June 19, 1951 S. I. BERGER 2,557,592

TOY TYPEWRITER

Filed Dec. 21, 1948

Fig. 1.

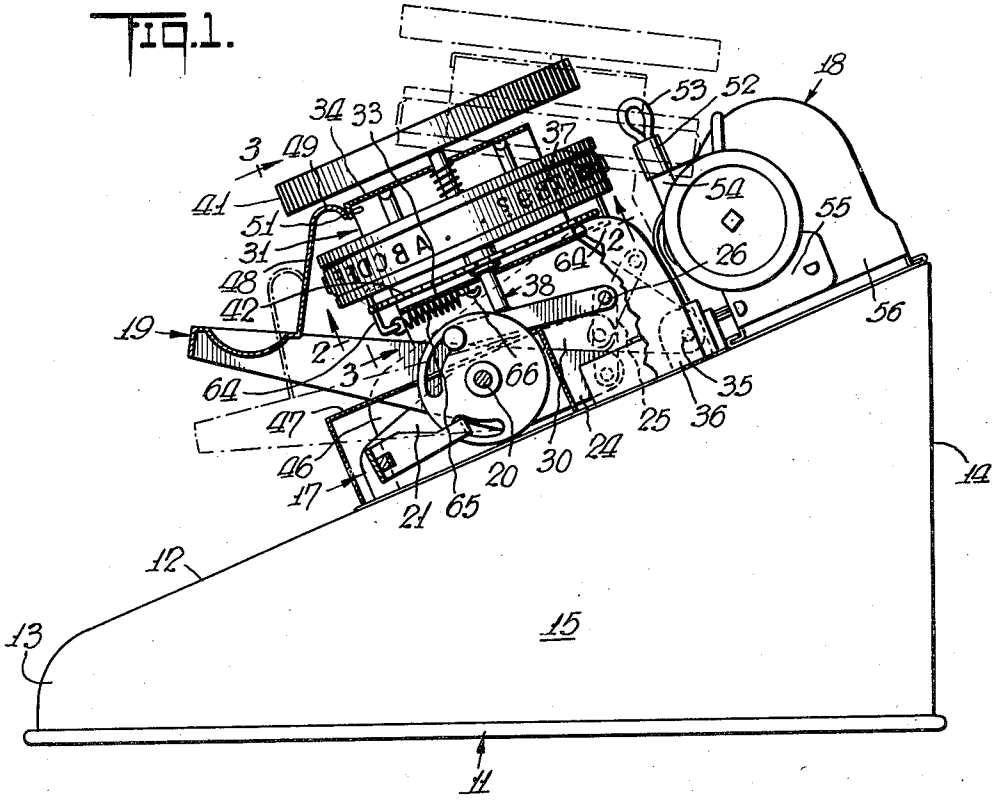


Fig. 2.

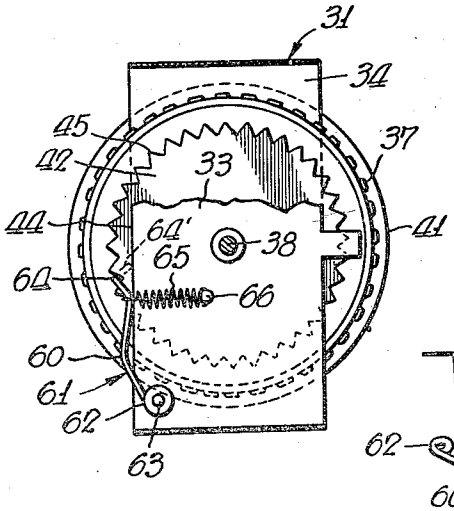


Fig. 3.

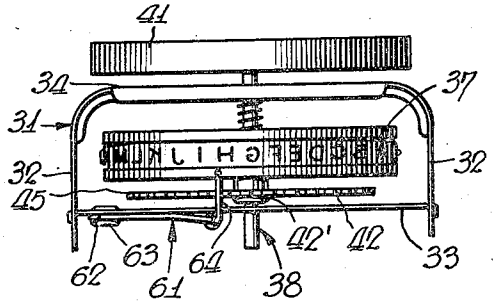
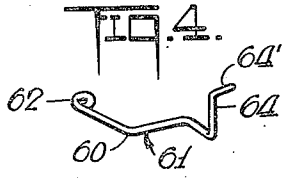


Fig. 4.



