

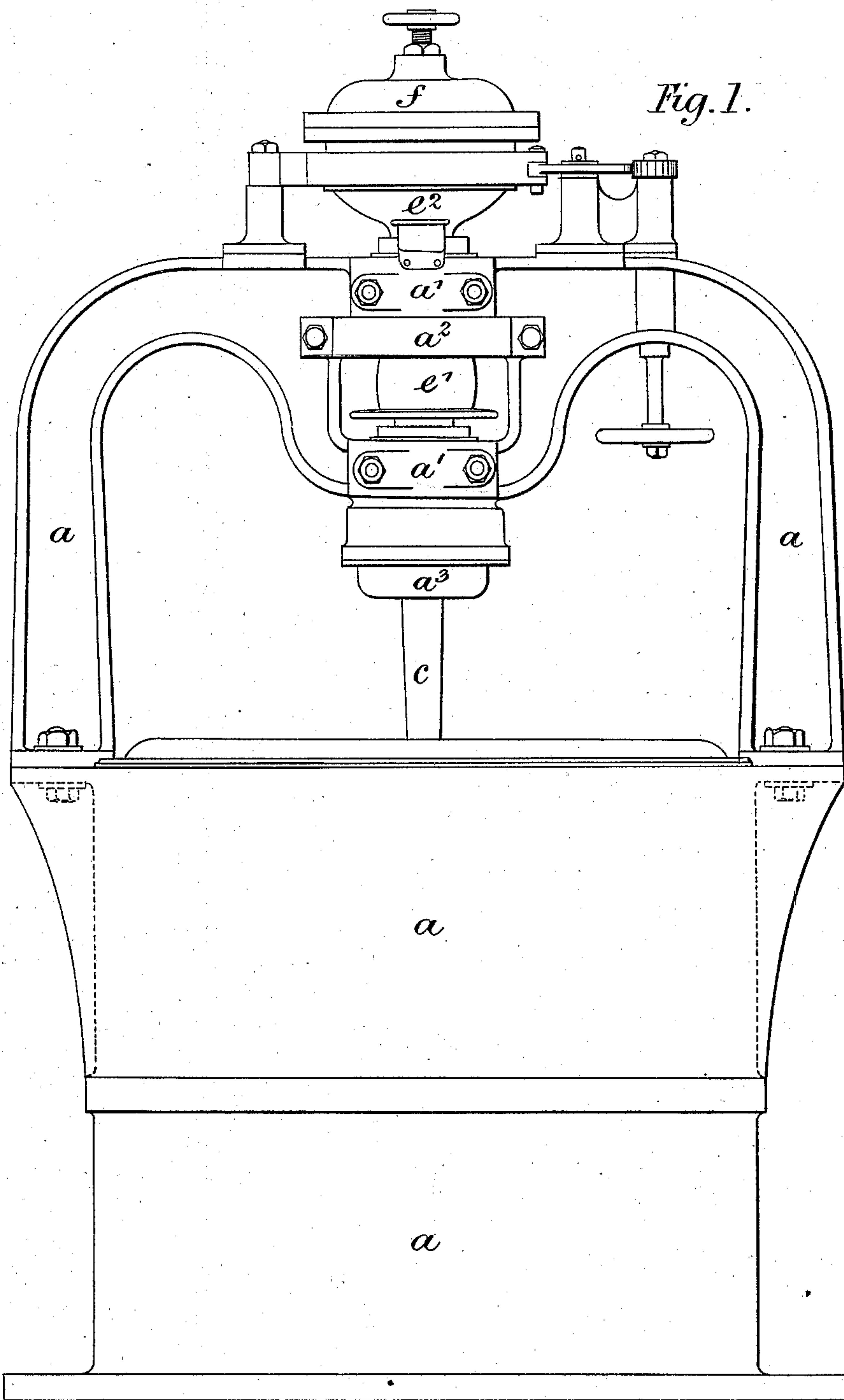
(No Model.)

3 Sheets—Sheet 1.

W. SHEARS.
CENTRIFUGAL MACHINE.

No. 255,685.

Patented Mar. 28, 1882.



Witnesses

Wm. A. Skinkle
Wm. J. Panner

By his Attorneys

Inventor.

