

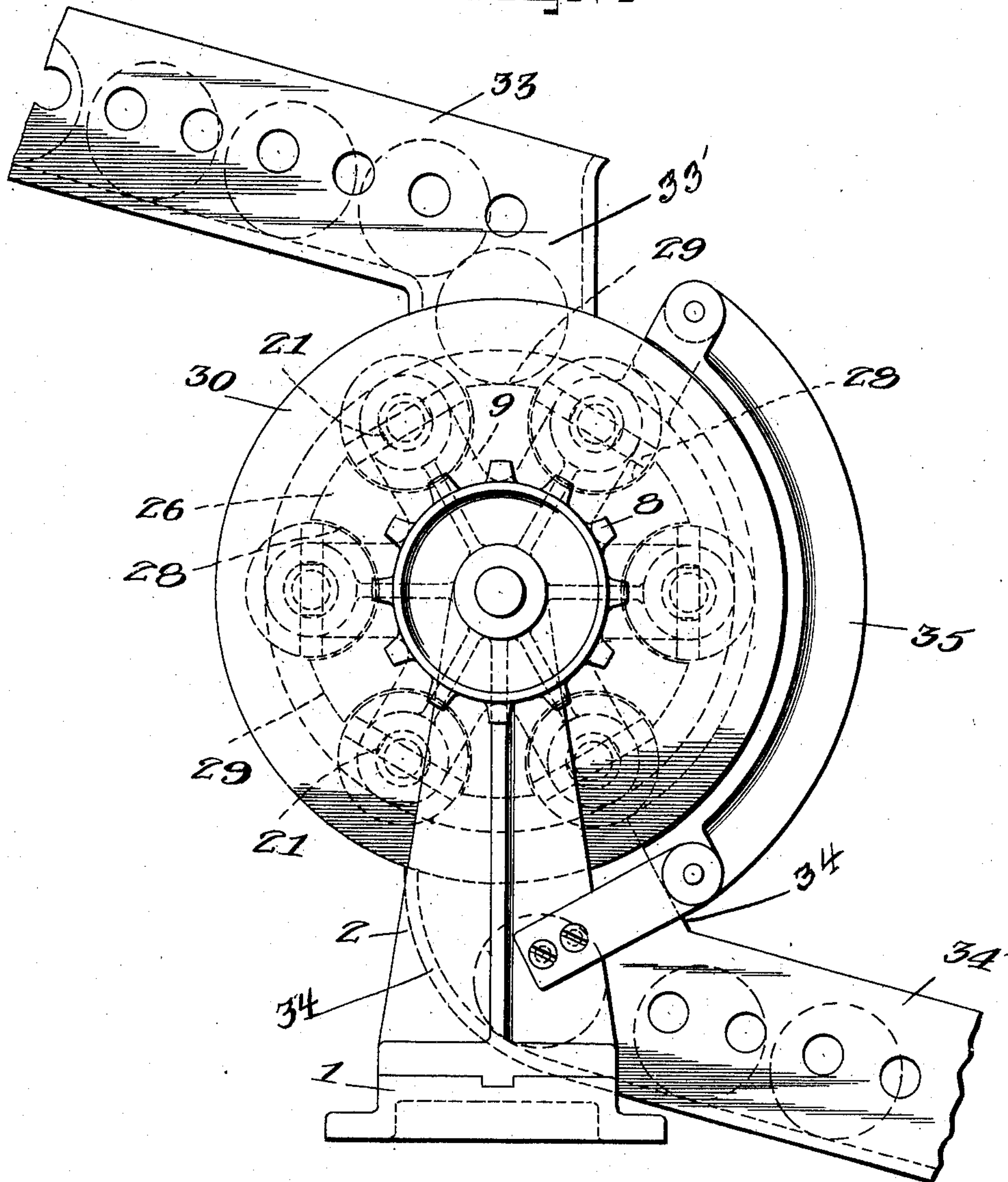
E. F. HARTLOVE.
 DEVICE FOR RE-FORMING CAN ENDS.
 APPLICATION FILED SEPT. 24, 1909.

983,278.

Patented Feb. 7, 1911.

3 SHEETS-SHEET 1.

Fig. 1.



