Nov. 1, 1949. S. I. BERGER 2,486,702

TOY TYPEWRITER

Filed March 29, 1946 4 Sheets-Sheet 1

Fig. 1.

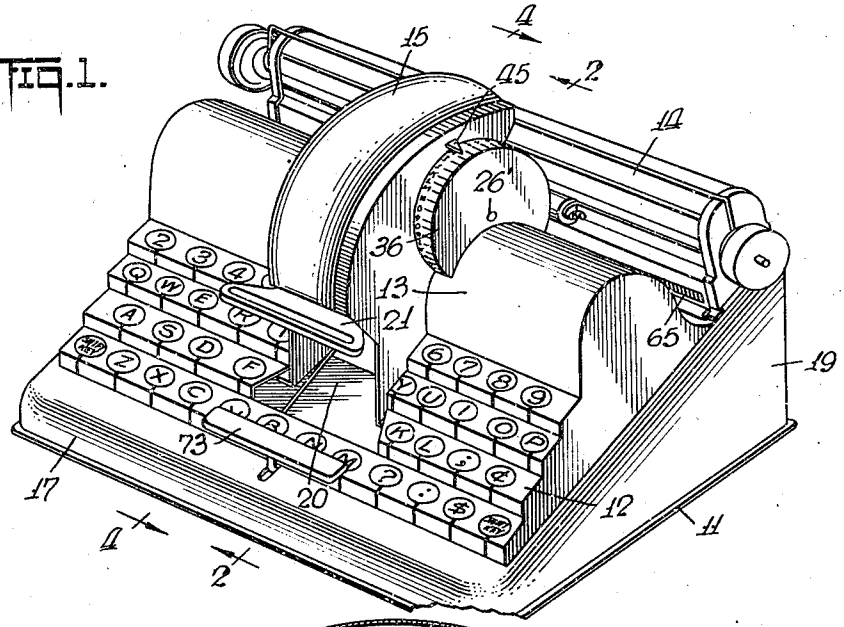
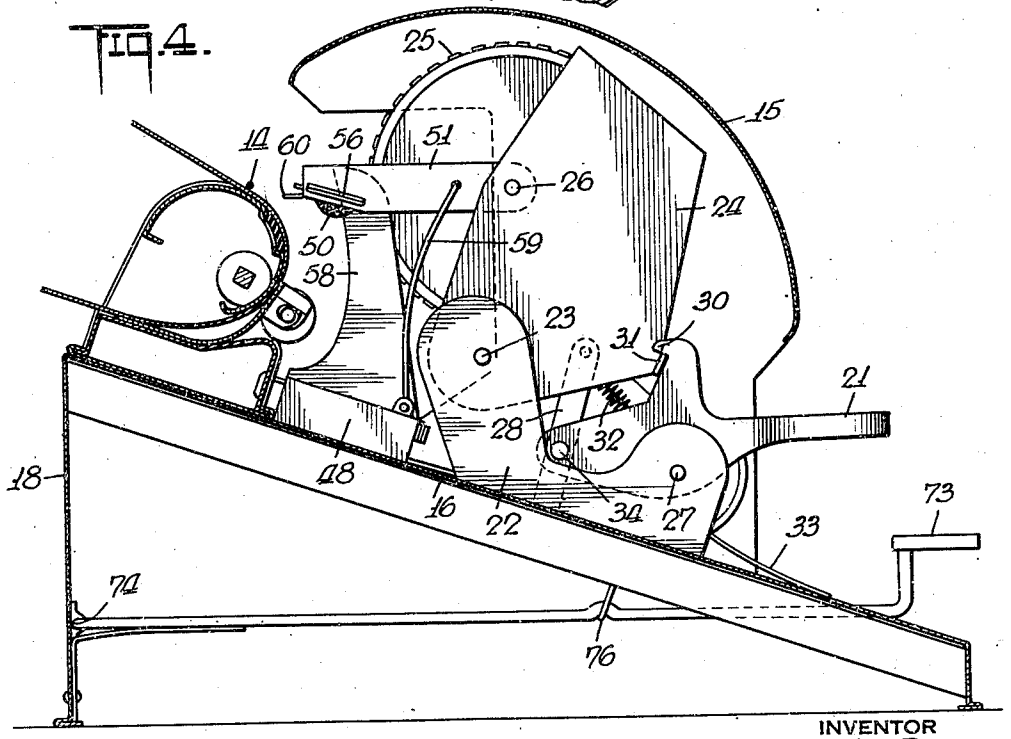


Fig. 4.



