

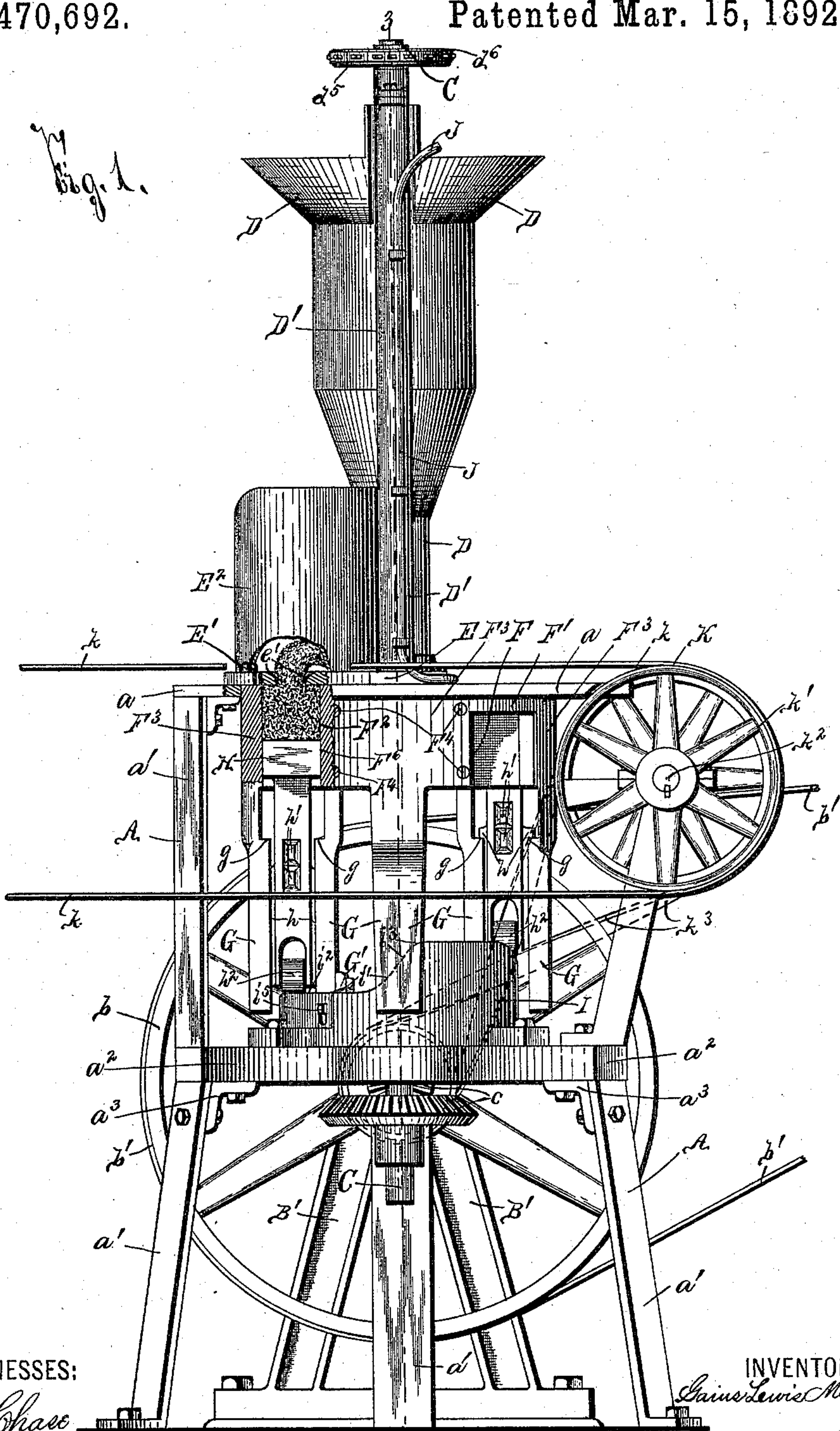
(No Model.)

4 Sheets—Sheet 1.

G. L. MERRELL.  
MINCE MEAT MACHINE.

No. 470,692.

Patented Mar. 15, 1892.



WITNESSES:

*N. E. Chase*

*W. H. Randall*

INVENTOR

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BY

*Henry Willmer Parsons*  
ATTORNEYS.

(No Model.)

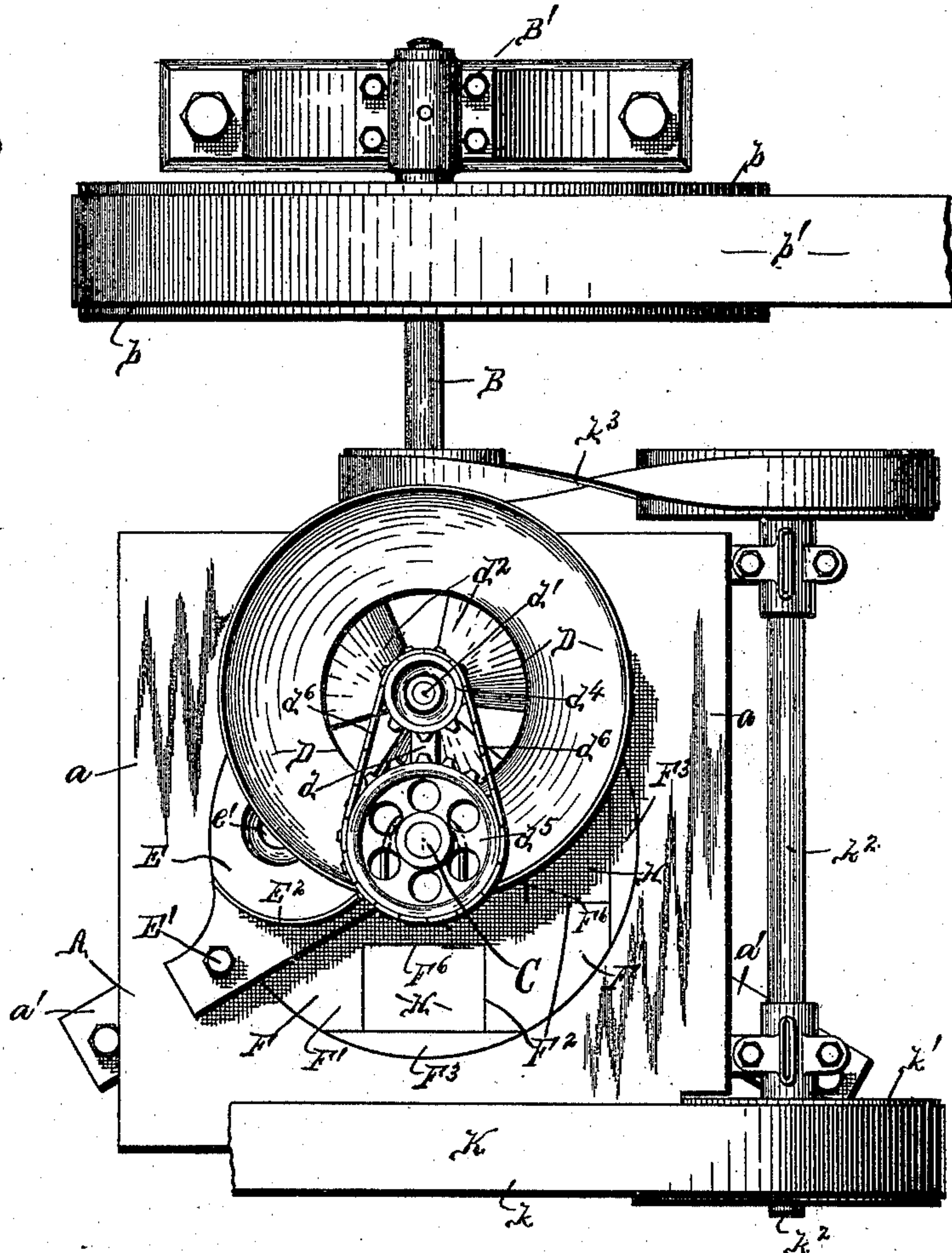
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G. L. MERRELL.  
MINCE MEAT MACHINE.

