted to turn in a bearing in the bar 11. The rear end of this shaft has a gear 24 fixed thereto, which last mentioned gear is twice the diameter of the pinion or gear 21. The gear 24 meshes with a rack 25, fixed to the upper guide rail 4 by screws 26. The rack 25 therefore is connected to the frame of the machine and remains fixed and it extends substantially throughout the length of the fixed guide rail 4 and throughout the length of the travel of the carriage. It will be understood that the travel of the carriage carries the gears 21 and 24 with it and the engagement of the gear 24 with the fixed rack 25 will produce a rotative movement of this gear which is transmitted to the pinion 21, and this motion in turn is transmitted to the roller separator through the engagement of the pinion with the rack 19. The effect of the movement thus transmitted to the roller separator 18 is to cause said separator and the bearing rollers 10 controlled thereby to move a distance corresponding to one-half the travel of the carriage in the movement of the latter from side to side of the machine which also corresponds to the natural rolling action of the rollers on their tracks. In this manner the rollers 10 are at all times properly positioned with reference one to another, with reference to the carriage, and with reference to the frame of the machine. The rollers 10 are likewise provided with a separator and with means similar to those described above for controlling the position of the separator.

These parts are substantial duplicates of those previously described and the same reference numerals will be applied thereto, it being deemed unnecessary to repeat the description of these parts. It may be said, however, that the upper separator 18 receives a bearing and support on the faces 27 of the carriage bar 11, whereas the lower separator receives a bearing on the faces 28 of the lower fixed guide rail 6. The lower separator being initially positioned the same as the upper separator, as indicated in Fig. 1, both separators will be moved a corresponding distance during the travel of the carriage.

From the foregoing description it will be seen that I have provided simple and efficient means for mounting the carriage and for controlling the positions of the bearing rollers therefor at every point in the travel of the carriage.

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

1. In a typewriting machine, the combination of a carriage; anti-friction rollers for said carriage; a separator for said rollers, said separator being formed with roller receiving openings therein on opposite sides of its longitudinal center and with a longitudinally extending rack intermediate said roller receiving openings; and means for effecting a movement of the separator corresponding to one-half the movement of the carriage, said means comprising a gear which meshes with said rack.

2. In a typewriting machine, the combination of a carriage; anti-friction rollers for said carriage; a separator for said rollers, said separator being formed with roller receiving openings therein on opposite sides of its longitudinal center and with a longitudinally extending rack intermediate said roller receiving openings, and means for effecting a movement of the separator corresponding to one-half the movement of the carriage, said means comprising a gear carried by the carriage and meshing with said rack, a second gear connected with said first mentioned gear, and a second rack carried by a fixed part of the machine and meshing with said second gear.

3. In a typewriting machine, the combination of a carriage; anti-friction rollers for said carriage; a separator for said rollers, said separator being formed with roller receiving openings therein on opposite sides of its longitudinal center and with a longitudinally extending rack intermediate said roller receiving openings; and means for effecting a movement of the separator corresponding to one-half the movement of the carriage, said means comprising a shaft carried by said carriage, a gear carried by said shaft and meshing with said rack, a second gear carried by said shaft, and a second rack

that is fixed to the frame of the machine and extends in the direction of the travel of the carriage and meshes with said second gear.

4. In a typewriting machine, the combination of a carriage having a rear carriage supporting bar; tracks carried by said bar; anti-friction rollers coöperative with said tracks; a separator for said rollers; and means for effecting a movement of the separator corresponding to one-half the movement of the carriage, said means comprising a rack on the separator intermediate said tracks, a gear carried by the carriage in a recess in the carriage supporting bar intermediate said tracks, and means for effecting a turning of the gear on its axis as the carriage travels.

5. In a typewriting machine, the combination of a carriage having a rear carriage supporting bar; tracks carried by said bar; anti-friction rollers coöperative with said tracks; a separator for said rollers; and means for effecting a movement of the separator corresponding to one half the movement of the carriage, said means comprising a rack on the separator intermediate said tracks, a gear carried by the carriage in a recess in the carriage supporting bar intermediate said tracks, a second gear connected with said first mentioned gear to turn therewith, and a second rack fixed to the frame of the machine and meshing with said second gear.

6. In a typewriting machine, the combination of a carriage having a carriage supporting bar; tracks on the upper and lower sides of said supporting bar; anti-friction rollers which coöperate with said tracks; a separator for the rollers at the upper side of the bar; a separate separator for the rollers at the lower side of the bar; two racks, one formed on each of said separators; two pinions, one meshing with each of said racks; two gears, each one fixed to turn with a pinion; and two fixed racks, each coöperative with one of said gears.

7. In a typewriting machine, the combination of a carriage having a carriage supporting bar; tracks on the upper and lower sides of said supporting bar; anti-friction rollers which coöperate with said tracks; a separator for the rollers at the upper side of the bar; a separate separator for the rollers at the lower side of the bar; two racks one formed on each of said separators; two shafts carried by the carriage; two pinions, one carried by each of said shafts and

each meshing with a rack on a separator; two gears, each connected to turn with a pinion; and two fixed racks, each meshing with a gear.

8. In a typewriting machine, the combination of a carriage having a supporting bar with oppositely disposed inclined tracks at the top and bottom thereof; cylindrical bearing rollers coöperating with said tracks, said rollers having their axes inclined in opposite directions; a separator for the upper rollers; an independent separator for the bottom rollers; a rack on each separator; and means coöperative with each rack to effect a movement of the companion separator corresponding to one half the movement of the carriage.

9. In a typewriting machine, the combination of a carriage having a supporting bar with oppositely disposed inclined tracks at the top and bottom thereof; cylindrical bearing rollers coöperating with said tracks, said rollers having their axes inclined in opposite directions; a separator for the upper rollers; an independent separator for the bottom rollers; a rack on each separator; and means coöperative with each rack to effect a movement of the companion separator corresponding to one half the movement of the carriage, said means comprising a pinion for each rack on the separator, a gear connected to each pinion, and a fixed rack for each gear.

10. In a typewriting machine, the combination of a carriage having a carriage supporting bar; oppositely inclined tracks on opposite sides of the vertical median plane of said bar and at the top and bottom thereof; a set of cylindrical bearing rollers for the top tracks, said rollers having oppositely inclined axes; a set of cylindrical bearing rollers for the bottom tracks, said rollers also having oppositely inclined axes; an independent separator for each set of rollers; and means coöperative with each separator to cause it to move a distance corresponding to one half the movement of the carriage.

Signed at the borough of Manhattan, city of New York, in the county of New York, and State of New York, this 12th day of December, A. D. 1910.

CHARLES PHILO MOSHER.

Witnesses:

CHARLES E. SMITH,
M. F. HANNWEBER.