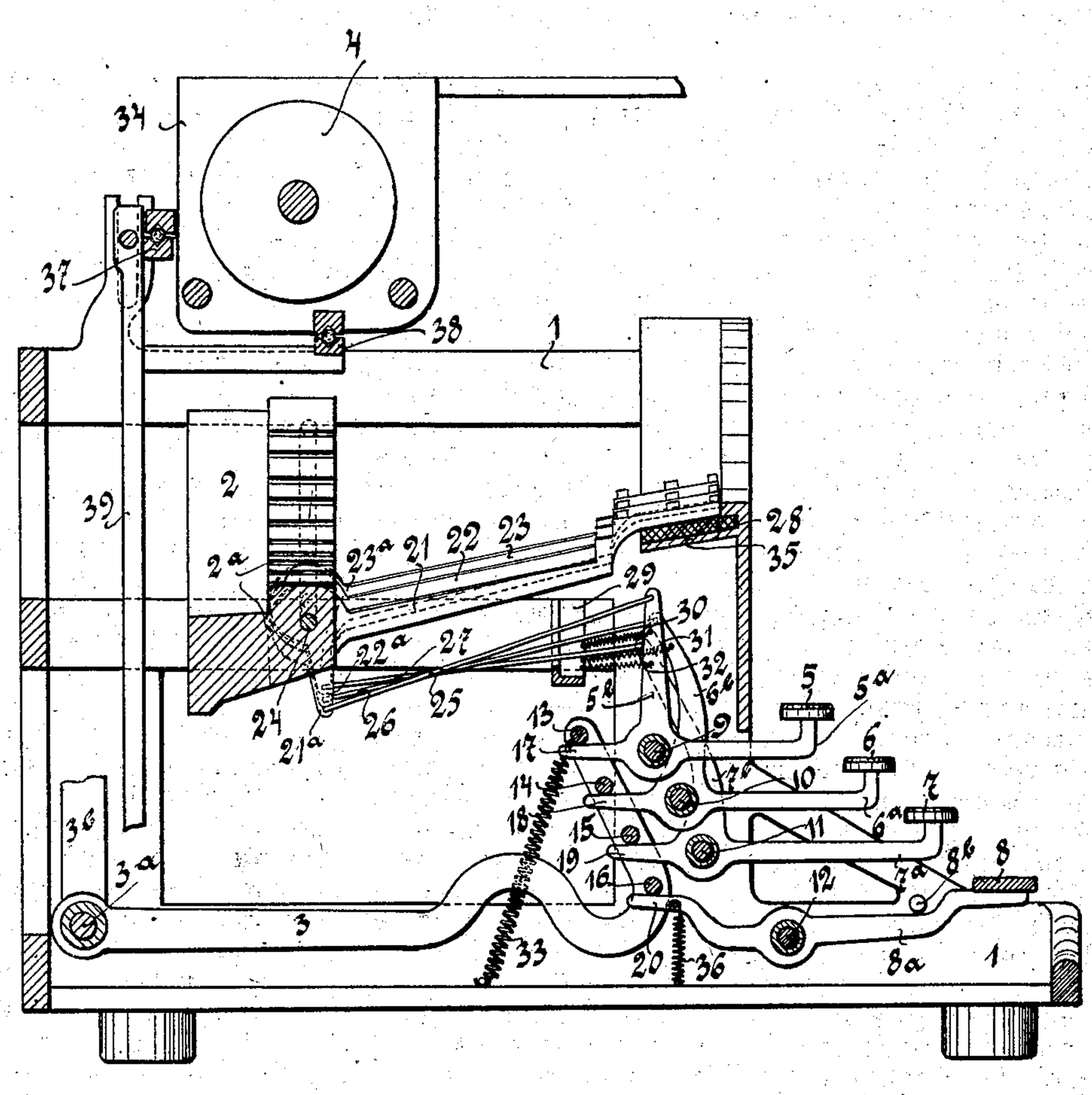
No. 728,340. PATENTED MAY 19, 1903.

C. WASMUTH.

TYPE WRITER.

