

No. 723,107.

PATENTED MAR. 17, 1903.

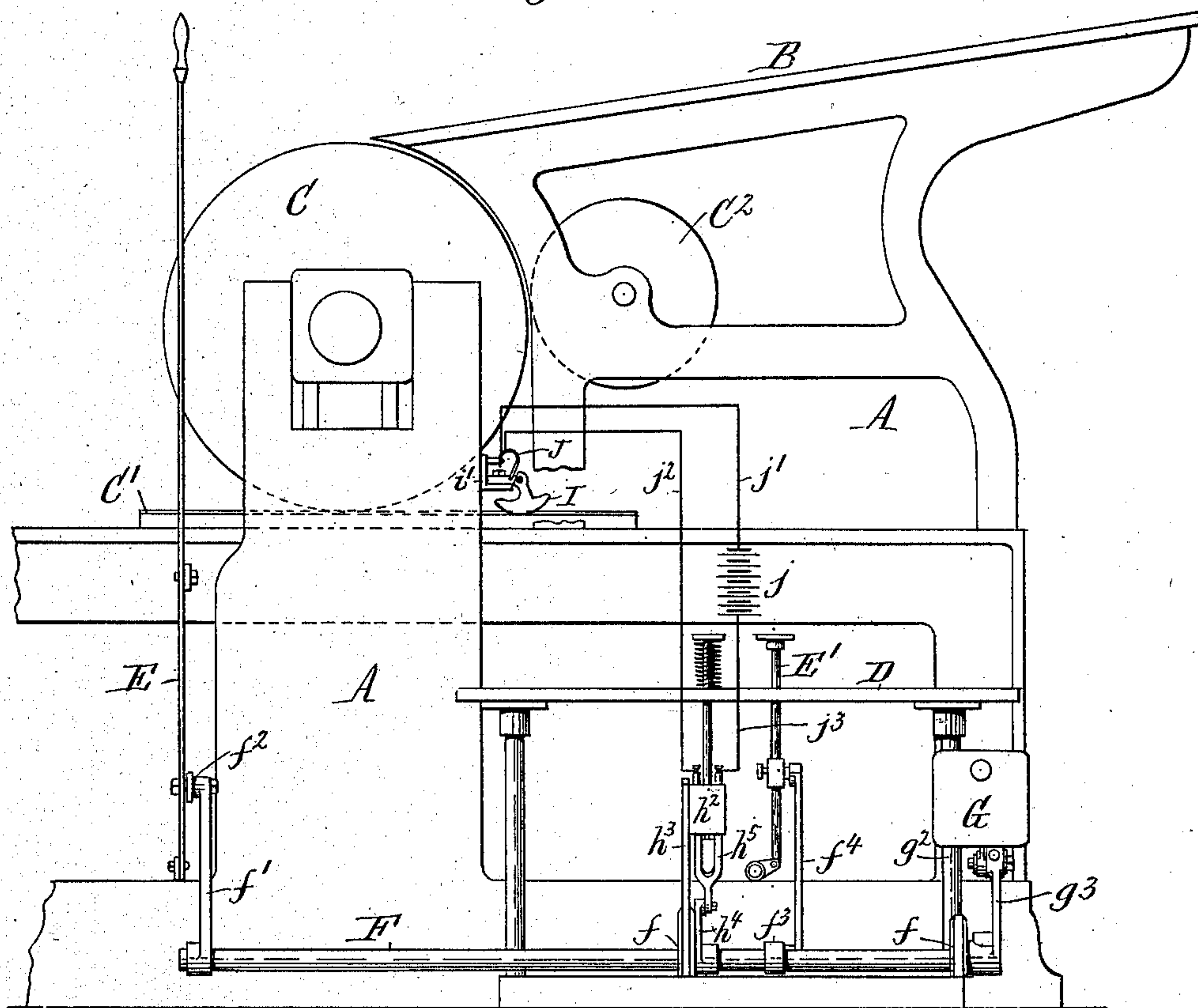
G. R. WILLIAMS.
STOP MOTION FOR PRINTING PRESSES.

