No. 827,414. PATENTED JULY 31, 1906.

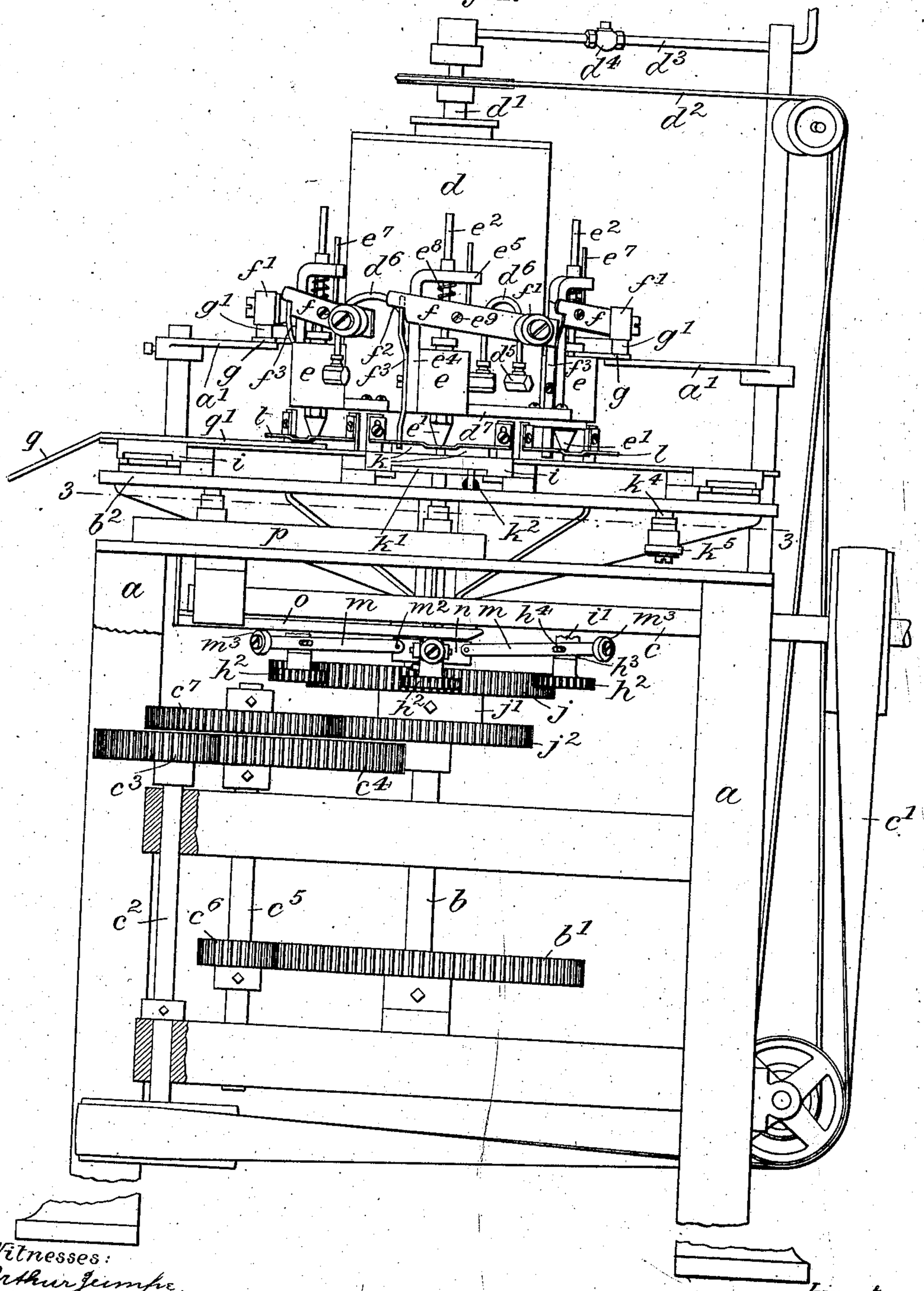
J. BRENZINGER.

MACHINE FOR LINING COVERS FOR CANS AND JARS.

APPLICATION FILED AUG. 4, 1905.

3 SHEETS—SHEET 1.

Fig. 1.



