

(No Model.)

2 Sheets—Sheet 1.

G. P. VICKEN.

MACHINE FOR CUTTING MOLDINGS.

No. 375,904.

Patented Jan. 3, 1888.

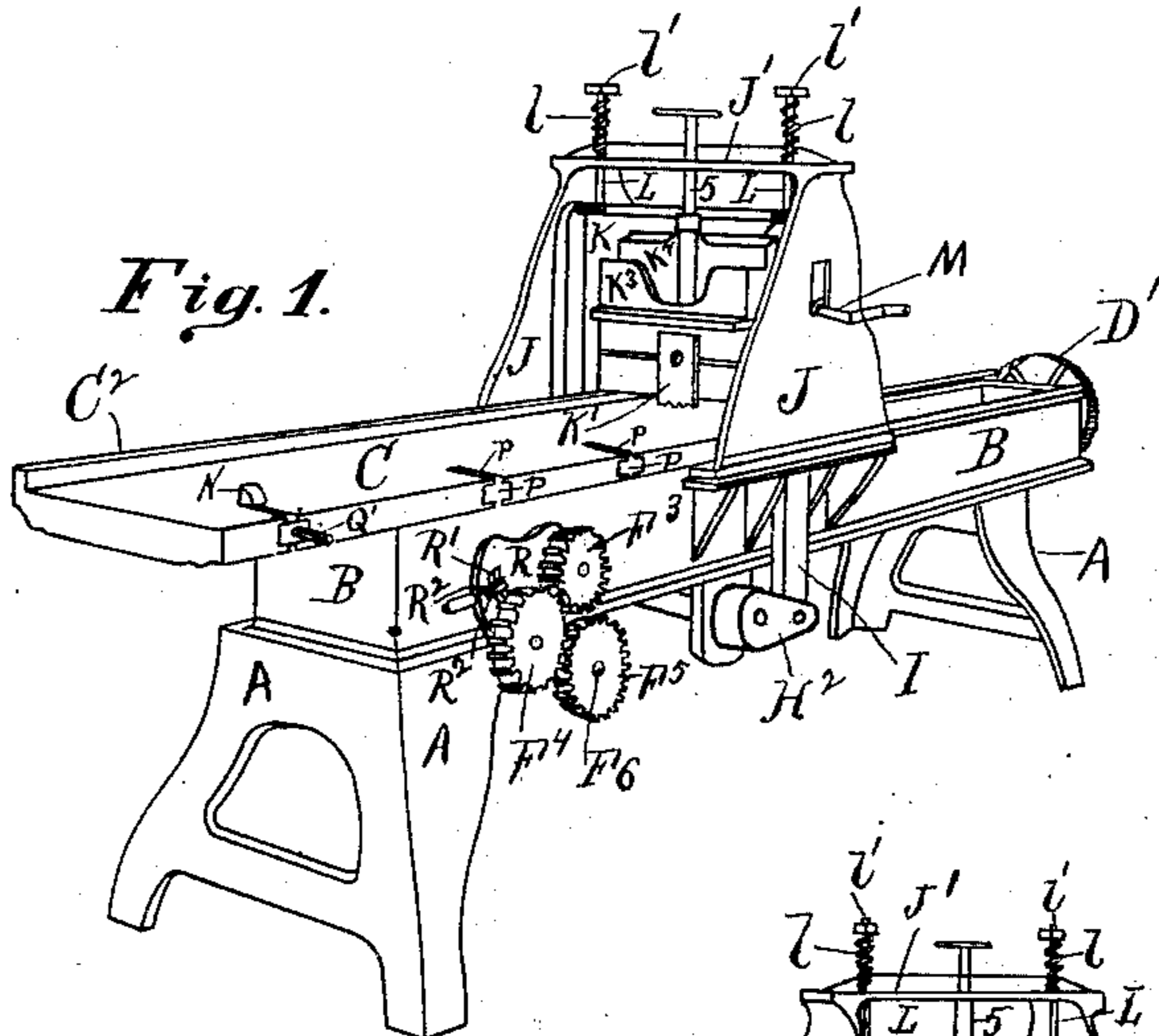


Fig. 1.

