

No. 654,379.

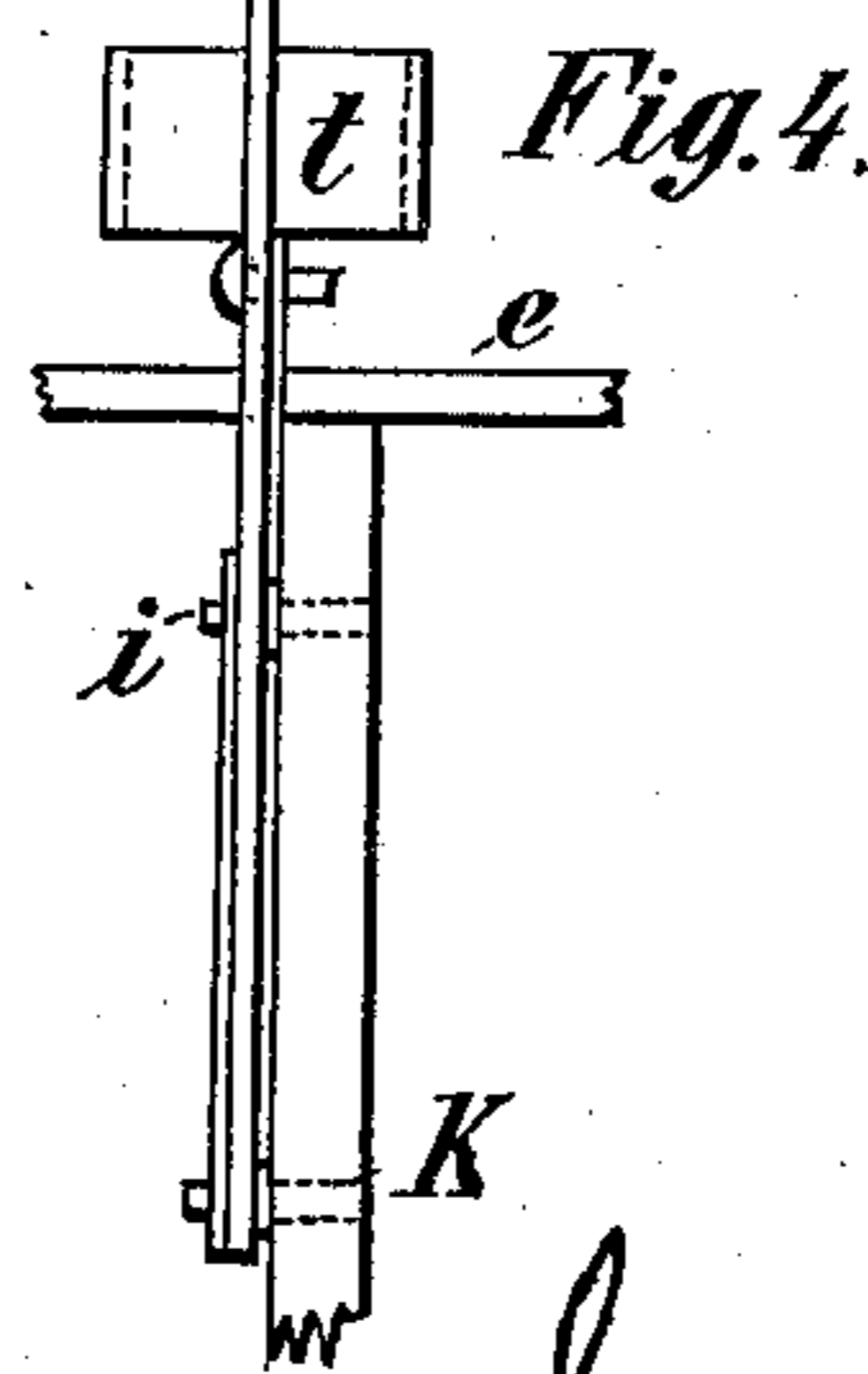
