W. F. HELMOND.

TYPEWRITING MACHINE.

APPLICATION FILED MAR 15, 1919.

1,432,695.

Patented Oct. 17, 1922.

Fig. 1.

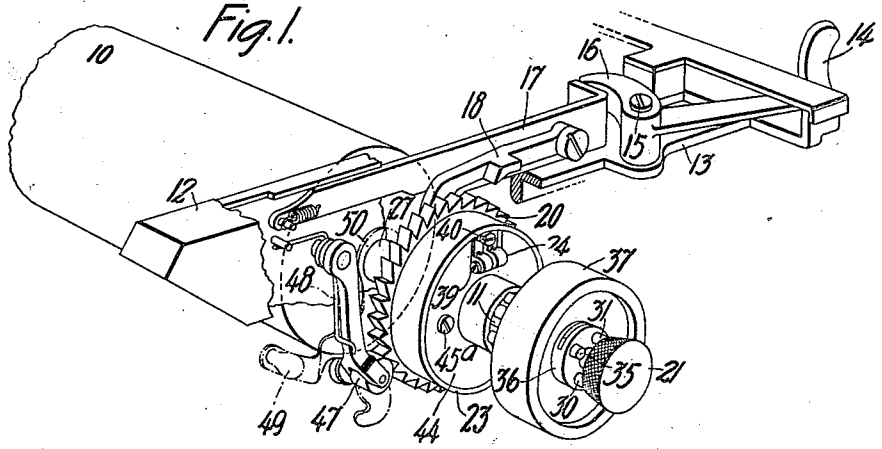


Fig. 2.

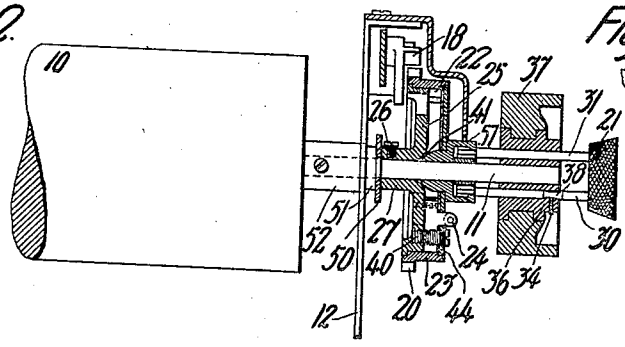


Fig. 3.

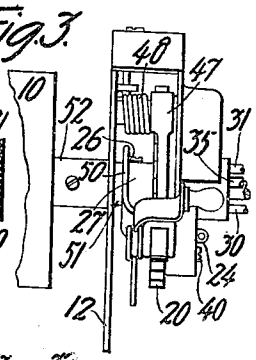


Fig. 4.

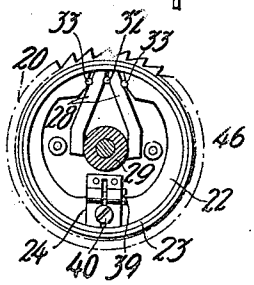


Fig. 5.

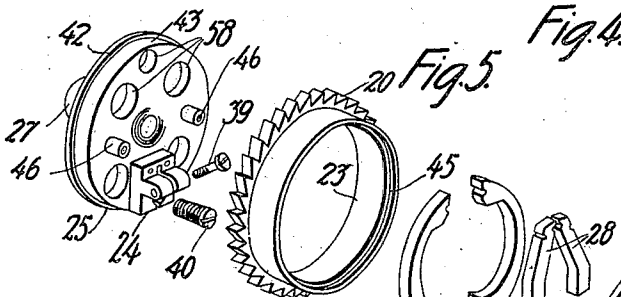
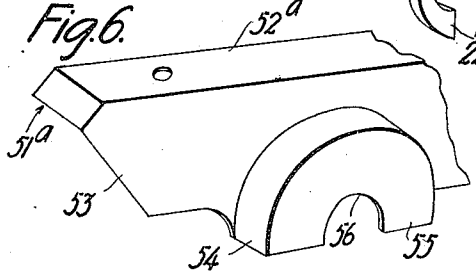
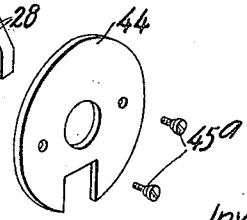


Fig. 6.





