C. SCHLÜNS.

TYPEWRITING MACHINE.

APPLICATION FILED NOV. 9, 1915. RENEWED NOV. 26, 1919.

1,345,510.

Patented July 6, 1920.

4 SHEETS—SHEET 1.

Fig. 1.

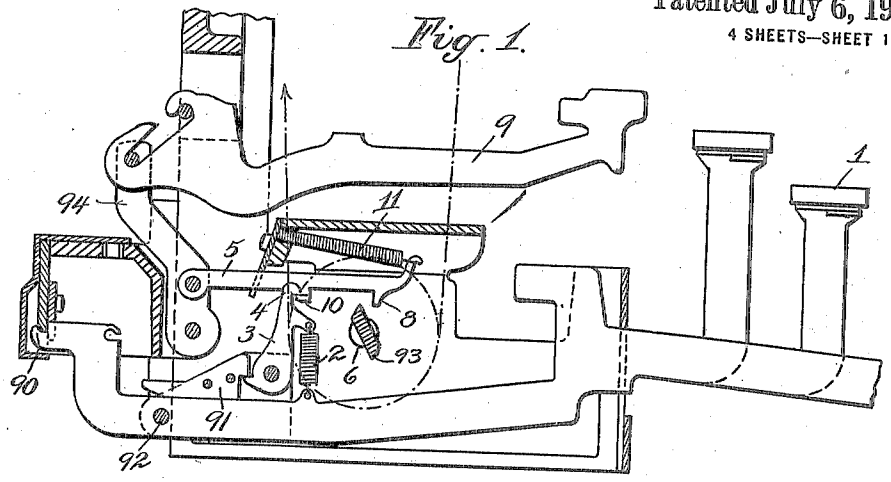


Fig. 2.

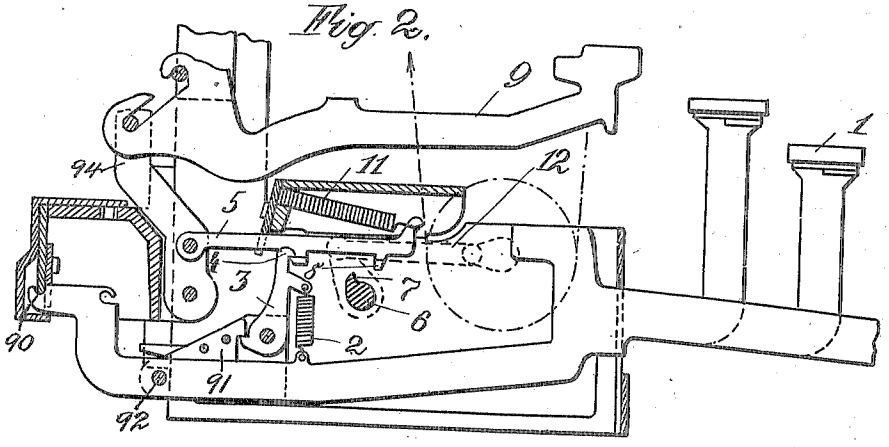
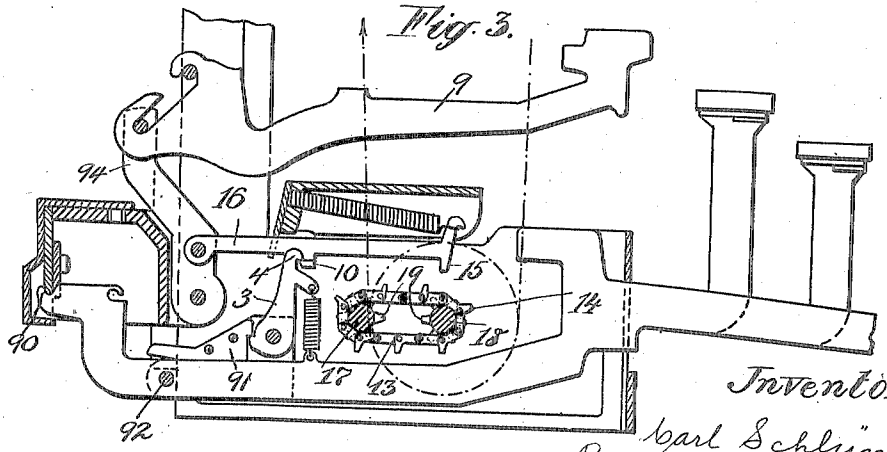


Fig. 3.



