

No. 632,718.

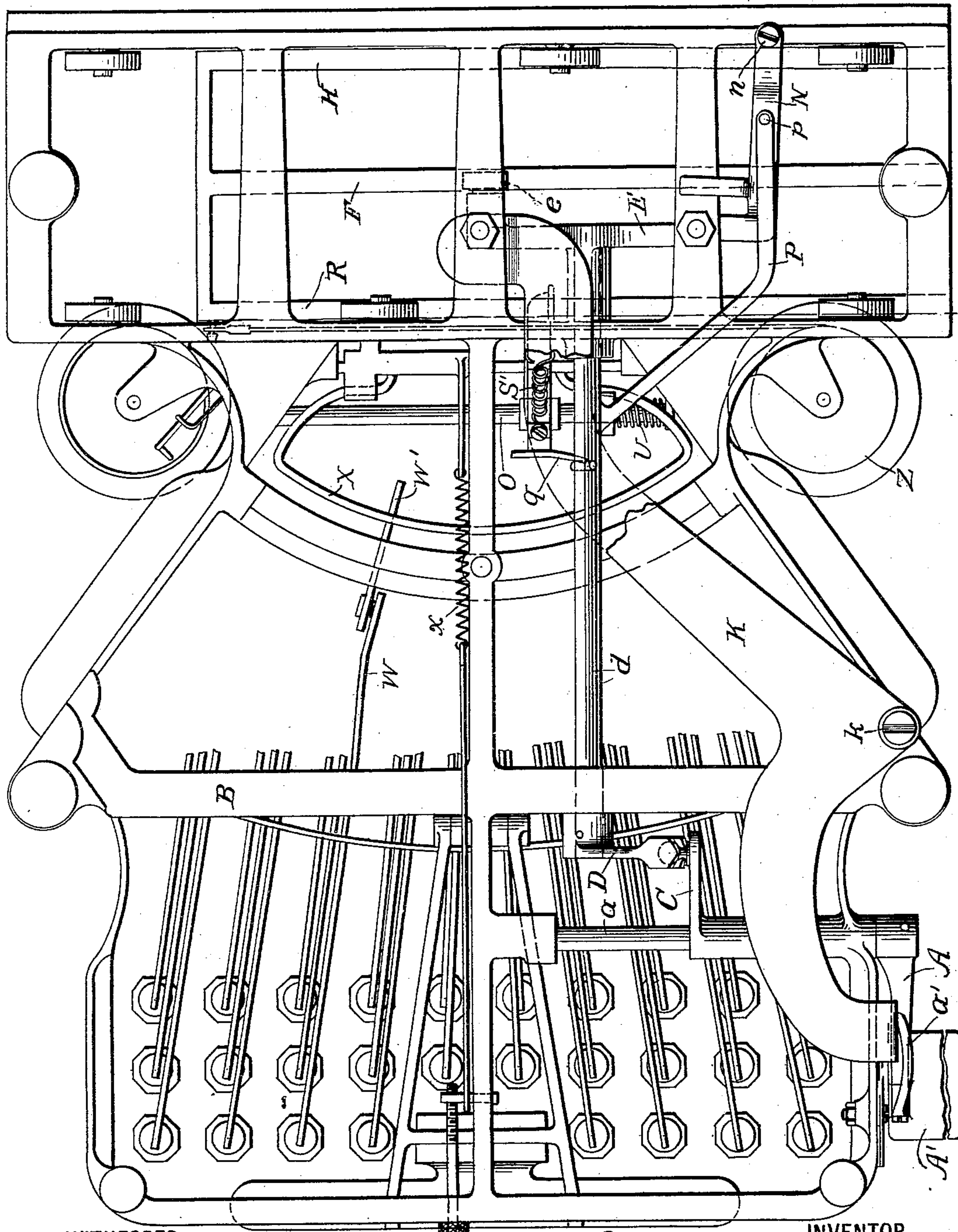
Patented Sept. 12, 1899.

W. H. HULSE.
TYPE WRITING MACHINE.

(Application filed May 21, 1898.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

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Fig. 1.

