

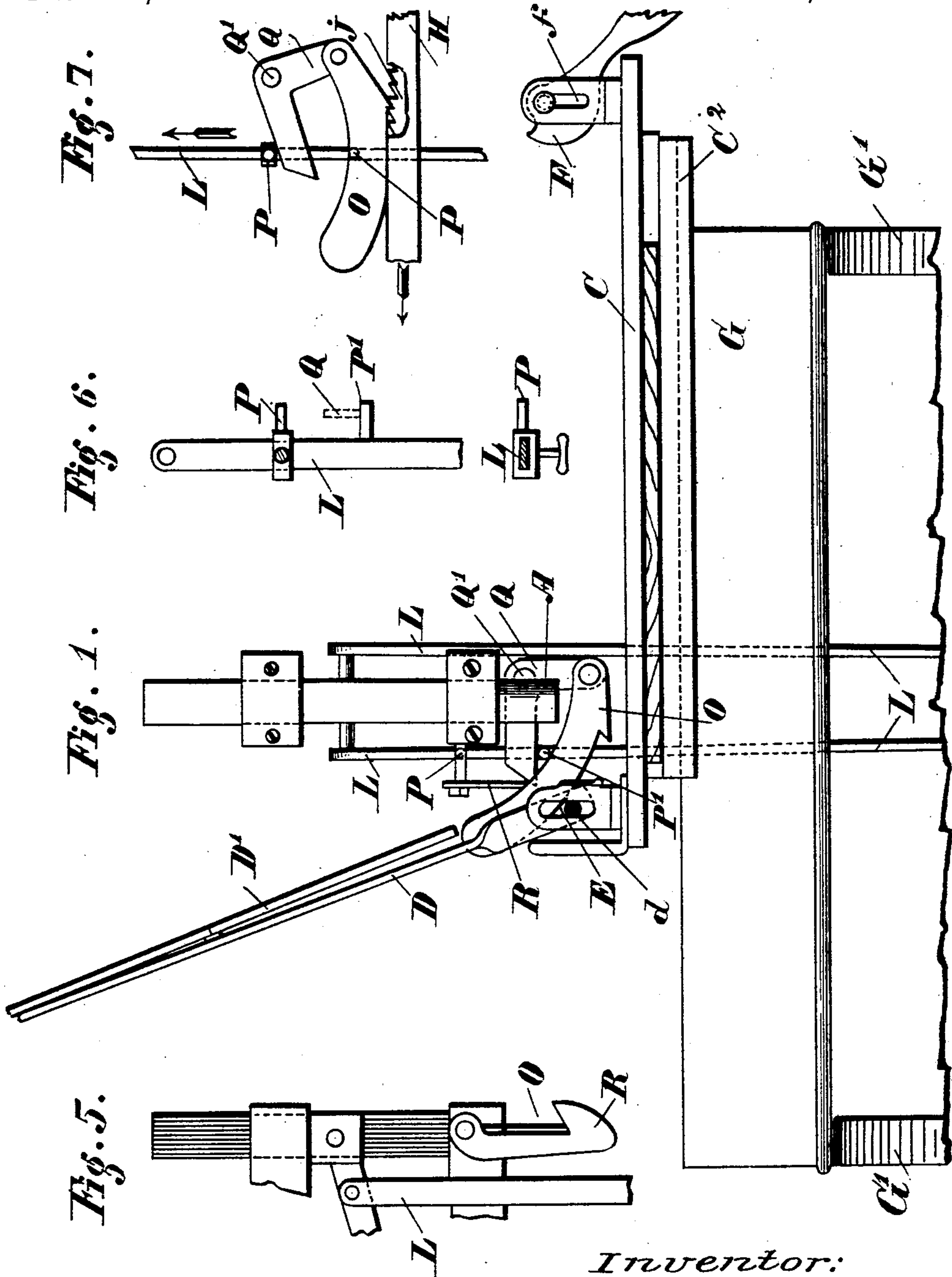
(No Model.)

4 Sheets—Sheet 1.

W. CORFE.
INDEX CUTTING AND PRINTING MACHINE.

No. 591,818.

Patented Oct. 19, 1897.



Witnesses:

E. R. Bolton
Otto Munk

Inventor:

William Corfe

By *Reinhardt*

his Attorneys

(No Model.)

4 Sheets—Sheet 2.

W. CORFE.

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Fig. 2.