Witnesses

W. H. Rockwell

Frank S. Burton

Inventor

Emory F. Hartlove

By

Titian W. Johnson

Attorney

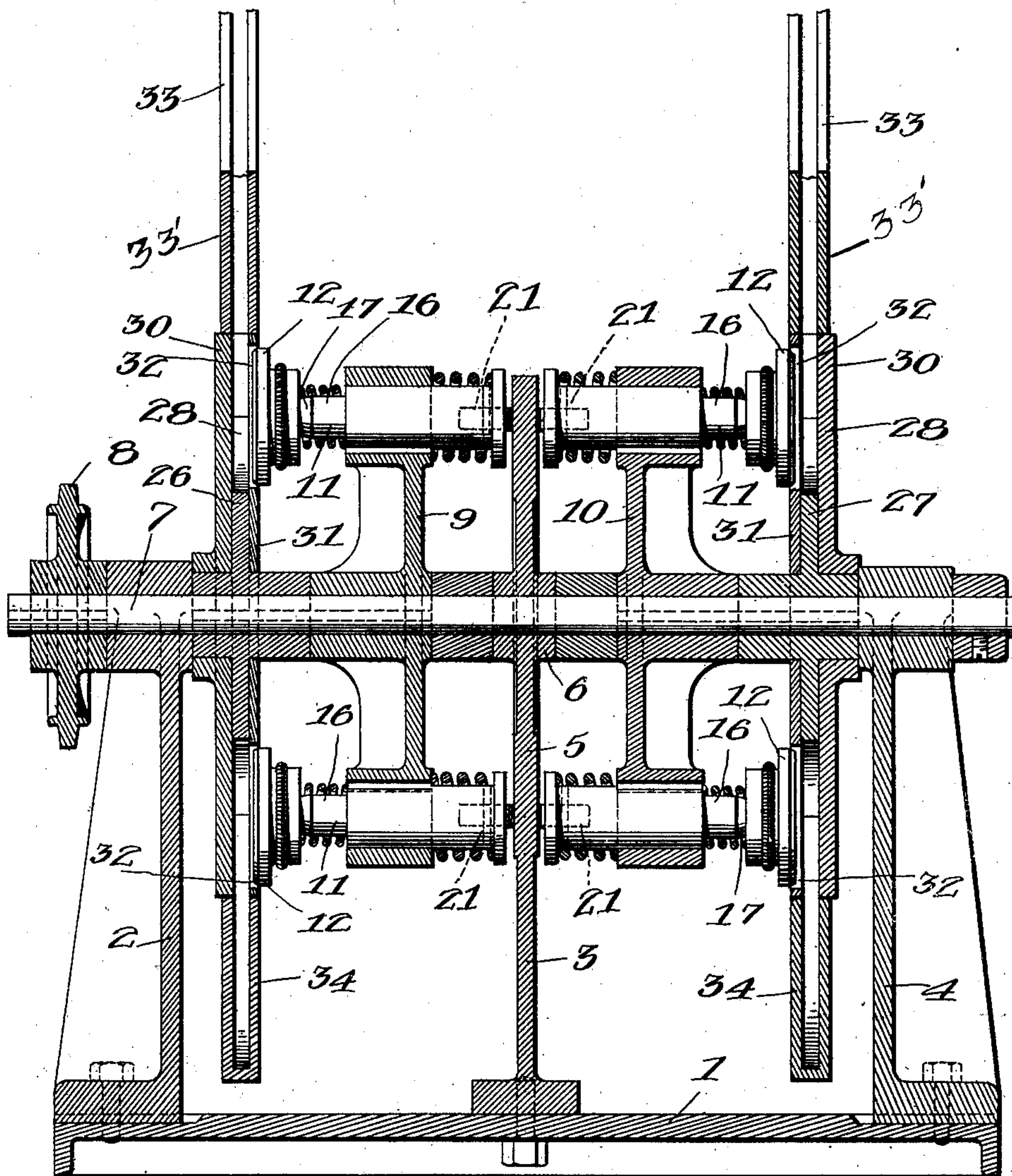
E. F. HARTLOVE.
 DEVICE FOR RE-FORMING CAN ENDS.
 APPLICATION FILED SEPT. 24, 1909.

983,278.

Patented Feb. 7, 1911.