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TOY TYPEWRITER

Samuel I. Berger, Newark, N. J.

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10 Claims. (Cl. 197—47)

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It is among the objects of my present invention to provide a toy typewriter which has all the advantages of that of my prior applications Serial No. 658,318, filed March 29, 1946 and now Patent No. 2,486,702 dated November 1, 1949, Serial No. 724,043, filed January 24, 1947, and now Patent No. 2,458,137 dated January 4, 1949, Serial No. 731,318, filed February 27, 1947 and now Patent No. 2,536,715 dated January 2, 1951, Serial No. 786,903, filed November 19, 1947 and now Patent No. 2,534,399 dated December 19, 1950 and Serial No. 57,457, filed October 30, 1948, and my previous issued Patent No. 2,398,765 dated April 23, 1946, including the use substantially solely of sheet metal and rod stock to simulate the appearance of a genuine portable typewriter by a greatly simplified and inexpensive construction that does not require close tolerances in the manufacture thereof and which has the further advantage over said prior inventions of enhanced ease of assembly and adjustment.

Another object of my invention is to provide an inexpensive type setting mechanism of relatively simple construction which may readily be incorporated into a toy typewriter of the above type, and which may readily be adjusted to ensure accurate detenting of the selected type in printing position.

In the accompanying drawings in which is shown one of various possible embodiments of the several features of the invention,

Fig. 1 is an end view of a toy typewriter according to the present invention partly in cross section and with parts broken away showing its general appearance,

Fig. 2 is a transverse sectional view taken along line 2—2 of Fig. 1,

Fig. 3 is a fragmentary front view taken along line 3—3 of Fig. 1, and,

Fig. 4 is a perspective view of the pawl lever.

Since the construction in its general outline follows closely that shown in applications Serial No. 731,318, Serial No. 786,903 and Serial No. 57,457, only so much of the construction has been shown as is needed to afford a clear understanding of the present improvements, and the general description will be correspondingly brief.

Referring now to the drawings, as shown in Fig. 1, the toy typewriter simulates the appearance of a modern portable typewriter presenting as it does a base 11 having an oblique rectangular platform 12 which is a unitary part of the base. The platform 12 has a short front wall 13, a higher rear wall 14 and trapezoidal side walls 15, and has a simulated standard keyboard (not

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shown) which may be directly lithographed upon rectangular platform 12.

A substantially U-shaped standard 17, affixed to the center of the platform, supports the operating mechanism of the device and a platen structure 18 is mounted on the platform 12 to the rear of the standard 17. Inasmuch as the platen structure 18 may be substantially identical with that of my prior application Serial No. 731,318, it will not be further described.

A key lever 19 has lateral arms 24 pivoted on a horizontal axle 20, journalled in the upstanding side walls 21 of U-shaped standard 17. Each of said arms 24 is pivoted to a link 25, the upper ends of which links are pivoted by means of a horizontal axle 26 to the obliquely extending arms 30 of a substantially U-shaped sheet metal carriage 31 which has a cross piece 34 and the side walls 32 of which support a transverse plate 33 parallel to and below said cross piece 34. The end of each of said oblique arms 30 is pivoted as at 35 to upstanding ears 36 rising from the rear end of each side of the standard 17.

A type wheel 37, having on its periphery the type heads comprising the sequence of letters and numerals, is affixed to a substantially upright axle 38 journalled in bearing openings in plate 33 and cross piece 34, respectively, and protruding from said bearing openings, the axle in position of rest being at substantially right angles to platform 12.

The type wheel 37 is adjustable to a selected setting by means of a rotatable cup-shaped dial 41, which bears the sequence of letters and numerals on its upper surface, corresponding to the type heads, and which is suitably affixed to the protruding end of axle 38.