INVENTOR
Samuel I. Berger
BY
Dean Fairbank & Hirsch
ATTORNEYS

Nov. 1, 1949. S. I. BERGER 2,486,702

TOY TYPEWRITER

Filed March 29, 1946 4 Sheets-Sheet 2

Fig. 2.

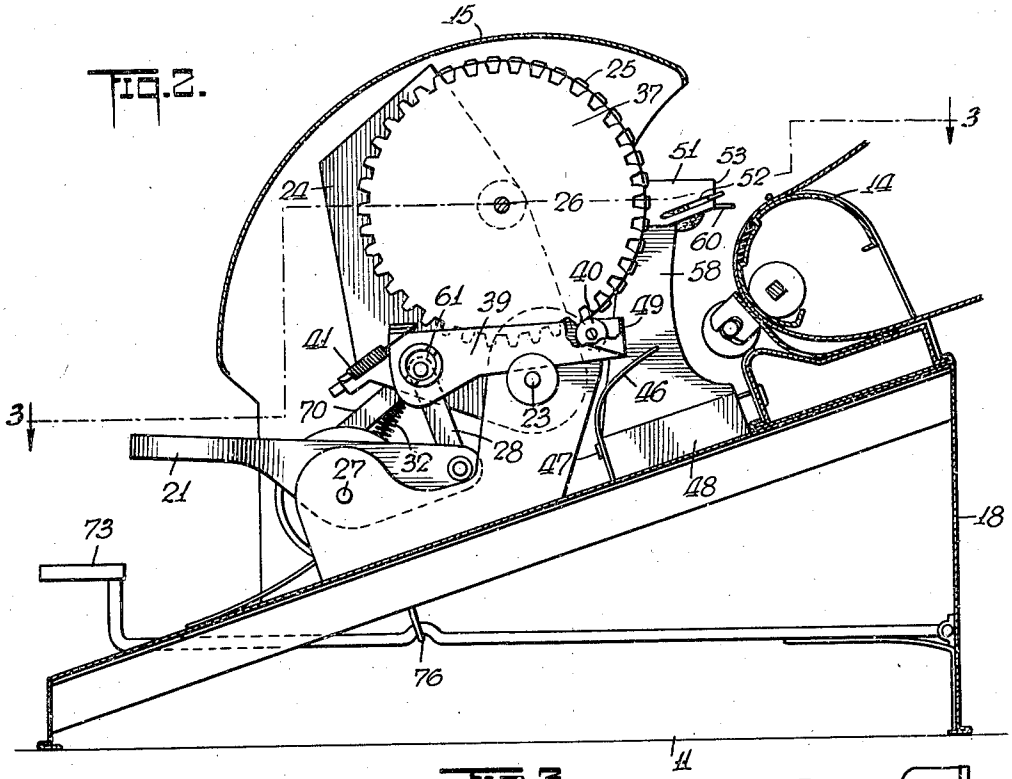
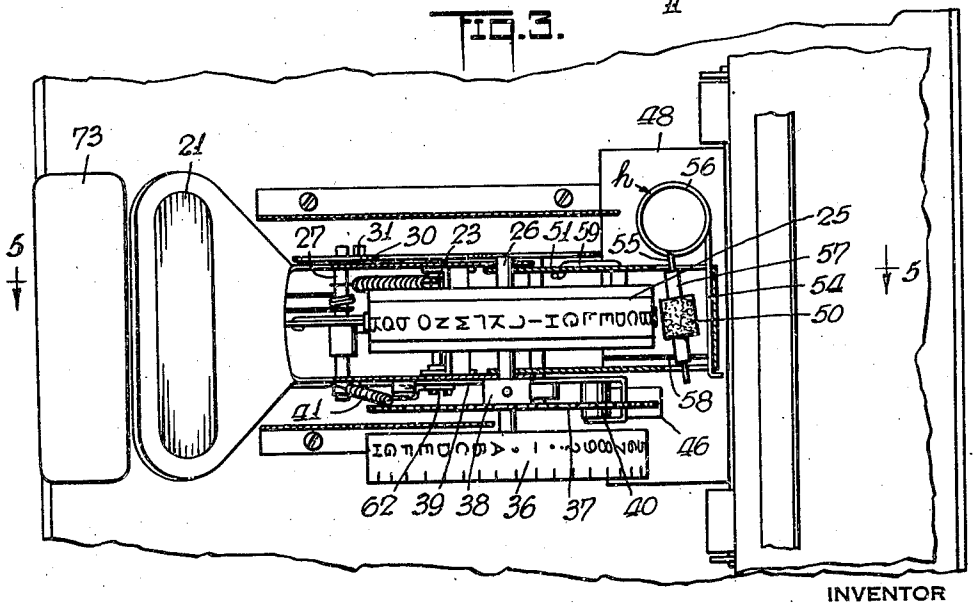


Fig. 3.



