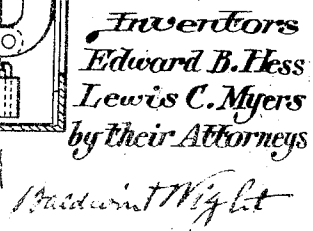


APPLICATION FILED MAY 27, 1921.

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3 SHEETS---SHEET 1.



1,417,902.

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3 SHEETS—SHEET 2.

Fig. 2.

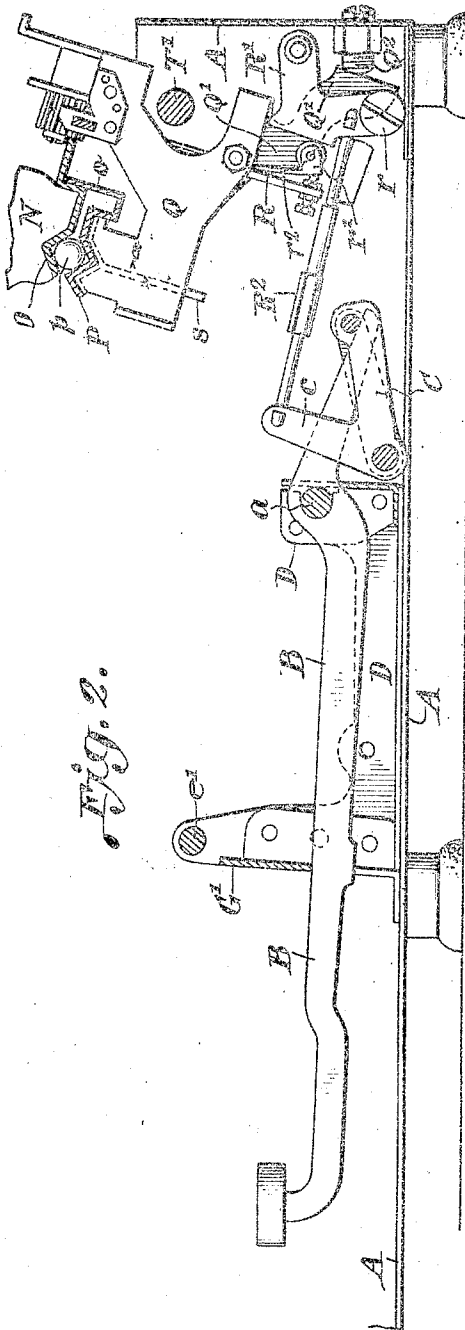
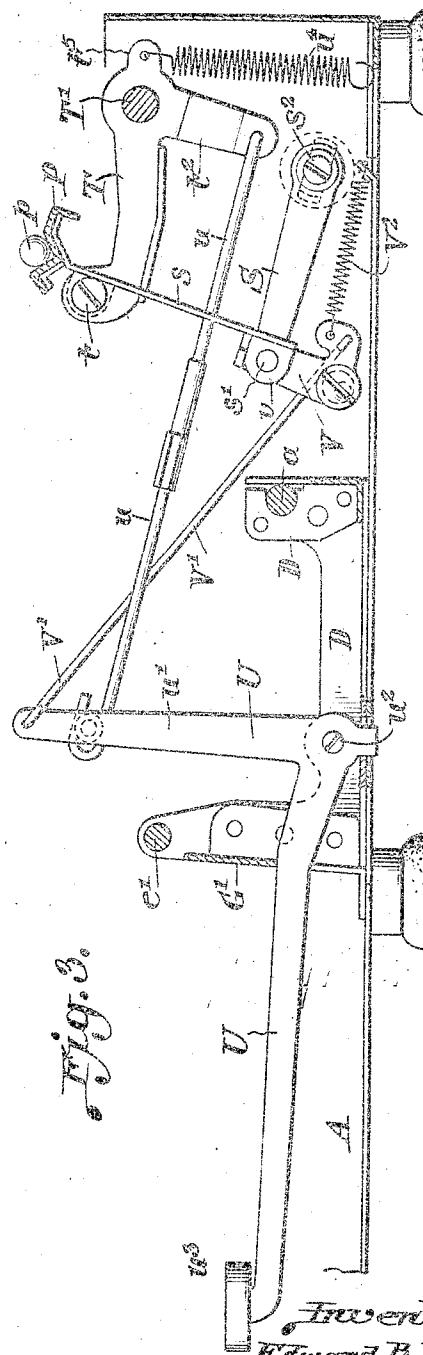


Fig. 3.



