

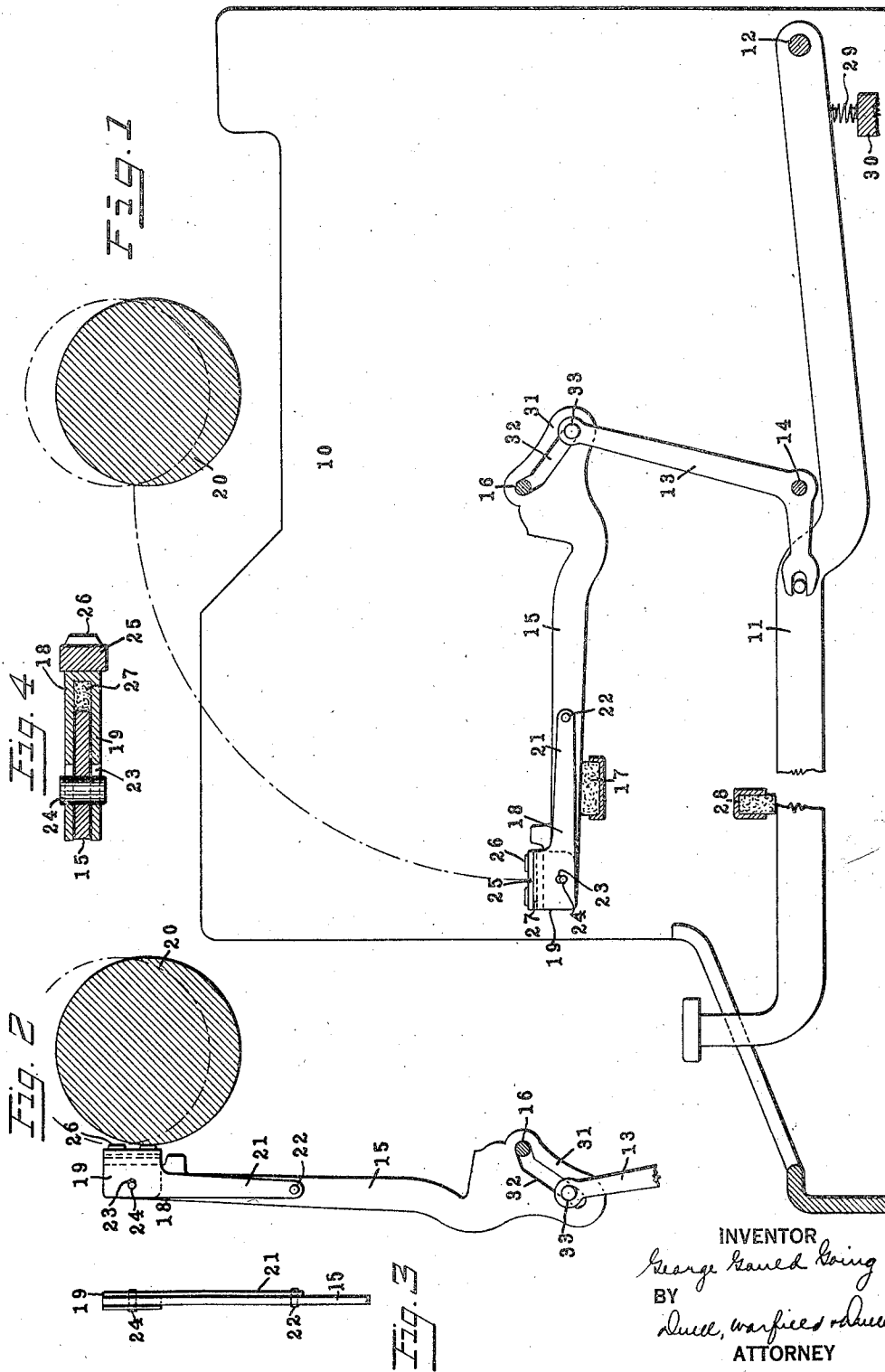
Feb. 1, 1927.

1,615,976

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TYPEWRITING MACHINE

Filed April 16, 1924



UNITED STATES PATENT OFFICE.