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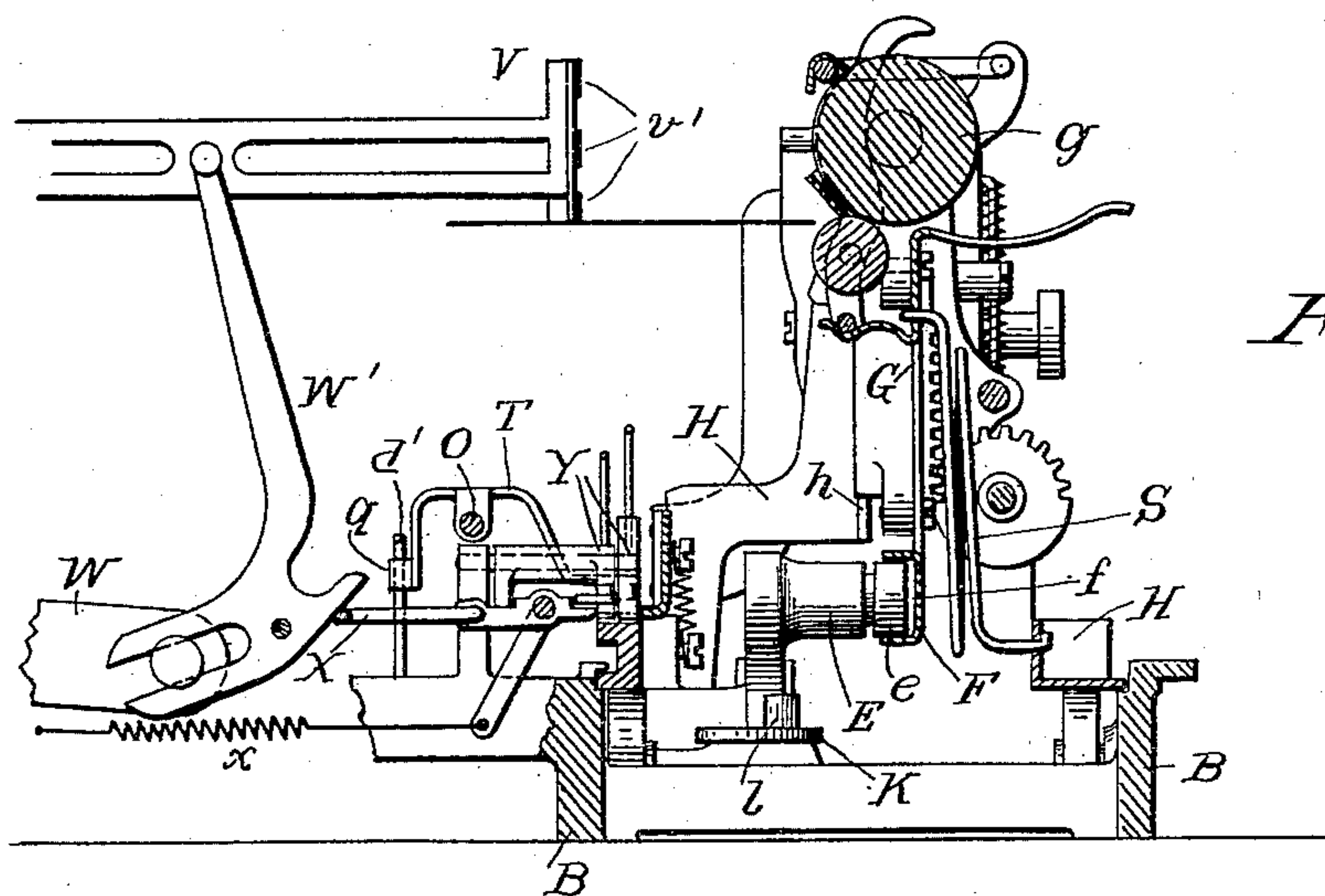
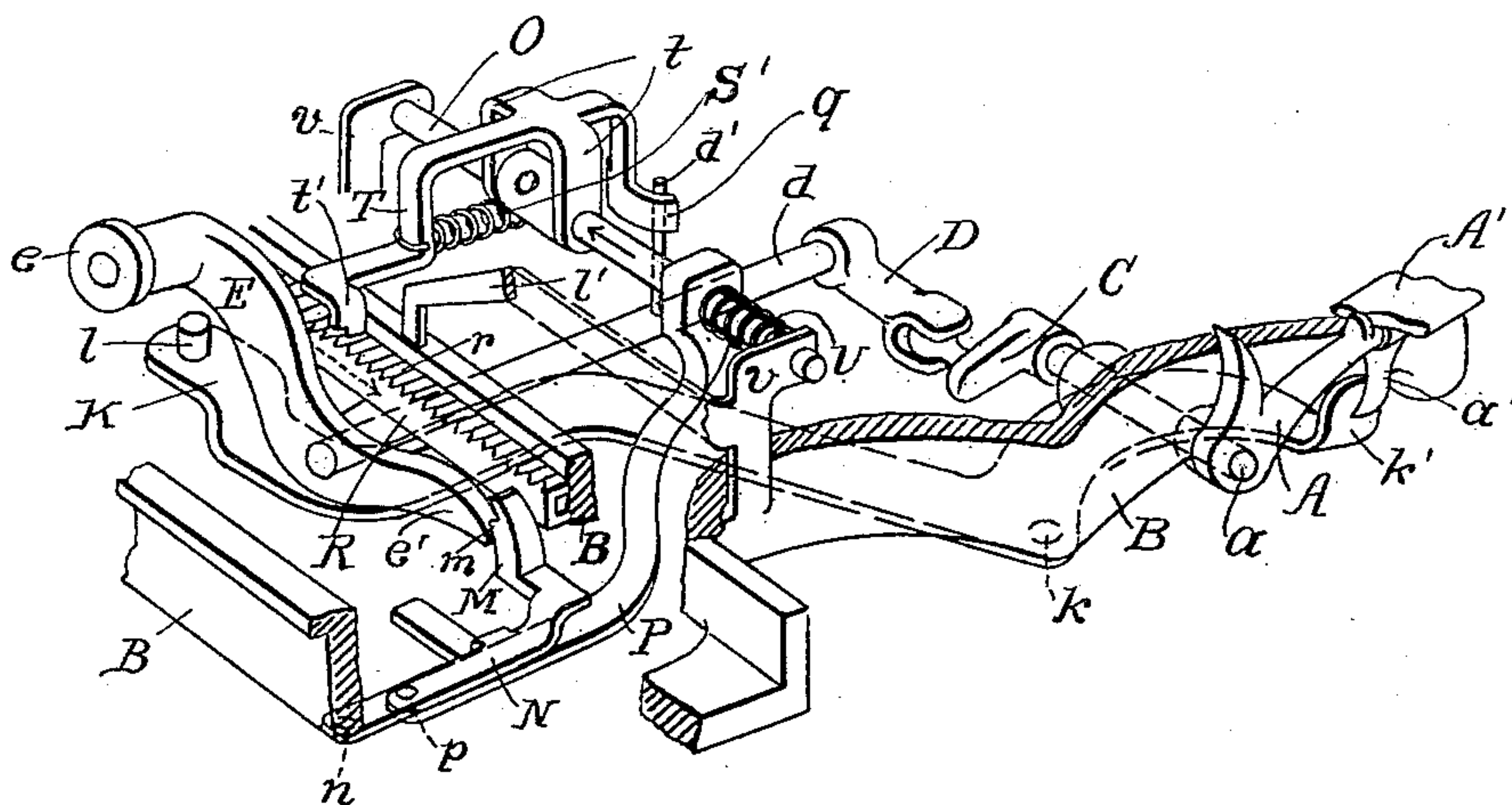