APPLICATION FILED FEB. 16, 1903.

NO MODEL.



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No. 728,340. Patented May 19, 1903.

UNITED STATES PATENT OFFICE.

CARL WASMUTH, OF GRÜNHOF, GERMANY.

TYPE-WRITER.

SPECIFICATION forming part of Letters Patent No. 728,340, dated May 19, 1903.

Application filed February 16, 1903. Serial No. 143,616. (No model.)

To all whom it may concern:

Be it known that I, CARL WASMUTH, a citizen of the Empire of Germany, residing at Grünhof, Stettin, in the Empire of Germany, have invented a new and useful Type-Writer, of which the following is a specification.

My invention relates to improvements in type-writers of that kind in which type-levers are arranged in a circular arc for turning upward and striking against the front of the platen. Hitherto the parts for actuating the type-levers in such type-writers were so arranged that for accelerating as much as possible the return movements of these parts tensible or compressible springs were provided. The exclusive use and application of springs for this purpose, however, produced various defects, chiefly from the reason that the tension of the springs is subjected to alterations in time and that the type-levers, especially those which are mostly used, gradually became unreliable, owing to their springs giving way. Then the power required for depressing the different keys would vary and the different type-levers would strike not uniformly, but irregularly, against the paper on the platen. This is most objectionable, since the letters or characters printed off on the first sheet and the several copies therebeneath will be not uniformly distinct, those letters or characters produced by the type-levers struck with less force being more or less indistinct, the more so the larger the number of the copies is; also, certain letters or characters will appear irregular as regards their positions. These defects are to be avoided by the improved type-writer according to my invention in the manner that a constant and invariable weight is chiefly employed for returning the keys and the type-levers, with the parts connected therewith, to their initial positions, while a plurality of springs are provided merely to assist to a certain degree the action of the said weight.

My improved type-writer is illustrated in the accompanying drawing, which represents a longitudinal vertical section through the same, only such parts being shown as is necessary for the understanding of the following description.

Between the side parts of the machine-frame 1 several horizontal rods or shafts 9, 10, 11, and 12 are secured. On the lowest rod or shaft 12 several—say two—two-armed levers 8^a are mounted to rock, which carry the space-key 8. On the three upper rods or shafts 9 10 11 three series of key-levers 5^a 6^a 7^a, carrying the keys proper, 5 6 7, respectively, are mounted to rock, which are provided with rear arms 17 18 19 and with erect arms 5^b 6^b 7^b. On a rear axle 3^a two levers 3 near the side parts of the machine-frame 1 are fastened or mounted to rock. The front ends of the two levers 3 are bent upward and carry four horizontal rods 13, 14, 15, and 16, which are made to rest on the rear arms 17, 18, 19, and 20 of the key-levers. Thus a rocking frame is formed by the two side levers 3 and the four horizontal rods 13, 14, 15, and 16. Two weak springs 33, attached on the lower ends to the machine-frame 1 and on the upper ends to the front ends of the levers 3, are employed for holding the rocking frame in its lower position, suitable studs or supports of any known kind and shape, but not shown, being arranged for limiting the downward movement of the rocking frame. The springs 33 may, however, be dispensed with.

An arc-shaped bridge 2 is secured between the two side parts of the machine-frame 1 or in any other suitable manner. The bridge 2 is assumed to be provided with a plurality of radial slots 2^a for the type-levers, of which only three—21, 22, and 23—are shown. The type-levers are mounted to turn on a curved rod 24, provided in the bridge 2. I have not shown more particularly the construction of the bridge 2 and the manner in which the curved rod 24 is introduced or placed in the bridge, as this is immaterial and there are several well-known constructions to be selected. The front of the machine-frame 1 is on the inside provided with a rib 35, curved to an arc of a circle for supporting the free ends of the type-levers. A pad 28 is placed on this rib 35 for softening the shocks of the type-levers, and thus reducing the noise. The type-levers 22 23 24 are provided with downwardly-projecting arms 21^a 22^a 23^a, which are pivotally connected with the erect arms 5^b 6^b 7^b by means of rods 25 26 27. Beneath these rods an arc-shaped support 29 is secured within the machine-frame 1, and the erect arms 5^b 6^b 7^b are connected with this

support 29 by means of springs 30 31 32, whereby the key-levers 5^a 6^a 7^a of the keys proper are normally held in their horizontal positions. The key-levers 8^a of the space-key 8 may be held in their normal horizontal positions by means of springs 36, connecting their rear arms 20 with the machine-frame 1. Then the key-levers 8^a will bear against suitable pins or projections 8^b, provided on the machine-frame 1.