INVENTOR
Samuel I. Berger
BY
Dean Fairbank & Hirsch
ATTORNEYS

Nov. 1, 1949. S. I. BERGER 2,486,702

TOY TYPEWRITER

Filed March 29, 1946 4 Sheets-Sheet 3

FIG. 5.

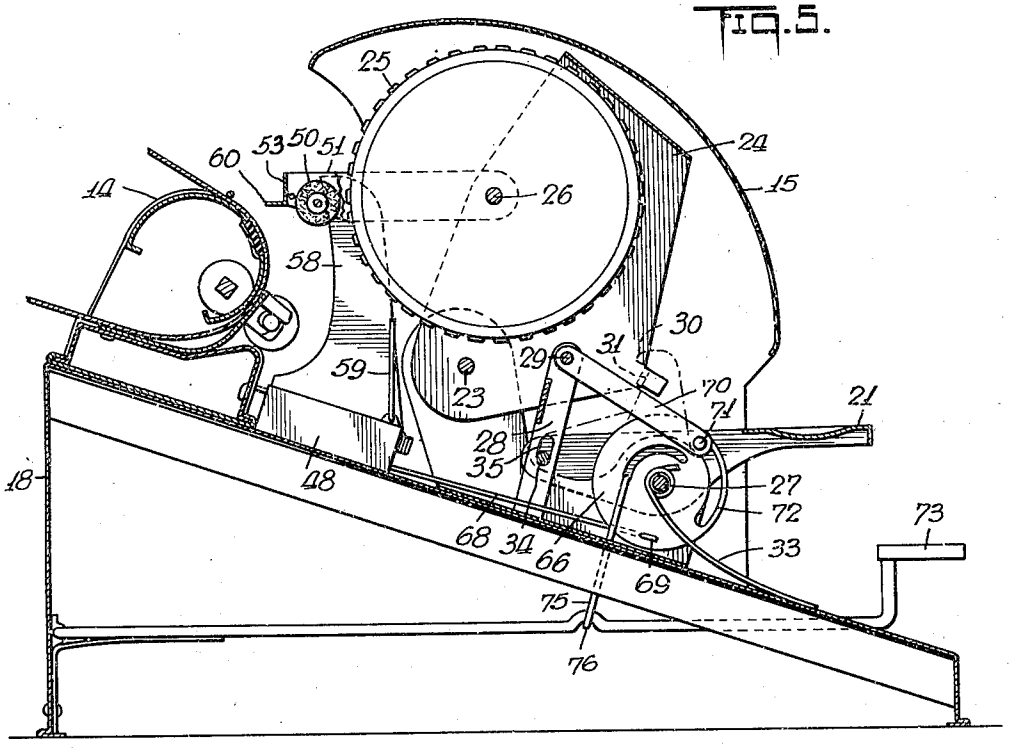


FIG. 6.

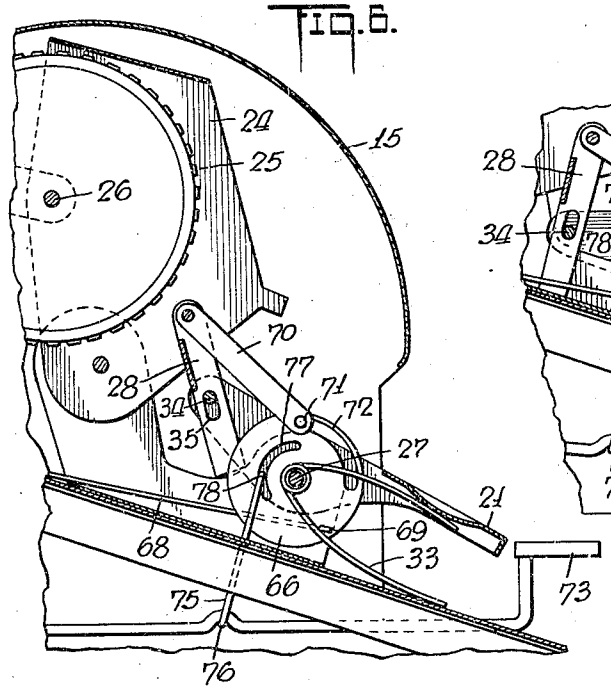
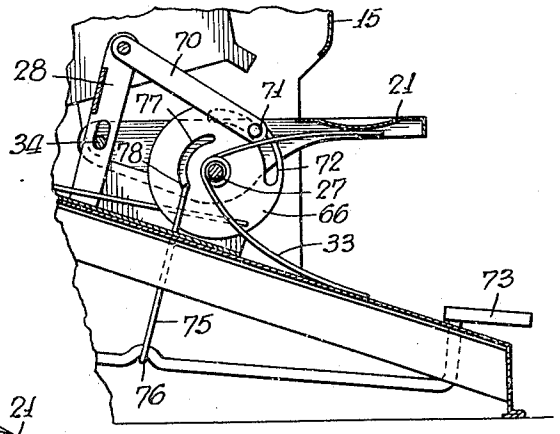


