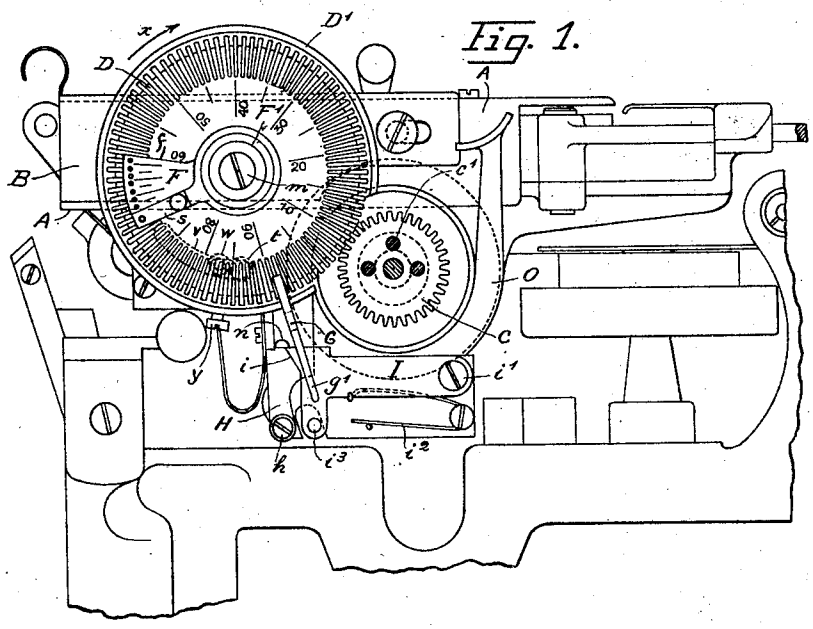
Sept. 18, 1928. 1,684,702

R. HEIMERS

LOCKING DEVICE FOR TYPEWRITERS

Filed April 23, 1926 2 Sheets-Sheet 1

Fig. 1.



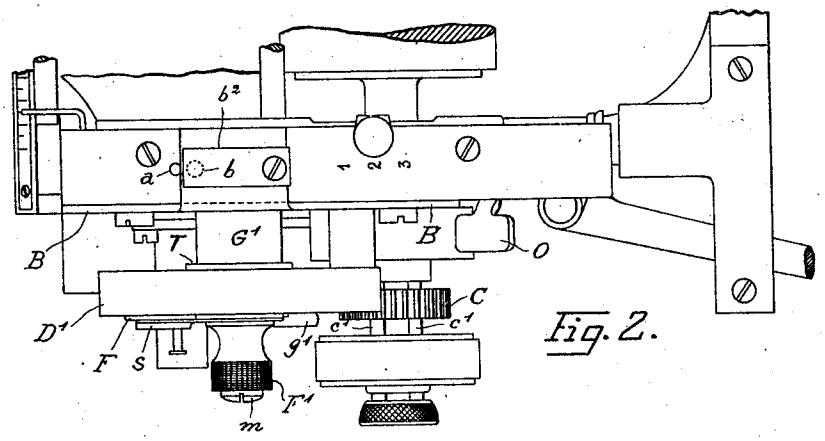


Fig. 2.

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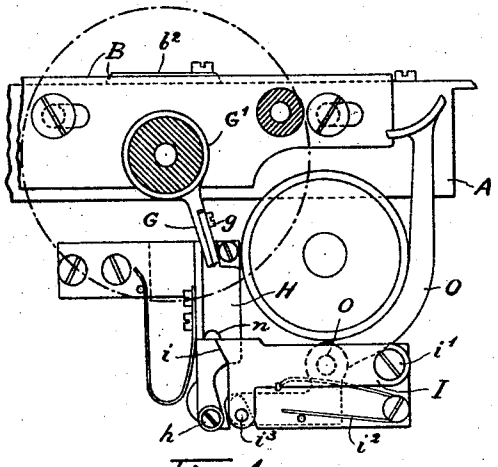


Fig. 4.

Fig. 3.

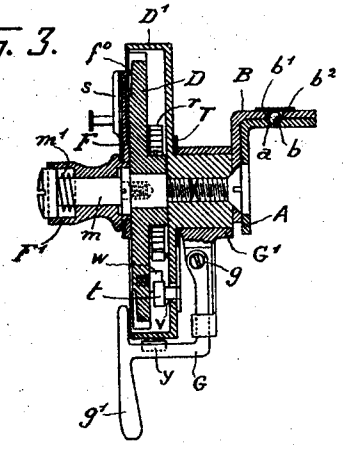
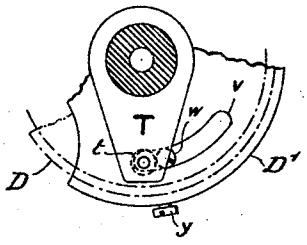


Fig. 5.



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UNITED STATES PATENT OFFICE.