APPLICATION FILED JULY 18, 1902.

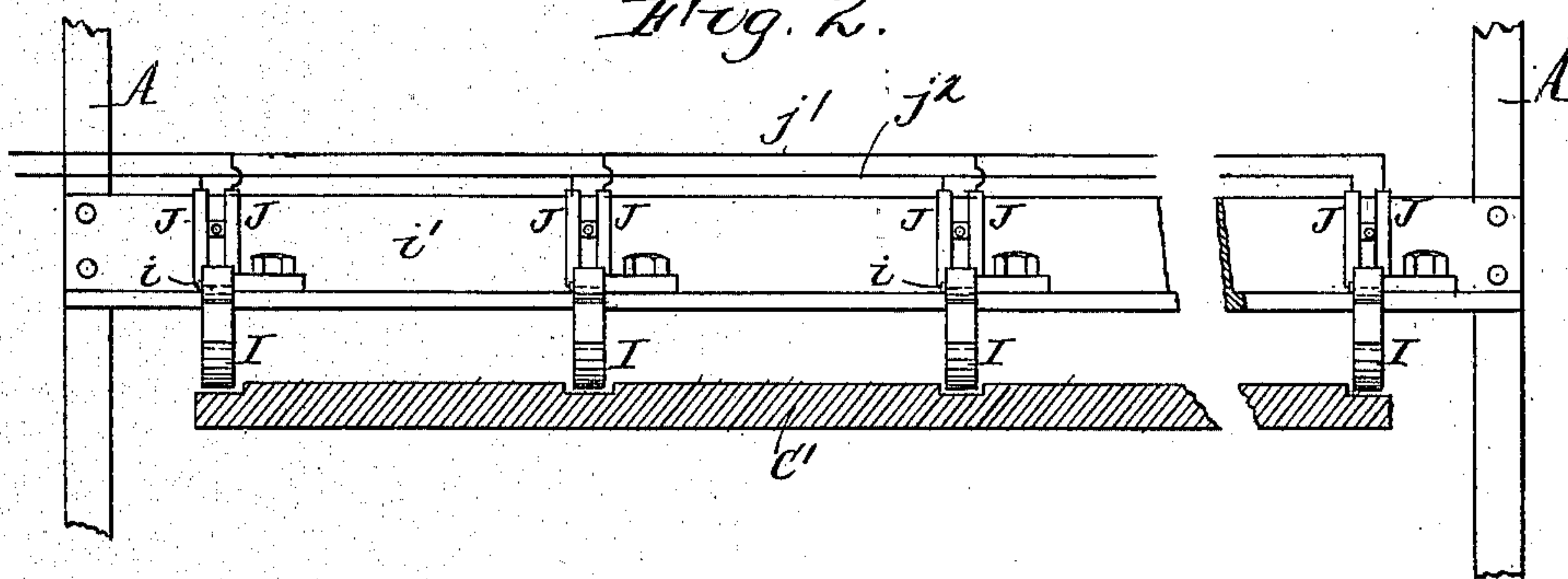
NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.