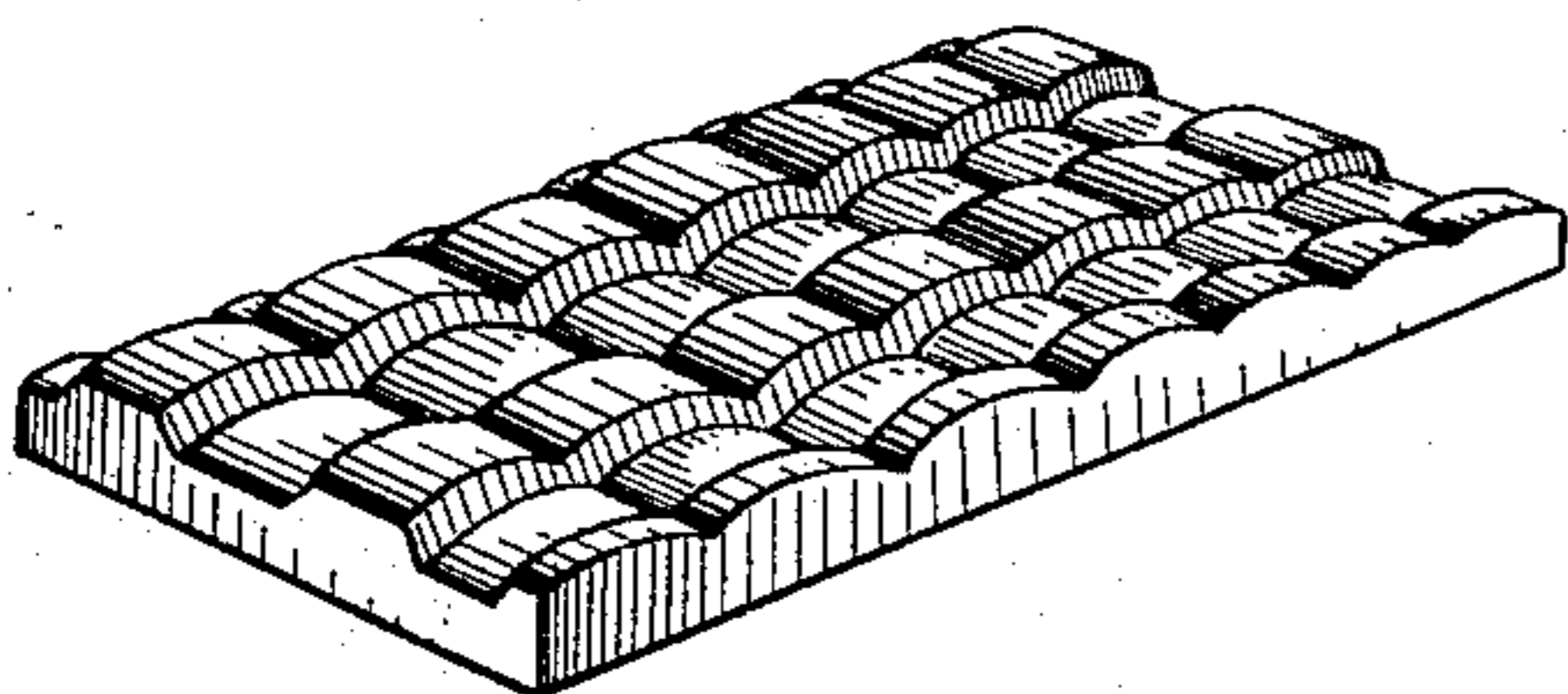


Fig. 14.

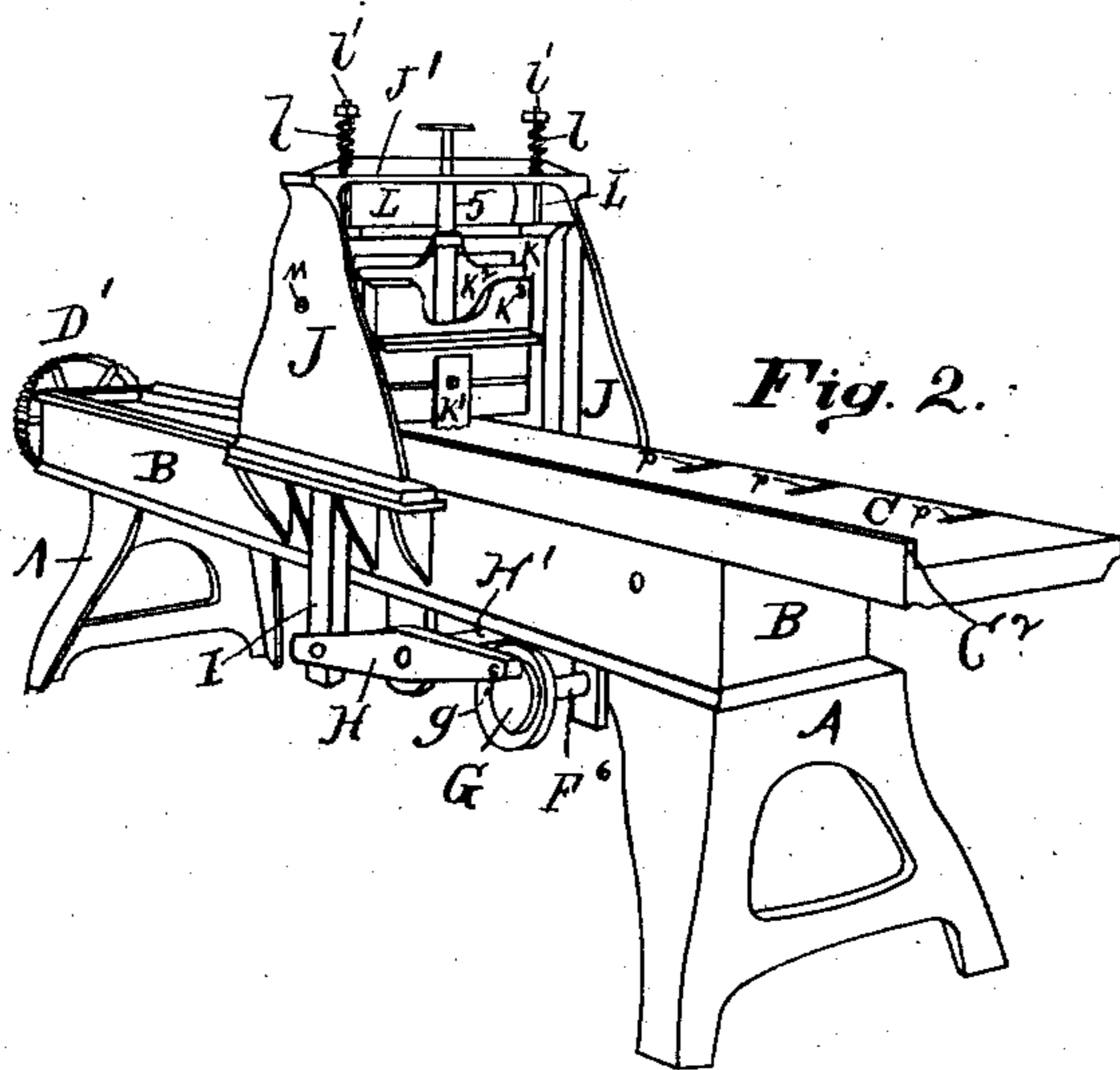


Fig. 2.

