

(No Model.)

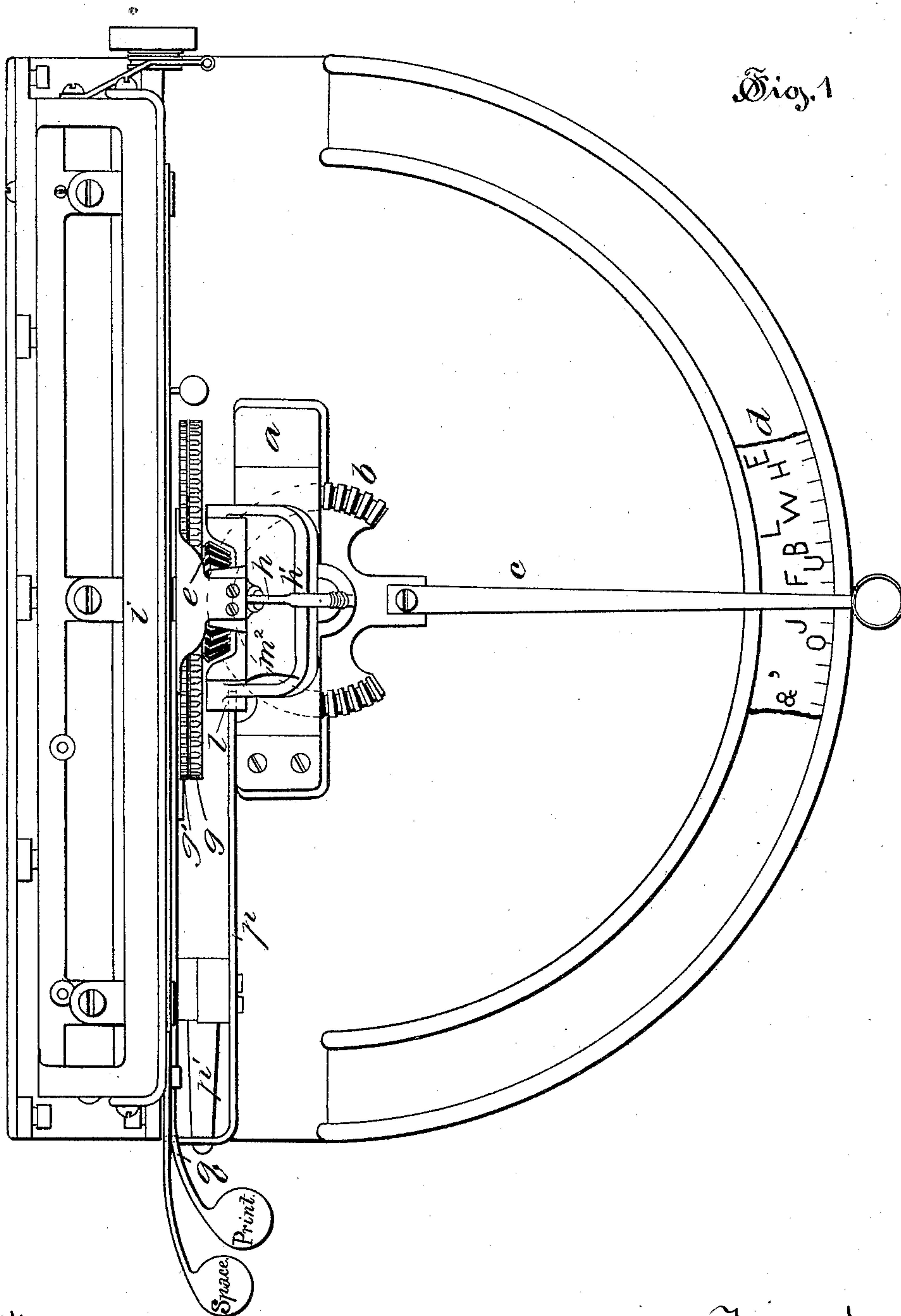
2 Sheets—Sheet 1.

A. I. JACOBS.

PRINTING MECHANISM FOR TYPE WRITING MACHINES.

No. 409,289.

Patented Aug. 20, 1889.



Witnesses:

Allie S. Williams.

A. D. Taylor

Inventor,

Arthur I. Jacobs, by  
Harry R. Williams,  
Atty.