Inventor:
William F. Helmond
by B. L. Stickney
Attorney.

Patented Oct. 17, 1922. 1,432,695

UNITED STATES PATENT OFFICE.

WILLIAM F. HELMOND, OF HARTFORD, CONNECTICUT, ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

TYPEWRITING MACHINE.

Application filed March 15, 1919. Serial No. 282,933.

To all whom it may concern:

Be it known that I, WILLIAM F. HELMOND, a citizen of the United States, residing in Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Typewriting Machines, of which the following is a specification.

This invention relates to platen-release mechanism for typewriting machines, and is herein disclosed as applied to an Underwood typewriting machine, embodying many of the features set forth in my Patent No. 1,225,331, dated May 8, 1917.

In said patent, the usual platen of the Underwood typewriting machine is fast to the usual axle, and journaled on this axle is shown a line-space-wheel, which is adapted to be clutched to the axle by means of a clutch, controlled by a handle or finger-piece, adapted to be pulled axially of the platen. The clutch disclosed in said patent lies outside of the line-space-wheel, and is connected thereto by a comparatively small hub, to enable the usual cover-plate of the shift-frame to extend down and shield the line-space-wheel, so that it will not become entangled with anything, such as the sleeve of the typist's dress. The clutch disclosed in said patent is extremely effective for the purpose for which it was designed, and, being enclosed itself, for the most part, it has little liability of becoming entangled in the manner described.

The added space occupied by the hub in said patented structure renders the typewriting machine somewhat inconvenient to use, under some circumstances, since the length of the carriage of the typewriter, which frequently is awkwardly great to begin with, is increased by the necessity of having such a hub. Any added length of the carriage increases, for example, the liability of the carriage to catch in a folding desk when the desk is being closed, and also increases the likelihood of the machine being blocked by the end of the carriage striking against the wall when the machine is being used endwise near the wall of a room.

According to the present invention, the line-space-wheel may itself form one member of a clutch, or be integral therewith, thus eliminating said hub and making it possible to bring the usual cover-plate down over the face of the clutch, as well as the line-space-wheel, without making the cover-plate extremely long or conspicuous. Since the line-space teeth preferably occupy the usual position lengthwise of the carriage, this enables the rest of the clutch to be brought up substantially to the usual position of the line-space wheel, thus enabling the ordinary hand-wheel and the clutch-operating finger-piece to be brought materially closer to the carriage. The present improvement, moreover, lightens the carriage, by eliminating the hub and other body parts, and the heavy parts of the clutch may be of openwork, since dirt is kept out of them by the cover-plate. The device may be used on a carriage of the ordinary type, the principal difference being that the arm, usually employed for casting off the line-space detent, is advantageously journaled between the line-space wheel and the platen, instead of outside the line-space wheel.

Other features and advantages will hereinafter appear.

In the accompanying drawings,

Figure 1 is a perspective view of an Underwood typewriting machine, showing the present invention as applied thereto.

Figure 2 is a side view of the same, mainly in section.

Figure 3 is a view, showing the parts seen in Figure 2, but viewed from the outside, instead of in section.

Figure 4 is a sectional end view, showing the clutch members, with the clutch-cover removed.

Figure 5 is a dissected perspective view of the parts of the clutch proper.

Figure 6 is a perspective view of a part of a cover-plate.

In the Underwood typewriting machine, the platen 10 is fast to an axle 11, journaled in the end plates 12 of the shift-frame, which is connected to the usual carriage 13. For line-spacing purposes, there is provided the usual handle 14, pivoted at 15, so that when swung to the right, a bell-crank extension 16 will thrust rearwardly a pawl-carrying slide 17, with the result that a pawl 18 thereon engages the teeth 20 of a line-space-wheel to turn it.