Flüg. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

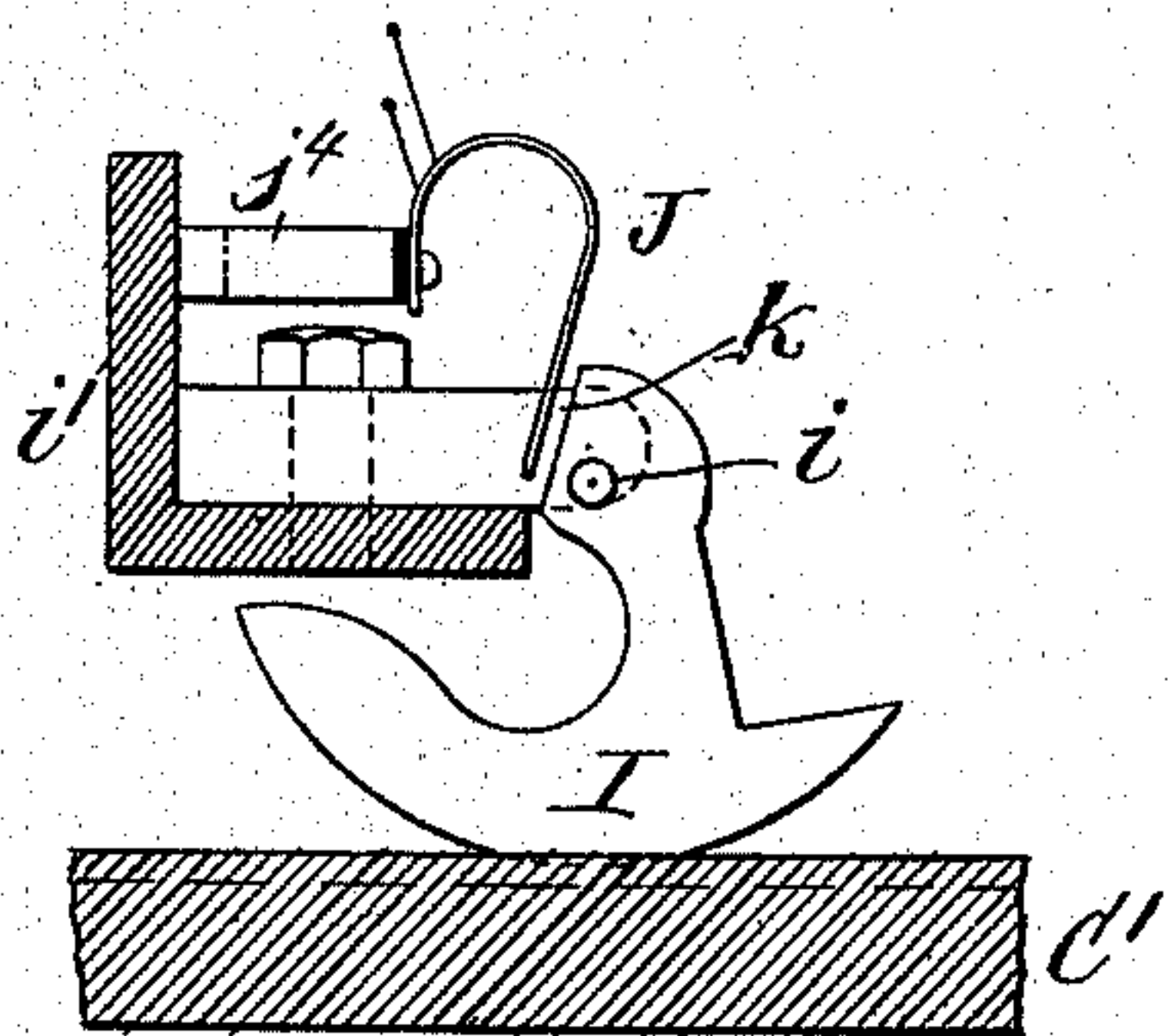


Fig. 4.