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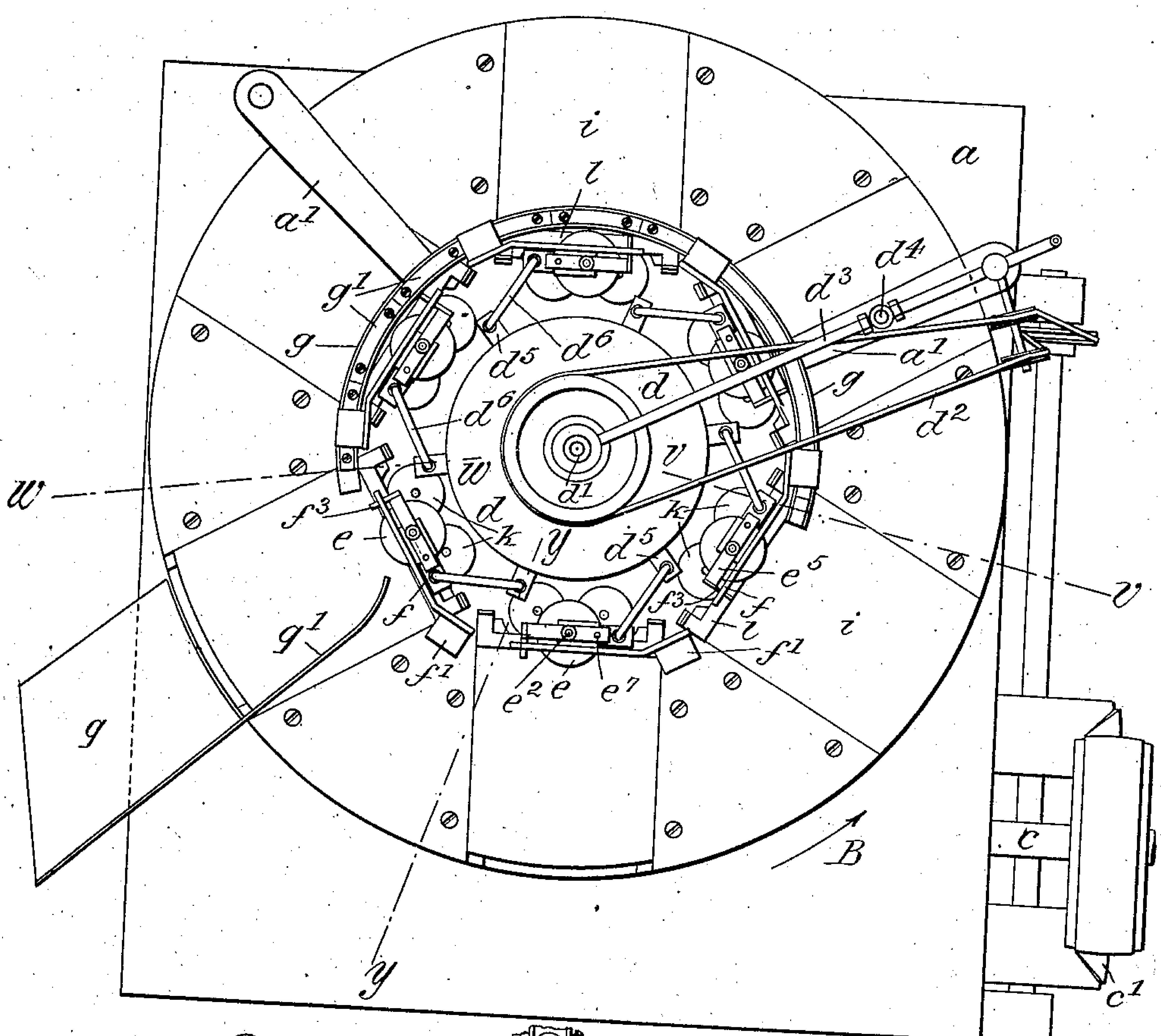
3 SHEETS—SHEET 2.

Fig. 2.



