

(No Model.)

O. F. MAYER.  
TYPE WRITING MACHINE.

No. 572,348.

Patented Dec. 1, 1896.

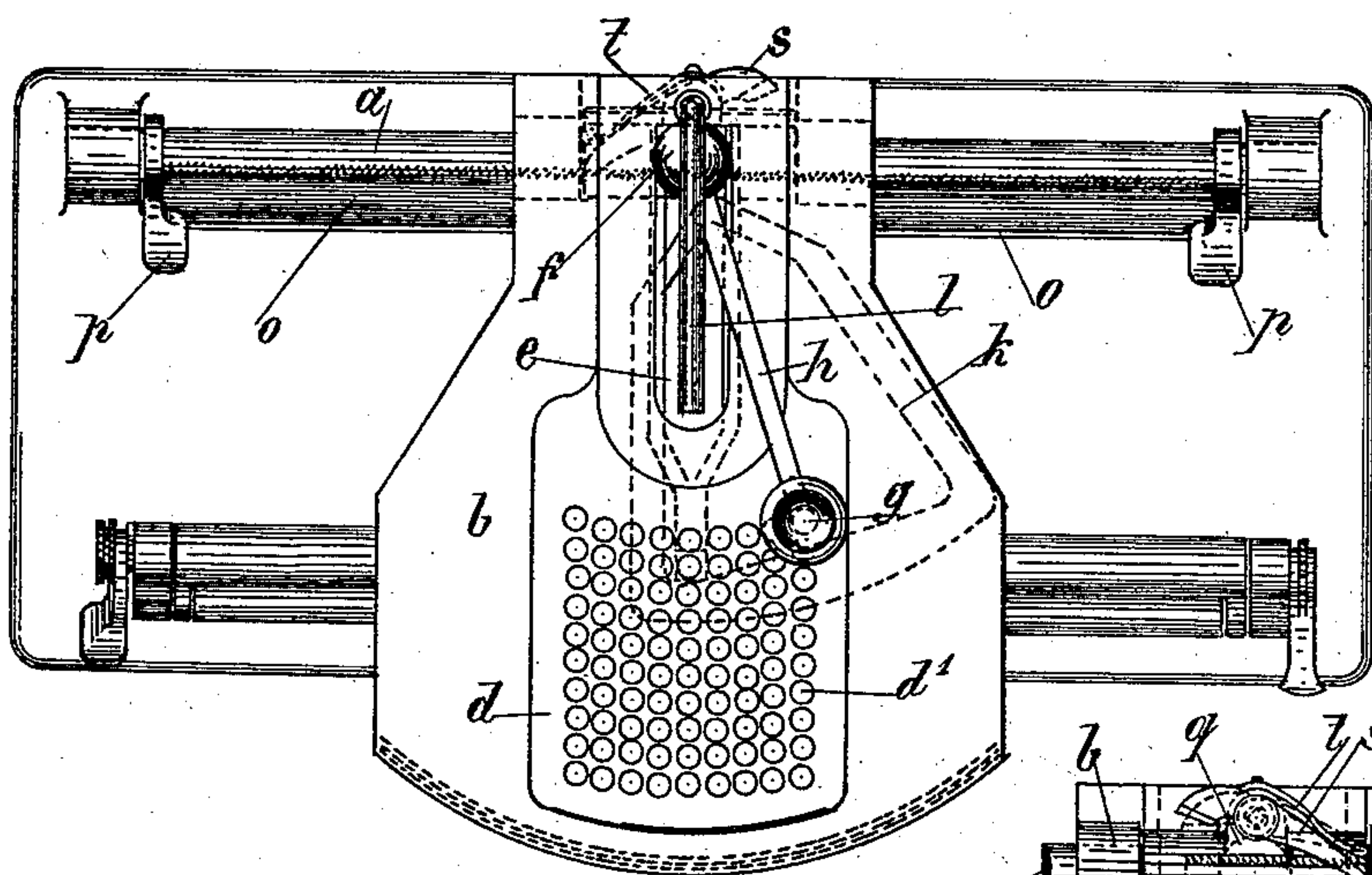


Fig. 1.