FIG. 7.



INVENTOR
Samuel I. Berger
BY
Dean Fairbank & Hirsch
ATTORNEYS

Nov. 1, 1949. S. I. BERGER 2,486,702

TOY TYPEWRITER

Filed March 29, 1946 4 Sheets-Sheet 4

FIG. 8.

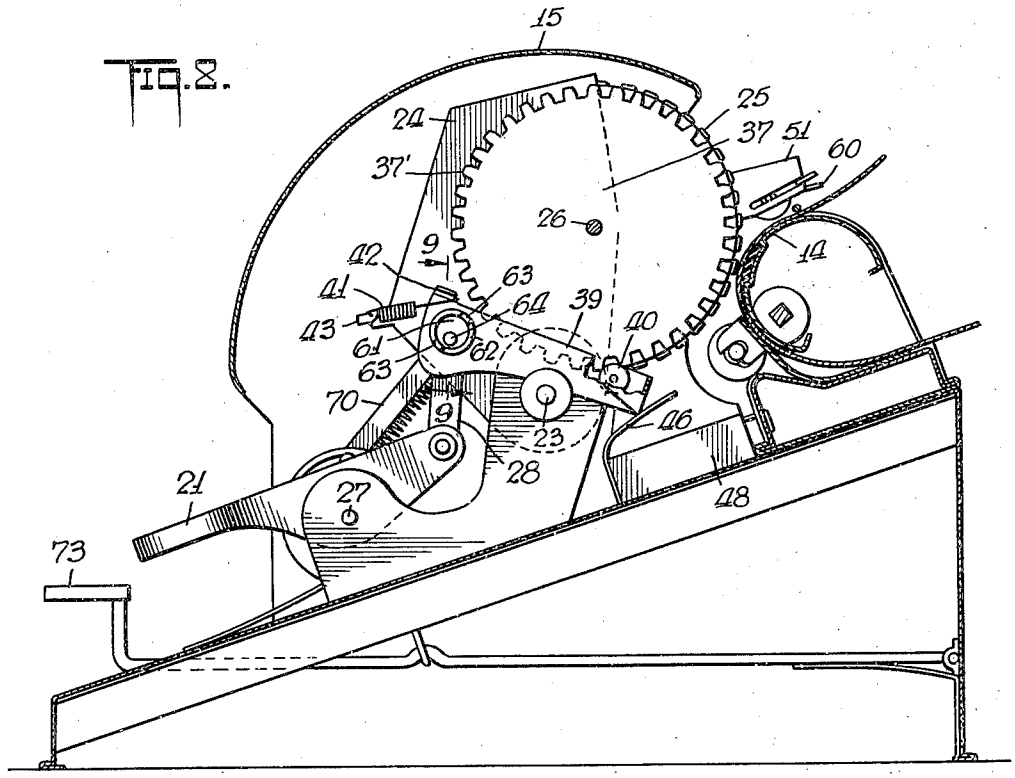


FIG. 9.

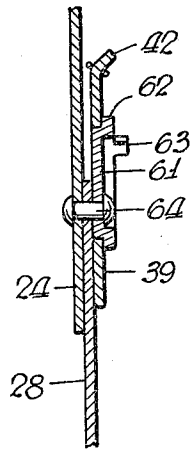
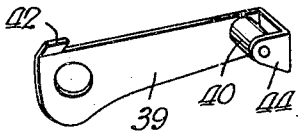


FIG. 10.



INVENTOR
Samuel I. Berger
BY
Dean Fairbank & Hirsch
ATTORNEYS

Patented Nov. 1, 1949 2,486,702

UNITED STATES PATENT OFFICE

2,486,702

TOY TYPEWRITER

Samuel I. Berger, Newark, N. J.