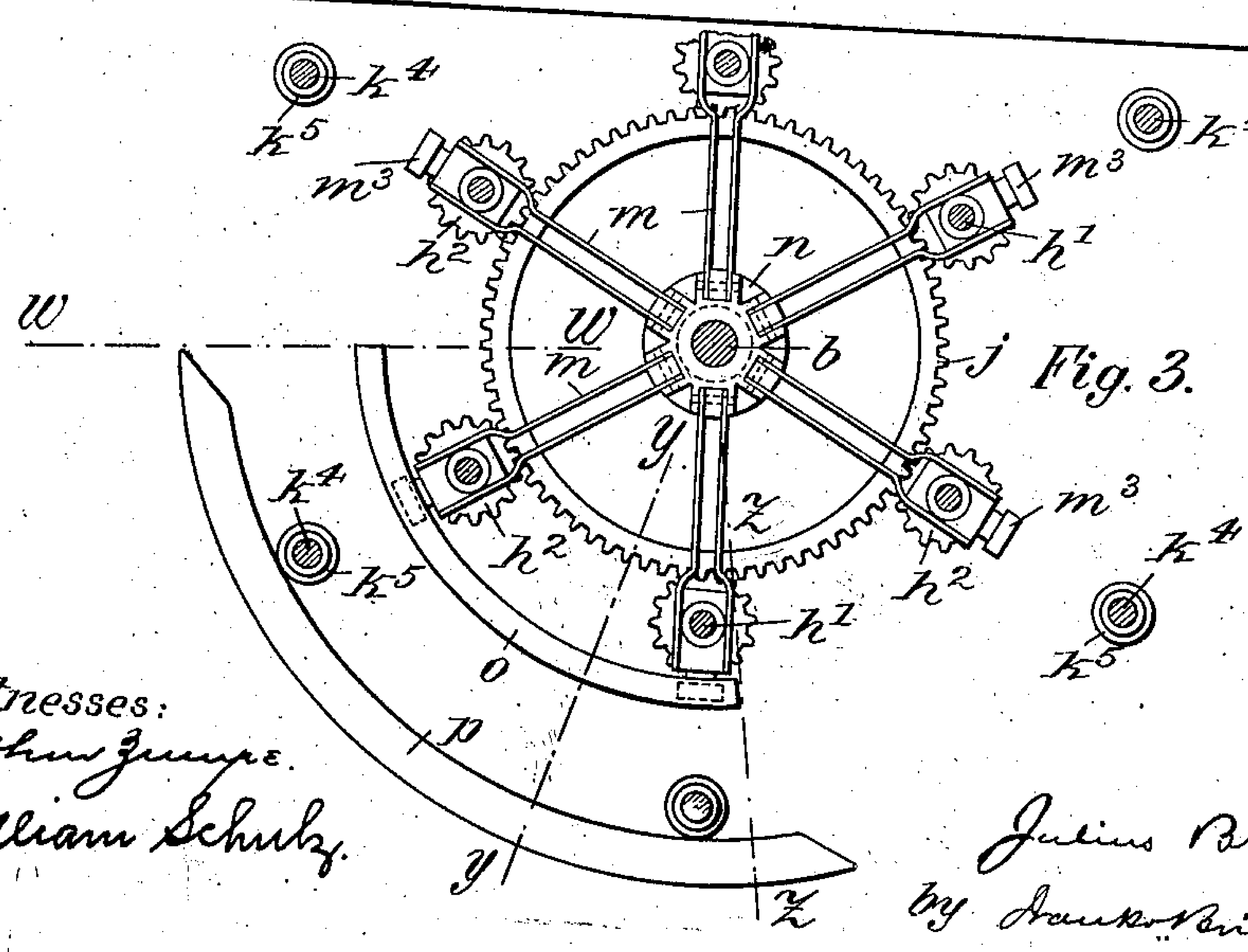


Fig. 3.

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3 SHEETS—SHEET 3.

Fig. 4.

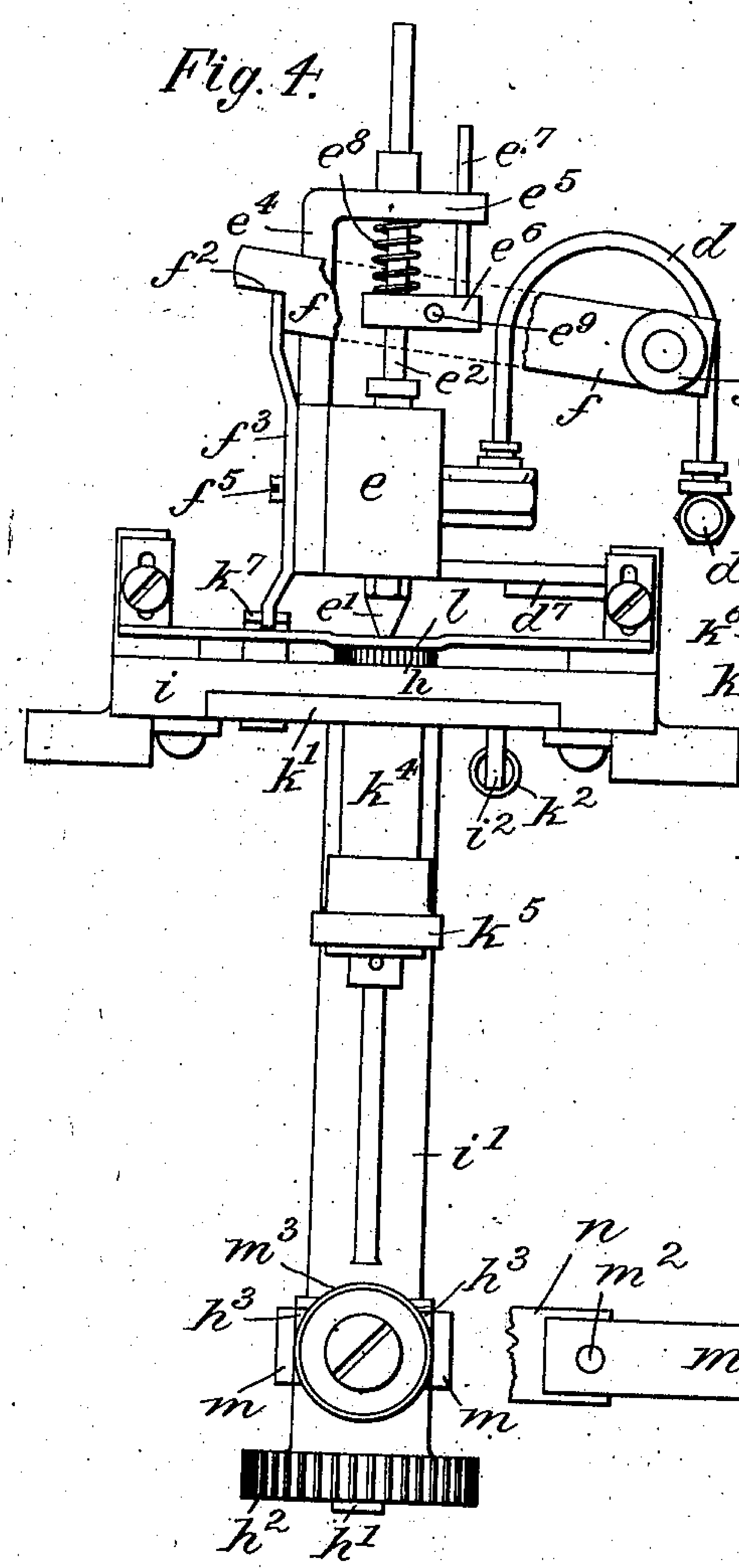


Fig. 5.

