

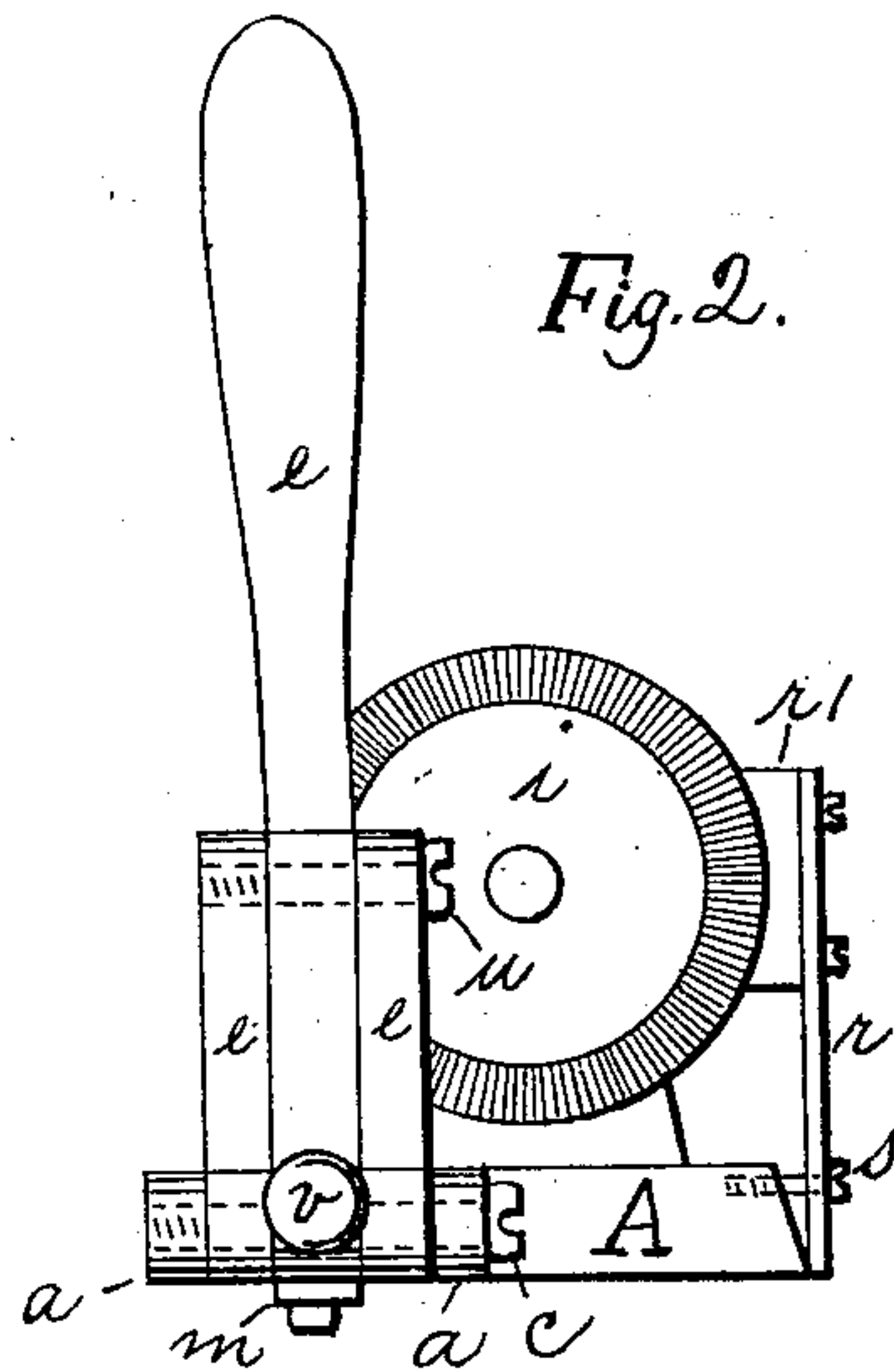
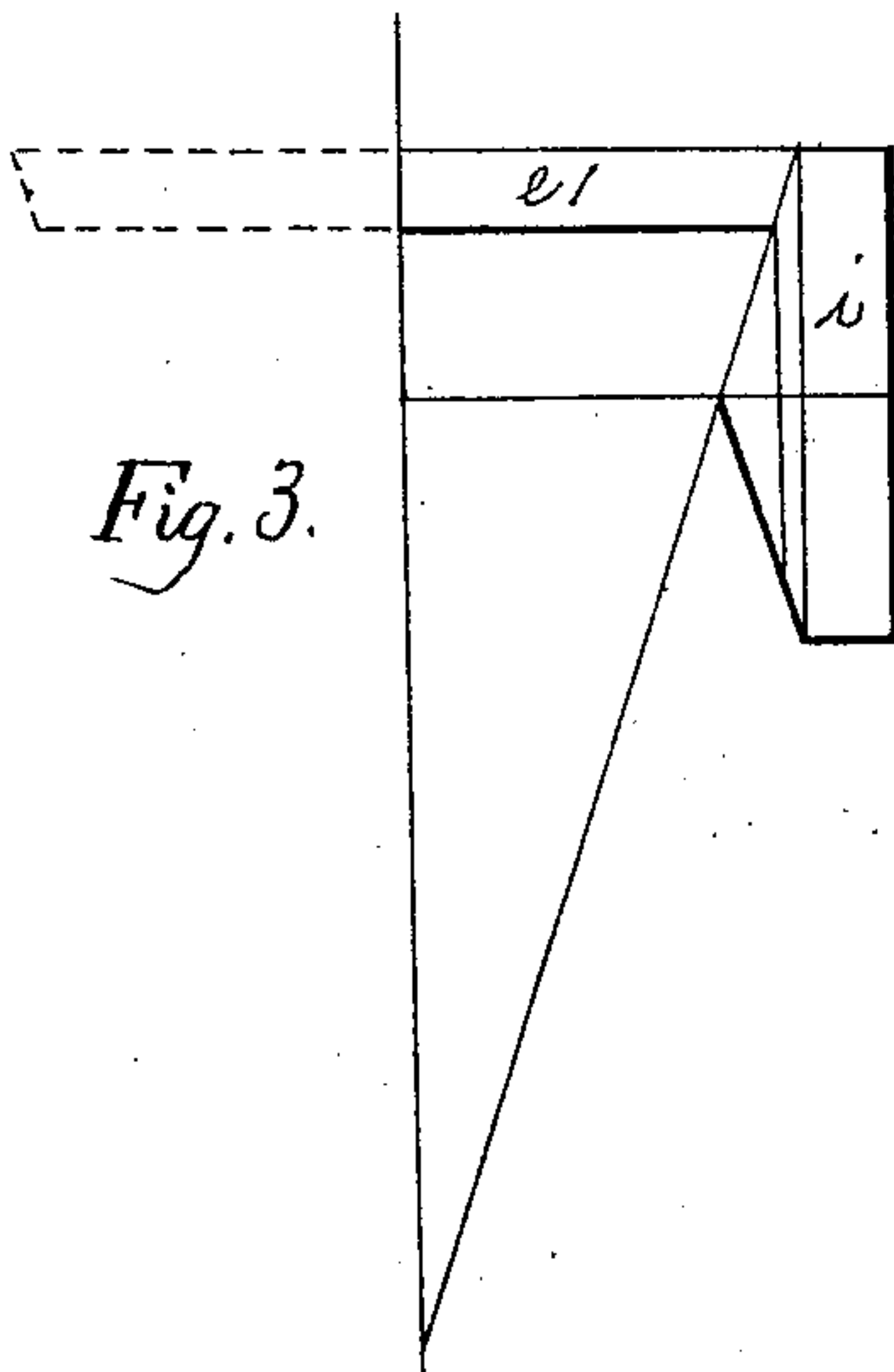