Application March 29, 1946, Serial No. 658,318

11 Claims. (Cl. 197—47)

1

It is among the objects of the present invention to provide a toy typewriter which has all of the advantages of that of my previous application Serial No. 626,199, filed November 2, 1945, which has issued as Patent No. 2,398,765 dated April 23, 1946, including the use substantially solely of sheet metal and rod stock to simulate in appearance a genuine portable typewriter, and to do so by a structure of lower cost, more attractive appearance, greater convenience in operation and enhanced reliability in use.

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

Fig. 1 is a perspective view of a toy typewriter according to the present invention showing its general appearance, with the simulated keyboard and associated structure in place thereon,

Fig. 2 is a transverse sectional view thereof taken along line 2—2 of Fig. 1 but with the simulated keyboard removed more clearly to disclose the construction,

Fig. 3 is a cross sectional view taken along line 3—3 of Fig. 2,

Fig. 4 is a transverse sectional view taken on line 4—4 of Fig. 1, and showing the carriage in idle position,

Fig. 5 is a transverse sectional view taken on line 5—5 of Fig. 3,

Fig. 6 is a fragmentary view similar to Fig. 5, showing the key lever depressed,

Fig. 7 is a view similar to Fig. 6, showing the spacing lever depressed,

Fig. 8 is a view similar to Fig. 2, showing the key lever depressed and the type wheel in typing position,

Fig. 9 is a transverse sectional detail view taken on line 9—9 of Fig. 8, and

Fig. 10 is a perspective view of the pawl lever.

Referring now to the drawings, the toy typewriter shown in perspective in Fig. 1 simulates the general appearance of a modern portable typewriter, presenting as it does a base 11, a simulated standard keyboard 12, a housing 13 to the rear thereof of the shape and dimensions commonly used on standard typewriters to enclose the key lever basket and the ribbon mechanism, and a platen structure 14 to the rear of the housing.

The sham keyboard and housing are preferably of a single sheet metal stamping, the housing portion being enlarged at its middle as a hood 15 to enclose the main operating parts of the toy typewriter, which are mounted on an oblique rectangular platform 16 and are quite different from those of a standard portable typewriter.

2

That platform is a unitary part of the base that has a short front wall 17, a higher rear wall 18 and trapezoidal side walls 19. The sham keyboard is divided at 20 and single key lever 21 protrudes therefrom, depression of which effects the typing operation.

Upon the middle of the platform is affixed a standard, preferably a U-shaped sheet metal bracket 22, between the walls of which is pivoted on a shaft 23, a carriage, preferably also a U-shaped sheet metal blank 24, which serves to mount the type wheel 25 that is pivoted between the side walls of said carriage about an axle 26. The type wheel has rigidly about the periphery thereof the type heads comprising the sequence of letters and numerals. Pivoted on an axle 27 through the forward end of the standard, is the key lever 21, the rear end of which is pivoted to a link 28, the upper end of which is pivoted at 64 to the carriage 24, so that the latter will be pivoted about its pivot 23 by thrust transmitted from the key lever 21 through the link 28 for rocking the type wheel rearward to typing position against the simulated platen 14, which latter need not be described as it it substantially identical with that of my prior application above identified.

Preferably the type lever is formed with a hook 30 unitary therewith which in normal or idle position of the machine extends over a lug 31 unitary with the carriage 24 and thereby locks the latter in idle position, to which it is urged by coil spring 32. The type lever 21 is retained in said locking position by the pressure exercised by its return leaf spring 33 intervening between the platform 16 and the finger end of the key lever 21. As in the earlier case, the pivot pin 34 connecting the key lever 21 to link 28 rides in an elongated slot 35 in said link to afford the lost motion during the initial portion of the key lever stroke for clearance of the locking hook 30 preparatory to tilting the carriage to typing position.

The type wheel, according to the present invention is adjusted to a selected setting by means of a rotatable dial knob 36 keyed to the end of the type wheel axle 26 and exposed laterally at the exterior of the hood 15, as best shown in Fig. 1. This knob bears the sequence of letters and numerals on its cylindrical side wall and is preferably hollowed out at its inner side to accommodate the nut (not shown) which clamps it upon the axle end 26'. Ratchet means is preferably provided to step the type wheel around in effecting setting thereof by the turning of dial

knob 36. That means preferably comprises a ratchet wheel 37 keyed as at 38 upon the type wheel axle 26, interposed between the type wheel and the dial knob and provided with teeth 37', the interdental spaces of which correspond to the respective characters and numerals on the dial knob and type wheel. Coacting with the ratchet wheel is a pawl lever 39, which is pivotally mounted at one end to one wall of the carriage 24 and which bears a pawl roller 40 near its opposite end urged by coil spring 41 into engagement between teeth of the ratchet. The coil spring is preferably anchored at one end to a lug 42 near the mounting end of the pawl lever and at its other to a lug 43 on the adjacent portion of the carriage 24. The pawl roller 40 is preferably pivoted, as best shown in Fig. 10, in a clevis formed between the main length of the pawl lever and the reversely turned extremity 44 of said lever.