Inventor:
Carl Schlüns,
By Knight Bros
Attorneys.

C. SCHLÜNS.

TYPEWRITING MACHINE.

APPLICATION FILED NOV. 9, 1915. RENEWED NOV. 26, 1919.

1,345,510.

Patented July 6, 1920.

4 SHEETS—SHEET 2.

Fig. 4.

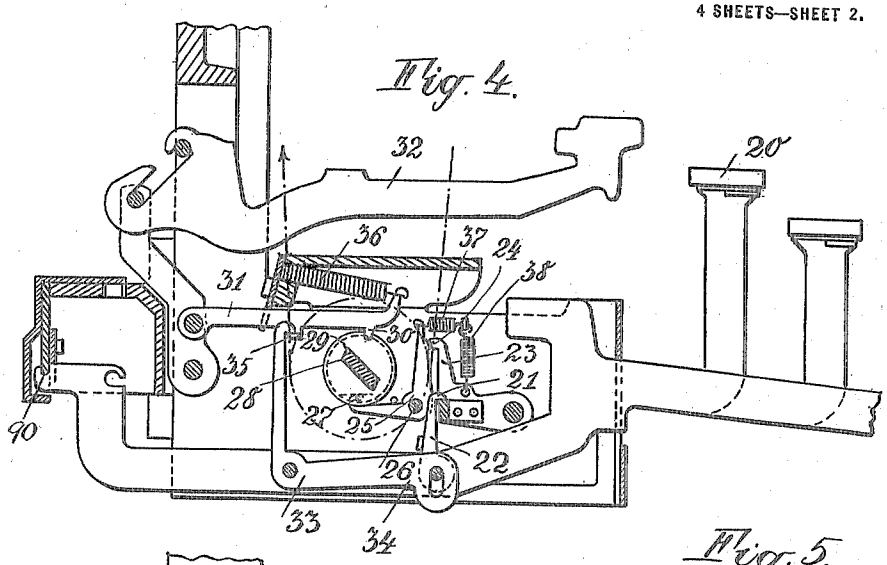


Fig. 5.

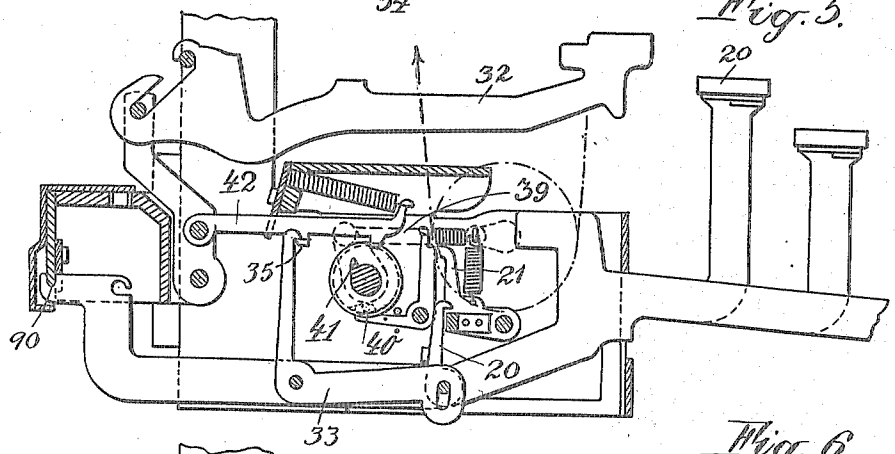
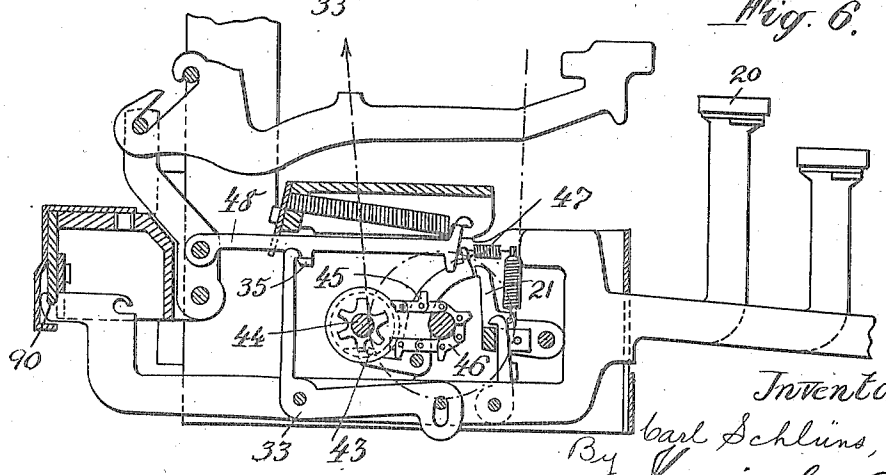