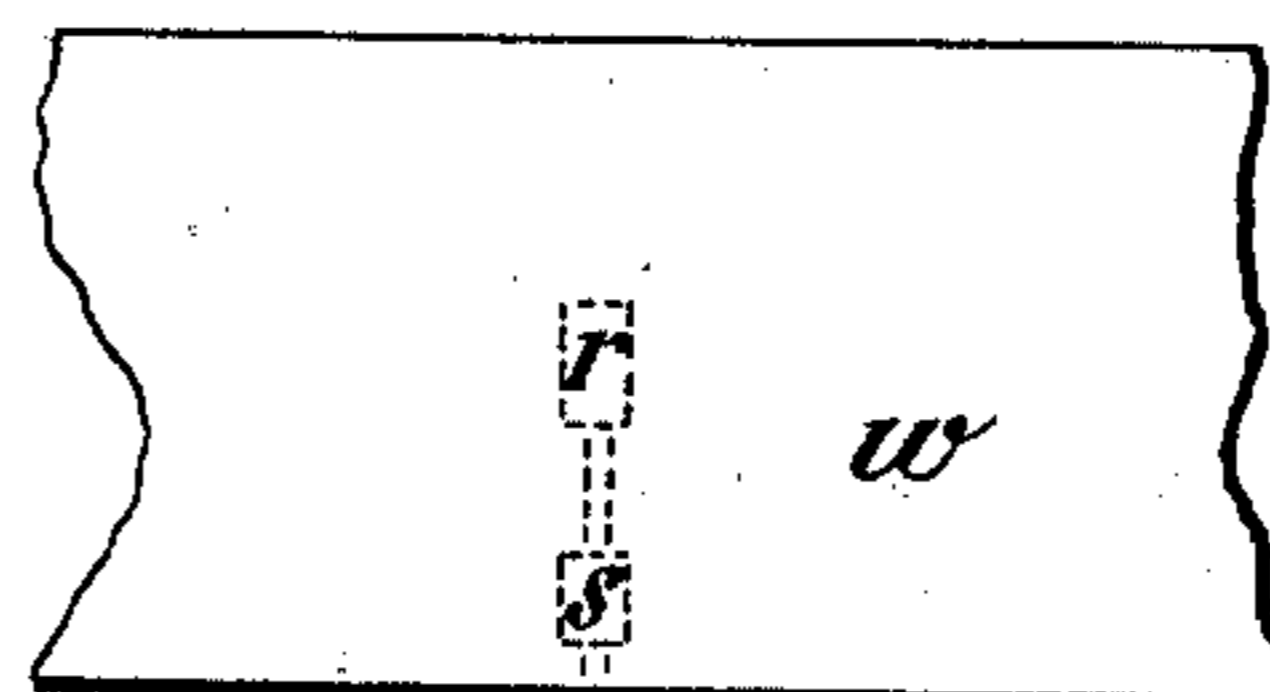
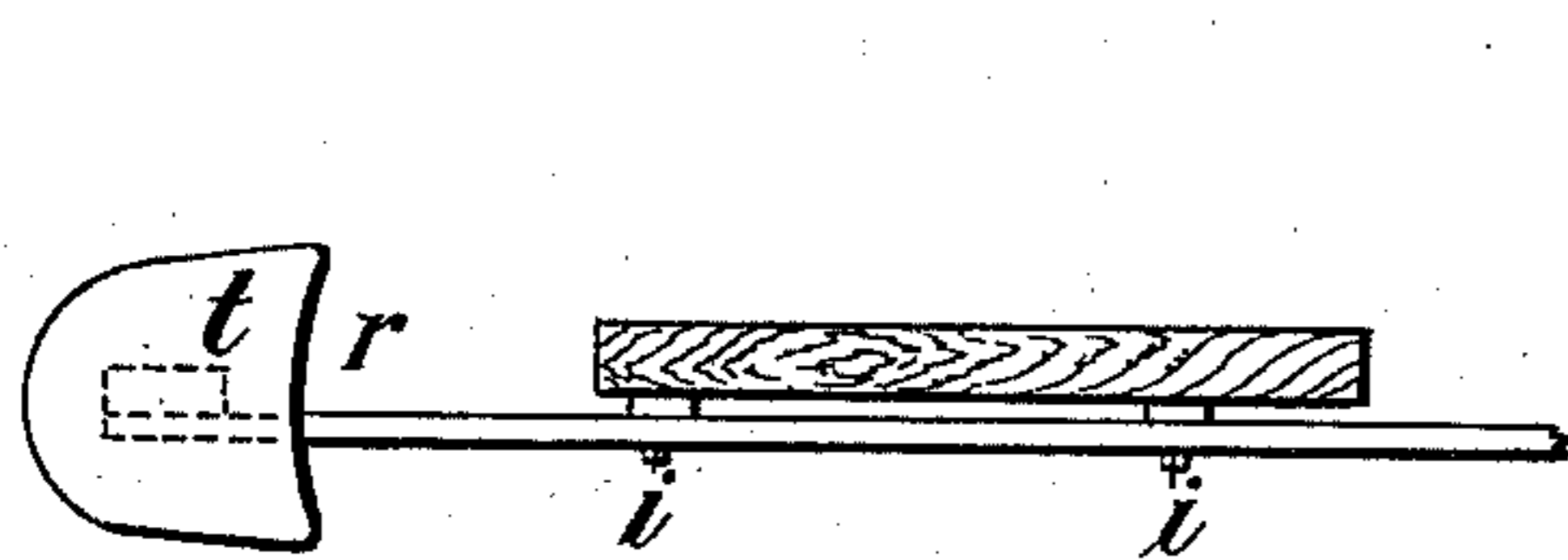