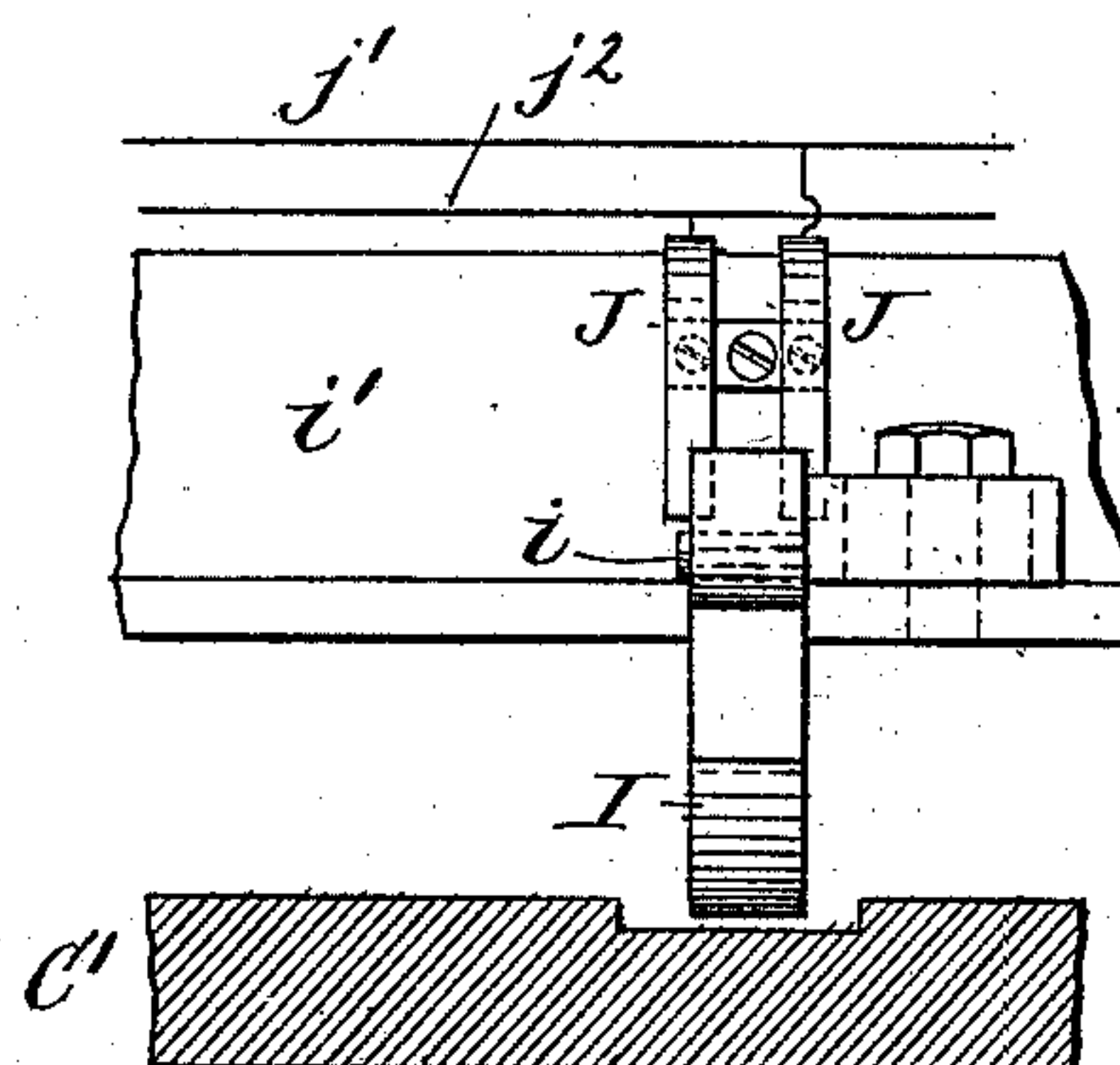
