G. G. GOING & J. A. RUFFIN.

TYPE WRITER.

APPLICATION FILED JAN. 16, 1909. RENEWED OCT. 15, 1910.

992,125. **Patented May 9, 1911.**

Fig. 1.

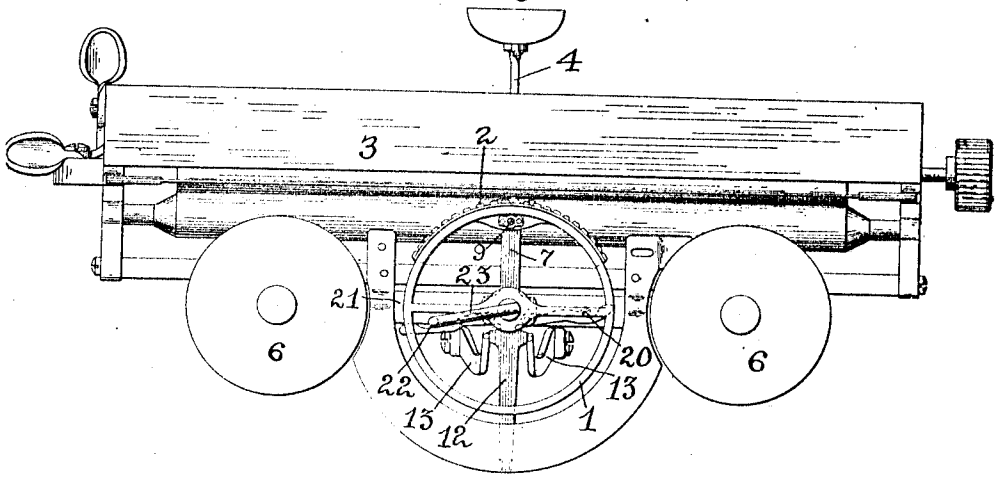


Fig. 2.

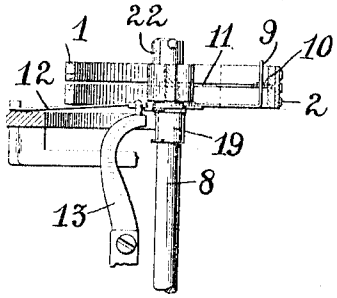


Fig. 3.

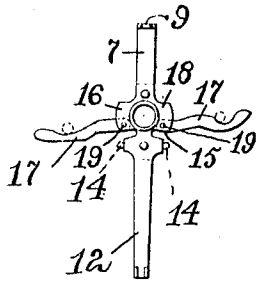


Fig. 4.

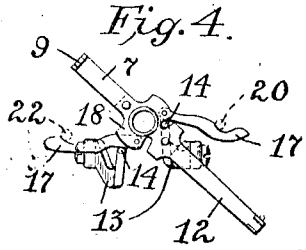
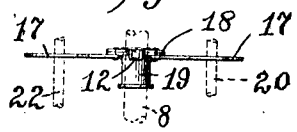


Fig. 5.



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UNITED STATES PATENT OFFICE.

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TYPE-WRITER.

992,125. Specification of Letters Patent. Patented May 9, 1911.

Application filed January 16, 1909, Serial No. 472,702. Renewed October 15, 1910. Serial No. 587,313.

To all whom it may concern:

Be it known that we, GEORGE G. GOING and JOHN A. RUFFIN, citizens of the United States, residing at New York, N. Y., have invented certain new and useful Improvements in Type-Writers, of which the following is a specification.

Our invention relates to improvements in the general form of typewriters known as the Hammond, and concerns particularly means for preventing locking of the type carrier or shuttle.

The invention consists in the features and combination and arrangement of parts hereinafter described and particularly pointed out in the claims.

In the accompanying drawings:—Figure 1 is a plan view of so much of a typewriter as is necessary for a clear understanding of our invention; Fig. 2 is a vertical sectional view through the anvil and adjacent parts, some of the parts being in section; Fig. 3 is a detail plan view of our improvement detached from the machine; Fig. 4 is a view similar to Fig. 3 showing the shuttle arm and stop arm of Fig. 3 in their operated position, this figure also illustrating the driving arms, one of which has been operated; Fig. 5 is a detail front view of the parts shown in Fig. 3.

In these drawings, 1 indicates the anvil, 2 the shuttle or type carrier, 3 the paper carriage, 4 the impression hammer, and 6, 6, the ribbon spools of the typewriter of well known form known as the Hammond.

In this machine as constructed previous to our invention, the type carrier or shuttle is driven by a shuttle arm 7 mounted on a post 8 to turn horizontally thereabout, said arm having an upwardly extending finger 9 to engage an eye 10 projecting through a crevice or guideway 11 in the anvil. The shuttle arm, in ordinary practice, is also combined with a stop arm or tail piece 12 extending toward the front and adapted to engage a series of stop pins operated by the keys but not illustrated herein. The shuttle driving arm is operated to shift the shuttle to bring the desired type to the impression point by means of driving arms 13, one on each side of the stop arm, said driving arms being operated from the keys through well known connections. These driving arms, at their upper ends, are provided with pins 14 which, as indicated in dotted lines in Fig. 3, lie upon opposite sides of the forward extension or stop arm, so that, when either of the driving arms is operated, its driving pin 14 will engage the shoulder or edge of slot 15 on the hub of the shuttle arm and turn the said shuttle arm to move the shuttle or type carrier to the desired point. It is found, in ordinary practice, that when one driving arm is operated and the shuttle arm is swung, pressure upon one of the keys connected with the other driving arm will cause said driving arm to contact with the peripheral edge, for instance, as at 16, of the hub of the shuttle arm, and thus the shuttle arm will be locked in position and it will be necessary to release the key last operated and allow the shuttle arm to return toward normal central position before said key can be operated to perform an effective stroke. In other words, in ordinary practice the construction is such that if a key at one end of the keyboard is operated before the release of a previously operated key at the other end of the keyboard, the parts will be locked in position and no further work can be done until the keys are released and the shuttle is allowed to return toward normal position. Our invention overcomes this difficulty, it being possible to press upon one key at one side of the keyboard before the key on the other side of the keyboard is released, the arrangement being such that, as soon as the key first operated is released, the pressure exerted on the second key will become effective to swing the shuttle in the opposite direction and move it to the printing point; thereby substantially increasing the speed of the machine. In the example of our invention which we have chosen to make clear its principle, we show a pair of guide or controlling extensions in the form of arms 17 extending in opposite directions from the hub of the shuttle arm, each being pivoted to the shuttle arm or the flange 18 at the hub thereof, as indicated at 19. These arms are arranged to bear with their free ends upon suitable stops, and we have illustrated as one form of these stops a post 20 extending up from the frame 21, and the rod 22, which, in ordinary practice, serves to hold the anvil in proper position, this rod having a vertically extending portion passing through