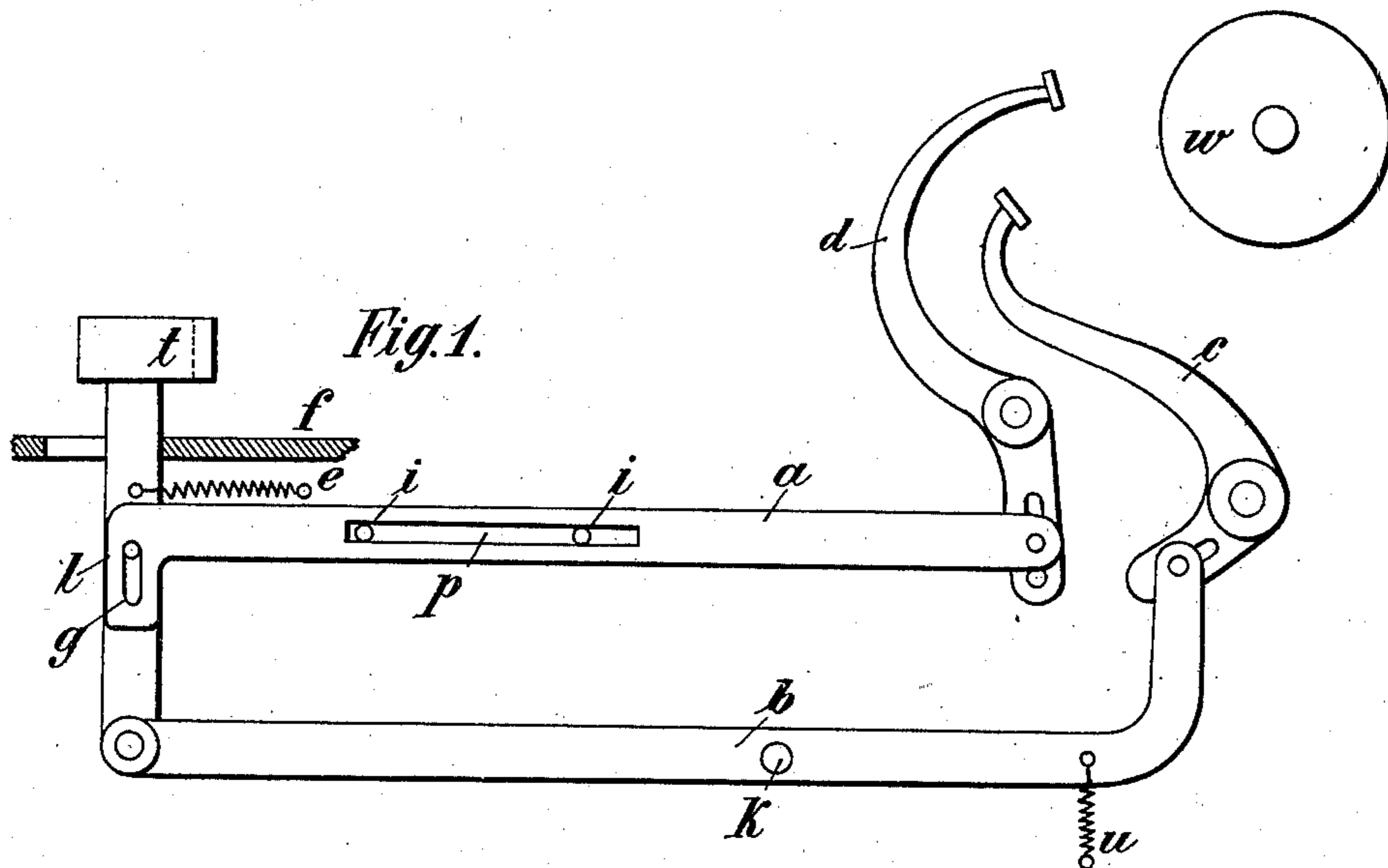
Patented July 24, 1900.

