

No. 628,651.

Patented July 11, 1899.

G. W. CUMMINGS.
ROTARY STENCILING MACHINE.

(Application filed Nov. 18, 1898.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.

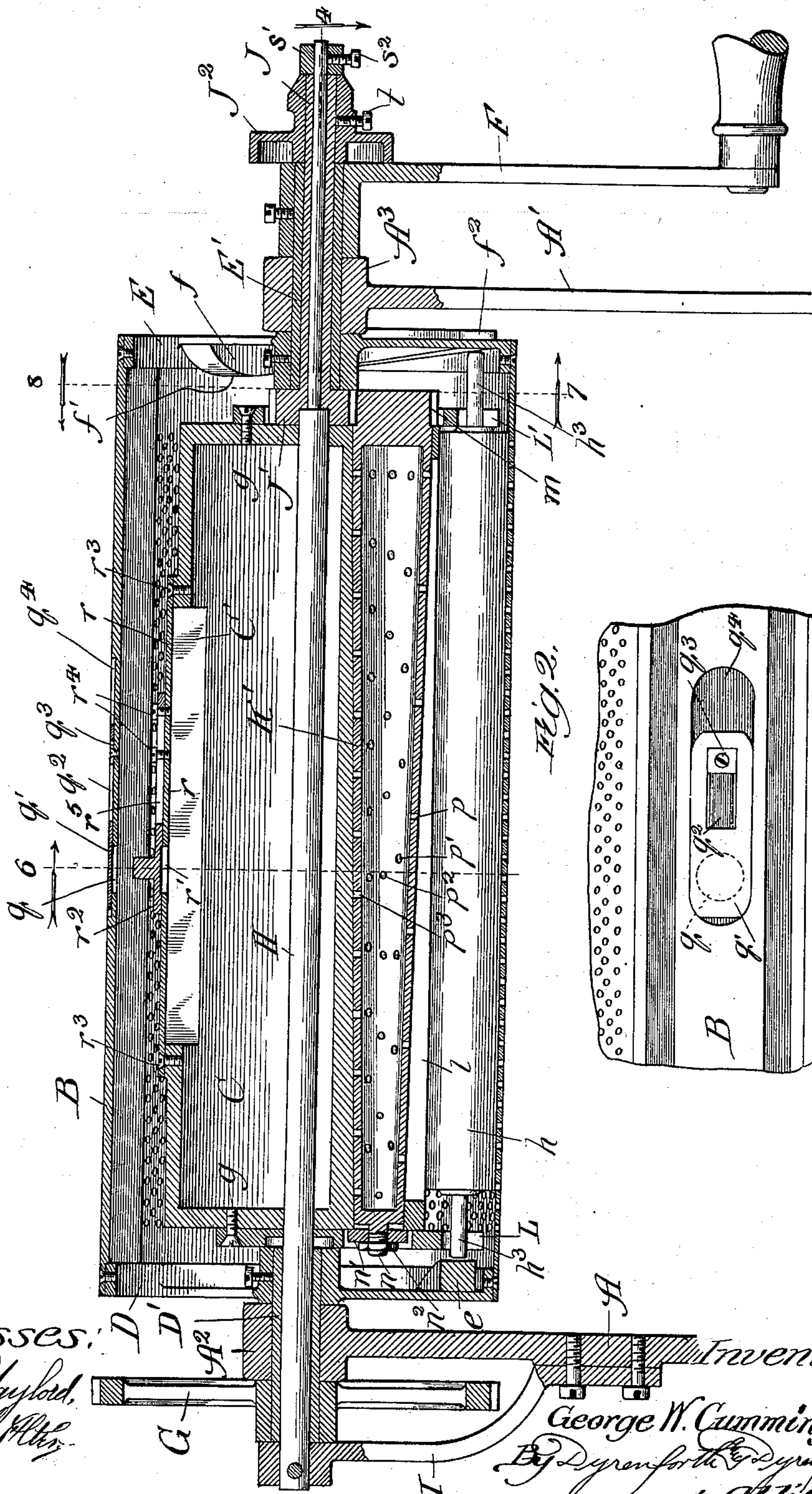
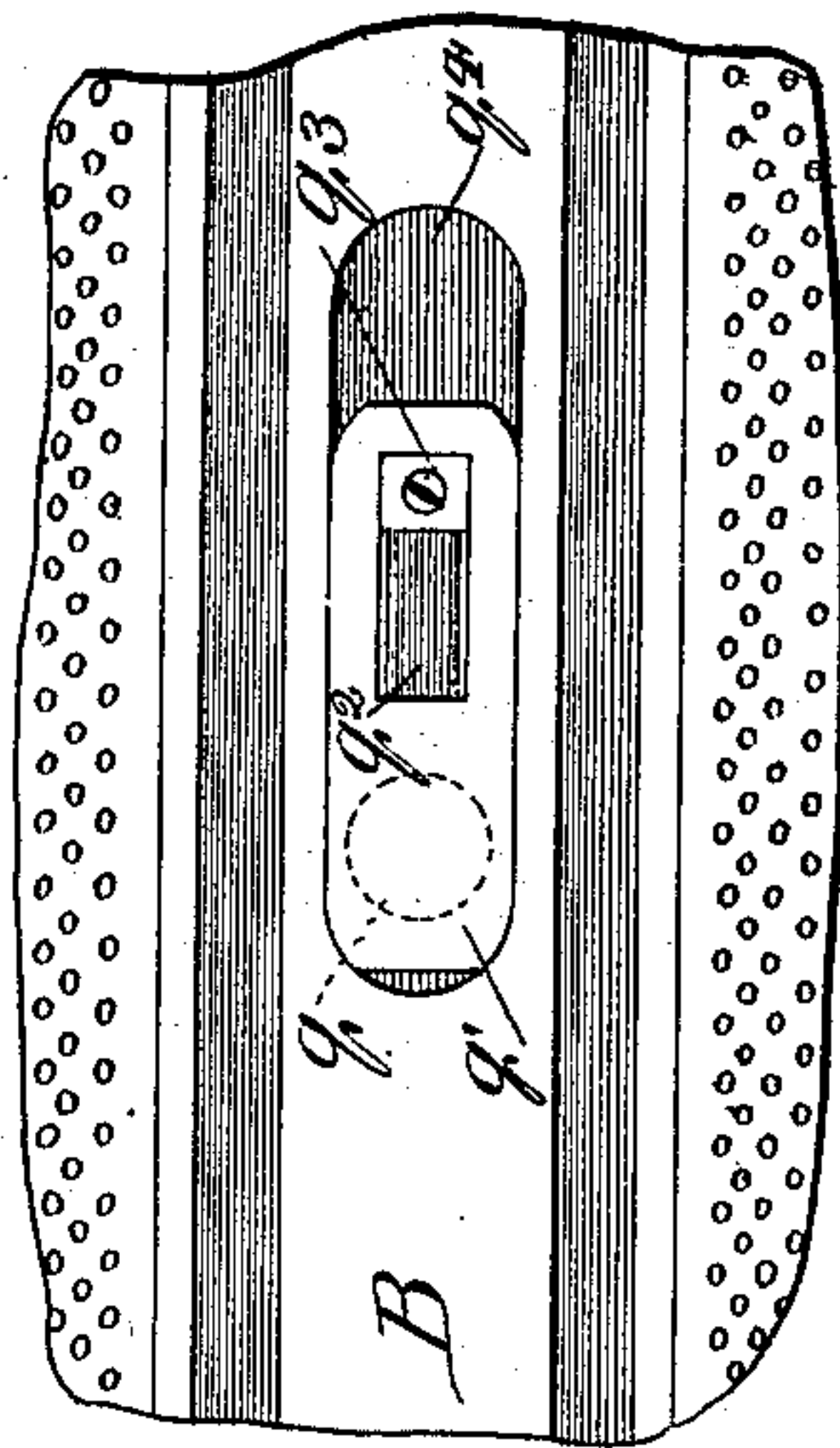