Fig. 2.

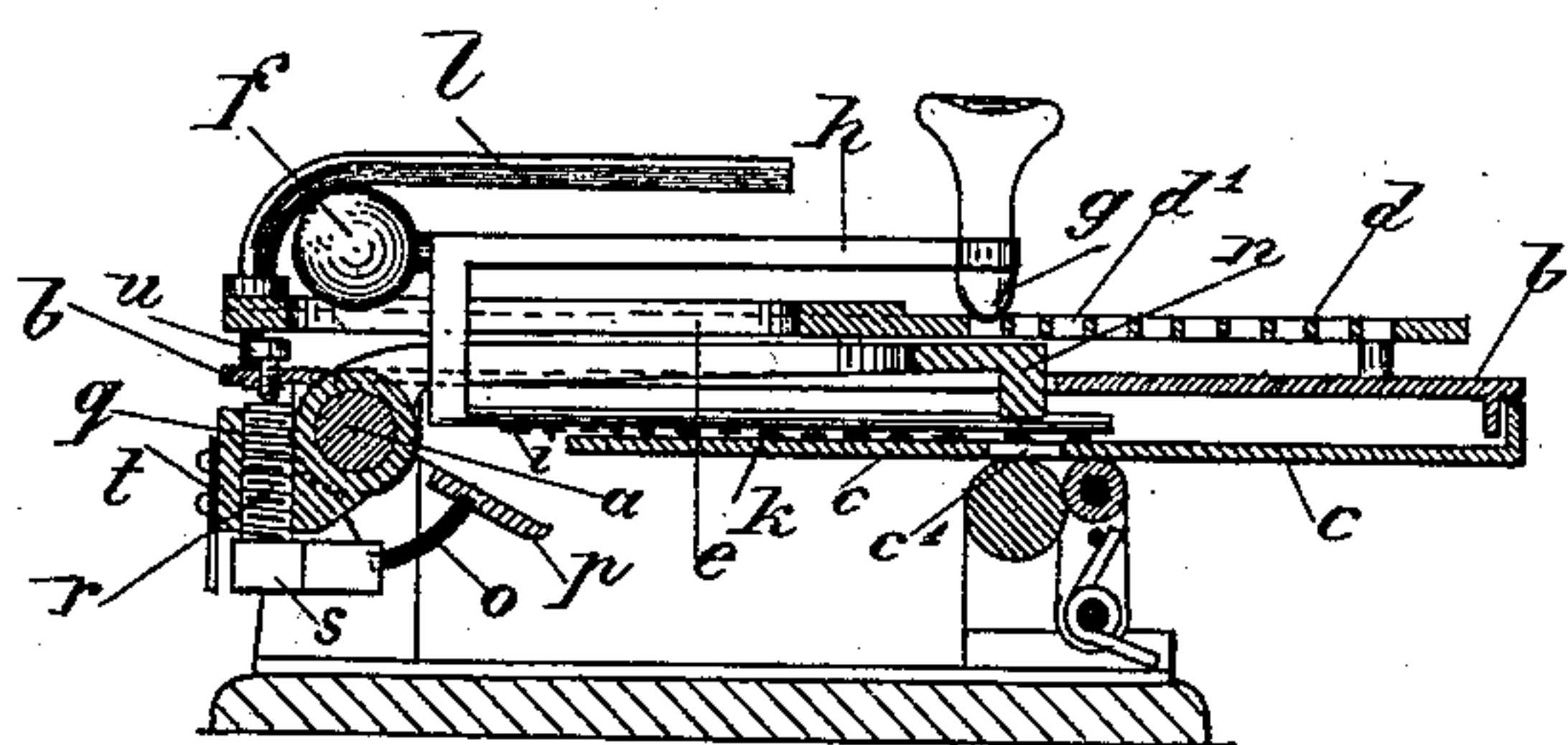


Fig. 3.