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E. B. HESS AND L. C. MYERS,
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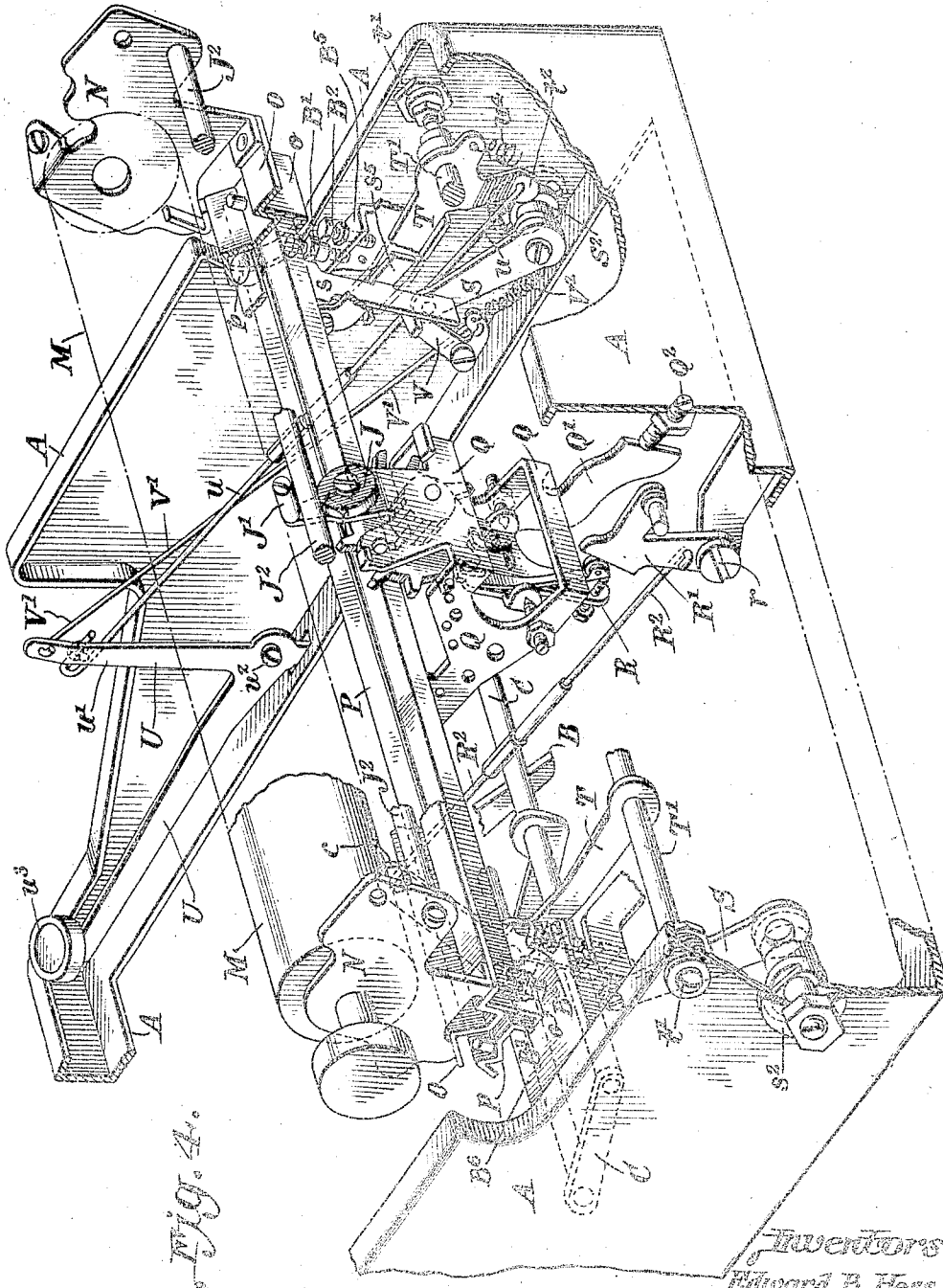


