Nov. 3, 1936. W. GEBAUER 2,059,574

KEY LEVER MOUNTING FOR TYPEWRITING MACHINES

Filed Aug. 27, 1934 2 Sheets-Sheet 1

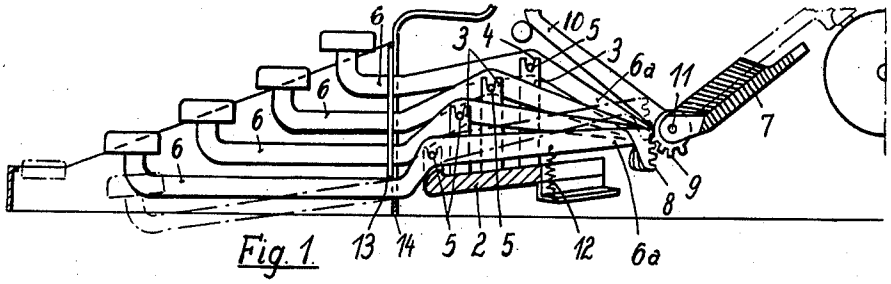


Fig. 1.

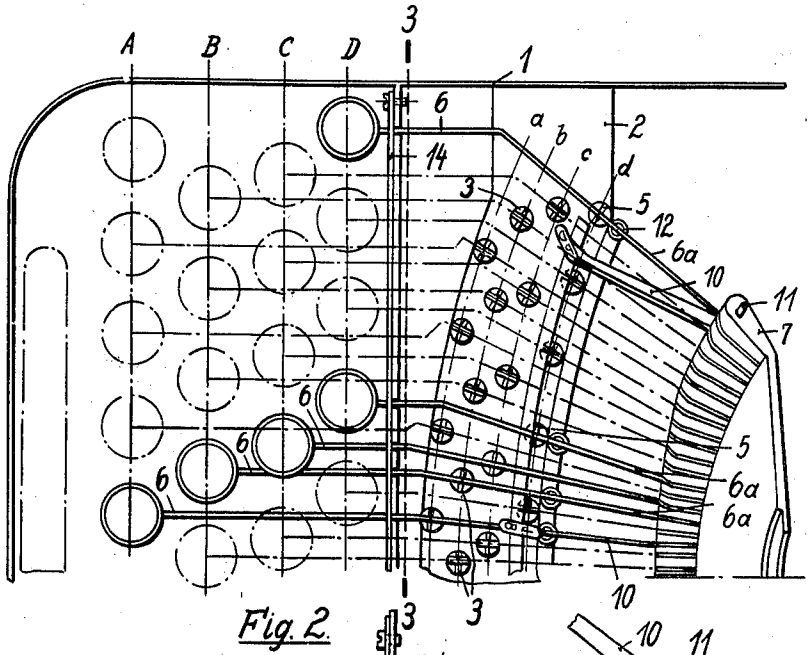


Fig. 2.

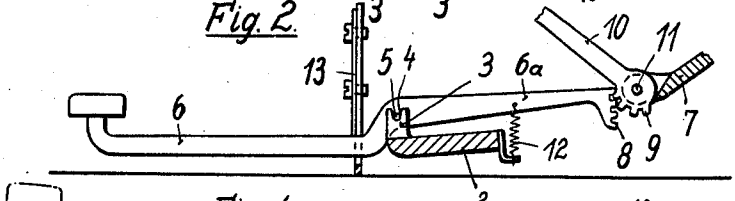


Fig. 4.

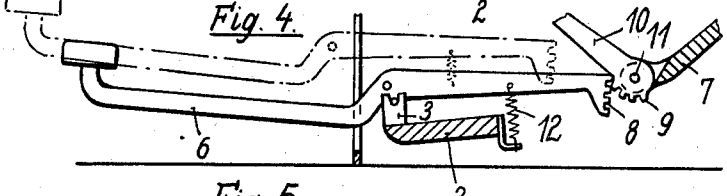


Fig. 5.