3 SHEETS—SHEET 2.

Fig. 2.



Witnesses
W. H. Rodwell

Frank S. Breerton

Inventor
Emory F. Hartlove
 By *Titian W. Johnson*
 Attorney

E. F. HARTLOVE.
 DEVICE FOR RE-FORMING CAN ENDS.
 APPLICATION FILED SEPT. 24, 1909.

983,278.

Patented Feb. 7, 1911.

3 SHEETS—SHEET 3.

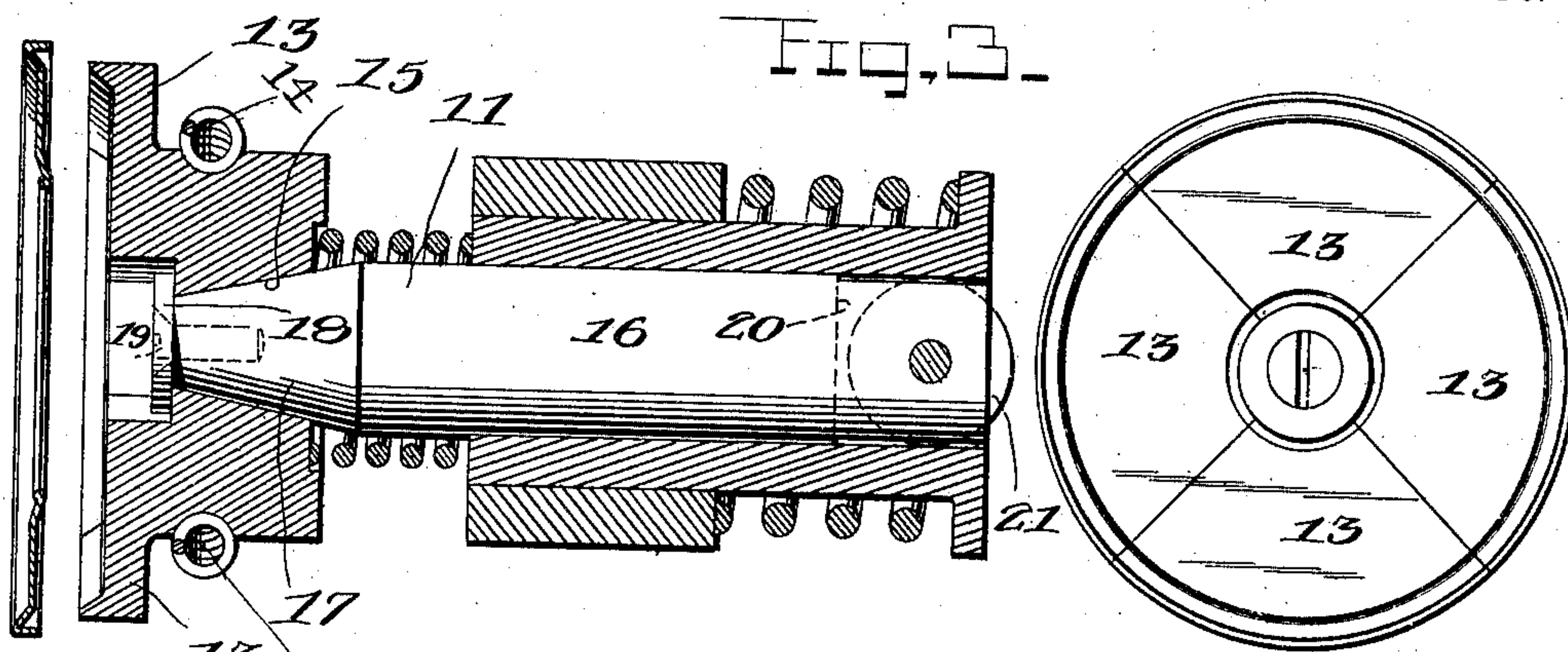


Fig. 4.