Fig. 6.



Inventor:
Carl Schlüns,
By Knight Bros.
Attorneys.

C. SCHLÜNS.

TYPEWRITING MACHINE.

APPLICATION FILED NOV. 9, 1915. RENEWED NOV. 26, 1919.

1,345,510.

Patented July 6, 1920.

4 SHEETS—SHEET 3.

Fig. 7.

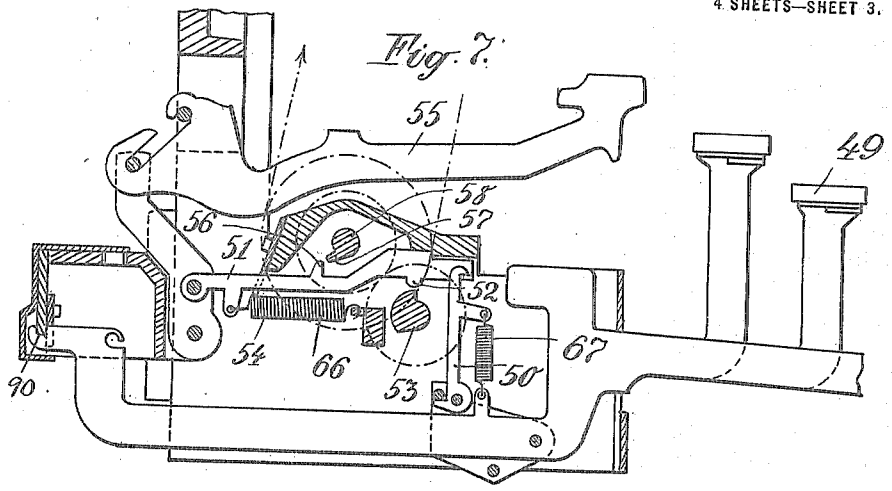


Fig. 8.

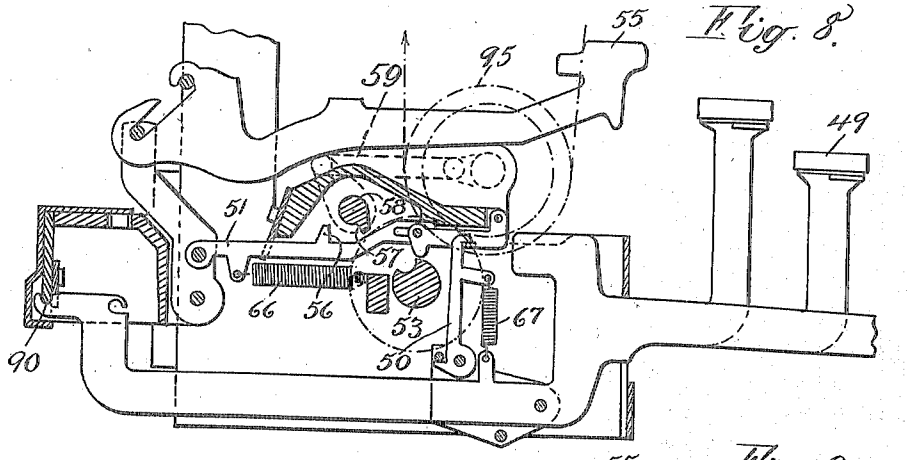
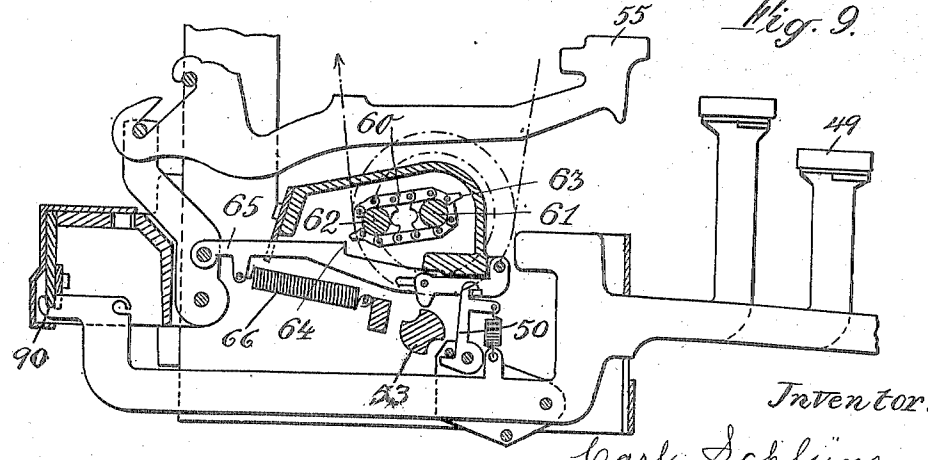


