M. H. LOCKWOOD.

TYPE WRITING MACHINE.

APPLICATION FILED MAR. 28, 1912.

1,058,446.

Patented Apr. 8, 1913.

2 SHEETS—SHEET 1.

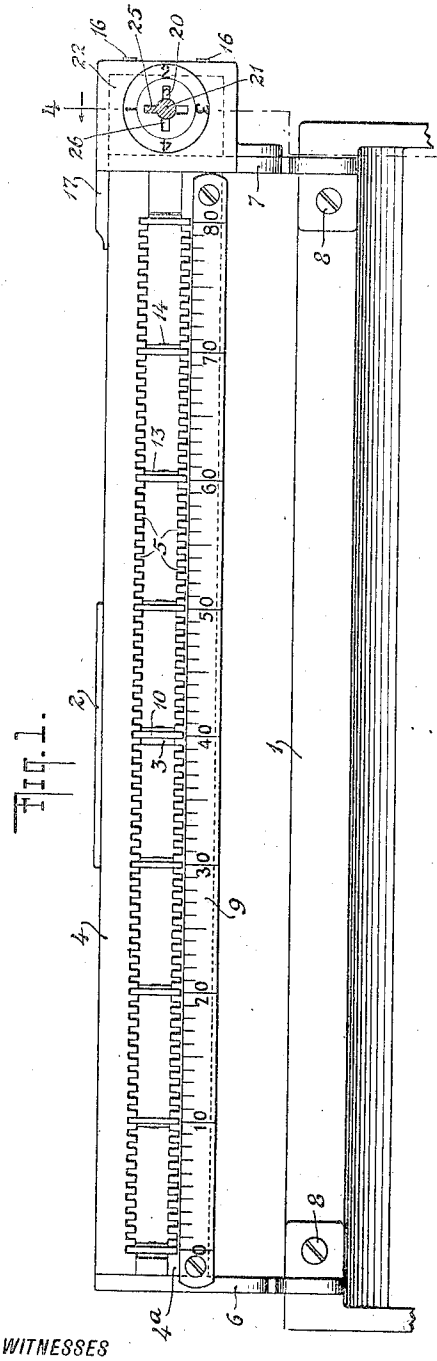

FIG. 1.

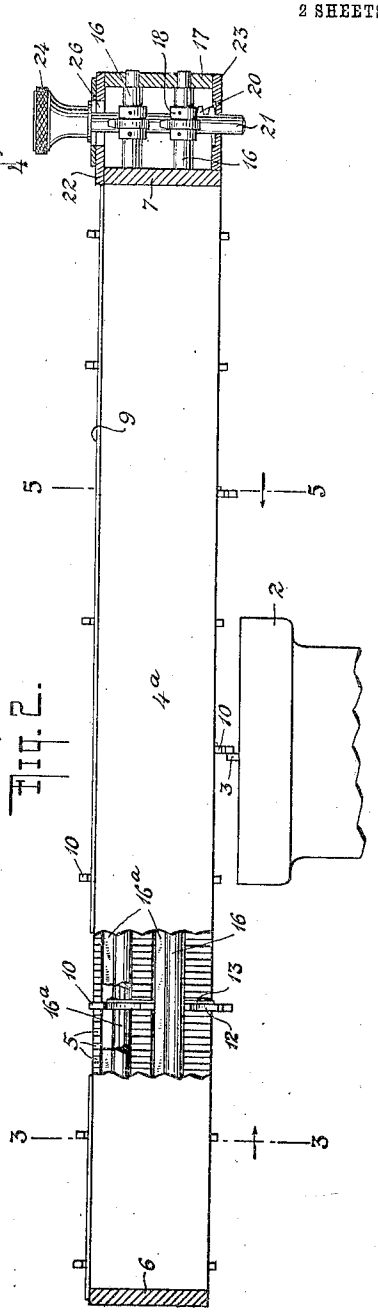

FIG. 2.

WITNESSES

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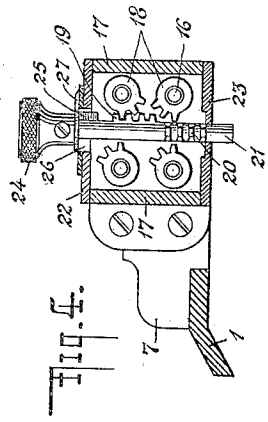

Fig. 4.

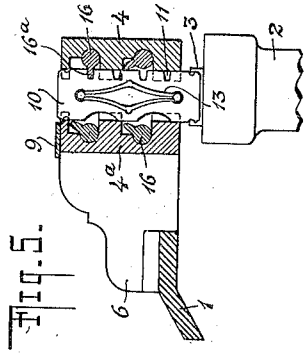

Fig. 5.