Fig. 2.



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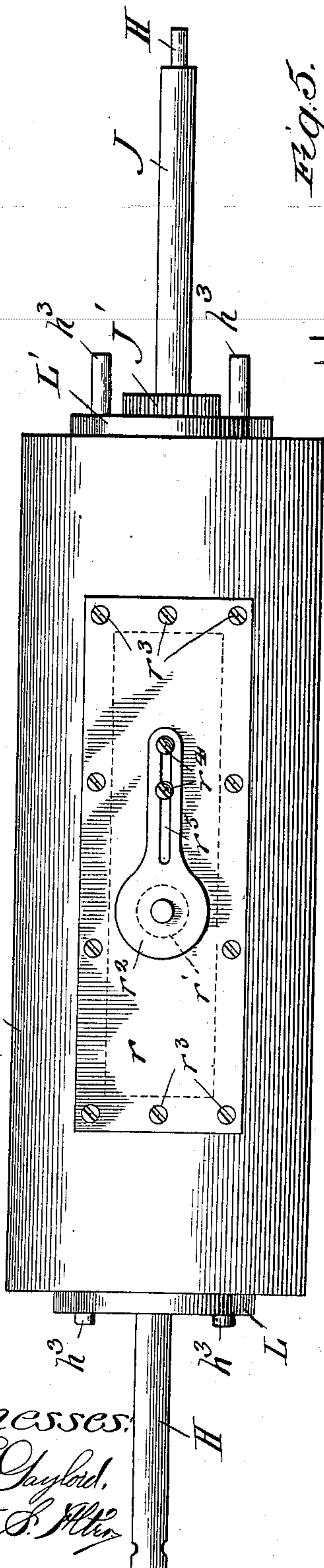
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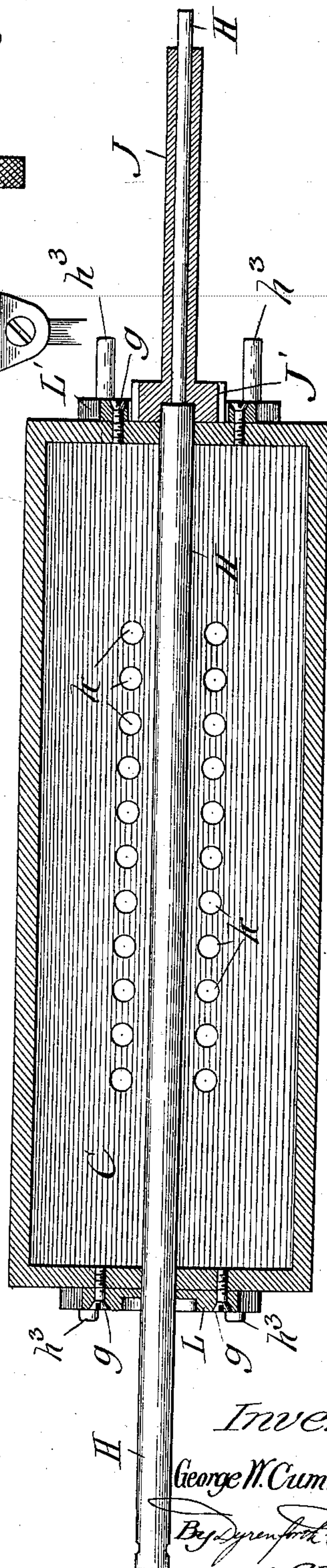
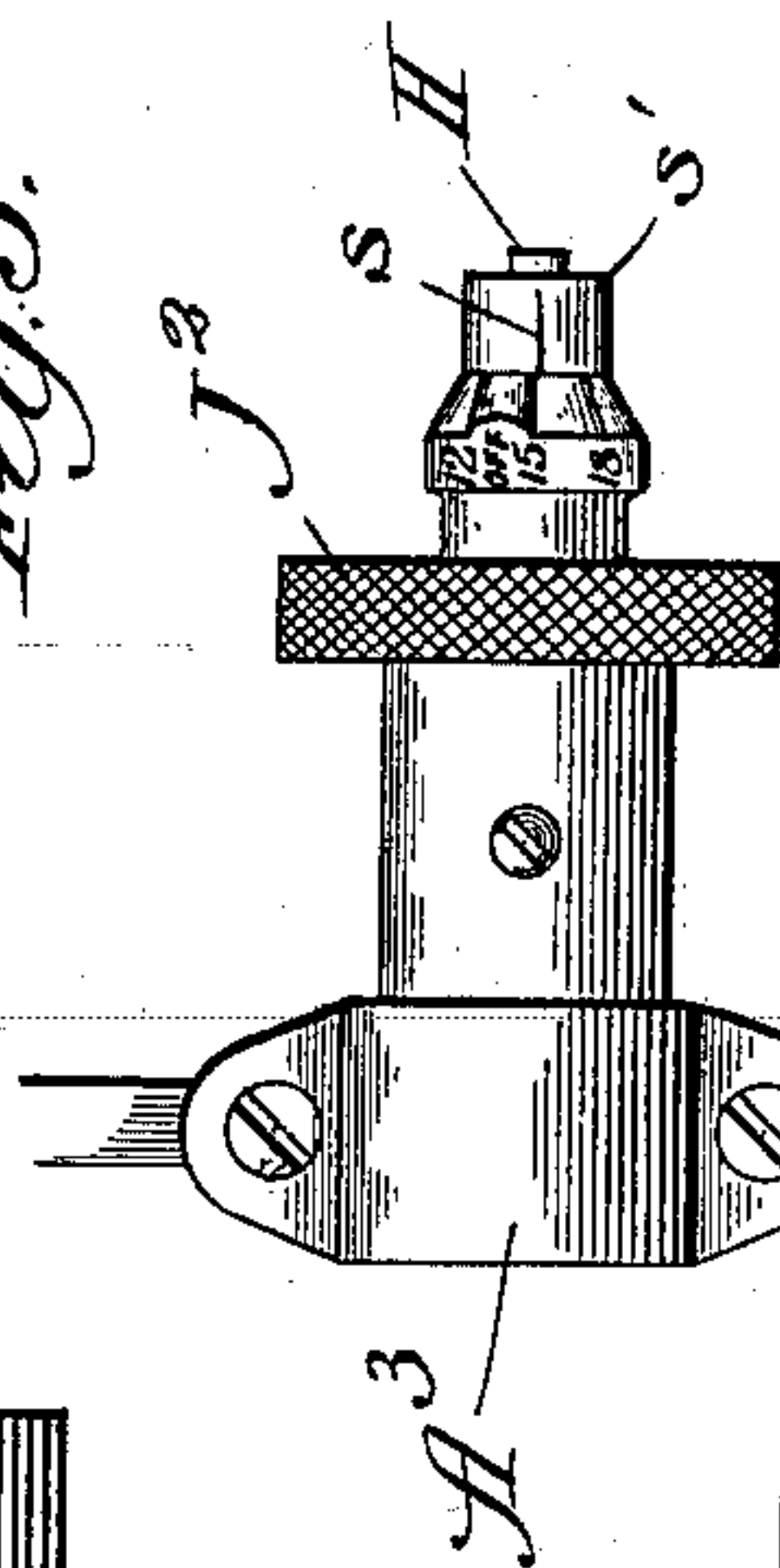
(Application filed Nov. 18, 1898.)

