

No. 885,060.

PATENTED APR. 21, 1908.

A. LEATHERMAN.
RATCHET CYLINDER PULLEY.
APPLICATION FILED APR. 13, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

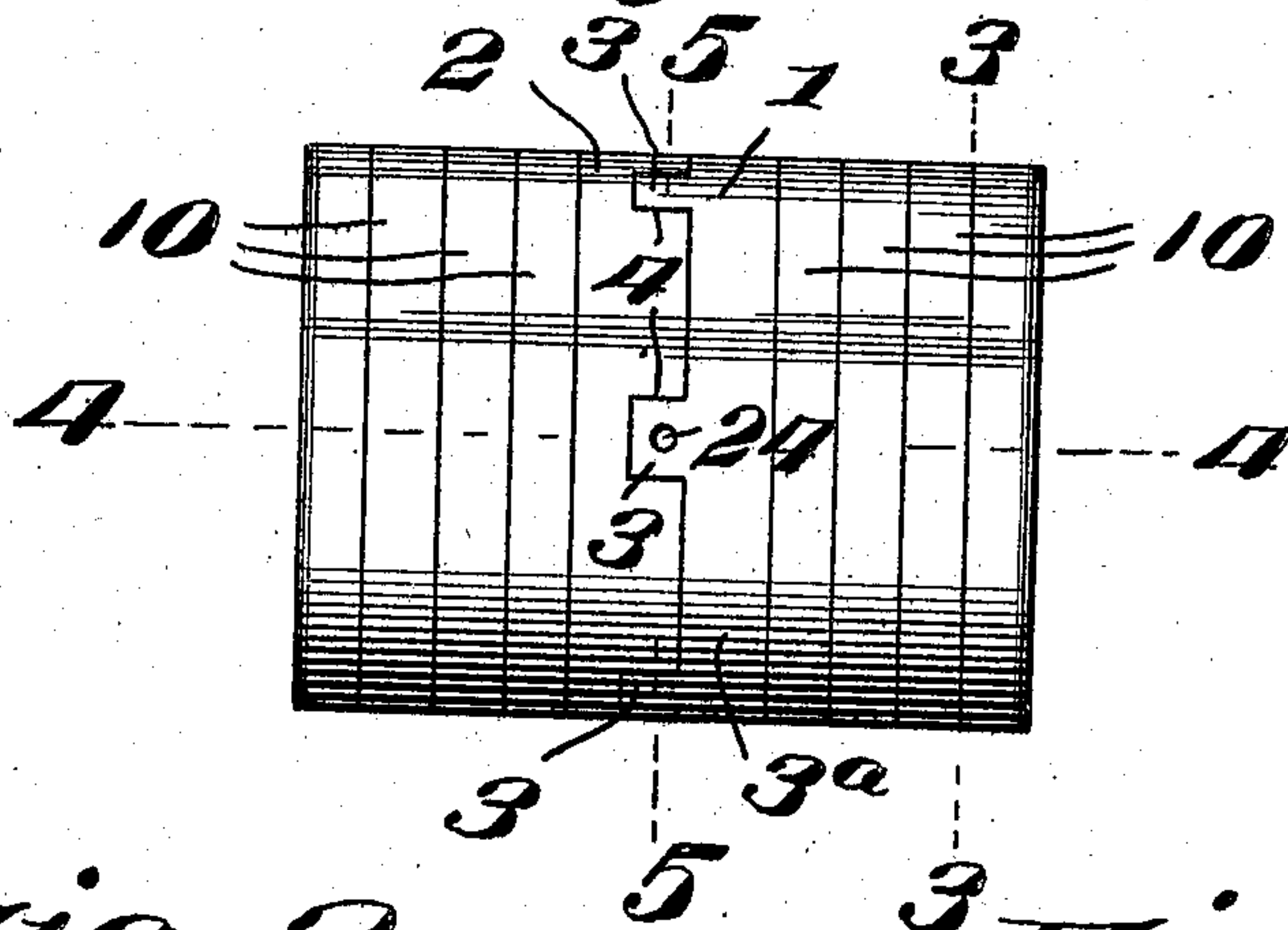


Fig. 2.