Means is provided to step the type wheel around in effecting setting thereof by the turning of knob 41. That means preferably comprises a horizontal peripherally notched wheel 42, desirably a ratchet wheel as shown, the interdental spaces of the teeth 45 of which correspond to the respective characters and numerals on the dial knob and type wheel. Ratchet wheel 42 is keyed as at 42' upon the type wheel axle 38 and interposed between transverse plate 33 and the type wheel with the periphery of said ratchet wheel extending beyond the edges 44 of plate 33.

To enclose the operating mechanism a pair of side wall members 46 are provided, extending parallel to and adjacent the respective side walls 21, said wall members being affixed to platform 12, and a substantially U-shaped cover piece 47

is provided positioned between the side walls 21 of the standards 17 and affixed to the base thereof. Key lever 19 has an upstanding shield 48 extending in front of the type wheel and its associated mechanism. The shield has inwardly turned lips 49 at the upper edge thereof which abut against and serve as a stop for carriage 31 at a downwardly turned skirt 51 on the front of the cross piece thereof when the latter is in normal or rest position under the influence of gravity.

Any suitable means could be used to apply the ink impression of the type. The type may be inked if desired as for instance by an ink retaining absorbent roller and associated mechanism of the type shown in application Serial No. 724,043 dated January 24, 1947. It is generally preferred to use an inked ribbon of the type shown in application Serial No. 57,457 dated October 30, 1948. As illustratively shown herein an inked ribbon 52 is utilized, the ends of which are respectively positioned between the upper portion of the legs of cotter pins 53 and wrapped therearound, and the cotter pins 53 are respectively positioned in each of the substantially vertical sockets 54 desirably formed integral with a pair of brackets 55 which are affixed respectively on the end plates 56 at each end of the platen carriage with each of said sockets parallel to the front edge of the associated end plate and extending outwardly therefrom. Thus the ribbon will extend the length of the platen parallel thereto and be spaced therefrom so that the surface thereof is clearly visible.

The construction thus far described is not per se claimed herein as it is the subject of my prior patent and applications above identified.

According to the present invention an element of utmost simplicity is provided to assure accuracy of setting of the type wheel so that the entire face of the selected type head will be parallel to the platen structure when it strikes to form a sharp and clear imprint.

That positioning element is a lever 61 desirably comprising a length of substantially rigid wire of uniform cross section extending along and under transverse plate 33, to which it is pivotally affixed at eye 62 formed at one end of said wire, and encompassing a rivet 63 that passes through and is clenched to cross plate 33.

As shown in Fig. 2, the mid portion 60 of lever arm 61 is bent in a horizontal plane parallel to ratchet wheel 42. The free end of lever arm 61 is upwardly bent to form a pawl finger 64 which is urged by coil spring 65 into engagement with the periphery of the ratchet wheel between the teeth thereof. The upper end of finger 64 is desirably bent at substantially right angles thereto to form a stop member 64' which extends over the rim of ratchet wheel 42. The coil spring 65 is preferably anchored at one end to a lug 66 desirably integral with and extending downwardly from cross piece 33 and at its other end to near the free end of lever arm 61 adjacent the pawl finger 64 thereof.

In the initial alignment of the machine in the factory in order properly to set the type wheel, as above set forth, it is desirable to adjust the pawl lever 61 relative to the ratchet wheel 42 in order to insure accurate detenting of the selected type in printing position relative to the platen structure. This may readily be accomplished by bending the pawl arm as with a pair of long-nose pliers, either to increase or to decrease the effective length thereof, thereby to adjust the relative position of the pawl finger 64 with respect to the interdental spaces of the ratchet wheel. As the wire from which the pawl lever 61 is formed is relatively stiff the bend in the wire will retain its shape and not widen, and the upstanding finger will remain vertical without skewing, thereby maintaining the setting of the type wheel.

In the event that the transverse plate 33 or the pawl arm 61 should be slightly bent from the horizontal plane, as the stop member 64' will abut against the rim of the ratchet wheel 42 the vertical displacement of the pawl finger 64 is limited and it can not move clear of the periphery of the ratchet wheel which would prevent accurate setting of the type wheel.