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KEY LEVER MOUNTING FOR TYPEWRITING MACHINES

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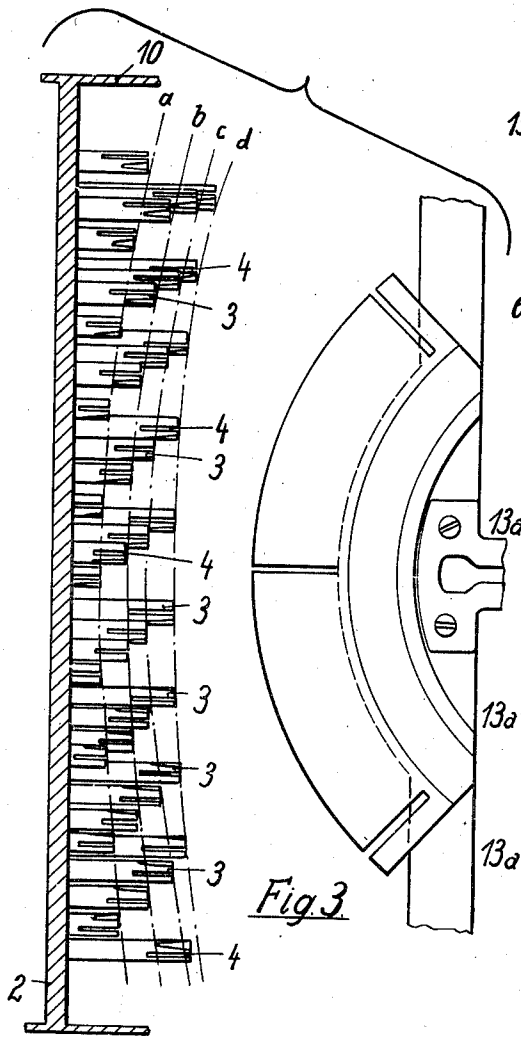


Fig. 3

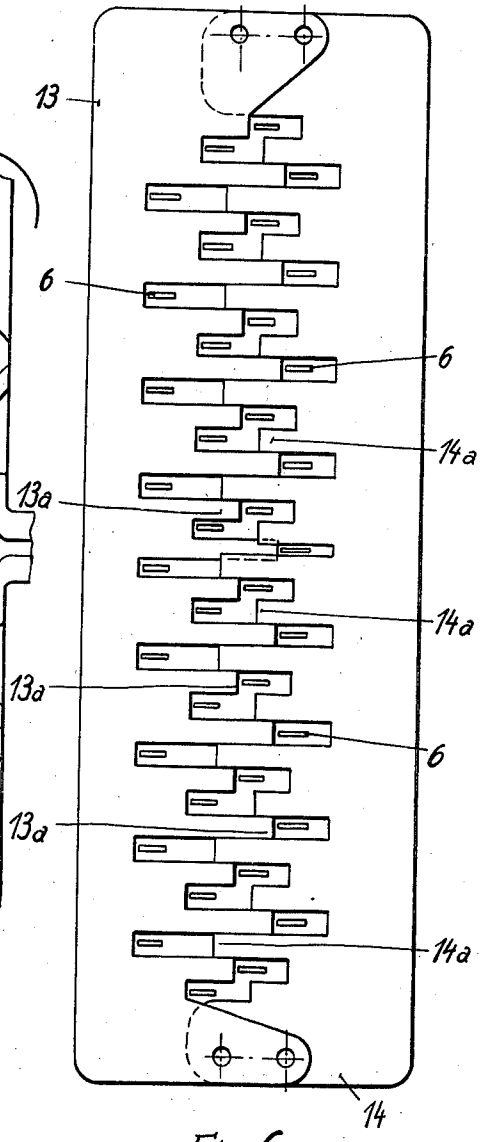


Fig. 6.

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KEY LEVER MOUNTING FOR TYPEWRITING MACHINES

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Application August 27, 1934, Serial No. 741,592
In Germany August 29, 1933

4 Claims. (Cl. 197—22)

By the present invention the problem is to be solved to create a key lever mounting for type lever writing machine, in particular, small machines, which operates reliably with as compact a construction as possible and with as few parts as possible, and which is easily assembled and dismantled, whereby such machines become much simplified and cheapened.

According to this invention, each key lever is mounted on its own bearing column on a common base plate with its own short axle. In this way, the individual bearing points can be more freely and favourably placed. The arrangement of the bearing columns in the machine is determined by the facts that, on the one hand with given rocking angles of the type levers, the same key down-stroke occurs and, on the other hand, the adjoining key levers can rock between the columns. Thus, in a machine having four rows of keys there are four rows of columns. The height of the bearing columns is determined by the conditions that the fulcrum of the key lever lies as nearly as possible midway of the height of the key path and that the bearing points adapt themselves to the rounding of the type lever bearing. Therefore, in the first place, the bearing columns associated with the short key levers of the highest row of keys are the largest while the bearing columns belonging to the longest key levers of the lowest row of keys are the lowest, and furthermore, the heights of the individual columns in each row decrease towards the middle. The possible construction of the bearing piece as a whole from a squirted casting or from moulded artificial substance extraordinarily simplifies this individual mounting.