The hood 15 encases the type wheel 25, the associated carriage 24 and standard 22, as well as the ratchet wheel 37 and its associated pawl lever 39, only the dial knob 36 upon the protruding extremity of the type wheel axle 26 being exposed laterally of said hood for facility of manually turning the same. The hood 15 is preferably formed with a unitary outstanding pointer 45 overlapping the side of the dial knob for indicating the setting of said knob and accordingly of the type wheel.

Preferably a leaf spring 46 is affixed to the platform, desirably at 47, to the escapement box 48 mounted on the platform 16, and rises in an upward bend, as best shown in Fig 2, in the path of the lower edge of the clevis cross bar 49 on the pawl lever 39. Accordingly, as the type lever 21 is depressed to urge the type wheel to typing position, as best shown in Fig. 8, the pawl is depressed against and deflects the leaf spring 46, as best shown in Fig. 8, more securely to retain the pawl lever against the ratchet wheel and thereby to preclude any shifting of the type wheel from set position.

For applying ink to the type head, an ink retaining absorbent roller 50 which is itself conventional, is preferably provided. This roller is mounted upon a bail 51 straddling the type wheel and pivoted about the type wheel axle 26. The bail has a pair of slots 52 extending longitudinally and preferably obliquely from its cross arm 53 and in said slots is mounted a wire spring holder *h* with two legs 54 and 55 resiliently urged apart by the connecting loop 56, one of said arms 55 extending through a sleeve 57 between the arms of the bail upon which sleeve is mounted the ink roller 50. Accordingly, the spring holder may readily be withdrawn for replacement of the ink roller as required. In the normal or idle position of the machine, the ink roller is held free from engagement with the type wheel, as best shown in Figs. 3 and 5. This is accomplished by a stop post 58 of sheet metal rising from the platform, the forward edge of which post engages the sleeve 57 and deflects the latter as the carriage nears normal or idle position in its return stroke, as shown in Figs. 3 and 5. The bail 51 is also connected by means of a wire link 59 to the base, desirably to the escapement box 48 thereon, as most clearly shown in Fig. 4. Accordingly, when the type lever 21 is depressed, after the type wheel has been set, the pivoting movement of the carriage results in a clockwise pivoting of the bail 51, from the position shown in Fig. 4, to clear the platen structure 14, as indicated in Fig. 8. In the course of pivoting the carriage toward typing position, the sleeve 57 clears the stop post 58, so that the wire spring holder *h* brings the ink roller 50 into engagement with the type wheel 25 and rolls therealong during the final portion of the carriage stroke to ink the selected type head.

The inking bail 51 is preferably formed with a unitary outstruck pointer 60 at the middle of its cross arm 53 to indicate the position of imprint on the paper.

In the initial alignment of the machine, it is desirable to adjust the pawl lever 39 relative to the ratchet wheel 37 in order to ensure accurate detenting of the selected type in printing position relative to the platen structure. To this end means is provided for effecting slight adjustment of pawl lever 39 with respect to the carriage. For this purpose the pivot end of pawl lever 39 is preferably off center through a circular cam plate 61 fitting into a corresponding circular hole in the pawl lever 39, the cam plate being flanged as at 62 for adequate bearing upon the pawl lever 39 and having outstanding lugs 63 to facilitate rotary adjustment of said cam plate. The pivot pin 64 eccentrically through the cam plate 61 and the link 28 is a rivet, headed over on one side of the type wheel carriage 24. It will thus be seen that by rotary adjustment of the cam plate 61, the pawl lever 39 may be moved forward or back slightly about its pivot 64 for the desired accurate detenting of the selected type.