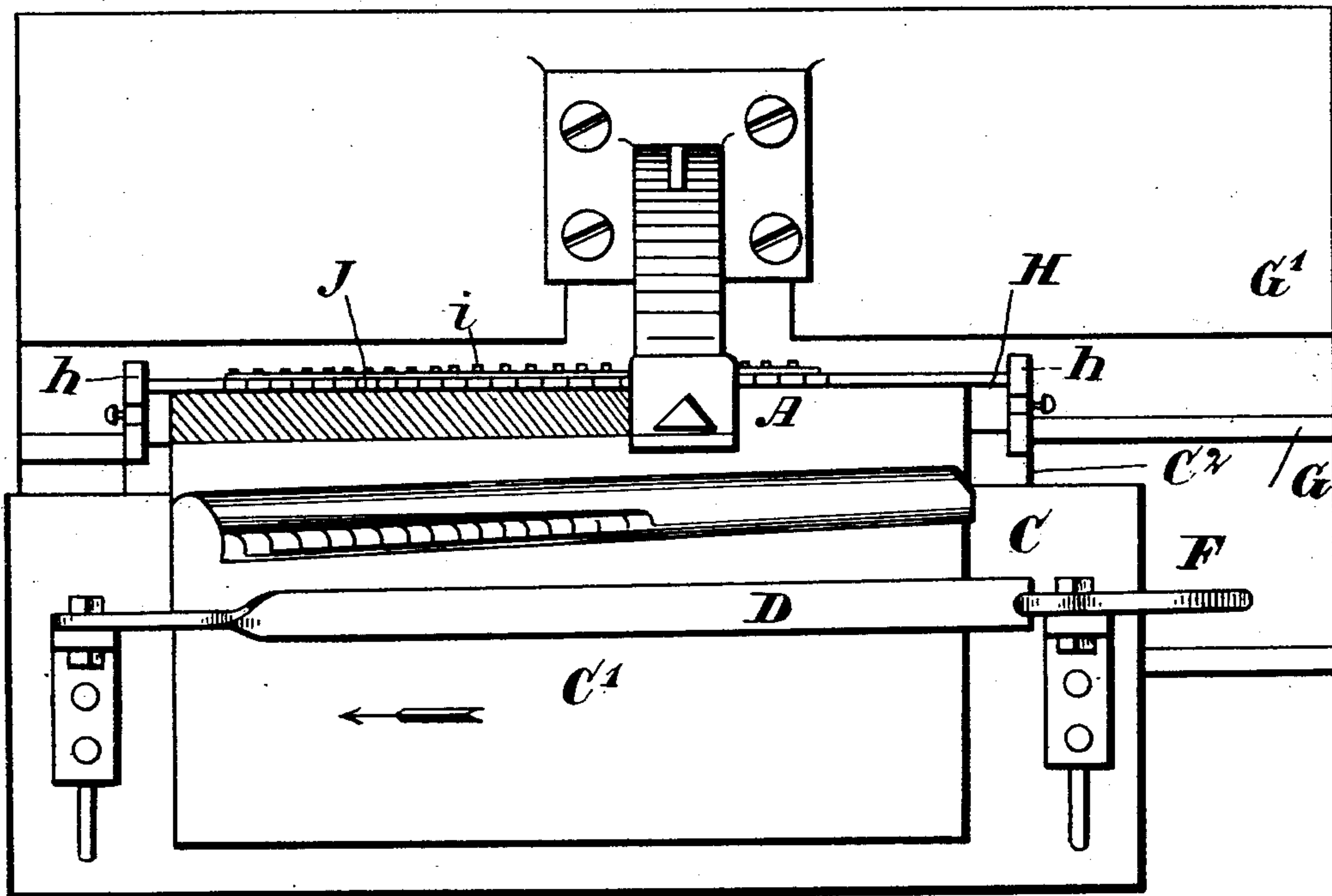
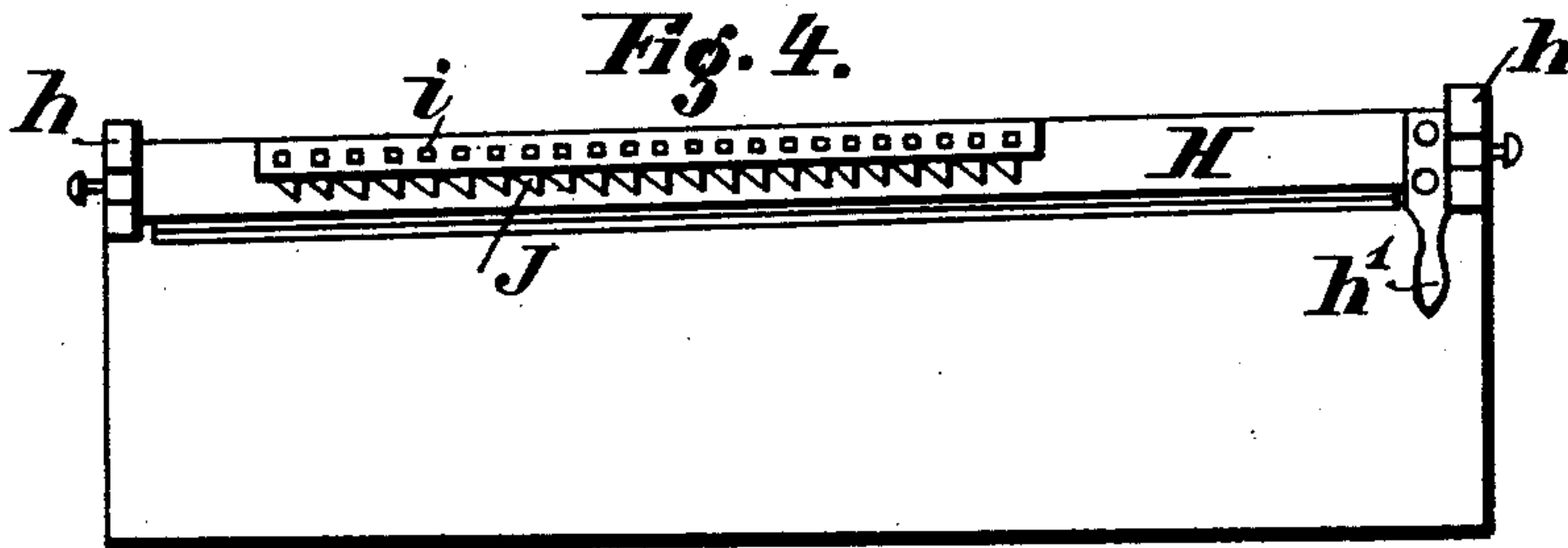


Fig. 4.



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(No Model.)