Fig. 9.



Inventor:

Carl Schlüns,

By Knight Bros.

Attorneys.

C. SCHLÜNS.

TYPEWRITING MACHINE.

APPLICATION FILED NOV. 9, 1915. RENEWED NOV. 26, 1919.

1,345,510.

Patented July 6, 1920.

4 SHEETS—SHEET 4.

Fig. 10.

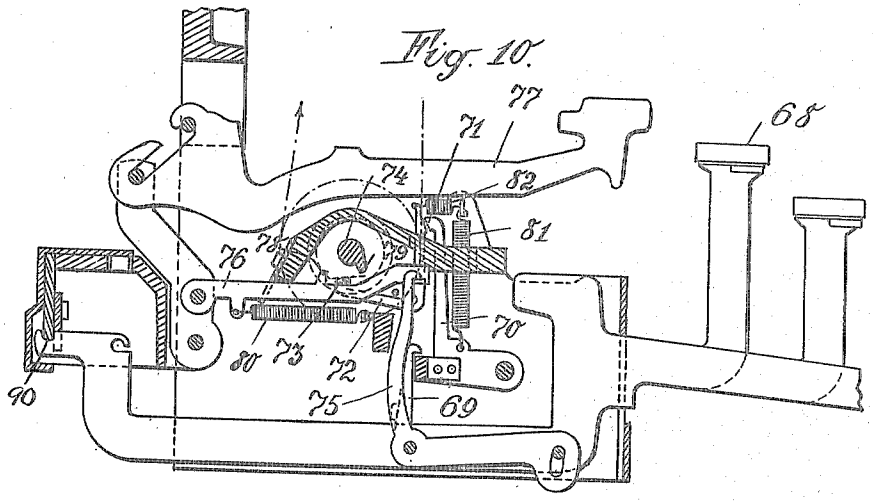


Fig. 11.

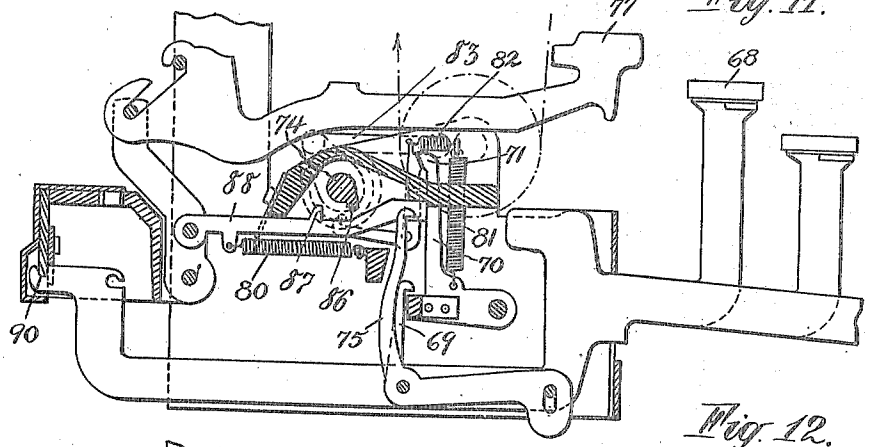
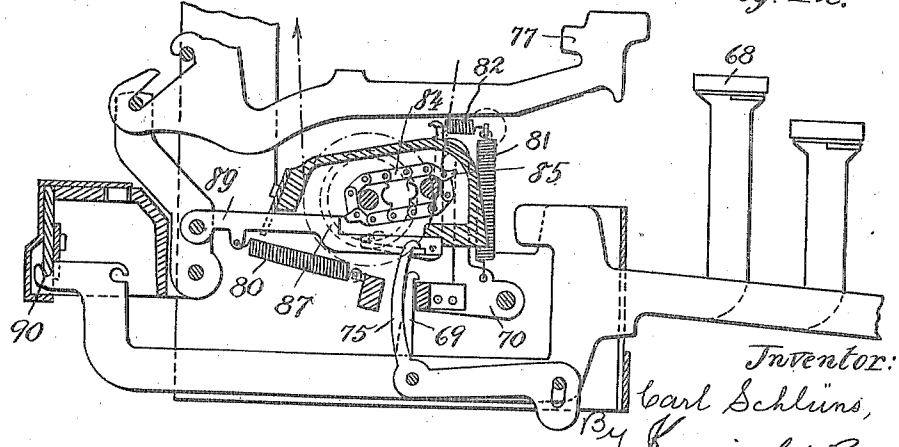