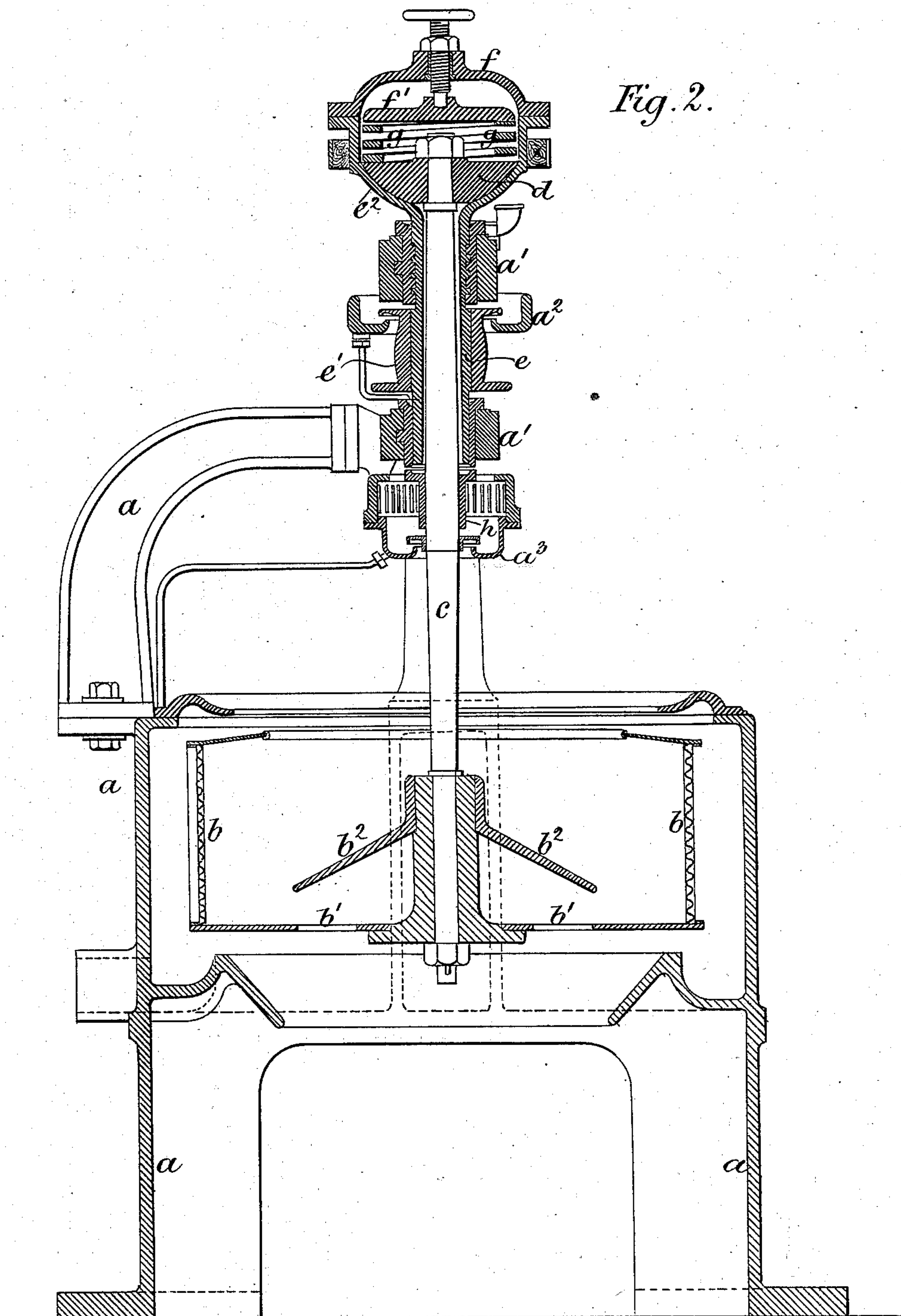
William Shears

Baldwin, Appleton & Peyton.

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CENTRIFUGAL MACHINE.

No. 255,685.

Patented Mar. 28, 1882.



Witnesses.

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(No Model.)

3 Sheets—Sheet 3.

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Fig. 3.