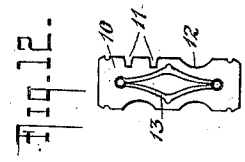

Fig. 12.

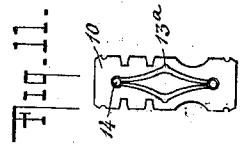

Fig. 11.

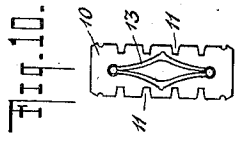

Fig. 10.

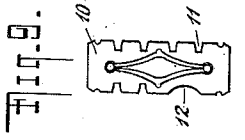

Fig. 9.

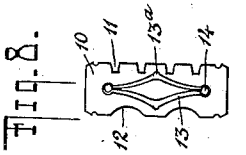

Fig. 8.

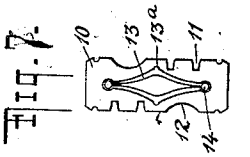

Fig. 7.

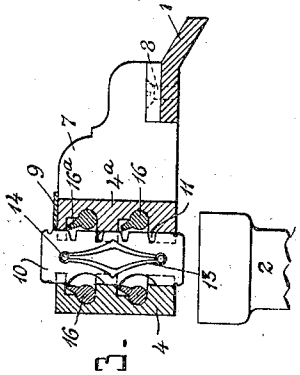

Fig. 3.

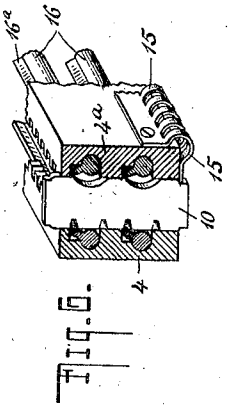

Fig. 6.

WITNESSES

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UNITED STATES PATENT OFFICE.

MARQUIS H. LOCKWOOD, OF NEW YORK, N. Y., ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

TYPE-WRITING MACHINE.

1,058,446. Specification of Letters Patent. Patented Apr. 8, 1913.

Application filed March 28, 1912. Serial No. 686,728.

To all whom it may concern:

Be it known that I, MARQUIS H. LOCKWOOD, a citizen of the United States, and resident of Manhattan, city, county, 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 more particularly to tabulating stops adapted to be arranged in groups and means for moving any one of the groups into operative position where the stops are adapted to coöperate with the key actuated, tabulator plungers of any usual and well known typewriter tabulating device.

It is frequently desirable to fill out several different forms on the typewriter and for this purpose the tabulating stops on the carriage should be arranged to accord with the columnar positions required for each form. With the ordinary stop rack it is not feasible to have all the different stops for all the forms in operative position at the same time, hence I propose to arrange the several stops required for each form in a group and arrange that each group can be thrown into or out of operative position at will. Furthermore it is desirable that the arrangement of stops in each group and of the various groups may be readily changed as desired to conform to new or different forms to be filled in on the machine. I have provided for this by arranging that the stops may be readily interchangeable as to position or as to grouping. Only one group of stops is required to be in operation at a time, therefore the stops of my device and the controlling means for each group are so arranged that only one set or group of stops can be moved to operative position at a time and by such movement all the other groups are locked so that none can be moved to operative position until the group in operative position is withdrawn.

With the above objects in view I have illustrated one form of my invention in the accompanying drawings of which—

Figure 1 is a plan view of the device with the setting knurled head removed; Fig. 2, is a side elevation partly in section and broken away; Fig. 3 is a cross section on line 3—3 of Fig. 2 with stops up; Fig. 4 is a sectional view along the line 4—4 of Fig. 1; Fig. 5 is a section of Fig. 2 at 5—5; Fig. 6 represents a fragment in perspective with slight modification; and Figs. 7 to 12 represent different stops.

In the drawings 1 represents a portion of the typewriter carriage, 2 indicates the upper end of the tabulator plunger case and 3 the key actuated plungers. These parts are represented conventionally for it will be understood that my device may be attached to any well known typewriter of usual construction such as the Underwood.

My device comprises two parallel bars or racks 4, 4^a spaced apart and provided with transverse grooves or notches 5 on the inside or opposing faces of the bars. The grooves 5 are arranged opposite each other in alinement as indicated in Fig. 1. The bars 4, 4^a are preferably secured to end plates or brackets 6 and 7 which are secured to the typewriter carriage in any suitable manner as by screws 8. The notches or grooves 5 in the bars 4, 4^a are equably spaced a letter space distance apart, and a suitably graduated scale is provided as indicated by 9 in the drawings. The bars 4, 4^a are spaced apart a suitable distance and adapted to receive stops or tappets 10, in the groove 5, at any desired columnar positions. As previously indicated the stops 10 are intended to be arranged in groups to conform to the different columnar positions of the forms it is desired to fill out on the machine. To accomplish this I have provided a special form of stops 10 each with one or more notches 11 preferably adapted to receive a gear tooth. The stops may also be provided with segmental notches 12 at the points desired, for the purpose hereinafter explained. Each of the stops 10 is preferably provided with a resilient member such as the flat sp. ng metal pieces 13, held in place by pins 14, so as to locate and temporarily hold the stops in position between the bars 4 and 4^a, said bars being provided with shallow longitudinal grooves into which the tips 13^a may seat when the stops are properly located as to the notches 11 and 12 as will be pointed out later. If desired the stops may be located or prevented from dropping too far through the bars 4, 4^a by other suitable means, as for instance, by resilient fingers 15, as indicated in Fig. 6.