Fig. 12.



Inventor:
Carl Schlüns,
By Knight Bros
Attorneys

UNITED STATES PATENT OFFICE.

CARL SCHLÜNS, OF MEHLIS, IN THURINGIA, GERMANY.

TYPEWRITING-MACHINE.

1,345,510. Specification of Letters Patent. Patented July 6, 1920.

Application filed November 9, 1915, Serial No. 60,584. Renewed November 26, 1919. Serial No. 340,303.

To all whom it may concern:

Be it known that I, CARL SCHLÜNS, a subject of the German Emperor, and residing at Mehlis, in Thuringia, Germany, have invented certain new and useful Improvements in Typewriting-Machines, of which the following is a specification.

The present invention consists in improvements in typewriting-machines in which a motor or the like is employed for actuating the type-bars and especially that kind of machines in which the mechanically driven means consists in a continuously rotating shaft as described in my application Serial No. 60,157 filed November 6th, 1915, wherein the printing action is immediately effected by the rotating shaft.

The improvements forming the subject-matter of the present invention consist in the mechanical drive not necessarily being effected by a rotating shaft and the means serving for said mechanical drive must not be in continuous rotation but may be periodically moved. Finally provisions are made through which the type-levers may also be actuated immediately, as described in the afore-cited application, whereby the mechanical means effect the return-movement of the type-levers from the platen. In the latter case the mechanical drive may have a rotating, an oscillating or a straight-line movement and may be continuously or periodically moved.

A further improvement consists in an interlocking device, which serves to make the writing with the present machine accurate, as by the quickness of the play of the keys it may easily occur that a wrong key may be touched which must be avoided.

The present invention is schematically represented in the annexed drawings, wherein:

Figure 1 represents an arrangement according to my application Serial No. 60157 mentioned above with the difference that the rotating shaft is provided with two noses;

Fig. 2 shows the oscillating drive of the machine;

Fig. 3 the straight-line drive;

In the said Figs. 1, 2 and 3 the movement of the mechanical drive is continuous.

Figs. 4 and 6 represent the periodical rotation of the mechanical means namely:

Fig. 4 with a rotating shaft,

Fig. 5 with an oscillating shaft and

Fig. 6 with a straight-line movement;

Figs. 7 to 12 represent the arrangement with a reversed movement,

Figs. 7 to 9 with a continuously moved mechanical drive,

Figs. 10 to 12 with a periodically moved mechanical drive:

Figs. 7 and 10 show the arrangement with a rotation movement,

Figs. 8 and 11 the same with an oscillating movement,

Figs. 9 and 12 the same with a straight-line movement.

In actuating the key-lever 1 fulcrumed at 90 (Figs. 1 and 2) the spring 2 pulls the link 3 downwardly, this link being journaled on a carrier 91, which is revolubly mounted on a stud 92 on the key 1. Simultaneously the nose 4 of said link 3 draws the rod 5 into reach of the rotating shaft 6. This shaft is provided with part 7 in Fig. 2 which strikes against a nose 8 of said rod 5 and throws the same in forward direction, whereby the type-lever 9 actuated by connecting lever 94 is moved against the printing platen. In Fig. 1 the rotating shaft 6 has two projections 93 acting in a similar manner to part 7 in Fig. 2.