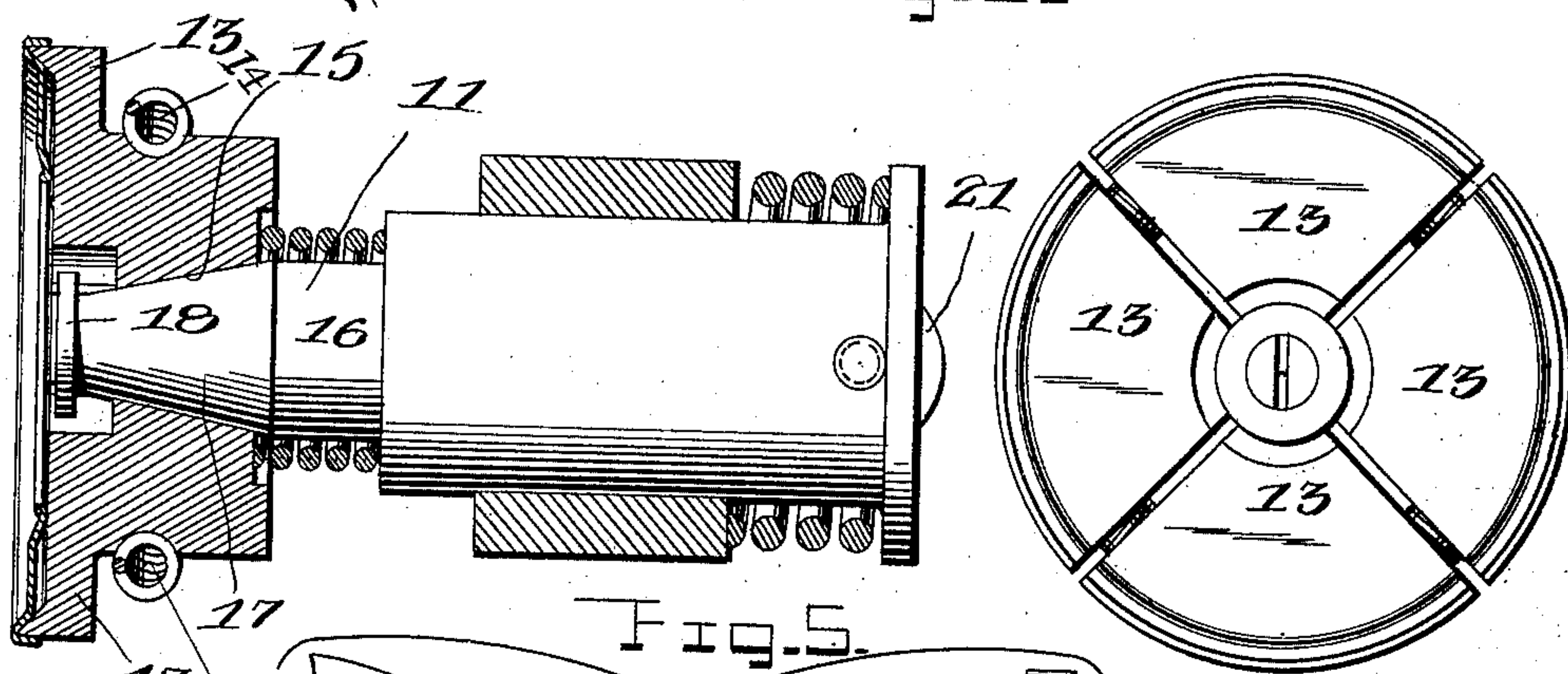
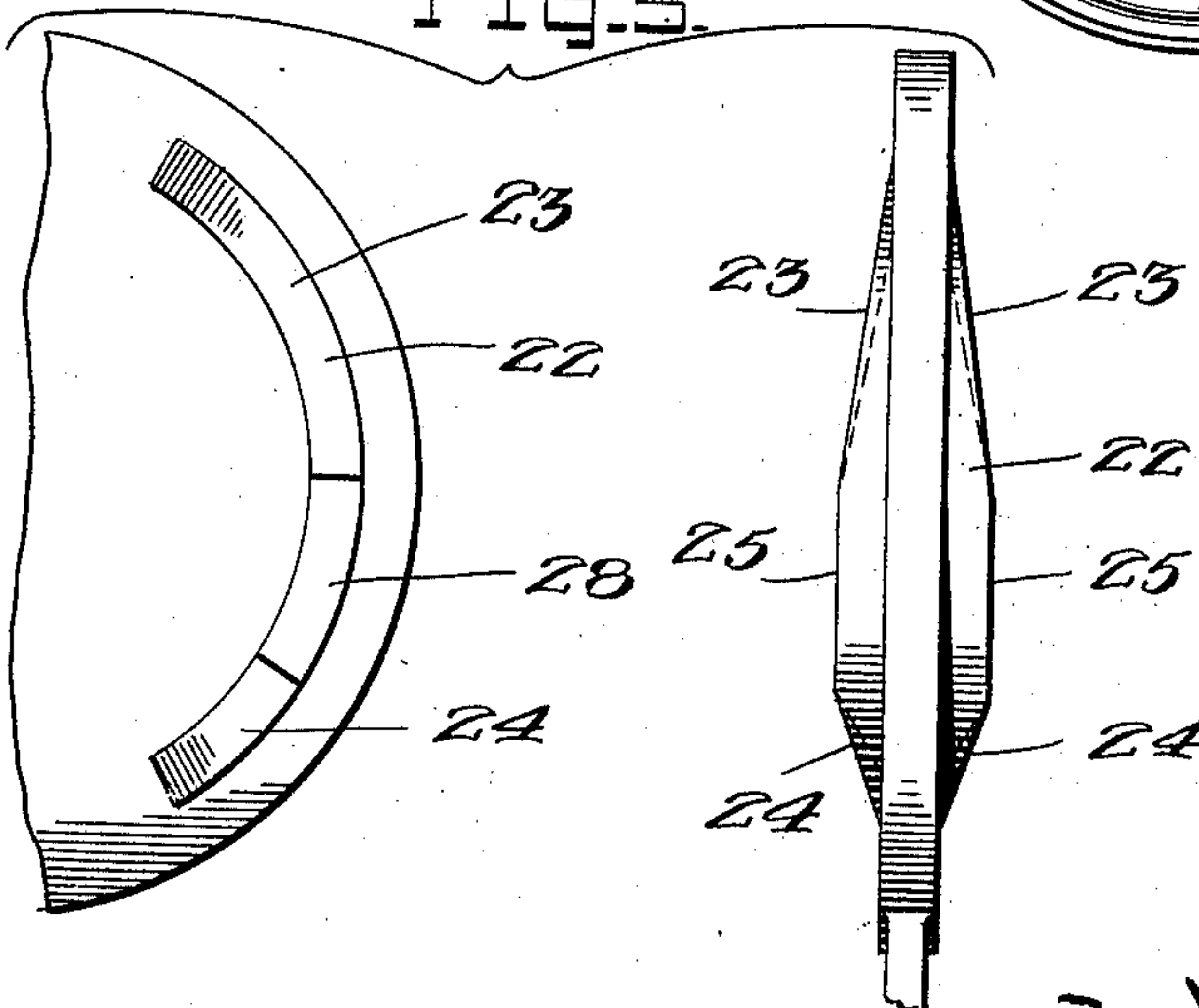


