(No Model.)

3 Sheets—Sheet 1.

H. A. H. GUHL.

TYPE WRITING MACHINE.

No. 318,426. Patented May 19, 1885.

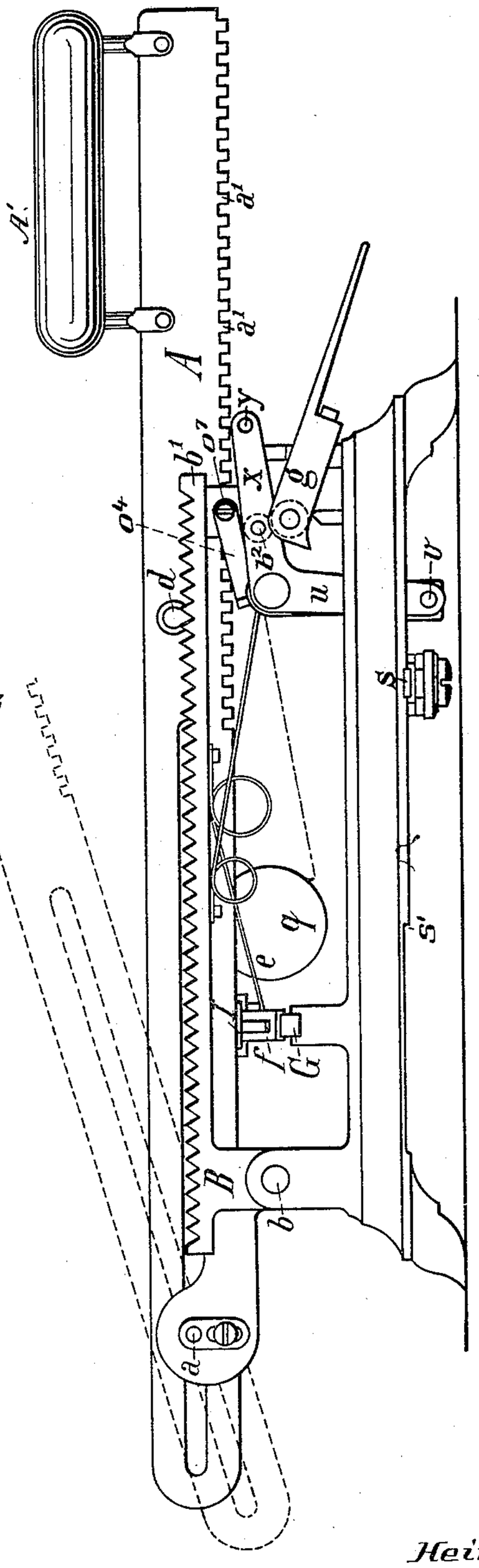


Fig. 1.

Witnesses.
C. F. Bell
Oscar Nauck

Inventor,
Heinrich A. H. Guhl,
By Paine & Sadd,
Atty's.