RUDOLF HEIMERS, OF TACUBAYA, MEXICO.

LOCKING DEVICE FOR TYPEWRITERS.

Application filed April 23, 1926, Serial No. 104,207, and in Switzerland April 24, 1925.

The invention relates to a device adaptable to all kinds of typewriters for indicating when a determined number of lines have been written on a sheet of paper, and for automatically locking the movement of the carriage of the typewriter as soon as this number of lines has been reached.

It is an object of the present invention to provide a device which effectively prevents the operator of the typewriter from writing more than a predetermined number of lines on one sheet of paper, in order that a uniform margin on the lower edge of all the sheets may be obtained.

It is another object of this invention to provide a device which announces to the operator automatically and by the sense of touch when a certain number of typewritten lines have been finished, thereby eliminating the necessity of having to watch the advance of the sheet, and this certainty of being palpably informed when the last line has been reached, permits a greater concentration on the work and results in an increase in the speed and accuracy of the writing.

The device which forms the object of the present invention, substantially consists in a count wheel, connected with and operated by the line spacing mechanism of the typewriter, and in an adjustable stop on said count wheel, which cooperates with a release lever on the carriage rack in such a way that after a certain number of lines have been written, according to the adjustment of the stop on the count wheel, the release lever is displaced by said stop and by its movement interrupts the compulsory connection in the carriage rack, so that the carriage is pulled to the left by its spring and locked in this position. Through this release of the carriage, united generally with a further automatic locking of the key board, the operator is palpably informed that the prescribed number of lines has been written.

The invention will be readily understood from the accompanying drawings taken in connection with the following description and the terms of the appended claims.

In the drawings:

Fig. 1 is a side elevation of part of a typewriter provided with the indicating and locking device.

Fig. 2 is a plan view thereof.

Fig. 3 is a sectional view of the count wheel.

Fig. 4 is a detailed view of the carriage release mechanism.

Fig. 5 is a detailed view of the adjusting mechanism of the count wheel.

Having reference to the drawings, there is shown part of a typewriter of the Underwood system, the left side of which carries a supporting member A, on which a slide B may be moved backward and forward within certain limits. In its two terminal positions said slide B is detained by a ball b resting in an opening b^1 and pressed down by a flat spring b^2 (Figures 2 and 3), and which enters into either one of the recesses or holes a of the supporting member A.

The slide B carries a count wheel D contained within a round casing D^1 and provided on its front side with a number of teeth which extend beyond its periphery. In one of the terminal positions of the slide B, the peripherical portions of these teeth engage a drive wheel C, placed on the axle of the roller of the carriage and prevented from turning on said axle by the pins c^1, and which drive wheel is moved step by step by the line spacing mechanism of the machine, together with the roller. In the opposite terminal position of slide B, this wheel C is disengaged from the count wheel D.

On the front side of count wheel D and over its front teeth there is made to glide an adjustable stop F which may be detained in any position along the divisions marked on said count wheel; these divisions correspond with the number of lines which can be written on one sheet of paper. In Figure 1, for instance, the stop F is placed with its effective edge f on division 60 of the dial, which means that after 60 lines have been written on the sheet, this fact will be made known to the operator by palpable means as will be more fully explained hereinafter.

The adjustment of the stop F along the dial of the count wheel D is effected by means of a knob F^1 connected therewith, which knob together with the stop F, revolves on a fixed axle m, on which is also loosely placed the count wheel D. The positive engagement between the stop F and the count wheel D is secured by a number of inner teeth f^0 provided on said stop, and a spiral spring m^1 which pushes said teeth against and between the opposite front teeth of the count wheel.

The stop F has for its object to cooperate with a release lever H by means of an intermediate stop G. This intermediate stop is pivoted in "g" on a casing G^1 made to revolve on slide B, and is provided with a finger g^1

which serves at the same time as a handle. The stop G places itself with its finger g^1 against the release lever H, pivoted in "h" on the side of the typewriter and actuated by a spring, which lever H further engages by means of a tooth n the nose i of a lever I pivoted at i^1. This lever I is actuated by a spring i^2 and connected by means of a pin i^3 with the carriage feed rack, which as known engages a pinion which together with the carriage spring and feed mechanism lets the carriage escape step by step to the left. The carriage rack and feed mechanism located beneath are not shown in the drawings, as they are well known. It suffices to remark that this rack may generally be raised for disengaging it from its pinion.

