July 19, 1938. M. BOOTH 2,123,877

TYPEWRITER ERASING ATTACHMENT

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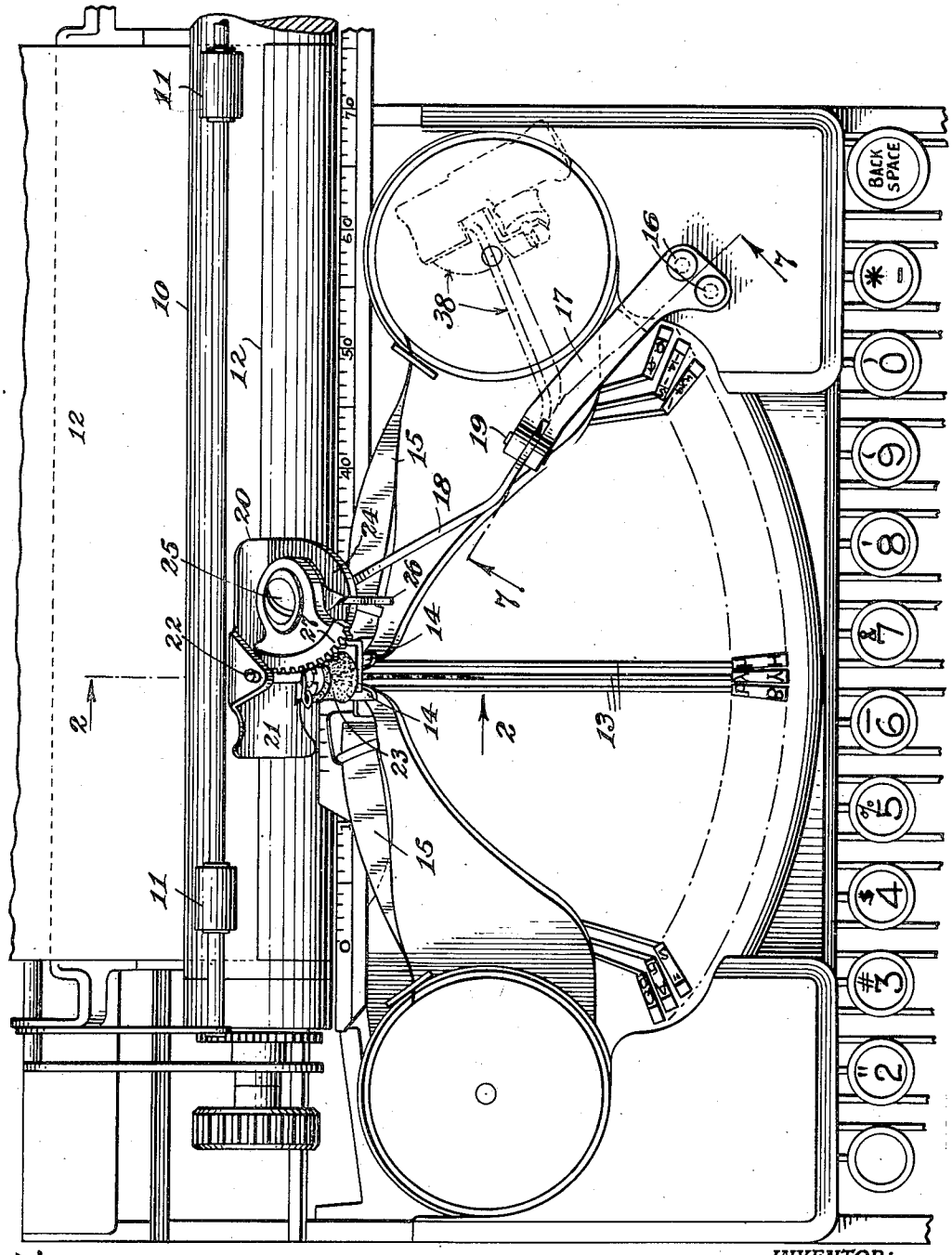


Fig. 1.

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Fig. 2.