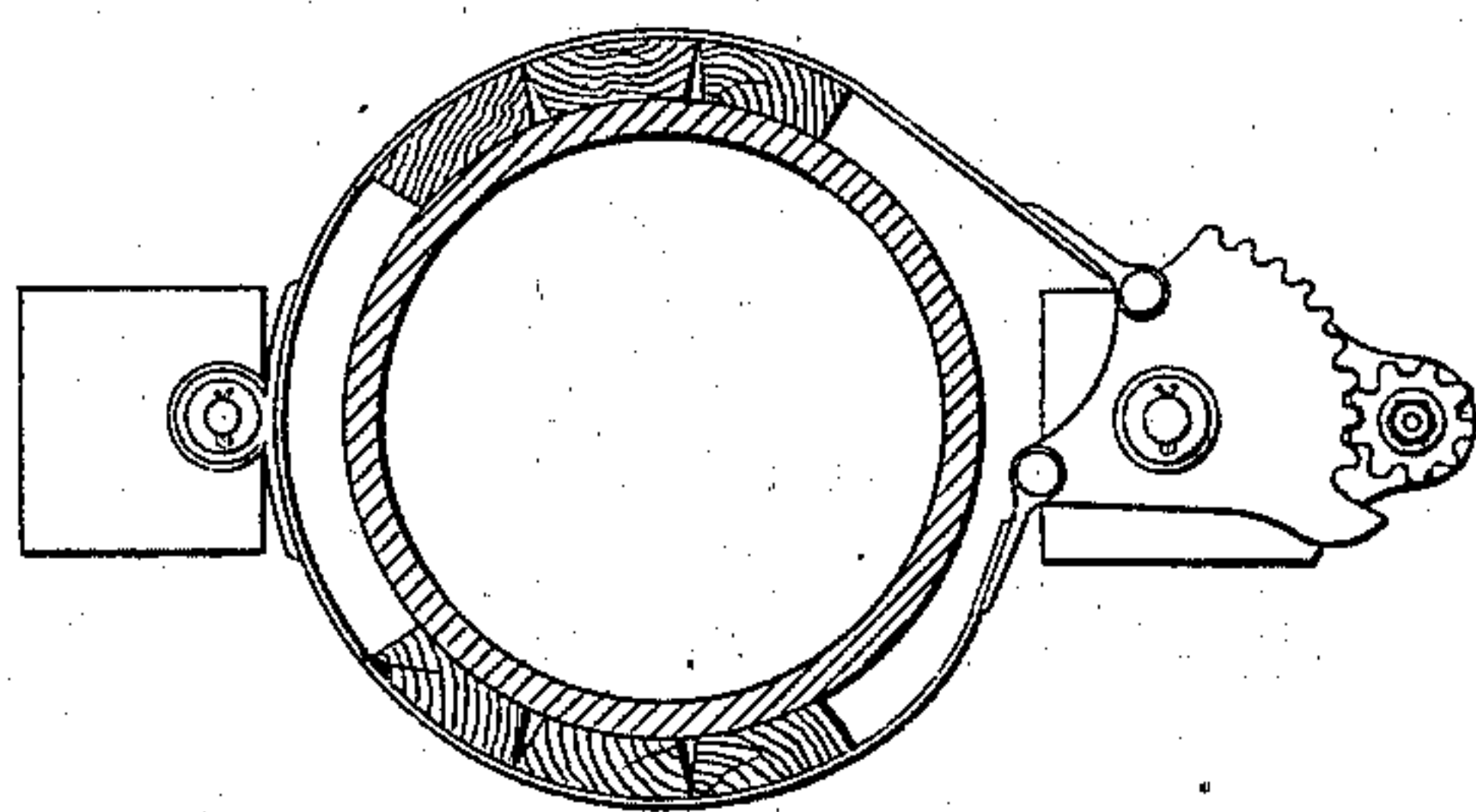


Fig. 6.