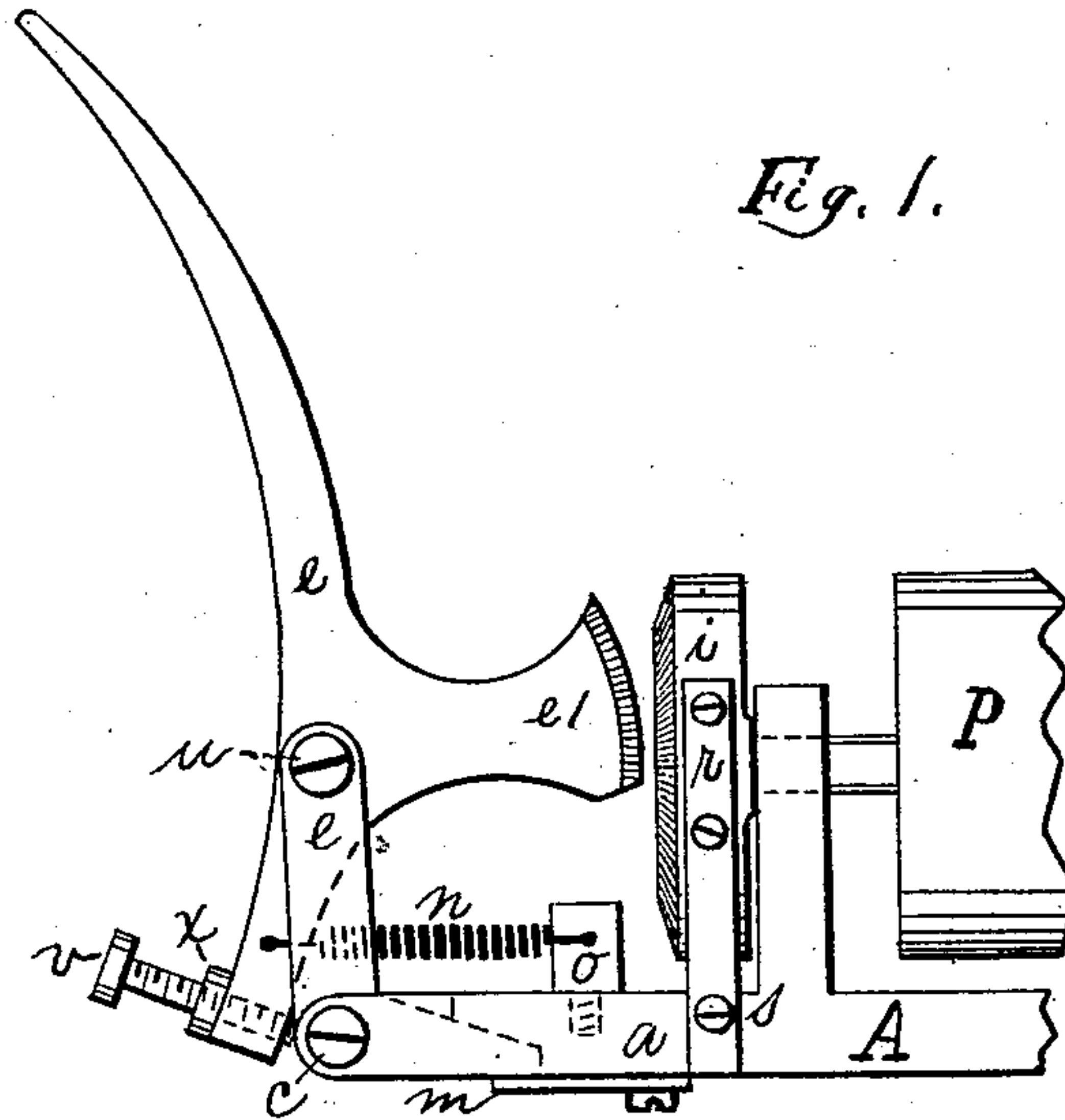
No. 696,166.