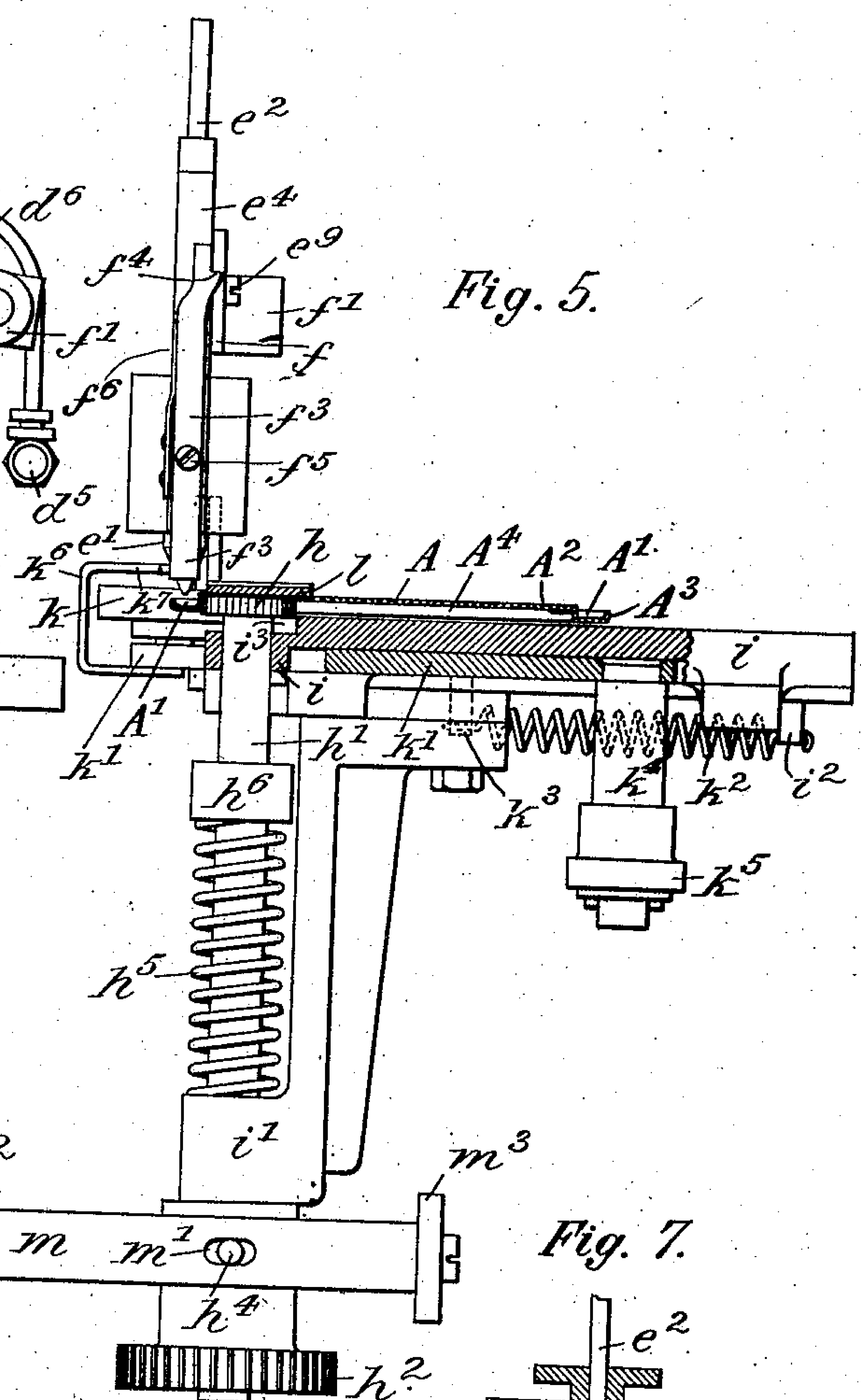


Fig. 7.