In order to determine whether the type heads are properly centered, key lever 19 may be depressed to pivot carriage 31 about its pivots 35 from idle position in full lines to operating position shown in dot and dash lines in Fig. 1 at which time the type head will press against the ribbon 52 to imprint the selected letter on a sheet of paper (not shown) positioned against the platen.

If the imprinted character is not sharply defined as a consequence of the type head not being parallel to the platen when it strikes the paper, the pawl arm may again be bent slightly either to increase or decrease the length thereof as required. This procedure is repeated in the inspection department until the proper setting is secured when the typewriter is passed for delivery.

To use the typewriter, the type wheel 37 is rotated by dial 41 to select the desired letter to be printed. In reaching this setting the ratchet wheel 42 ratchets over the pawl finger 64 of the spring-urged pawl lever 61 and said finger under urging of spring 65 resiliently holds the ratchet wheel and with it the type wheel in the set position. The key lever is thereupon depressed, pivoting carriage 31 so that the selected character on the type wheel will strike the inked ribbon against the platen to imprint such character.

Upon release of the key lever the weight of the carriage 31 will cause the latter to pivot to its idle position and by reason of the conventional escapement mechanism provided, shown and described in my previous applications, the platen will move one space to the left. During the course of the movement of the carriage, after the pressure of the type wheel on the tensed ribbon is released, the latter will move back to its original position in which it is parallel to and spaced from the platen, the distance of the ribbon from the platen being sufficient so that the typed letter may be clearly seen.

Thus a toy typewriter of the same general type as those shown in my previous applications and patents above identified is provided in which the detenting mechanism is of simple and inexpensive construction and does not require close tolerances in manufacture and hence effects a reduction in the cost of the completed machine which may readily be adjusted to insure that clear cut characters will be printed.

As many changes could be made in the above construction, and many apparently widely different embodiments of this invention could be made without departing from the scope of the claims, it is intended that all matter contained in the above description or shown in the accompanying

drawings shall be interpreted as illustrative and not in a limiting sense.

Having thus described my invention what I claim as new and desire to secure by Letters Patent of the United States is:

1. In a typewriter mechanism, the combination of a base, a platen structure at the rear thereof, a carriage pivoted on said base, a type wheel having type heads on the periphery thereof and having an axle bearing in said carriage, means to pivot said carriage and move the periphery of said type wheel against said platen, means to set the position of said type wheel, a ratchet wheel on said axle coaxial with said type wheel, a pawl arm having a bend therein lying in a plane parallel to said ratchet wheel, mounted at one end on said carriage, and means at the other end of said pawl arm coacting with said ratchet wheel for resiliently retaining said type wheel in set position and for centering the selected type head with respect to said platen so as to be parallel thereto when said carriage is pivoted and said type head moved against said platen.

2. The combination set forth in claim 1 in which the means at the other end of said pawl arm comprises an upstanding finger rigid therewith at right angles to the plane of said ratchet wheel and coacting with the periphery thereof.

3. The combination set forth in claim 1 in which said pawl arm is of substantially uniform cross section and is pivotally mounted on said carriage.

4. In a typewriting mechanism the combination of a base, a platen structure at the rear thereof, a carriage pivoted on said base, a type wheel having type heads on the periphery thereof and having an axle bearing in said carriage, means to pivot said carriage and move the periphery of said type wheel against said platen, a ratchet wheel on said axle coaxial with said type wheel, and a pawl arm of substantially uniform cross section, having a bend therein lying in a plane parallel to said ratchet wheel, mounted at one end on said carriage and having an upstanding pawl finger at its free end extending at right angles to the plane of said ratchet wheel and coacting with the periphery thereof for retaining said type wheel in set position and for centering the selected type head with respect to said platen so as to be parallel thereto when said carriage is pivoted and said type head moved against said platen.

5. The combination set forth in claim 4 in which a spring is provided affixed at one end to said pawl arm adjacent the upstanding finger thereof and at its other end to said carriage normally urging said finger against the periphery of said ratchet wheel.