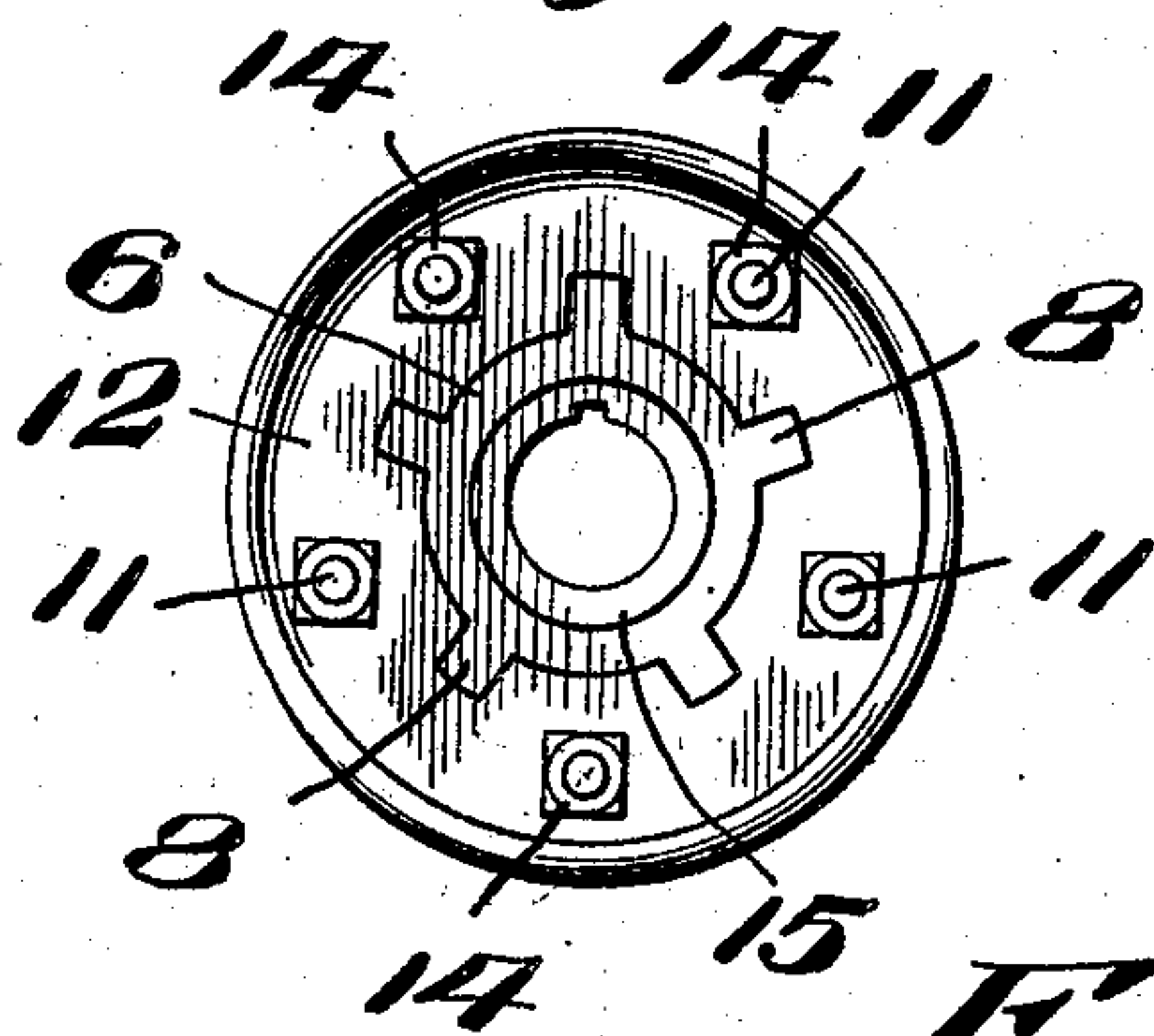


Fig. 3.