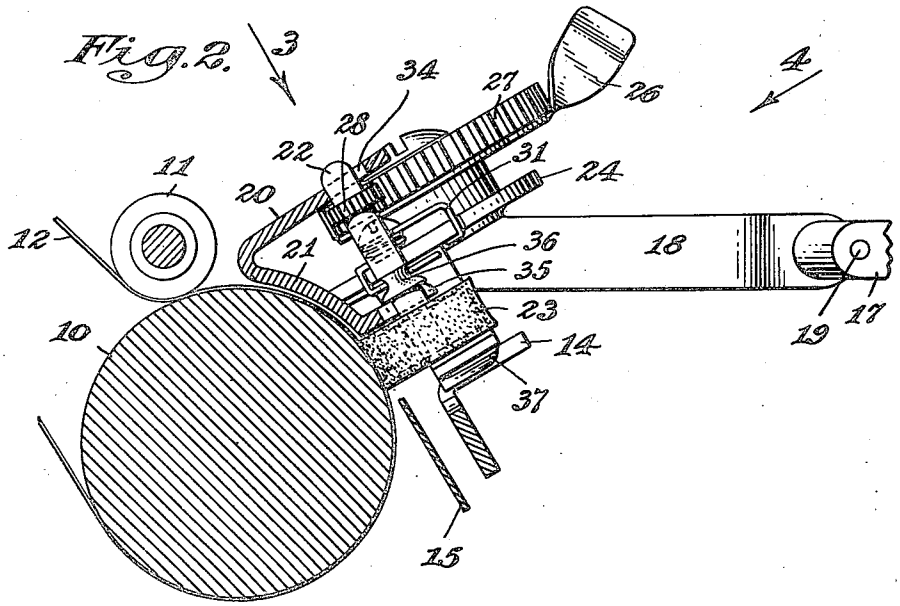
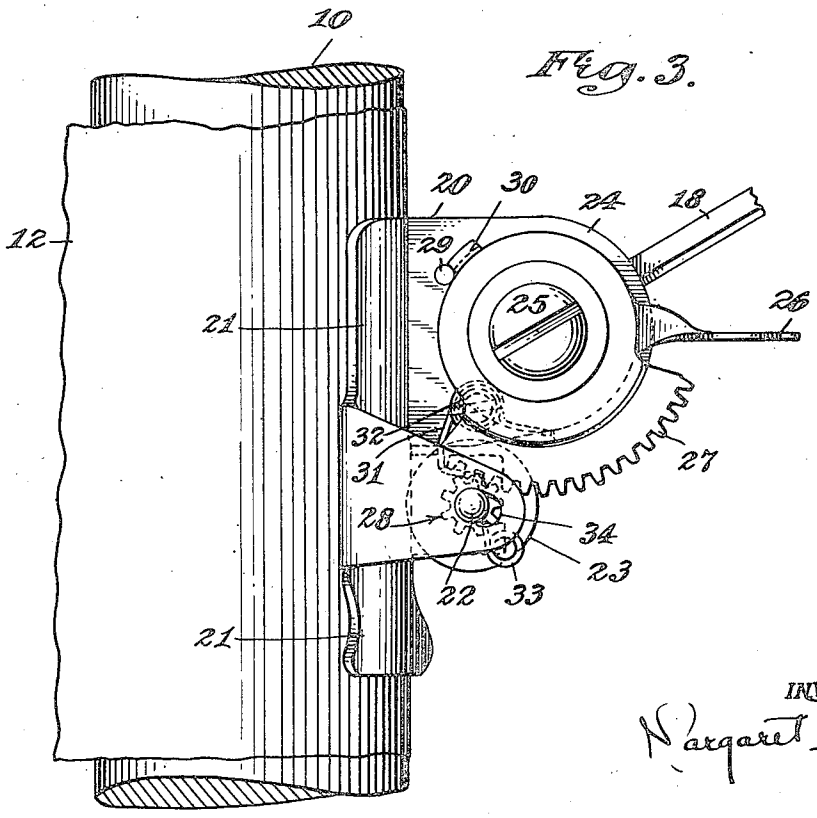


Fig. 3.



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Fig. 4.

