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E. ASCOLI  
DEVICE FOR ACTUATING RIDERS OF  
TABULATORS FOR TYPEWRITERS

2,581,227

2 SHEETS—SHEET 1

Fig. 2

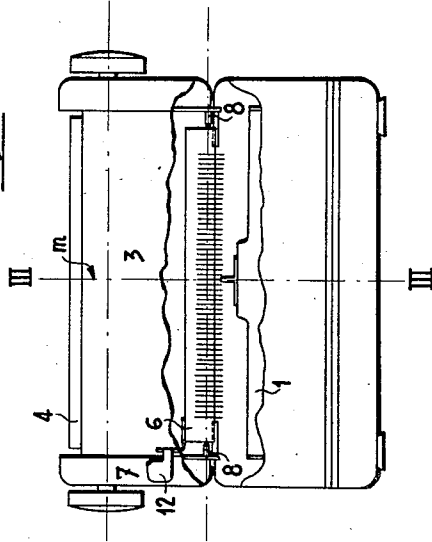
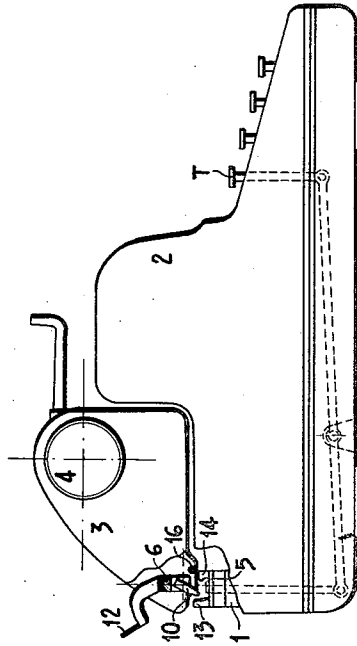


Fig. 1



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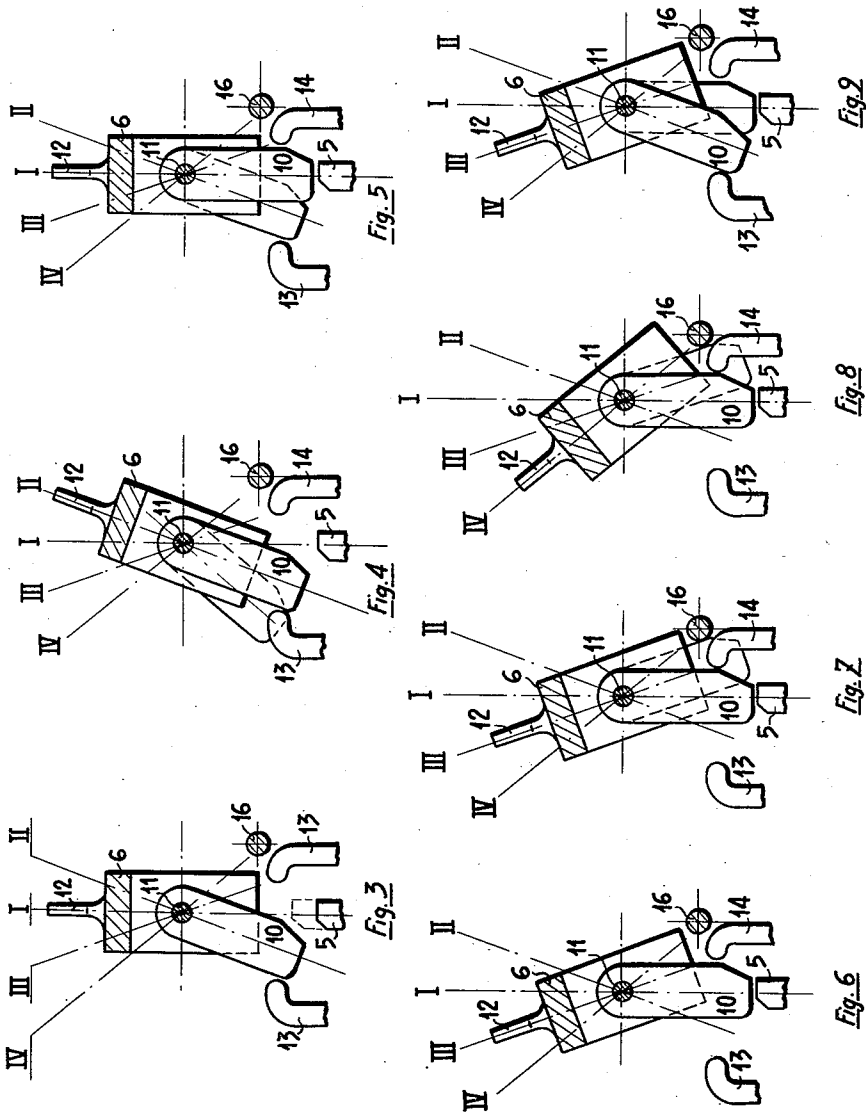
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# UNITED STATES PATENT OFFICE