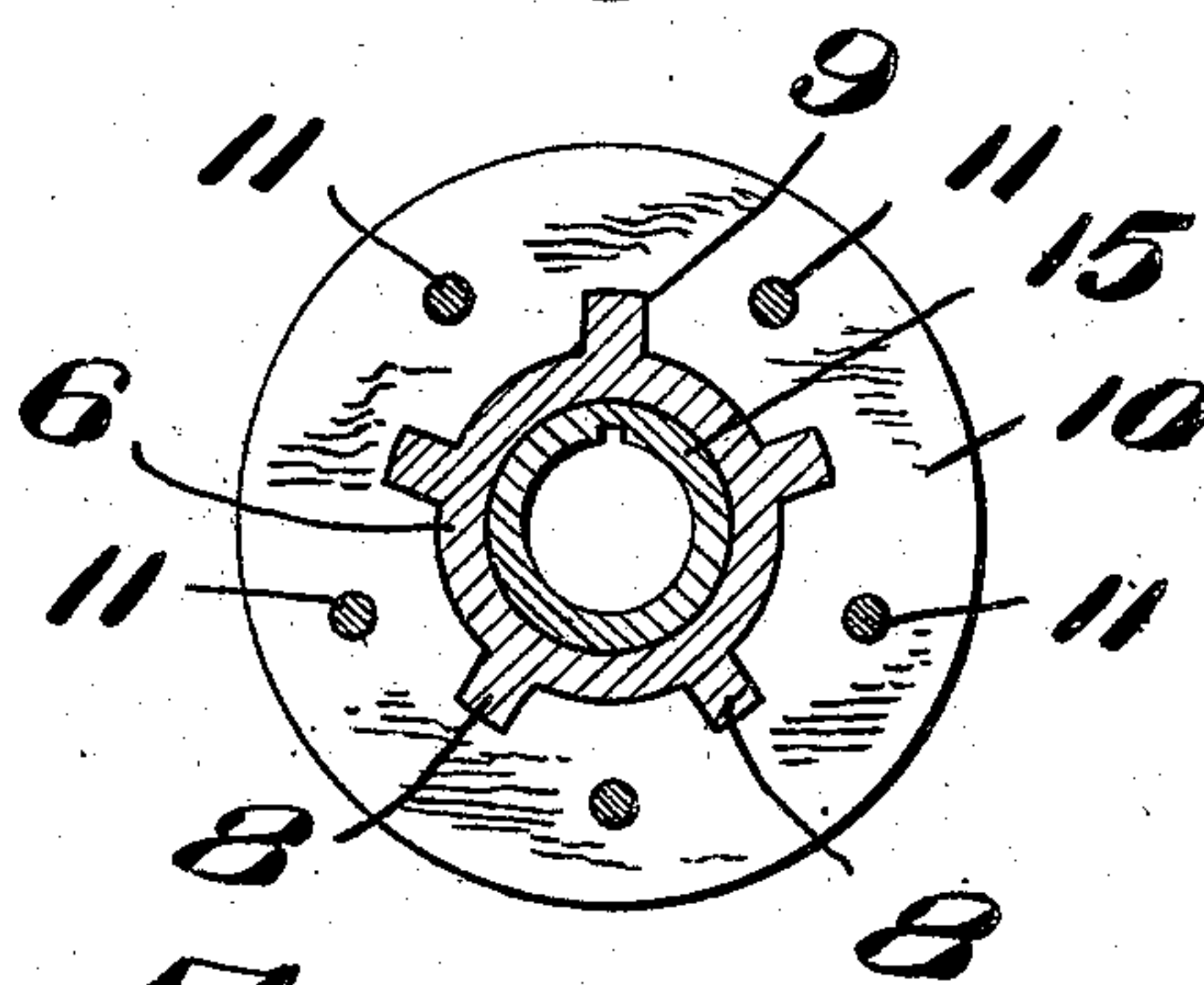
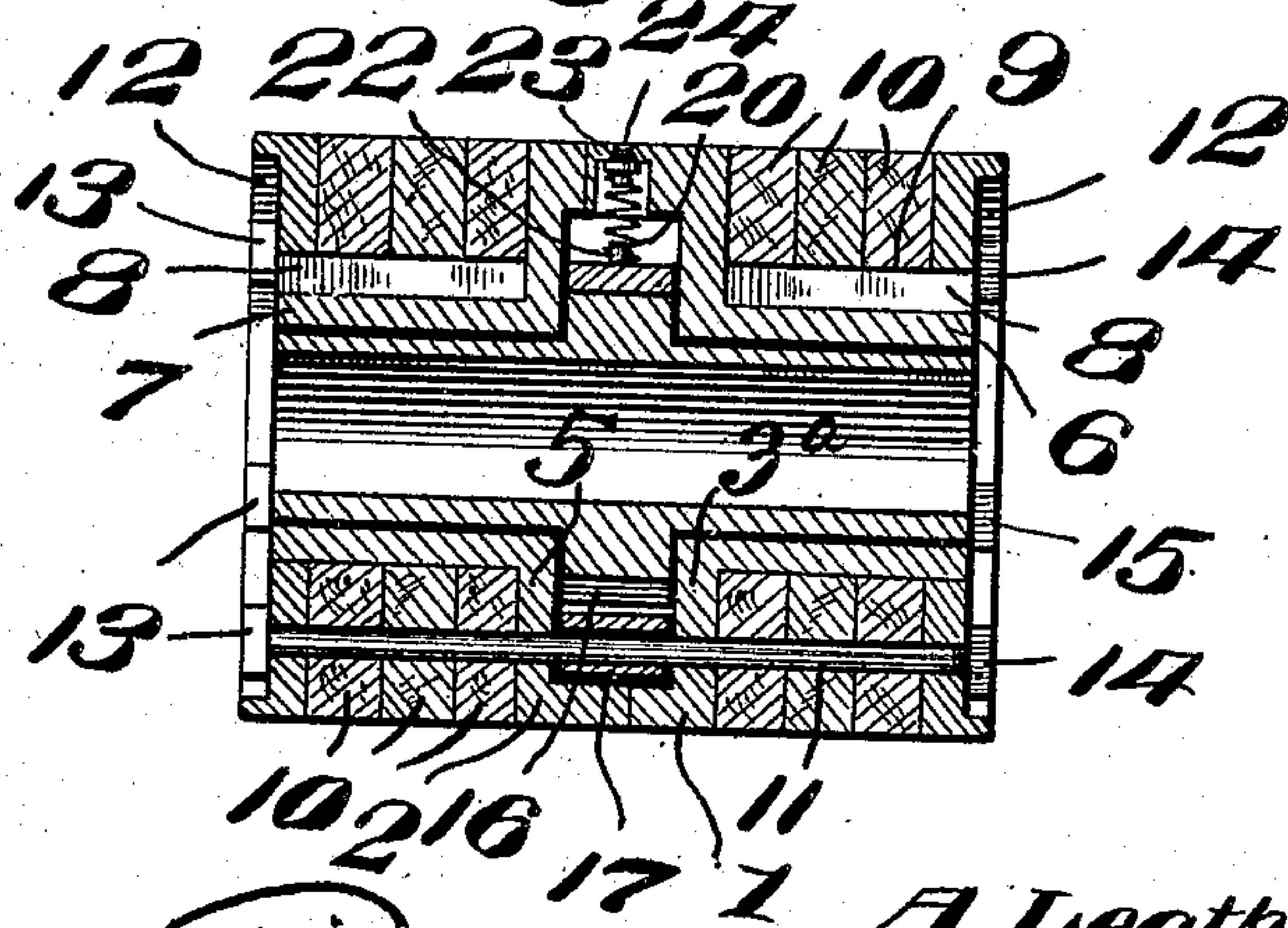


Fig. 4.