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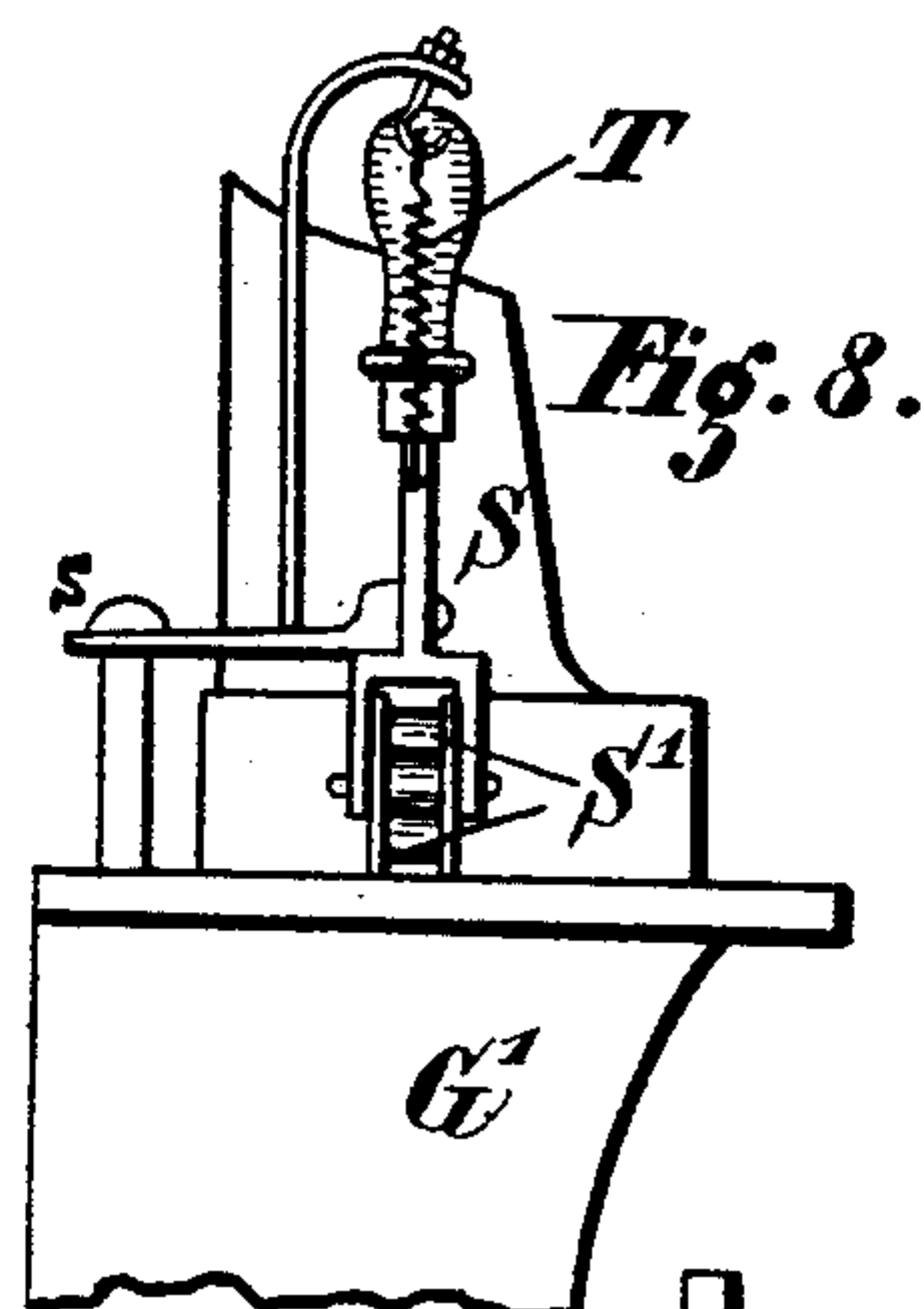


Fig. 8.