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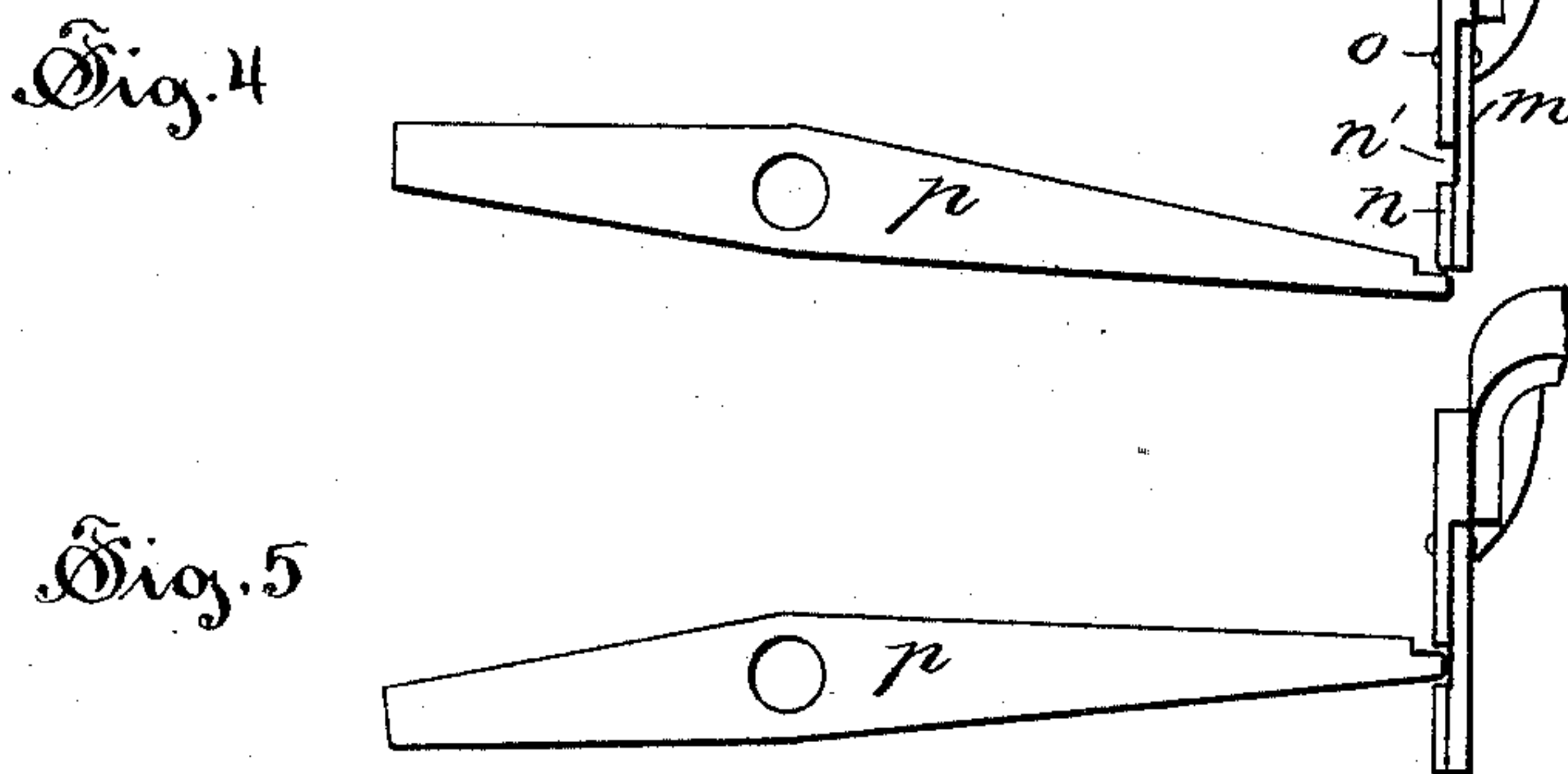
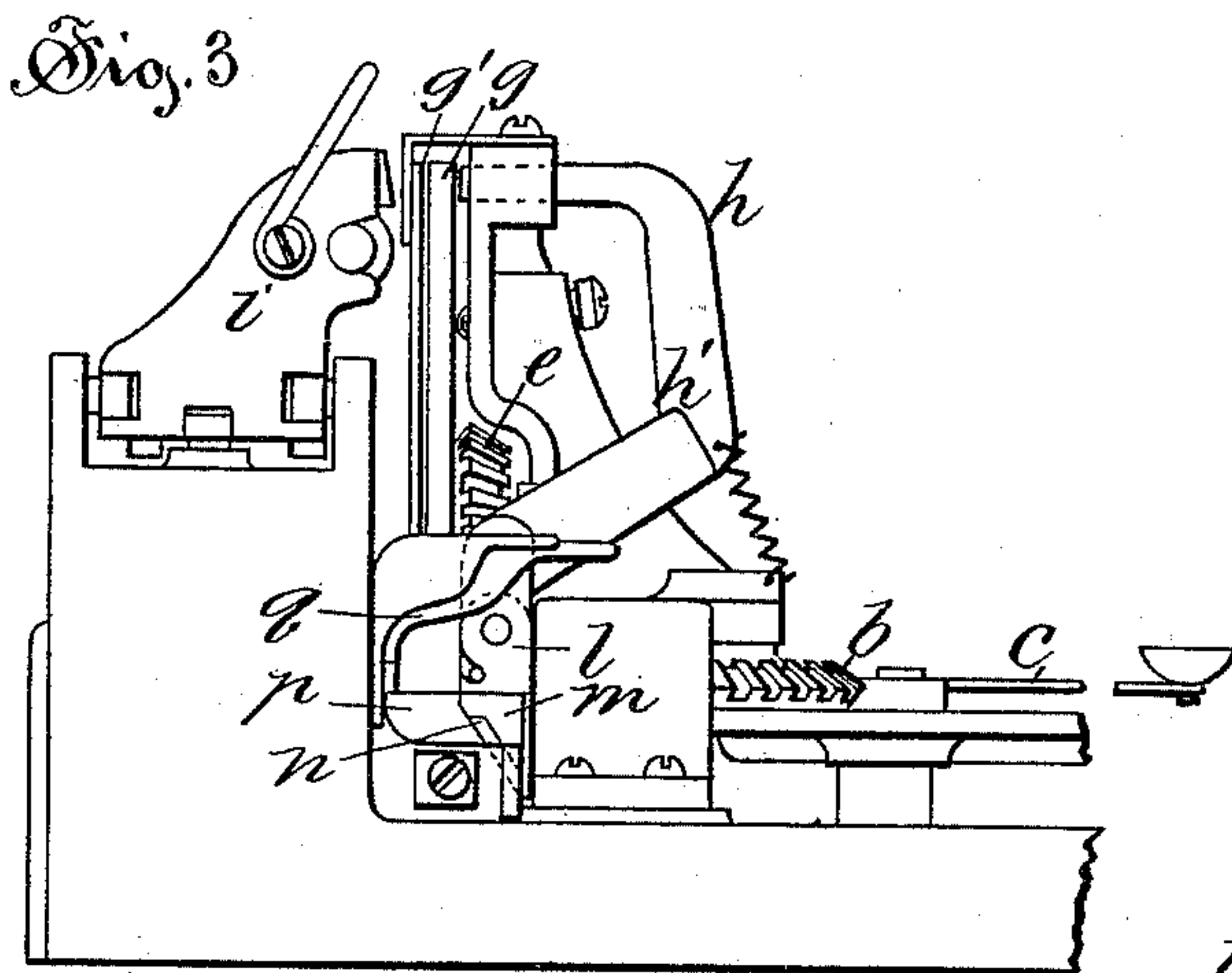