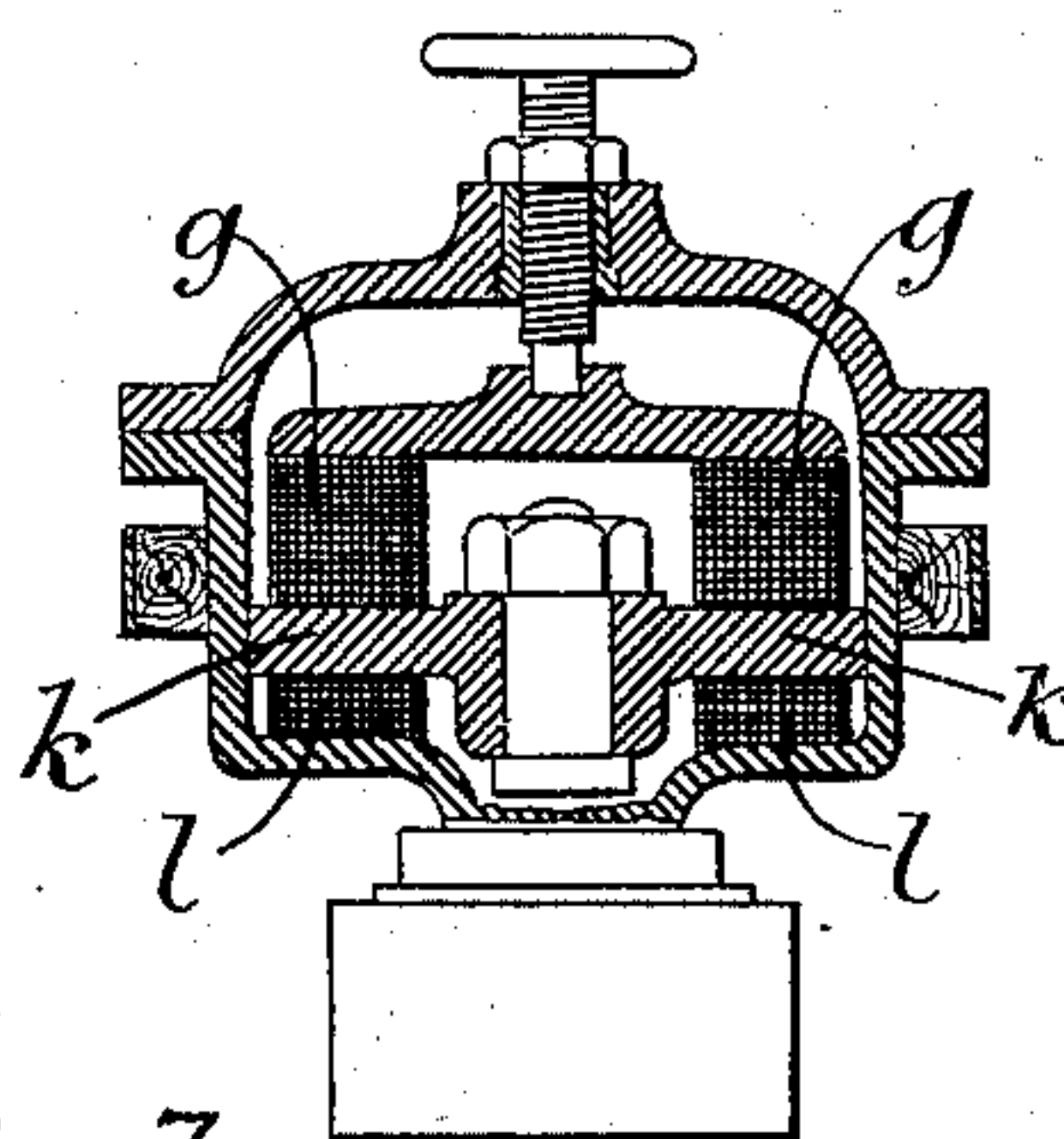


Fig. 4.