Fig. 2.

Fig. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM H. HULSE, OF PLATTSBURG, NEW YORK.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 632,718, dated September 12, 1899.

Application filed May 21, 1898. Serial No. 681,275. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. HULSE, a citizen of the United States, residing at Plattsburg, county of Clinton, State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to an automatic restoring device for shift-key type-writers, its object being to automatically restore the mechanism to position for printing normal or small-letter type on or directly after completion of the act of striking or printing a cap or other special type when the platen has been shifted to bring such special type into operation. This release, resetting, or restoration to normal position may be effected by any means acting subsequently to and in consequence of the operation of any of the type or space keys which act on or through the universal mechanism, and it is therefore preferably effected by the operation of the part comprising in or operated by such universal mechanism, such operating part being, for example, the rack-bar of the carriage. The advantage of having the restoration effected by the operation of the carriage rather than by the operation of the universal lever directly is that the operation of the carriage does not take place until the universal mechanism is on its return movement, so that the movement of the carriage takes place after the impression is effected. If the movement of the universal lever itself were relied on to cause the release of the shifting mechanism and the restoration of the carriage to normal position, then the carriage would be liable to start on its restoration movement before the printing is effected, thus causing a blur in the impression. This is clear from the fact that the printing is effected at the end of the stroke of the universal mechanism, so that if the carriage is to be released by such stroke its release will be necessarily slightly in advance of the moment of impression.

My invention is applicable to any shift-key type-writer, the form of machine to which it is herein shown applied being that shown in patent to Kidder, No. 564,699, dated January 28, 1896.

In the accompanying drawings, Figure 1 is an under side view of the frame of such a shift-

key type-writing machine, showing my invention applied thereto. Fig. 2 is a vertical section through the portion of the machine adjacent to the carriage. Fig. 3 is a perspective view of the shifting and restoring devices.

The machine here illustrated in connection with my invention is provided with a vertically-shiftable platen-frame G, supported in suitable vertical guides *h* on the reciprocating carriage H, and shifting mechanism is provided whereby said platen-frame may be shifted vertically, so as to bring different type into operation. The type-keys are indicated at W, engaging with levers W', each of which actuates a type-block V, carrying a plurality of type *v'*, adapted, respectively, to cooperate with the platen *g* in the several different positions thereof.

A is the shift-key lever, pivoted in the machine-frame B and having the shift-key A' pivoted thereon. The shaft *a*, to which lever A is fastened, also carries an arm C, engaging with an arm D on shaft *d*, extending rearwardly into proximity with the carriage. At its rear end this shaft *d* carries a lever E, in one end of which is journaled a roller *e*, engaging in a groove *f* in a rail or bar F on the platen-frame G. Thus as the lever A is depressed it causes the roller *e* to also move downwardly and correspondingly depress the carriage. A spring S tends to restore the platen-frame to its normal or raised position. The form of type-writer here chosen for illustration of my invention is provided with means for causing the carriage in its downward movement to be stopped in one or the other of two different positions, according to the manner in which the shift-key A is struck. Such means consist of a stop-lever K, pivoted to the bottom of the frame of the machine at *k* and having a projection *k'*, extending up alongside of a toe *a'*, depending from pivoted key A'. The other end of lever K carries a stop-pin *l*, which normally lies under the end of lever E, so that when the key A' is struck on the inner portion and depresses lever A without any rotation of said key A' on its pivot the motion of lever E will be arrested by the stop *l*, and the distance to which the carriage will be depressed will be correspondingly limited. If, however, the outer side of shift-key A' be struck, the said key will turn

on its pivot as well as descend, and lever K will be thus turned by toe a' , so as to bring stop l out from under lever E, and the carriage will therefore be depressed to a greater extent.

The above-described shifting mechanism forms part of the machine disclosed in the patent above referred to and is here explained only for the purpose of elucidating the application of my invention thereto, it being necessary to bear in mind, however, that my invention is in no wise limited in its application to this or to any particular type of shift-key machine, but is applicable to any machine wherein the platen and type mechanism are given a relative shifting movement by a shift of the platen or of the type mechanism, or both, to bring into operation two or more different sets of type. In applying my invention to the machine above described I prefer to lock the shifting lever E in either of its two shifted or abnormal positions by means of a catch or dog M, having a notch m , which engages with the tail e' of lever E when said lever is stopped in its intermediate position, and the end of said dog engaging said tail of lever E when said lever is further shifted to completely depress the carriage. This dog M is carried by a lever N, pivoted to the machine-frame at n , and a slide-bar O, sliding in suitable supports in the frame, carries an arm P, engaging by a pivotal connection p with the lever N, a spring U being provided that urges said slide-bar O in the direction of the arrow in Fig. 3, and thus tends to hold the dog M toward lever E, said spring yielding, however, so as to permit the tail e' of lever E to slip past the dog in rising, while the other end of said lever, carrying roller e , is being depressed. The slide-bar O slides in supports v , attached to the machine-frame, but is kept from turning by reason of its connection with lever N. To actuate this locking device, so as to release the carriage and allow it to rise again to its normal position under the influence of its spring S, I have here provided a lever T, supported on slide-bar O, so as to be capable of turning but not of sliding thereon, a collar o , fixed on the slide-bar, engaging between the two legs t of lever T. A spring S' is connected with lever T and collar o , so as to draw the outer end t' of said lever down into engagement with the rack r on rack-bar R, which is attached to and forms, as usual, an operative part of the platen-carriage. The usual carriage-spring or spring-barrel Z serves to draw the carriage in the direction of the dotted arrow when it is released under the action of the usual ratchet mechanism, (indicated at Y.) This ratchet mechanism is actuated in the usual manner by the universal lever X, which extends under all of the intermediate key-levers W' of the machine and is provided with a restoring-spring x . An arm d' extends up from shaft d into engagement with a tail-piece q on lever T, this tailpiece projecting