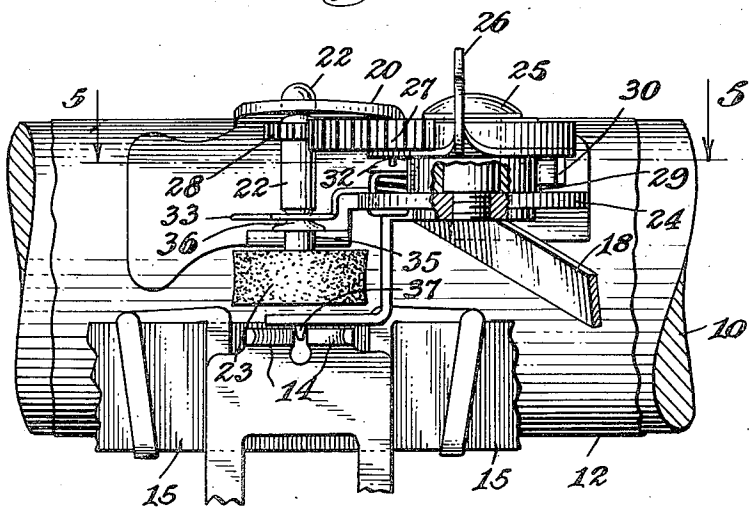


Fig. 5.

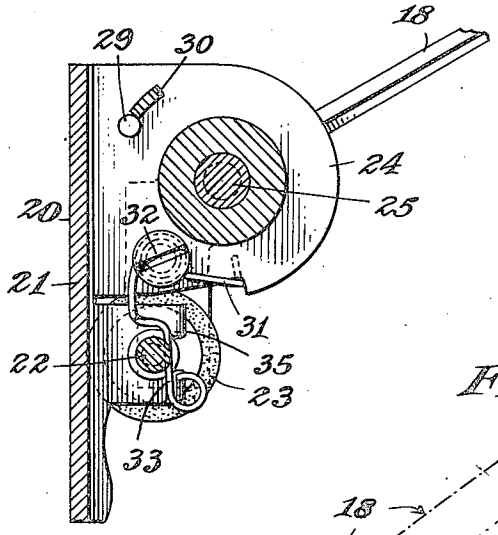


Fig. 6.

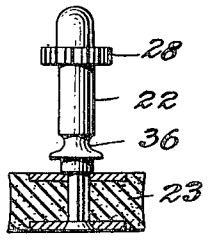
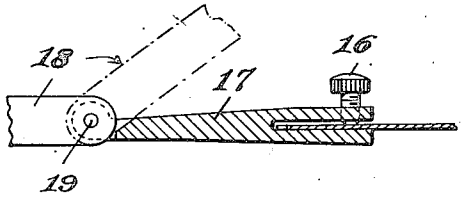


Fig. 7.



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UNITED STATES PATENT OFFICE

2,123,877

TYPEWRITER ERASING ATTACHMENT

Margaret Booth, New York, N. Y.

Application February 18, 1936, Serial No. 64,433

15 Claims. (Cl. 197—181)

This invention relates to an erasing attachment for a typewriter and has for its object to provide a device of this class which is convenient to move into position for erasing some portion of typewriting, which is also convenient to be moved out of the way when not in use, and which is convenient to operate.

Another object is to provide such a device in which the rubber-like eraser is mechanically mounted and moved in a manner to preclude its becoming loaded as erasers are prone to become.

Referring to the drawings, Fig. 1 is a top plan view of a typewriter to which the attachment of this invention has been applied.

Fig. 2 is a section on the line 2—2 of Fig. 1.

Fig. 3 is a view of the device of Fig. 2 looking in the direction of the arrow 3.

Fig. 4 is a view of the device of Fig. 2 looking in the direction of the arrow 4.

Fig. 5 is a view on the line 5—5 of Fig. 4.

Fig. 6 shows the removable erasing wheel and its shaft.

Fig. 7 shows the mounting for this device on the top of the typewriter, as on line 7—7 in Fig. 1.

In Fig. 1 some usual form of typewriter is provided with a platen 10 and guide rolls 11, for the paper 12. The usual type bars 13 are provided with centering guides 14 therefor. The ribbon is illustrated at 15.

The device of this invention includes an arm 17 secured to the top of a typewriter by set screws 16 as shown in Figs. 1 and 7, clamping the arm to a portion of the top of the typewriter. The arm 18 is pivotally secured at 19 to the arm 17 and carries at its outer end portion the erasing attachment which is adapted to be swung back to the dotted line position 38 indicated in Fig. 1 and conveniently swung with one hand to the operating position shown in full lines in Fig. 1. On the arm 18 is mounted a presser foot 20, the bottom portion 21 of which is curved to engage and contact with the paper and platen. Journalled in this presser foot abutment is a shaft 22 carrying the erasing wheel 23 of rubber of similar material preferably shaped to coincide with the cylindrical surface of the platen. In use, the periphery of the erasing wheel 23 as it wears will continue to conform to the curvature of the platen against which it presses during the erasing operation.