Fig. 4.

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TYPEWRITING MACHINE.

1,417,902.

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. 473,161.

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 Typewriting Machines, of which the following is a specification.

This application is a division of our application for patent filed January 13, 1921, No. 436,924.

In the application mentioned we have shown a fully organized typewriting machine possessing most of the characteristics of the Royal Standard machine, but which is, by a novel construction and arrangement of the mechanism, made small, compact and portable. The portable machine of said parent application embodies various improvements in typewriting machines which are claimed in other applications for patents copending herewith. In the present application we have directed our claims to certain novel organizations and constructions whereby certain parts of the mechanism are so supported and operated that they are arranged obliquely and move obliquely when shifted for case printing, so that the writing may be at all times plainly visible in a machine where the platen is located lower than in standard machines.

According to the invention herein claimed, the overhanging carriage is supported on a carriage track and that part of the carriage in which the escapement oscillates is formed with an extension projecting downwardly to a point where it contacts with an adjustment screw carried by the back portion of the base frame of the machine. In such construction the extension will not permit a rocking movement at its lower end, and this prevents a fore and aft movement of the platen carriage. This way of suspending the carriage upon the track may be applied to other types of machines, especially those in which the carriage runs on three bearing points instead of four, or where there is a tendency for an over-hanging of the carriage, either forward or backward and particularly where sheet metal parts are substituted for the heavy castings ordinarily used.

The machine is so built that the carriage shift rail or track and the frame which sup-

ports the escapement mechanism are rigidly connected and this same frame connects with a rail or rod on the carriage frame and guides it. Furthermore said frame is firmly held against a fore and aft movement by an abutment or stop which, however, permits the frame to move obliquely up and down when the carriage is shifted.

In the accompanying drawings,

Figure 1 shows a longitudinal section of so much of a typewriting machine embodying our improvements as is necessary to show how our invention is applied thereto;

Figure 2 shows a transverse section of the machine illustrating particularly that part of the mechanism which operates the escapement;

Figure 3 is a similar view illustrating the mechanism for shifting the carriage for case printing;

Figure 4 is a perspective view, largely diagrammatic, and with many parts broken away to show the relation of the various parts of the mechanism for shifting the carriage obliquely for limiting its up and down movement and for operating the escapement.

The frame of the machine is indicated at A and B indicates some of the type key levers which operate a universal bar C, as well as the type bar. These levers are pivotally mounted on a rod *a* mounted in a frame D and these levers are connected by links *e*, to front links or levers E, in turn connected by rods F with the type bars G. The levers E are pivotally supported by a rod *e'* mounted in a frame G', attached to the frame D. The type bars G are pivoted in the usual way to a segment H and are supported when idle on a type bar rest I. A space key Z is connected by levers *z* with the universal bar and this lever is pivotally mounted on the rod *a*. Ribbon spools are indicated at K and the type bar guide at L. The platen M is mounted in a carriage comprising the side plates N and a rail O, which is supported by a shift rail P, anti-friction balls *n* being interposed between the two rails. The rails are held in proper relation to each other by clamping plates *o*.

A frame Q is secured to the shift rail and extends rigidly therefrom and supports the rocker R of the escapement mechanism. The shift rail P has downwardly extending legs *s*, which are pivotally connected at *s'* with

links S which extend forwardly and upwardly from their pivotal connection at s^2 with the machine frame. This pivotal connection is adjustable so that the inclination of the carriage as a whole may be changed to render it more or less oblique.