A constructional example of the invention is illustrated in the drawings.

Fig. 1 is a vertical section through a machine with a mechanism according to the invention.

Fig. 2 is a plan view of the machine and

Fig. 3 a vertical section on the line 3—3 of Fig. 2.

Figs. 4 to 6 show details, partly in section.

On a bearing plate 2 fixed to the side walls 1 of the machine are provided bearing columns 3, which receive the short axles 5 of the two-armed key levers 6 in a bearing slot 4. The key lever arm 6a directed towards the type lever bearing 7 has at its end teeth 8, which engage in corresponding teeth 9 of the type lever 10. The type levers swing in known manner in slits in the bearing 7 about a bearing wire 11.

The bearing plate 2 with the bearing columns 3 is preferably made out of one piece according to the invention, e. g. by squirted casting or pressing out of an artificial substance. The bearing slits 4 in this case widen conically upwards, with which at the same time is combined the advantage of easier removal.

Each of the key levers 6 is held with its axle 5 by a tension spring 12 in the open bearing slot 4, the spring engaging the lever arm 6a as shown in Figs. 4 and 5.

To prevent the key levers 6 from accidentally falling out of their bearing slots 4, e. g. during transportation of the machine, a comb-type stop bridge 13 equipped with prongs 13a of unequal length (see Fig. 6) is provided behind the highest row of keys and is so combined with a second comb bridge 14, whose prongs 14a are directed upwards, that one prong of the upper comb is always opposite a space between the prongs of the lower comb and vice versa. In this manner, there are formed guide slits of different length and different height for the key levers 6, which while permitting them their necessary freedom of movement, prevent them from dropping out of their bearing slots.

In the embodiment shown in the drawings, there are four rows of keys A, B, C, D. The bearing columns 3 are arranged in four curved rows *a, b, c, d* (Fig. 2). The bearing columns for the levers of the highest row of keys D form the rearmost row *d*, those of the lowest row of keys A the first row *a*. The rows *b* and *c* are associated with the levers 6 of the middle rows of keys B and C. The curves result from the requirement of equal key downstroke for the whole machine with fixed type lever rocking angles. Furthermore, the bearing columns 3 must naturally be so arranged that the adjoining key levers can rock unhindered between them.

The height of the columns is determined by the fact that the bearing point of the key levers, on account of a more agreeable striking touch, should be situated about midway of the height of the key stroke and that it must also adapt itself to the form of the type lever bearing 7, 11. Therefore the columns of the curve *d*, which carry the levers of the highest keys in row D are the highest while the columns in row *a* for the levers of the lowest keys in row A are the lowest. Because of the adaptation of the column heights to the rounding of the type lever bearings, the columns in each row *a, b, c, d* for the outer key levers are a little higher than the columns for the middle key levers.

To insure a good engagement of the teeth 8 and 9 on the key and type levers respectively, the

bending downwards of the key levers 6, necessary in writing machines with segment and straight keyboard, is carried out sometimes on the lever arm carrying the key.

I claim:

1. In a type lever writing machine, in combination a base plate, a plurality of key levers of unequal length and disposed in rows in various horizontal planes, type levers adapted to be operated by said key levers, a bearing for said type levers inclined at an acute angle to a horizontal plane, bearing means for said key levers supported by said base-plate and disposed in rows in number equal to the number of key-rows, each row forming a curve conforming to the curve of said inclined type-lever bearing, the bearing points for the short key levers being the highest and those for the long key levers being the lowest, the heights of the bearing points in each row increasing from the center outwards.

2. The combination as specified in claim 1, in which the said bearing means comprise individual bearing columns for the various key levers having upwardly widened bearing slots, including two opposed comb-like abutments for enclosing the key levers, said abutments having prongs of unequal lengths, the key levers being placed between one prong and an opposite gap so as to be thereby prevented from being dislodged from their bearing slots.

3. The combination as specified in claim 1, in which the outside key levers are laterally bent, said bending being carried out on the lever arm carrying the key.

4. The combination as specified in claim 1, in which said bearing means comprise individual bearing columns for the several key levers and in which the latter are guided in slots of said columns, axles on said key levers being supported in upwardly widening bearings of said bearing columns.

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