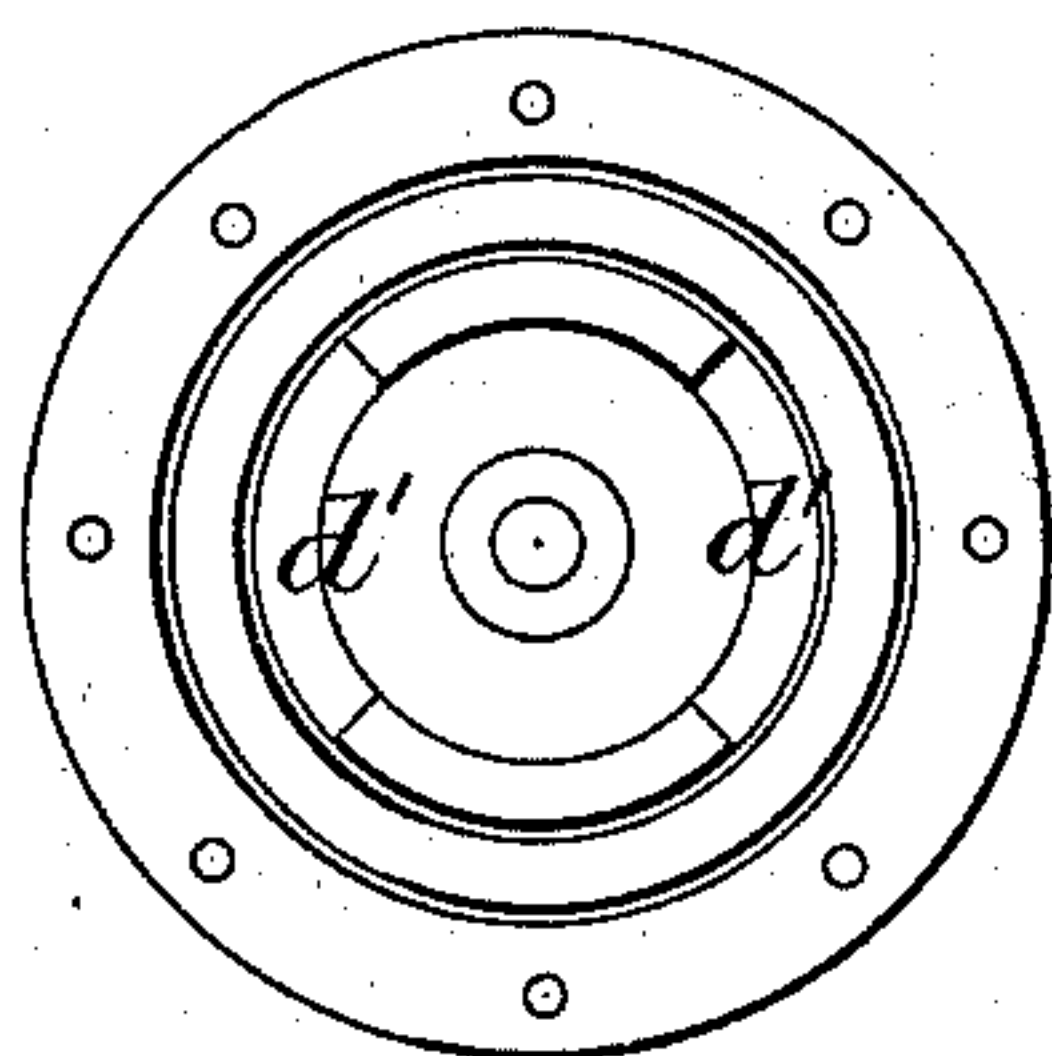


Fig. 7.