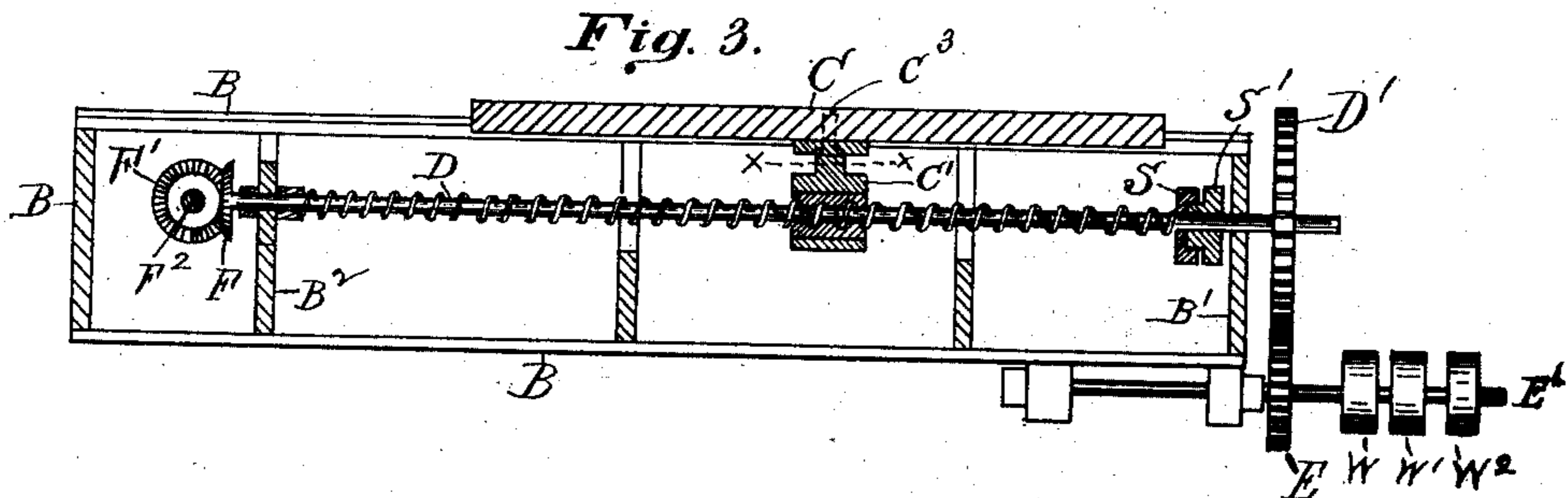


Fig. 3.

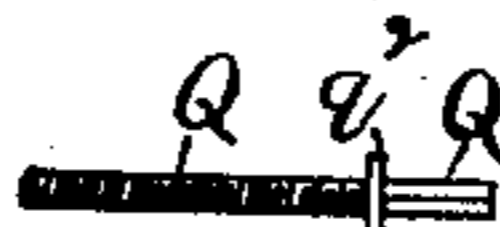
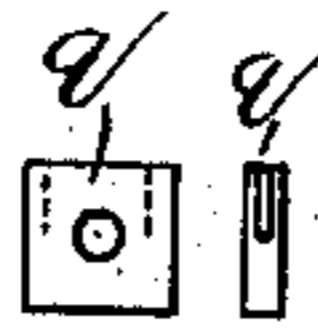
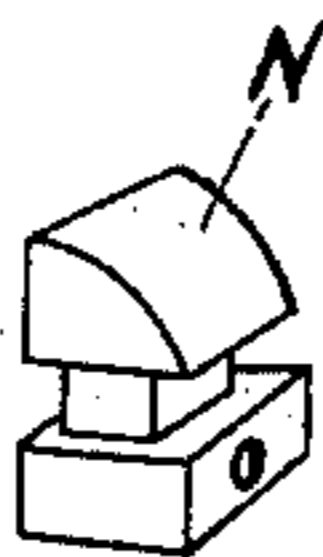


Fig. 4.

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(No Model.)