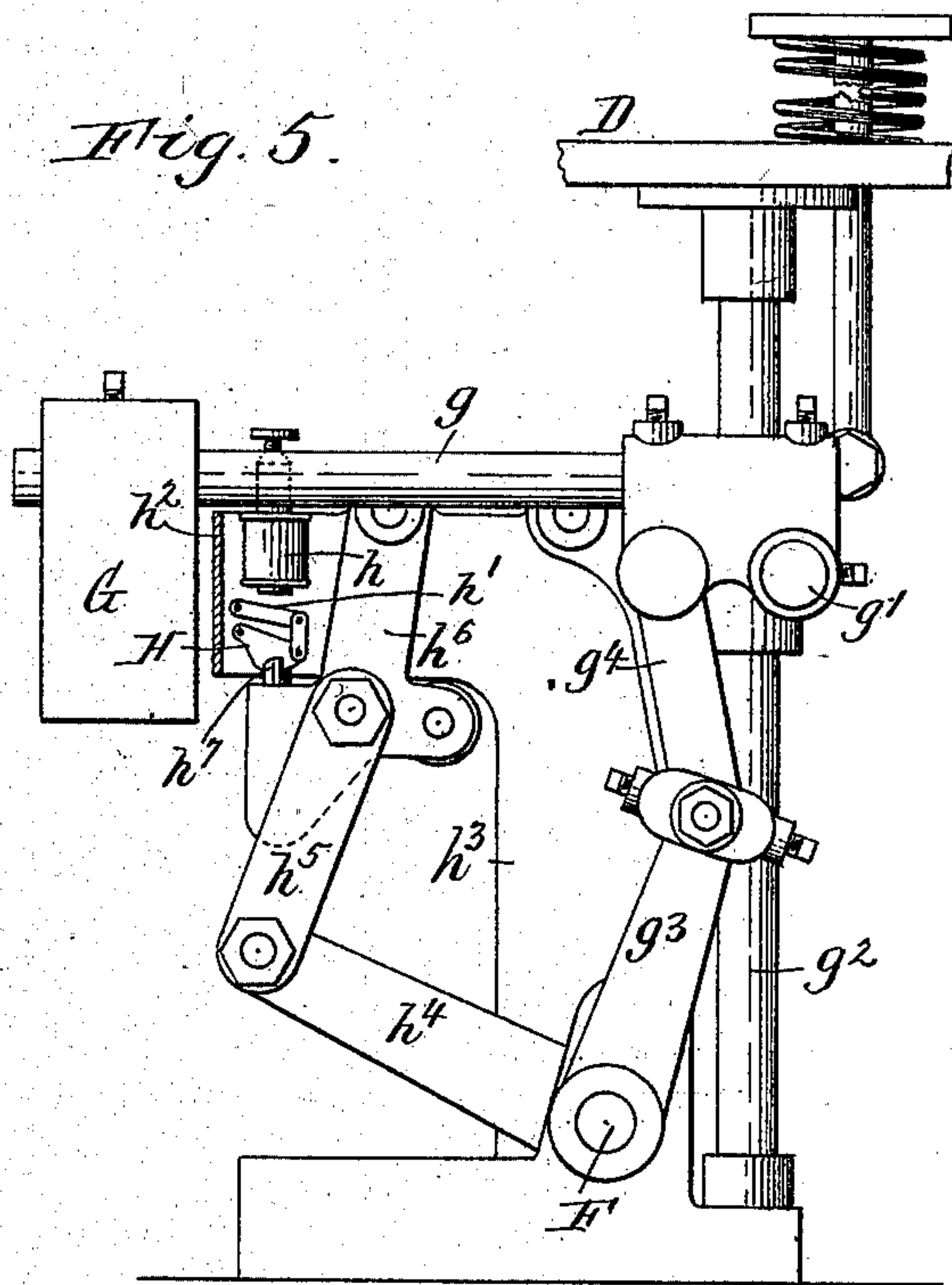