forwardly at one side, so that when the shift-key A and shaft d are in normal position the arm d' , engaging with tailpiece q , holds the other end t' of lever T out of engagement with the rack-bar r . Depression of shift-key lever either to its intermediate or its fully-depressed position causes the arm d' to turn away from the forwardly-extending portion of tailpiece q , so as to allow lever T to move under the influence of its spring S into engagement with the rack-bar R, and this engagement will then be maintained by reason of the locking of the shifting levers and shafts by the dog M.

The shift-key lever is operated, as is well understood, when it is desired to bring a special set of types or characters into operation, it being usual in this class of machines to provide each type-bar with several type, one or another of which is in operative relation to the platen, according to the relative positions of the platen and the type mechanism. In this case the platen is shown as the shiftable element, its motion being vertical and corresponding to the relative position of three sets of characters on the type-bars when said bars are in vertical or striking position. Ordinarily or normally the normal or small-letter type will be in use and the normal or upper position of lever A and of the platen correspond to the position required to bring such normal or small-letter type into operation. When a special type, such as a "cap" letter or a figure or other mark, is required, the shift-key lever A is depressed and the carriage is thereby carried down sufficiently to bring the proper set of characters on the type-bars in operative relation therewith. On such operation of the shift-key lever, however, as above explained, the shifting parts are locked in their shifted position by locking devices, and a connection is at the same time established from such locking devices to a part operated by the universal mechanism—namely, the rack-bar. When after such setting or shifting of the platen to bring a special type into operation any of the type-keys is depressed, so as to print such special type, the resulting actuation of the universal mechanism will cause the release of the rack-bar by the usual ratchet devices Y and the propulsion of said rack-bar by the carriage-spring in the direction of the dotted arrow, and the lever T, with its connected slide-bar O, will be carried along by the rack in its movement, thus moving arm P against the action of spring U, and thereby releasing dog M from lever E. The carriage is then at once thrown up to its normal position by the spring S. At the same time the propulsion of the slide O in the direction of the full-line arrow causes the catch end t' of lever T to ride up on an incline or cam plate l' , fixed to the frame, whereby as soon as the said slide has performed its function of releasing the locking devices the lever T will be thrown out of engagement with the rack and, along with

the slide O, will be returned to its normal position by the spring V.

My invention may be applied to any type of machine of the shift-key class by suitable arrangement of the locking and releasing devices.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

10 1. In a type-writing machine, the combination with type and platen mechanism which are relatively movable to bring different type into operation, of means for changing the relative positions of such type and platen mechanism, and means acting under the control of the type mechanism, to restore the platen and type mechanism to normal relative position, upon the return movement of the type mechanism after making an impression.

20 2. In a type-writing machine, the combination with type and platen mechanism, which are relatively movable to bring into operation different types on the type mechanism, of shifting mechanism for effecting such relative movement of the platen and type mechanism, universal mechanism engaging with the type mechanism, and means controlled by the return movement of such universal mechanism after operation of the type mechanism to restore the platen and type mechanism to the relative position from which they were shifted by the shifting mechanism.