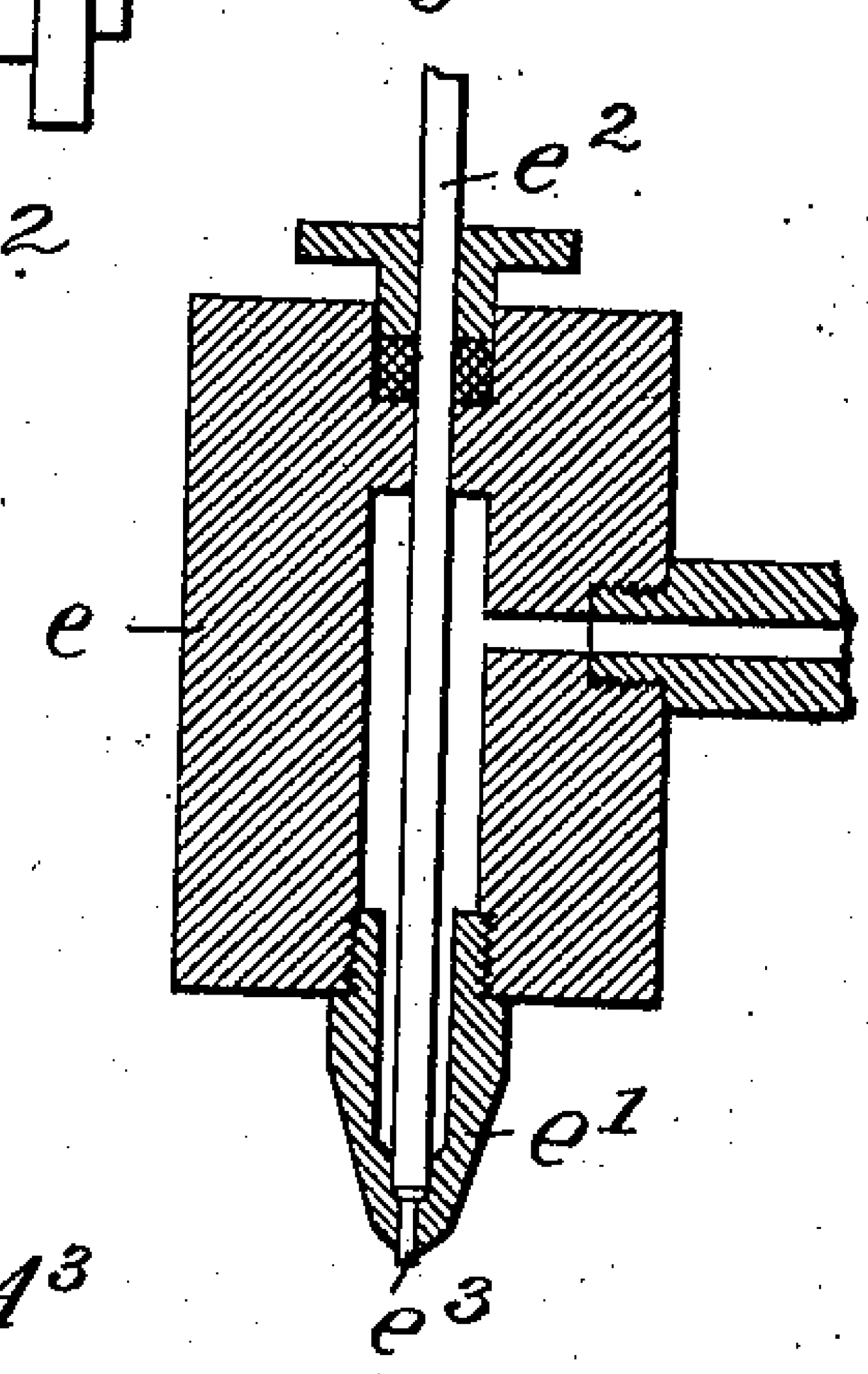
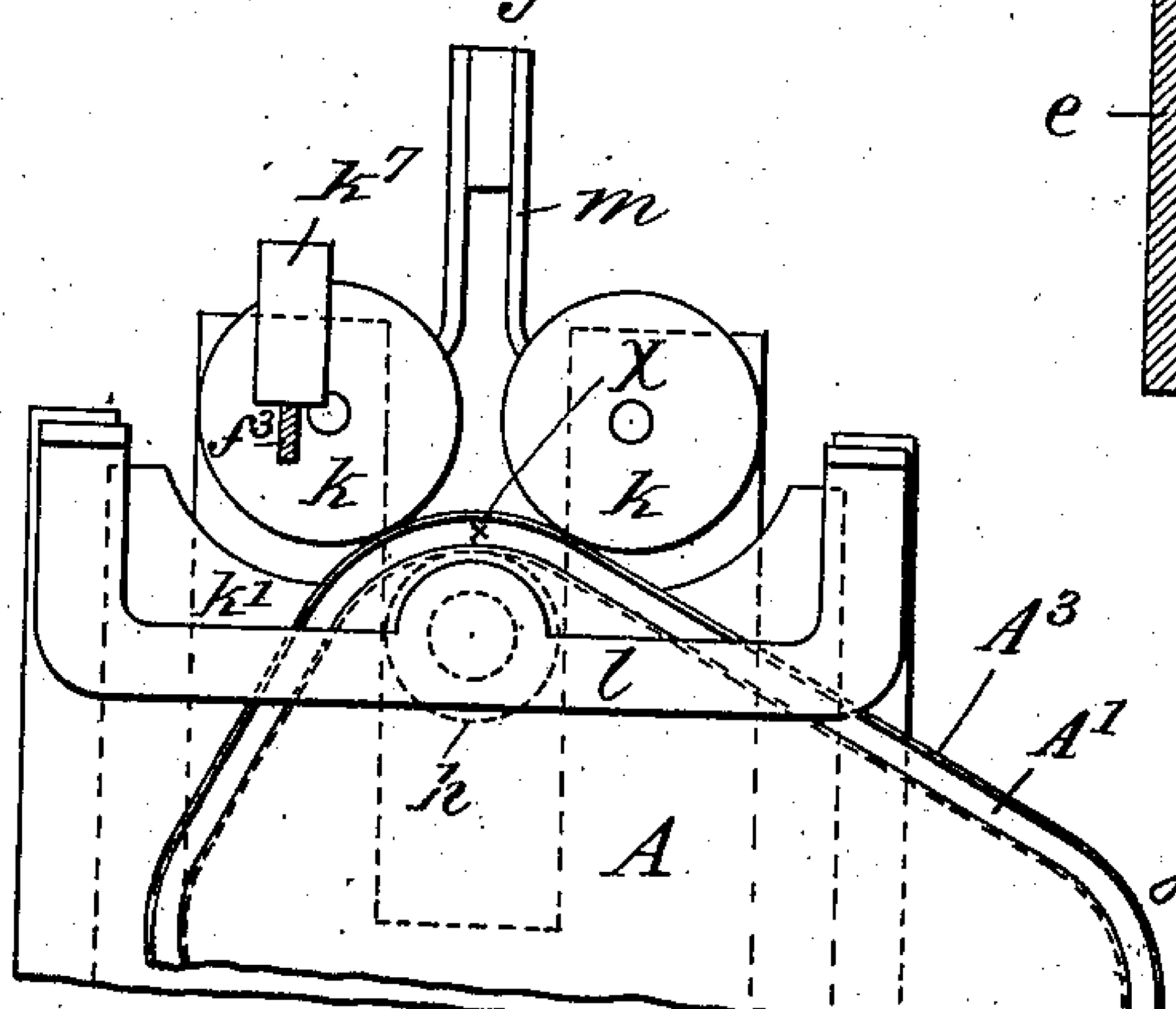