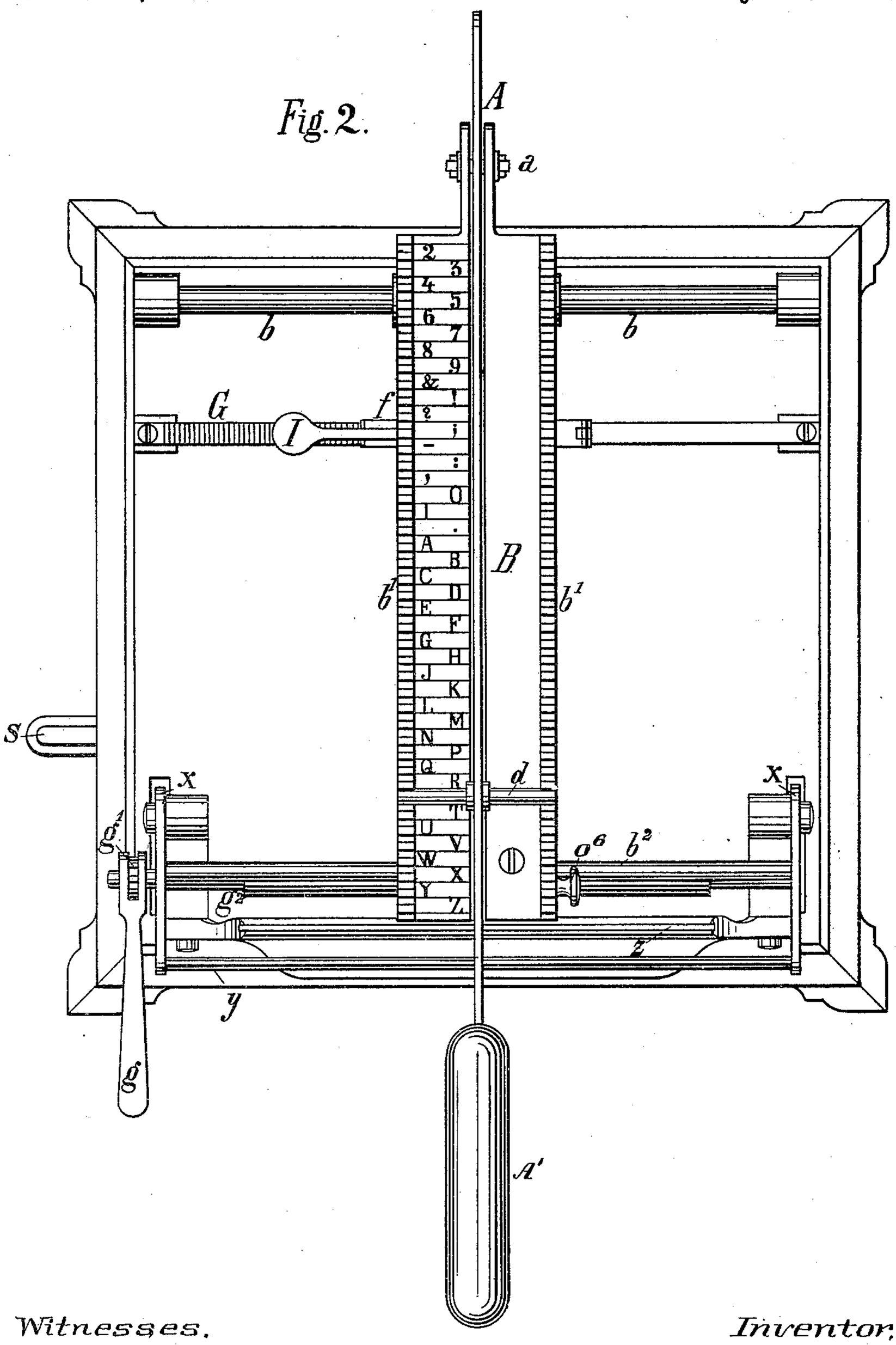
(No Model.) 3 Sheets—Sheet 2.

H. A. H. GUHL.

TYPE WRITING MACHINE.

No. 318,426. Patented May 19, 1885.

Fig. 2.



Witnesses.
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Attys.

(No Model.) 3 Sheets—Sheet 3.

H. A. H. GUHL.

TYPE WRITING MACHINE.

No. 318,426. Patented May 19, 1885.

Fig. 3.

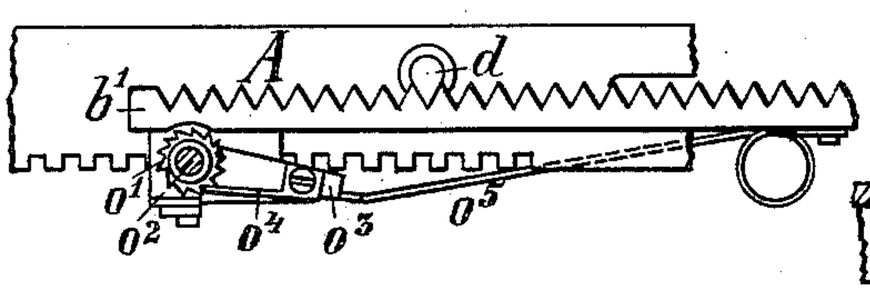


Fig. 6.