The upper portions of the legs s are pivotally connected at t with levers T secured to a rock shaft T' pivotally mounted in the frame at t' . One of the levers T has an arm t^2 connected by a rod u with the upwardly extending arm u' of a bell crank lever U pivoted at u^2 to the frame D and extending into the keyboard where it is provided with a finger piece u^3 . By means of this key the lever T with which it is connected may be operated to raise the shift rail and consequently the platen and its carriage. A spring u^4 attached to an ear t^5 of the lever T and to the bottom of the frame A serves to assist in lifting the carriage and in counterbalancing it.

In order to lock the carriage in lower case position, we employ a latch V which engages a lug v on one of the legs s of the shift rail. A rod V' is connected to the lower end of the latch and to the upper end of the lever U. A spring V² tends to hold the latch in engagement with the lug v . When the finger piece u^3 is depressed the latch is released and the lever T is operated to raise the carriage for upper case printing.

The devices shown at W are for locking the mechanism when desired in upper case position, but they are of usual construction and need not be further described.

The escapement rocker R is operated by a lever R' pivoted at r and bearing on a roller r' carried by a spring arm r^2 of the rocker and said lever R' is operated by a rod R² connected with an arm c of the universal bar.

The frame Q is rigidly secured to the shift rail P and it supports a roller J and a pin J' arranged on opposite sides of a rod J², connecting the rear ends of the two side plates N of the carriage. As the carriage moves back and forth over the shift rail it is partially supported and guided by this rod, the roller and the pin.

An arm Q' extends downwardly and rearwardly from the frame Q and bears against an adjustment screw Q² mounted in the rear part of the frame A.

Inasmuch as the carriage overhangs its front supports and as the carriage is a floating one, being supported at the front by the shift rail which is in turn supported by swinging links and levers, there is a tendency for the carriage to sag, but by means of the brace arm Q' in cooperation with the front supports of the carriage this tendency is obviated, as by means of the set screw Q² a torsional strain can be imparted to the sub-frame of the carriage which will cause it to

always maintain its proper oblique arrangement without any material change. In this way we provide what may be termed an aligning arm which extends from the shift rail or carriage support to a rigid abutment.

In order to limit the up and down movement of the carriage we provide stops B', B², B³, B⁴. The stops B', B² are mounted in a bracket B⁵ attached to the left hand side of the frame A and the stops B³, B⁴ are mounted in a bracket B⁶ at the right hand side of the machine. The stops B', B³ limit the downward movement of the carriage while the stops B², B⁴ limit its upward movement. The shift rail P abuts against the stops B', B³ and the stops B², B⁴ abut against the arms s^5 on the legs s of the shift rail.

As before stated, the mechanism herein shown and described is intended particularly for use in a machine where the carriage is moved obliquely for case printing, but the same organization of mechanism may be used in other machines. Some of the mechanism herein shown and not claimed is claimed in other copending applications.

We claim as our invention:

1. In a typewriting machine the combination of a carriage support movable for case printing, a rigid abutment, and an arm extending from the carriage support to the rigid abutment and permanently engaged with said abutment but movable thereon.
2. In a typewriting machine the combination of a carriage support movable for case printing, an adjustable abutment, and an arm extending from the carriage support to the adjustable abutment and permanently engaged with said abutment but movable thereon.
3. In a typewriting machine the combination of a shift-rail for the carriage movable for case printing, a rigid abutment, and an arm extending from the shift-rail to the rigid abutment and permanently engaged with said abutment but movable thereon.
4. In a typewriting machine the combination of a shift-rail for the carriage movable for case printing, an adjustable abutment, and an arm extending from the shift-rail to the adjustable abutment and permanently engaged with said abutment but movable thereon.
5. In a typewriting machine the combination with the base frame of a carriage, a shift-rail on which it is supported and which is movable for case printing, a rigid abutment in the base frame, and an arm extending from the carriage support to the rigid abutment and permanently engaged with said abutment but movable thereon.
6. In a typewriting machine the combination with the base frame of a carriage, a shift-rail on which it is supported movable

for case printing, a rigid abutment in the base frame, and an arm rigidly connected with the shift-rail and extending to the rigid abutment and which is permanently engaged with the abutment but is movable thereon.