Each of the bars 4, 4^a is, in the present instance, provided with two longitudinal grooves extending the full length of the

bars. The deeper portion of each groove is semicircular in form and adapted to receive and form a support for a rod or shaft 16 provided with a feather or single gear tooth 16^a which extends along the shaft far enough to cover all the transverse grooves 5 in the bars 4, 4^a and is adapted to enter any of the notches 11 of the stops 10 for the purpose of moving the stop or stops up and down in the grooves 5 as will be more fully described hereinafter. The shafts 16 have bearings in the end plate brackets 6 and 7 and are adapted to be rotated or rocked, about one quarter of a revolution, as indicated in the drawings. (Compare Figs. 3 and 5.) The rods or shafts 16 are adapted to be rocked as indicated, and any suitable means may be employed for this purpose but in the present instance I have the following: The shafts or rods 16 extend beyond the end bracket 7 into a box like casing 17 attached thereto. Each shaft 16 is provided with a pinion segment 18 preferably secured thereto on the end extending into the casing 17, as indicated in Figs. 2 and 4. As previously stated it is desired to operate each shaft 16 separately, as required, to throw the desired group of stops into operative position. For this purpose I have in the present instance shown the segmental pinions 18 so disposed on their respective shafts 16 as to stand in position to be operated upon by segmental racks 19, 20 extending from the push rod or shaft 21. The two segmental racks are arranged at right angles to each other and the rack teeth 19 are adapted to coöperate with either of the two upper pinion segments 18 while rack teeth 20 may be brought into cooperative relation with either of the two lower pinions 18. The relation of these parts will be seen in Fig. 4 which shows the rack teeth 19 in mesh with the upper right hand pinion segment 18 and the rod 21 depressed so that the rod 16 has been turned to throw the corresponding group of stops into operative position. The rod 21 is supported in holes in the top plate 22 and bottom plate 23 and is thereby adapted for rotation and for up and down sliding movement therein. The upper end of the rod 21 is provided with a knurled head 24 and a feather or key 25, the latter being of sufficient length to prevent the rod 21 from being turned except when at its uppermost position. The top plate 22 of the casing 17 is provided with four radial slots or key ways 26, 90° apart, (see Fig. 1) each adapted to coöperate with the key or feather 25 when the rod 21 is turned so as to bring one of the rack segments 19, 20 into mesh with the corresponding shaft segment 18 for a particular group. Suitable indicating graduations or characters may be placed on the top plate 22 and adapted to coöperate with a suitable pointer 27. From the arrangement of the segmental racks 19, 20 and the feather key 25 it will be seen that by turning the rod to any one of the four positions indicated the corresponding shaft segment 18 will be brought into operative relation to one or the other of the segments 19, 20. Then by pushing down on the knurled head 24 the corresponding pinion segment 18 and shaft 16 will be turned, as indicated in Fig. 4. During depression of the rod 21, as above described, the feather key 25 will enter the corresponding slot 26 in the top plate and render it impossible to turn the rod 21 and disconnect the rack teeth 19 or 20 (19 in Fig. 4) from the shaft segment 18 with which it is in mesh, thus insuring the restoration of one group of stops before another can be moved to operative position.

The different variety of stops usable with the form of my device here shown and described are illustrated in Figs. 7 to 12 inclusive. In order to have as few varieties as possible I have made the stops interchangeable and reversible so that from the stops shown any desired arrangement of the groups can be made. For example, if the group shafts 16 are to control stops which are distinct for each group, or, in other words the columnar position of each stop of each group is different from the columnar positions of all stops in the other groups, then the stop shown in Fig. 12 would be used. It will be seen that by turning this stop the notches 11 can be brought to stand in position opposite any one of the four shafts 16 as desired and only the feather tooth of that particular shaft will move the stop. When one of the other group shafts 16 is moved its feather tooth 16^a will merely rock in the segmental notch 12 of the stop and tend to hold the stop out of operative position. If it is desired that the same columnar position shall be maintained for two groups of stops then a stop having two sets of notches 11 is selected as for instance one of those shown in Fig. 7, Fig. 8 or Fig. 11 according to the two groups requiring the same columnar position for one of the stops. A two-group stop corresponding to that in Fig. 8 is shown in Figs. 3 and 5. In Fig. 3 the stop is shown up or out of operative position and it will be seen that either of the right hand group-shafts 16 is adapted to move the stop; but if either of the left hand shafts 16 is rocked the stop will not be moved for the corresponding feather tooth 16^a will merely move in the notch 12 which is concentric with the shaft. In Fig. 5 the stop of Fig. 3 is shown as moved to operative position by the upper right hand shaft 16, the feather tooth 16^a of which has entered one of the notches 11 and will securely hold the stop in the position indicated. It