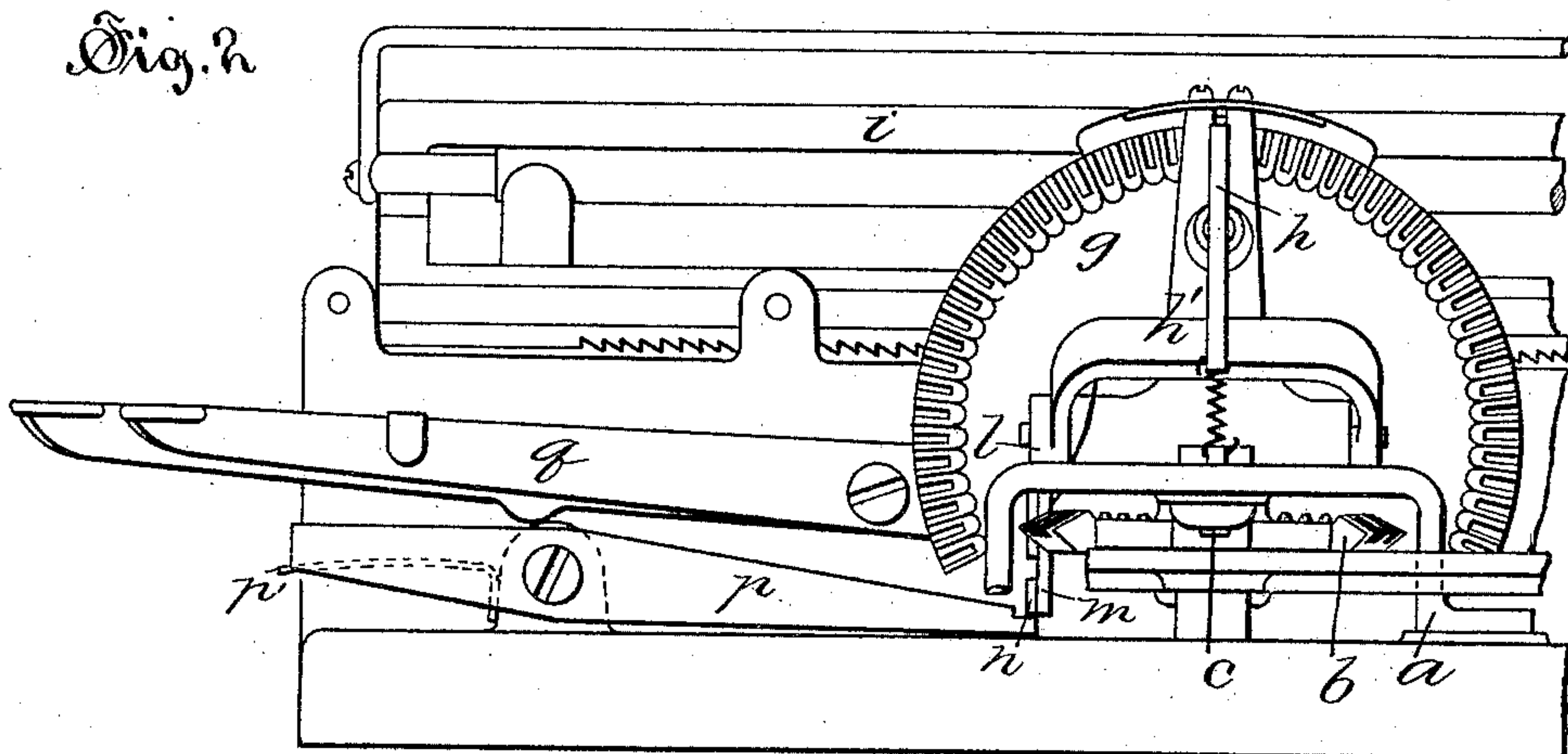