7. In a typewriting machine the combination of a base frame, a carriage support movable for case printing, a rigid abutment, an arm extending from the carriage support to the rigid abutment which is permanently engaged with said abutment but is movable thereon, and a frame for the carriage shift mechanism, forming part of the connection between the carriage support and the rigid abutment.

8. In a typewriting machine, a platen-carriage having a front support and a rear support, an escapement frame for the carriage and which rises and lowers therewith, and an extension from the escapement frame projecting rearwardly and downwardly therefrom and which engages the rear portion of the machine.

9. In a typewriting machine, a platen-carriage having a front support and a rear support, an escapement frame for the carriage and which rises and lowers therewith, an extension from the escapement frame projecting rearwardly and downwardly therefrom and which engages the rear portion of the machine, and an adjusting screw with which said projection engages.

10. In a typewriting machine, a base frame, a platen-carriage, a shift-rail on which it is supported, escapement mechanism for the carriage, a frame in which said escapement mechanism is mounted and which is rigidly connected with the shift-rail, and an arm extending rearwardly from the escapement frame to the rear portion of the base frame.

11. In a typewriting machine, a base frame, a platen-carriage, a shift-rail on which it is supported, escapement mechanism for the carriage, a frame in which said escapement mechanism is mounted and which is rigidly connected with the shift-rail, an arm extending rearwards from the escapement frame, and an adjustable stop in the base frame with which the lower rear end of said arm engages.

12. In a typewriting machine, a base frame, a platen-carriage, a shift-rail on which it is supported, means for raising and lowering the shift-rail and carriage obliquely, escapement mechanism for the carriage, a frame in which said escapement mechanism is mounted and which is rigidly connected with the shift-rail to rise and fall obliquely therewith, and an arm extending rearwards from the escapement frame to the rear portion of the base frame.

13. In a typewriting machine, a base frame, a platen-carriage, a shift-rail on

which it is supported, means for raising and lowering the shift-rail and carriage obliquely for case printing, escapement mechanism for the carriage, a frame in which said escapement mechanism is mounted and which is rigidly connected with the shift-rail, an arm extending rearwards from the escapement frame toward the rear portion of the base frame, and which has an obliquely inclined rear edge, and an adjustable stop carried by the base frame and engaging said edge.

14. In a typewriting machine the combination of a carriage support, a rigid abutment, an arm extending from the carriage support to the abutment and which is permanently engaged with the abutment but is movable thereon, means for raising and lowering the carriage support, and stops for limiting the movements of said support.

15. In a typewriting machine the combination of a carriage support, a rigid abutment, an arm extending from the carriage support to the rigid abutment and which is permanently engaged with said abutment but is movable thereon, means for moving the carriage support obliquely, and adjustable stops for limiting the movements of said support.

16. In a typewriting machine the combination of a carriage support, a rigid abutment, an arm extending from the carriage support to the abutment, means for moving the carriage support obliquely, and means for varying the oblique movement of the carriage support.

17. In a typewriting machine, the combination of a carriage support, lifting levers for said support, means for operating them to raise and lower said support in a plane oblique to the horizontal, links connected with the carriage support which assist in supporting it, and means for adjusting the links for varying the oblique movement of the carriage support.

18. In a typewriting machine, a platen carriage, a shift rail on which it is supported, escapement mechanism, a frame connected to the shift rail and supporting the escapement mechanism, means carried by the frame for assisting in supporting the platen carriage, an arm extending rearwardly from the frame, a rigid abutment with which the arm makes contact, means for raising and lowering the carriage obliquely, and stops for limiting the movement of the carriage.