Patented Mar. 25, 1902.

W. ERWIN.
TYPE WRITER.

(Application filed Sept. 22, 1897.)

(No Model.)



WITNESSES:

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TYPE-WRITER.

SPECIFICATION forming part of Letters Patent No. 696,166, dated March 25, 1902.

Application filed September 22, 1897. Serial No. 652,626. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM ERWIN, a citizen of the United States, residing at Kenosha, in the county of Kenosha and State of Wisconsin, have invented certain new and useful Improvements in Type-Writers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to the mechanism by which the line-spacing, the return of the carriage, and the control of the platen of type-writers are accomplished; and the objects of my improvements are, first, to render the line-spacing automatic by a slight increase in length of the one single lever motion by which after a line has been written the carriage is returned for the commencement of a new line of writing; second, to provide for line-spacing that may be instantly adjusted by the minutest gradations to any width desired; third, to provide a satisfactory device which shall hold the platen from turning while writing is being done, and yet leave it free to be turned forward or backward by the hand to any desired extent without interfering in the least with the uniformity of the width of line-spacing and without the necessity of first releasing or holding back a spring, catch, or lever; fourth, the accomplishment of these objects with a simplified mechanism of few parts and the entire avoidance of spring-catches, which produce unpleasant snapping noises when in use.

In order that my invention may be clearly understood, I have illustrated in the annexed drawings one practical form by which its objects are attained and will proceed to describe it.

Figure 1 is a front view of the entire mechanism, which also shows its relation to the end of the carriage-frame and to the platen. Fig. 2 is an end view of the entire mechanism as seen from the left. Fig. 3 is a diagram showing a practical method of planning the angles of the friction-gear by means of which the line-spacing is accomplished.

