

PATENT SPECIFICATION

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(54) CHANGEABLE TYPE

(71) We, SCM CORPORATION, 299 Park Avenue, New York, New York 10017, United States of America, a Corporation organised under the laws of the State of New York, United States of America, do hereby declare the invention, for which we pray that a patent may be granted to us and the method by which it is to be performed to be particularly described in any by the following statement:—

The present invention relates to typewriters, and more particularly to a changeable type element which may be removably mounted on a typebar.

The present invention provides a changeable type element for mounting on the distal end portion of a typebar, the type element having two walls spaced from one another by a connecting type face to define a U-shaped type element, camming means pivotally supported on the type element for securing the type element on said typebar, and biasing means connected to said camming means for biasing said camming means into locking engagement with the typebar when the type element is assembled on the distal end portion of the typebar.

According to a preferred embodiment, there is provided a changeable type element for easily assembling on and removing from the free end of a typebar. The type element includes a pair of walls spaced from one another by a connecting type face that has at least one character embossed thereon. An abutment projects from the rear surface of the type face for engagement with a slot in the typebar for aligning the type element on the typebar. The type element is provided with a camming member supported on a pivot that spans the spaced walls. A spring urges the camming member into continued locking engagement with the typebar when the type

element is assembled on the free end of the typebar. The spring biased camming member compensates for wear while maintaining a positive lock assembly.

With the above arrangement, the type element can easily be installed and removed from the free end of a typebar but is positively locked on the typebar by the spring biased camming member. In addition, the typebar carrying the changeable type element can occupy any position in the typebar segment of a typewriter.

In order that the present invention be more clearly understood, an embodiment will now be described, by way of example with reference to the accompanying drawings, in which:

Figure 1 is a perspective view showing a changeable type element according to the present invention assembled on a typebar,

Figure 2 is an enlarged exploded perspective view of the type element shown in Figure 1,

Figure 3 is a sectional view taken along line 3-3 of Figure 1,

Figure 4 is a sectional view similar to Figure 3 showing the typebar and type element in position just prior to engagement,

Figure 5 is a sectional view similar to Figure 3 showing the camming member in its rest position when the type element is removed from the typebar,

Figure 6 is a rear elevational view of the type element.

Referring now to the drawings, and more particularly to Figure 2, this figure shows a free end 10 of a typebar 12 and the type element 14 disassembled.

Typebar 12 includes a rear surface 16, and a front surface 18 that has a notch 20 spaced from the end of the typebar.

Type element 14 includes a pair of spaced walls 22 and 24 that are connected by a type font carrying front wall 26. Front

wall 26 has a rear surface 28 and a front surface 30. Front surface 30 has a pair of type characters 32 and 34 embossed thereon. Rear surface 28 has an abutment 36 projecting therefrom. Abutment 36 is spaced intermediate a top 38 and a bottom 40 of type element 14 and engages typebar notch 20 when type element 14 is assembled to typebar 12.

10 A camming lever 42 is pivotally supported on a pivot 44 that spaces walls 22 and 24. Camming lever 42 includes a lever-portion 46 and a body portion 48. Body portion 48 includes a cam surface 50. Lever portion 46 includes a stop tab 47. Stop tab 47, as shown in Figure 5, abuts an upper portion of wall 22 to prevent excessive rotation of camming lever 42 when type element 14 is disassembled from typebar 12.

20 Lever portion 46 also includes a second stop tab 49. Stop tab 49, as shown in Figure 4, abuts a further portion of wall 22 to limit the rotation of camming lever 42 in the typebar release direction.

25 Cam surface 50 is spaced relative to pivot member 44. Pivot member 44 is in horizontal alignment with abutment 36 to ensure maximum locking engagement between camming lever 42 and free end 10.

30 In other words, maximum locking engagement occurs when camming lever 42 is rotated in a typebar engaging direction and cam surface 50 engages typebar surface 16. The locking force is exerted against surface 16 at a point between and in line with the centre of pivot 44 and the centre of abutment 36.

A torsion spring 52 having opposite extensions 54 and 56 is supported about pivot 44. One extension 54 extends downward and behind a pin 58 that spans the distance between the spaced walls 22 and 24 and also serves as a spacer. Extension 56 extends upward and is hooked over the base of lever portion 46 of camming lever 42. Spring 52 biases camming lever 42 in a clockwise direction as viewed in the drawings. In other words, when element 14 is assembled to free end 10, spring 52 rotatably biases cam surface 50 into a progressive locking engagement with rear surface 16 of typebar 12. Because of the locking engagement of cam surface 50 and typebar 12, notch 20 and abutment 36 are prevented from disengaging.