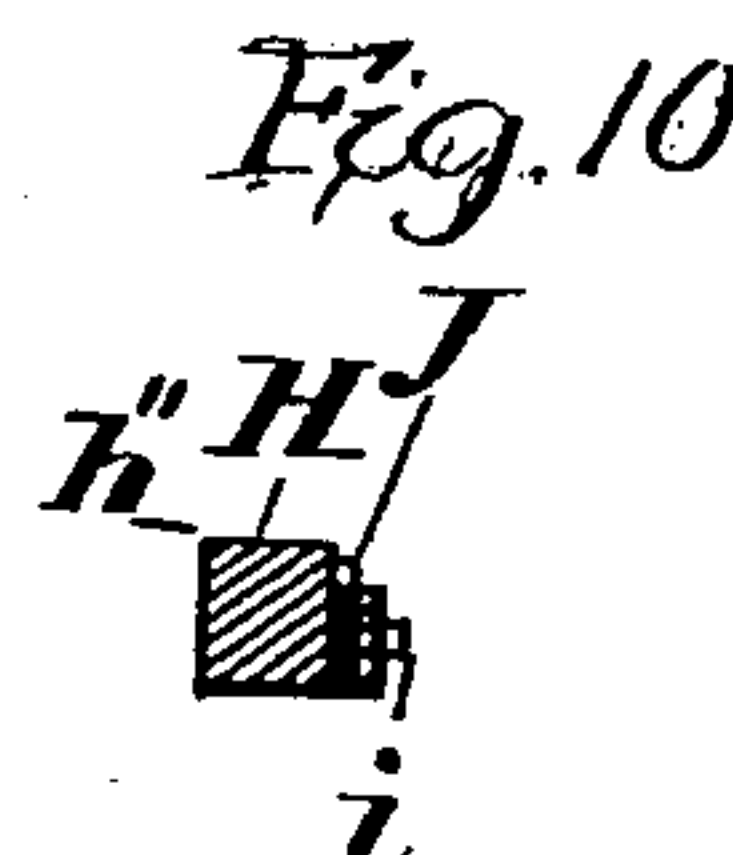


Fig. 10

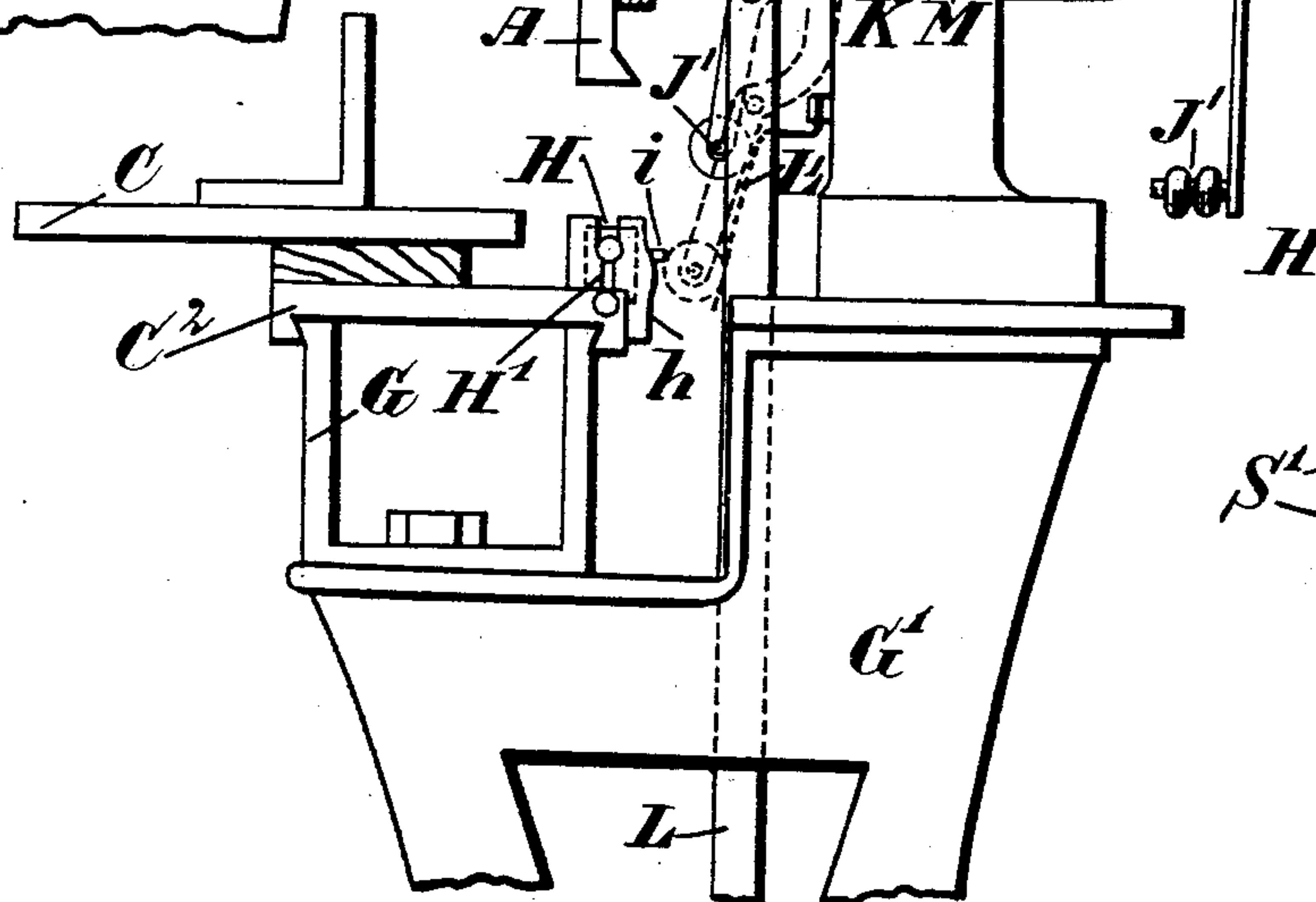


Fig. 3.