(No Model.)

3 Sheets—Sheet 2.



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3 Sheets—Sheet 3.

Fig. 6.

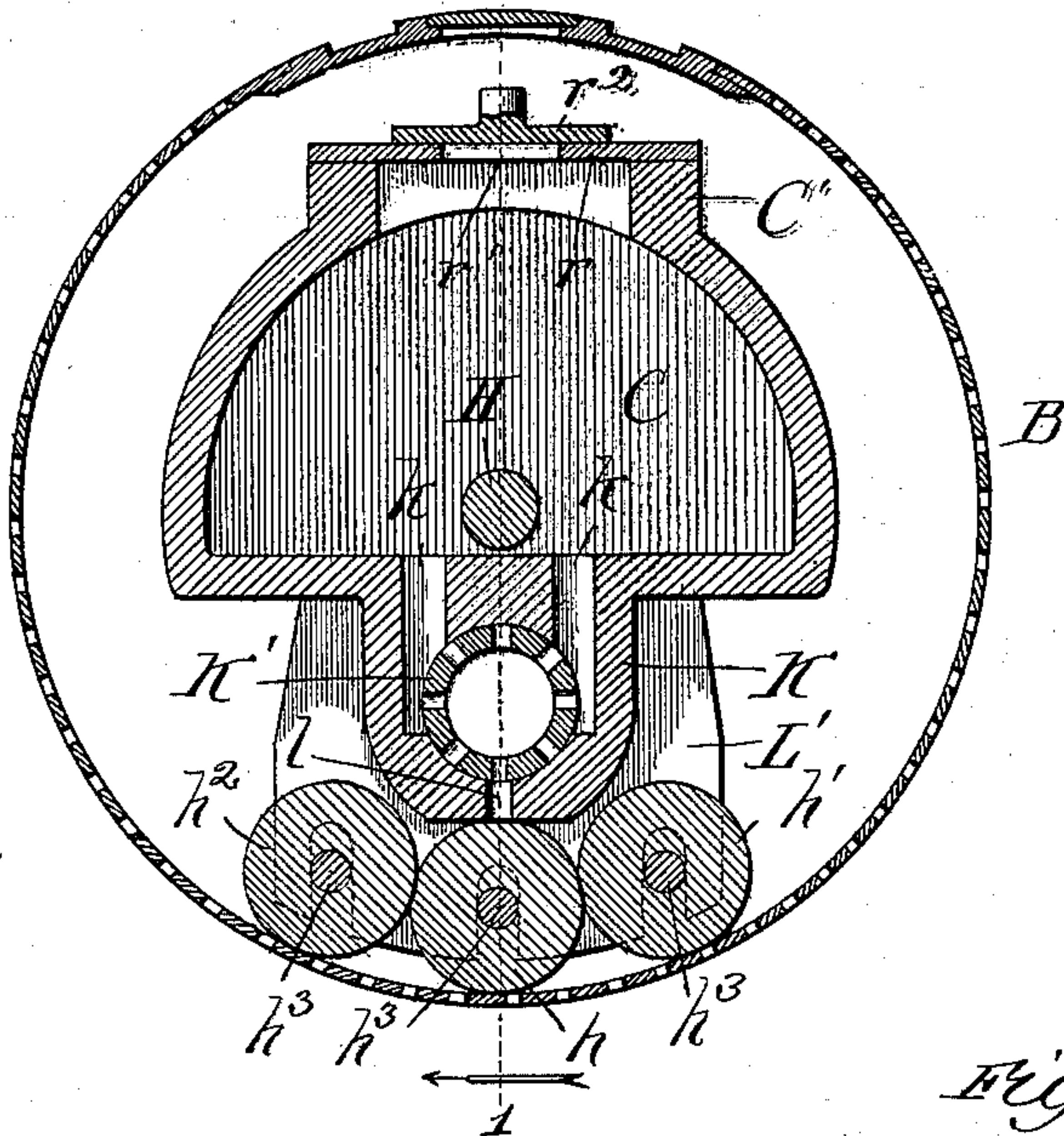


Fig. 8.