Fig. 5.



Witnesses
M. H. Rockwell
Frank S. Breton

By

Emory F. Hartlove
Titian W. Johnson
 Attorney

UNITED STATES PATENT OFFICE.

EMORY F. HARTLOVE, OF BALTIMORE, MARYLAND.

DEVICE FOR RE-FORMING CAN ENDS.

983,278.

Specification of Letters Patent.

Patented Feb. 7, 1911.

Application filed September 24, 1909. Serial No. 519,454.

To all whom it may concern:

Be it known that I, EMORY F. HARTLOVE, a citizen of the United States, residing at Baltimore city, State of Maryland, have invented certain new and useful Improvements in Devices for Re-Forming Can Ends, of which the following is a specification.

This invention relates generally to machines for making cans, particularly metal cans; and it has for its object to straighten the bent, dented or uneven places accidentally made in the can-ends, in handling before reaching the heading-mechanism, or "headers".

It is well known to all manufacturers of cans, that the flange of the can-ends, both top and bottom, frequently becomes bent or dented while being placed in receptacles, preparatory to carrying them to the runway-conveyers, so that it is found impossible to apply the damaged can-end to the can-body, owing to the closeness with which said ends are made to fit the can-body, without such injury or damage to the ends of said can-body as will render the can perfectly worthless as a merchantable article. As immense numbers of these cans are produced daily, it will be seen that the loss of material, time and labor to manufacturers, in damaged or imperfect cans, must amount to many thousands of dollars in the course of a year, so that the need of devising some effective method of overcoming the difficulty in presenting perfect can-ends to the heading-mechanism, has become an imperative necessity.