Fig. 6.



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UNITED STATES PATENT OFFICE.

JULIUS BRENZINGER, OF MOUNT VERNON, NEW YORK, ASSIGNOR TO SANITARY CAN MACHINERY COMPANY, OF ELLSWORTH, MAINE, A CORPORATION OF MAINE.

MACHINE FOR LINING COVERS FOR CANS AND JARS.

No. 827,414. Specification of Letters Patent. Patented July 31, 1906.

Application filed August 4, 1905. Serial No. 272,668.

To all whom it may concern:

Be it known that I, JULIUS BRENZINGER, a citizen of the United States, residing at Mount Vernon, Westchester county, State of New York, have invented new and useful Improvements in Machines for Lining Covers for Cans and Jars, of which the following is a specification.

This invention relates to a machine for placing a lining or liquid packing into the groove of a cover for cans and jars, such lining subsequently serving to form an air-tight joint between cover and can.

The machine is so constructed that it will simultaneously line a large number of covers, so that a correspondingly large output is insured. Briefly stated, the machine is composed of a rotatable table carrying a number of glue-delivery nozzles. The covers are successively placed upon the table and held thereto beneath the nozzles by means which also rotate the covers around their own axes. Thus as the table is rotated the covers will successively be lined to be finally discharged from a chute.

In the accompanying drawings, Figure 1 is a front view, partly in section, of my improved machine for lining covers for cans and jars; Fig. 2, a plan thereof; Fig. 3, a horizontal section on line 3 3, Fig. 1, with some of the parts omitted; Fig. 4, a detail front view of the cover holding and lining mechanism; Fig. 5, a side view, partly in section, thereof, showing a cover in place; Fig. 6, a plan of the cover-holding mechanism, and Fig. 7 a longitudinal section through the lining-cylinder.

The letter *a* indicates the frame of the machine, in which a vertical shaft *b* is rotatably mounted. Shaft *b* receives motion from a power-shaft *c* by belt *c'*, counter-shaft c^2, gear-wheels c^3 c^4, shaft c^5, and gear-wheels c^6 *b'*. To shaft *b* is secured a table b^2, that in turn supports a pot *d*, containing the glue or other lining. This lining is supplied from the pot simultaneously to a suitable number of covers A, the drawings showing a machine adapted for the simultaneous treatment of six covers. The glue contained in pot *d* may be agitated by a suitable stirrer (not shown) attached to a spindle *d'*, that receives motion by an endless rope d^2. In order to insure a proper discharge of the glue through the nozzles hereinafter described, the glue is kept under a certain pressure by a pressure-pipe d^3, entering pot *d* and having cock d^4. This pipe supplies the pot *d* with compressed air or other pressure medium from a suitable pressure-tank. (Not shown.)

The pot *d* is provided with a series of hollow plugs d^5, each of which communicates by a pipe d^6 with a separate cylinder *e*, secured to pot *d* by bracket d^7. Each cylinder *e* is provided with a discharge-nozzle *e'*, the discharge-opening of which is controlled by a vertically-reciprocating plunger e^2. In order to prevent any clogging of the nozzle, the plunger e^2 is provided with a needle e^3, that passes through the reduced bore of the discharge-opening when the plunger is lowered to close the nozzle.