In the meantime the nose 4 has released the nose 10, so that the spring 11 is able firstly to draw the type-lever 9 back into its position of rest and secondly to draw the rod 5 upward. Hereby the nose 10 comes into engagement with nose 4 of the rod 5. The shaft 6 in Fig. 2 receives a continuous oscillating movement from the connecting rod 12.

In Fig. 3 the working is the same as in Fig. 2, the only difference consisting in the mechanical drive being effected by an endless chain, 13, which is provided with noses 14 which strike against the nose 15 of the rod 16 and throw the same in forward direction. The endless chain 13 runs over the two rollers 17, 18 which are provided with the noses 19 engaging the gaps in the endless chain in order to move the same.

Figs. 4 to 6 show the periodical drive.

The depression of key 20 (Fig. 4) pulls the nose 21 of the rod 22 and simultaneously the finger 23 downward whereby the toe 24 of the latter swings the elbow 25 on its journal 26 so that the dog 27 gets out

of engagement with the shaft 28, whereafter the latter moves freely. Simultaneously the lever 33 has made a downward movement with the part 34, whereby the nose 35 pulls the rod 31 downwardly, so that the nose 30 drops down into the path of the part 29 which thereupon throws the rod 31 in forward direction, the latter throwing the type lever 32 against the platen. After the completion of the printing action the springs 36, 37 and 38 draw the respective parts back into their position of rest.

In the arrangement represented in Fig. 5 the drive is effected by a connecting rod 39. After releasing the nose 40 the part 41 as before throws the rod 42 in forward-direction and with it the type-lever 32 against the platen.

As soon as the clutch 43 (see Fig. 6) has released the drive 44, through the depression of key 20, the endless chain 46 provided with the noses 45 moves on and throws the type-lever against the platen as soon as the nose 47 of the rod 48 comes into the reach of one of the noses 45.

The Figs. 7 to 12 show the reversed arrangement of Figs. 1 to 6.

The Figs. 7 and 9 show the arrangement with the continuously moved drive and the Figs. 10 to 12 with the periodically moved drive.

In actuating the key-lever 49 again fulcrumed at 90, (Fig. 7) the rod 50 and with it the rod 51 is pulled downward. This becomes possible as soon as the nose 52 engages the respective gap of the shaft 53. Hereby the spring 54 comes into action and throws the type-lever 55 against the platen.

As soon as the nose 56 has come into reach of the part 57 of the continuously rotating shaft 58 the rod 51 is thrown backward and the type-lever 55 returns in its position of rest.

Fig. 8, otherwise similar to Fig. 7, represents the oscillating movement effected by a connecting rod 59 from a motor 95.

In Fig. 9 the endless chain 60 rolls over the rollers 61, 62 and the noses 63 strike against and push the projection 64 of the rod 65 back whereby the type-lever 55 returns in its position of rest.

Otherwise the construction is similar to that shown in Figs. 7 and 8, shaft 53, however, is here provided with two notches.

The Figs. 10 to 12 represent the arrangement with a periodically operating drive. In actuating the key-lever 68 (Fig. 10) the rod 69 and with it the rod 70 is pulled downward. Hereby the end 71 strikes against one of the arms of the two-armed lever 72, whereby the finger 73 comes out of engagement with the shaft 74 and the latter is rotated. In actuating the key-lever 68 the rod 75 and with it the rod 76 is simultaneously drawn downward. Hereby the printing action of the type-lever 77 against the platen is effected.

Meanwhile the nose 78 has come into the reach of the projecting part 79 on the shaft 74, whereby the latter pushes the nose 78 and the rod 76 back, so that the type-lever returns in its position of rest. Springs 80, 81 and 82 withdraw the respective parts after their printing action in their position of rest.

In Figs. 11 and 12 the working is exactly the same, only the drive is in Fig. 11 effected by the connecting rod 83 and in Fig. 12 by the endless chain 84 provided with noses 85.

In Fig. 11 the part 86 pushes against the nose 87 of the rod 88, whereby the type-lever 77 returns in its position of rest. The same effect is in Fig. 12 obtained by the nose 85 pushing against the nose 87 of the rod 89.