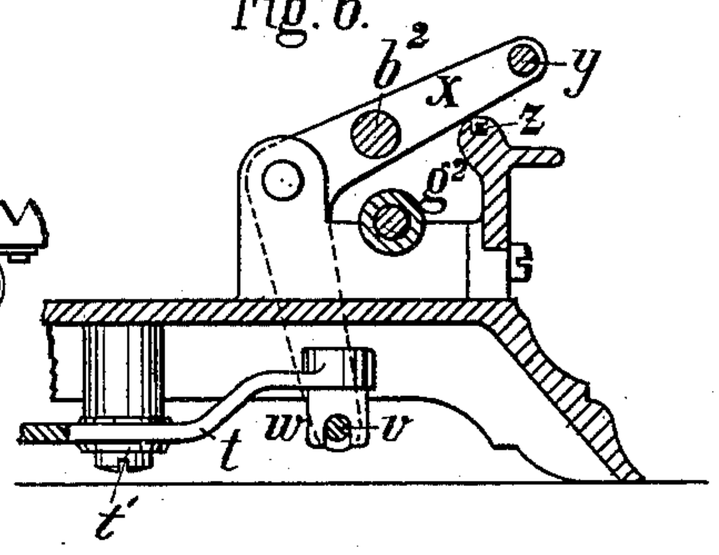


Fig. 4.

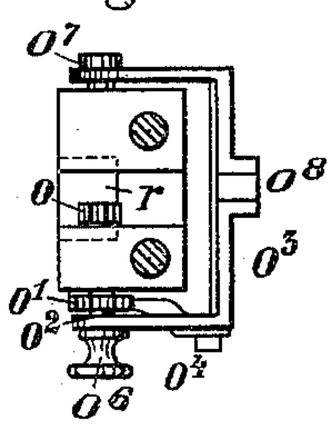


Fig. 5.

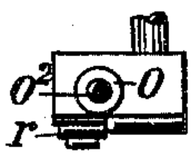
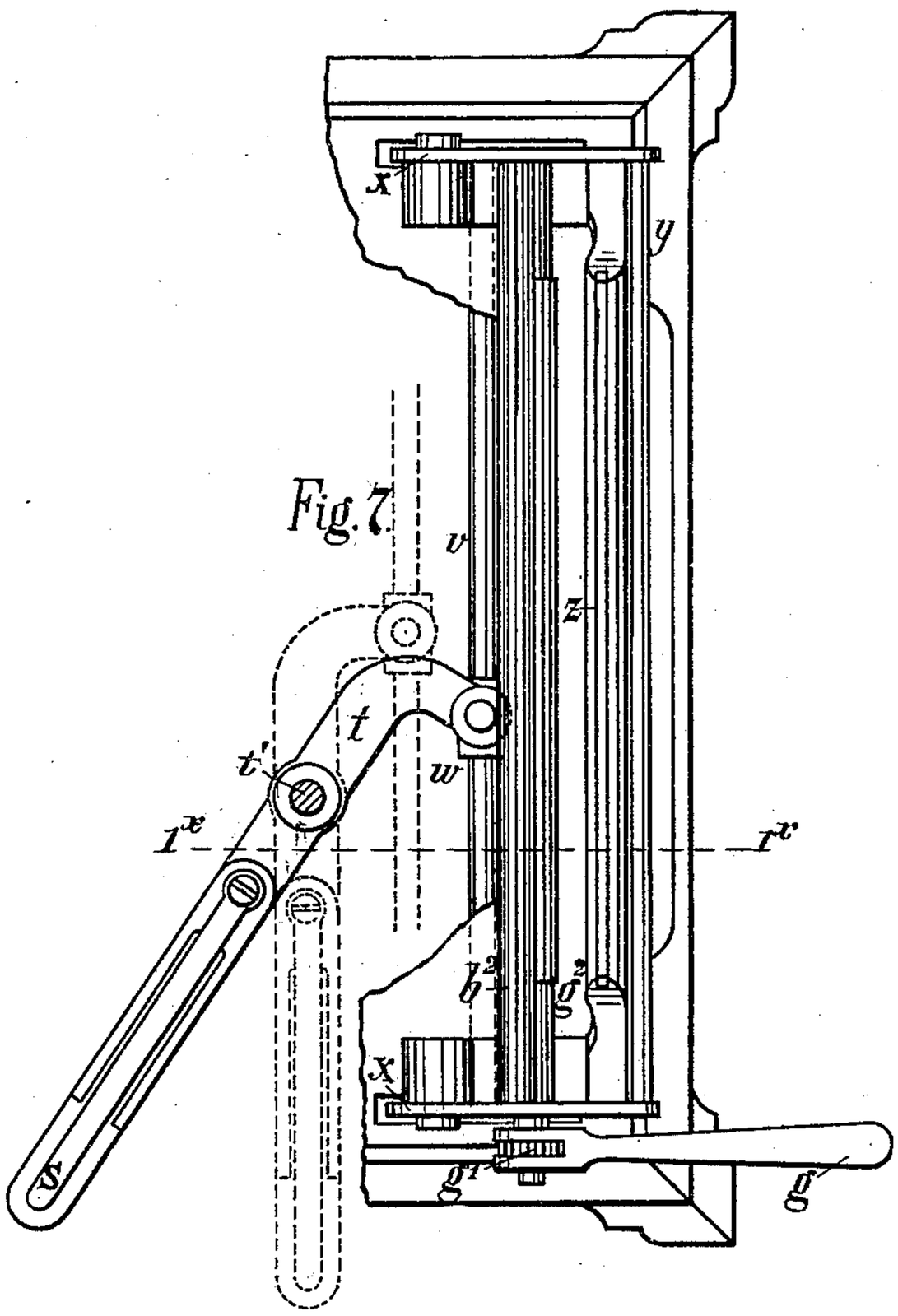


