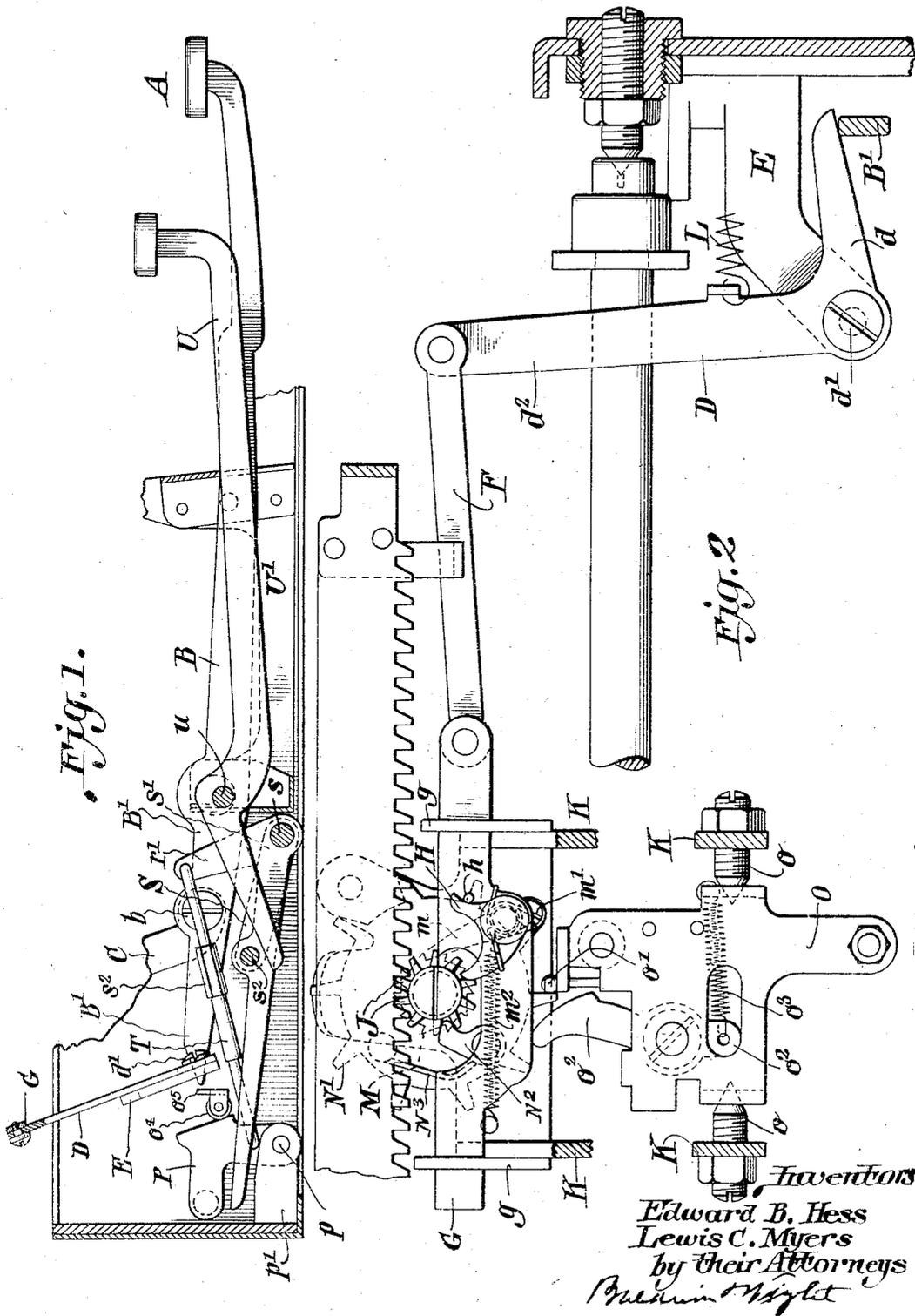


1,417,905

Patented May 30, 1922.
2 SHEETS—SHEET 1.