the frame and having a horizontal portion 23 to engage the notch in the upper end of the anvil post.

The relation of the pivots 19 to the driving arms 13 is such that supposing, as illustrated in Fig. 4 as an example, the driving arm at the right has been operated to swing the shuttle arm, together with the shuttle, leftward, the driving arm at the left of said figure will lie in a position relatively to the shuttle arm to bear on the arm or lever 17 at a point between the pivot connection 19, between the said arm and the shuttle arm hub, and the outer end of the arm, where it finds a bearing against the post 22, so that, in case of pressure being exerted upon the left hand driving arm previous to the release of pressure or driving force to the right hand bearing arm, it would be impossible for the parts to be locked in position, for the pressure from the left hand pin 14 will be exerted at a point on the extension or arm 17 out beyond the pivot point 19 so that, as soon as the right hand driving arm is released, the pressure of the left hand driving arm will immediately become effective to start the shuttle arm in the opposite direction. In other words, we have provided a construction which will prevent the shuttle from being locked should a key at one side of the machine be operated before a previously operated key on the other side of the machine is released; for as soon as the release of the first key takes place, the previously exerted pressure on the key last operated will immediately become effective to start the shuttle in the opposite direction. We wish it understood that we do not limit ourselves to the precise construction illustrated, but use this as an exemplification of our invention which may be modified from the form shown without departing from the fundamental principle involved in our invention. It will also be understood that our invention can be substituted, on existing machines, for the shuttle and stop arm as now employed on such machines, no change in the existing construction being necessary.

In operation it will be observed that the extensions or arms 17 of the shuttle arm find fulcrum bearings against the posts 20 and 22, respectively, while the drivers before getting into driving engagement with the shuttle arm engages the portion intermediate said fulcrum and the pivot points 19. It will be noted also that the lever arms need not be attached to the posts 20, 22, as we prefer to have them simply rest thereagainst. The shuttle arm has, as in ordinary practice, a sleeve at its hub as at 19, by which the arm may be readily placed upon or removed from the post 8. Our shuttle arm has a similar sleeve so that, in applying our improvement, it is simply necessary to remove the existing shuttle arm and apply our shuttle arm which carries as one body therewith, as shown in Fig. 3, the extensions or arms 17.

It will be observed that we employ precisely the same driving means in our case as in the regular Hammond machine, that is to say, the driver arms 13, pins 14 and the notches 15 in the shuttle arm. The parts which we have combined with the regular driving means, *i. e.*, the laterally extending arms 17, 17 serve to prevent locking by bringing or guiding these notches and driving pins together.

We claim as our invention:—

1. In combination in a typewriter with a type carrier, a pivotally mounted carrier arm connected therewith, arms in connection with the carrier arm extending laterally therefrom and fulcrumed near their outer ends, and drivers for impelling the carrier arm when made to engage therewith by the laterally extending arms, substantially as described.

2. In combination in a typewriter with a type carrier, a pivotally mounted carrier arm connected therewith, arms pivotally connected to the carrier arm extending laterally therefrom and fulcrumed at their outer ends, and drivers for impelling the carrier arm when made to engage therewith by the laterally extending arms, substantially as described.

3. In combination in a typewriter with a type carrier, a pivotally mounted carrier arm connected therewith, arms pivotally connected to the carrier arm extending laterally therefrom and fulcrumed at their outer ends, and drivers for impelling the carrier arm when made to engage therewith by the laterally extending arms, said carrier arm and the laterally extending arms being removable and replaceable as one body, substantially as described.

4. In combination in a typewriter, a type carrier, a carrier arm having a pair of notches and drivers to engage the same, and fulcrumed arms in connection with the carrier arm, substantially as described.

5. In combination in a typewriter, a type carrier, a pivotally mounted carrier arm connected therewith, arms pivotally connected to the carrier arm extending laterally therefrom and fulcrumed by bearing removably against fulcrums at their outer ends, and drivers, for impelling the carrier arm when made to engage therewith by the laterally extending arms, substantially as described.

6. A type carrier arm having connected therewith, to be handled as one body, pivotally mounted lateral arms, substantially as described.

7. A type carrier arm having a bearing opening to engage a post of existing machines and lateral driving notches, and

lateral arms pivotally mounted thereon to be removed and replaced therewith, substantially as described.

8. A type carrier arm having driver receiving notches and lateral arms pivoted adjacent said notches, substantially as described.

In testimony whereof, we affix our signatures in presence of two witnesses.

GEORGE GOULD GOING.
JNO. A. RUFFIN.

Witnesses:
F. B. ECKLIN,
E. K. STEPHENSON.