Fig. 7.



Witnesses,
C. F. Beer
Oscar Nauck

Inventor;
Heinrich A. H. Guhl;
By Paine & Ladd,
Attys.

UNITED STATES PATENT OFFICE.

HEINRICH AUGUST HERMANN GUHL, OF HAMBURG, GERMANY.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 318,426, dated May 19, 1885.

Application filed May 9, 1884. (No model.) Patented in Germany October 29, 1883, No. 27,095, and in Belgium November 3, 1883, No. 63,089.

To all whom it may concern:

Be it known that I, HEINRICH AUGUST HERMANN GUHL, a subject of the Emperor of Germany, and a resident of Hamburg, in the German Empire, have invented certain new and useful Improvements in Type-Writers, of which the following is a specification.

My invention relates to the class of type-writing machines in which the types are all arranged on a common arm; and the object of my invention is to provide an improved type-writing machine.

My invention consists in certain improvements in the construction of type-writing machines of this class, as hereinafter described and claimed, whereby I secure an improvement in the manipulation and action of such machines.

In the accompanying drawings the same reference-letters indicate the same parts throughout the several views.

Figure 1 is a side elevation of my improved type-writing machine, and Fig. 2 is a top view of the same. Figs. 3, 4, and 5 are detail views illustrating the ribbon-feeding mechanism, Fig. 3 being a side elevation of the ribbon-feeding device, and showing also a portion of the type and rack bar; Fig. 4, a top view of the ribbon-feeding shaft and stirrup, taken just beneath the rack-bar b' of Fig. 3; and Fig. 5, a transverse section through Fig. 4, with the stirrup omitted. Fig. 6 is a detail section taken on the line 1^x of Fig. 7; and Fig. 7 is a detail top view of the forward end of the machine with the type-bar, index-plate, and ribbon-feeding devices removed.

The printing is accomplished by means of the movable slotted type-bar A, upon or along the lower edge of which the letters, characters, or symbols to be printed are arranged, as shown at a', spaces being left between the several characters. The type may be cast on the edge of the bar or removably attached thereto.

At the forward end of the type-bar there is a handle, A′, for convenience in manipulating the same, and the pivot or fulcrum pin a passes through the long slot of the bar at its rear end, the length of the slot being equal to the distance along the bar occupied by the printing-characters a'. The said type-bar is carried by the plate or tablet B, to which it is pivoted, as above described, and which has a long central slot, into which the type-bar fits when depressed. The plate or tablet B is hinged near its rear end on the rod b, and it can be moved laterally on said rod across the machine. At its forward end the plate or tablet rests on the rod or bar b^2. Upon the plate or tablet B, along one or both sides of the type-bar, there are marked the letters, characters, and symbols corresponding to the type a', but arranged in a reverse order, and upon one or both of the outer edges of this index-plate there is a rack-bar, b', the depressions of which correspond to and register in spacing with the types a'.