The device as described above works as follows:

With each spacing of a line, the count wheel D is revolved by means of the drive wheel C in the direction of the arrow x (Fig. 1) for one, two or three teeth, according to the line space adjuster. When the sheet is covered with the desired number of lines, in the present case with 60 lines as determined by the position of the stop F, on operating the usual feed lever for advancing another line the stop F with its edge f comes into contact with the intermediate stop G and pushes it back, so that the release lever H is rotated to the left with its tooth n by the intermediate stop G (Fig. 1), by which means the lever H is released with its nose i and rises through the action of its spring i^2, disengaging the vertically movable carriage rack from its feed mechanism with which it is usually engaged. By this means the carriage which had been pushed to the right for starting the new line, is pulled back to the left by its spring, and this is brought immediately to the attention of the operator not only by the sense of touch while he retires slowly to the left the hand which had moved the carriage, but also by the very evident rush of the carriage to the left and by the combined simultaneous locking of the key board. By this the operator knows that he has written the prescribed number of lines on the sheet.

When it is desired to start a new sheet, the usual finger lever O, pivoted on the left side of the machine, is pushed up. As this lever is connected with the pin i^3, this latter is pushed down so as to engage again the carriage rack with its pinion, and so that the lever I and the tooth n of the spring operated release lever H can grip the nose i of the lever I for detaining it in the position of engagement between rack and pinion. It may be preferable to keep the left hand free, and in this case the right hand finger lever of the machine may be operated similarly, as both levers are connected together. It may be remarked that both of these levers permit as before the manual separation of the rack and the pinion. At the same time, the slide B is pushed back by hand into its rear terminal position, so as to disengage the count wheel D from the drive wheel C, and to let the count wheel D, together with its stop F, return by means of a spiral spring r into its primary position. The device is now ready for writing another sixty lines on a new sheet of paper.

It may be desirable sometimes to add a few lines after having written the sixty lines or any other number of lines determined by the adjustment of the stop F, and in this case the termination of the number of additional lines written must again be brought to the attention of the operator. To obtain this, and when the stop F has accomplished its signalling function after the writing of the first 60 lines, the intermediate stop G is pulled outward by its finger g^1 around its fulcrum pin g, so that the plate-shaped stop F may slide under the intermediate stop G until it reaches a point where an elevated strip s provided on stop F touches the intermediate stop G, and instead of the former stopping edge f, produces the release of the lever H, with the result that the connection between the rack and the pinion in the carriage is again broken. The position of the strip s corresponds with the number of additional lines to be written, and may be adjusted by means of a pin which enters into holes on the face of the stop F.

The initial position of the count wheel D is determined by a catch screw w provided on it, which places itself against a stop screw t of a lever T (Fig. 3). This lever may be adjusted on the casing D^1 by means of a slot v provided in said casing (Figures 1 and 5), through which slot passes the screw t. This adjustment will only have to be made when the whole number of lines permitted by the count wheel is to be utilized, with the stop F placed vertically downward, as in this case and while the count wheel rotates in the direction of the arrow x, the screw w of the count wheel will finally touch the lever T, which on yielding permits the count wheel to make a complete revolution.

The termination of the prescribed number of lines, with or without additional lines, is at the same time visible by the respective position of the intermediate stop G on the dial of the count wheel. If the stop F should inadvertently be moved beyond the second warning position, it carries with it the intermediate stop G, pushing back the lever H, and brings it to a point where it touches a lock screw y mounted adjustably on the casing D^1. This produces necessarily a backward movement of the slide B so as to disengage the count wheel D from the drive wheel C. Even without this screw there would be a certain obstruction in the drive wheel C which would indicate that the stop F had been turned too far. Obviously the count

wheel D may also serve to ascertain the disposable number of lines on any sheet, by simply inserting the sheet into the machine and turning the roller until the whole sheet has passed through it. The count wheel D, revolving with it, indicates in combination with the intermediate stop G the disposable number of lines already passed on the sheet.

While the present device has been shown and described as applied to an Underwood machine, it may obviously be used with any other make of typewriter, making the alterations and changes therein which may be required to adapt it to the different construction and disposition of the parts which it is to operate.

What I claim is:

1. A locking device for typewriters, comprising a graduated counter connected with and revolved by the line spacing mechanism, means for disengaging said counter from the line spacing mechanism, a concentric adjustable stop on said counter for determining the number of lines to be written, means for disengaging through said stop the carriage rack from its pinion, and means for returning said counter to its primary position with each new sheet.

2. A locking device of the class described, comprising a graduated counter in form of a wheel with front and peripherical teeth, a casing enclosing said count wheel mounted on a sliding member provided at one side of the typewriter, means for detaining said sliding member in two different positions, a gear wheel mounted on the axle of the roller for engaging the count wheel in one position of the sliding member, a movable stop for adjusting on said count wheel the number of lines to be written, and means for disengaging through said stop the carriage rack from its pinion.

3. A locking device of the class described, comprising a graduated wheel with front and peripherical teeth, means for transferring to said wheel the rotations of the roller effected by the line spacing mechanism, a flat stop concentrically mounted with the count wheel for adjusting the number of lines to be written, an intermediate stop operated by contact with the adjustable count wheel stop, and a release lever operated by said intermediate stop for throwing the carriage rack out of gear with its pinion.

In testimony whereof I affix my signature

RUDOLF HEIMERS.