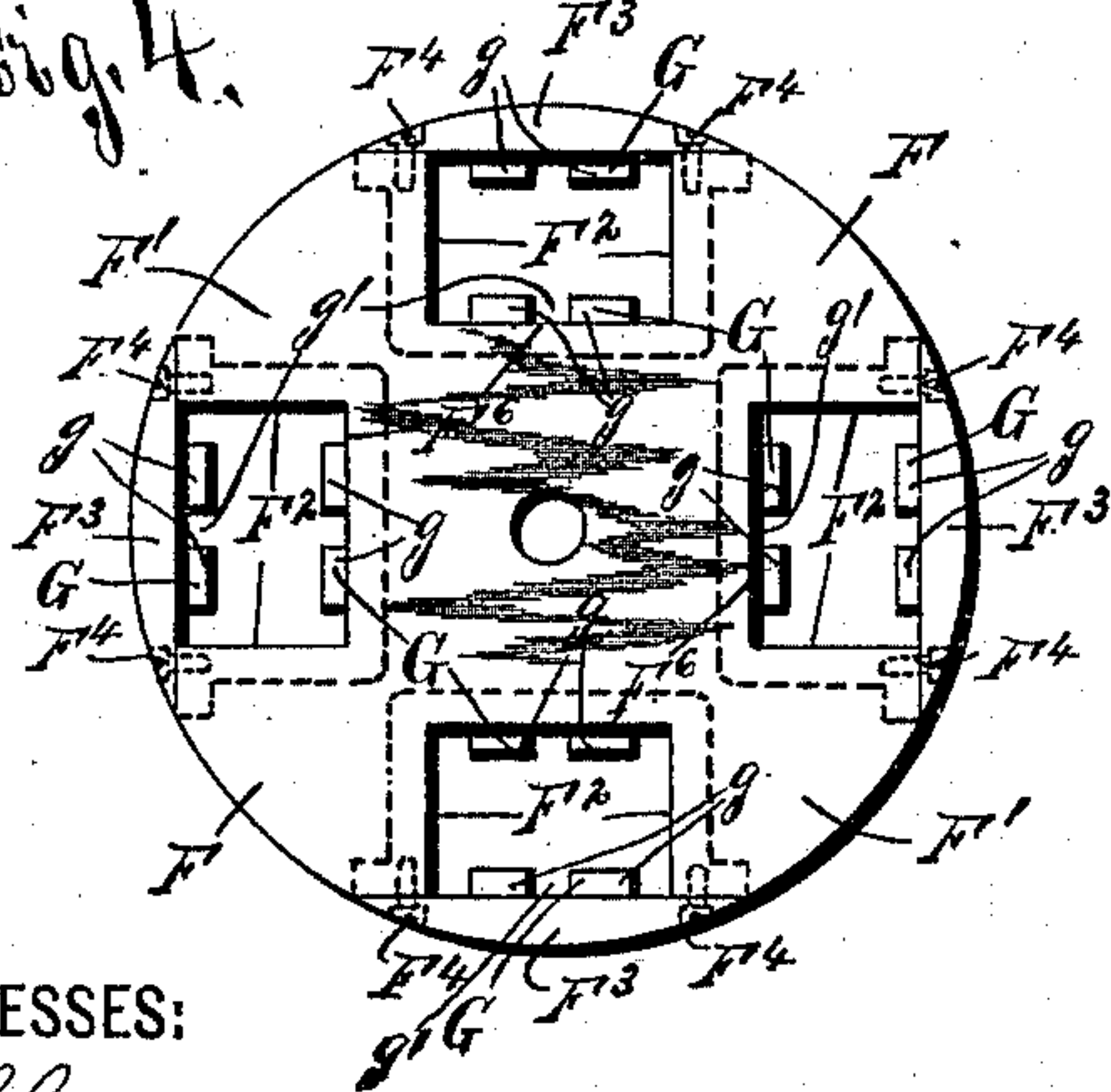
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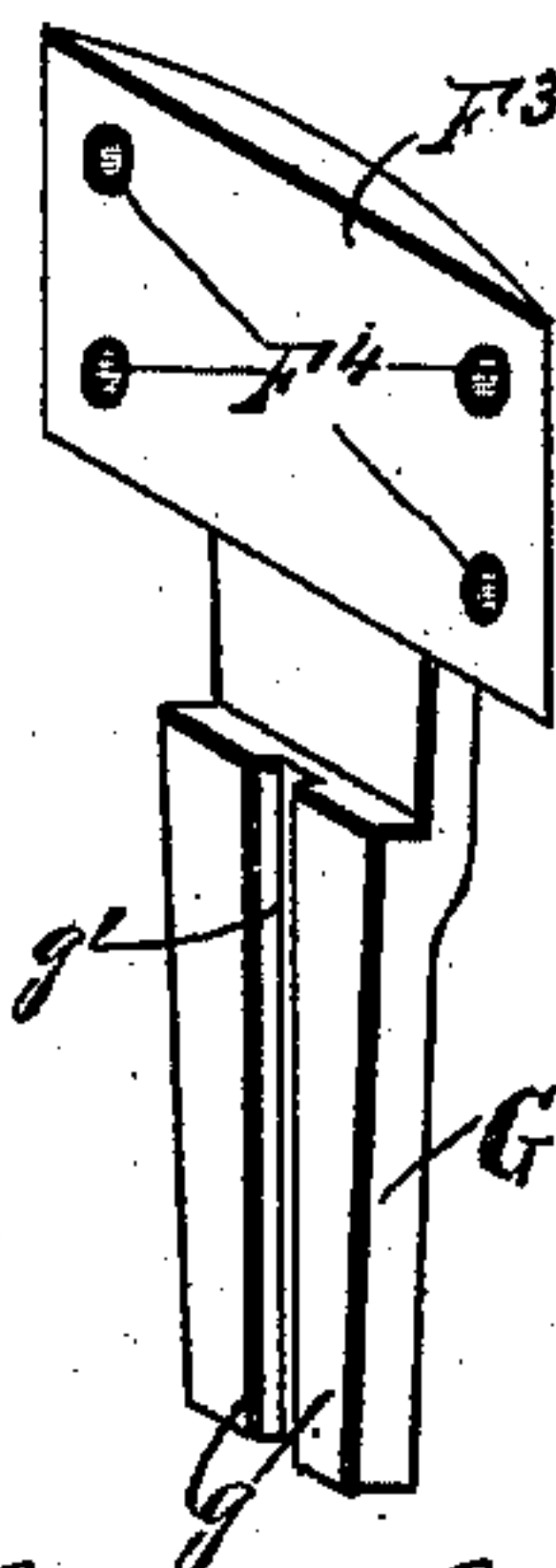
*Fig. 2.*