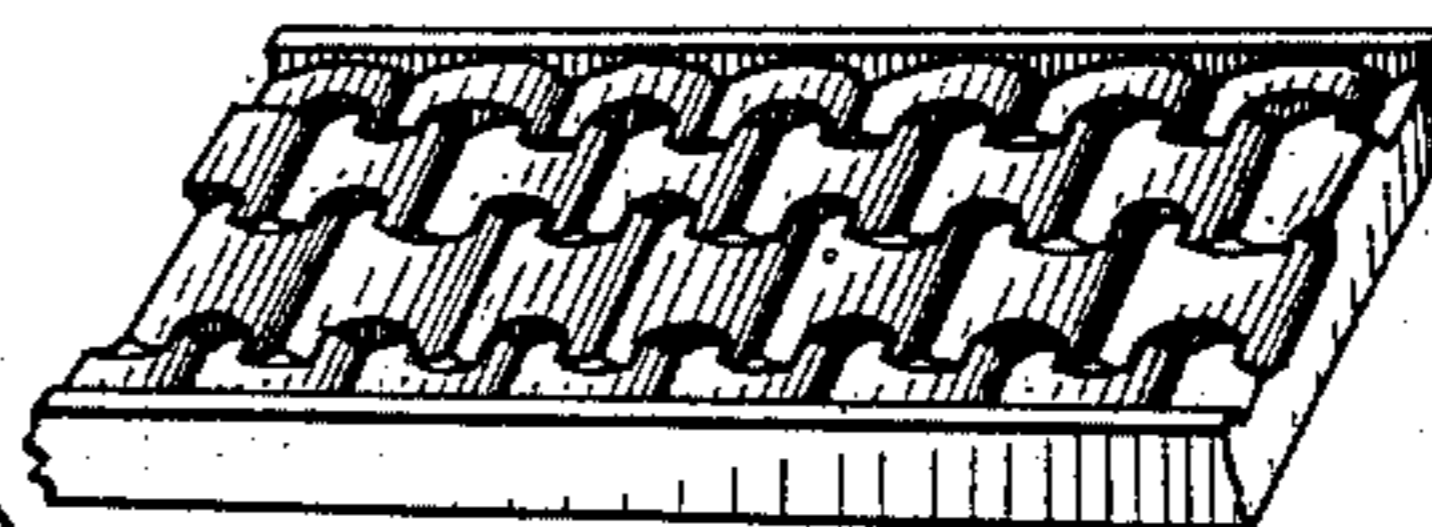
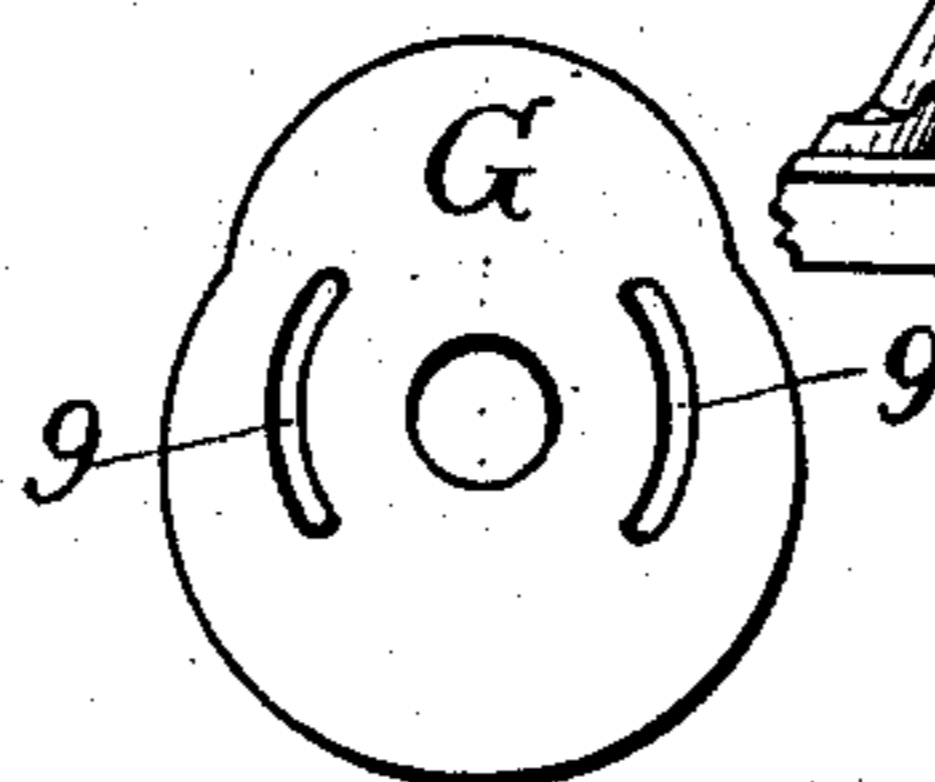
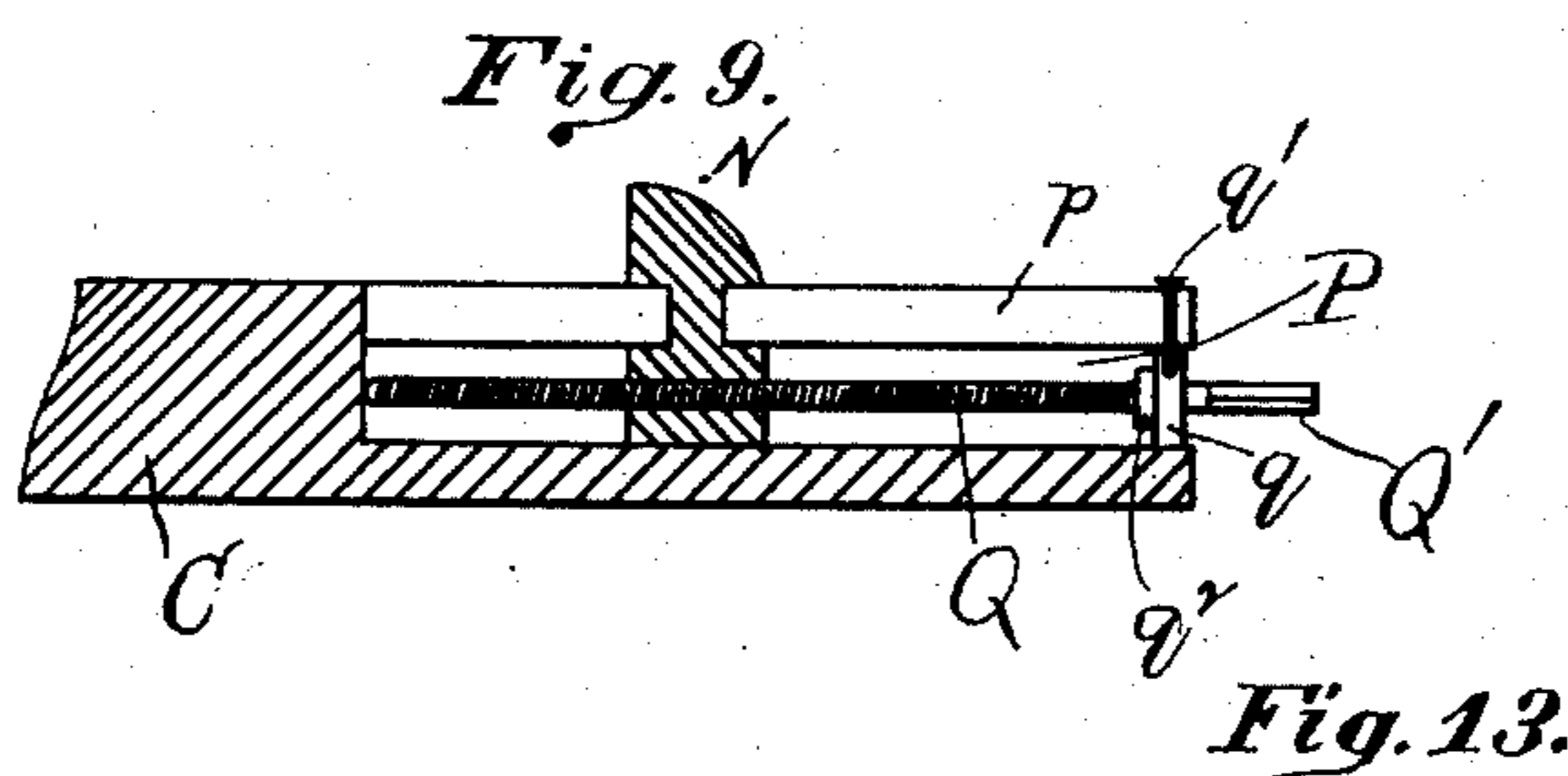