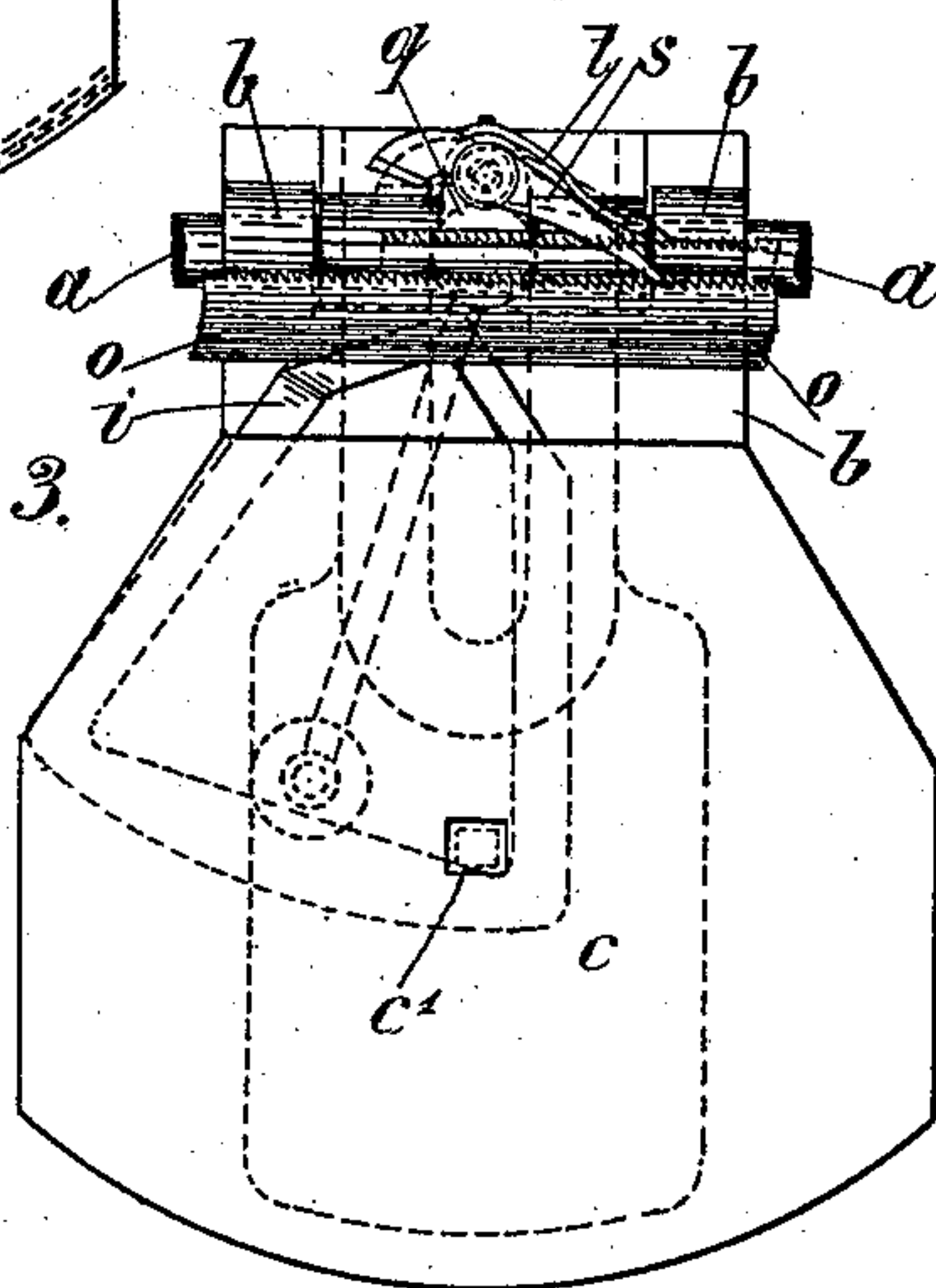