An upstanding wall 24 of the presser foot has attached thereto a stud 25 about which may be rotated the actuating handle 26 which is secured to the pivotal rack 27. The teeth of the rack 27 engage the teeth of the pinion 28 on the eraser shaft 22. It will be seen that the teeth of the rack 27 could extend entirely around the stud 25 omitting the handle 26, and the mechanism could then be actuated by thumbing the teeth instead of grasping the handle.

A stop pin 29 is secured to the wall 24 for the purpose of being engaged by the projection 30 of the oscillatable rack 27.

As shown in Fig. 5 a spring 31 engages a notch in the wall 24, then passes around the screw 32 and has an end portion 33 extending over and in contact with the shaft 22 for pressing the shaft against the bottom of its guide slot bearing.

The presser foot 20 and bottom portion 21 are shown in Figs. 2 and 3 as being provided with guide slots 34 and 35 in which the shaft 22 may have limited sliding or tilting movement. The reduced portion 36 of the shaft 22 constitutes a guide recess in which the end portion 33 of the spring 31 is retained.

On the side of the bracket surrounding the erasing wheel is provided a lug 37 which is adapted to cooperate with and be centered by the type bar centering device 14, so that the erasing wheel may be accurately positioned longitudinally of the platen when the attachment is initially mounted in the typewriter. Thereafter the lug serves to maintain such alignment during the erasing operation. The length of the arm 18 and the engagement between the platen and presser-foot, contribute to angularly locate the position of the erasing wheel with respect to the platen.

In use, when an operator has made a mistake which she wishes to rub out, it is only necessary to swing the device from the dotted line position 38 shown in Fig. 1 to the full line position of Fig. 1 with the presser foot 20 spaced from the platen, the lug 37 cooperating with the type bar centering means, and wheel 23 contacting the paper 12. With the device in the position illustrated in Fig. 1 the operator may then with one hand move the actuating handle 26 back and forth, oscillating it about its pivot 25, the thrust being transmitted to the platen by the presser foot and to the centering device 14 by the bracket carrying the lug 37. The wheel 23 is then responsive to the pressure of the spring 31. Movement of the rack 27 and actuating handle 26 in a counter-clockwise direction is limited as shown in Fig. 3 by engagement of the pin and the lug 30 on the oscillating rack or handle. On moving the actuating handle 26 in a clockwise direction as shown in Fig. 3, the rack 27 meshing with the

pinion 28 causes the erasing wheel 23 to be rotated. The direction of thrusts applied to the pinion 28 and its shaft 22 tend to maintain the shaft 22 in the bottom of its elongated guide slot 34. When the actuator handle 26 and the rack 27 are rotated in a counter-clockwise direction as shown in Fig. 3 the shaft 22 is raised in its guide slot 34. The spring arm 33, however, presses against the shaft 22 and tends to hold the erasing wheel shaft adjacent the bottom of its guide slot 35 with the result that the pinion end portion of the shaft 22 is raised slightly causing the shaft to tilt or vibrate to a limited extent during the erasing operation. It is this floating or vibratory action of the shaft 22 which causes the pressure to be applied first on one side of the erasing wheel 23 and then on the other side. This shifting of pressure on the erasing wheel is effective in preventing the wheel from becoming loaded with particles of paper or the like as rubber erasers are prone to do when used without being shifted or flexed sufficiently to keep them from doing so. The area of the paper which is in cooperation with the wheel becomes of an oval shape with the longer side extending transversely of the platen. While this erasing attachment is simple and convenient in operation, being adapted for use with only one hand, it should be understood that it operates only upon the ribbon copy. The slight pressure applied to the erasing wheel is sufficient to cause a small blur to occur on carbon copies and this indicates what letters are to be erased later by hand on the carbon copies, the blur serving as a signal or mark to the operator when looking at the carbon copy. In the position shown in Fig. 1 the device is adapted to erase only one number or letter, but when more than one are to be erased, it is necessary to move the carriage backward or forward as may be desired in order to bring other portions of the writing, which are to be erased, under the rotating erasing wheel. As shown in Fig. 2, the erasing wheel 23 and its shaft 22, including the pinion 28 may be readily removable as a unit from the presser foot by simply raising the erasing wheel and its shaft against the action of the spring arm 33 until the shaft is clear of its elongated guide slot mounting 35, and then withdrawing the other end portion of the shaft 22 out of its guide slot bearing 34. A reverse movement is all that is necessary to replace another erasing wheel and shaft.