Carried by the type-bar there is an index bar or finger, d, which fits into the depressions or recesses of the rack-bars b', and is so placed that when the index-bar d is placed in the notches in line with any character on the index-plate the type for the same character on the type-bar will register with the printing-block z, which latter occupies a position in line with the printing. The printing-block z is made in the form of a ridge, or otherwise fashioned so that but one of the types will print at a time.

The lateral feed for the printing of successive letters is secured by means of the rack-bar G, which extends across the machine beneath the index-plate and type-bar, and the pawl f and spring e.

The type-bar A is normally held slightly off from the printing-block z by means of the spring e, which is compressed by the act of printing; but as soon as the pressure of the hand is removed from the bar the spring forces it up and the pawl f engages with the next tooth of the rack-bar G. Blank spaces between words, &c., are formed by depressing the lever I, which will actuate the pawl f directly and cause the index-plate and type-bar to move laterally one notch. When an entire line has been printed, the index-plate b, with the type-bar, is pushed back from right to left and the sheet of paper is moved the space of one line by means of the lever g.

The sheet of paper is held in place by the

adjustable roller b^2 and rod y. These latter are carried by the rock-levers $x\,u$, and the upper edge of the sheet of paper is passed in over the printing-block z and feed-roller g^2, (see Fig. 6,) and under the rod y and roller b^2, these latter being raised for the purpose, as hereinafter described. The lower end of the arms u of the rock-levers are connected by a bar, v, and sliding on this bar there is a boss, w, carried by one end of the lever t, which lever is pivoted at t' to the under side of the bed-plate of the machine. The end of the lever extends out beyond the side of the machine in a convenient position for reaching it. When the outer end of the lever t is pushed back into the position shown in Fig. 7, it will be seen that the roller b^2 and rod y are raised, and when it is pulled forward into the position shown in Figs. 1 and 2 and by the dotted lines in Fig. 7 the roller b^2 and rod y will be held down against the sheet of paper. The lever t is held in any desired position by means of the spring s, which bears against the under side of the edge of the frame, and the pressure with which the paper is held can thus be regulated. When the lever is thrown clear back, the spring engages with the notch s' in the edge of the frame. By the act of grasping the lever the spring is pressed down and freed from contact with the frame. On one end of the roller g^2 there is a ratchet-wheel, g', with which a pawl carried by the lever g engages. When the lever g is therefore raised, the feed-roller g^2 is turned, and the paper advanced the space of one line, as before stated.

The roll of ink-ribbon made of paper, silk, or other suitable material impregnated with color, is carried within the cylindrical box q, and issues through a slit in its circumference. The ink-ribbon passes from its box over the plate r, of glass or other suitable material, and under the roller o. The roller o is carried by a shaft, o^2, which latter has a ratchet, o', at one end thereof, and a projecting head, o^6, Figs. 1 and 4, for convenience in setting the ribbon. The shaft o^2 rotates in consequence of the oscillating motion of the stirrup o^3, which latter is hung at one end from the shaft o^2 and at the other from a stud, o^7, and it carries the spring o^4, which engages with the teeth of the ratchet-wheel o'. The stirrup o^3 is raised by means of the spring o^5, and lowered by the type-bar A striking against the portion o^8 of the stirrup. The teeth of the ratchet-wheel are so arranged that the spring slides over them when the stirrup is raised and engages therewith when depressed by the type-bar. The ink-ribbon is maintained in such position relative to the paper that it does not smut or soil the same, and passes after being used from the stirrup device, so that its used parts may be readily removed therefrom by tearing or otherwise.

Having thus fully described my invention, what I desire to claim and secure by Letters Patent is—

1. The combination, in a type-writer, of the longitudinally and transversely moving type-bar A, pressure-roller b^2, together with the stationary roller g^2, having a ratchet-wheel, g', and lever g, substantially as and for the purpose specified.

2. In type-writers, the combination of the printing-block z and roller g^2 with the levers $x\,u$ and pressure-rollers b^2 and y, substantially as and for the purpose specified.

3. In type-writers, the combination with the paper pressure roller carried by the levers $x\,u$ of the connecting-bar v, having the sliding boss w, operated by lever t, substantially as and for the purpose specified.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 21st day of April, 1884.

HEINRICH AUGUST HERMANN GUHL.

Witnesses:

DIEDRICH PETERSEN,

E. HAASE.