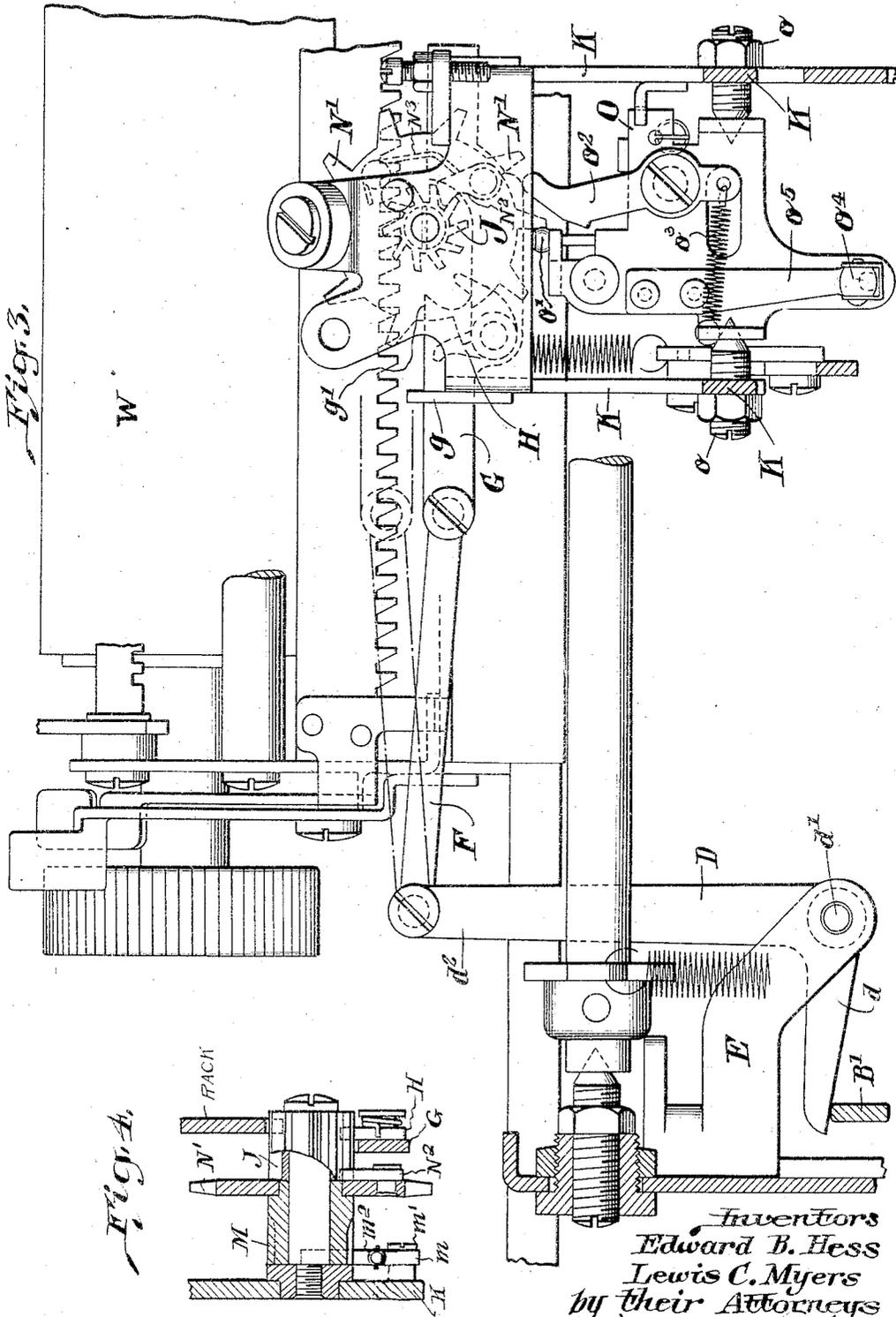
Inventors
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by their Attorneys
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E. B. HESS AND L. C. MYERS,
 BACK SPACE MECHANISM FOR TYPEWRITING MACHINES.
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2 SHEETS—SHEET 2.