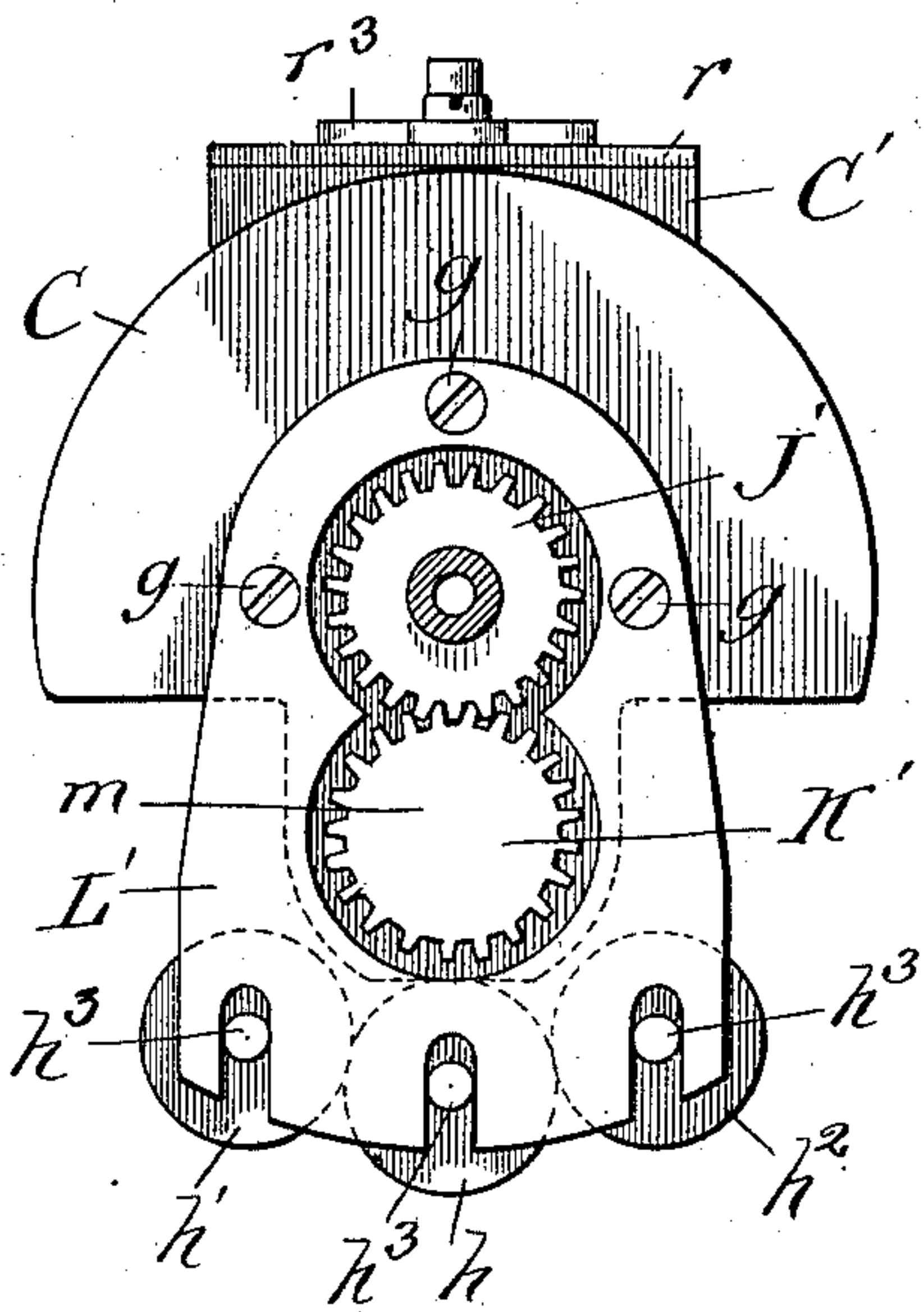
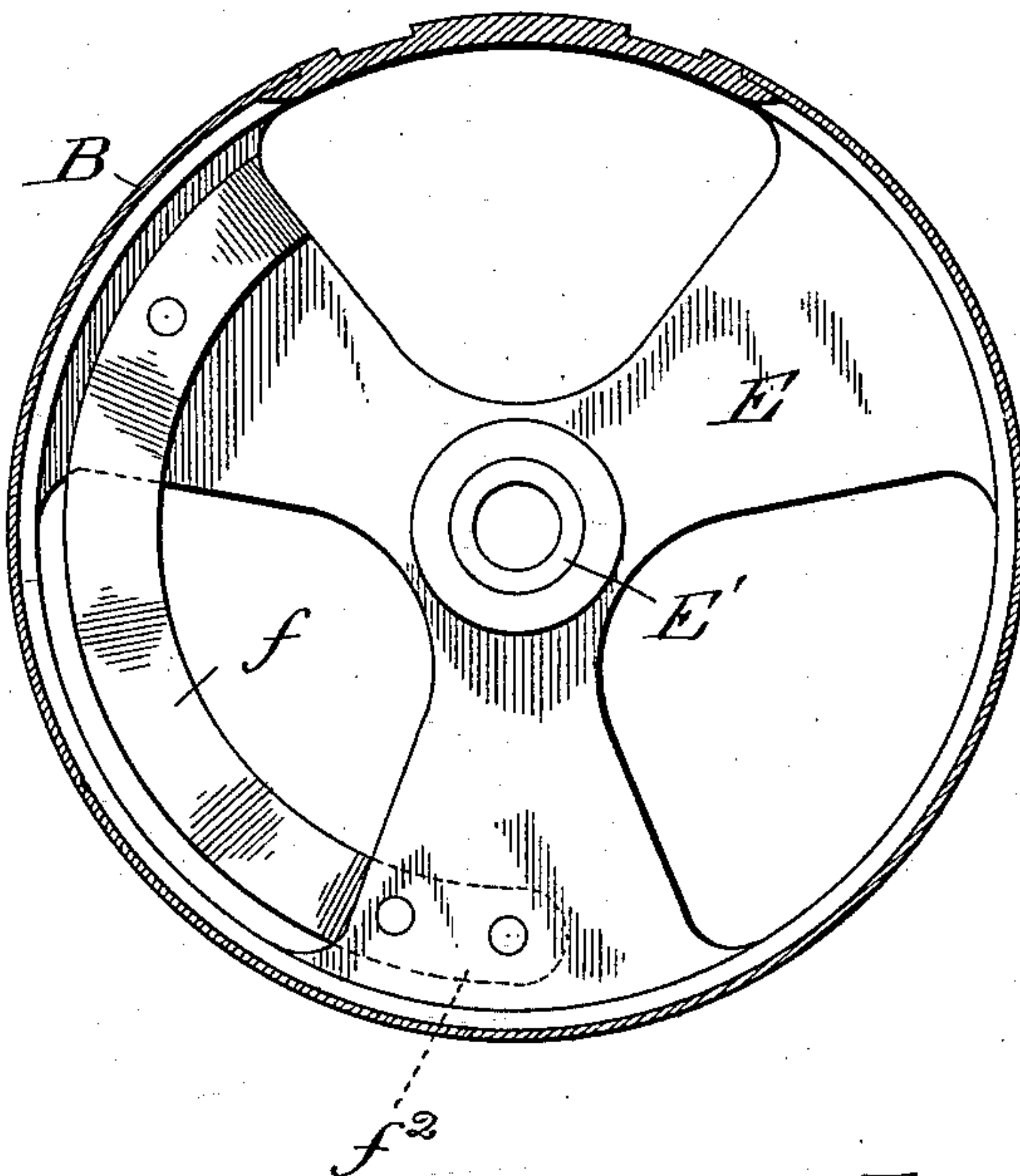