Fig. 5

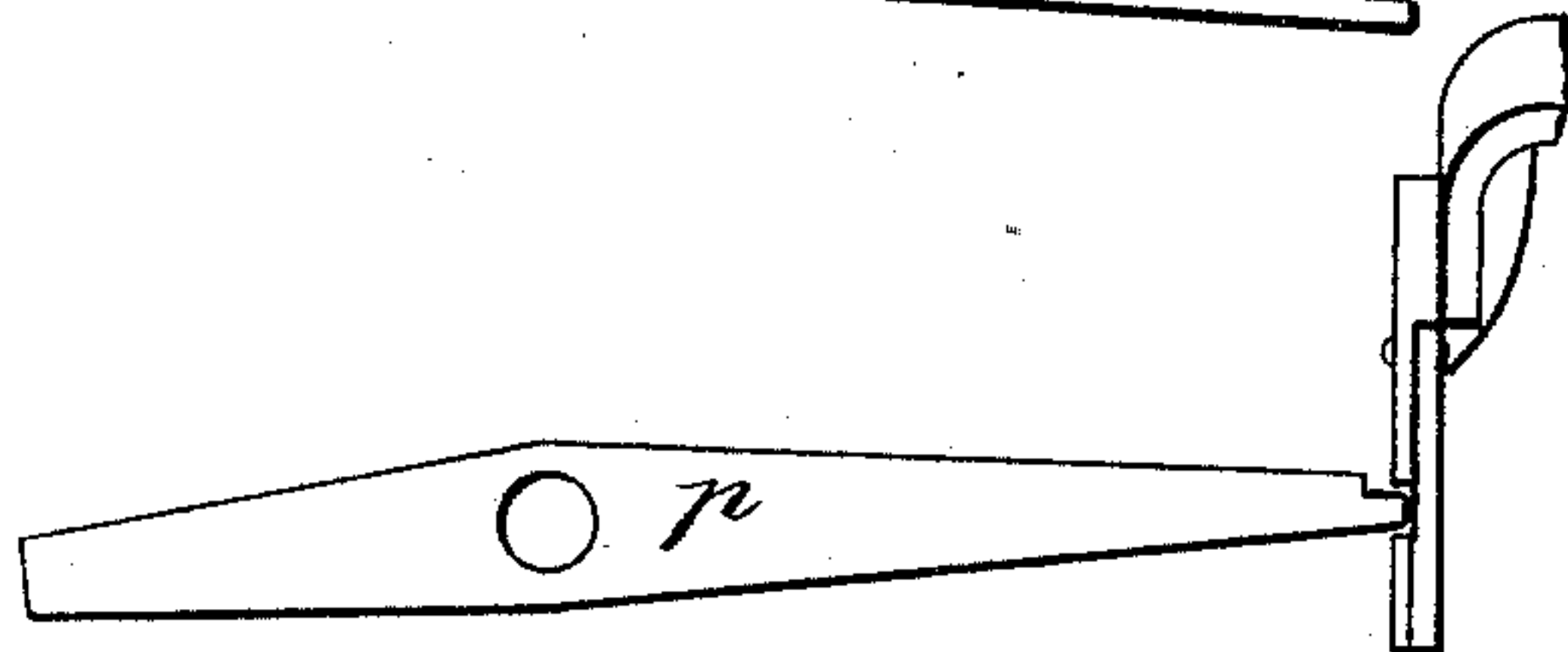
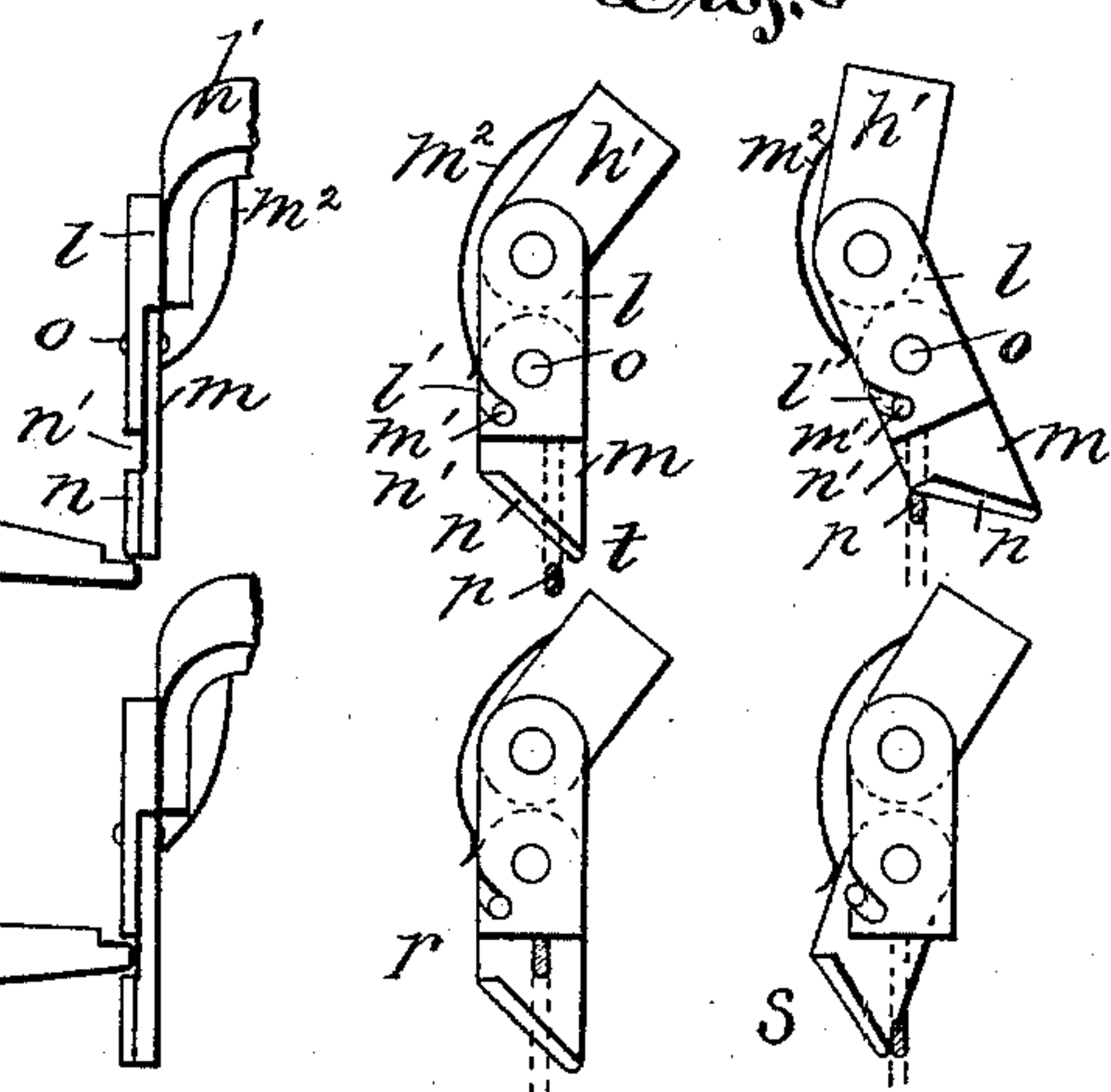