Inventors
 Edward B. Hess
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 (Signed in this list)

UNITED STATES PATENT OFFICE.

EDWARD BERNARD HESS AND LEWIS CARY MYERS, OF BROOKLYN, NEW YORK,
ASSIGNORS TO ROYAL TYPEWRITER COMPANY, INC., OF NEW YORK, N. Y.

BACK-SPACE MECHANISM FOR TYPEWRITING MACHINES.

1,417,905.

Specification of Letters Patent.

Patented May 30, 1922.

Original application filed January 13, 1921, Serial No. 436,924. Divided and this application filed May 27, 1921. Serial No. 473,165.

To all whom it may concern:

Be it known that we, EDWARD BERNARD HESS and LEWIS CARY MYERS, both citizens of the United States, residing in Brooklyn, county of Kings, city and State of New York, have invented certain new and useful Improvements in Back-Space Mechanism for Typewriting Machines, of which the following is a specification.

The application for this patent is a division of our application for patent filed Jan. 13, 1921, No. 436,924. In said application we have shown all the mechanism of a typewriting machine embodying various improvements made by use to provide a small, compact and light machine having the essential features of the larger or standard Royal machine but which is portable and may be made and sold at a relatively low cost. In said application we have shown back-space mechanism of the kind herein claimed. The claims herein relate to such back-space mechanism, and while the invention is embodied in a portable machine it is equally applicable to machines of larger size.

The present invention relates to certain improvements in the mechanism for setting the carriage back from left to right after its advance movement has been arrested by a margin stop.

According to this invention the back-spacing devices are so constructed and supported that they are raised and lowered with the carriage and are in condition to operate when the carriage is set for both upper and lower case printing.

In the accompanying drawings:—

Figure 1 shows, in longitudinal section, a portion of a typewriting machine with our improvements applied.

Figure 2 is a view on an enlarged scale, showing in front elevation a portion of the back-space mechanism.

Figure 3 is a rear view of the same.

Figure 4 is a longitudinal section through the escapement mechanism showing the relation of the various parts thereof.

The back-space mechanism is operated by a key A at the front of the key-board and at the right-hand side thereby. The back-space lever B is pivoted at *b* to a bracket C and has an arm B' which engages the laterally extending arm *d* of a bell-crank lever D pivoted at *d'* to a bracket E ex-

tending from the right-hand side of the frame and having an upwardly extending arm *d*² connected by a horizontally arranged link F with a sliding bar G carrying a spring pawl H adapted to engage the pinion J of the escape mechanism. The tail of the pawl abuts against the stop *h*. The slide G is guided in brackets *g* extending from the escapement frame K. A spring L (Fig. 1) normally pulls the slide G away from the pinion J. By depressing the key A the slide may be operated to actuate the mechanism to set the carriage back one space only. When the key is released the slide is retracted away from the pinion. By successively depressing the key A the carriage may be set back the desired number of spaces.

In order to prevent back lash from tooth to tooth of the escapement wheel N' during the operation, we provide a detent ratchet M on the sleeve which carries the escapement wheel N' which ratchet is engaged by a pawl *m*, pivoted at *m'* to the frame K, and operated in one direction by a spring *m*². The slide G has a projection *g'* for preventing the overthrow of the escapement N' when the slide is actuated.