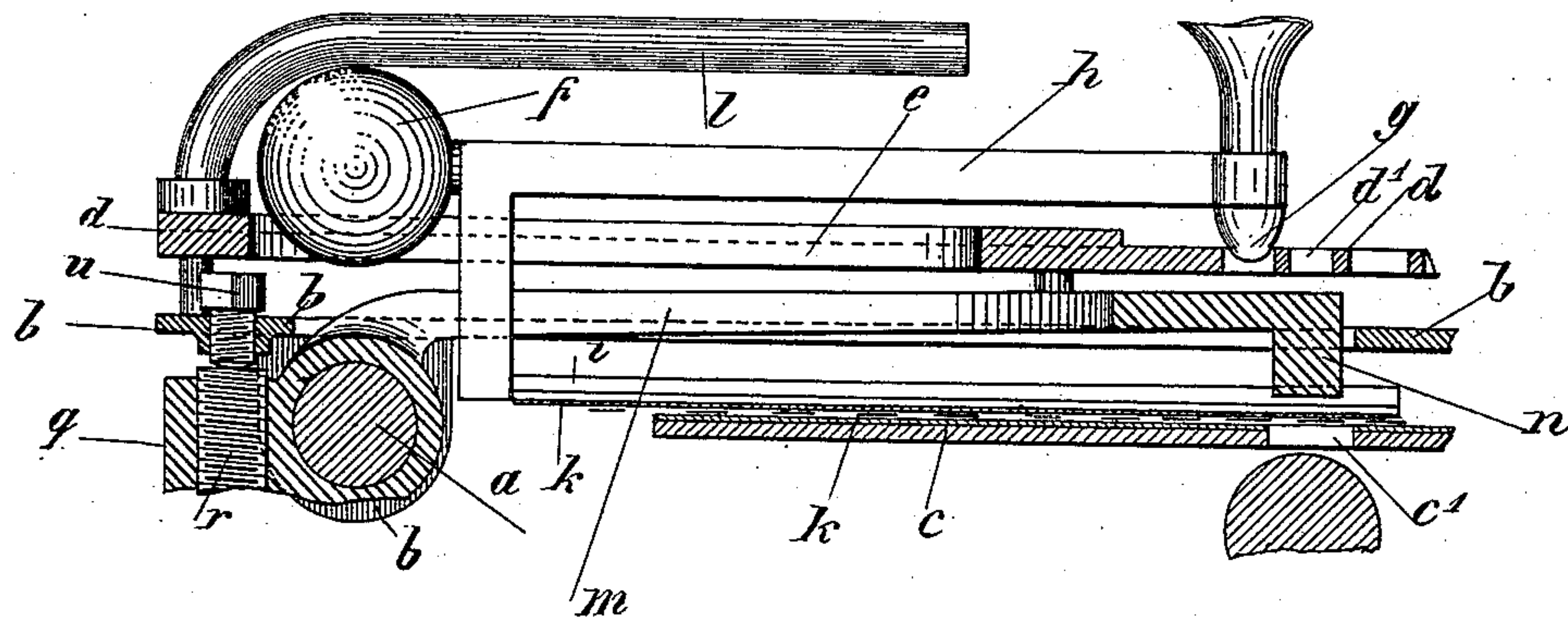