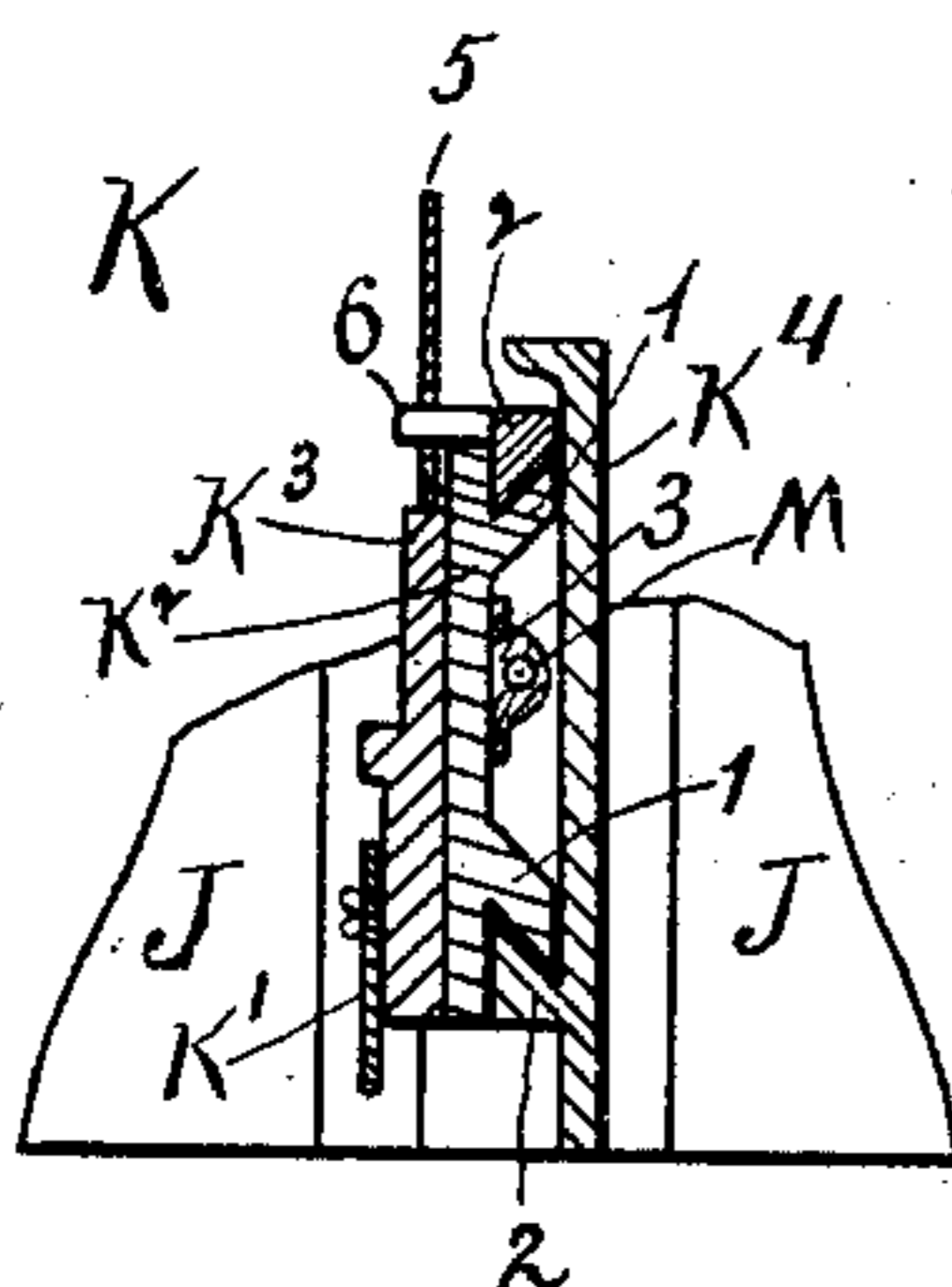
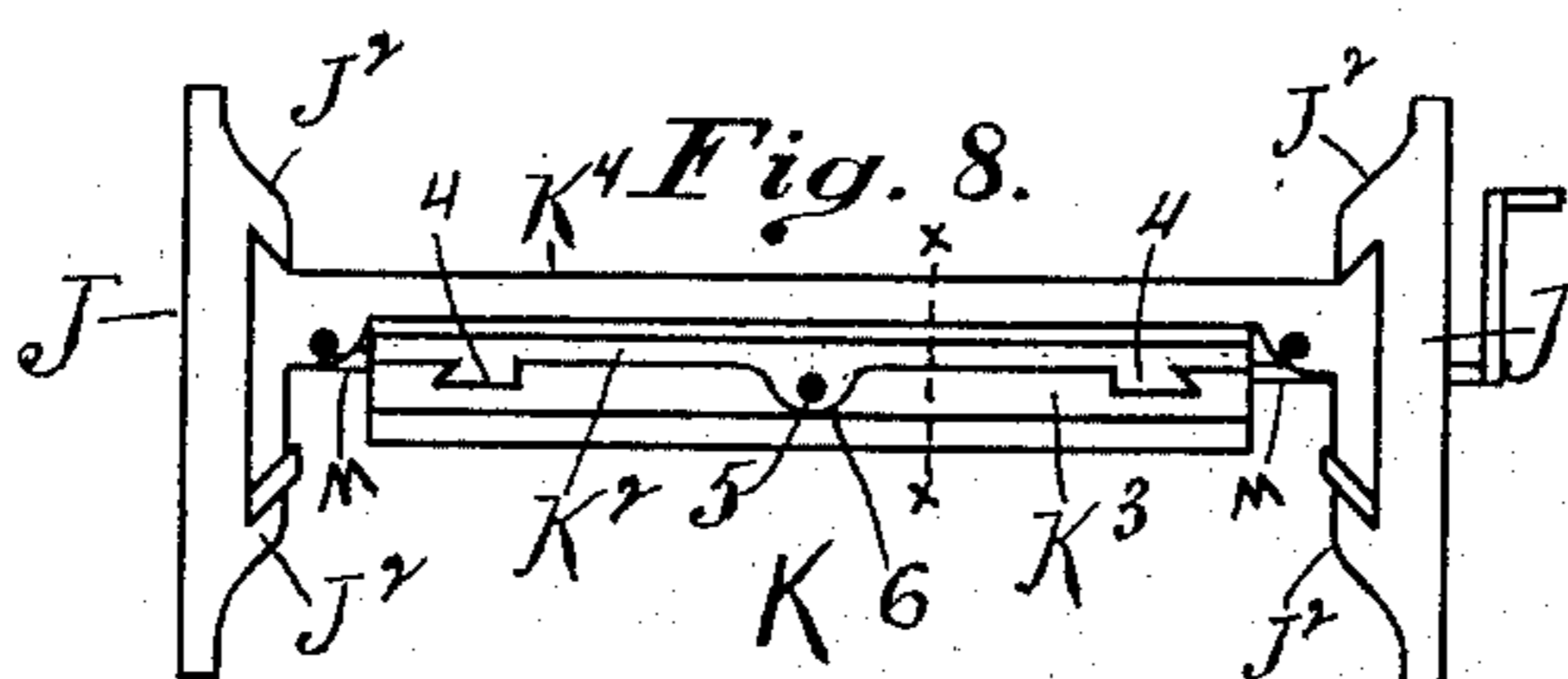
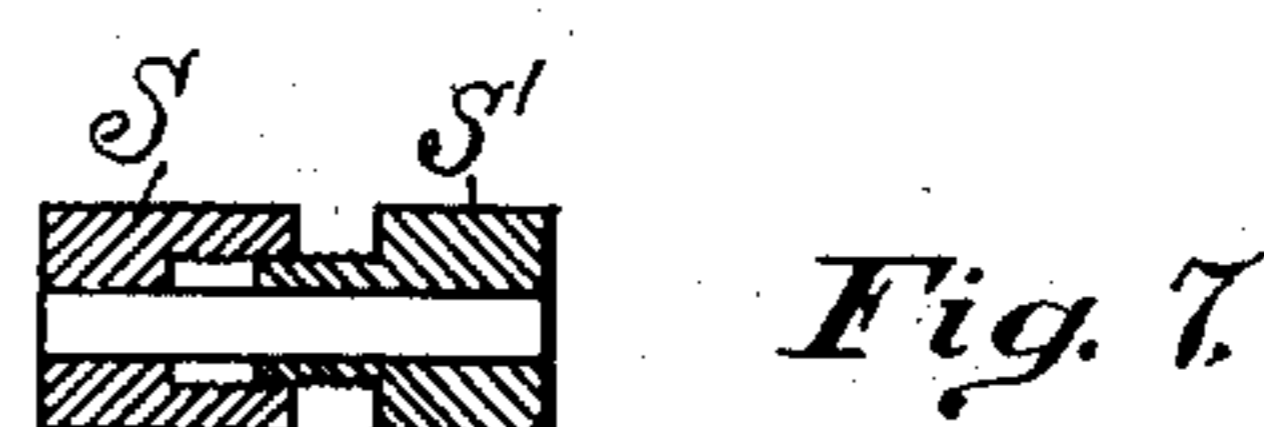
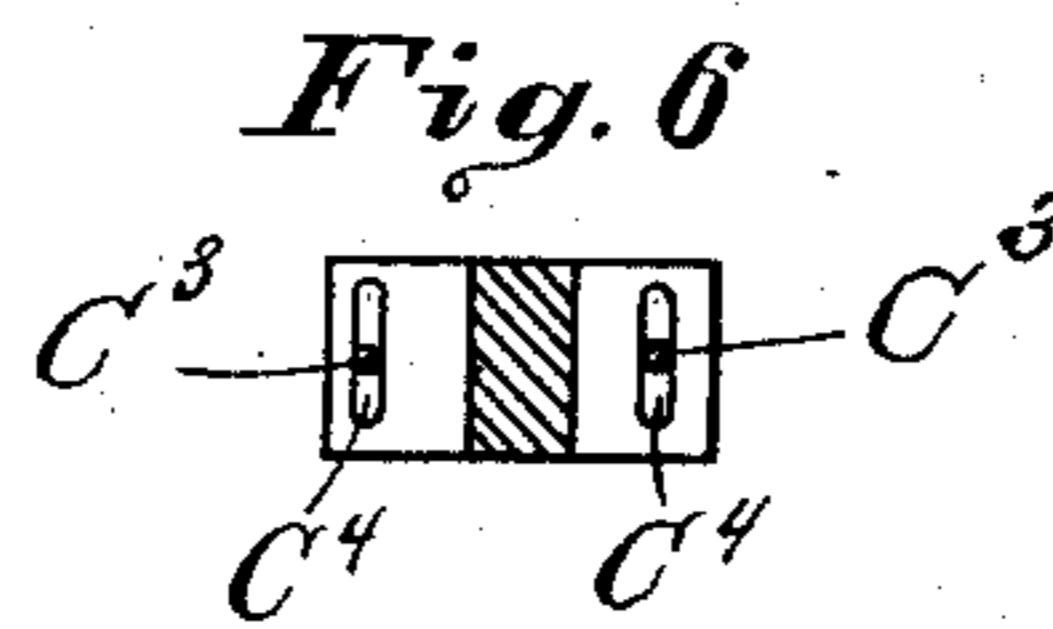