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## DEVICE FOR ACTUATING RIDERS OF TABULATORS FOR TYPEWRITERS

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2 Claims. (Cl. 197—179)

1

Known tabulating devices are generally provided with a rail support for riders carried by the carriage, and a movable stop mounted on the framework of the machine and connected to an operating key enabling it to be placed in its position of service, that is to say for bringing it into a position located in the path of riders located in a position of service. A mechanical device also enables desired riders to be placed into the position of service and the withdrawal thereof. Generally the operating key of the movable stop produces not only the placing in the position of service of this stop, but also the release of the carriage, so that the latter, actuated by its advancing spring, is moved automatically up to a longitudinal position defined by the stop coming into contact with the first rider placed into the operative position. The release of the operating key produces, under the action of return springs, the return of the movable stop into the inoperative position and the re-establishment of the mechanical connection connecting the carriage to the escapement so that the carriage remains immovable in the said position.

The individual placing in position of the riders, and also their individual withdrawal, are generally obtained by operating an operating member in one direction or the other, or by operating two separate operating members. The operating member or members generally actuate two movable stops (the one for placing in position, the other for withdrawal) located approximately in the vertical plane perpendicular to the axis of the platen and passing through the movable stop of the tabulator. It thus follows that these three stops should be so arranged relatively to the riders that all three are capable of co-operating with one and the same rider.

In order to simplify the construction of these various controls, some manufacturers have provided devices in which the individual withdrawal of the riders is obtained by an angular movement of the rail-support in one direction and the other, the stops for placing in position and withdrawal being stationary.

However, in the two types of devices referred to above, the withdrawal of all the riders located in the position of service, is effected by means of relatively complicated mechanisms which generally consist of a supplementary rail doubling the rail-support of the riders and movable parallel to itself for simultaneously repelling, up to a withdrawn position, all the riders placed in position. Some manufacturers have provided a withdrawing stop provided with two inclined planes which can be brought into the path of the riders and which, co-operating with those placed in the position of service when the carriage is moved from left to right and from right to left, repels them into the withdrawn position.

2

The present invention has for its subject a device for the mechanical placing in position and withdrawal of the riders of a tabulator of typewriters, calculating machines and other machines of this type, which is provided with a support for the riders and with riders oscillating on a common axis and with means producing angular relative movements between the support and the riders and allowing of effecting the placing in individual position of each rider, the individual withdrawal of the riders and the simultaneous withdrawal of all the riders placed in position. This device tends to remedy the disadvantages referred to by the fact that it has a single operating member capable of being brought into four positions, a normal position, a position for placing the riders individually in position, a position for individual withdrawal of the riders and a position for the simultaneous withdrawal of the riders placed in position.

One form of construction of the device is shown diagrammatically and by way of example in the accompanying drawing, wherein:

Figs. 1 and 2 are respectively a side view and a rear view of a typewriter provided with the device, some parts of the machine being omitted so as to enable the device to be seen.

Fig. 3 is a view in section on the line III—III of Fig. 2 and to a larger scale of the elements of the device.

Figs. 4 to 9 illustrate the elements of the device in the various relative positions which they occupy during the various operations of the members of the tabulator.

The typewriter shown in Figs. 1 and 2 is provided with a framework 1 covered with a covering 2 and a carriage 3 provided with a platen 4 sliding along the framework 1. This machine is provided with a tabulator provided with a movable stop 5 mounted on the framework and located in the central plane *m* of the machine. This stop is connected by transmission members to a key T for controlling its position. The tabulator is also provided with a rail-support 6 so mounted between the lateral walls 7 of the carriage as to be capable of being moved angularly. For this purpose the rail is carried by two pointed screws 8. The rail-support is subjected to the action of a spring (not shown) tending to hold it in the angular position shown in Figs. 1 and 3. The rail 6 carries equidistant riders 10 of which the number and pitch correspond with the length of the stroke of the carriage and with the pitch of typing. The riders are mounted on a shaft 11 and are held in one or the other of their positions of withdrawal or of service by a spring (not shown). (See for this purpose for example Swiss Patent No. 254,550.)