6. In a typewriting mechanism the combination of a base, a platen structure at the rear thereof, a carriage pivoted on said base, a type wheel having type heads on the periphery thereof and having an axle bearing in said carriage, means to pivot said carriage and move the periphery of said type wheel against said platen, means to set the position of said type wheel, a ratchet wheel on said axle coaxial with said type wheel, a pawl arm consisting of a length of relatively stiff wire of uniform cross section pivotally mounted at one end on said carriage, having a bend therein lying in a plane parallel to said ratchet wheel and having an upstanding free end constituting a pawl finger extending at right angles to the plane of said ratchet wheel, and a spring affixed at one end to said pawl arm adjacent the upstanding finger thereof and at its other end to said carriage normally urging said finger against the periphery of said ratchet wheel, and coacting with said pawl arm for resiliently retaining said type wheel in set position and for centering the selected type head with respect to said platen so as to be parallel thereto when said carriage is pivoted and said type head moved against said platen.

7. In a typewriting mechanism the combination of a base, a platen structure at the rear thereof, a carriage pivoted on said base, a type wheel having type heads on the periphery thereof and having an axle bearing in said carriage, means to pivot said carriage and move the periphery of said type wheel against said platen, means to set the position of said type wheel, a ratchet wheel on said axle coaxial with said type wheel, a pivot rigid with the carriage, a pawl arm consisting of a length of relatively stiff wire of uniform cross section conformed as an eye at one end, encompassing said pivot, and having an integral upstanding member at its opposite end serving as a pawl finger, and a spring affixed at one end to said pawl arm adjacent the upstanding finger thereof and at its other end to said carriage normally urging said finger against the periphery of said ratchet wheel and coacting with said pawl arm for resiliently retaining said type wheel in set position and for centering the selected type head with respect to said platen so as to be parallel thereto when said carriage is pivoted and said type wheel moved against said platen.

8. In a typewriting mechanism the combination of a base, a platen structure at the rear thereof, a carriage pivoted on said base, a type wheel having type heads on the periphery thereof and having an axle bearing in said carriage, means to pivot said carriage and move the periphery of said type wheel against said platen, means to set the position of said type wheel, a ratchet wheel on said axle coaxial with said type wheel, a pivot rigid with the carriage, a pawl arm consisting of a length of relatively stiff wire of uniform cross section conformed as an eye at one end, encompassing said pivot, said pawl arm having a bend therein lying in a plane parallel to said ratchet wheel and having an integral upstanding free end constituting a pawl finger extending at right angles to the plane of said ratchet wheel, and a spring affixed at one end to said pawl arm adjacent the upstanding finger thereof and at its other end to said carriage normally urging said finger against the periphery of said ratchet wheel and coacting with said pawl arm for resiliently retaining said type wheel in set position and for centering the selected type head with respect to said platen so as to be parallel thereto when said carriage is pivoted and said type wheel moved against said platen.

9. The combination set forth in claim 4 in which means are provided associated with said pawl finger to limit vertical displacement thereof.

10. In a typewriting mechanism the combination of a base, a platen structure at the rear thereof, a carriage pivoted on said base, a type wheel having type heads on the periphery thereof and having an axle bearing in said carriage, means to pivot said carriage and move the periphery of said type wheel against said platen, means to set the position of said type wheel, a ratchet wheel on said axle coaxial with said type wheel, a pivot rigid with the carriage, a pawl arm consisting of a length of relatively stiff wire of uniform cross section conformed as an eye at

one end, encompassing said pivot, and having an integral upstanding member at its opposite end serving as a pawl finger, said pawl finger having a bent portion forming a stop member at the upper end thereof extending at substantially right angles thereto over the rim of said ratchet wheel thereby limiting the downward displacement of said pawl finger, and a spring affixed at one end to said pawl arm adjacent the upstanding finger thereof and at its other end to said carriage normally urging said finger against the periphery of said ratchet wheel and coacting with said pawl arm for resiliently retaining said type wheel in set position and for centering the selected type

head with respect to said platen so as to be parallel thereto when said carriage is pivoted and said type wheel moved against said platen.

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