My invention is therefore designed to overcome the existing difficulty, and present or convey perfect can-ends to the can-headers at all times, and to this end it consists in conveying the can-ends from the conveyer-runways of can-making machines to receiving-chutes, connected with said runways, from which they drop, by gravity into seats arranged in rotatable wheels, where they are acted upon by reciprocatory, expansible devices to reform such ends as may have become damaged or injured, by having their flanges or bodies bent or indented while being handled previous to being placed in the conveyer-runways; after which the reformed can-ends pass into delivery-chutes, also connected with the conveyer-runways, and dropping therefrom into said runways are conveyed to the headers in perfect condition or form to be applied to the can-bodies.

In the accompanying drawings, which illustrate the device or machine employed in reforming the can-ends;—Figure 1 is a side elevation; Fig. 2 is a transverse, central, vertical section; Fig. 3 is a longitudinal central section of one of the expanders, including a face view thereof, showing the parts in normal or unexpanded position about to enter the can-end; Fig. 4 is a similar view, showing the parts in expanded position within the can-end; and Fig. 5 detail views, showing the side and edges of the cam-surfaces on the head of the central or intermediate support.

Referring to the several views, the numeral 1 indicates the base upon which the operative mechanism is supported by the vertical standards or uprights 2, 3 and 4, respectively, the intermediate standard, 3, being provided with a circular head 5 formed with a hub 6.

Journaled in suitable bearings in the standards 2 and 4, and in the hub 6 of the head 5, is a shaft 7, which is provided at one end with a driving-cog or pulley 8, driven from any suitable source of power-supply, not shown. Mounted on the shaft and keyed thereto, are two wheels 9 and 10, one at each side of the intermediate standard-head 5. Journaled in the rim of each wheel is a plurality of sectional reforming devices 11, each consisting of a head 12 divided into a plurality of sections 13, preferably four, held in normally closed position by an expansible band 14, preferably a coiled spring.

Each head is provided with a central tapering bore or aperture 15, in which a plunger 16, having a correspondingly tapered end 17, is adapted to operate to expand the sectional-head, by simultaneously forcing the respective sections in an outward direction. The plunger is slidably secured in the sectional-head by means of a washer 18, seated over the end of the plunger and secured in place by a screw 19, as shown in Figs. 3 and 4. The free end of each plunger is provided with a slot 20, in which is pivoted a roller 21 arranged to bear normally against the side of the standard-head 5. Each side of the standard-head is provided with a curved cam 22 having an operative surface formed of a gradually upward incline 23, and an abrupt decline 24, with an intervening table or flat portion 25, as shown in Fig. 5, upon which cam-sur-

face the rollers 21 are adapted to ride, for a purpose to be hereinafter explained.

Mounted on the shaft 7, and rotatable therewith, are two wheels 26, and 27, one at each side of said shaft. The periphery of each wheel is provided with a plurality of semi-circular seats or recesses 28, corresponding in number to the number of sectional-expanders, as shown by dotted lines in Fig. 1, and between each seat is a rest or support 29, upon which the can-end drops before rolling into the adjacent seat. Mounted on the hub of each wheel 26 and 27 is a circular disk 30, which forms a backing for the seats and against which the can-ends are supported during the process of reforming. Also mounted on the hub of each wheel 26 and 27, at the opposite side thereof, is a disk 31, provided with circular openings 32, through which the reforming devices pass, prior to being expanded, to reform the can-ends which roll from runway 33 of a can-making machine into the receiving-chute 33' and thence into the rests or supports 29, and thence into the seats 28 between the disks 30 and 31.

