

(No Model.)

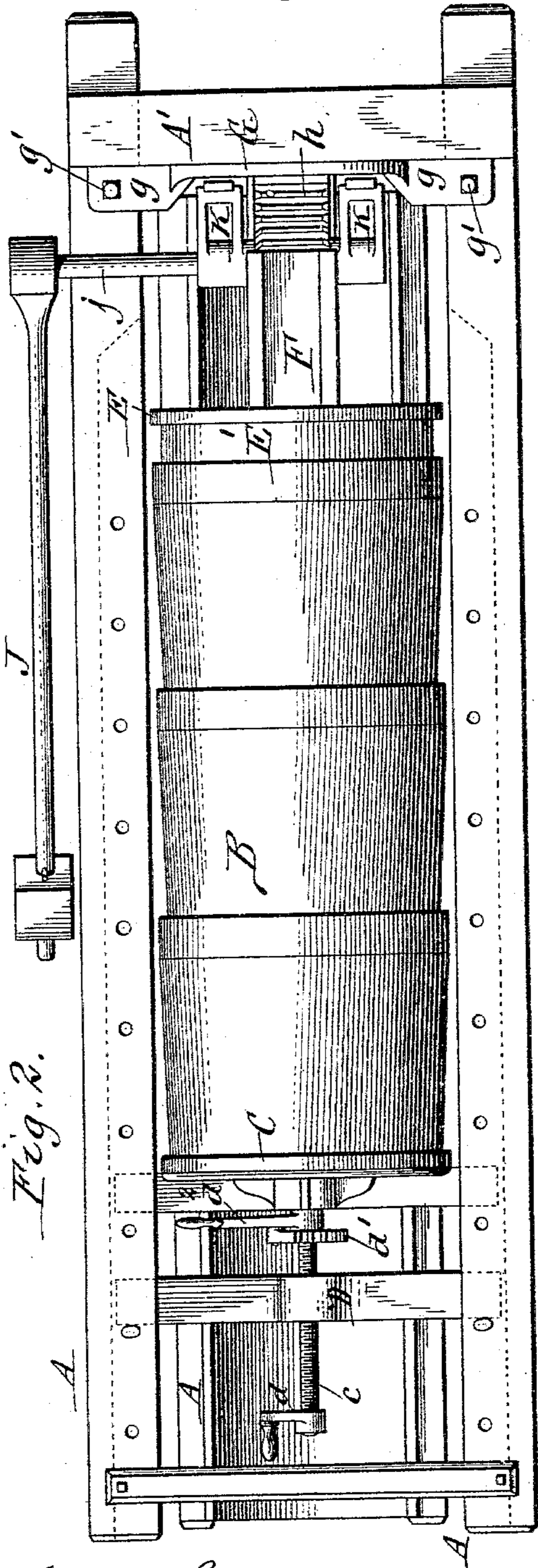
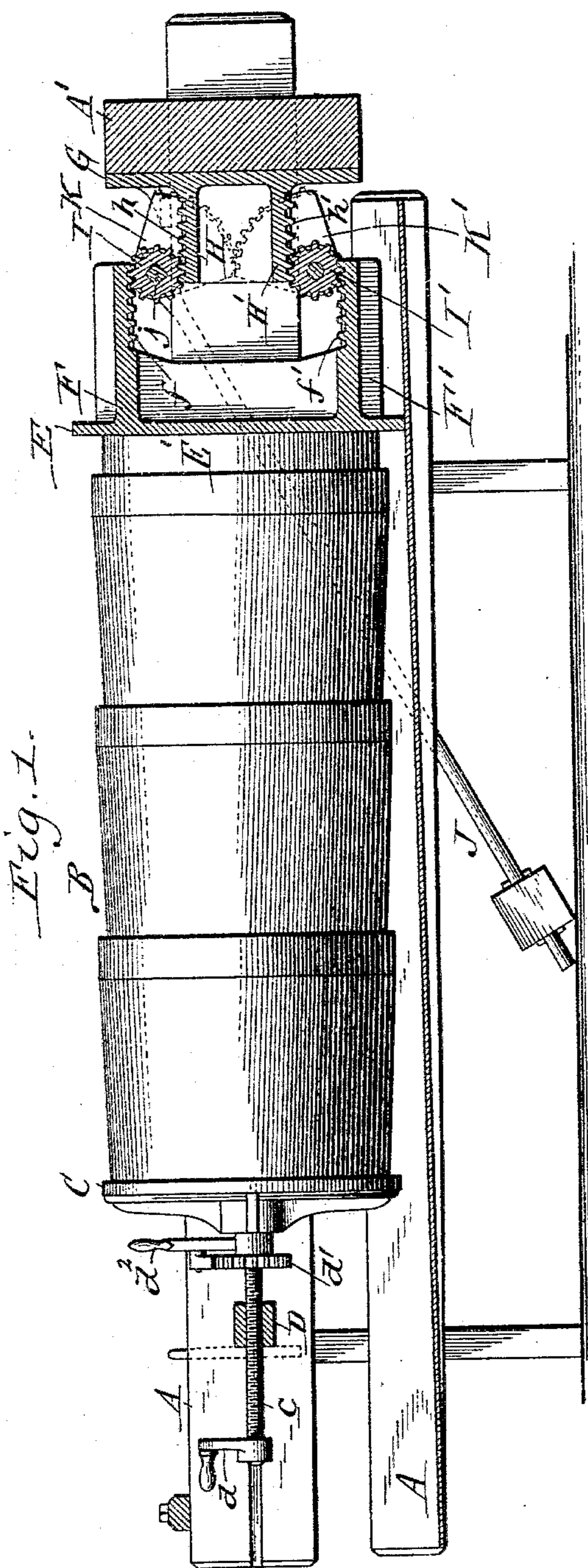
3 Sheets—Sheet 1.