Fig. 7.



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UNITED STATES PATENT OFFICE.

GEORGE W. CUMMINGS, OF NEW YORK, N. Y.

ROTARY STENCILING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 628,651, dated July 11, 1899.

Application filed November 18, 1898. Serial No. 696,799. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. CUMMINGS, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a new and useful Improvement in Rotary Stenciling-Machines, of which the following is a specification.

My invention relates particularly to inking devices for rotary stenciling-machines, and it is in the nature of an improvement on the inking device illustrated in connection with the rotary stenciling-machine described in Letters Patent No. 604,506, granted to me May 24, 1898, to which patent reference is had for a fuller description of the construction and operation of the machine itself than is necessary for the purpose of this application.

My object is to provide an inking device by the use of which the ink-flow from the ink-chamber to the inking-rolls within the stencil-cylinder may be perfectly regulated and when desired cut off beyond the possibility of leakage. Heretofore great difficulty has been experienced in the matter of leakage as well as in the matter of regulating the flow of ink during the operation of the machine, and to insure neatness of work and avoid discomfort to the operator it is absolutely essential that both of these features be taken into consideration and provided for in the construction of the inking device.

Generally stated, the means by which I accomplish the object indicated and which constitutes the subject-matter of my invention consists in an improved valve for regulating the discharge from the ink-chamber to the interior surface of the perforated stencil-cylinder employed, in the preferred construction and arrangement of parts for stationarily supporting the ink-chamber, rotatably supporting the stencil-cylinder and regulating the position of the valve to permit a greater or less flow of ink, and finally in the minor improvements in the construction and arrangement of parts hereinafter described in the specification and pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical longitudinal section through the stencil-cylinder, ink-chamber, and attendant parts, and a fragmentary view of the frame supporting the same, the section being

taken as indicated at line 1 of Fig. 6; Fig. 2, a plan view of a portion of the stencil-cylinder, showing a slide-valve which guards the opening of the stencil-cylinder whereat ink is introduced to the ink-chamber; Fig. 3, a top plan view of the ink-chamber; Fig. 4, a plan section of the ink-chamber, taken on line 4 of Fig. 1; Fig. 5, a fragmentary plan view showing the means for regulating and indicating the position of the valve, and Figs. 6, 7, and 8 sections taken on the corresponding lines of Fig. 1.