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2 SHEETS—SHEET 2.

Fig. 5.

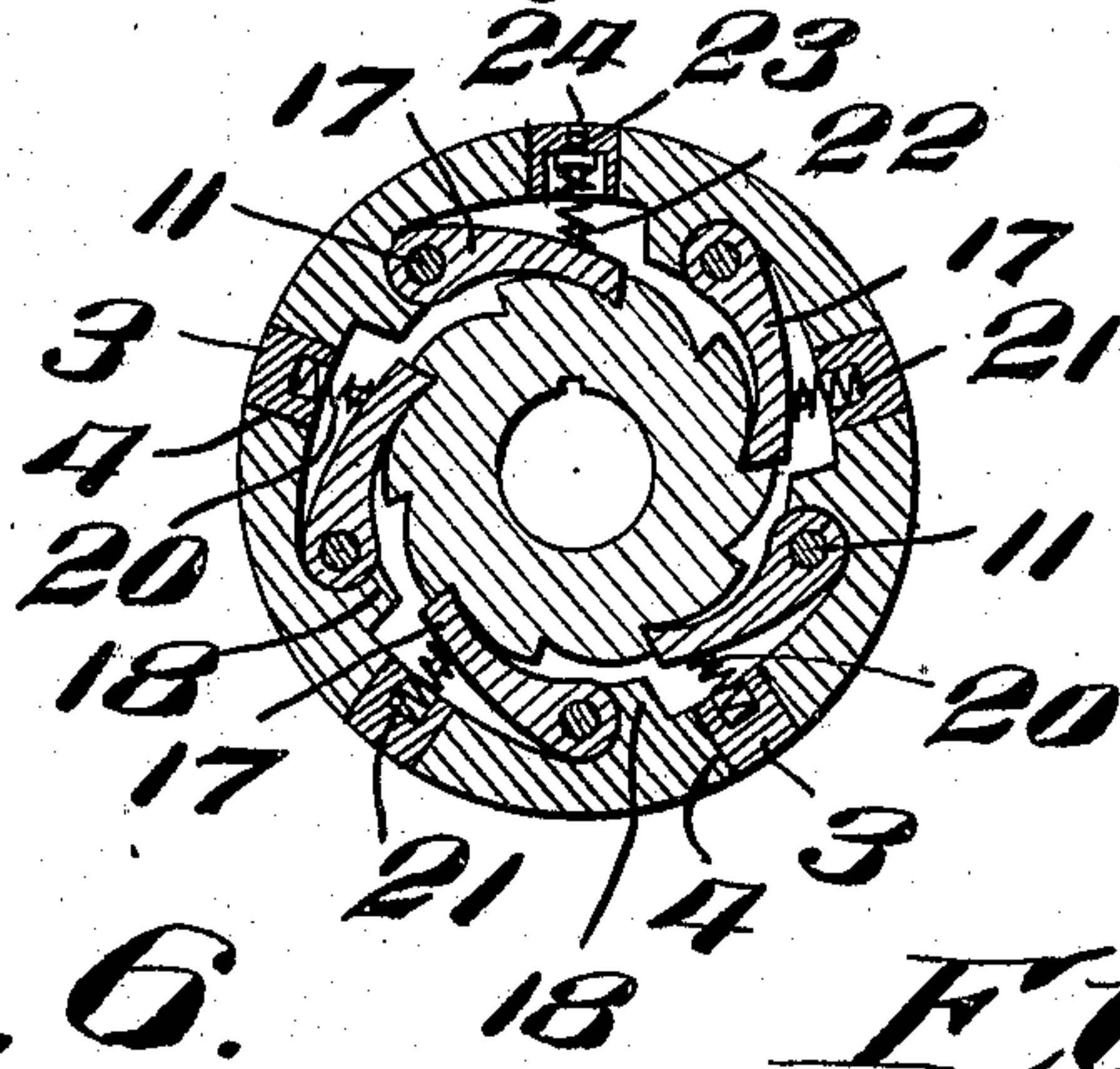


Fig. 6.