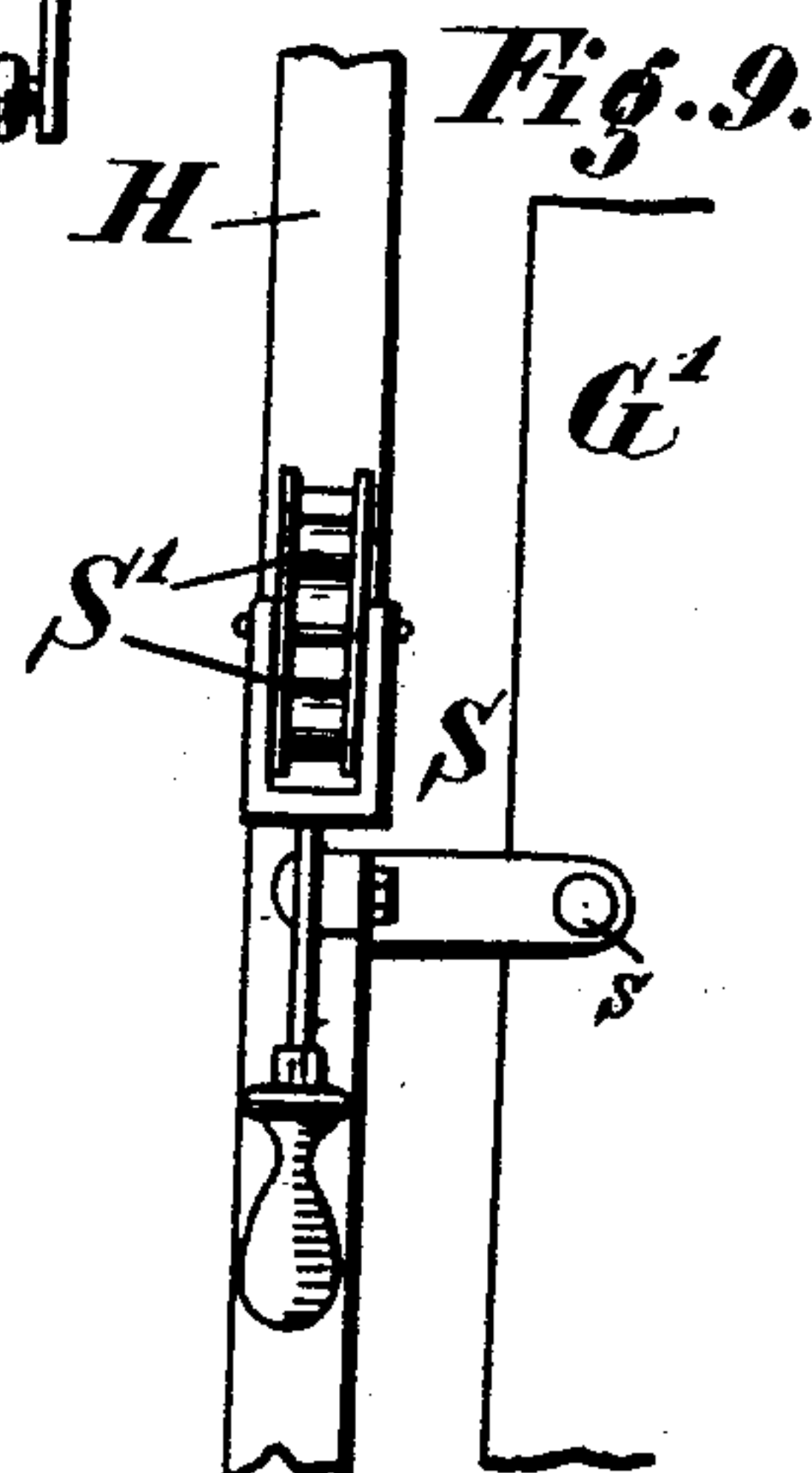
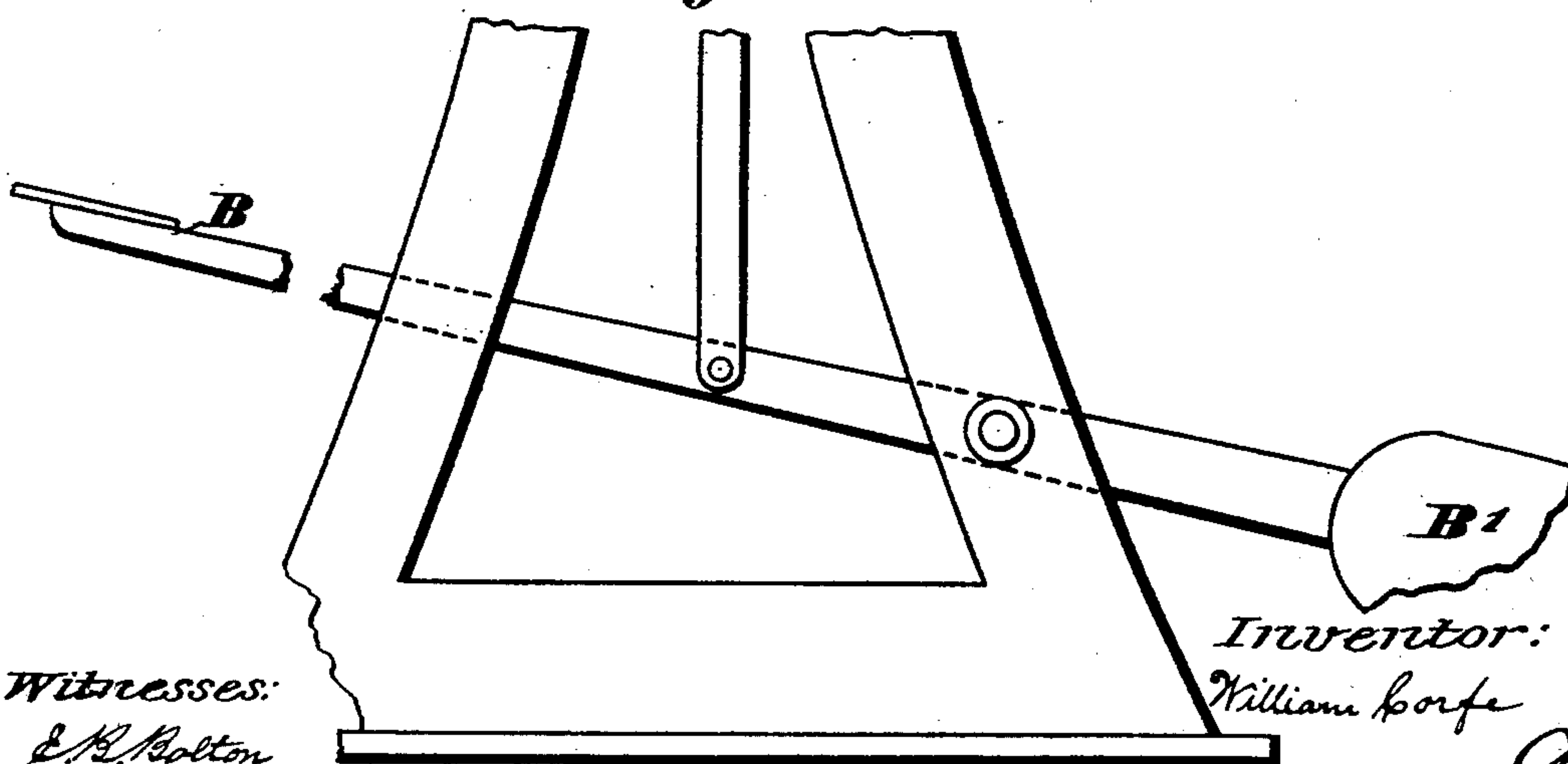


Fig. 9.



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(No Model.)