C. J. LUNDSTROM.

CHEESE PRESS.

No. 545,206.

Patented Aug. 27, 1895.



Witnesses:  
Theo. L. Popp.  
Chas. F. Burkhardt.

Carl J. Lundstrom Inventor.  
By Wilhelm P. Popp.  
Attorneys.

(No Model.)

3 Sheets—Sheet 2.

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Fig. 4.

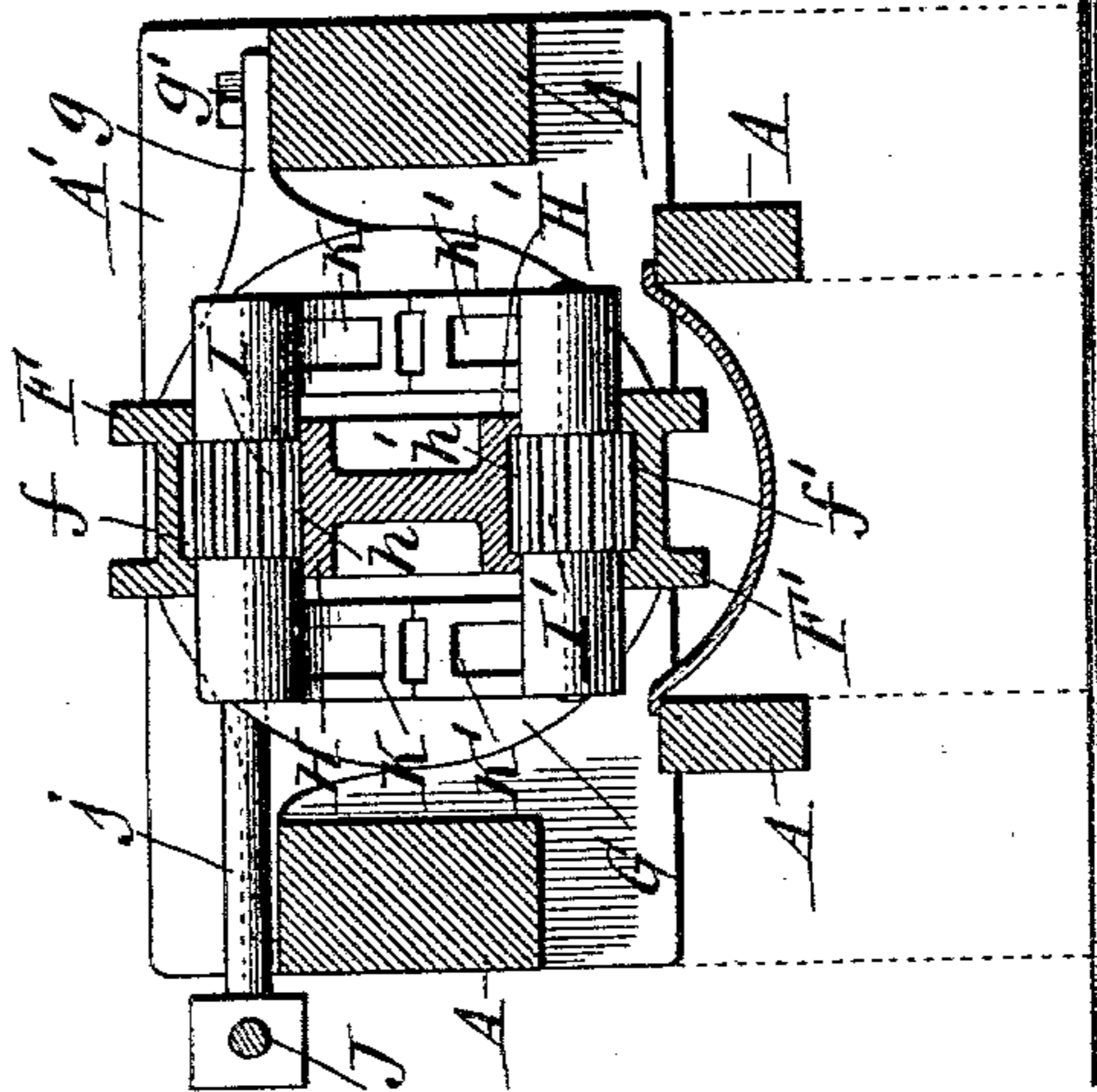
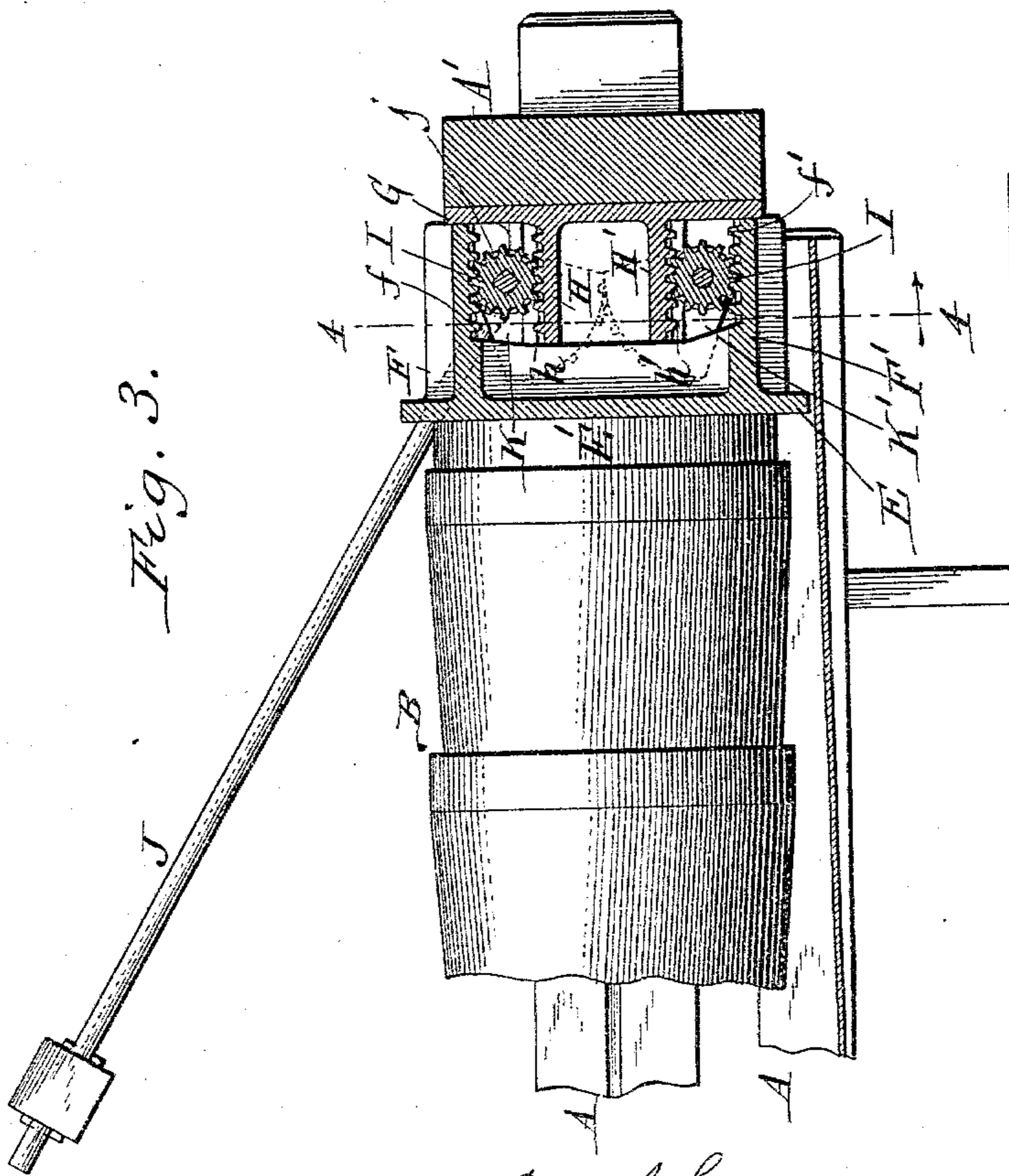