In order to cause the turning of the line-space-wheel-teeth 20 to turn the platen 10, there is provided a finger-piece 21, which, when thrust in, causes clutch-arms 22, lying within the inner surfaces of a clutch-ring 23,

to be expended against said ring, with the result that the arms 22 seize the ring 23. The teeth 20 are formed integral with the outer periphery of the ring 23, with the result that when the arms 22 bind the ring 23 to the axle 11, they also bind the teeth 20 to the axle. In order that the arms 22 may turn with the platen axle, they rest against a split lug 24, fast upon the face of a disk 25, which is held to the axle 11 by a set-screw 26, passing through the hub 27 of the disk.

The connections between the finger-piece 21 and the arms 22 include secondary arms 28, which are adapted to be expanded or thrust outward when the finger-piece 21 is pushed in, since the finger-piece is connected to a cone-shaped expanding member 29 by rods 30, 31. When the finger-piece 21 is pushed in, so that the cone 29 forces apart the arms 28, the arms pivot on a floating pin 32, between them, which forms a toggle joint with outer pins 33 lying between the arms 28 and the arms 22. When the expanding cone 29 reaches home, it is held in place, because a keeper 34 swings over a plunger 35, fast to the cone, the keeper for this purpose being pivoted within the hub 36 of the hand-wheel 37, and being swung to effective position by a cam 38 upon the rod 30, as more fully set forth in said patent and in my Patent No. 1,150,366, dated August 17, 1915.

In order to enable the arms 22 to be adjusted, to allow for wear, etc., the lug 24 is provided with the adjusting screws 39 and 40, more fully described in Patent No. 1,225,331, aforesaid. The expanding cone 29 is slidably mounted upon the shaft or axle 11, and, when thrust inwardly, stands in such a position that its point rests within a hollow 41 in the plate or disk 25, said plate being shaped as if drawn out to form the hub 27. Said plate 25 is provided with a flanged edge 42, which fits into a rabbet in the ring 23 beneath the teeth 20, so that the flanged edge 42 forms a thrust bearing to hold the line-space-teeth 20 in position, while outward from the flange 42 the periphery 43 of the disk 25 forms a drum having a broad surface to form a smooth bearing for the ring 23. The clutch-ring 23 forms an extension from the line-space wheel having the teeth 20, and projects beyond the drum 43 of the clutch-disk 25, there to provide an internal annular clutch surface. It is to be noted that the curved or arcuate clutch-arms 22 conform in their exterior outline with the inner annular clutch surface of the projecting extension formed by the clutch-ring 23, and that the frictional contact between these clutch-arms and this inner clutch surface extends throughout the greater part of the latter. In order to hold the ring 23 in place, so that it will not slip off toward the end of the carriage, there is provided a circular cover-plate 44, adapted to fit in a rabbet 45, cut in the edge of the ring 23 and held in position upon the plate 25 by screws 45^a, which pass through the plate 44, and are threaded into lugs 46 upon the face of the plate 25. The cover-plate 44 also forms an outer bearing for the line-space wheel and its clutch-ring 23.

The usual line-space-detent 47 is held by the usual spring 48 against the teeth 20, in order to align the platen 10 properly during the line-spacing operation. For making this detent 47 ineffective, the usual silencing handle 49 may be employed, said handle, however, having a body 50, which is journaled by a hub 51 upon the axle 11, outside of the end plate 12, against which the usual hub 52 of the platen axle bears on the inside.

The present structure brings the ring 23 to such a position that a cover-plate 51^a, having a top 52^a of the usual form, can carry an apron 53 extending down practically to the ring 23 and fitting the ring fairly closely. If desired, the apron may include an arch extension 54 over the ring 23 having a bib 55 terminating in an arc 56 embracing the hub 57 of the cone 29, and far enough from the plate 44 to clear the lug 24. Since the plate 25 is thus sheltered from dirt by the cover-plate, it may be an open structure, shown as including a number of openings 58, adapted to materially lighten the weight of the clutch because of the metal removed.