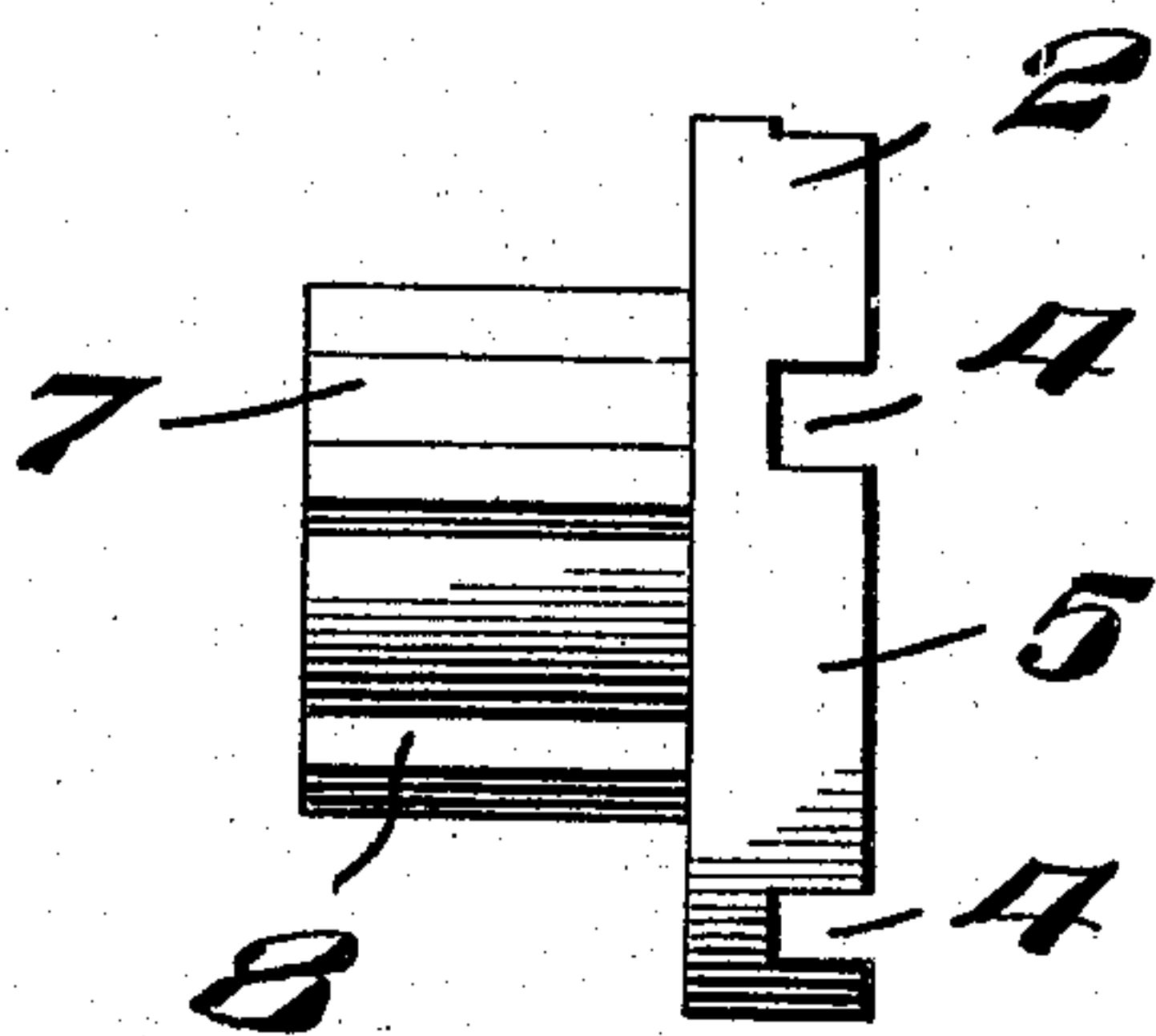


Fig. 7.