Fig. 3.



Witnesses:

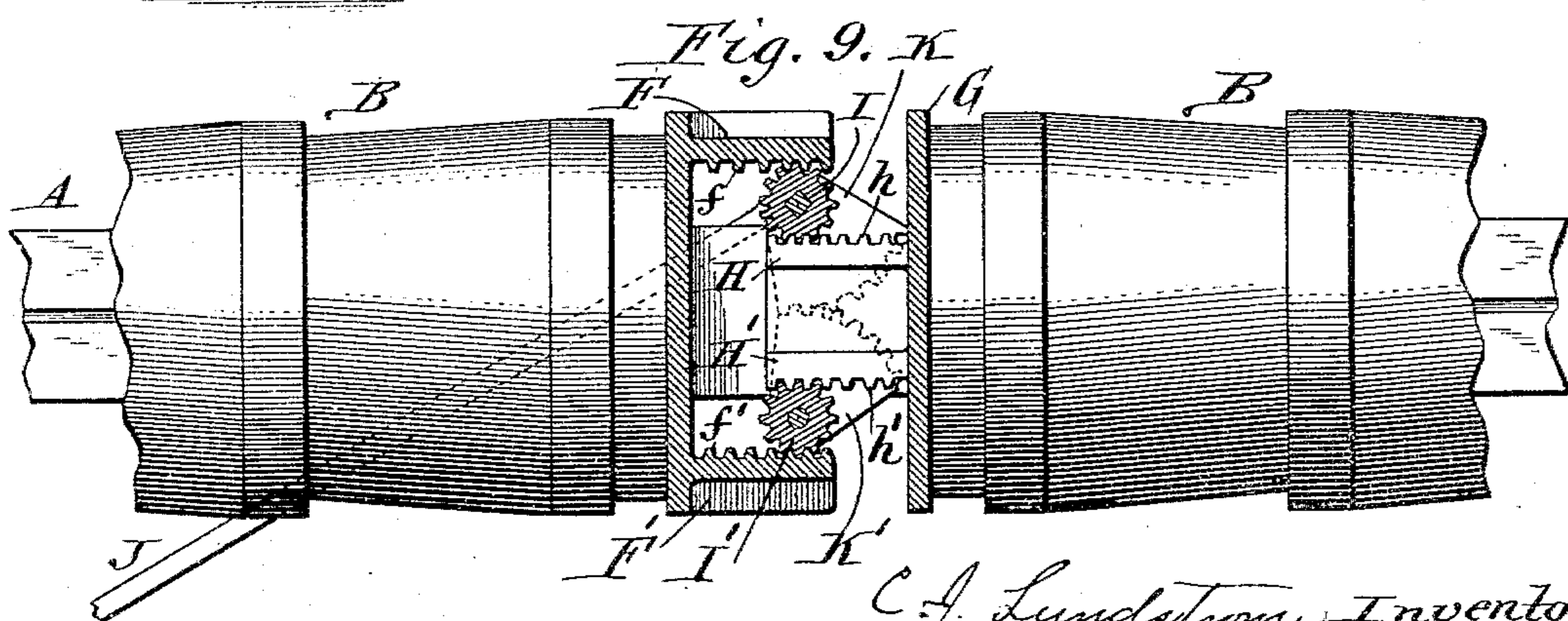
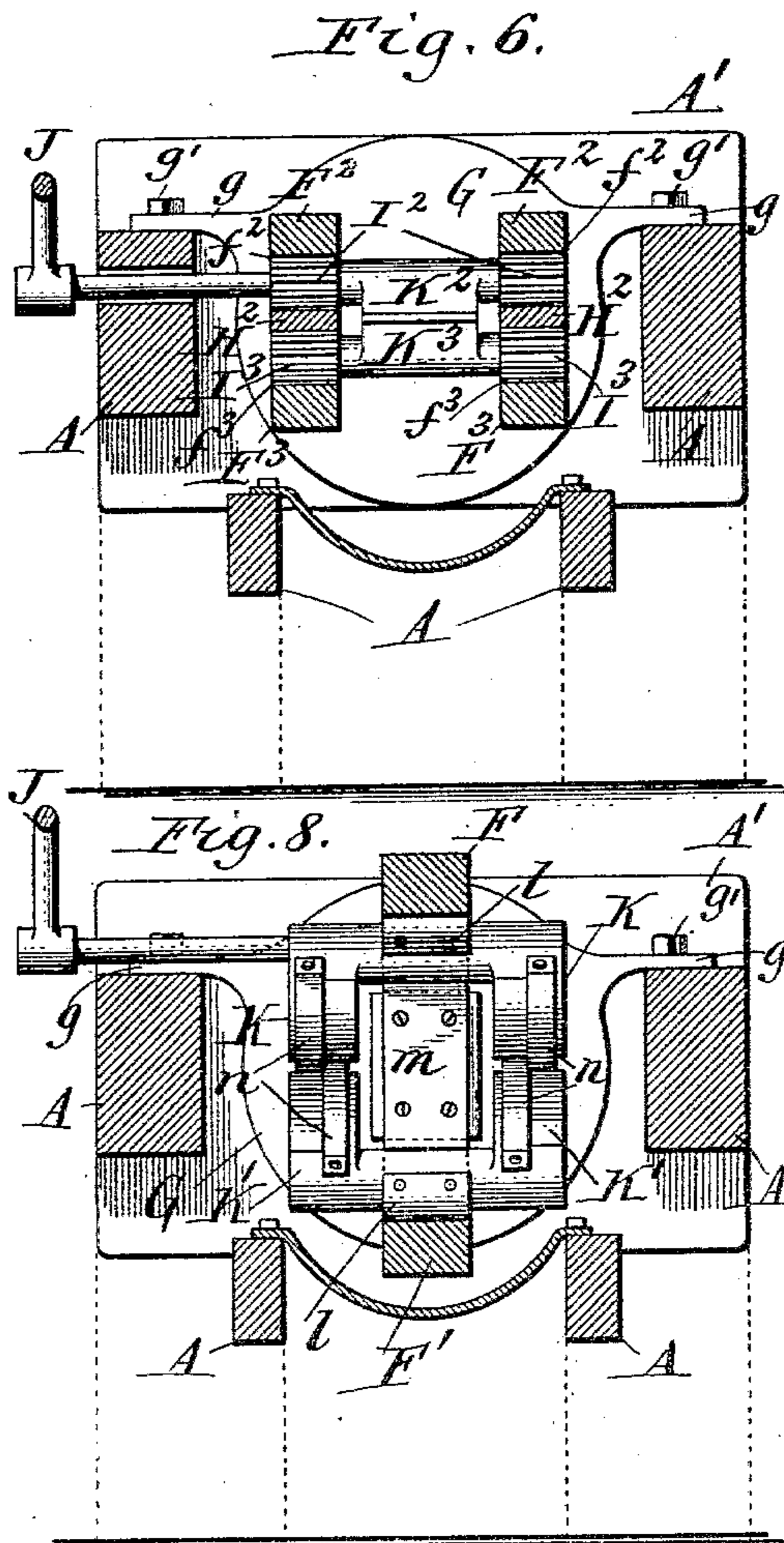
Theo. L. Gopp  
Chas. F. Burkhardt

Carl J. Lundstrom Inventor.  
By Wilhelm Thomsen.  
Attorneys.

3 Sheets—Sheet 3.

CHEESE PRESS.

Patented Aug. 27, 1895.



C. J. Lundstrom Inventor  
By Wilhelm Thomsen  
Attorneys.

# UNITED STATES PATENT OFFICE.

CARL JOHAN LUNDSTROM, OF LITTLE FALLS, NEW YORK, ASSIGNOR TO  
D. H. BURRELL & CO., OF SAME PLACE.