If it were not for the presence of means to take most of the thrust of operation off the erasing wheel, the latter would immediately wear a hole through the paper. The thrust is taken by the presser foot and also by the surfaces on each side of the centering lug which engages the centering device for the type bars, so that the only thrust transmitted to the erasing wheel is that imposed by the spring 31 when the said wheel is pressed against the platen by the thrust of operation and thereupon moved in opposition to said spring. The actuating force applied to the rack 27 causes the pinion 28 and its shaft 22 to be raised and lowered in the elongated bearing 34. This results in a rocking or tilting movement given to the erasing wheel 23 as the pinion end of the shaft 22 is moved along the elongated bearing slot 34, such rocking movement taking place substantially about the bearing 35 as a pivot. Due to the slot 34 being directed away from the platen at an angle as shown, for example, in Fig. 3, the erasing wheel not only has the rocking or tilting movement just referred to, but also has a twisting or changing of the plane of the erasing wheel due to said rocking or tilting. In other words, in Fig. 2 the erasing wheel not only rocks or tilts slightly so that first one edge and then the other bears against the paper and platen, but also twists slightly so that the plane of the erasing wheel as shown in Fig. 2 changes slightly from a position normal to the paper. Due to these tilting and twisting movements, the curvature of the eraser does not wear to the precise curvature of the platen but only substantially so.

I claim:

1. An erasing attachment for a typewriter comprising a rotatable erasing wheel capable of a vertical inclination adapted to wear concavely on its periphery to substantially the curvature of the typewriter platen, means for mounting said erasing wheel to be swung to one side out of the way when not in use and means for oscillating said erasing wheel when in operative position, and means for changing the vertical inclination of the erasing wheel axis and bearing harder on one peripheral end portion of the erasing wheel and then on the other during operation, to flex the erasing wheel slightly and keep the same from becoming loaded.

2. An erasing attachment for a typewriter comprising a support, an arm pivoted thereto for movement toward and from the platen, a presser foot secured to said arm and shaped to bear against the paper and platen, an erasing wheel carried by said presser foot with its axis spaced from and substantially normal to the platen axis, actuating and transmission mechanism also carried by said presser foot for manually oscillating said erasing wheel.

3. An erasing attachment for a typewriter comprising a support, an arm pivoted thereto for movement toward and from the platen, a presser foot secured to said arm and shaped to bear against the paper and platen, an erasing wheel carried by said presser foot with its axis spaced from and substantially normal to the platen axis, actuating and transmission mechanism also carried by said presser foot for oscillating said erasing wheel, and a guide lug also carried by said presser foot for cooperation with the type bar centering device to align said erasing wheel with said centering device.

4. An erasing attachment for a typewriter comprising a support, an arm pivoted thereto for movement toward and from the platen, a presser foot secured to said arm and shaped to bear against the paper and platen, an erasing wheel carried by said presser foot with its axis spaced from and substantially normal to the platen axis, actuating and transmission mechanism also carried by said presser foot for oscillating said erasing wheel, said erasing wheel being yieldably mounted on said presser foot to compensate for wear of the wheel.

5. An erasing device for a typewriter comprising a rotatable erasing wheel having its axis spaced from and extending substantially transversely of the platen, whereby the wheel is adapted to wear its periphery concave to conform to the curvature of the platen, means for positioning said wheel longitudinally and angularly of the platen, and means for mounting and actuating said wheel so that the area of paper on the platen which is rubbed by said wheel is generally oval with the longitudinal axis of said oval extending substantially in the direction of the wheel axis.