*Fig. 4.*



*Fig. 11.*



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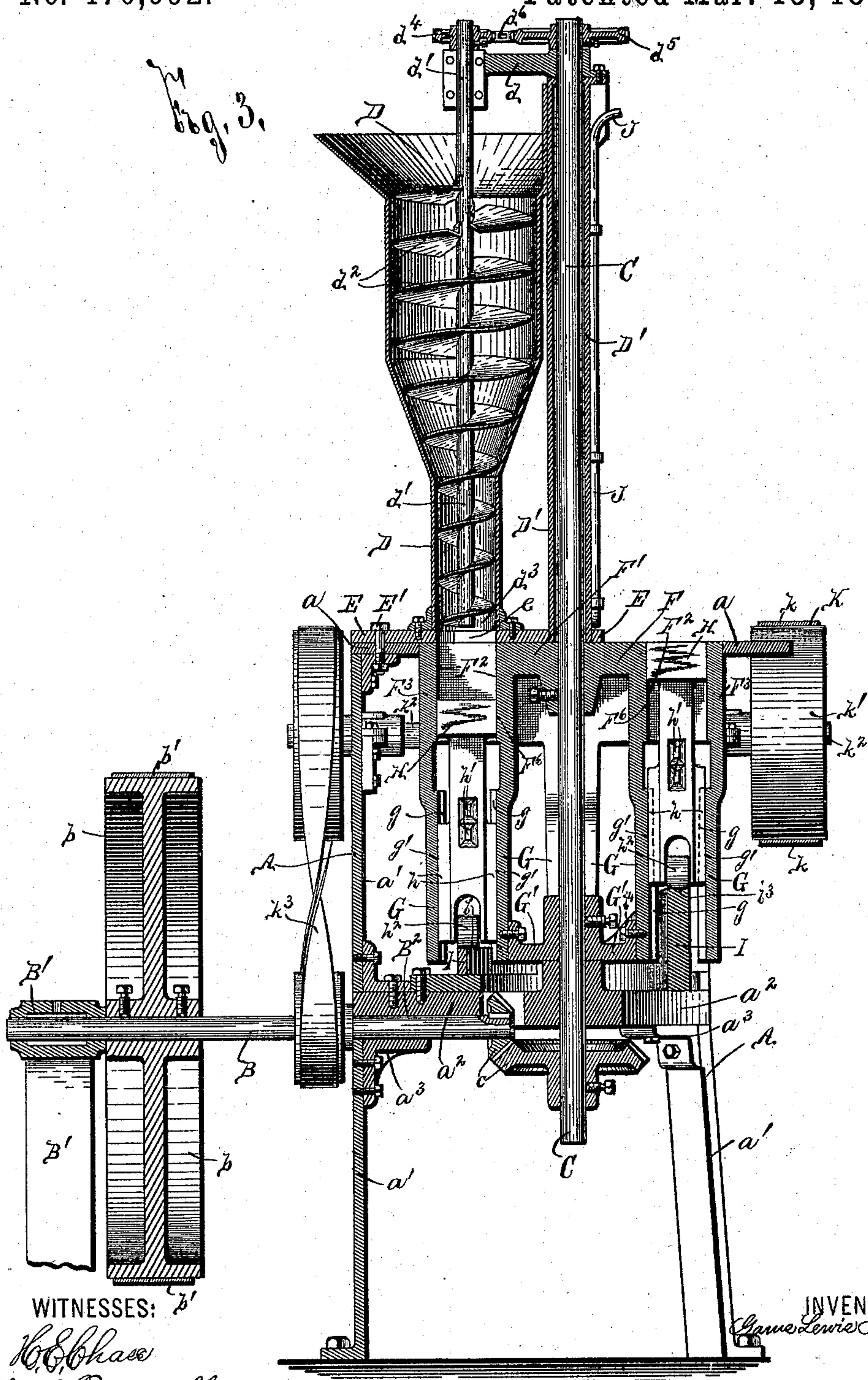
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*Fig. 3.*