Fig. 5.



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UNITED STATES PATENT OFFICE.

GEORGE R. WILLIAMS, OF BROOKLYN, NEW YORK, ASSIGNOR TO ECONOMIC MACHINE COMPANY, OF NEW YORK, N. Y.

STOP-MOTION FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 723,107, dated March 17, 1903.

Application filed July 18, 1902. Serial No. 116,057. (No model.)

To all whom it may concern:

Be it known that I, GEORGE R. WILLIAMS, a citizen of the United States, residing at New York, in the borough of Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Stop-Motions for Printing-Presses, of which the following is a specification.

This invention relates to an automatic stop-motion for printing-presses and other machines for operating upon paper and other material.

In printing it not infrequently happens that the paper sticks to the form and interferes with the proper delivery of the paper, or the latter tears and part adheres to the form and prevents a perfect subsequent impression.

The object of the present invention is to provide a simple and efficient attachment for printing-presses and other machines for stopping the machine or throwing it out of action when the material or a portion thereof sticks to the form.

In the accompanying drawings, consisting of two sheets, Figure 1 is a side elevation of the feed end of a cylinder-press, showing a stop-motion attachment embodying the invention applied to the press. Fig. 2 is an enlarged fragmentary transverse section through the press, showing the detector devices in elevation. Fig. 3 is an enlarged sectional elevation showing one of the detector devices and associated parts. Fig. 4 is an end view of the parts shown in Fig. 3. Fig. 5 is an enlarged end view of the stop mechanism.

Like letters of reference refer to like parts in the several figures.

In the present application the invention is shown and described in connection with a bed-and-cylinder printing-press; but the invention is also applicable to other types of printing-presses and other machines.

The stop mechanism may be arranged to trip the cylinder, shift the belt, or apply the brake, either or all; but it is only necessary to stop the press when the sheet sticks to the form, and in the present application a stop mechanism is employed which only shifts the belt and applies the brake.

A represents the stationary frame; B, the feed-board; C, the impression-cylinder; C',

the reciprocating bed for the printing-form, and C² the delivery-cylinder for taking the printed sheets from the impression-cylinder and carrying them to the discharge mechanism. (Not shown.) D represents the foot-board, E the hand-lever for shifting the belt in stopping and starting, and E' the foot-spindle for applying the brake. These parts are all of ordinary construction.

The stop mechanism shown in the drawings is similar to that fully described in my application for United States Letters Patent filed March 18, 1902, Serial No. 98,738, and is, briefly stated, as follows: F represents a rock-shaft which is journaled in suitable bearings *f* beside the printing-press and is connected with the hand-lever E and the brake-spindle E', so that by rocking the shaft the belt is thrown off and the brake applied. The shaft is connected to the hand-lever by an arm *f'* and rod *f*² and to the brake-spindle by an arm *f*³ and rod *f*⁴. The rock-shaft is rocked by a weight G, which is adjustably secured to the outer end of the weight-lever *g*, which is fulcrumed at its inner end on a fulcrum-pin *g'*, projecting from a suitable standard *g*². The weight-lever is connected intermediate of its ends by a link *g*⁴ with the outer end of an arm *g*³, fixed on the rock-shaft. The rock-shaft is controlled or held from movement by a device which in the present instance is an electrically-releasable latch controlled by a detector mechanism which is operated to move the latch and release the stop mechanism when a sheet or a portion of a sheet sticks to the printing-form.

H represents the latch, *h* an electromagnet, and *h'* the armature which is connected to the latch and operated by the magnet. These parts are of the usual construction and are located in a box *h*² on a forwardly-projecting portion of a standard *h*³. *h*⁴ represents a rock-arm secured to the rock-shaft adjacent to said standard *h*³ and connected with the upper part of the latter by a toggle-joint consisting of a lower link *h*⁵, pivoted to the rock-arm, and an upper link *h*⁶, pivoted to the standard. The upper link is provided below the joint of the toggle with a bolt-socket which is arranged a spring-pressed catch-bolt *h*⁷, adapted to be engaged by the latch H.

When the latch is lifted by the magnet, the catch-bolt is released and the weight G rocks the rock-shaft to throw off the belt and apply the brake.