6. An erasing attachment for a typewriter comprising a support, an arm pivoted thereto for movement toward and from the platen, a presser foot carried by said arm and shaped to bear against the paper and platen, an erasing wheel carried by said presser foot with its axis spaced from and substantially normal to the platen axis, actuating and transmission mechanism also carried by said presser foot for oscillating said erasing wheel, said arm and presser foot being adapted to be swung to a position back from the platen and out of the way over the typewriter where it is adapted to be held by gravity, the movements of said arm and the actuation of said wheel being effected by one hand of the operator.

7. An erasing attachment for a typewriter comprising an erasing wheel of rubber or the like, means for positioning said wheel longitudinally and angularly of the platen, and means for mounting and actuating said wheel in such manner that the wheel and its axis may vibrate to keep from becoming loaded in use and to vary the pressure between the paper and wheel across the wheel rim.

8. An erasing attachment for a typewriter comprising a support, an arm pivoted thereto for movement toward and from the platen, a presser foot secured to said arm and shaped to bear against the paper and platen, an erasing wheel and shaft therefor carried by said presser foot with its axis spaced from and substantially normal to the platen axis, an actuating handle and transmission mechanism also carried by said presser foot for oscillating said erasing wheel, said actuating handle being journalled in said presser foot, and said transmission mechanism including an arcuate rack to which said handle is secured and a pinion fixed on the shaft of said erasing wheel and meshing with said rack.

9. An erasing attachment for a typewriter comprising a support, an arm pivoted thereto for movement toward and from the platen, a presser foot forming a part of said arm and shaped to bear against the paper and platen, an erasing wheel and shaft therefor carried by said presser foot with its axis spaced from and substantially normal to the platen axis, actuating and transmission mechanism also carried by said presser foot for oscillating said erasing wheel, and said mechanism including an arcuate rack and a pinion fixed on the shaft of said erasing wheel and meshing with said rack and a spring fixed to said presser foot and engaging one end portion of the erasing wheel shaft to press the wheel against said paper and platen, said erasing wheel shaft being supported in a slotted guide so that on movement of said handle in one direction said erasing wheel shaft is rotated at the end of said guide adjacent the platen and on movement of said handle in the opposite direction, the erasing wheel shaft is moved in said guide against the action of said spring to tilt the erasing wheel slightly and shift the pressure between the wheel and paper on the platen enough to keep the erasing wheel from becoming loaded.

10. An erasing attachment comprising an erasing wheel, means for moving the eraser with respect to a paper, means for holding the paper during the erasing operation, means for rocking or tilting the plane of the eraser with respect to the paper during each erasing movement, and means for changing the place of maximum pressure contact between the erasing wheel and paper across the rim of said erasing wheel.

11. The combination with an eraser of rubber-like material, of means for moving said eraser back and forth during an erasing operation, and means for mounting said eraser material in a manner to tilt the same and its axis to prevent it becoming loaded during the erasing operation.

12. The combination with an eraser of a rubber-like material, of means for moving said eraser back and forth during an erasing operation, and means for mounting said eraser material in a manner to tilt the same and its axis to prevent it becoming loaded during the erasing operation, and means for supporting the same from a typewriter and longitudinally and angularly positioning the eraser with respect to the platen of a typewriter, said last-mentioned means being adapted to enable the eraser to be swung back out of the way when not in use.

13. An erasing attachment for a typewriter comprising an erasing wheel, means for yieldably mounting the wheel, a support for said wheel and means, means for positioning the wheel longitudinally of the platen and including a lug adapted to fit between the type bar centering guides, means for actuating said wheel, and means for positioning said wheel angularly with respect to the platen surface and including a support on each side of said lug adapted to rest upon the top of the type bar centering guides.

14. An erasing attachment for a typewriter comprising an erasing wheel, means for yieldably mounting the wheel, means for positioning the wheel longitudinally of the platen and including a lug adapted to fit between the type bar centering guides, means for actuating said wheel, means for positioning said wheel angularly with respect to the platen surface, and means for supporting said wheel, and including a support contiguous the type bar centering guides and another support curved to conform to the surface of the platen.

15. An erasing attachment comprising an eraser, means for moving the eraser with respect to a paper, means for holding the paper during the erasing operation, means for rocking or tilting the plane of the eraser with respect to the paper during each erasing movement, and means for twisting or changing the plane of the eraser in addition to the change in the plane of the eraser due to the rocking or tilting motion during the erasing operation.

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