19. In a typewriting machine, a platen, a platen carriage, a carriage shift lever, connections between said lever and the carriage for raising and lowering it, a pivoted latch for holding the carriage in lowered position and which has an upwardly and rearwardly extending arm engaging the carriage and a lower arm in rear of its pivot, and connec-

tions between the shifting lever and said lower arm of the latch whereby a quick forward movement is given to the latch before the carriage is raised.

20. In a typewriting machine, a keyboard having a plurality of banks of keys, a platen, a platen carriage, a shift frame having a track on which said carriage is mounted to travel, all of said parts being inclined rearwardly from the vertical; parallel links supporting the shift frame, and means engaging one of said links for shifting the frame in an oblique direction upwardly and rearwardly.

21. In a typewriting machine, a keyboard having a plurality of banks of keys, a platen, a platen carriage, a shift frame having a track on which said carriage is adapted to travel, escapement mechanism carried by said shift frame, all of said parts being inclined rearwardly from the vertical, parallel links supporting the shift frame, and means engaging one of said links for shifting the frame in an oblique direction upwardly and rearwardly.

22. In a typewriting machine, a platen, a platen carriage, a shift frame having a track on which said carriage is mounted to travel, all of said parts being inclined rearwardly from the vertical, pairs of parallel links supporting the shift frame, and means whereby the lower one of each pair of links may be independently adjusted to vary the inclination of the carriage.

23. In a typewriting machine, a platen, a platen carriage, a shift frame having a track on which said carriage is mounted to travel, pairs of parallel links supporting the shift frame, and independent means for adjusting one of each pair of links to change the normal position of the carriage and its path of movement.

24. In a typewriting machine, a main frame, pairs of parallel links pivoted to the main frame at each end of one link, a shift frame to which the other end of each of said links is pivoted, a carriage carried by said shift frame, and independent means for adjusting a pivotal connection of one of each pair of links to change the normal position of the carriage and its path of movement.

25. In a typewriting machine the combination of two main portions, a main frame and a shift frame; a carriage and escapement mechanism therefor carried by said shift frame, the shift frame and associated parts being inclined rearwardly from the vertical with reference to the main frame,

means for shifting the shift frame, brackets secured to opposite sides of the main frame below the carriage, and adjustable stops carried thereby for limiting the movements of the shift frame.

26. In a typewriting machine the combination of two main portions, a main frame and a shift frame; a carriage and escapement mechanism therefor carried by the shift frame, the shift frame and associated parts being inclined rearwardly from the vertical with reference to the main frame, means for shifting the shift frame, means for adjusting a portion of the shifting means to vary the normal position of the carriage, brackets secured to opposite sides of the main frame below the carriage, and obliquely arranged adjustable stops carried thereby for limiting the movements of the shift frame.

27. In a typewriting machine a main frame, a shift frame rearwardly inclined to the vertical with reference to the main frame, a pair of links at each side of the main frame for supporting the shift frame, said links being pivotally connected both to the main frame and the shift frame, means for securing an adjustment of the pivotal connection of one of each pair of links to vary the normal position of the carriage, and obliquely arranged adjustable stops for limiting the movement of the shift frame.

28. In a typewriting machine, a main frame, a platen carriage, an escapement mechanism frame, a shift frame supporting the carriage and escapement frame; means for shifting said shift frame, a downwardly and rearwardly extending arm on said escapement frame, and an adjustable stop on the main frame with which said arm engages in all positions to the shift frame.

29. In a typewriting machine, a main frame, a platen carriage, an escapement mechanism frame, a shift frame supporting the carriage and escapement frame, means for shifting said shift frame, a downwardly and rearwardly extending arm on the escapement frame, an adjustable stop on the main frame with which said arm engages in all positions of the shift frame, and a stop on said escapement frame engaging the main frame when the parts are in normal position.

In testimony whereof, we have hereunto subscribed our names.

EDWARD BERNARD HESS.
LEWIS CARY MYERS.