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TYPEWRITING MACHINE.

Application filed April 16, 1924. Serial No. 706,846.

This invention relates to type actions for typewriting machines, and more particularly to the construction of type bars or type carriers.

5 The object of this invention generally is to provide an improved construction for type bars which is functionally and structurally efficient, and the parts of which may be economically manufactured and easily assembled.

10 Another and more specific object of this invention is to provide in a type action of the character specified, a type bar having improved shock absorbing means adapted to absorb energy from the moving parts when arrested at the end of a printing stroke, whereby printing is accomplished in a relatively silent manner.

15 The invention comprises the features of construction, combinations of elements, and arrangements of parts exemplified in the construction hereinafter described and particularly pointed out in the accompanying claims.

20 For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawing, in which—

25 Figure 1 shows in outline a typewriting machine provided with a type action, the type bar of which is constructed in accordance with this invention;

30 Figure 2 is a side elevation of the type bar and associated parts, the view showing the type bar in printing position;

35 Figure 3 is a detail fragmentary rear elevation of the type bar; and

40 Figure 4 is an enlarged cross-section of the type bar taken through the type head and showing details of the construction disclosed in Figure 1.

Referring to the drawing, 10 denotes the frame of the typewriting machine having a key lever 11 pivoted at 12 to the rear portion of the frame. The key lever, as indicated, is adapted to actuate the sublever 13 which is pivoted at 14 and is directly connected to actuate the type bar assemblage. A returning spring 29 is positioned between the rear portion of the key lever 11 and a portion 30 of the frame, and serves to return the key lever to the normally elevated position,

where it abuts against the padded fixed stop 28.

Each type bar assemblage comprises a type bar proper shown at 15, pivoted at 16, and adapted to rest when in retracted position upon the padded support or type rest 17. Each type bar serves as a supporting means for carrying the associated type head, shown generally at 18, and is operable to move its type head through a printing stroke. Each type head includes a U-shaped member 19 adapted to embrace the upper or free end of its type bar and guide the head in its movement thereon. Each type head is provided with an arm 21 pivoted to the type bar at 22, intermediate the ends of the latter. Slots 23 are provided in the legs or sides of the U-shaped member, said slots being in alignment with one another for receiving a pin 24 carried by the type bar. In constructing the slots 23 they are each formed so that the longitudinal center line thereof lies substantially along, or tangent to, an arc of a circle described with the pivot point 22 as center. It also will be observed that this arc, at and near where each slot 23 is located, is substantially coincident with an arc drawn around the pivot 16 of the type bar as a center, for purposes which will hereinafter appear. The pin 24, which serves as a stop for the lost motion connection provided between the type bar 15 and the member 19, in consequence of the construction described, moves freely in the slots 23 without binding. Interposed between the base of the U-shaped member 19 and the type bar 15 is a body of shock absorbing material 27. Its arrangement is clearly shown in Fig. 4, and it preferably comprises some resilient material, for example rubber, capable of absorbing the energy of the moving parts when arrested, so that they may be quickly brought to rest with relatively little noise. The shock absorbing body is normally distended and serves to retain the member 19 and the type bar 15 so positioned relative to one another that the pin 24 normally lies in the rear ends of the slots 23, or those ends furthest from the type faces. Therefore, when a type bar is operated to cause a type face to impact against a printing surface, such as the platen, shown at 20, the type bar and type

head in consequence move relatively, thereby compressing the shock absorbing body 27 and causing it to function and materially reduce the noise.

- 5 Fixed to the type head 18 is a type block or plate 25 having types 26 formed thereon. This type block 25 is of the kind usually employed in the construction of type bars and has the types properly spaced so as to correspond with the vertical shift of the platen 20, which is positioned for receiving the impact of one or the other of the types when the type bar is operated to perform a printing stroke. The type block may be attached to the type head in any suitable manner, for example, by riveting or soldering it to the face presented by the base of the member 19.