H. BETTENDORF & J. M. BIER.
TYPE WRITING MACHINE.

(No Model.)

(Application filed Apr. 30, 1900.)

2 Sheets—Sheet 1.



Witnesses:
J. Green.
M. Wheddon

Inventors:
Heinrich Bettendorf & Julius M. Bier
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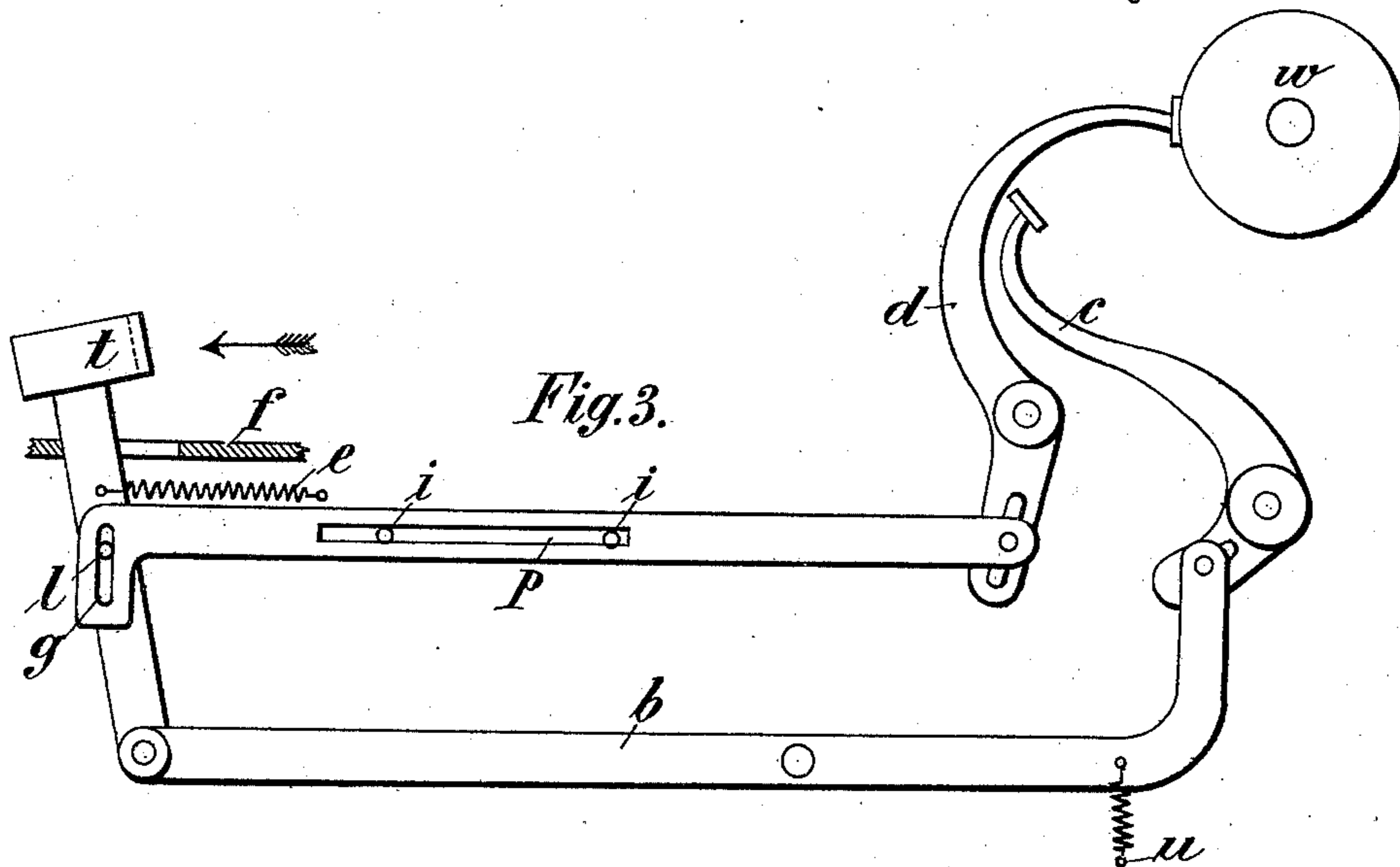
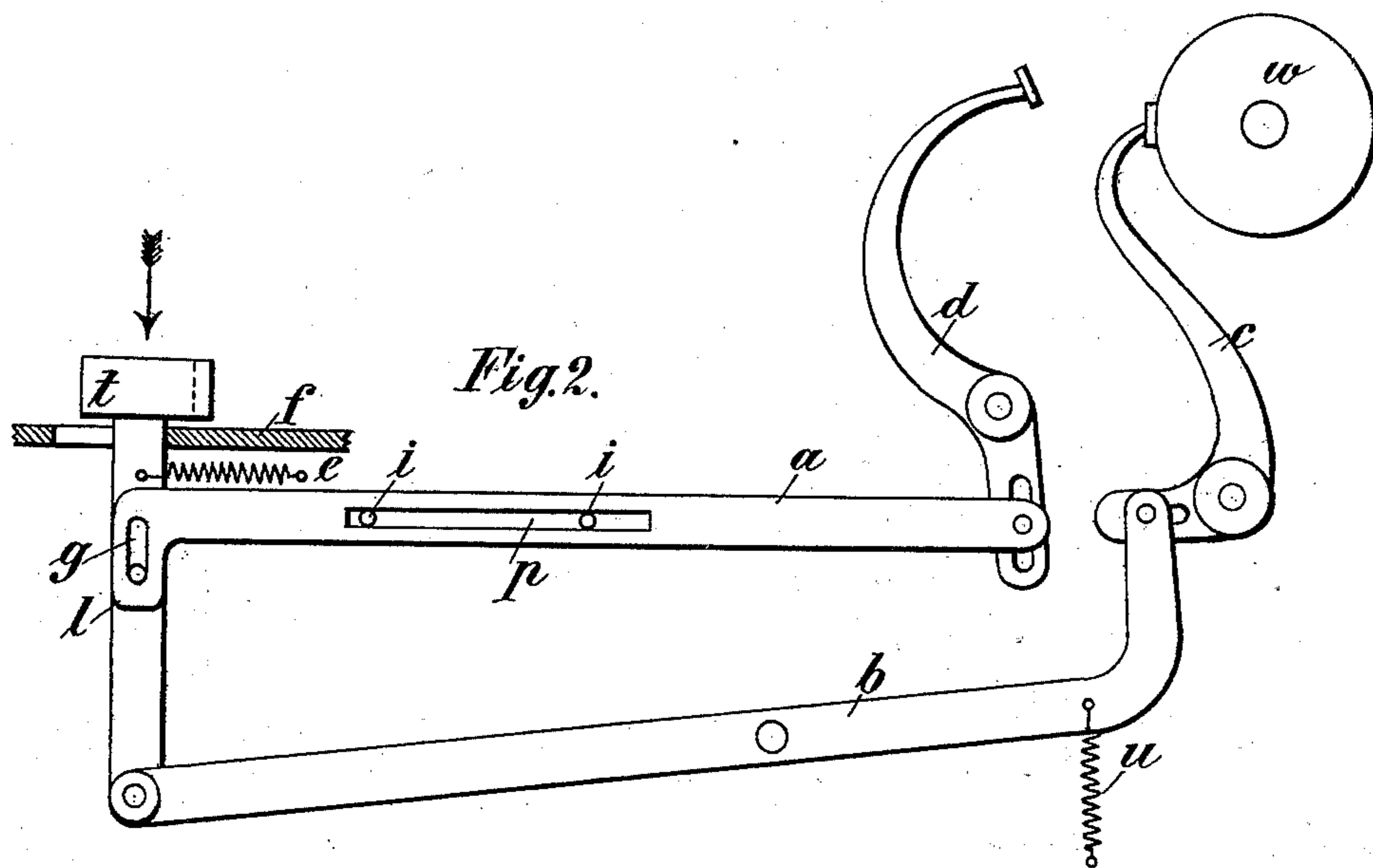
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TYPE WRITING MACHINE.

(No Model.)

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2 Sheets—Sheet 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

HEINRICH BETTENDORF AND JULIUS MAX BIER, OF FRANKFORT-ON-THE-MAIN, GERMANY.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 654,379, dated July 24, 1900.