The carriage 34, carrying the platen 4, is assumed to move on rails 37 and 38 by means of balls. The two rails 37 and 38 are carried by a suitable frame 39, which can be moved up and down vertically in any known manner for shifting the platen 4. For feeding the carriage 34 from right to left a lever 3^b is used in any known manner. This lever 3^b is fastened on the axle 3^a or rigidly connected with the levers 3 of the rocking frame.

The type-writer is operated in the following manner: On depressing any key—for instance, the key 6—its rear arm 18 will raise the horizontal rod 14, and thereby also the rocking frame. At the same time the erect arm 6^b of the key-lever 6^a will by the rod 26 move the arm 22^a so that the type-lever 22 will strike against the paper on the platen 4. On again releasing the key 6 the weight of the rocking frame will by the horizontal rod 14 bear on the rear arm 18, and thereby quickly return the key-lever 6^a, with the key 6 and the parts connected therewith—viz., the erect arm 6^b, the rod 26, the arm 22^a, and the type-lever 22—to their initial positions. Thus the whole weight of the rocking frame, which is invariable, will act upon the rear arm of the single key-lever depressed. When any other key is depressed, similar occurrences will take place and the weight of the rocking frame is again used for returning the respective movable parts to their initial positions. When the key 6 is depressed, the spring 31, connecting the erect arm 6^b with the support 29, will also be strained and will then assist the weight of the rocking frame to a certain degree in returning the parts to their initial positions. Preferably rests of some kind similar to the pins or projections 8^b are provided on the support 29 or other parts of the machine-frame 1, against which the erect arms 5^b 6^b 7^b or the key-levers 5^a 6^a 7^a bear under the action of the springs 30 31 32, respectively.

The mechanism described so far presents the essential advantage that an invariable force—*i. e.*, the constant weight of the rocking frame—can be utilized mostly for accelerating the return movements of the movable parts, so that the type-levers can be relied upon to perform their duties regularly and uniformly and to print off their types well and distinctly.

The type-writer can be varied in its details without deviating from the spirit of my invention.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a type-writer, the combination with a plurality of key-levers provided with rear arms, of a platen, a plurality of type-levers arranged for turning upward and striking against the front of said platen, means for pivotally connecting said key-levers with said type-levers, means for yieldingly holding said key-levers in their normal horizontal positions, two levers turning around a rear horizontal axis, and a plurality of horizontal rods secured between said two levers and resting on said rear arms of said key-levers, substantially as set forth.

2. In a type-writer, the combination with a plurality of horizontal shafts secured one above the other in the machine-frame, of a plurality of key-levers mounted to rock on said horizontal shafts and provided with rear arms, two levers turning around a rear horizontal axis, a plurality of horizontal rods secured between the front ends of said two levers and resting on said rear arms of said key-levers, the said key-levers excepting the space-key lever being provided with erect arms, a carriage with a platen, an arc-shaped bridge beneath said carriage, a plurality of type-levers mounted to turn on axes in said arc-shaped bridge and arranged for turning upward and striking against the front of said platen, the said type-levers being provided with arms projecting downward and radially with respect to said arc-shaped bridge, a pad-covered arc-shaped support for supporting the free ends of said type-levers, a plurality of rods pivotally connecting said arms of said type-levers with said erect arms of said key-levers, and means for yieldingly holding said key-levers in their normal horizontal positions, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CARL WASMUTH.

Witnesses:
HERMANN J. ARAN,
HANS HILDEBRAND.