- 20 The point at which the arm 21 is pivotally connected to the type bar 15 will depend to some extent on the length of the type bar. It is necessary in selecting the point 22 to provide for a swing of the type head which at its outer end will be substantially along the arc of movement of the outer end of the type bar so that the movement of the type bar relatively to the type head will be along substantially coincident portions of the arcs around the centers 22 and 16, as hereinbefore pointed out. This will prevent any appreciable shifting of the type on the paper during the relative movement between the type bar and head during the compression of the cushion 27.

- 35 In the construction shown in the drawing, the type bar 15 is equipped with a heel 31 provided with a slot 32. A pivot pin 33 carried by the upper end of the sub-lever 13 engages in the slot 32, thus providing for a sliding actuating connection between the type bar and the sub-lever.

The operation of the mechanism described is as follows:—

- 45 When the key lever 11 is depressed, it swings the sub-lever 13, as viewed in the drawing, counter-clockwise about its pivot 14. This swings the type bar 15 clockwise about its pivot 16, causing it to move through a printing stroke to project the type head against the platen 20. The moving type head on coming in contact with the platen is suddenly arrested, while the type bar continues slightly in its arc of travel. This results in movement of the type bar relative to the type head, due to the lost motion connection between the two. The slight movement of the type bar relatively to the member 19 at this stage of the printing operation is in the general direction of the movement of the type bar. Accordingly the shock absorbing body 27 is compressed, absorbing the energy of the moving parts, thereby substantially eliminating all noise of impact. Immediately thereafter the shock absorbing body expands to its normal size, thrust-

ing the type bar away from the type head and returning them to their original relatively spaced positions where they are arrested by the pin 24 engaging the rear ends of the slots 23, the type bar assemblage as a whole at the same time rebounding from the platen. This facilitates a quick return of all the operated parts to their retracted positions.

The construction and arrangement of the parts described and the manner of pivoting and guiding the type heads on the type bars enables me to provide a simple and efficient construction and one which may be manufactured and assembled at comparatively small cost.

What I claim as new and desire to secure by Letters Patent, is:—

1. In a type action for typewriting machines, the combination of a pivoted type bar, a type head attached by a pivot to the type bar intermediate the ends of the latter to enable the type bar and the type head to receive a limited extent of relative movement at the outer free ends thereof, and a cushion interposed between the type head and the type bar and which normally holds the two in fixed relation but is compressed and absorbs the energy from the arrest of the moving parts when the type head impacts with the platen and turns on its pivot.

2. In a type action for typewriting machines, the combination of a pivoted type bar, a type head mounted for a limited extent of movement on the type bar and having a portion substantially U-shaped in cross section that embraces the sides of the type bar and guides the head on the bar, and a cushion received in said U-shaped portion and interposed between the type bar and head and compressible when the type head is arrested by the platen.

3. In a type action for typewriting machines, the combination of a pivoted type bar, a type head having an arm that extends along a side of the type bar towards the pivot thereof and which is pivoted to the type bar to enable the type bar and type head to receive a limited extent of relative movement, means for guiding the free end portion of the type head on the type bar, and a cushion interposed between said type head and type bar to receive the shock of the moving parts when the type head is arrested by the platen.

4. In a type action for typewriting machines, the combination of a pivoted type bar, a type head having an arm that extends along a side of the type bar towards the pivot thereof and which is pivoted to the type bar to enable the type bar and type head to receive a limited extent of relative movement, said type head also having a substantially U-shaped portion which embraces the sides of the type bar and guides

the type head on the bar, and a cushion received in said U-shaped portion and interposed between the type bar and type head and which is compressed when the type head strikes the platen.

5. In a typewriting machine having a platen, the combination with a type action comprising a key lever, a type bar and actuating connections therebetween, of a type head disposed on said type bar for relative movement during a printing stroke against the platen, connecting means pivoted to said type bar and arranged to embrace the free

end portion thereof and provided with a shock absorbing body interposed between said type head and type bar, and a cooperating pin and slot disposed to limit the pivotal movement of said connecting means relative to said type bar, said slot disposed to lie substantially along coincident portions of the arc of the circle of swing of the type bar and the arc of the circle described from the point of pivotal attachment of said connecting means.

In testimony whereof I affix my signature.
GEORGE GOULD GOING.