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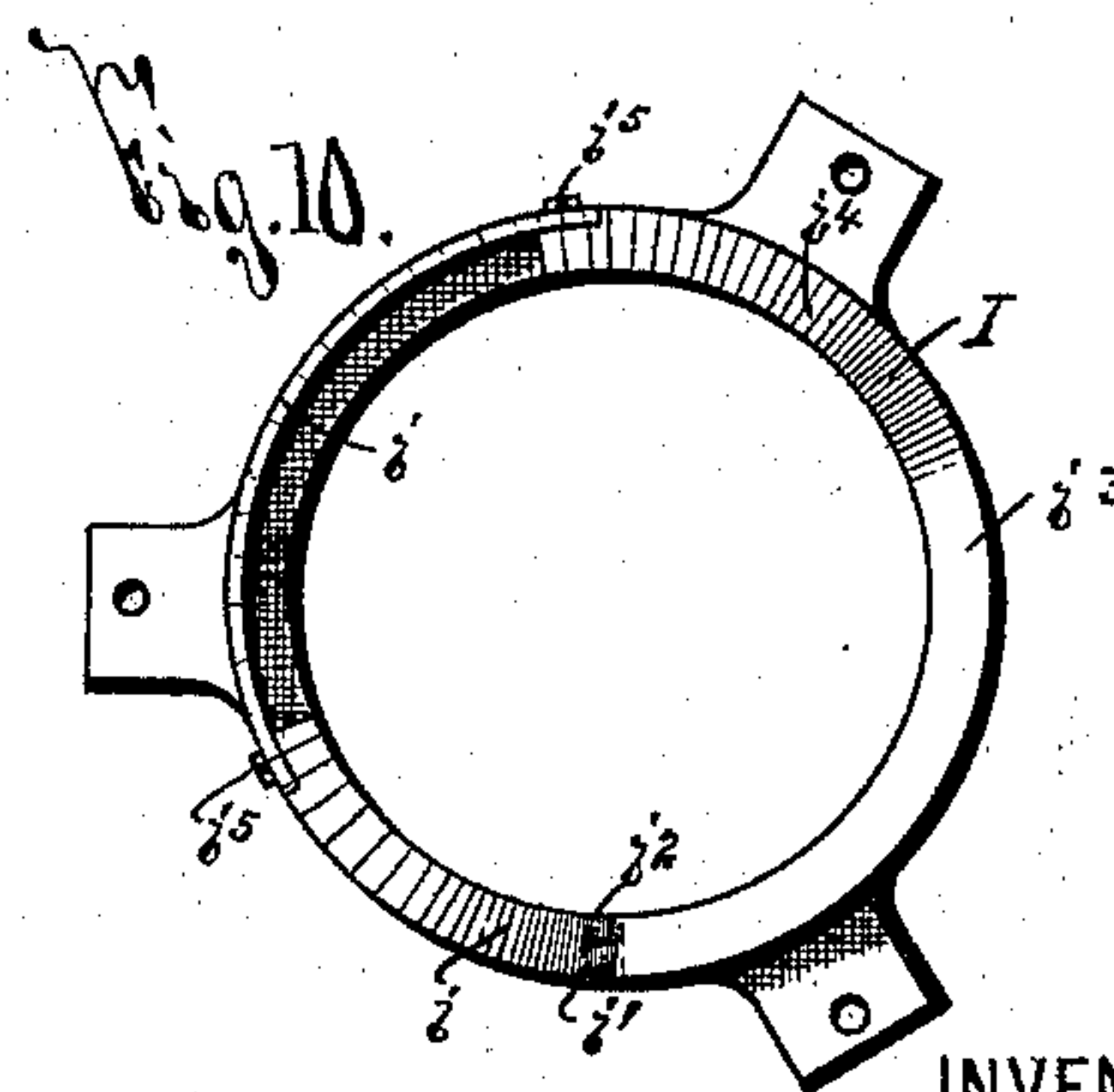
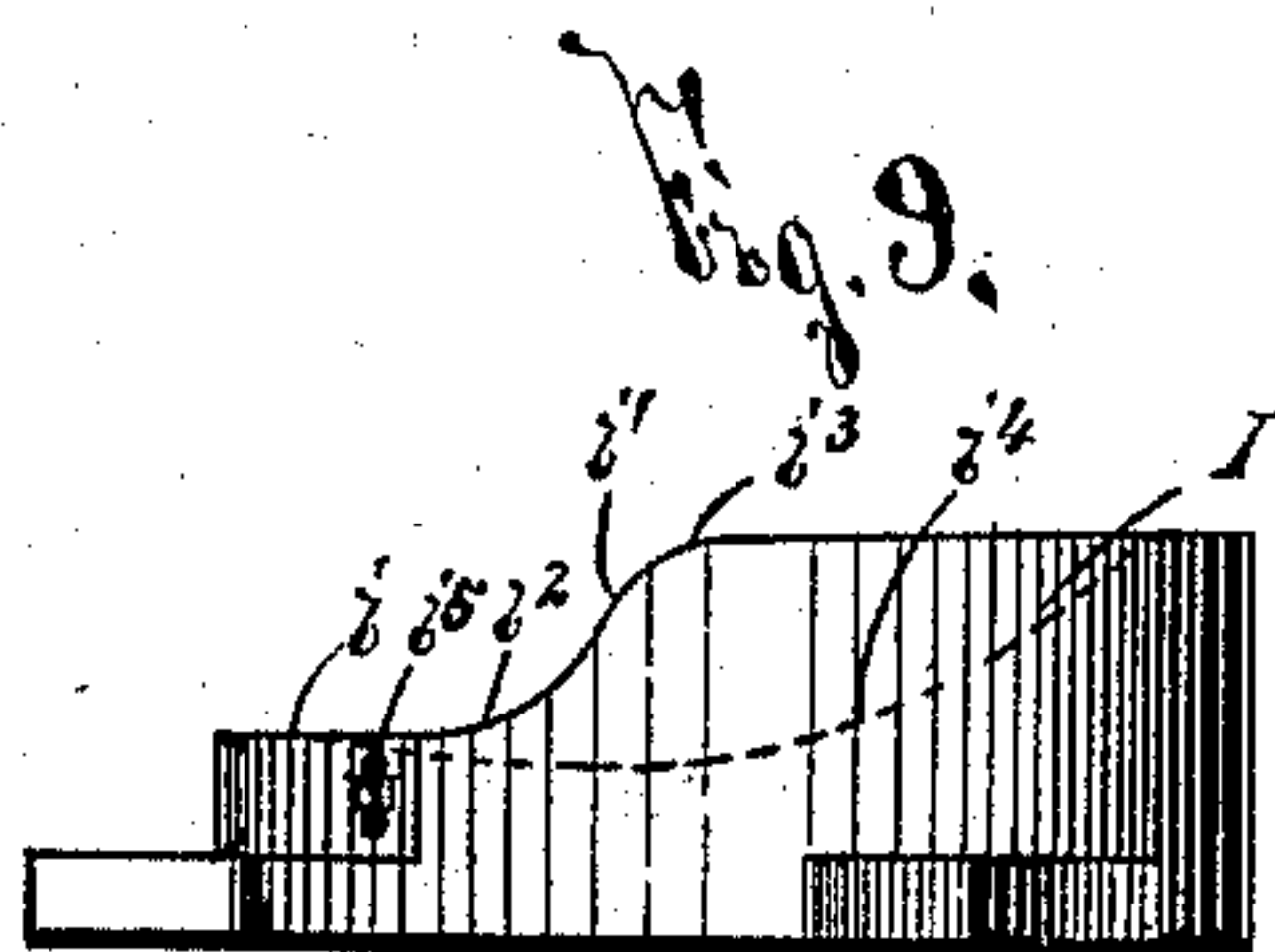
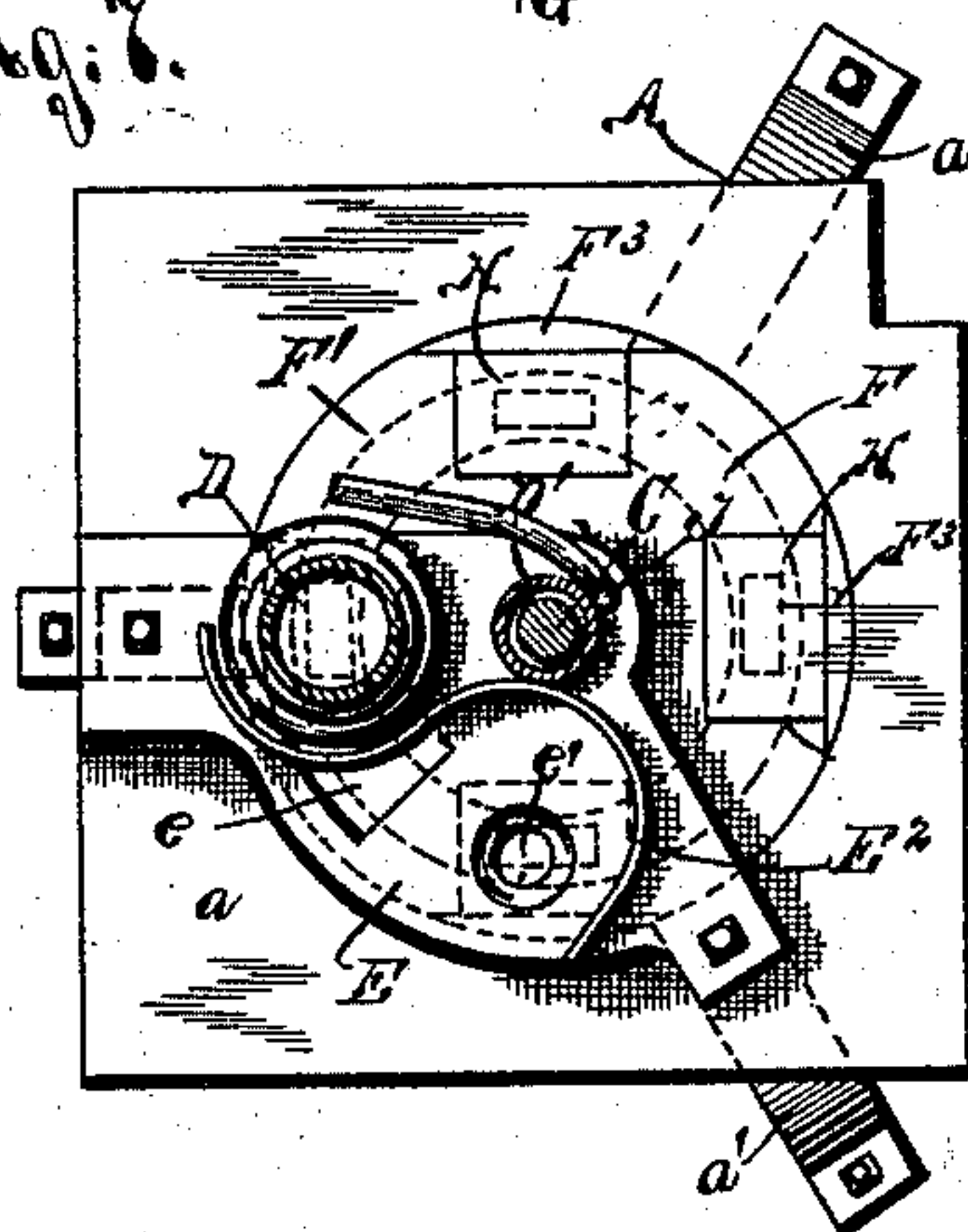