In operation, the can-ends pass from the conveyer-runways into the receiving-chutes, tops in one chute and bottoms in the other, and falling upon the temporary rests 29 roll into the seats 28, and as the wheels 9, 10 and 26 and 27 revolve, the reforming-devices are forced through the openings 32 into the can-ends seated in the seats 28, and expanded by the stationary cams 22, which, owing to their gradually increasing thickness, force the plungers outward, their tapering ends expanding the sections against the flanges of the can-ends, which action removes all dents or uneven places that may have been accidentally made in said flanges, or other parts of the can-ends, by the pressure exerted upon the reforming devices, which pressure is produced by the inclined surface of the cams 22, upon which the rollers in the ends of the plungers act as the wheels revolve. After the can-ends have been reformed, the reforming devices are withdrawn, pressure thereon being relieved by the abruptly inclined portion of the operating-surface of the cams, and the reformed can-ends allowed to drop into the delivery chutes 34 and be delivered into the conveyer-runway 34', and conveyed to the heading-mechanism. To prevent the can-ends from accidentally "jumping" or being forced out of their seats each wheel, 26 and 27, is provided with a curved guard 35, which encircles the wheel for a portion of its circumference.

Various modifications or changes in the details of constructions of the machine, may be made without changing or altering the spirit of my invention or sacrificing the principle thereof.

Having fully described my invention, what I claim is:—

1. In a machine of the character described, the combination of a vertically-positioned can-end support, an automatically-operated expansible device for reforming or reshaping the can-ends, and means for automatically delivering said can-ends, in vertical position, to a suitable runway.

2. In a machine of the character described, the combination of a vertically-positioned support for the can-ends, means for automatically feeding said can-ends to said support, an automatically-operated expansible device for reforming or reshaping the can-ends, and a chute for delivering the reformed or reshaped can-ends, in vertical position, to a suitable runway.

3. In a machine of the character described, the combination of a vertically-positioned can-end support, an expansible device provided with a movable plunger, and a cam arranged to move the plunger, causing the expansible device to expand and reshape the can-end.

4. In a machine of the character described, the combination of a vertically-positioned can-end support, a rotatable expansible device provided with a movable plunger, and a fixed cam arranged to bear upon the plunger, whereby the rotation of the expansible device will cause the plunger to expand said expansible device and reshape the can-end.

5. In a machine of the character described, the combination of a vertically-positioned can-end support, an expansible device provided with a spring-restrained plunger having a conical end, and a cam arranged to effect the movement of the plunger, whereby the expansible device is caused to expand and reshape the can-end.

6. In a machine of the character described, the combination of a vertically-positioned can-end support, a chute for automatically feeding can-ends to said support, an expansible device provided with a movable plunger, and a cam arranged to effect the movement of the plunger, whereby the expansible device is expanded to reshape the can-ends.

7. In a machine of the character described, the combination of a vertically-positioned can-end support, a chute for automatically feeding can-ends to said support, an expansible device provided with a movable plunger, a cam arranged to effect the movement of the plunger, whereby the expansible device is expanded to reshape the can-ends, and a chute for delivering the reshaped can-ends to a suitable runway.

8. In a machine of the character described, the combination of a vertically-positioned can-end support, a chute for automatically feeding can-ends to said support, a rotatable

expansible device provided with a spring-restrained plunger, and a fixed cam arranged to effect the movement of the plunger, upon the rotation of said expansible device, whereby the expansible device is expanded to reshape the can-ends.

9. In a machine of the character described, the combination of a vertically-positioned can-end support, a chute for automatically feeding can-ends to said support, a rotatable expansible device provided with a spring-restrained plunger, a fixed cam arranged to effect the movement of the plunger upon the rotation of the expansible device, and a chute for automatically delivering the reshaped can-ends to a suitable runway.

10. In a machine of the character described, the combination of a plurality of rotatable can-end supports, a plurality of rotatable expansible devices provided with movable plungers, a fixed cam arranged to effect the movements of the plungers, where-

by the expansible devices are caused to expand, and chutes arranged to automatically feed the can-ends to the supports.

11. In a machine of the character described, the combination of a plurality of oppositely arranged rotatable can-end supports, a plurality of oppositely-arranged, rotatable, expansible devices provided with movable plungers, a standard fixed intermediate of the oppositely-arranged expansible devices, a cam arranged on each face of said standard to effect the movements of the plungers, whereby the expansible devices are caused to expand, and chutes for automatically feeding the can-ends to the supports.

In testimony whereof I affix my signature in presence of two witnesses.

EMORY F. HARTLOVE.

Witnesses:

JNO. F. O'MEARA,

ASBURY W. HARTLOVE.