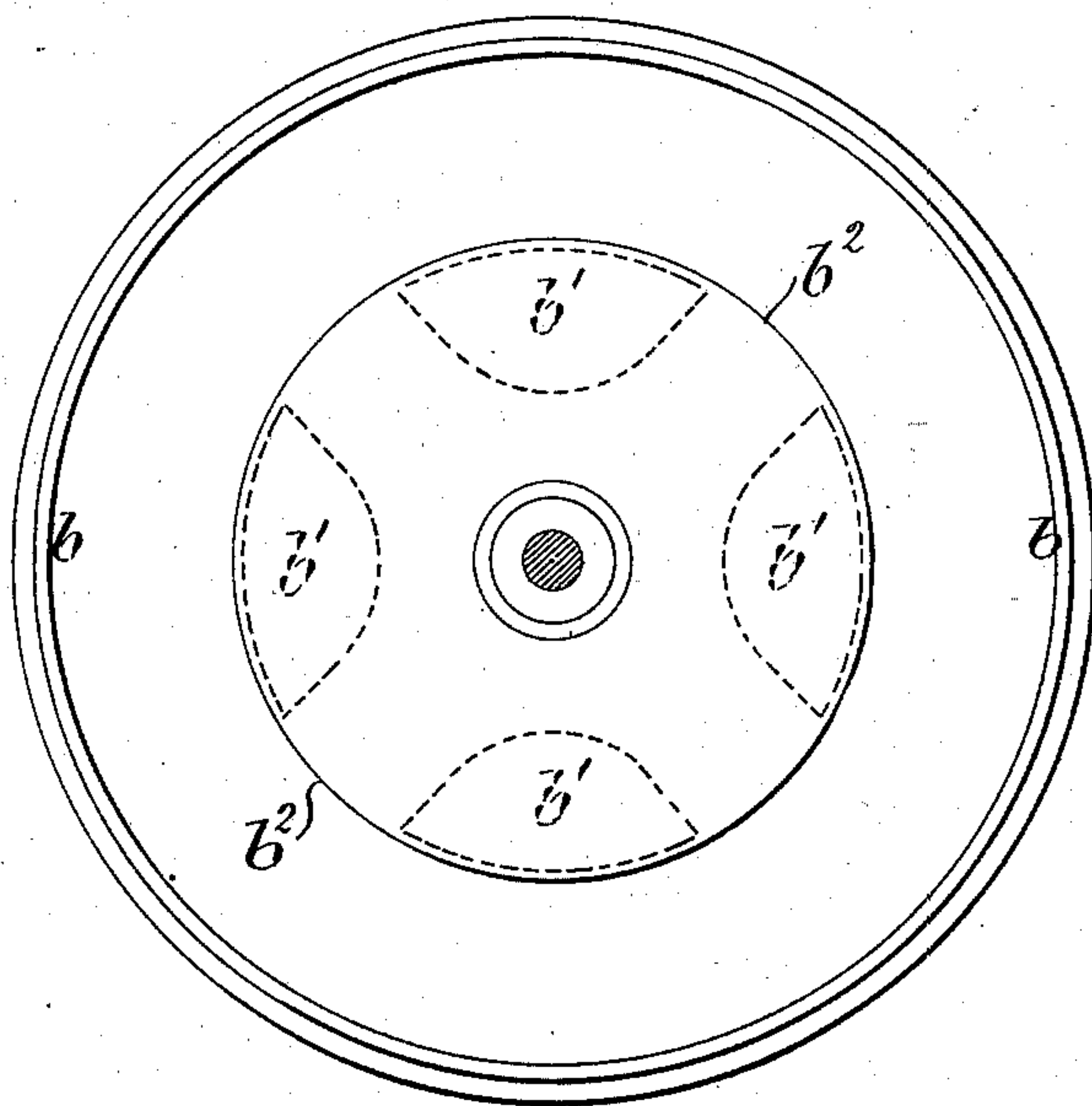
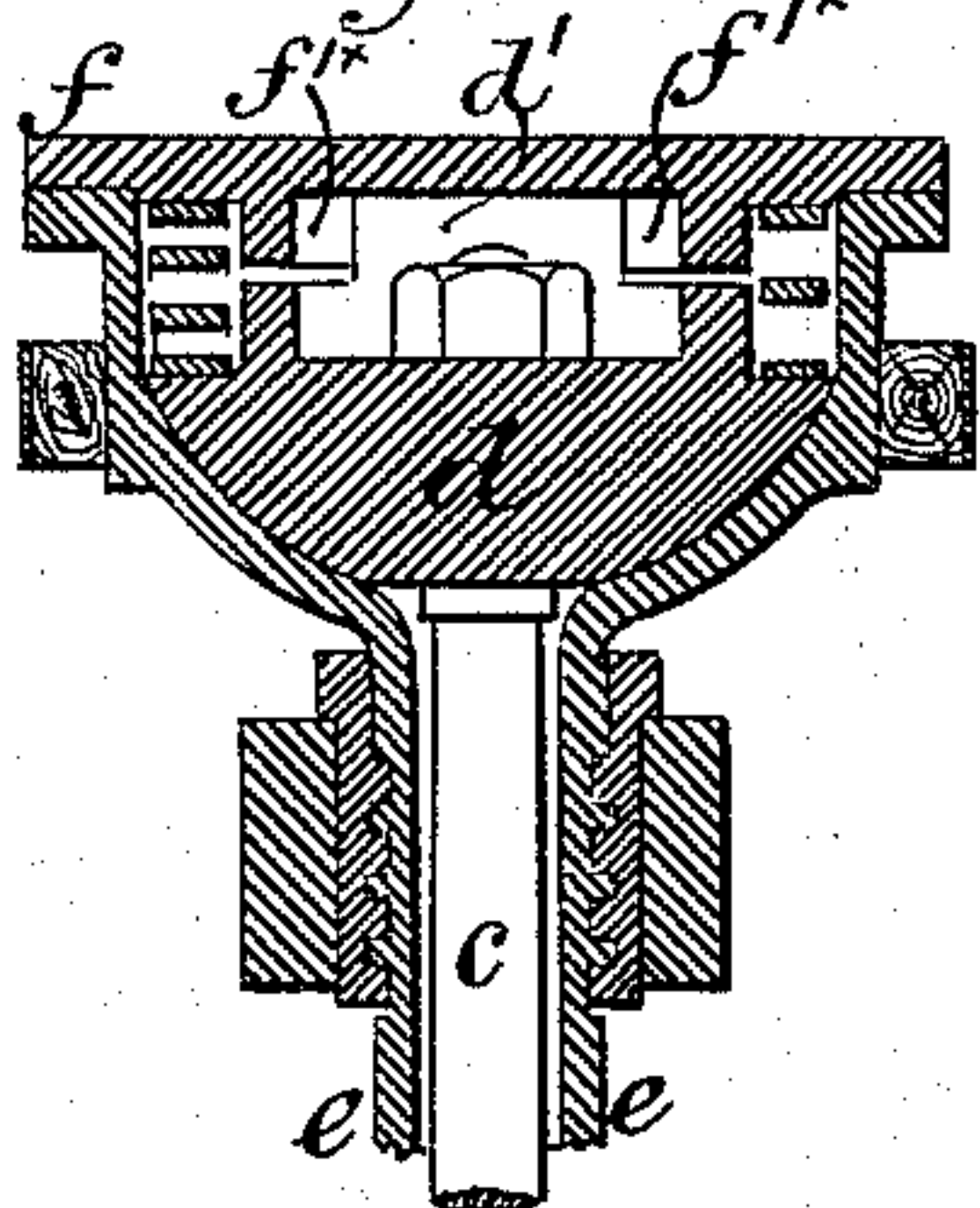