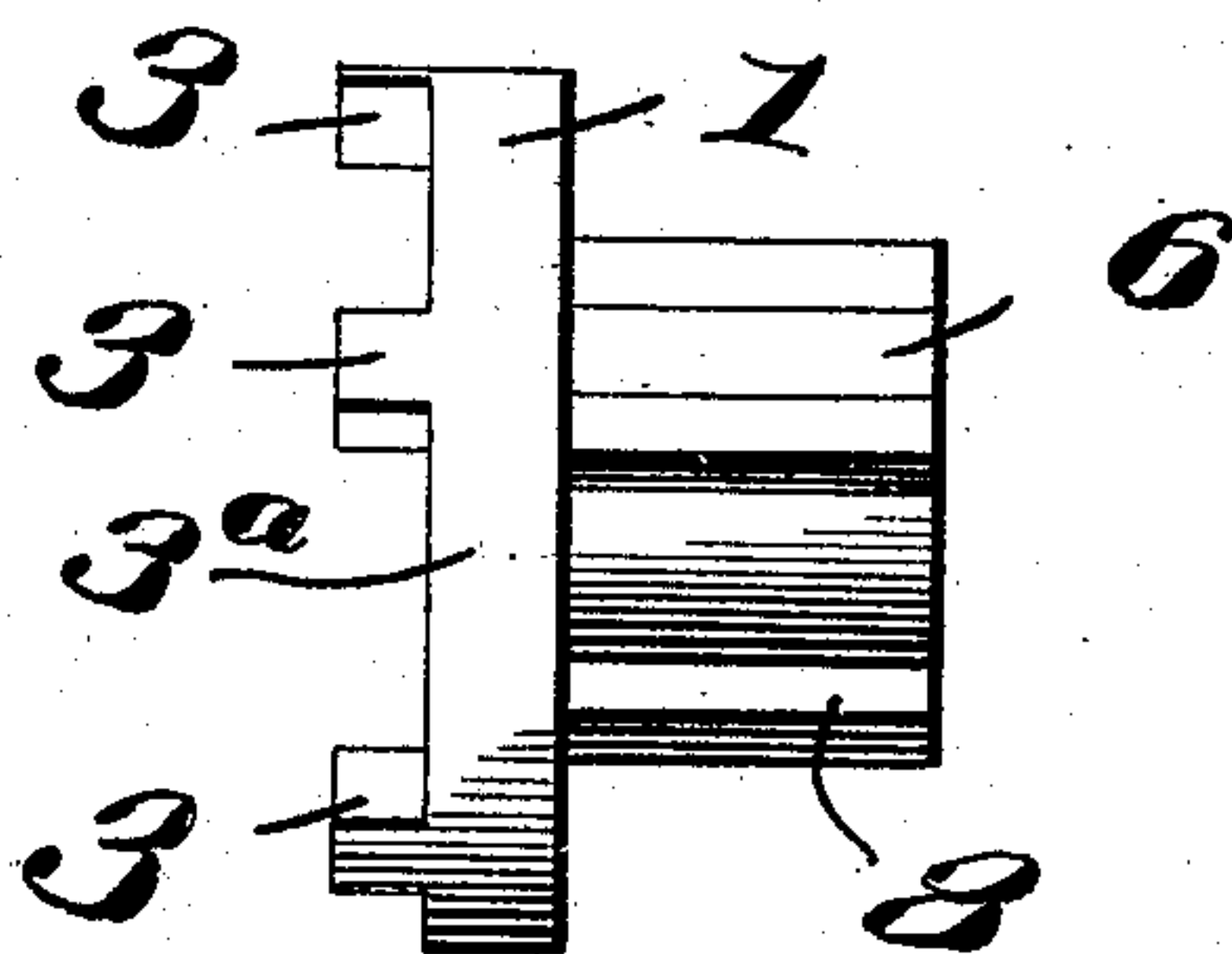


Fig. 8.

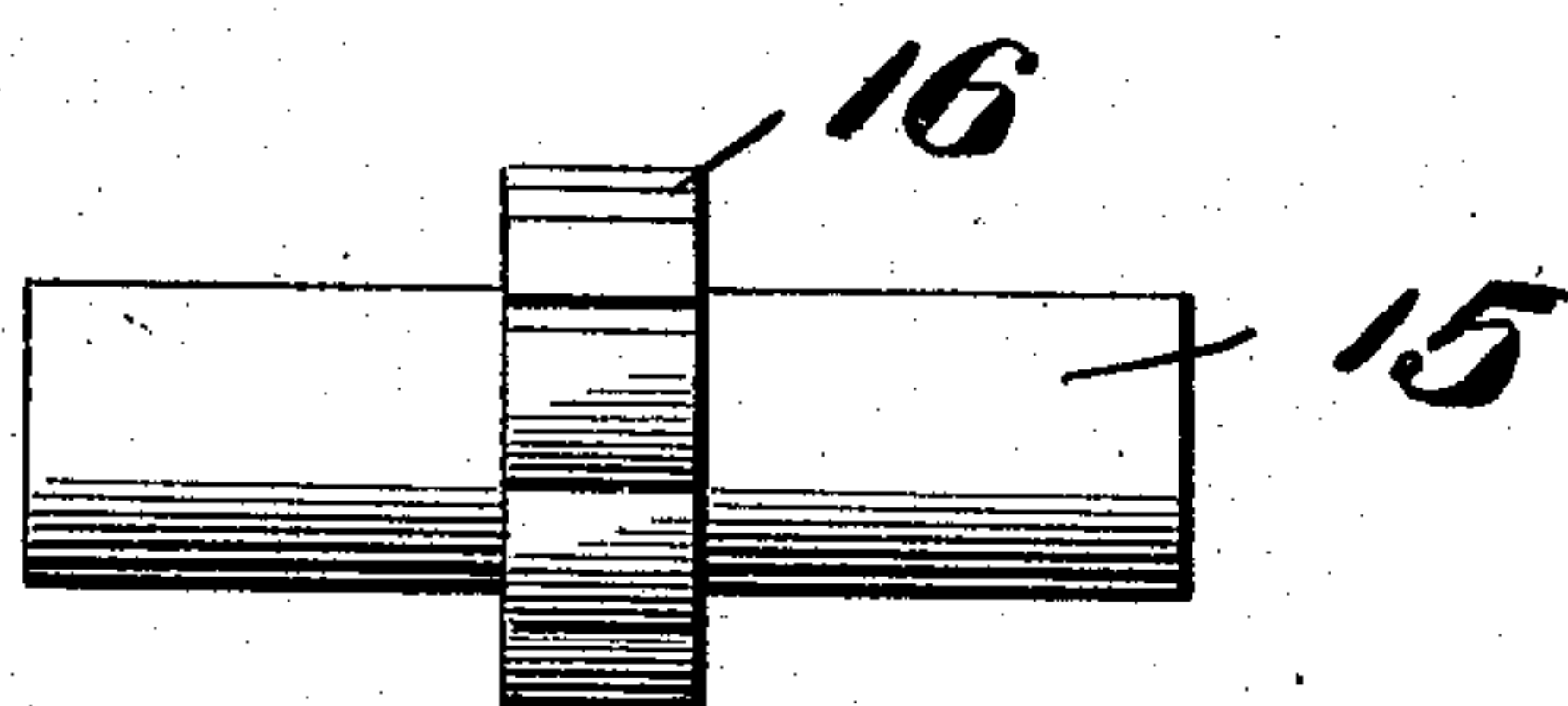
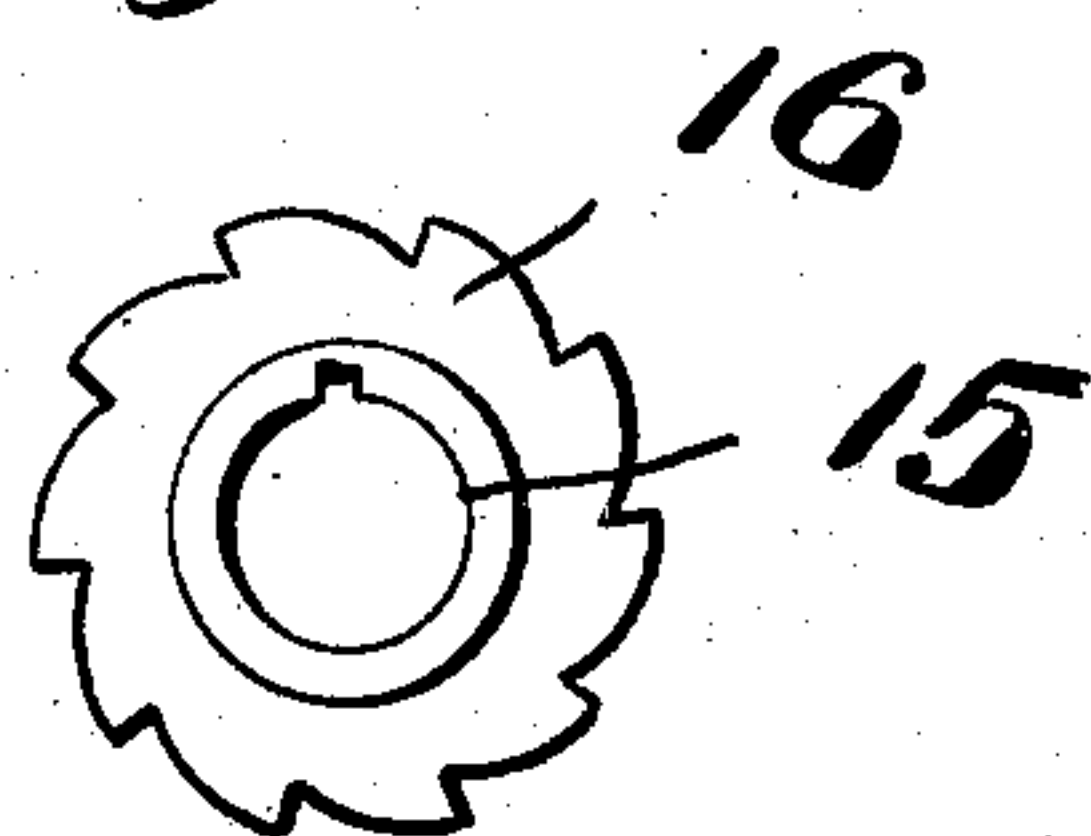