Application filed April 30, 1900. Serial No. 14,868. (No model.)

To all whom it may concern:

Be it known that we, HEINRICH BETTENDORF, mechanical-instrument maker, residing at 2 Höchster street, and JULIUS MAX BIER, merchant, residing at 53 Zeil, Frankfort-on-the-Main, in the Province of Hesse-Nassau and Empire of Germany, both subjects of the Emperor of Germany, have invented certain new and useful Improvements in and Relating to Type-Writing Machines and the Like, of which the following is a full, clear, and exact description.

This invention, which is hereinafter described, and illustrated in the accompanying drawings, relates to type-writing machines and the like, and has for object to enable each key to write two characters without having to be shifted, whereby a more simple manipulation and more rapid writing are intended to be obtained. For this purpose each key is connected with two type-levers, type-rods, or type-carriers in such a manner that these, in addition to their movement in a vertical direction, make a movement in a horizontal direction, and by means of this last movement bring the second type into the writing or printing position.

The accompanying drawings illustrate this invention in its various positions of working applied to a type-lever type-writing machine.

Figure 1 shows the position of rest of the device. Figs. 2 and 3 show each a type-lever in the printing position. Fig. 4 shows the front view of the device in a section taken through the key-guiding device *f*. Fig. 5 shows the key in plan view.

As will be seen from Figs. 2 and 3, the key *t* is movably connected or jointed at the lower end of the shank of the key in a suitable manner by means of the key-lever *b* to the type-lever *c*, while in the vicinity of the upper end of the key-shank there is engaged with a stud *l* a rod or link *a*, formed with an elongated slot *g*, while the other end of this rod acts upon the type-lever *d*. The connection between the key and the type-lever is now such that a vertical pressure exerted upon the key *t*, Fig. 2, will cause the type-lever *c* to enter in operation, while the type-carrier *d* remains in its position of rest, because the

stud *l* of the shank slides along in the slot *g* of the rod or link. After the key *t* is released the spring *u* draws the key-lever *b* back again into the position of rest. A spring *e* holds the key-shank in the proper position against the rear guiding edge of the frame-plate *f*, and the pins *i* of the slot *p* of the rod *a* then prevent any movement of the latter.

The movement of the type-lever *d* by the horizontal movement of the key *t* will be clearly seen from Fig. 3 in this case, the movement of the key producing only a shifting of the rod *a* by means of the stud *l*, which shifting, by means of the pins *i* in the guide *p*, can always take place in a horizontal direction and which is transmitted to the type-lever *d* and presses the latter against the roller *w*.

What we claim, and desire to secure by Letters Patent, is—

1. A type-writing machine constructed substantially as herein described with finger-keys capable of both vertical and horizontal movement and two type-bar levers connected to each finger-key by a vertically-vibrating lever, and a horizontally-slidable bar respectively, whereby movement is imparted to one of said type-bars by vertical movement of the key and to the other type-bar by horizontal movement of the key as explained.

2. The combination of a finger-key *t*, capable of both vertical and horizontal movement, a pair of type-bar levers *c*, *d*, a vibrating lever *b*, pivoted at its respective ends to the finger-key *t*, and the type-bar lever *d*, and the slidable bar *a*, connected at its respective ends to the finger-key *t*, and the type-bar lever *d*; whereby the vertical movement of the finger-key imparts printing movement to the type-bar lever *c*, and the horizontal movement of the finger-key imparts printing movement to the type-bar lever *d*, substantially as described.

3. The combination of the finger-key *t*, capable of vertical and horizontal movement; two type-bar levers *c*, and *d*; the vibrating lever *b*, pivoted at one end to the finger-key *t*, and at its other end to the type-bar lever *c*; and the slidable bar *a*, coupled at one end to the type-bar lever *d*, and at the other, by

a slot connection, to the finger-key *t*; where-
by the vertical movement of the finger-key
is permitted to impart printing movement to
the type-bar lever *c*, while the bar *a* is at
5 rest, or horizontal movement of the finger-
key is enabled to actuate the slidable bar *a*,
and type-bar lever *d*, as explained.

In witness whereof we subscribe our signa-
tures in presence of two witnesses.

HEINRICH BETTENDORF.
JULIUS MAX BIER.

Witnesses:

JEAN GRUND,
RICHARD GUENTHER.