Fig. 4.



Witnesses  
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# UNITED STATES PATENT OFFICE.

OTTO FERDINAND MAYER, OF BERLIN, GERMANY.

## TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 572,348, dated December 1, 1896.

Application filed May 11, 1895. Serial No. 549,015. (No model.) Patented in Germany November 16, 1893, No. 78,296; in Switzerland January 20, 1894, No. 8,107; in France January 24, 1894, No. 235,767; in Belgium January 24, 1894, No. 108,265; in England January 26, 1894, No. 175; in Austria January 26, 1894, No. 44/6,298; in Sweden September 8, 1894, No. 4,056, and in Hungary October 2, 1894, No. 44/6,298.

*To all whom it may concern:*

Be it known that I, OTTO FERDINAND MAYER, a subject of the King of Prussia, Emperor of Germany, residing at Charlottenstr. 4, Berlin, in the Kingdom of Prussia, Germany, have invented new and useful Improvements in Type-Writing Machines, (for which I have obtained German Patent No. 78,296, dated November 16, 1893; British Patent No. 175, dated January 26, 1894; French Patent No. 235,767, dated January 24, 1894; Belgian Patent No. 108,265, dated January 24, 1894; Swiss Patent No. 8,107, dated January 20, 1894; Swedish Patent No. 4,056, dated September 8, 1894; Austrian Patent No. 44/6,298, dated January 26, 1894, and Hungarian Patent No. 44/6,298, dated October 2, 1894,) of which the following is a specification.

This invention relates to that kind of type-writing machines in which the types are arranged on a common elastic and horizontal movable plate; and it consists, essentially, in the considerably-simplified form of the guide for the type-disk and of the adjusting-pin, as well as of the mechanism which serves both for operating the lateral adjustment for the spacing of the letters and for actuating the pressure-lever.

The apparatus works in such a way that after the paper has been inserted in the usual manner and the setting-pin has been adjusted for the desired type a pressure on a key provided for this purpose suffices to simultaneously move the traveling carriage laterally and to move the pressure-lever downward. The pressure-lever only comes so far downward that it imprints the desired type of the type-disk on the paper at the completion of the lateral adjustment of the traveling carriage. In order to obtain a rapid and simple yet certain adjustment of the setting-pin on the index-disk, the rear end of the setting-pin lever has the shape of a ball, which is moved with its under side in a guide slot or groove and is prevented from leaving the same by means of an upper guide-bar or other means.

A type-writing machine on the principle of this invention is shown on the accompanying drawings, in which—

Figure 1 is a plan view; Fig. 2, a vertical section of the machine; Fig. 3, a view from beneath of the traveling carriage, which view shows the arrangement of the mechanism which operates the lateral adjustment. Fig. 4 is a vertical section on a larger scale for explaining the movement of the pressure-lever and the manner of guiding the ball of the setting-pin lever.

The paper-holding device, as well as the mechanism for shifting the paper for spacing the lines, are not described, as they are well known.

On the rear side of the machine a spindle *a* is movably arranged in suitable supports. The traveling carriage *b* is loosely and adjustably arranged on this spindle *a* and rests with its front end, on which it carries the inking-pad *c*, on a slide-bar. The index-plate *d*, which is arranged over the traveling carriage *b*, is firmly connected with the latter, the setting-pin for adjusting the type-disk being passed into the holes *d'* of the index-plate. The index-plate *d* has a guide-groove *e*, which runs vertically to the spindle *a*. In this guide-groove *e* a ball *f* moves freely and is connected with the setting-pin *g* by means of a rigid lever *h*. A fork-shaped piece *i*, connected to the lever *h*, extends from the latter downward through the slot *e* and carries the elastic type-plate *k*. According to the hole in the index-plate *d* in which is inserted the setting-pin the corresponding letter of the type-plate *k* comes over the recess *c'* of the inking-plate *c* and thus under the hammer of the printing-lever. In order that the ball *f* may not quit its guide-groove *e*, a fixed guide-bar *l* can be further arranged over it.

The printing-lever *m* lies with its hammer-shaped end *n* over the type-disk *k*, that is to say, directly over the recess *c'* of the inking-plate *c*, and is also adjustably connected at its rear end to the spindle *a*, but in such a way that is capable of making, as regards the traveling carriage *b*, only an up-and-down motion with its hammer *n* and not a lateral movement.