The escapement structure is quite similar to that of my above identified application and need therefore be but briefly described. The escapement box 48 is conventional and its interior parts are therefore not shown. Its protruding pawls (not shown) coact with an indented rack 65 (Fig. 1) on the base of the platen structure. The escapement is operated from a cam plate 66 freely rotatable about the axle 27 of the key lever and connected by a wire link 68 hooked at 69 to plate 66 at one end and to the mechanism in the escapement box 48 at the other. A link 70 pivoted at one end as at 29 to carriage 24 and having a stud 71 at its other end riding in an arcuate slot 72 in the cam plate causes the latter to be pivoted (Figs. 5 and 6) near the end of the depression stroke of key lever 21, thereby to pull the link 68 forward for the escapement action.

The spacer lever 73 protruding through the forward part of the platform 16 is pivotally anchored at its rear end as at 74 to the rear wall 18 and is connected by an upstanding link 75 pivoted thereto at 76 to the end of an arcuate slot 77 in the cam plate 66 into which it is hooked at 78, so as to ride idly in said slot when the type lever 21 is depressed, and to actuate the escapement through the link 68 when the spacing lever 73 is depressed, the slot 72 of the cam plate affording the requisite lost motion relative to the type lever in the latter action.

The operation may be briefly summarized.

The dial knob 36 is first turned to set position, indicated by pointer 45. In reaching that setting, the ratchet wheel 37 ratchets over the roller 40 of the spring urged pawl lever 39 and resiliently holds the ratchet wheel and with it the type wheel in the set position.

The key lever 21 is now depressed and during the movement of pin 34 in lost motion slot 35, the locking hook 30 becomes disengaged. In the continued depression of key lever 21, the carriage 24 rocks about its pivot 23 to cause the selected

type to become pressed against the paper on the platen, as best shown in Fig. 8. In this operation the lower forward edge of the pawl clevis **39** engages and depresses the spring **46** and its roller **40** is thereby resiliently held against the ratchet wheel securely to retain the latter and with it the type wheel against displacement from said position.

In the course of the depression of the key lever, the holder *h* for the ink roller clears the stop post **58** so that the roller **50** is resiliently urged against the type wheel, and in the course of the forward pivoting of the carriage the bail **51** is pivoted by link **59** for its roller **50** to ink a few of the type heads including the one to be imprinted and to clear the platen as best shown in Fig. 8, as the imprint occurs.

Upon release of the key lever, the spring **32** returns the carriage **24** to the home position shown in Fig. 4 and the stop post **58** at the end of said return movement deflects the ink roller **50**, as best shown in Fig. 3, away from the type wheel **25** so that no inking occurs during the setting of the type wheel for the next character to be imprinted. Also the spring **33** returns the key lever to home position in which it locks the carriage against pivoting by the engagement of locking hook **30** with lug **31**.

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 typewriting mechanism, the combination of a base, a platen structure at the rear part thereof, a carriage pivoted on said base, a type wheel having an axle rotatably mounted in said carriage, a rotatable dial knob affixed to one end of said axle, and a hood affixed to said base and enclosing said type wheel, but exposing said knob at one side thereof, said hood having a fixed pointer adjacent the periphery of said knob.

2. In a typewriting mechanism, the combination of a base, a platen structure at the rear part thereof, a carriage pivoted to said base, a type wheel having an axle rotatably mounted in said carriage, a dial knob affixed to one end of said axle, a hood affixed to said base and enclosing said type wheel, but exposing said knob at one side thereof, said hood having a fixed pointer adjacent the periphery of said knob, a ratchet wheel coaxial and rigid with said type wheel and said knob, and a spring pressed pawl lever pivoted to said carriage and coacting with said ratchet wheel for resiliently retaining the type wheel in set position.

3. In a typewriting mechanism, the combination of a base, a platen structure at the rear part thereof, a carriage pivoted to said base, a type wheel having an axle bearing in said carriage, a dial knob affixed to one end of said axle, a hood affixed to said base and enclosing said type wheel but exposing said knob at one side thereof, said hood having a fixed pointer adjacent the periphery of said knob, a ratchet wheel coaxial and rigid with said type wheel and said knob, a spring pressed pawl lever pivoted to said carriage and coacting with said ratchet wheel for resiliently retaining the type wheel in set position, means for rocking said carriage to imprint the selected type against the platen, and resilient stop means in the path of said pawl lever as the typing position of the carriage is reached, resiliently to press the same against the periphery of said ratched wheel to preclude displacement of the type wheel from set position in the course of typing.

4. A toy typewriter, comprising a base, a standard rising therefrom, a carriage pivoted in said standard, said carriage having a type wheel with an axle pivoted in the walls of said carriage, a ratchet wheel affixed on said axle, a rotatable dial knob affixed in exposed position to the end of said axle for setting of said type wheel, a pawl lever pivoted to said carriage, and a spring anchored to said lever and said carriage for urging said pawl lever toward said ratchet wheel, said pawl lever having a roller near its free end resiliently ratcheting over said ratchet wheel in the setting of said knob.