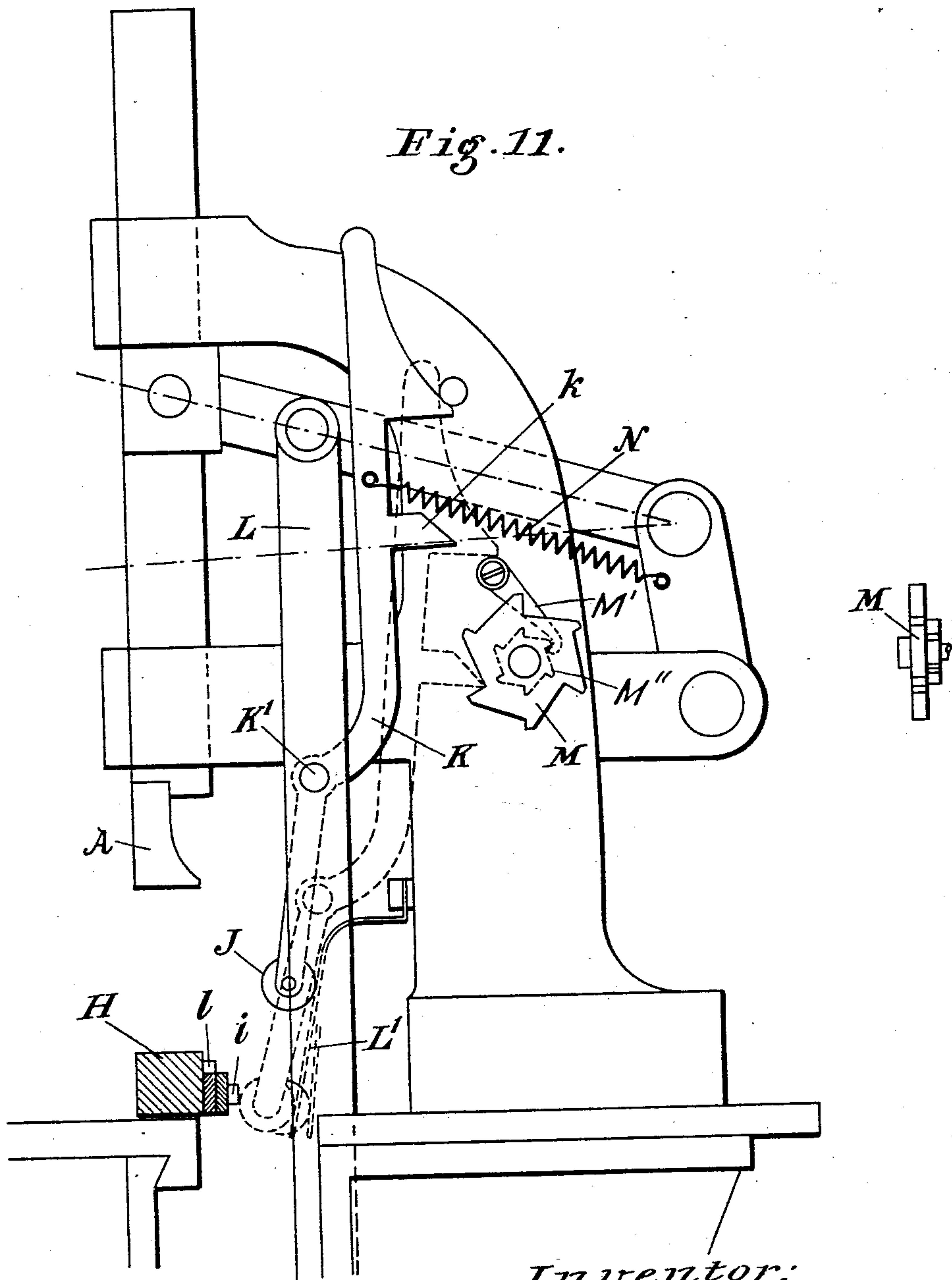
4 Sheets—Sheet 4.

W. CORFE.
INDEX CUTTING AND PRINTING MACHINE.

No. 591,818.

Patented Oct. 19, 1897.

Fig. 11.



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UNITED STATES PATENT OFFICE.

WILLIAM CORFE, OF LIVERPOOL, ENGLAND.

INDEX CUTTING AND PRINTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 591,818, dated October 19, 1897.

Application filed April 2, 1897. Serial No. 630,463. (No model.) Patented in France August 24, 1896, No. 259,113.

To all whom it may concern:

Be it known that I, WILLIAM CORFE, of Liverpool, in the Kingdom of Great Britain, have invented a certain new and useful Improvement in Index Cutting and Printing Machines; 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, reference being had to the accompanying drawings, forming part of this specification.

This invention has been patented to me in France under date of August 24, 1896, No. 259,113.

This invention relates to index cutting and printing machines; and its object is to provide improved means for automatically cutting out index-spaces in account and other books and for printing the respective index letters or characters on the margins of the different sheets displayed upon the said index-spaces having been cut out from the adjacent sheet or sheets.

The invention therefore consists in the details of construction and combination of parts more fully hereinafter described, and illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of a machine constructed according to this invention, the lower part of the framework thereof being broken away. Fig. 2 is a plan with some of the parts omitted. Fig. 3 is an end elevation, the central portion of the lower framework being broken away and other parts omitted for the sake of clearness. Figs. 4, 5, 6, 7, 8, 9, and 10 are detail views to be hereinafter referred to. Fig. 11 shows, on a large scale in full and dotted lines, the operation of a part of the mechanism.

A is a vertically-reciprocating knife for cutting out the index-spaces, the knife being so shaped as to cut a round corner. The plunger, at the end of which the knife is secured, is mounted in suitable bearings and is worked, preferably, by a foot-treadle B, having a counterweight B', which causes the knife A to fly upward automatically, upon the force which depressed the treadle being removed.