will further be noted from this figure (Fig. 5) that the stop 10 positively locks all the other shafts 16 so that no other group of stops can be moved to position while this stop, or the group to which it belongs, is in operative position. This is accomplished by the portions of the stop between the notches 11 and 12 which stand opposite the feather teeth 16[a] of the shafts 16 of the groups not in use thereby effectually preventing the turning of any of these shafts. If it is desired that three of the groups shall have one or more columnar positions in common then a stop such as shown in Fig. 9 is used and so turned that the segmental notch 12 stands opposite the group shaft 16 of the group which does not have that particular columnar position. If all the groups have a common columnar position at one or more points then a stop such as shown in Fig. 10 is used and any one of the group shafts 16 will set it to operative position. The stops are readily removable and hence the operator can, at will, change the positions of the stops and the grouping to meet any requirements, while by means of the knurled head the rod 21 can be turned and pushed down to move any desired group of stops to operative position.

Other forms or modifications of my invention may be devised without departing from the spirit and scope of the claims.

I claim:

1. In a typewriting machine provided with tabulating mechanism, a plurality of movable stops having predetermined group arrangement and separate means for each group for positively moving the same into or out of operative position.

2. In a typewriting machine provided with tabulating mechanism, a plurality of movable stops, a support for said stops, means on the stops adapting them to be arranged in predetermined groups and separate means for each group for positively moving the same into or out of operative position.

3. In a typewriting machine provided with tabulating mechanism, a plurality of movable stops, a support for said stops, means integral with the stops adapting them to be arranged in predetermined groups and separate means for each group carried upon said support for positively moving each group into or out of operative position.

4. In a typewriting machine provided with tabulating mechanism, a plurality of movable stops, means for retaining the stops out of operative position, means carried by the stops adapting them to be arranged in predetermined groups and separate means for each group for positively moving the same into or out of operative position.

5. In a typewriting machine provided with tabulating mechanism, a plurality of interchangeable stops, a support for said stops on which the stops are positioned either out of or in operative position, means integral with the stops adapting them to be arranged in predetermined groups and separate means for each group for positively moving the same into or out of operative position.

6. In a typewriting machine provided with tabulating mechanism, a plurality of interchangeable stops, a support for said stops on which the stops are positioned either out of or in operative position, means coöperating between the stops and support for holding the stops temporarily out of operative position, means integral with the stops adapting them to be arranged in predetermined groups and separate means for each group for moving the same into or out of operative position said means for each group being adapted to lock the stops of the other groups out of operative position.

7. In a typewriting machine provided with tabulating mechanism, a plurality of interchangeable stops, a support for said stops, means integral with the stops adapting them to be arranged in predetermined groups and separate means for each group for positively moving the same independently into or out of operative position, the arrangement being such that when one group is in operative position the stops thereof will lock the moving means of the other groups so that none of the other groups can be moved to operative position.

8. In a typewriting machine provided with tabulating mechanism a plurality of stops each with means adapting the several stops to be arranged in one or more groups, bars provided with grooves in which said stops are adapted to slide, and separate means for each group, extending transversely of said groups for positively sliding each group of stops independently into or out of operative position.

9. In a typewriting machine provided with tabulating mechanism, a plurality of stops each having either toothed or segmental notches, a bar provided with grooves in which said stops are adapted to slide, and means adapted to slide the stops having toothed notches into operative position and to lock all stops having segmental notches out of operative position.

10. In a typewriting machine provided with tabulating mechanism, a plurality of interchangeable stops, a bar provided with grooves in which said stops are adapted to slide, means for positively sliding one or more of said stops into or out of operative position and means adapting stops not so sliding to be locked in said grooves by said sliding means.

11. In a typewriting machine provided with tabulating mechanism a plurality of

interchangeable stops each provided with toothed notches, a support on which said stops are adapted to slide, a rock shaft extending along said support and carrying means adapted to coöperate with the notches in said stops to slide the same and means for rocking said shaft whereby stops may be moved into operative position.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

MARQUIS H. LOCKWOOD.

Witnesses:
JOHN A. KEHLENBECK,
JOHN A. FERGUSON.