In operation, type element 14 is assembled to the typebar in the following manner as shown in Figures 3 and 4. Camming lever 42 is first manually pivoted out of the typebar entrance area of type element 14. Then type element 14 is positioned over free end 10 of typebar 12. Then type element 14 is lowered onto free end 10. Notch 20 and abutment 36 are aligned at which time type element 14 is

moved rearward. Abutment 36 is then fully engaged with notch 20 as shown in Figure 3. At this time, camming lever 42 is released. Spring 52 then biases cam surface 50 to progressively engage rear surface 16 of free end 10. The force exerted against rear surface 16 of typebar 12 by spring-biased cam 42 positively locks type element 14 on typebar 12. As typebar 12 is actuated by depressing a selected key (not shown), and type element 14 impacts a printing platen (not shown), the shock sustained by type element 14 may be so severe so as to jaw and possibly loosen the engagement type element 14 and type bar 12. In that event spring 52 biases camming lever 42 into further engagement with typebar 12 to prevent type element 14 from flying off typebar 12.

After continuous use, the locking mechanism of type element 14 may wear. Specifically, cam surface 50 may develop a flat area where cam surface 50 engages typebar 16. If this occurs, the locking engagement between type element 14 and typebar 16 may loosen. Type element 14 may dislodge from typebar 12 and fly off. To compensate for the wear on cam surface 50, spring 52 biases camming lever 42 into still further engagement with typebar 12. Therefore, any looseness between type element 14 and typebar 12 is compensated for by the biasing effect of spring 52 on cam surface 50.

When it is desired to remove type element 14 and install a new element, camming lever 42 is again manually pivoted out of the typebar entrance area of type element 14. Then type element 14 is rocked free until abutment 36 and notch 20 are disengaged. Type element 14 is then removed. The new type element is then installed.

WHAT WE CLAIM IS:—

1. A changeable type element for mounting on the distal end portion of a typebar, the type element having two walls spaced from one another by a connecting type face to define a U-shaped type element, camming means pivotally supported on the type element for securing the type element on said typebar, and biasing means connected to said camming means for biasing said camming means into locking engagement with the typebar when the type element is assembled on the distal end portion of the typebar.

2. A changeable type element according to claim 1, wherein the camming means is supported on a pivot member supported by the type element.

3. A changeable type element according to claim 2, wherein said pivot member spans the distance between the spaced walls of the type element.



wall 26 has a rear surface 28 and a front surface 30. Front surface 30 has a pair of type characters 32 and 34 embossed thereon. Rear surface 28 has an abutment 36 projecting therefrom. Abutment 36 is spaced intermediate a top 38 and a bottom 40 of type element 14 and engages typebar notch 20 when type element 14 is assembled to typebar 12.

10 A camming lever 42 is pivotally supported on a pivot 44 that spaces walls 22 and 24. Camming lever 42 includes a lever-portion 46 and a body portion 48. Body portion 48 includes a cam surface 50. Lever portion 46 includes a stop tab 47. Stop tab 47, as shown in Figure 5, abuts an upper portion of wall 22 to prevent excessive rotation of camming lever 42 when type element 14 is disassembled from typebar 12. Lever portion 46 also includes a second stop tab 49. Stop tab 49, as shown in Figure 4, abuts a further portion of wall 22 to limit the rotation of camming lever 42 in the typebar release direction.

25 Cam surface 50 is spaced relative to pivot member 44. Pivot member 44 is in horizontal alignment with abutment 36 to ensure maximum locking engagement between camming lever 42 and free end 10.

30 In other words, maximum locking engagement occurs when camming lever 42 is rotated in a typebar engaging direction and cam surface 50 engages typebar surface 16. The locking force is exerted against surface 16 at a point between and in line with the centre of pivot 44 and the centre of abutment 36.

A torsion spring 52 having opposite extensions 54 and 56 is supported about pivot 44. One extension 54 extends downward and behind a pin 58 that spans the distance between the spaced walls 22 and 24 and also serves as a spacer. Extension 56 extends upward and is hooked over the base of lever portion 46 of camming lever 42. Spring 52 biases camming lever 42 in a clockwise direction as viewed in the drawings. In other words, when element 14 is assembled to free end 10, spring 52 rotatably biases cam surface 50 into a progressive locking engagement with rear surface 16 of typebar 12. Because of the locking engagement of cam surface 50 and typebar 12, notch 20 and abutment 36 are prevented from disengaging.