## CHEESE-PRESS.

SPECIFICATION forming part of Letters Patent No. 545,206, dated August 27, 1895.

Application filed January 9, 1895. Serial No. 534,302. (No model.)

*To all whom it may concern:*

Be it known that I, CARL JOHAN LUNDSTROM, a subject of the King of Sweden and Norway, residing at Little Falls, in the county of Herkimer and State of New York, have invented a new and useful Improvement in Cheese-Presses, of which the following is a specification.

This invention relates to an automatic pressure mechanism such as are used in cheese-presses for pressing the foot-block automatically against the cheeses after the pressure has been applied by hand to the head-block, and particularly to such an automatic pressure mechanism in which the foot-block and the adjacent stationary tail-plate are provided with gear-racks, with which meshes a pinion, which is actuated by a weight-lever or other pressure device. An automatic pressure mechanism of this character is shown and described in Letters Patent No. 528,001, dated October 23, 1894, and granted to D. H. Burrell & Co. as assignee of myself.

My present invention has for its objects to improve this class of pressure mechanisms, to prevent binding of the parts, and thereby insure the proper automatic operation of the mechanism under all circumstances, and to contrive the mechanism in such a manner that it can be applied to gang cheese-presses of ordinary construction without necessitating any change in the press.

In the accompanying drawings, consisting of three sheets, Figure 1 is a longitudinal sectional elevation of a gang cheese-press provided with my improved automatic pressure mechanism. Fig. 2 is a top plan view of the same. Fig. 3 is a longitudinal sectional elevation of the automatic pressure mechanism with the weight-lever elevated. Fig. 4 is a cross-section in line 4 4, Fig. 3, looking rearward. Fig. 5 is a longitudinal sectional elevation of a modified construction of my improved pressure mechanism. Fig. 6 is a cross-section in line 6 6, Fig. 5, looking rearward. Fig. 7 is a longitudinal sectional elevation of another modified construction of my improved pressure mechanism. Fig. 8 is a cross-section in line 8 8, Fig. 7, looking rearward. Fig. 9

is a longitudinal sectional elevation showing a modified arrangement of my improved pressure mechanism.

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

A A represent the side pieces, and A' the rear cross-piece, of the frame of an ordinary gang cheese-press. B represents a gang of telescopic cheese-hoops of ordinary construction. C represents the head-block, and c the usual hand-screw by which it is operated. D represents the cross-piece in which the hand-screw works, d the hand-crank secured to the screw, and d' d' the ratchet wheel and lever mounted thereon. All of these parts may be of any well-known or suitable construction.

E represents the movable foot-block, which bears against the rear end of the gang of cheese-hoops by means of an interposed wooden block E' or otherwise.

F F' represent, respectively, an upper and a lower arm or bracket projecting rearwardly from the foot-block. The upper arm F is provided on its under side with a gear-rack f and the lower arm F' is provided on its upper side with a gear-rack f'.

G is the stationary tail-plate, which is arranged against the front side of the rear cross-piece A' of the press-frame and secured to the side pieces A of the press-frame by ears g, resting upon the side pieces in front of the rear cross-piece A', and bolts g' passing through these ears and the side pieces A. This tail-plate is provided with an upper and a lower forwardly-projecting arm or bracket H H', provided, respectively, on their upper and lower sides with gear-racks h h' and arranged between the arms F F' of the foot-block.

I represents a pinion arranged between the upper gear-racks f h and meshing therewith, and I' is a similar pinion meshing with the lower gear-racks f' h'. The upper pinion I is secured to a transverse shaft j, which carries at one end a weight-lever J, so arranged that when the foot-block is pressed back by the application of the hand-pressure to the gang of cheeses the lever is raised.

K represents a pair of gear-segments se-

cured to opposite sides of the upper pinion I, and K' represents a similar pair of gear-segments secured to opposite sides of the lower pinion I'. The upper and lower gear-segments are arranged outside of the arms or gear-racks and mesh with each other and transmit the motion from one pinion to the other.

When the cheese-hoops have been placed in the press-frame the foot-block is in its forward position, the weight-lever is in its lowest position, and the pinions stand between the rear ends of the gear-racks on the foot-block and the front ends of the gear-racks on the tail-plate, as represented in Figs. 1 and 2. Upon applying the hand-pressure by means of the screw the foot-block is forced backwardly, causing a simultaneous rearward movement of both pinions and a corresponding elevation of the weight-lever. When the foot-block has reached the limit of its rearward movement, the parts of the pressure mechanism are in the position represented in Fig. 3. The rearward movement of the foot-block now ceases and the weight-lever exerts a constant forward pressure against the foot-block and descends until the lever reaches its lowest position, when it can be elevated again by applying pressure by the hand-screw.