Parts of the escapement mechanism are illustrated in the drawings, but they are not herein claimed. The escapement rocker O is pivotally mounted at *o* in the frame K and is provided with a roller-carrying fixed dog *o'* and a limber dog *o*² pulled in one direction by a spring *o*³. Pivoted to the escapement wheel N' is a pawl N² normally held in engagement with the pinion J by a spring N³. This is the usual construction for causing the pinion and escapement wheel to turn together in one direction but permitting the pinion to turn independently of the escapement wheel when the carriage is returned. As the rocker oscillates the carriage moves from right to left, step by step, in the usual way. The rocker is operated by a lever P pivoted at *p* to an arm *p'* extending from the machine frame. This lever engages a roller *o*⁴ on a downwardly extending spring arm *o*⁵ of the rocker. As the lever P is oscillated the rocker is correspondingly moved and operates the escapement mechanism. The lever P is operated by an arm *p'* projecting from the shaft *s* of the universal bar S, which latter com-

prises a shaft s , two side pieces s' and a rear cross-piece s^2 . The arm r' of the universal bar is connected with the lever P by a link T the length of which may be varied by the devices s^2 . The universal bar is operated by the type key levers U pivotally mounted at u in a frame U' in the manner shown in Fig. 1.

The platen is indicated at W.

The escapement mechanism actuated by the key levers operates in the usual way to feed the carriage from right to left until arrested. When it is desired to set the carriage back one or more spaces it may be done by means of the key A, in the manner before described.

We claim as our invention:—

1. In a typewriting machine, a carriage, escapement mechanism therefor, a frame supporting said escapement mechanism, a back space lever, a slide carried by said escapement frame, connections between the back space lever and the slide, a pawl carried by the slide and adapted to engage an element of the escapement mechanism, and a rigid tooth on the slide also engaging the same element of the escapement mechanism to prevent overthrow.

2. In a typewriting machine, a carriage, escapement mechanism therefor comprising an escapement wheel, an element rigid with the escapement wheel, and a pinion; key levers, a universal bar operated thereby and controlling the operation of the escapement mechanism, a back-space lever, a slide, connections between the back space lever and the slide, a pawl carried by the slide and adapted to engage the pinion to back space the carriage, and another pawl engaging said element to prevent back lash of the escapement mechanism.

3. In a typewriting machine, a carriage, a rack bar supported by the carriage, a pinion engaging the rack bar, an escapement wheel and a ratchet wheel rigidly connected with the escapement wheel, escapement pawls cooperating with the escapement wheel, key levers, a universal bar operated thereby and operating said pawls, a back space lever, a slide, connections between the back space lever and the slide, a pawl carried by the slide and adapted to engage the rack engag-

ing pinion, a detent carried by the slide and adapted to engage the pinion to prevent overthrow, and a pawl engaging the ratchet wheel to prevent back lash thereof.

4. In a typewriting machine, a carriage mounted for case shift movement, a rack bar carried thereby, a pinion meshing with the rack bar, an escapement wheel and a rigidly connected ratchet wheel mounted to move with the pinion in one direction, means for controlling the movement of the escapement wheel to permit the advance of the carriage, means engaging the ratchet wheel to prevent back lash of the escapement wheel, a back space lever, and back space devices operated thereby and mounted to shift with the carriage and comprising a pawl adapted to engage the pinion to back-space the carriage and a detent to engage the pinion to prevent overthrow.

5. In a typewriting machine, an escapement mechanism comprising a pinion, an escapement wheel, a pawl carried by the wheel and engaging the pinion to cause the two to move together in one direction, a ratchet rigid with the escapement wheel, means engaging said ratchet to prevent back lash of the escapement wheel, a back space lever, a slide operated thereby, a pawl carried by the slide adapted to engage the pinion and back space the same, and a detent carried by the slide adapted to engage the pinion to prevent overthrow.

6. In a typewriting machine, an escapement mechanism comprising a pinion, a shaft therefor, a sleeve on said shaft, an escapement wheel rigid with the sleeve, a ratchet on said sleeve, a pawl carried by the escapement wheel and engaging the pinion, a pawl carried by the escapement mechanism frame and engaging the ratchet to prevent back lash, a back space slide, a pawl carried thereby and adapted to engage the pinion to back space the same, and a detent brought into engagement with the pinion at the end of the back spacing stroke to prevent overthrow.

In testimony whereof, we have hereunto subscribed our names.

EDWARD BERNARD HESS.
LEWIS CARY MYERS.