A A' represent portions of the frame carrying divided journal-boxes A² A³, wherein are supported the stencil-cylinder B and the ink-chamber C. The preferred manner of mounting these parts is that illustrated in the drawings. The stencil-cylinder is supported at its ends by spiders D and E, rigidly attached at their hub portions to the inner ends of sleeves D' E', journaled in the boxes A² A³, respectively. Exterior to the journal-box A³ the sleeve E' is provided with an operating-handle F, and exterior to the journal-box A² the sleeve D' is provided with a gear G, which may be used to communicate motion to the feed and severing rolls, (not shown,) where the use of the latter may be deemed desirable.

The sleeve D' has journaled within it one end of a shaft H, which extends through the ink-chamber and is rigidly attached thereto. Adjacent to the gear G is an arm I, attached to the shaft end and to the frame and serving to hold the shaft and through its medium the ink-chamber C in rigid relation with the frame.

The sleeve E' has journaled in it a sleeve J, having at its inner end a pinion J' and at its outer end a knob J², fixed to the sleeve by a set-screw t. The knob is provided with a reduced outer end having a beveled edge and markings thereon, which may be set with reference to a stationary index-mark s on a sleeve or button s', fixed to the reduced outer end of the shaft H adjacent to the outer end of the sleeve J by means of a set-screw s².

The ink-chamber is provided at its upper part with a rectangular boss C', which is covered with a flat plate r, provided with an opening r', guarded by a slide-valve r², the plate being secured in place by means of screws r³.

and the slide by screws r^4 , moving in a slot r^5 therein. The stencil-cylinder is provided at its non-perforated portion with an opening q , guarded by a slide-valve q' , provided with a beveled-edge slot q^2 , within which fits a beveled-edge block q^3 , secured to the stencil-cylinder by means of a screw and serving to slidably hold the valve against its depressed seat q^4 . The opening q may be caused to register with the opening r^2 to permit the introduction of ink into the ink-chamber.

The ink-chamber is provided at its bottom with a valve-chamber K, preferably cast integrally with the ink-chamber, within which fits a rotatable hollow valve K', provided with plug ends and with longitudinal rows of perforations p p' , &c., of varying number of perforations per row. The valve is preferably made tapering and is provided at the small end with a reduced threaded portion n , a washer n' bearing against the outer surface of the end of the valve-chamber and a nut n^2 bearing upon said washer. The reduced end portion may be made of square cross-section for a portion of its length and the washer shaped to fit it. The shoulder at the inner termination of the reduced portion should extend less than flush with the outer end surface of the ink-chamber, thus allowing the valve to be drawn upon by turning the nut n^2 to form a close joint with the walls of its chamber. At its opposite end the valve is provided with a pinion m , which meshes with the pinion J', the two pinions serving to cause the valve to rotate when the sleeve J is rotated by means of the knob J². At the lower part of the valve-chamber is a longitudinally-extending discharge-slot l , with which any row of perforations in the valve may be brought into registration by turning the knob J² till the mark thereon which corresponds to the particular row desired registers with the index s . The valve is always kept filled with ink, the latter passing through relatively large-sized holes k , bored in the bottom of the ink-chamber proper to intersect the conical walls of the valve-chamber.

Beneath the slot l is an inking-roll h in frictional contact with the bottom of the stencil-cylinder, and flanking said roll and in frictional contact therewith and with the interior of said cylinder are additional rolls h' and h^2 . The rolls are provided with shafts h^3 , which project through slots at the lower ends of depending blocks L L', secured to the ends of the ink-chamber by screws g . The block L is suitably perforated to receive the washer n' and nut n^2 and the block L' is suitably perforated to receive the pinions J' and m . To the arms of the spiders E and D are secured semicircular cams f and e , respectively, which serve to give to the inking-rolls an end-to-end movement as the stencil-cylinder is rotated. As will be seen from Fig. 1, the cam f passes from its highest point f' near one end to a point flush with the inner surface of the arms of the spider E, and then passes exterior to

the arm, to which it is secured at its reduced end f^2 . The cam e is similar, but is set at an angle of about one hundred and eighty degrees to the cam f , so that when a roll has been shifted in one direction to the full extent it is ready to be engaged by the other cam and shifted back again.