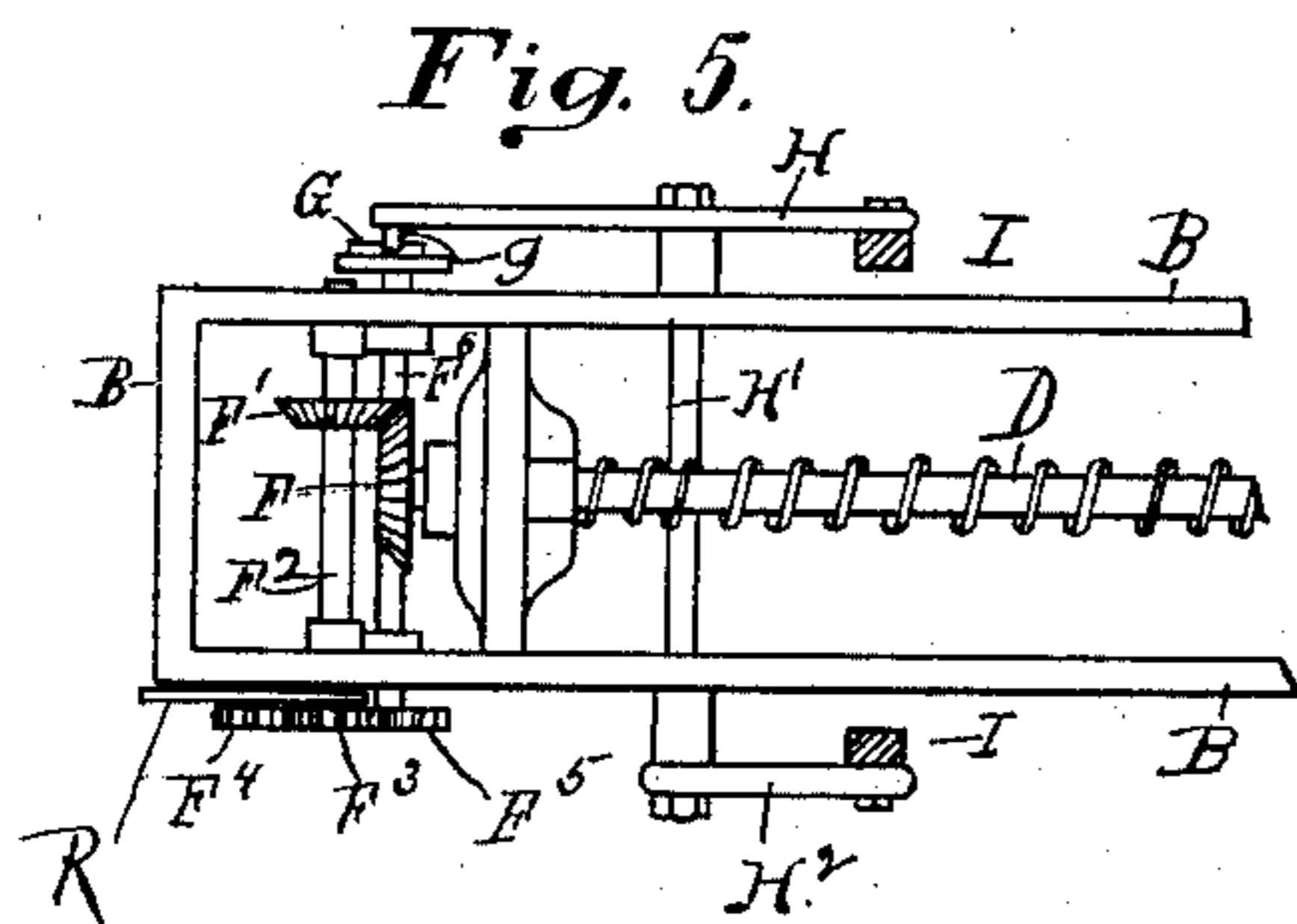
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MACHINE FOR CUTTING MOLDINGS.