Fig. 9.



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ALFRED LEATHERMAN, OF BUTTE, NEBRASKA.

RATCHET-CYLINDER PULLEY.

No. 885,060.

Specification of Letters Patent.

Patented April 21, 1908.

Application filed April 13, 1907. Serial No. 367,984.

To all whom it may concern:

Be it known that I, ALFRED LEATHERMAN, a citizen of the United States, residing at Butte, in the county of Boyd and State of Nebraska, have invented certain new and useful Improvements in Ratchet-Cylinder Pulleys; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to new and useful improvements in pulleys and more particularly to that class adapted to be used in connection with machinery for receiving driving belts, and my object is to provide a pulley of this class, whereby portions thereof may be constructed of metal and the remaining portions of wood, or like substance.

A further object is to provide a ratchet construction between the sections of the pulley, whereby the shaft extending through the pulley may be positively driven in one direction and left free to turn in the opposite direction and in an inverse direction from the movement of the pulley.

A still further object is to provide means for assembling the several parts of the pulley together.

Other objects and advantages will be hereinafter referred to and more particularly pointed out in the claims.

In the accompanying drawings which are made a part of this application, Figure 1 is a side elevation of my improved form of pulley. Fig. 2 is an end elevation thereof. Fig. 3 is a sectional view as seen on line 3—3, Fig. 1. Fig. 4 is a sectional view as seen on line 4—4, Fig. 1. Fig. 5 is a sectional view as seen on line 5—5, Fig. 1. Figs. 6 and 7 are detail elevations of the two central sections of the pulley. Fig. 8 is a side elevation of the ratchet employed in connection with my improved pulley, and, Fig. 9 is an end elevation thereof.

Referring to the drawings in which similar reference numerals designate corresponding parts throughout the several views, 1 and 2 indicate metallic collars which are adapted to form the central portion of the pulley, the collar 1 having lugs 3 extending from the edge of a flange 3^a on the inner face of the collar 1, which are adapted to enter corresponding notches 4 in a flange 5 formed around the inner face of the collar 2.