3. In a type-writing machine, the combination with a plurality of type devices, each carrying a plurality of type, a platen engaging with one or another of such type on the type devices, according to the relative positions of said platen and type devices, shifting mechanism for changing the relative positions of such platen and type devices to bring one or another of the types on the respective type devices into operation, and a universal mechanism engaging with all of said type devices, and controlled by the operation of any one of them, and restoring means controlled by the said universal mechanism upon its return movement after operation of the type devices for restoring the platen and type devices to the relative position from which they were shifted by the operation of the shifting mechanism.

4. In a type-writing machine, the combination with a platen and type mechanism which are relatively movable to bring different types into operation, a restoring means such as a spring for holding such platen and type mechanism in a normal relative position, shifting mechanism for shifting the relative positions of such platen and type mechanism, locking mechanism for locking such parts in their relatively-shifted positions, an actuating device comprising an actuating-spring and controlled by the operation of the type mechanism to actuate and release the locking mechanism after such operation is effected so as to allow the parts to be restored to their normal

position under the influence of the restoring means.

5. In a type-writing machine, the combination of a plurality of type devices each carrying a plurality of type, a platen relatively shiftable with regard to said type devices, so as to be brought into operative relation with one or another of the types on each type device, means such as a spring for restoring the platen to a normal position, shifting mechanism for moving said platen from such normal position, a locking device for locking the platen when so shifted, an actuating device comprising an actuating-spring and universal mechanism engaging with each of the type devices and with the actuating device so as to release the actuating device and allow the latter to release the platen from the locking devices after the operation of any of the type devices.

6. In a type-writing machine, the combination of the relatively movable platen and type mechanism comprising a plurality of type devices each carrying normal and a plurality of special type, shifting mechanism for changing the relative positions of said platen and type mechanism from a position for printing normal type to a position for printing either of the special type, locking mechanism engaging with said shifting mechanism in either of such shifted positions and restoring mechanism controlled by the operation of the type mechanism to release the locking mechanism and allow the shifting mechanism to restore the platen to the position for printing normal type.

7. In a type-writing machine, the combination of a plurality of key-lever devices, a plurality of type-blocks actuated thereby, each carrying normal and a plurality of special type, a platen movable into operative relation with either the normal or special type, means for maintaining said platen normally in operative relation with the normal type, a shift-key lever connected to the platen and adapted to shift it into operative relation with either the special type, locking mechanism having two detent portions for locking the platen in either of such shifted positions and a universal mechanism engaging with each of the type-key-lever devices and actuating means engaging with said universal mechanism and with the locking mechanism, so as to release the platen from such locking mechanism, and allow its restoration to normal position upon the operation of any of the key-levers.

8. In a type-writing machine, the combination with type mechanism comprising a plurality of type devices each carrying both normal and special type, a reciprocating carriage, a platen shiftable upon said carriage to cooperate with the normal or the special type, means for shifting the platen, means controlled by the operation of the carriage to restore the platen to the position from which it

was shifted, and means controlled by the operation of the type mechanism for effecting such operation of the carriage.

5 9. In a type-writing machine, the combination with type mechanism comprising a plurality of type devices each carrying both normal and special type, a reciprocating carriage, a platen shiftable upon such carriage to co-
10 operate with the normal or special type, means for shifting the platen, a locking mechanism for such shifting means, a spring for advancing the carriage, universal mechanism controlled by the type mechanism and controlling the movement of the carriage, means
15 engaging with the carriage and with the locking mechanism to release the latter upon the operation of the carriage, and means for restoring the shifting mechanism to normal position.

20 10. In a type-writing machine, the combination with type mechanism comprising a plurality of type devices each carrying normal

and special type, a reciprocating carriage having a rack, a platen shiftable upon such carriage to coöperate with the normal or special 25 type, platen-shifting mechanism, locking mechanism therefor, a spring for advancing the carriage, universal mechanism controlled by the type mechanism, and controlling the movement of the carriage, and a releasing de- 30 vice adapted to engage with the carriage-rack, and to be moved by same to engage with and release the said locking mechanism, means for withdrawing said releasing device from the carriage-rack, and a connection between said 35 releasing device and the shifting mechanism to bring the releasing device into engagement with the carriage-rack when the shifting mechanism is operated.

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Witnesses:

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