The rail-support carries an operating member 12 secured rigidly to one of its ends and enabling

3

the rail to be brought into four different stable positions illustrated in Figs. 3, 4, 6 and 8 of the accompanying drawings.

The position I illustrated by Fig. 3 is the normal or service position. In this Fig. 3, the riders are shown in their withdrawn position, in which they cannot come into contact with the movable stop 5.

The device is also provided with two stationary stops 13 and 14 secured to the framework, one 13 forming a stop for placing the riders 10 in the position of service, while the other 14 constitutes a stop for placing the riders in the withdrawn position. The two stops 13, 14 are located in the plane *m*.

The operation of the device described is as follows:

When all the riders are in the withdrawn position (Fig. 3) and the user desires to place one or another of these riders in the position of service, the carriage is first moved to position the rider opposite the stationary stop 13. The user then actuates the operating member 12 to cause the rail 6 to oscillate in a clockwise direction and to bring it into the position II shown in Fig. 4. During this angular movement of the rail 6, the rider 10 which is opposite the stop 13 is repelled by the latter into its position of service. Thus when the user releases the operating member 12 and the return springs acting on the rail 6 return the latter to its original position (position of service, Fig. 5), the rider actuated by the stop 13 is opposite the movable stop 5. Thus when the latter is actuated by its actuating key and occupies its position of service (position shown in chain dotted lines in Fig. 3) it is in the path of the rider which is the position of service. As the key T produces on the one hand the placing in position of the stop 5 and the interruption of the mechanical connection connecting the escapement to the carriage, it is clear that the carriage advanced by its spring will occupy the longitudinal position defined by the engagement of the rider placed in the position of service with the movable stop 5.

When the user releases the key T, the carriage moves until the rider is in the plane of the stops.

For causing a rider 10 placed in the position of service to be moved into the withdrawn position, it suffices to bring the carriage into such a longitudinal position that the said rider is located opposite the stationary stop 14, then to actuate the operating member 12 in a counter-clockwise direction so as to bring the rail 6 into the position III shown in Fig. 6. During this angular movement of the rail, the rider 10 located opposite the stop 14 is repelled by the latter up to its retracted position. Upon release of the operating member 12, the rail 6, under the action of its return springs, returns to the position shown in Fig. 3 and the retracted rider is out of the range of the movable stop 5.

The device shown in the drawing is also provided with a bar 16 parallel to the rail 6 and so arranged as to be out of the range of the riders 10 for all the angular positions of rail 6 illustrated in Figs. 3 to 7.

On the contrary, when the user actuates the operating member in a movement sufficient for causing the rail to oscillate from the position shown in Fig. 6 and up to the position IV shown in Fig. 6, the bar 16 repels all the riders 10

4

placed in the position of service and returns them to their retracted position. If a rider located in the position of service happens to be located opposite the stop 14, the latter repels it into a position located beyond its retracted position (Fig. 8). This does not cause any inconvenience as when the user releases the actuating member 12 and the rail 6 is returned by its return springs into its normal position of service, the rider coming into contact with the stop 13 (Fig. 9) is repelled by the latter up to its retracted position.

From the foregoing it will be seen that by these very simple and robust mechanisms it is possible by means of a single operating member to effect:

(a) The individual placing in the position of service of each rider.

(b) The individual placing in the retracted position of each rider located in the position of service;

(c) The simultaneous placing into the retracted position of all the riders located in the position of service.

I claim:

1. In a typewriter, calculating or like machine, a tabulating mechanism comprising a frame, a carriage slidable on the frame, a key controlled movable stop mounted on the frame, a rail support rockably mounted on the carriage and urged to a first angular position and carrying an operating member for rocking movements from said first position, a plurality of riders carried by the rail support and movable therewith during angular motions thereof and capable of angular motions relative thereto, means rigid with the frame and engageable by a selected rider during angular movement of the support in one direction from its first position to a second position, and by engaging the selected rider moving same relative to the support to a service position aligned with the stop upon return of the support to its first position, other means rigid with the frame and engageable by a selected rider and during angular motion of the support in the opposite direction from its first position to a third position moving the rider relative to the support to a position clearing the stop upon return of the support to its first position, and a third means rigid with the frame and engageable by all the riders during angular motion of the support from its first position to a fourth position exceeding the motion thereof causing engagement of the selected rider with the other means, said motion of the support to its fourth position moving all the riders to a position clearing the stop upon return of the support to its first position.

2. The mechanism according to claim 1 and wherein the third means is a bar parallel to the support.

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