The plunger e^2 is operated in the following manner: Each cylinder *e* is provided with an upright e^4, having a horizontal arm e^5, through an opening of which the upper end of plunger e^2 passes. To plunger e^2 is clamped a cross-piece e^6, having a pin e^7, which is guided within a corresponding opening of arm e^5. A spring e^8 intermediate cross-piece e^6 and arm e^5 tends to hold plunger e^2 in its lowermost or closed position. To cross-piece e^6 is pivoted at e^9 a two-arm lever *f*, one end of which carries a roller *f'*, while its other end is provided with an offset or step f^2. The latter is adapted to be engaged by an offset f^4 of a sustaining-lever f^3, which is pivoted to upright e^4 at f^5 and is influenced by a spring f^6. The offsets f^2 f^4 constitute a fulcrum for lever *f*, so that when roller *f'* is raised by a cam in manner hereinafter described the plunger e^2 will also be raised against the action of spring e^8 to open nozzle *e'*. When, on the other hand, roller *f'* is out of engagement with said cam, spring e^8 will tilt lever *f* downward to lower plunger e^2 and close nozzle *e'*.

The cam hereinabove referred to consists of a number of curved cam-sections *g'*, removably mounted upon a fixed rail *g*, which is secured to frame *a* by brackets *a'*. The rollers *f'* are adapted to ride upon the cam-sections *g'*, so as to raise lever *f* and open nozzles *e'*. By removing one or more of the cam-sections the working length of the cam is correspondingly changed to regulate the time during which the glue is supplied to covers A. The cover A, which may be of square, oblong, round, or other shape, is pro-

vided near its edge with a groove A′, which is parallel to said edge and to which the lining is to be supplied.

The drawings show an oblong cover A with rounded corners, the groove A′ being consequently of the same shape. The cover is axially rotated above rotatable table b^2, by the means hereinafter described, in such a way that the groove will for its entire length pass underneath nozzle e'. For this purpose the inner upright flange A^2 of groove A′ is frictionally engaged by the roughened edge of a feed-disk h, fast on a rotating and vertically-reciprocating spindle h'. The number of disks h corresponds to the number of nozzles and covers to be simultaneously lined. Each spindle h' is mounted in a guide or support i, secured to table b^2, and in a bracket i', depending from such guide. In this way disks h and spindles h' will be revolved by table b^2 while they receive an independent rotatory movement in the following manner: The lower end of each spindle h' is provided with a pinion h^2, engaging a toothed wheel j, loosely mounted upon shaft b. To the hub j' of wheel j is secured a toothed wheel j^2, that meshes into a gear-wheel c^7, fast on shaft c^5. While the inner flange A^2 is engaged by disk h, the outer flange A^3 of groove A′ is adapted to be engaged by a pair of counter-rollers $k\,k$, mounted upon a slide k', Figs. 5 and 6. The latter is movable within a corresponding way of guide i. A spring k^2 is suspended between a pair of lugs $i^2\,k^3$ of guide i and slide k', respectively, and tends to draw rollers k toward disk h. It will thus be seen that when the grooved edge of a cover A is interposed between the rotating disk h and rollers k the groove A′ will travel around disk h for its entire length at each rotation of the cover. The nozzle e' is arranged laterally beyond the disk h and midway between rollers k above the point marked X in Fig. 6. The distance between this point and the disk h should be such that the nozzle is centered above the groove A′. An upper guard l prevents the cover from being displaced vertically while being rotated.

In order to permit the insertion of an unlined cover and the removal of the lined cover, disks h, as well as rollers k, are made displaceable in the following manner: Each disk is free to enter a corresponding recess i^3 of guide i when spindle h' is lowered. To lower the spindle, the hub of pinion h^2 is provided with a collar h^3, having pins h^4, which engage perforations m' of a shipping-lever m. The latter is pivoted at m^2 to a spider n, fast on and rotating with shaft b. The free end of lever m is provided with a roller m^3, adapted to engage the lower side of a curved rail or arc-shaped cam o, secured to frame a. A spring h^5, interposed between bracket i' and a collar h^6 of spindle h', tends to raise the latter, so that pinion h is normally projected beyond the upper face of guide i, Fig. 5. When roller m^3 is engaged by cam o, shipping-lever m will be lowered to correspondingly lower spindle h' and pinion h. In this lowered position pinion h is countersunk by being received by recess i^3, so that the top of disk h is flush with the face of guide i. While disk h is lowered its coöperating rollers k are pushed away from the disk in the following manner: From each slide k' depends a pin k^4, carrying a roller k^5, adapted to engage a curved rail or arc-shaped cam p, secured to frame a. When the roller k^5 engages rail p, slide k' is pushed toward the center of the machine, so that rollers k are moved away from disk h. As will be seen from Fig. 8, cams o and p are so arranged relatively to each other that they are engaged about simultaneously by rollers m^3 and k^5, respectively. In this way the disk h is lowered while the rollers k are moved inward, so that the cover-flanges A^2 A^3 are simultaneously liberated. The lined covers A are discharged from the machine by a fixed deflector q', that conveys them to an inclined delivery-chute q. In order to prevent the plunger e^2 from opening nozzle e' when a cover is not inserted into the holding device, there is attached to slide k' an arm k^6, which is adapted to engage with its upper horizontal shank k^7 the lower end of lever f^3, Fig. 5. Arm k^6 is so shaped that when a cover is introduced between disk h and rollers k lever f^3 will not be engaged by shank k^7; but if a cover is not inserted spring k^2 will draw slide k' outward, so that shank k^7 engages lever f^3 and tilts the same in such a manner that its offset f^4 will clear offset f^2 of lever f. If roller f' is now raised by engaging cam-pieces g', lever f will loosely turn on pivot e^9 without lifting plunger e^2, so that nozzle e' remains closed.