C is a table on which the book or pile of papers C', Fig. 2, to be indexed is firmly clamped

or locked while being operated upon by the knife A and while being printed. The arrangement for locking the books on the table comprises a pivoted lever or clamp D, adjustable to the level or height of the pile of sheets, by the slot E, in which the pivot *d* is secured by a nut, this lever or clamp being held down and locked in place by an eccentric F.

C² is a support capable of sliding longitudinally on the bed G of the framework G'.

H is a bar, preferably square in cross-section, attached to the edge of the sliding support C² and directly underneath the cutting-knife. The said bar is mounted in brackets *h* and is capable of being rotated. One face *h''*, Fig. 10, of this bar is used for the cutting of the index-spaces and has a lining or pad of leather, felt, type-metal, or the like, and another face has the type fixed thereon for printing the index-letters. A rack J is also secured on this bar. When the cutting-face *h''* of the said bar is uppermost, the type *i* on the printing-face is inked at each intermittent movement of the table by a roller or rollers J'. If the letters are printed in two colors, two such rollers are required. The said rollers J' are carried by a lever K, Fig. 3, pivoted at K' to the rod L, operated by the treadle.

L' is an ordinary ink-duct. If two colors are used, it will be necessary to prevent the rollers coming in contact with the type at every alternate movement of the table. To this end a toothed wheel M is attached to the framework in such a position that, on each downward movement of the lever K, (which is drawn in the direction toward the wheel by the spring N,) the said lever, when engaging the shallow teeth of the wheel, cannot move downward sufficiently far to allow of the ink-roller touching the type *i* on the square bar H, but on the subsequent movement the deeper tooth will allow the roller to touch the type. Fig. 11 represents this operation in full and dotted lines.

The intermittent movement of the table is carried out as follows: A pawl O, which engages the rack J, attached to the square bar H, is pivoted to the head of the machine or bracket which carries the knife and is operated from the treadle, if such be used. A convenient way of doing this, and the way which I prefer, is to attach two pins or pro-

jections P P', Fig. 7, to the rod L, connecting the treadle B with the knife-plunger, the one of such pins P being adjustable in height. A bell-crank lever Q is pivoted at Q' to the head of the machine or knife-bracket, and one of its arms passes between the two aforesaid pins, the other arm being pivoted to the end of the pawl which engages the rack H. Now when the treadle B is depressed for the purpose of cutting the index-spaces the adjustable pin P, which is uppermost, comes in contact with the free arm of the bell-crank lever Q, as shown in Fig. 7, and turns the same on its pivot, thereby drawing back the pawl O, which is pivoted to its other arm, until it drops behind a tooth of the rack J, as shown in Fig. 7. On the upward stroke of the treadle the fixed pin P' underneath the free arm of the bell-crank lever raises the said arm, turns the lever on its pivot, and causes the pawl to push the rack J and with it the table forward a predetermined distance. This distance is regulated by means of the adjustable pin P by moving the latter nearer to or farther from the free arm of the bell-crank lever. Thus, for instance, if the pin P engages the arm at the commencement of the downward stroke of the treadle-connecting rod it will cause the pawl O to move backward over the teeth of the rack J a given distance, say two teeth, but if the pin be raised it will not engage the arm so soon. Consequently the pawl O will be moved backward a shorter distance, say one tooth, and the forward movement being equal to the backward movement the table will be moved forward a given distance, say equal to one or more teeth, as desired, corresponding to the spacing of the type secured on the face of the rack, preferably one opposite each tooth. I propose having a number of these rack type-bars spaced so as to suit all requirements, and attaching them to the square bar H in such a manner as to allow of one rack type-bar being removed and replaced by another in a very short time. If necessary, I may have a rack-bar with adjustable type, but this will be seldom required.

Although I have referred to a treadle as being employed for operating the machine, it will be obvious that it could be power-driven, if required. To keep the pawl O clear of the rack J when the table is being drawn back after the index-spaces have been cut, it is supported on a hook R, Fig. 5, arranged in close proximity thereto.

In Figs. 8 and 9 S is a bracket (omitted in Fig. 3 for clearness) carrying rollers S' and pivoted at s to the framework. The said bracket is capable of being swung around to the position shown in Fig. 9 for the purpose of pressing the book or pile of papers down onto the type, the pressure being produced by the spring T, Fig. 8.

The mode of operation of the machine is as follows: The book or pile of papers C', Fig. 2, to be indexed and printed, say for the let-

ters "A" to "Z," inclusive, is laid on the table in position face downward—that is, with the sheet bearing index-letter "A" at bottom and the sheet bearing index-letter "Z" on top. The pile is clamped on the table by means of the eccentric locking device hereinbefore described, the lever D being first adjusted to the level or height of the table and then brought over, so that the plate D', Fig. 1, will rest on the surface of the paper. The end of the lever D is now under the eccentric F, and by giving the latter a quarter-turn the lever D will clamp the book or pile of sheets in position, as shown in Fig. 2. The treadle B is now depressed, the top sheets intended for the index-letter "Z" being turned or folded back clear of the knife A, as these sheets do not require having an index-space cut therein. The result is that the knife descends, cutting an index-space in the remaining sheets. After each cut the table is moved forward by the pawl O and rack I aforementioned, being operated by the upward movement of the treadle B. The top sheet for the index-letter "Y," after being cut, is turned aside clear of the knife, leaving the remaining sheets on the table. Then, by depressing the treadle again, the knife is again caused to descend, and the next space is cut, and so on until all the spaces are cut, one or more sheets being turned aside clear of the knife after each cutting. The table is moved forward the exact distance required at each upward movement of the treadle, and an index-space cut at each downward movement. When the table has reached the end of its travel and all the index-spaces have been cut as described, the square bar H is turned by means of a handle h', Fig. 4, bringing its printing side uppermost with the type already inked. The table is then drawn back, and the book or pile of paper is pressed on the type by the spring-actuated rollers S', Figs. 8 and 9, thereby receiving the impressions. As shown in Fig. 3, an elastic band H' or other spring keeps the square bar H down on its seating, at the same time allowing the said bar to be rotated so as to bring another face uppermost. In Fig. 2 the cutting-face is uppermost and in Fig. 4 the printing-face.