Fig. 5.



Witnesses.

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UNITED STATES PATENT OFFICE.

WILLIAM SHEARS, OF BANKSIDE, COUNTY OF SURREY, ENGLAND.

CENTRIFUGAL MACHINE.

SPECIFICATION forming part of Letters Patent No. 255,685, dated March 28, 1882.

Application filed January 3, 1882. (No model) Patented in England June 13, 1881.

To all whom it may concern:

Be it known that I, WILLIAM SHEARS, a subject of the Queen of Great Britain, residing at Bankside, in the county of Surrey, England, have invented certain new and useful Improvements in Centrifugal Machines, (for which I have received Letters Patent in Great Britain No. 2,558, dated 13th June, 1881,) of which the following is a specification.

Heretofore the revolving baskets of centrifugal machines have sometimes been suspended by an axis carried up through the interior of a tubular axis and secured to a hemisphere which rests in a hemispherical cup at the top of the tubular axis, and this tubular axis has been carried in fixed bearings carried by a standard or frame, and has been driven by a belt-pulley and belt.

My invention relates to improvements in machines of this class, and especially pertains to means for checking and limiting the gyrations of the revolving basket when hung in the above manner.

In accordance with my invention, hereinafter particularly pointed out by the claims, I form an enlargement at the top of the hemispherical cup in the hollow axis. Into this I place a coiled metal spring or other elastic substance, and press the spring or elastic substance onto the surface at the top of the hemisphere by means of a cover or other arrangement secured to the hemispherical cup. By this means the axis by which the basket is suspended is by the spring held concentric with the tubular axis; or if, through the basket being loaded unequally, the basket should gyrate and shift the axis from its concentric position, the spring will tend constantly to bring it back to its proper position.

In order to prevent the basket revolving after the outer or tubular axis has been stopped by the application of the brake, I sometimes apply clutching parts upon the hemispherical or segmental block and the cup in which it is contained, so that the one may not be able to revolve without the other. Another means I adopt of limiting the gyrations of the revolving baskets of centrifugal machines is by forming an enlargement at the top of the hollow axis of a cylindrical shape, on the bottom of which I place a coiled spring or other elastic

substance, and a similar spring or elastic substance is placed above a metallic disk-block inserted between them. In the center of this metal disk-block I fix the axis by which the basket is suspended, and a cover or other arrangement is fastened to the cylinder containing the springs and metal disk-block to press them into the cylinder. By this modified means the axis by which the basket is suspended is held concentric with the tubular axis; or if, through the basket being unevenly loaded, it should gyrate and take the axis from its concentric position, the springs or elastic substances on either side of the disk-block on the axis will constantly tend to maintain it in its proper position.

For the purpose of emptying the basket at the end of the operation, I form four or other number of holes in the bottom of the basket around the center. Some distance above them I fix a conical shield upon the central boss of the basket. The material then, as it is shoveled into the basket, cannot fall directly down through the openings, but must first strike the shield, and the basket rotating it is thrown off from the shield to the periphery.