5 The detector mechanism is arranged and constructed as follows: I represents detector devices or fingers which are arranged adjacent to the reciprocating bed, so that in the movement of the latter the printing-form is
10 carried beneath the detector devices. There are preferably a plurality of the detector devices located in the space between the bed and the discharge side of the impression-cylinder and so spaced that a detector device
15 is opposite to each longitudinal depression or space between the raised portions of the printing-form. In the construction shown the detector devices or fingers are hung to swing longitudinally of the bed on pivots i ,
20 secured to a supporting-bar i' , which extends transversely over the reciprocating bed and is secured at its opposite ends in any suitable manner to the sides of the press-frame. The detector devices are so proportioned that
25 the lower edges thereof, which are preferably curved or rounded, project into the spaces formed between the raised portions of the printing-form slightly below the plane of the printing-faces or raised portions of the form.
30 If a portion or the whole of the sheet adheres to the printing-form, so as to bridge any one of the spaces between the raised portions of the form, it will in the movement of the bed engage and swing the detector device or de-
35 vices which stand in the path of movement of the paper. The detector devices do not contact with the form and are not operated except when the sheet or a portion of a sheet sticks to the form. When any one of the de-
40 tector devices is oscillated, it operates to close an electric circuit, in which the electromagnet h for the releasing-latch is included, so that the magnet is energized and the latch lifted. The electrical connections are repre-
45 sented in Figs. 1, 2, and 4, and are as follows: j represents a battery; j' , a wire leading from the battery to the detector devices; j^2 , a wire leading from the detector devices to the electromagnet, and j^3 the return-wire leading
50 from the magnet to the battery. J represents a pair of contact-springs arranged adjacent to each detector device and insulated from each other and the detector device. The springs are shown as secured to binding-
55 posts or the like j^4 , carried by the supporting-bar for the detector devices. One contact-spring for each detector device is connected to one of the circuit-wires j' , and the other contact-spring for each detector device is
60 connected to the other circuit-wire j^2 . When any one of the detector devices is oscillated, a face or portion k thereon contacts with and electrically connects the contact-springs and closes the battery-circuit, so that the electro-
65 magnet attracts its armature and moves the latch H to release the stop mechanism, which

operates, as before described, to stop the press.

Various other devices for closing the magnet-circuit to release the stop mechanism will
70 readily suggest themselves and come within the scope of the present invention. The stop mechanism can also be released by the detector devices through the instrumentality of mechanical devices. Means for mechan-
75 ically releasing the stop mechanism are not described herein, but form the subject-matter of another application.

I claim as my invention—

1. The combination with a printing-press
80 or the like, of a stop mechanism therefor, and a detector device which controls said stop mechanism and which is operated by the engagement therewith of the material when it sticks to the form, substantially as set forth. 85

2. The combination with a printing-press or the like, of a stop mechanism therefor, and a detector device which controls said stop mechanism and which is arranged adjacent
90 to the printing-form and is operated by the material sticking to the form, substantially as set forth.

3. The combination with a printing-press or the like, of a stop mechanism therefor, a movable detector device controlling said stop
95 mechanism and arranged adjacent to the printing-form and adapted to be moved by material sticking to the form, substantially as set forth.

4. The combination with a printing-press
100 or the like, of a stop mechanism therefor, a releasing device for said stop mechanism, a movable detector device arranged adjacent to the printing-form and adapted to be engaged and operated by material sticking to
105 said form, and operative connections between said detector device and said releasing device, substantially as set forth.

5. The combination with a printing-press or the like, of an electrically-releasable stop
110 mechanism therefor, and a detector device which controls said stop mechanism and which is operated by the engagement therewith of the material when it sticks to the form, substantially as set forth. 115

6. The combination with a printing-press or the like, of a stop mechanism therefor, an electrically-operated releasing device for said stop mechanism, and a detector device controlling said releasing device and arranged
120 adjacent to the form and adapted to be operated by the material sticking to the form, substantially as set forth.

7. The combination with a printing-press or the like, of a stop mechanism therefor, a
125 detector device pivotally supported adjacent to the printing-form and adapted to be oscillated by the material sticking to the form, and operative connections between said detector device and said stop mechanism sub-
130 stantially as set forth.

8. The combination with a printing-press

or the like, of a stop mechanism therefor, an electrical device for releasing said stop mechanism, a detector device arranged adjacent to the printing-form and adapted to be operated by the material sticking to said form, and an electric circuit controlling said electrical device and which is controlled by said detector device, substantially as set forth.

9. The combination with a printing-press or the like, of a stop mechanism therefor, an electrical device for releasing said stop mechanism, a detector device arranged adjacent to the printing-form and adapted to be oper-

ated by the material sticking to said form, an electric circuit controlling said electrical device, and contacts for said circuit adapted to be engaged by said detector device to close said electric circuit, substantially as set forth.

Witness my hand this 15th day of July, 20 1902.

GEORGE R. WILLIAMS.

Witnesses:

GEO. C. KIMBALL,
CHAS. H. LAMB.