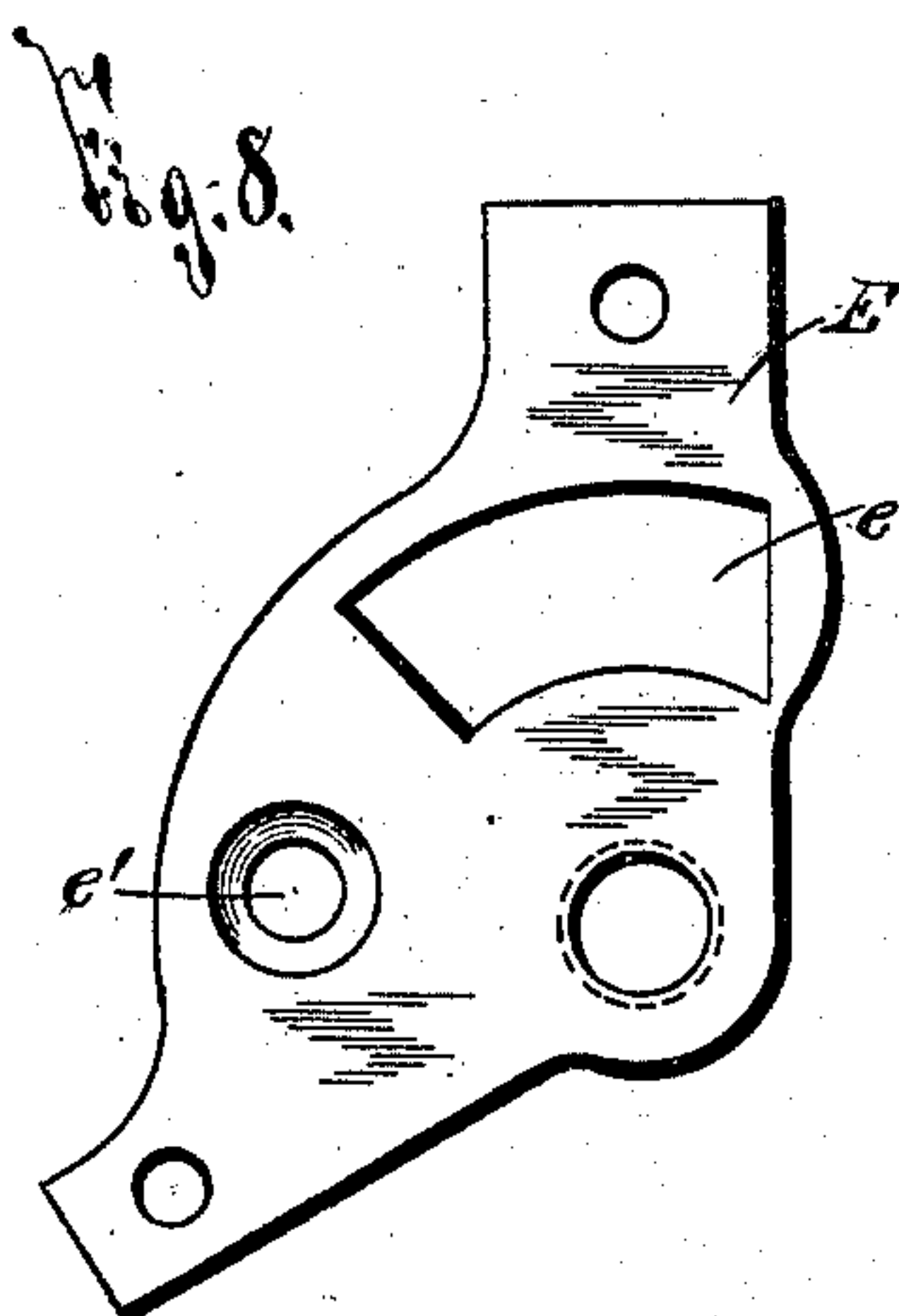
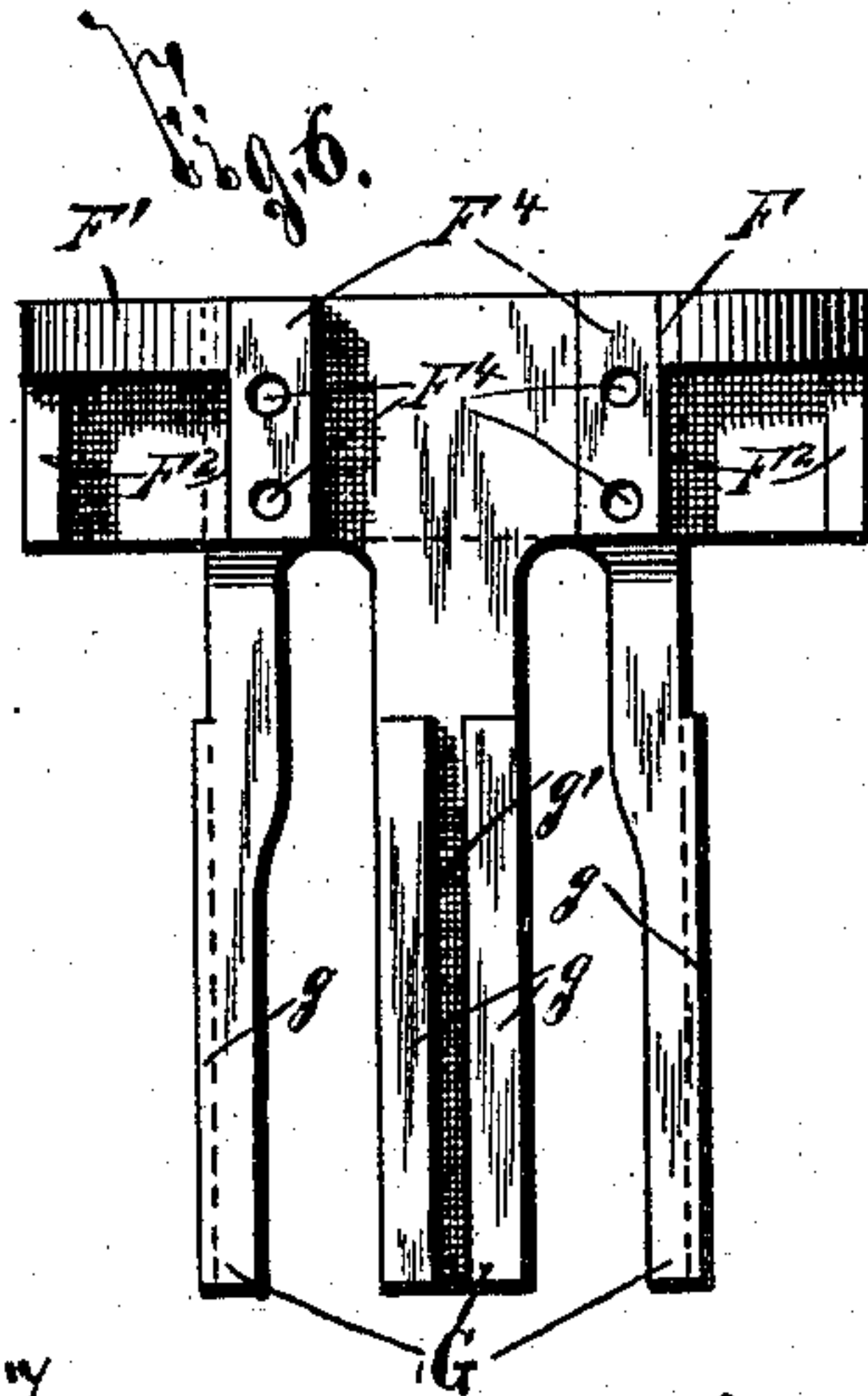
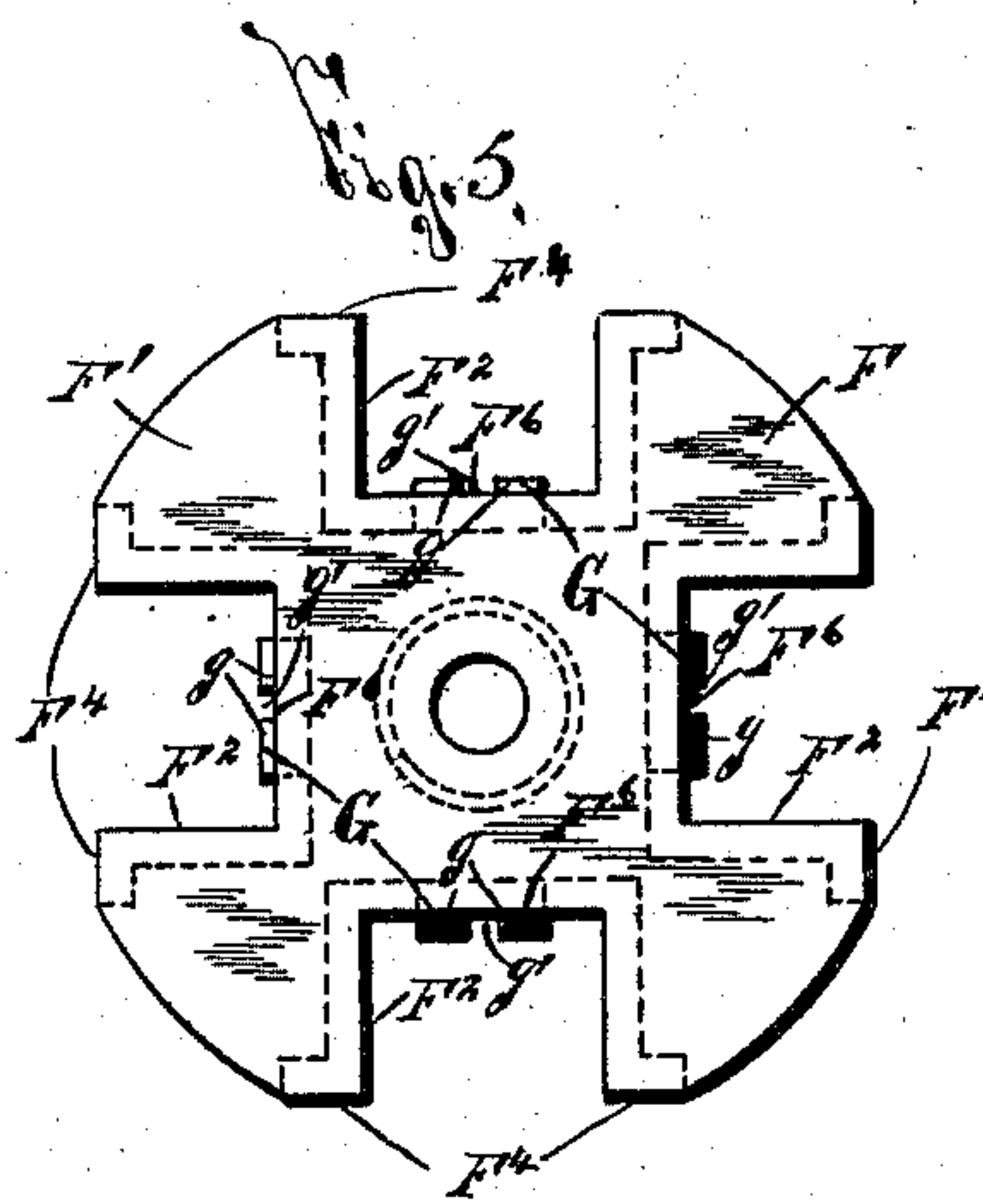
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WITNESSES:

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# UNITED STATES PATENT OFFICE.

GAIUS LEWIS MERRELL, OF SYRACUSE, NEW YORK.

## MINCE-MEAT MACHINE.

SPECIFICATION forming part of Letters Patent No. 470,692, dated March 15, 1892.

Application filed May 18, 1891. Serial No. 393,068. (No model.)

*To all whom it may concern:*

Be it known that I, GAIUS LEWIS MERRELL, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Mince-Meat Machines, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to improvements in mince-meat machines, and has for its object the production of a simple and effective device whereby the mince-meat previously prepared is formed into blocks of equal size and weight, thus obviating the necessity of hand-weighing, and bringing the blocks to a uniform size and of sufficient firmness to be readily handled, as required by the consequent wrapping in paper to which said blocks are subjected in packing; and to this end the invention consists, essentially, in a chamber for containing the prepared mince-meat, a revoluble support having a series of chambers movable beneath the former chamber for receiving the meat, plungers movably mounted in said chambers for pressing and discharging the blocks of meat, and an exit-opening from the latter chambers for permitting outlet of the excess of material. The invention furthermore consists in a carrier or endless belt movable in proximity to the point where the blocks are discharged for permitting their ready removal from the machine; and it furthermore consists in the detail construction and arrangement of the parts, all as hereinafter more particularly described, and pointed out in the claims.

In describing this invention reference is had to the accompanying drawings, forming a part of this specification, in which like letters indicate corresponding parts in all the views.

Figures 1 and 2 are respectively side elevation and top plan view of my improved invention. Fig. 3 is a longitudinal vertical sectional view taken on line *x x*, Fig. 2. Fig. 4 is a top plan view of the detached revoluble support which contains the chambers for forming the mince-meat into blocks. Figs. 5 and 6 are respectively top plan and side elevation of said revoluble support, illustrating the same as with the outer walls of the block-forming chambers removed therefrom. Fig.