In order that my said invention may be most fully understood and readily carried into effect, I will proceed to describe the drawings hereunto annexed.

In the drawings, Figure 1 is an elevation, and Fig. 2 is a vertical section, of a centrifugal machine constructed according to my invention. The machine here represented is suitable for drying sugar. *a a* is the framing and casing in which the revolving basket *b* is contained. The basket is carried upon a vertical axis, *c*, suspended from the hemispherical or segmental block *d*, to which the axis is fixed. This inner axis, *c*, passes up freely through the tubular axis *e*, which is held in the bearings *a' a'*. *e'* is the pulley on the tubular axis to receive the driving-belt, and *e²* is a cup or enlargement at the upper end of the hollow axis *e*, into which the segmental block *d* is received. *f* is a cover to the cup. It carries an adjustable plate, *f'*, and between this plate and the block *d* the coiled spring *g* is interposed to restrain without suppressing the movements of the block within the cup. The exterior of the cup *e²* is cylindrical, and it re-

ceives the brake which is used in bringing the apparatus to rest.

Fig. 3 is a plan showing clearly the arrangement of the brake apparatus. The lubricating arrangements are also clearly shown by the drawings. The oil supplied to the upper bearing is again collected by a trough, a^2 , upon the frame, and is conveyed by a pipe to the lower bearing. After lubricating this it is again collected by the bowl a^3 on the frame and led away by a pipe. h is a collar upon the axis c . It is supported within the bowl a^3 by a coiled spring. In the bottom of the basket b there are four apertures, $b' b' b' b'$, as seen in the plan Fig. 7, and over them there is a fixed shield, b^2 , which effectually prevents the material reaching the apertures while the basket is revolving, but does not interfere with the emptying of the basket through the apertures when the basket is at rest, and the material can then be cleared out through the apertures and made to descend into a receiver below.

Sometimes, as is indicated in Figs. 4 and 5, I form the upper surface of the spring-controlled segmental block d with clutching parts d' upon it to engage with corresponding clutching parts, f'^x , upon the cover f' , and then the axes c and e are no longer free to revolve independently.

Fig. 6 is a section of the upper part of a machine in which a spring-controlled disk-block, k , takes the place of the segmental block d . It is held between a lower spring-block, l , and the upper spring-block, g , corresponding to the spring g in Fig. 2. The spring-blocks represented in the drawings are of vulcanized india-rubber; but other springs may be employed. Between the disk k and the india-rubber l thin sheet-brass is introduced to prevent risk of the india-rubber being galled by friction upon it. This arrangement, like that of Figs. 1 and 2, affords to the axis c of the basket a freedom which is controlled within due limits by a spring.

Having thus described the nature of my said invention and the manner of performing the same, I would have it understood that I claim—

1. The combination of the framing, the tubular axis supported by and revolving in the bearings of the framing, the basket, the inner axis by which the basket is suspended, the cup or enlargement at the upper end of the tubular axis, and the spring-controlled block secured to the upper end of the inner axis and received by the cup of the tubular axis, substantially as and for the purpose hereinbefore set forth.

2. The combination of the basket, its suspending-axis, the tubular axis, the cup or enlargement of the tubular axis, the block by which the suspending-axis is supported in said cup, and the spring in the cup acting upon said block, substantially as and for the purpose hereinbefore set forth.

3. The combination of the basket, its suspending-axis, the tubular axis, the cup or enlargement of the tubular axis, the block by which the suspending-axis is supported in said cup, and the springs in said cup above and below the supporting-block of the suspending-axis, substantially as and for the purpose hereinbefore set forth.

4. The combination of the basket, its suspending-axis, the driven tubular axis, the cup thereof, the block by which the suspending-axis is supported in said cup, and the clutch-connection between said block and cup, substantially as and for the purpose hereinbefore set forth.

5. The combination of the basket, its suspending-axis, the driven tubular axis, the cup thereof, the cup-cover, the adjustable plate, the block by which the suspending-axis is supported in said cup, and the spring interposed between said plate and block, substantially as and for the purpose hereinbefore set forth.

6. The combination of the basket provided with the apertures in its bottom, the suspending-axis with which the basket revolves, and the shield fixed to the basket-hub and overhanging the apertures, substantially as and for the purpose hereinbefore set forth.

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