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

1. In an index cutting and printing machine in combination, a sliding support and a reciprocating knife for cutting out index-spaces, a bar journaled on the said sliding support and having a supporting-face and a type-carrying face, both arranged at an angle relatively to each other as described, means for permitting the said bar to be turned so as to alternately bring the one and the other of the said faces to the top, means for reciprocating the said knife and means for feeding the said support and the bar forward relatively to the line of movement of the knife, substantially as and for the purpose set forth.

2. In an index cutting and printing machine in combination, a sliding support and a reciprocating knife for cutting out index-spaces, a bar journaled on the said sliding support and having a supporting-face and a type-carrying face, both arranged at an angle relatively to each other as described, means for permitting the said bar to be turned so as to alternately bring the one and the other of the said faces to the top and mechanism for reciprocating the said knife and feeding the support forward in accordance with the reciprocations of the knife, substantially as and for the purpose described.

3. In an index cutting and printing machine in combination, a sliding support and a reciprocating knife for cutting out index-spaces, a bar journaled on the said sliding support and having a supporting-face and a type-carrying face, both arranged at an angle relatively to each other as described, means for permitting the said bar to be turned so as to alternately bring the one and the other of the said faces to the top, mechanism for reciprocating the said knife and feeding the said support forward, and adjusting mechanism for varying the length of the feed movements, substantially as and for the purpose set forth.

4. In an index cutting and printing machine in combination, a sliding support and a reciprocating knife for cutting out index-spaces, a bar journaled on the said sliding support and having a supporting-face and a type-carrying face, both arranged at an angle relatively to each other as described, means for permitting the said bar to be turned so as to alternately bring the one and the other of the said faces to the top, means for reciprocating the said knife, means for feeding the said support and the bar forward relatively to the line of movement of the knife, and an inking mechanism adapted to contact with the type on the type-carrying face of the said bar, substantially as and for the purpose set forth.

5. In an index cutting and printing machine in combination, a sliding support and a reciprocating knife for cutting out index-spaces, a bar journaled on the said sliding support and having a supporting-face and a type-carrying face, both arranged at an angle relatively to each other as described, means for permitting the said bar to be turned so as to alternately bring the one and the other of the said faces to the top, mechanism for reciprocating the said knife and feeding the support forward in accordance with the reciprocations of the knife, and an inking mechanism adapted to contact with the type on the type-carrying face of the said bar, substantially as and for the purpose set forth.

6. In an index cutting and printing machine in combination, a sliding support and a reciprocating knife for cutting out index-spaces, a bar journaled on the said sliding support and having a supporting-face and a type-carrying face, both arranged at an angle

relatively to each other as described, means for permitting the said bar to be turned so as to alternately bring the one and the other of the said faces to the top, mechanism for reciprocating the said knife and feeding the said support forward, adjusting mechanism for varying the length of the feed movements and an inking mechanism adapted to contact with the type on the type-carrying face of the said bar, substantially as and for the purpose set forth.

7. In an index cutting and printing machine in combination, a sliding support and a reciprocating knife for cutting out index-spaces, a bar journaled on the said sliding support and having a supporting-face and a type-carrying face, both arranged at an angle relatively to each other as described, means for permitting the said bar to be turned so as to alternately bring the one and the other of the said faces to the top, means for reciprocating the said knife, means for feeding the said support and the bar forward relatively to the line of movement of the knife, two or more ink-ducts each having individual inking-rollers, and mechanism, as described, for alternately allowing the different inking-rollers to contact with the type on the type-carrying face of the bar during the successive feed movements of the said support, substantially as and for the purpose set forth.

8. In an index cutting and printing machine in combination, a sliding support and a reciprocating knife for cutting out index-spaces, a bar journaled on the said sliding support and having a supporting-face and a type-carrying face, both arranged at an angle relatively to each other as described, means for permitting the said bar to be turned so as to alternately bring the one and the other of the said faces to the top, mechanism for reciprocating the said knife and feeding the support forward in accordance with the reciprocations of the knife, two or more ink-ducts each having individual inking-rollers, and mechanism, as described, for alternately allowing the different inking-rollers to contact with the type on the type-carrying face of the bar during the successive feed movements of the said support, substantially as and for the purpose set forth.

9. In an index cutting and printing machine in combination, a sliding support and a reciprocating knife for cutting out index-spaces, a bar journaled on the said sliding support and having a supporting-face and a type-carrying face, both arranged at an angle relatively to each other as described, means for permitting the said bar to be turned so as to alternately bring the one and the other of the said faces to the top, mechanism for reciprocating the said knife and feeding the said support forward, adjusting mechanism for varying the length of the feed movements, two or more ink-ducts each having individual inking-rollers, and mechanism, as described, for alternately allowing the different inking-

rollers to contact with the type on the type-carrying face of the bar during the successive feed movements of the said support, substantially as and for the purpose set forth.

5 10. In an index cutting and printing machine, the combination with the cutting-knife and spring-actuated rollers, of the rotatable bar H having a smooth face *h''* to coact with the knife, and a type-carrying face *i* at an angle thereto, to coact with the rollers and pro-

vided with a rack J, substantially as and for the purpose set forth.

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

WILLIAM CORFE.

Witnesses:

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S. MCCREADY.