Fig. 6



Witnesses:

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# UNITED STATES PATENT OFFICE.

ARTHUR I. JACOBS, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE TILTON MANUFACTURING COMPANY, OF PORTLAND, MAINE.

## PRINTING MECHANISM FOR TYPE-WRITING MACHINES.

SPECIFICATION forming part of Letters Patent No. 409,289, dated August 20, 1889.

Application filed October 6, 1888. Serial No. 287,390. (No model.)

*To all whom it may concern:*

Be it known that I, ARTHUR I. JACOBS, of Hartford, Connecticut, have invented certain new and useful Improvements in Printing Mechanism for Type-Writing Machines, of which the following is a specification.

My invention relates to the mechanism used to strike the types of the class of type-writers wherein the types are carried on a plate or a type-wheel, which is moved in various directions to bring the proper type into position to be struck by a hammer or plunger to print the desired character; and the object of the invention is to construct the mechanism so that the plunger or hammer will impart a blow to the type by the depression of a lever and be allowed to return to its normal position as soon as the character is printed, without regard to the position of the printing-lever, in order to secure speed in writing with a machine of the above-mentioned class.

Referring to the accompanying drawings, Figure 1 is a plan view of one form of machine of this class with my improvement attached. Fig. 2 is a front elevation of a part of the same. Fig. 3 is a side elevation of a part of the machine. Fig. 4 is a detail side view of the lever for imparting motion to the printing-hammer, showing the jointed arm that is attached to the hammer-frame in edge view. Fig. 5 is a view of the same, showing the position of the lever when depressed. Fig. 6 are side views of the jointed arm, showing its various positions during the motion of the lever.

In the drawings my improvement is illustrated as applied to a machine the bed of which has an upright frame *a*, to which is pivoted a segmental gear *b*, that is oscillated horizontally by means of a lever *c*, which travels over a character-index *d*. This segmental gear meshes with a gear *e*, that is pivoted to the back of the frame *a* so as to oscillate vertically, and secured to the back of this so as to oscillate with it are the disks *g g'*, the disk *g* being slotted to properly guide and direct the movement of the hammer against the back of a type, which type are flexibly secured to the disk *g'*, so that under the impact of a blow from the hammer or plunger *h* a char-

acter will be printed upon paper carried across the machine in the paper-carriage *i*, which is moved by any common ratchet-and-pawl mechanism. The desired character to be printed is of course brought into position by the movement of the lever *c* across the index, the gears transmitting the motion to the type-wheel.