5. A toy typewriter comprising a base, a standard rising therefrom, a carriage pivoted in said standard, said carriage having a type wheel therein with an axle pivoted in the walls of said carriage, a ratchet wheel affixed on said axle, a rotatable dial knob affixed to said axle in exposed position, a pawl lever pivoted to said carriage, having a pivoted roller near its free end, and a spring anchored to said lever and said carriage for urging said pawl lever toward said ratchet wheel resiliently to ride over the teeth of said ratchet wheel in the setting of said knob, said base having a leaf spring rising obliquely therefrom in the path of the lower free end of the pawl lever as the latter is rocked forward with the carriage toward typing position, thereby to urge the roller thereof into more intimate contact with the ratchet wheel to preclude shifting of the latter from set position.

6. In a toy typewriter, a base, a platen structure rising from the rear thereof, a standard in front of said platen, a carriage pivoted in said standard, an axle rotatably mounted in said carriage and having affixed thereon in coaxial relation therewith, a type wheel, a ratchet wheel, and a dial knob, the latter being exposed beyond the carriage at one side thereof, means for rocking said carriage to typing position, said means comprising a type lever pivoted to the standard, and a link connecting said type lever to the carriage for tilting the latter, a pawl lever pivoted to said carriage adjacent the carriage end of said link and having a ratchet wheel engaging roller near the free end thereof, and a spring urging the roller end of said lever against the periphery of said ratchet wheel.

7. The combination recited in claim 6 in which a circular plate bears in an opening in the pawl lever and in which said plate has an off-center pivot in said carriage for adjustment of the pawl lever relative to the ratchet wheel.

8. In a toy typewriter, the combination of a base, a platen structure near the rear thereof, a sheet metal standard, a sheet metal carriage having sides adjacent to the sides of said standard and pivoted therein, a spring urging said carriage about its pivot to idle position, a key lever for tilting the carriage rearwardly to typing position, a type wheel within said carriage, an axle rigid therewith having bearings in said carriage, a ratchet wheel rigid and coaxial with said axle and externally of the carriage, a pawl lever pivoted to said carriage and having a roller near the free end thereof, a spring urging the

pawl lever for engagement of the roller thereof with the periphery of the ratchet wheel, a hood about said carriage and said ratchet wheel, exposing one end of said axle, and a dial knob affixed to the said protruding end of said axle and rigid therewith for setting said type wheel.

9. The combination recited in claim 8 in which the pawl lever is of sheet metal and has a reversely turned extremity, the roller extending transversely between the lever proper and said extremity and engaging the ratchet wheel, a leaf spring rising obliquely from the base and in the path of the lower end of said reversely turned pawl lever end and engaged and depressed by the latter as the type wheel in the operation of the key lever approaches typing position.

10. In a toy typewriter, the combination of a base, a platen structure rising from the rear thereof, a standard rising from said base and in front of said platen structure, a carriage pivoted in said standard, a type wheel having an axle rotatably mounted in said carriage, a ratchet wheel coaxial with and affixed to said axle, a pawl lever having a pivot on said carriage at the outer side thereof and having a roller near its free end, a spring resiliently urging said roller against the periphery of said ratchet wheel, a hood affixed to said base and encompassing said carriage, said standard and said ratchet wheel and laterally exposing one end of said axle, a rotatable dial knob affixed to said exposed axle end, a sequence of letters and numerals peripherally about said

knob, and a pointer near the periphery of said knob and rigid with said hood.

11. A toy typewriter comprising a base, a single metal stamping comprising a sham keyboard and a generally cylindrical housing portion to the rear thereof affixed to said base, said housing portion having a central hood, a standard under said hood affixed to said base, a type wheel carriage under said hood, a key lever protruding through a corresponding port in said sham keyboard for moving said type wheel carriage to typing position, and means exposed at the exterior of said hood for setting the type wheel.

SAMUEL I. BERGER.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
322,989	Spiro	July 28, 1885
438,665	Weiss	Oct. 21, 1890
489,072	Edland	Jan. 3, 1893
627,218	Wendt	June 20, 1899
1,944,597	Fischer	Jan. 23, 1934
2,210,064	Chisholm	Aug. 6, 1940

FOREIGN PATENTS

Number	Country	Date
28,122	Great Britain	1906
278,277	Great Britain	1927