I claim:

1. In a typewriting machine having a type bar, a key-lever and a prime mover; an intermediary member positively connected with said type bar, operating means connected with said prime mover for moving said intermediary member in one longitudinal direction and other means for moving said member in the opposite longitudinal direction, positioning means actuated by the key-lever for placing the intermediary member in position for engagement with said operating means, said positioning means immediately releasing said member upon the latter moving in longitudinal direction, said positioning means being held yieldingly in operative position.

2. In a typewriting machine having a type bar, a key-lever and a prime mover; an intermediary member positively connected with said type bar, operating means connected with said prime mover for moving said intermediary member in one longitudinal direction and a spring for moving said member in the opposite longitudinal direction, positioning means actuated by the key-lever for placing the intermediary member in position for engagement with said operating means, said positioning means having resilient connection with said key-lever, whereby said intermediary member will be moved gradually when said key is pressed without being moved in either of its longitudinal directions, said positioning means immediately releasing said member upon the latter moving in longitudinal direction.

3. In a typewriting machine having a type bar, a key-lever and a continuous drive; an intermediary member positively connected with said type bar, operating means connected with said drive for moving said intermediary member in one longitudinal direction and a spring for moving said member in the opposite longitudinal direction,

positioning means actuated by the key-lever for placing the intermediary member in position for engagement with said operating means, said positioning means having resilient connection with said key-lever, whereby said intermediary member will be moved into the path of said operating means when said key is pressed, said drive being connected to said operating means in such a manner that the operating means will be in position to drive said intermediary member at certain intervals.

4. In a typewriting machine having a type bar, a key-lever and a prime mover; an intermediary member positively connected with said type bar, operating means connected with said prime mover for moving said intermediary member in one longitudinal direction and a spring for moving said member in the opposite longitudinal direction, positioning means actuated by the key-lever for placing the intermediary member in position for engagement with said operating means, said positioning means being so constructed that said intermediary member will be gradually positioned without being moved in either of its longitudinal directions, said prime mover having a continuously revolving shaft and connection between said revolving shaft and said operating means, whereby the operating means will be in position to drive said intermediary member at certain intervals.

5. In a typewriting machine having a type bar; a key-lever and a prime mover; an intermediary member positively connected with said type bar, operating means connected with said prime mover for moving said intermediary member in one longitudinal direction and a spring for moving said member in the opposite longitudinal direction, positioning means actuated by the key-lever for placing the intermediary member in position for engagement with said operating means, said positioning means being so constructed that said intermediary member will be gradually positioned without being moved in either of its longitudinal directions, said prime mover having a continuously revolving shaft and connection between said revolving shaft and said operating means, whereby the operating means will be in position to drive said intermediary member at certain intervals, said connection comprising an endless chain and the operating means constructed as projecting fingers on the chain.

6. In a typewriting machine having a type bar; a key-lever and a prime mover; an intermediary member positively connected with said type bar, operating means connected with said prime mover for moving said intermediary member in one longitudinal direction and a spring for moving said member in the opposite longitudinal direction, positioning means actuated by the key-lever for placing the intermediary member in position for engagement with said operating means, said positioning means having resilient connection with said key-lever, whereby said intermediary member will be moved gradually when said key is pressed without being moved in either of its longitudinal directions, said prime mover having a continuously revolving shaft and connection between said revolving shaft and said operating means whereby the operating means will be in position to drive said intermediary member at certain intervals.

7. In a typewriting machine having a type bar; a key-lever and a prime mover; an intermediary member positively connected with said type bar, operating means connected with said prime mover for moving said intermediary member in one longitudinal direction and a spring for moving said member in the opposite longitudinal direction, positioning means actuated by the key-lever for placing the intermediary member in position for engagement with said operating means, said positioning means having resilient connection with said key-lever, whereby said intermediary member will be moved gradually when said key is pressed without being moved in either of its longitudinal directions, said prime mover having a continuously revolving shaft and connection between said revolving shaft and said operating means, whereby the operating means will be in position to drive said intermediary member at certain intervals, said connection comprising an endless chain and the operating means constructed as projecting fingers on the chain.

In testimony whereof I affix my signature in presence of two witnesses.

CARL SCHLÜNS.

Witnesses:
ANDERS BROEUER,
E. KANDT.