Upon an extension *a* of carriage-frame *A* is pivoted at *c* the lower section of compound lever *e*. Inwardly from the upper section of said lever extends a projection of the same

toward the platen, which terminates in a segment of a circle *e'*. The outer surface of this segment is beveled at an approved angle (illustrated in diagram in Fig. 3) to form a friction-gear with the beveled face of wheel *i*. The opposed faces of said gear-wheels are beveled to admit of cross serrations, thus preventing loss of motion by slipping. Wheel *i* is keyed to the shaft of platen *P*. Normally the lower part of the lower section of compound lever *e* is held against the opposed recess in the extension of carriage-frame *a* by spring *m*, and the lower end of the upper section of said lever *e* is held against the lower section at *c* by tension-spring *n*, which latter is attached to bolt *o*, said bolt being screwed into the extension *a* of the carriage-frame. Normally wheel *i* is held from turning by brake *r'*, the pressure of which is easily controlled through spring *r* by screw *s*. In operation pressure toward the right upon the upper extremity of the upper section of lever *e* causes spring *m* to yield, as it is weaker than spring *n*, and the entire portion of lever *e* above the pivot *c* approaches wheel *i* until the friction-surfaces of *e'* and *i* are in contact. This being the limit of motion of the lower section of lever *e* further pressure upon the upper extremity of the upper section of said lever *e* overcomes the tension of spring *n* and causes said upper section to rotate upon the upper end of the lower section at pivot *u* until stopped by the consequent downward motion of *e'* against the top of bolt *o*. As the beveled surfaces of *e'* and *i* are in contact during this latter part of said motion, wheel *i* and with it platen *P* are rotated far enough to accomplish the line-space. Further continuance of the pressure above described returns the carriage for the commencement of a new line of writing. Upon releasing lever *e* springs *n* and *m* return it to its first position. The width of line-space is controlled by set-screw *v*, which for security is provided with lock-nut *x*.

Attention is called to the angle of the bevel between *e'* and *i*, which is taken from a point on the axis of *e'* (which gives the motion) beyond the point of intersection of the axis of *i*, (which receives the motion,) as distinguished from the angle of bevel-gear, which is always taken from the intersection of the axes of

the gear-wheels. In Figs. 1 and 2 the friction contact-surfaces of e' and i are represented as finely serrated for the purpose of security against loss of motion by slipping, and these surfaces may be either of metal or of some substance—as rubber, for instance—which will not slip easily, or either one may be of such substance and the other of metal, in either case the principle involved being a friction-gear between opposed surfaces that are either serrated or smooth or one serrated and the other smooth and placed preferably at an angle which strikes the axis of the motion giver beyond the point of intersection of the axes of the gear-wheels.

By the form of gear shown in Fig. 3, in which the line of contact extends beyond the point of intersection of the axes of the gears, a more positive engagement results, since the segment member e' in moving forward engages the pinion i securely at a bevel angle, thereby avoiding the friction which would be inevitable between the faces of these members if they approximated at right angles. The angle of gear resembles that of a reversed bevel-gear, where the motion is increased, the method shown being in reality a contact-gear instead of a friction-gear. The angle of bevel shown is approved, (though not absolutely necessary,) because it retains the essential feature of a bevel-gear, gives a direct and certain motion, and avoids the sidewise push or crowd that would follow if each member had a forty-five-degree angle.

The compound lever e of the mechanism herein described need not necessarily have an upright position, as shown in Figs. 1 and 2, but, if desired, may be placed horizontally or at any convenient angle.

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

1. A type-writer line-spacing mechanism comprising a combined carriage-return and spacing lever made in two sections, each sec-

tion separately fulcrumed, one upon an extension of the carriage-frame, and the other upon the first section; and friction gear-wheels, one of which is placed upon one end of the platen-shaft, and the other upon the second section of the spacing and carriage-return lever.

2. In a type-writer a carriage-return and line-spacing lever made in two sections, one fulcrumed upon an extension of the carriage-frame, and the other upon the first section, and both yieldingly held in normal position by a separate spring for each, the spring for the first-named section being the weaker of the two, for the purpose set forth, substantially as described.

3. In a type-writer a beveled friction-gear line-spacing mechanism, a carriage-return and line-spacing lever made in two sections one fulcrumed upon an extension of the carriage-frame and the other upon the first section, a pair of geared members one or both being serrated crosswise, one being placed upon one end of the platen-shaft and the other upon the second section of the said lever, for the purpose of giving the platen a full space motion whether or not it may have been previously turned by the hand, as set forth.

4. In a type-writer the combination of a two-section combined carriage-return and spacing lever, separately fulcrumed, one upon an extension of the carriage-frame and the other upon the first section of said lever, each held in normal position by a separate spring, the spring for the first section being the weaker of the two; and friction-gears one of which is placed upon one end of the platen-shaft and the other upon the second section of the carriage-return and spacing lever, substantially as described.

WILLIAM ERWIN.

Witnesses:

J. H. VOLK,

J. WILMER FISHER.