The segmental gears which connect the two pinions cause the latter to move in unison back and forth. This insures a perfectly parallel motion of the movable racks and prevents the foot-block, to which the movable racks are secured, from changing its position with reference to the center line of the press-frame, but maintains it at right angles thereto during its movements, thereby preventing binding and the interference with the working of the mechanism resulting therefrom. It is obvious that this mechanism can be easily applied to any ordinary press-frame, particularly when the shaft of the weight-lever is arranged at such a height, as shown in Fig. 1, that it stands above the side pieces of the press-frame, in which case the side pieces are not required to be notched or slotted for making room for the shaft.

The pinions, gear-racks, and segments are preferably provided with plain bearing-faces on the outer sides of the teeth, as shown.

In the modified construction represented in Figs. 5 and 6 the arrangement of the pinions and gear-segments is reversed—that is to say, while in the construction represented in Figs. 1 to 4 each pinion is arranged between a pair of gear-segments, in the construction represented in Figs. 5 and 6 each gear-segment is arranged between a pair of pinions. In these last-named figures, I<sup>2</sup> I<sup>2</sup> represent the upper pinions meshing with two gear-racks f<sup>2</sup>, formed on the under sides of two upper arms F<sup>2</sup> on the foot-block, and K<sup>2</sup> represents the gear-segment arranged between these pin-

ions. I<sup>3</sup> I<sup>3</sup> represent the lower pinions meshing with two gear-racks f<sup>3</sup>, formed on the upper sides of two lower arms F<sup>3</sup> on the foot-block, and K<sup>3</sup> the segment arranged between these pinions. H<sup>2</sup> H<sup>2</sup> represent two arms formed on the tail-plate and each provided on its upper and lower sides with gear-racks h<sup>2</sup> h<sup>3</sup>, which mesh, respectively, with the upper and lower pinions.

In the modified construction represented in Figs. 7 and 8 the arrangement of the pinions, arms, and segments is the same as that which is represented in Figs. 1 to 4, but instead of being provided with intermeshing teeth, as represented in the last-named figures, these parts are constructed with plain faces and are connected by straps. l represents the straps which connect the pinions with the arms of the foot-block, m the straps which connect the pinions with an arm on the tail-plate, and n the straps which connect the segments. Instead of securing the tail-plate to the rear portion of the press-frame, it may be made movable like the foot-block by placing the mechanism between two gangs of cheese-hoops in the same press-frame, as indicated in Fig. 9.

While I have shown and described this pressure mechanism as being applied to the pressure-block of a cheese-press, for which use it is principally designed, it is obvious that it may be employed in other machines in which a head or block is required to be moved in a similar manner.

I claim as my invention—

1. The combination with a supporting plate and a pressure block movable toward and from the same, of arms on the block and plate forming between them two pairs of opposing surfaces, a wheel arranged between each pair of opposing surfaces and geared with its support so as to roll as the block moves toward or from the plate, gear devices connecting said wheels and causing them to move in unison, and means whereby one of said wheels is actuated, substantially as set forth.

2. The combination with a supporting plate and a pressure block movable toward and from the same, of parallel arms secured respectively to the plate and the block, pinions interposed between adjacent arms and geared thereto, gears connecting the pinions, and means whereby one of said pinions is actuated, substantially as set forth.

3. The combination with a supporting plate and a pressure block movable toward and from the same, of parallel arms secured respectively to said plate and block and provided on their opposing sides with the racks, gear pinions arranged between adjacent racks and meshing therewith, intermeshing gear segments secured to the pinions, and an actuating lever connected with one of the pinions, substantially as set forth.

4. The combination with a supporting plate and a pressure block movable toward and from the same, of parallel arms secured respectively to said plate and block and provided on their opposing sides with gear racks, gear pinions arranged between adjacent racks and meshing therewith, a pair of gear segments secured to opposite sides of each pinion, and

a weight lever secured to one of said pinions, substantially as set forth.

Witness my hand this 31st day of December, 1894.

CARL JOHAN LUNDSTROM.

Witnesses:

HARVEY FELDMEIER,  
GEO. W. SEARLES.