Extending from the outer faces of each of

the collars 1 and 2 are tubular boxings 6 and 7 respectively on the outer peripheries of which are a plurality of ribs 8, which are adapted to enter grooves 9 in auxiliary collars 10, a portion of said collars being preferably constructed of wood, or other preferred fibrous material, to provide a gripping surface for the pulley, so that the usual form of lagging required in connection with metallic pulleys may be entirely dispensed with.

After a sufficient number of the auxiliary collars have been placed upon the boxings 6 and 7 to completely cover the boxings, I dispose a plurality of bolts 11 longitudinally through the collars 1 and 2, and auxiliary collars 10, the two-end auxiliary collars being preferably formed of metal and provided with recesses 12, so that the heads 13 at one end of the bolts and the nuts 14 at the opposite end thereof will not protrude from the ends of the pulley.

When the device is employed as a ratchet pulley, I extend through the bore in the boxings 6 and 7, a tubular shaft 15, the central portion of which is provided with a ratchet wheel 16, which extends between the meeting faces of the collars 1 and 2, and the flanges on the collars 1 and 2 form a housing for the ratchet wheel.

Pivotaly mounted upon the bolts 11 and between the meeting faces of the collars 1 and 2 and around the ratchet wheel 16 are a plurality of pawls, 17, the inner surfaces of the flanges having depending shoulders 18 thereon, against which the pivoted ends of the pawls rest, thereby relieving the bolts 11 from an undue amount of strain when the pulley is driving a shaft.

The free ends of the pawls 17 are held into engagement with the ratchet on the wheel 16, by disposing tension springs 20 between the free ends of the pawls and the surrounding portions of the flanges, and in this instance a bore 21 is provided in each of the lugs 3, in which the outer ends of the springs 20 are seated, while the opposite ends of the springs are held into engagement with the pawls by means of studs 22.

In order to introduce oil into the pulley, so that the wearing parts thereof will be well lubricated, the bore in one of the lugs 3 is enlarged to receive a plug 23, the upper end of which is tapered, and adapted to enter a tapered oil hole 24 in one of the lugs 3, and as one of the tension springs 20 engages the opposite end of the plug, the hole 24 will be

normally closed, thereby excluding dust, grit and the like from entering the cavity into which the oil passes.

When introducing the oil through the hole 5 24, the tapered spout of the oil can is inserted into the hole, and the plug depressed, when by operating the oil can in the usual manner, against action of the spring 20. In applying the pulley to use, the tubular shaft 15 is directed over the usual form of shaft and fixed thereto in the usual, or any preferred manner, preferably by keying, and it will be seen that through the medium of the ratchet wheel and pawls in the pulley, the shaft will 15 be positively driven in one direction, but may be freely turned in the pulley when the pulley is standing still.

It will thus be seen that I have provided a very cheap, durable and economical form of 20 device, and one wherein the parts thereof may be readily and quickly assembled and secured together, and it will further be seen that I have provided a very convenient form of ratchet pulley and by providing the major 25 portion of the wearing surface of the pulley of fibrous material, a gripping surface is provided for the belt and thus dispensing with the usual form of lagging used for this purpose.

30 What I claim is:—

1. The herein described pulley comprising a tubular body formed of a pair of tubular sections, said sections having flanges on their meeting faces, one of said flanges having 35 notches therein adapted to receive lugs on the opposite flange, said flanges forming a cavity between said sections, a plurality of bolts extending through said sections and the cavity, a tubular shaft extending through 40 said body, said shaft having a ratchet wheel thereon adapted to extend into said cavity, a plurality of pawls pivotally mounted on said bolts and in said cavity, the inner surfaces of the flanges having depending shoulders 45 thereon against which the pivoted ends of the pawls are adapted to rest and springs between the free ends of said pawls and the sur-

rounding wall of the cavity, whereby said pawls will be held into engagement with the teeth on the ratchet wheel. 50

2. In a pulley the combination with a tubular body formed in two sections and having cavity forming flanges at the meeting faces said flanges having depending shoulders on their inner surface; of a tubular shaft 55 seated in said tubular body, said shaft having a ratchet wheel thereon extending into said cavity, bolts extending longitudinally of said body a plurality of pawls pivotally mounted on said bolts the pivoted ends of 60 which are adapted to rest against said flanges and springs between the free ends of said pawls and the surrounding wall of the cavity, said spring 5 engaging studs on said pawls and seated in bores in said body, whereby 65 said ratchet wheel and parts secured thereto will be driven in one direction.

3. A pulley of the class described comprising a tubular body, said body having an annular cavity central of its inner surface, one 70 wall of said cavity having alternately arranged bores and depending shoulders thereon, a plurality of bolts extending longitudinally through said body and the cavity, a plurality of pawls pivotally mounted in said 75 cavity by means of said bolts, said pawls having studs thereon, springs between the pawls and the surrounding wall of the cavity, said springs being seated in said bores and engaging said studs on the pawls and a tubular 80 shaft for said body, said shaft having a ratchet wheel thereon, said ratchet wheel being disposed in said cavity and adapted to be engaged by said pawls whereby said ratchet wheel and parts secured thereto will be driven 85 in one direction.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALFRED LEATHERMAN.

Witnesses:

WILL D. FORBES,
ELI ROBERTS.