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Attest
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Fig. 10.

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UNITED STATES PATENT OFFICE.

GEORGE P. VICKEN, OF CINCINNATI, OHIO.

MACHINE FOR CUTTING MOLDINGS.

SPECIFICATION forming part of Letters Patent No. 375,904, dated January 3, 1888.

Application filed June 3, 1886. Serial No. 203,974. (No model.)

To all whom it may concern:

Be it known that I, GEORGE P. VICKEN, a citizen of the United States, and a resident of the city of Cincinnati, Hamilton county, State of Ohio, have invented certain new and useful Improvements in Machines for Cutting Moldings, of which the following is a specification.

The different features of my invention and their various uses and advantages, conjointly or otherwise, will be apparent from the following description.

In the accompanying drawings, forming part of this specification, Figure 1 is a perspective view of a machine embodying my improvements. Fig. 2 is a perspective view of the same machine, showing the side hidden in Fig. 1. Fig. 3 is a central longitudinal vertical section of the bed and moving table. Fig. 4 shows in detail the several parts of the clamp for securing the piece to be molded to the table. Fig. 5 is a top view of the front end of the bed, the table being removed. Fig. 6 is a section taken at the line X X, Fig. 3, and looking up. Fig. 7 is a central longitudinal section of the adjustable stop on the worm-stem for allowing the slack in the gearing to be taken up. Fig. 8 is a top view of the side supports and knife-frame, the top cross-piece being removed. Fig. 9 is a vertical central section through the center of the clamping device. Fig. 10 is a side elevation of the cam for raising and lowering the cutter head or frame. Fig. 11 represents a vertical section of the head or frame which holds the knife, said section being taken at the line X X of Fig. 8; and Fig. 12 illustrates one mode of taking up lost motion. Figs. 13 and 14 are perspective views of specimens of work made on my machine.

The bed B is supported on the legs A. It is a hollow rectangular box, open top and bottom. The sliding table C rests on the top of the box B, and suitable guides are provided to govern its motion. Within the box or bed B the worm D is journaled, being supported by the end piece, B', and cross-brace B². From the under side of the table C the lug C' projects downwardly. The worm D passes through the lug C', engaging with a screw-thread therein, and becomes in this way the means of imparting motion to the table C.

One end of the shaft of the worm D is provided with the gear-wheel D', which meshes with the pinion E on the shaft E'. The shaft E' is provided with suitable pulleys for the attachment of driving-belts, the preferred number of pulleys being three—viz., W W' W², the center pulley, W', being the fixed or driving pulley, and the other pulleys, W W², being loose pulleys. The inner end of the worm-shaft terminates in a beveled wheel, F, which meshes with the beveled wheel F' on the shaft F². The shaft F² is supported by the sides of the bed B, and on one end, outside of the bed B, it is provided with the pinion F³. The pinion F³ meshes with the idler F⁴, and through it transmits motion to the pinion F⁵ and its shaft F⁶. The idler F⁴ is attached to the plate R, and by raising the latter plate the idler is thrown out of gear.

A preferred means for securing the plate R in the aforementioned raised or lowered position, as desired, consists as follows: The plate R is provided with a curved slot, R', and through this slot passes a bolt, R², whose head is outside of the plate, and by tightening a nut screwed on the bolt between the plate R and the side of the machine the plate R is clamped between this bolt-head and nut and held in position. On the other end of the shaft F⁶ is a cam, G, on the surface of which a pin, g, from the brake H rests. The brake H is rigidly attached to the rock-shaft H'. An arm, H², is rigidly attached to the rock-shaft H' on the opposite side of the bed from the brake. One of the connecting-rods I for operating the knife-frame is attached to the brake H and the other to the arm H². The supports J are attached to the bed B in any suitable manner, and each support J is provided with guides for the knife-frame K. Rods L extend upward from the knife-frame and project through the cross-piece J'. Each rod L is surrounded by a spring, l, which is compressed between the cross-piece J' and the top l' of the rod. These springs keep the pin g of the brake or lever H against the face of the cam G, and they also raise the knife-carrying frame. This knife-frame K may consist of one piece and the knife be rigidly attached thereto; but it is desirable that the knife be adjustable vertically and also laterally in a