Variations may be resorted to within the scope of the invention, and portions of the improvements may be used without others.

Having thus described my invention, I claim:

1. The combination with a platen axle and a plate in which it is journaled, of a ring comprising line-space teeth, a clutch comprising a plate fast to said axle, said plate forming a journal for said ring, a finger-piece slidable axially of the axle, clutching members mounted upon said clutch-plate and adapted to be forced by said finger-piece against said ring to clamp the ring to the clutch-plate, a line-space detent journaled upon said journal-plate, and a casting-off arm for said detent journaled upon said axle between the clutch and the journal-plate.

2. The combination with a platen axle and a plate in which it is journaled, of a ring comprising line-space teeth, a clutch comprising a plate fast to said axle, said plate forming a journal for said ring, a finger-piece slidable axially of the axle, clutching members mounted upon said clutch-plate and adapted to be forced by said finger-piece against said ring to clamp the ring to the clutch-plate, and a cover-plate extending over said line-space teeth and including an apron having an arc embracing the ring.

3. The combination with a platen axle

and a plate in which it is journaled, of a ring comprising line-space teeth, a clutch comprising a plate fast to said axle, said plate forming a journal for said ring, a finger-piece slidable axially of the axle, clutching members mounted upon said clutch-plate and adapted to be forced by said finger-piece against said ring to clamp the ring to the clutch-plate, a cover-plate extending over said line-space teeth and including an apron having an arc embracing the ring, an expanding member having a hub upon said platen axle and forming part of the clutch, and a bib on said apron extending over the clutch to embrace the hub.

4. The combination, with a cylindrical platen for a typewriting machine, of a circular clutch-disk in fixed relation therewith and concentric with the axis thereof and having a part forming a drum providing a peripheral bearing surface, a line-space wheel journaled on the periphery of said drum formed by the clutch-disk, the line-space wheel having a cylindrical extension concentric with the platen axis and projecting beyond said drum to provide an internal annular clutch surface, clutch mechanism carried by the clutch-disk and encircled by said inner annular clutch surface formed by said projecting extension, said mechanism comprising clutch elements conforming in exterior outline with said inner annular clutch surface of said projecting extension and capable of being urged into frictional clutching engagement therewith, the frictional contact between said clutch elements and said inner annular clutch surface of said projecting extension extending throughout the greater part of the circumference of the latter, and a circular cover-plate mounted on the clutch-disk and fitting within the outer end of said projecting extension to form an outer bearing therefor and to cover the clutch mechanism, said disk having a peripheral flange and the line-space wheel and its said extension being rabbeted at one end to receive said peripheral flange of the clutch-disk and being rabbeted at the other end to receive the periphery of the cover-plate.

5. The combination with a platen axle and an open-work clutch member fast thereon forming part of a clutch, of a ring journaled upon said clutch member comprising line-space teeth, a cover-plate for the clutch adapted to hold the ring upon the member, members within said clutch, a finger-piece slidable along said axle to expand said members against said ring to make the clutch effective, and a cover-plate extending around said ring adapted to shield the clutch from dirt.

6. The combination with a platen axle and an open-work clutch member fast thereon forming part of a clutch, of a ring journaled upon said clutch member comprising line-space teeth, a cover-plate for the clutch adapted to hold the ring upon the member, members within said clutch, a finger-piece slidable along said axle to expand said members against said ring to make the clutch effective, a cover-plate extending around said ring adapted to shield the clutch from dirt, a plate in which said axle is journaled, so that the open-work member of the clutch faces said last-named plate, a line-space detent journaled upon said last-named plate, and a casting-off handle for said detent journaled on the axle between said last-named plate and the clutch.

WILLIAM F. HELMOND.

Witnesses:
SHIRLEY E. GLEDHILL,
WILLIAM P. SMITH.