The mechanism for producing the lateral movement consists as follows: A serrated



rack-bar *o* is firmly connected at both ends with the spindle *a* and extends parallel to this spindle under the traveling carriage *b*. A key *p* is provided at each end of the rack-bar *o*. The rear end of the printing-lever has a thickened projection *q*, through which a screw *r* passes, which has a pawl *s* at its lower end. This pawl *s* is forced by a spring *t* to remain constantly engaged with the teeth of the rack-bar *o*. If, therefore, one of the keys *p* be pressed down, the rack-bar *o* exerts a pressure on the pawl *s*, which causes a lateral movement of the traveling carriage in the following manner: The end proper of the pawl tends, as a matter of course, to perform a circular curve, the radius of which proceeds from the fulcrum of the pawl. Said end, however, being in a sense coupled to the rack-bar *o*, cannot but move in exactly the same line as made by the two teeth holding between them the said end, and the whole pawl is therefore displaced in the opposite direction. Said pawl being secured to the printing-lever *m*, and this lever having its bearing just between the two bearings of the traveling carriage *b*, it is clear that the latter is caused to move in a lateral direction. When thereafter the rack-bar *o* moves back into its former position, *i. e.*, into the position of rest, the traveling carriage, the printing-lever, and the screw *r* remain in their new position and the end proper of the pawl enters another recess of the rack-bar *o*. The lateral movement of the traveling carriage causes, however, simultaneously a downward movement of the printing-lever, and thereby effects on the paper an impression of the type (which has been adjusted) of the type-disk at the completion of the lateral adjustment of the traveling carriage. The screw *r* rests in fact with its upper end against a fixed set-screw *u*. As, however, on the adjustment of the traveling carriage along the teeth, the pawl *s*, and with it the screw *r*, receives a rotary motion, the latter screws itself deeper into the part *q*. As, however, the pressure on the key *p* always presses the screw *r* against the set-screw *u*, the thickened rear end *q* of the printing-lever *m* will be moved upward and the front end of the hammer *n* downward. When the pressure is removed from the key *p*, the spring *t* again presses the pawl *s*, and with it the rack-bar *o*, back into their original position.

If spacing between words is to be effected, the setting-pin *g* is put into a special hole of the index-plate *d*. The corresponding part of the type-plate is either not furnished with a type or, what is preferred, provided with

a hole. Said special hole in the index-plate is preferably arranged in the middle of the indices, so that the way to be made by the setting-pin is in any case but a short one. After the setting-pin has been properly adjusted one or the other of the keys is operated just so as if a type is to be printed, when the traveling carriage will be displaced by the mediation of the pawl in exactly the same manner as afore described.

The movement of the pawl *s*, the pitch of the screw *r*, the width of the teeth of the rack-bar *o*, &c., must of course be regulated to correspond to the width of the desired letter.

As the movement of the printing-lever depends on the movement of the traveling carriage, it is quite impossible for any letter to remain on the paper, and thus any so-called "overprinting," that is to say, the imprinting of two or more letters on the same spot, is entirely excluded.

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

1. In a type-writing machine having a movable type-plate attached to a laterally-displaceable carriage, and a printing-lever adapted to strike upon said type-plate, and to be displaced together with said carriage, the combination with said parts, of a rack arranged parallel to the direction of motion of the carriage, and adapted to be moved in a direction rectangularly thereto; a pawl taking into said rack, and adapted to be turned by the latter; and a screw arranged in the printing-lever, having said pawl fixed to one of its ends, and resting with the other end against a part of the carriage, for the purpose as described.

2. In a type-writing machine having a movable type-plate adapted to be adjusted by a setting-pin lever, and a displaceable carriage holding said two parts, the combination with said setting-pin lever, of a ball-shaped slide fixed to the rear end of the same; a slot provided in said carriage, and adapted to serve as a guide for said slide; and a fixed guide-bar arranged over the said slide, and adapted to prevent the same from leaving said slot, for the purpose as described.

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

OTTO FERDINAND MAYER.

Witnesses:

WM. HAUPT,  
CHAS. KRÜGER.