convenient manner. The principal object of the vertical adjustment of the knife is for the purpose of feeding the knife into the wood as desired. The principal object of the lateral adjustment of the knife on its support is to vary laterally the line of molding and to adjust the knife to the position of the wood clamped to the bed. A preferred mode of obtaining such adjustment is as follows: The knife-frame K consists of parts as follows: the principal plate K¹, which slides in the vertical grooves of supports J. To it are attached the adjustable parts of the frame. The plate K² is attached to the plate K¹ by the beveled lugs 1, which fit behind the beveled shoulders 2, which project from the plate K¹. For convenience in removing the plate K², the upper one of these beveled shoulders 2 is made separate from the plate K¹ and is bolted thereto. The rod M extends horizontally across the machine, being supported in bearings in the uprights J and held in position by collars bearing on the inside of the uprights J. This rod M is screw-threaded, and is screwed through the lug 3, projecting from the back of the plate K². The plate K² is adjusted laterally on the plate K¹ by means of the rod M, one end of which is provided with a crank-handle.

The plate K³ carries the knife K', and is itself adapted for vertical adjustment on the plate K². In Fig. 8 guides 4, projecting from the face-plate K², are shown dovetailed into the plate K³. These guides 4 allow the plate K³ to be moved vertically, and at the same time hold this plate to plate K². The screw 5 is screwed through the lug 6, projecting from and fixed to the plate K², and is swiveled in the plate K³, serving to adjust this latter vertically on the plate K². By the combination of these two adjustments the knife K' may be adapted to any conditions of the piece to be cut, while the motion of the knife-carrying frame as a whole is unchanged and positive.

The piece of wood to be molded is clamped on the table C between the ledge C² on one side of the table and the adjustable clamps N on the other side of the table. These clamps are shown in detail in Figs. 4 and 9. Sockets P are cut into the edge of the table C, and slots p, preferably of lesser width than the sockets, extend from them through to the top of the table. In each of the sockets P a clamp, N, is fitted. The outer end of the socket P is closed by a portion, q. This portion is preferably made (for the purpose of conveniently inserting the clamp-piece N) separate from the table C and in the form of a plate, q. This plate q is held in place in the table by two or more screws, q', passing through the table itself. A screw, Q, extends lengthwise through the socket P and passes through the clamp and engages a screw-thread in the clamp, and the latter is thereby moved back and forth. This screw is held in position by the collar q², which collar engages a circumferential channel on the screw, and has a bearing against the plate q. The outer end of the

screw Q is squared for the application of a wrench, as shown; or it may be provided with a crank and handle.

The mode of operation of the machine is as follows: The piece to be molded is secured to the table C by being clamped between the ledge C² and the clamps N. The table is then moved to the right-hand end of the bed, as shown in Fig. 3. When the machine is started, the worm D moves the table C forward toward that end of the table which is on the left hand in Fig. 3, and also, through the mechanism of the cog-wheels described, the worm operates the cam G. The cam G is of such a shape that it, in connection with the springs l and intervening mechanism, imparts a rocking motion to the shaft H'. In this manner an up-and down reciprocal movement is given to the knife-frame K, and at the same time the table C is moved under the knife. The surface of the cam may be formed into various curves of different shapes, lengths, and heights beyond the smallest diameter of the cam. Many different shapes can be carved in this way. When it is desired to make simpler or plain moldings, or, more usually, when it is desired, as is sometimes the case, to cut out the main lines of molding preparatory to forming the beaded or wave-like moldings, the plate R is elevated, the idler F¹ is thrown out of gear, and the revolution of the cam G stopped, and the reciprocating movement of the knife ceases, and the latter will then cut simple or plain moldings. In the gearing between the end of the worm D and the cam G there will, in practice, between the forward and reverse movement of the machine, usually be more or less lost motion resulting from the nature of construction, wear, or other cause. The result of this, unless corrected, will be to start the table moving before the knife or the latter moving before the table. Now it is necessary that both knife and table shall commence to move at the same time. To accomplish this I arrange to have lost motion in the table-moving mechanism, which can be adjusted so as to exactly equal the lost motion of the knife-operating mechanism. On the shaft of the worm D the nut S is rigidly attached. A stop, S', screws into the nut S and moves loosely over the shaft of the worm D. (See Fig. 3 and in this connection Fig. 7.) When the worm is started, it moves as a whole to the right until the stop S' gets a bearing against the end B' of the bed B. Then, the worm stopping, the table C is moved forward. The stop S', being adjustable in the nut S, can be set to take up all or a part of the motion lost in the knife-moving mechanism.

Another means for allowing for the lost motion is shown in Figs. 3 and 6. The lug C' is attached to the table by bolts C³, passing through slots C⁴ in the flanges of the lug. The bolts not being fastened tight, the lug has a certain amount of lost motion as it moves until it strikes the bolt. The lengths of slots C⁴ are to be varied according to the lost motion to be

taken up. Another means of correcting this lost motion consists in allowing a slip of any of the gear-wheels, excepting D' and E; and the preferred means of allowing them to slip is by a slot, 10, formed in them next to the shaft, a key, 12, from the shaft playing in said slot and duly engaging and turning the gear-wheel when the key strikes against either end of the slot. This construction is shown in Fig. 12. Still another means of correcting this lost motion consists in providing the cam G with slots 9, through which the bolts pass which secure the cam to the shaft. These slots allow considerable variation in the position of the cam on the shaft.

By means of this machine moldings of many shapes may be cut upon the flat surfaces, some

examples of which are shown in the drawings. (See Figs. 13 and 14.)

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

In a machine for cutting moldings, the combination of table C, provided with lug C', worm D, beveled gear-wheels F F', shaft F², gear-wheels F³, F⁴, and F⁵, shaft F⁶, cam G, brake H, rock-shaft H', connecting-rods I, supports J, having cross-piece J', knife-frame K, having rods L, springs l, and knife K', as and for the purposes set forth.

GEO. P. VICKEN.

Witnesses:

M. M. SMITH,
JNO. W. STREHLI.