The lower end of the lever bearing the hammer or plunger *h* is forked, as at *h'*, and this fork is pivoted to a part of the upright frame *a*, so as to oscillate back and forth when it is desired to print a character. Projecting down from one arm of the fork is the arm *l*, to which the plate *m* is so connected as to be capable of independent movement backward, swinging on the pivot *o*, but that it is held as one piece to the arm *l* when the plate *m* is pulled forward, the pin *m'*, fast to the plate *m*, striking the bottom of the slot *l'* in the end of the arm *l*, in which position it is normally held by the spring *m<sup>2</sup>* holding the parts *l* and *m* together. The lower edge of the plate *m* has an inclined surface or rib *n* for a part of its length, and between the upper end of the rib and the bottom of the arm *l* is a channel *n'*.

The lever *p* is so pivoted to a post that rises from the bed of the machine as to have a vertical oscillation, one end of the lever being so bent as to lie in the path of movement of the printing key-lever *q*, while the other end, under the influence of the spring *p'*, lies under the inclined rib on the plate *m*.

In writing with the machine, when the printing-lever *q* is depressed, the outer end of the lever *p* is also depressed, with a consequent rising of the inner end, which, coming in contact with the incline on the plate *m*, forces the plate forward out of its way. This causes the arm to be thrown forward and the hammer backward, so that the hammer strikes the back of a type and produces an imprint on the paper. When the end of the lever reaches the cut-away portion or channel *n'* at the end of the incline, the arm is allowed to return to its normal position, as shown at *r* in Fig. 6, which of course pulls the hammer back from the type and out of the slots in the disk *g*, so that the index-lever can be turned to the next character to be



printed. When the lever  $q$  is allowed to rise, the spring  $p'$  forces the end of the lever  $p$  down, the top face of the inclined rib pushing it out of the way, as shown at  $S$  in Fig. 6, as before stated, the plate  $m$  having an independent motion backward. As soon as the end of the lever is clear from the incline, the spring  $m^2$  returns the plate to position for another action, as shown at  $t$  in Fig. 6.

10 This construction allows a blow to be imparted to a type and the hammer to return to position for another blow without waiting for the key-lever to rise to its normal position, which is essential to speed in this class of machines where the hammer is usually guided into a slot in the type wheel or plate, from which slot the hammer has to be withdrawn before another type can be brought up to be forced against the paper.

20 I do not limit myself to this exact form of type-writer to which to apply my printing mechanism, as it can be adapted without the exercise of invention to several type-writers of this class; nor do I limit myself to a pin and slot to prevent independent movement in one direction of the plate bearing the inclined rib, as other forms of stops can be used for this purpose.

I claim as my invention—

30 1. In combination, in a type-writer, a hammer with a projecting arm, pivoted to which is a plate having an inclined rib, which when forced in one direction moves the arm and hammer, but when forced in the opposite direction moves independently, and a printing-lever adapted to move the plate by contact with the inclined rib, substantially as described, and for the purpose specified.

2. In combination, in a type-writer, a type-wheel, a hammer with a projecting arm, to which is pivoted a plate bearing an inclined rib, with a channel above the end of the rib, which when forced in one direction moves the arm and hammer, but when forced in the opposite direction moves independently, and a lever with one end adapted to move the plate by contact with the incline, substantially as described, and for the purpose specified.

3. In combination with a type-writer, a type-wheel, a hammer with a projecting arm, to which is pivoted a plate bearing an inclined rib for a part of its length, which plate when forced in one direction moves the arm and hammer, but when forced in the opposite direction moves independently, and a lever with one end adapted to move the plate by contact with the incline and the other end bent into the path of a key-lever, substantially as described, and for the purpose set forth.

4. In combination with a type-writer, a type-wheel, a hammer with a projecting arm, to which is pivoted a plate bearing an inclined rib, said plate bearing also a pin that projects into a slot in the arm, so that when the plate is forced in one direction it moves the arm and hammer, but when forced in the opposite direction moves independently, and a lever with one end adapted to move the plate, substantially as described, and for the purpose set forth.

ARTHUR I. JACOBS.

Witnesses:

F. D. TAYLOR,  
JOS. A. WHITE.