The ink-pad and stencil are applied to the stencil-cylinder in the usual manner and the printing effected by passing the paper to be printed upon between the stencil-cylinder and a suitable impression-roll. Ink is distributed to the interior of the cylinder and caused to exude through the minute perforations by means of the ink-rolls. The amount of ink which reaches the rolls may be regulated by turning the valve through the medium of pinions m and J', sleeve J, and knob J² to cause a row containing the necessary number of holes to register with the slot l , which position is indicated by the corresponding index-marking at the knob. When the printing operation is concluded and it becomes necessary to shut off the ink-supply, this is accomplished by turning the valve to bring an imperforate portion across the slot. This position is indicated in Fig. 5 by the word "Off."

Slight changes in details of construction may be made without departure from my invention as defined by the claims, and use of the construction set forth herein in analogous machines is within the spirit of my invention.

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

1. In a rotary stenciling-machine, the combination with the frame, and stencil-cylinder, of a stationary ink-chamber within the stencil-cylinder, a longitudinally-extending valve-chamber in communication therewith, and a rotatable valve within said valve-chamber provided with discharges of varying capacity, substantially as and for the purpose set forth.

2. In a rotary stenciling-machine, the combination with the frame, and stencil-cylinder, of an ink-chamber within the stencil-cylinder and supported on a shaft stationary with relation to the frame, a longitudinally-extending valve-chamber in communication with the ink-chamber, a pinion-equipped valve therein provided with discharge-openings, a pinion on said shaft geared to the valve-pinion, and means for turning the pinion on said shaft and through its medium the valve-pinion and valve, substantially as and for the purpose set forth.

3. In a rotary stenciling-machine, the combination with the frame, and stencil-cylinder, of a stationary ink-chamber within the stencil-cylinder, a valve-chamber in communication therewith provided with a discharge, and a hollow valve provided with discharges of varying ink-conducting capacity and rotatable to bring the desired valve-discharge into registration with the valve-chamber discharge or to close the valve-chamber discharge entirely, substantially as and for the purpose set forth.

4. In a rotary stenciling-machine, the combination with the frame, and stencil-cylinder, of a stationary ink-chamber, a longitudinally-extending conical valve-chamber in communication with said ink-chamber and provided with a longitudinal discharge-slot, a conical valve in the valve-chamber provided with a discharge, means for holding the valve in close contact with the valve-chamber walls, and means for rotating the valve to bring its discharge into registration with the valve-chamber discharge-slot, substantially as and for the purpose set forth.

5. In a rotary stenciling-machine, the combination with the frame, and stencil-cylinder, of a stationary ink-chamber within the stencil-cylinder, a valve-chamber having conical walls and in communication with the ink-chamber and provided with a discharge-slot, a hollow conical valve within the valve-chamber provided with rows of perforations or their equivalent, said rows being of different ink-conducting capacity, means for holding said valve in close contact with the valve-chamber, and means for rotating the valve to bring any row of perforations into registration with said slot, substantially as and for the purpose set forth.

6. In a rotary stenciling-machine, the combination with the frame, and stencil-cylinder, of a stationary ink-chamber within the stencil-cylinder, an open-ended conical-walled valve-chamber in communication with said ink-chamber provided at the bottom with a longitudinal discharge-slot, a hollow conical valve within said valve-chamber provided with closed ends and with rows of perforations of varying ink-conducting capacity, means for holding the valve in close contact with the valve-chamber walls, and means for rotating the valve, substantially as and for the purpose set forth.

7. In a rotary stenciling-machine, the combination with the frame, and stencil-cylinder,

of a stationary shaft-supported ink-chamber within the cylinder, a valve-chamber in communication with the ink-chamber, a hollow rotatable valve provided with rows of perforations, or their equivalent, of varying ink-conducting capacity, a pinion fixed to said valve, a pinion on the shaft of the ink-chamber meshing therewith, a sleeve and knob for rotating the same provided with markings corresponding to said rows of perforations, and an index or pointer on the end of said shaft by which to set the knob, substantially as and for the purpose set forth.

8. In a rotary stenciling-machine, the combination with the frame and suitable journal-boxes, of sleeves extending through the journal-boxes, a stencil-cylinder supported by the sleeves between said boxes, an ink-chamber within the stencil-cylinder provided with a rigidly-attached shaft projecting through the journal-boxes, an arm at one end of said shaft fixing it in rigid relation with the frame, a pinion-equipped sleeve within the cylinder-supporting sleeve at the opposite end of the shaft, a pinion-equipped rotatable valve co-operating therewith, means for rotating the stencil-cylinder through the medium of one of its supporting-sleeves, and means for rotating and indicating the position of the valve, substantially as and for the purpose set forth.

9. In a rotary stenciling-machine, the combination with the frame, and stencil-cylinder, of an ink-chamber within the stencil-cylinder, an inking-roll beneath said chamber in frictional contact with the interior of the stencil-cylinder, and cams on the inner surfaces of the ends of the stencil-cylinder for giving to said roll an end-to-end movement as the stencil-cylinder is rotated, substantially as and for the purpose set forth.

GEORGE W. CUMMINGS.

In presence of—

D. W. LEE,

R. T. SPENCER.