In operation, type element 14 is assembled to the typebar in the following manner as shown in Figures 3 and 4. Camming lever 42 is first manually pivoted out of the typebar entrance area of type element 14. Then type element 14 is positioned over free end 10 of typebar 12. Then type element 14 is lowered onto free end 10. Notch 20 and abutment 36 are aligned at which time type element 14 is

moved rearward. Abutment 36 is then fully engaged with notch 20 as shown in Figure 3. At this time, camming lever 42 is released. Spring 52 then biases cam surface 50 to progressively engage rear surface 16 of free end 10. The force exerted against rear surface 16 of typebar 12 by spring-biased cam 42 positively locks type element 14 on typebar 12. As typebar 12 is actuated by depressing a selected key (not shown), and type element 14 impacts a printing platen (not shown), the shock sustained by type element 14 may be so severe so as to jaw and possibly loosen the engagement type element 14 and type bar 12. In that event spring 52 biases camming lever 42 into further engagement with typebar 12 to prevent type element 14 from flying off typebar 12.

After continuous use, the locking mechanism of type element 14 may wear. Specifically, cam surface 50 may develop a flat area where cam surface 50 engages typebar 16. If this occurs, the locking engagement between type element 14 and typebar 16 may loosen. Type element 14 may dislodge from typebar 12 and fly off. To compensate for the wear on cam surface 50, spring 52 biases camming lever 42 into still further engagement with typebar 12. Therefore, any looseness between type element 14 and typebar 12 is compensated for by the biasing effect of spring 52 on cam surface 50.

When it is desired to remove type element 14 and install a new element, camming lever 42 is again manually pivoted out of the typebar entrance area of type element 14. Then type element 14 is rocked free until abutment 36 and notch 20 are disengaged. Type element 14 is then removed. The new type element is then installed.

WHAT WE CLAIM IS:—

1. A changeable type element for mounting on the distal end portion of a typebar, the type element having two walls spaced from one another by a connecting type face to define a U-shaped type element, camming means pivotally supported on the type element for securing the type element on said typebar, and biasing means connected to said camming means for biasing said camming means into locking engagement with the typebar when the type element is assembled on the distal end portion of the typebar.

2. A changeable type element according to claim 1, wherein the camming means is supported on a pivot member supported by the type element.

3. A changeable type element according to claim 2, wherein said pivot member spans the distance between the spaced walls of the type element.



4. A changeable type element for mounting on the free end of a typebar, the type element having a pair of walls spaced from one another by a connecting type face to define a U-shaped type element, a pivot member spanning the distance between and supported by the spaced walls of the element; camming means supported on said pivot member and arranged to pivot between the spaced walls; and biasing means supported on said pivot member and located between the spaced walls of the type element and connected to said camming means for biasing said camming means into locking engagement with the typebar when the type element is assembled to the free end of the typebar.

5. A changeable type element according to any one of the preceding claims wherein said camming means includes a cam surface spaced relative to said pivot member for progressively engaging the distal end portion of the typebar as the type element is assembled on the typebar.

6. A changeable type element according to any one of the preceding claims wherein the rear surface of the type face has a projecting abutment and wherein the axis of said pivot member is horizontally aligned with said projecting abutment for maximum locking engagement between said camming means and the distal end portion of the typebar.

7. A changeable type element according to any one of claims 1 to 6, wherein said camming means is arranged to be pivotally disengaged from locking engagement with the typebar for removing the type element

from the distal end portion of the typebar.

8. A changeable type element according to any one of the preceding claims wherein said camming means includes a lever portion having an abutment thereon for preventing rotation of said camming means beyond a predetermined position in a locking direction as the type element is disassembled from the typebar.

9. A changeable type element according to claim 2 or claim 4 or any one of claims 5 to 8 when dependent thereon wherein said biasing means includes a spring having a pair of extensions radially projecting from said pivot member, one of said extensions engages said camming means and the other of said extensions engages a portion of said type element thereby urging said camming means to rotate into engagement with the typebar.

10. A changeable type element according to claim 9, wherein the type element includes an abutment fixed between the spaced walls and spaced from said pivot member for engagement by said other extension of said spring.

11. A changeable type element substantially as hereinbefore described with reference to the accompanying drawings.

12. A typewriter including a changeable type element according to any preceding claim.

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