7 is a transverse horizontal sectional view on line *y y*, Fig. 3. Fig. 8 is a top plan view of the plate beneath which the forming-chambers revolve. Figs. 9 and 10 are respectively side elevation and top plan view of the cam for reciprocating the plungers, and Fig. 11 is a detail perspective view.

It is well known that at present a commercial mince-meat is placed upon the market in a substantially dry condition, being packed in small boxes containing a uniform amount, usually one pound. Heretofore the mince-meat after being brought to the desired condition for packing and when quite moist has been weighed by hand to insure uniformity and protect both the manufacturer and buyer and has afterward been formed by hand into a block and wrapped in paper before being placed in an incasing box, in which the mince-meat remains until used. This handling of each separate package consumes a great amount of time, and even when the operator is extremely careful such is the speed at which he must work that the blocks vary considerably in size and greatly in form.

My invention is designed to form the previously-prepared mince-meat into blocks of a uniform size and weight without the necessity of hand-labor, except the mere wrapping of the blocks, which, owing to their consistency after passage through the machine, are readily and quickly handled, thus reducing the cost of manufacture very materially and enhancing the uniformity, appearance, and value of the article produced.

A represents the frame of the machine, which is of desirable form, size, and construction, being here illustrated as composed of the top plate *a*, standards *a'*, and bottom plate *a''*, supported at the central part of said standards by brackets *a'''*.

B represents the motor-shaft, having one extremity journaled in the bracket *B'* and the other in a bearing *B''*, formed on the frame of the machine. Upon the shaft *B* is a pulley *b*, which is driven by any suitable power-transmitting mechanism, as a belt *b'*, and at the opposite extremity of the shaft *B* is suitable gearing *c*, which transmits motion to a vertical shaft *C*, journaled in the frame *A* and adapted to transmit motion to the conveyer



for feeding the mince-meat to the forming-chambers and designed to revolve the support for said conveyers, as presently described.

The mince-meat when prepared for the operation of my machine is filled into a suitable chamber D, whence it is continually fed to the forming-chambers, it being evident that as the supply is exhausted in the chamber D it is constantly replenished. Beneath the chamber D is a plate E, secured to the frame A at E', and beneath the plate E is the revoluble support F, which contains the forming-chambers F<sup>2</sup> and is rigidly secured to the shaft C. As best illustrated in Figs. 1 and 3, the chamber D is enlarged in area at its upper extremity to permit ready inlet of the material and is supported upon a sleeve D', encircling the upper extremity of the shaft C and mounted upon the plate E. Extending laterally from the sleeve D' is an arm d, and journaled therein is a vertical shaft d', the lower end of which revolves within the chamber D and is provided with a spiral conveyer d<sup>2</sup> of a shape similar to that of the interior of the chamber D for continually forcing the mince-meat into the chambers F<sup>2</sup> through the exit-opening d<sup>3</sup> of the chamber D and the openings e through the plate E. It will be noted that the opening e (best seen at Fig. 8) in the plate E is of greater length than the corresponding cross-sectional length of the chambers F<sup>2</sup>, whereby when the chamber which has just been filled is being moved beneath said plate out of registration with the opening the succeeding chamber F<sup>2</sup> is in registration with the opposite end of said opening for rendering the passage of the mince-meat to said chambers continuous.

Motion is transmitted to the conveyer-shaft d' by means of sprocket-wheels d<sup>4</sup> and d<sup>5</sup>, mounted upon the respective shafts d' and C and connected by a sprocket chain or belt d<sup>6</sup>.

As illustrated, the support F consists of an upper plate F', having a series of guideways or chambers F<sup>2</sup>, in which the mince-meat is compressed by the plungers H, movable in said guideways or chambers. As shown at Figs. 1 and 4, the outer wall F<sup>3</sup> (best seen at Fig. 11) of the guideways or chambers F<sup>2</sup> is removably secured at F<sup>4</sup> to the remainder of the support F, and at Figs. 5 and 6 the detached support F is shown with all of said outer walls F<sup>3</sup> removed for the purpose of further illustrating the construction of said support.

G represents vertical arms depending from the inner and outer walls F<sup>6</sup> and F<sup>3</sup> of the chambers F<sup>2</sup>, the lower extremity of the inner arms G being secured to a plate G', carried by the vertical shaft C. The upper extremities of the adjacent faces of the arms G are disposed in the same plane as the corresponding faces of the inner and outer walls F<sup>6</sup> and F<sup>3</sup> of the chambers F<sup>2</sup>, and the lower ends of said faces of the arms G are provided with ribs g, which project toward each other from said arms and form guides g' for

the plunger H. The plunger H is designed to compress the mince-meat within the chambers F<sup>2</sup> into blocks of the required size and to discharge said blocks from said chambers. The upper extremity of this plunger closely fits the guideways or chambers F<sup>2</sup> and is movably mounted therein, and the other extremity extends downwardly between the outer and inner arms G, is formed with ribs h, movable in the guideways g' of said arms G, and is cut away at h' for the purpose of lightening the plunger. The guide for the plunger is formed, as described, by ribs g, projecting beyond the plane of the superimposed wall of the chamber F<sup>2</sup>, and said chamber is formed with a removable wall having like projecting ribs at its lower extremity in order that the frame composing said chamber and its removable wall may be cast to the desired form and the guides g' then formed by an ordinary planer, thus reducing the cost of these parts to a minimum. At the lower extremity of the plunger is an anti-friction roller h<sup>2</sup>, which bears upon the top edge of a cam I, mounted upon the table a<sup>2</sup> and adapted to reciprocate the plunger.

As best seen at Figs. 1 and 3, the depression i of the cam I is directly beneath the exit d<sup>3</sup> of the chamber D and the opening e of the plate E, so that when the chamber F<sup>2</sup> is in alignment with said exit d<sup>3</sup> the material is free to feed into the chamber until by the revolution of the support F the table E forms a cut-off for the chamber F<sup>2</sup>.

In order to produce a well-formed block of the mince-meat and bring the successive blocks to the same weight, I have discovered that it is absolutely necessary to open the chamber a sufficient amount to receive such a quantity of the material which, if solid or firm, is in excess of that required and to provide an exit-opening from said chamber for permitting the outlet of the excess of material. As preferably constructed, this exit e' formed in the plate E is of considerable less area than the inlet e to the chamber F<sup>2</sup> and is in advance of said inlet, so that as soon as the plunger H is raised by the portion i<sup>2</sup> of the cam-tooth i' the chamber is aligned with the exit e' and the excess of material immediately escapes to the top of the plate E, being prevented from spreading by an upright flange E<sup>2</sup> upon said plate. After the chamber has passed this exit the plunger still has a slight movement, in order to further compress and shape the block after the excess of material has been expelled, and after such operation the chamber F<sup>2</sup> passes from beneath the plate E, and the portion i<sup>3</sup> of the cam elevates the plunger H a sufficient distance to expel the block of mince-meat from the chamber F<sup>2</sup>, whereupon it is readily engaged by the attendant, after which the lower end of the plunger registers with a cut-out i<sup>4</sup> in the cam and assumes its lower position to permit inlet of the mince-meat upon registration of the chamber F<sup>2</sup> with the exit d<sup>3</sup>. The



lowest edge or depression *i* of the cam I is preferably formed separable from the remainder of said cam and adjustably secured thereto by bolts *i*<sup>5</sup> for varying the amount of material admitted to the chamber and the consequent consistency of the block.