The operation is as follows: Table b^2, together with nozzles e' and guides i, is slowly rotated in the direction of arrow B, Fig. 2, by the train of gears above described, and disks h are simultaneously rotated by the engagement of pinions h^2 and toothed wheel j. While the slowly-rotating guides and coöperating nozzles successively assume the position indicated by lines Y Y in Figs. 2 and 3, their rollers m^3 and k^5 have engaged cams o and p, respectively, so that disk h is lowered into recess i^3, while rollers $k\,k$ are shifted toward the center of the machine. When the parts are in this position, a cover is by the attendant placed upon guide i and inserted underneath guard l, until it bears against rollers $k\,k$. When the slide carrying the loose cover arrives in the position indicated by line Z Z, Fig. 3, roller m^3 will first clear its cam o, so as to permit spring h^5 to raise disk h into the central recess A^4 of cover A. Immediately after this movement has taken place roller k^5 clears cam p, so that spring k^2 draws rollers k outward. These rollers by engaging the outer

flange A^3 press the inner flange A^2 against disk h to rotate cover A. When the guide i, carrying the slowly-rotating cover A, arrives at the point indicated by line V V, Fig. 2, roller f' of lever f will engage cam g', and thereby tilt lever f upwardly on fulcrum f^2 f^4. The tilting of lever f results in raising plunger e^2, so that nozzle e' is opened. The glue delivered by nozzle e' will now fill groove A'. As soon as roller f' clears cam g' nozzle e' will again be closed to stop the outflow of the glue. When the guide i finally arrives in the position indicated by lines W W, Figs. 2 and 3, rollers m^3 and k^5 will engage cams o and p, respectively, to lower disk h and withdraw rollers k'. The cover A being thus freed is removed from guide i by deflector q' of chute q. Thus as each guide i arrives opposite the chute its lined cover will be discharged. It will be seen that by my machine a large number of covers are simultaneously lined, so that a large output is insured.

What I claim is—

1. In a machine for lining covers for cans and jars, the combination of rotatable means for supporting a cover, with means carried by said rotatable means and adapted to apply a lining to said cover, substantially as specified.

2. In a machine for lining covers for cans and jars, the combination of a rotatable table, with means for rotatably securing a cover to the table, and means carried by said rotatable table for applying a lining to the cover, substantially as specified.

3. In a machine for lining covers for cans and jars, the combination of a rotatable table, with means for rotatably securing a cover to the table, and means carried by the table for applying a lining to the cover, substantially as specified.

4. In a machine for lining covers for cans and jars, the combination of a rotatable table, with means for rotatably securing a cover to the table, a glue-pot carried by the table, and means for automatically controlling the discharge of glue from said pot, substantially as specified.

5. In a machine for lining covers for cans and jars, the combination of a rotatable table, with means for rotatably securing a cover to the table, means carried by said rotatable table for applying a lining to the cover, and means for automatically releasing the cover from the table, substantially as specified.

6. In a machine for lining covers for cans and jars, the combination of a rotatable table, with a disk and a roller supported thereby and adapted to engage the cover, and means carried by said rotatable table for applying a lining to the cover, substantially as specified.

7. In a machine for lining covers for cans and jars, the combination of a rotatable table, with means for rotating a cover upon the table, a nozzle carried by said rotatable means, and means for opening and closing said nozzle, substantially as specified.

8. In a machine for lining covers for cans and jars, the combination of a rotatable table, with a disk engaging a cover, means for vertically reciprocating the disk, and means carried by said rotatable table for applying a lining to the cover, substantially as specified.

9. In a machine for lining covers for cans and jars, the combination of a rotatable table, with a disk and a roller engaging a cover, means for reciprocating the disk, and means for reciprocating the roller, substantially as specified.

10. In a machine for lining covers for cans and jars, the combination of a rotatable table, with a cylinder supported thereby, a plunger within the cylinder, and means for operating the plunger, substantially as specified.

11. In a machine for lining covers for cans and jars, the combination of a rotatable table, with a glue-pot supported thereby, a series of discharge-nozzles, and means for rotatably securing covers to the table beneath the nozzles, substantially as specified.

12. In a machine for lining covers for cans and jars, the combination of a rotatable table, with a series of glue-discharging means supported thereby, a series of means for rotatably securing covers to the table beneath the glue-discharging means, means for automatically controlling the discharge of glue from the glue-discharging means, and means for automatically releasing the covers from the table, substantially as specified.

Signed by me at New York city, (Manhattan,) New York, this 3d day of August, 1905.

JULIUS BRENZINGER.

Witnesses:

FRANK V. BRIESEN,

FRED UNFRICHT.