Upon practical operation I have discovered that there is more or less liability for the mince-meat to adhere to the working parts—as the walls of the chamber and the top of the plunger—and prevent ready disengagement after the block is formed to the desired size. Consequently I provide the pipe J, having one extremity connected to any suitable water source and the other discharging slowly upon the top face of the revoluble support F and upon the top face of the plungers H, being thereby carried within the chambers F<sup>2</sup>. The flow of the water is so regulated as to afford the desired amount of moisture and entirely obviates the difficulty referred to.

In order to withdraw the blocks from the machine, I provide a carrier K, which may be of any desirable form, size, and construction, preferably consisting of a belt *k*, passed over a pulley *k*<sup>1</sup>, which is mounted on the shaft *k*<sup>2</sup>, driven from the shaft B by a belt *k*<sup>3</sup>. The top face of the belt *k* is slightly elevated above the table *a*, and is arranged in close proximity to the support F, in order that the operator may readily remove the blocks to the belt, whence they will be fed onward to any suitable table, and may then be quickly wrapped in the usual wrapping-paper or packed in any other desirable manner.

The operation of my invention will be readily perceived from the foregoing description and upon reference to the drawings, and it is evident that the blocks of mince-meat are all brought to a uniform size and weight, that they are rendered extremely firm, are readily wrapped and packed away, and handled with great ease and convenience, thus reducing the cost of manufacture, simplifying the production of commercial mince-meat, and adding to the appearance of the blocks. It is evident, however, that considerable change may be made in the detail construction and arrangement of the parts of my invention without departing from the spirit thereof.

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

1. In a mince-meat machine, the combination of a movable chamber for receiving the mince-meat, a plate above the chamber for forming the top wall thereof, and a plunger mounted in said chamber and movable toward said plate for compressing the mince-meat between the plate and plunger, substantially as and for the purpose set forth.

2. In a mince-meat machine, the combination of a movable frame having the chamber for receiving the mince-meat, a plate above the chamber for forming the top wall thereof, a plunger having one extremity mounted in

said chamber and movable toward the plate for compressing the mince-meat between the plate and plunger, projecting ribs on the plunger, and guides on said frame for the plunger-ribs, substantially as and for the purpose described.

3. In a mince-meat machine, the combination of a chamber for receiving the mince-meat, a second chamber movable beneath the former chamber for receiving the mince-meat from the former chamber, a plate above the latter chamber for forming the top wall thereof, and a plunger mounted in said chamber and movable toward said plate for compressing the mince-meat between the plate and plunger, substantially as and for the purpose set forth.

4. In a mince-meat machine, the combination of a movable frame having a series of chambers for receiving the mince-meat, a plate above said chambers adapted to form the top wall thereof and arranged with one edge above the frame, whereby the chambers pass from beneath said plate, and a plunger movable toward said frame for compressing the mince-meat between the plate and frame, said plunger being further movable after the chamber has passed said edge of the plate for discharging the mince-meat from the chamber, substantially as set forth.

5. In a mince-meat machine, the combination of a movable frame having a series of chambers for receiving the mince-meat, a plate mounted above the chambers for forming the top wall thereof and formed with an opening of greater length in one plane than the corresponding cross-sectional length of the chambers, whereby when one chamber is passing beneath the plate from one extremity of said opening the succeeding chamber is registering with the opposite extremity of said opening, and plungers movably mounted in said chambers for compressing the mince-meat between the plate and plungers, substantially as and for the purpose described.

6. In a mince-meat machine, the combination of a chamber adapted to receive the mince-meat and provided with a discharge-opening, a movable frame provided with a series of chambers movable beneath the discharge-opening of the former chamber, a conveyor within the former chamber for forcing the material through said discharge-opening into the latter chambers, a plate mounted above the latter chambers for forming the top wall thereof, and plungers movably mounted in said latter chambers for compressing the mince-meat between the plate and plungers, substantially as and for the purpose specified.

7. In a mince-meat machine, the combination of a movable chamber for receiving an excess of the mince-meat, a plate mounted above the chamber for forming the top wall thereof and provided with an exit-opening for the excess of material, and a plunger movably mounted in said chamber for forcing the



material against said plate and discharging the excess through said exit-opening, substantially as and for the purpose set forth.

8. In a mince-meat machine, the combination of a chamber for receiving the mince-meat, a second chamber of sufficient area when open to receive an excess of the mince-meat and provided with an outlet for discharging said excess, and a plunger movably mounted in the latter chamber for compressing the mince-meat and discharging the excess through said outlet-opening, substantially as specified.

9. In a mince-meat machine, the combination of a movable frame having a chamber for receiving the mince-meat, a plate above the chamber for forming the top wall thereof, a pipe for supplying water to said chamber, and a plunger mounted in said chamber and movable toward said plate for compressing the mince-meat between the plate and plunger, substantially as set forth.

10. In a mince-meat machine, the combination of a plate, a frame movable beneath the plate, provided with chambers for receiving the meat and forming the same into blocks, an exit-opening in the plate for permitting outlet of the excess of material, a plunger movable in the chamber toward the plate for compressing the blocks and discharging them from the chamber, and a cam for raising said plunger, said cam having an incline for slightly raising the plunger after it is aligned with the said exit-opening, substantially as described.

11. In a mince-meat machine, the combination of a plate having a pair of openings, one of less area than the other, a chamber above said plate for receiving the mince-meat and discharging the same through the opening of greater area, a frame beneath the plate, having a chamber for receiving an excess of material from the former chamber, and a plunger for forcing the excess of material through the opening of less area and discharging the compressed mince-meat from the chamber in said plate, substantially as specified.

12. In a mince-meat machine, the combination of a plate having a pair of openings, one of less area than the other, a frame movable beneath the plate and provided with chambers for receiving the meat and forming it into blocks, a conveyer for feeding the meat

through the larger opening in said plate into the movable chambers, a plunger for forcing the excess of material through said opening of less area, and a cam for reciprocating said plunger, substantially as set forth.

13. In a mince-meat machine, the combination of a stationary table, a carrier in proximity to the table, a revolving frame arranged in proximity to the stationary table and formed with a series of chambers for receiving and compressing the mince-meat, a plate above the revolving frame, adapted to become the top wall of said chambers, and plungers mounted in said chambers and movable toward said plate for compressing the mince-meat between the plate and plungers, substantially as described.

14. In a mince-meat machine, the combination of a stationary table, a carrier in proximity to the table, a revolving frame arranged in proximity to the stationary table and formed with a series of chambers for receiving an excess of the mince-meat and compressing the same into blocks of the required size, a plate above the revolving frame, adapted to become the top wall of said chambers and formed with an outlet-opening for the excess of material, plungers mounted in said chambers and movable toward said plate for compressing the mince-meat between the plate and plungers, and a guard on said plate for preventing the escape of the mince-meat therefrom, substantially as and for the purpose set forth.

15. In a mince-meat machine, the combination of a block having a series of guideways, guide-ribs beneath the guideways and projecting beyond and perpendicular to the wall of the guideway above the same, a removable wall adapted to be secured to said guideway, guide-ribs provided in said wall, and plungers movable in said guideways with one extremity guided by said guide-ribs, substantially as and for the purpose specified.

In testimony whereof I have hereunto signed my name, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 14th day of May, 1891.

GAIUS LEWIS MERRELL.

Witnesses:

CLARK H. NORTON,  
E. A. WEISBURG.