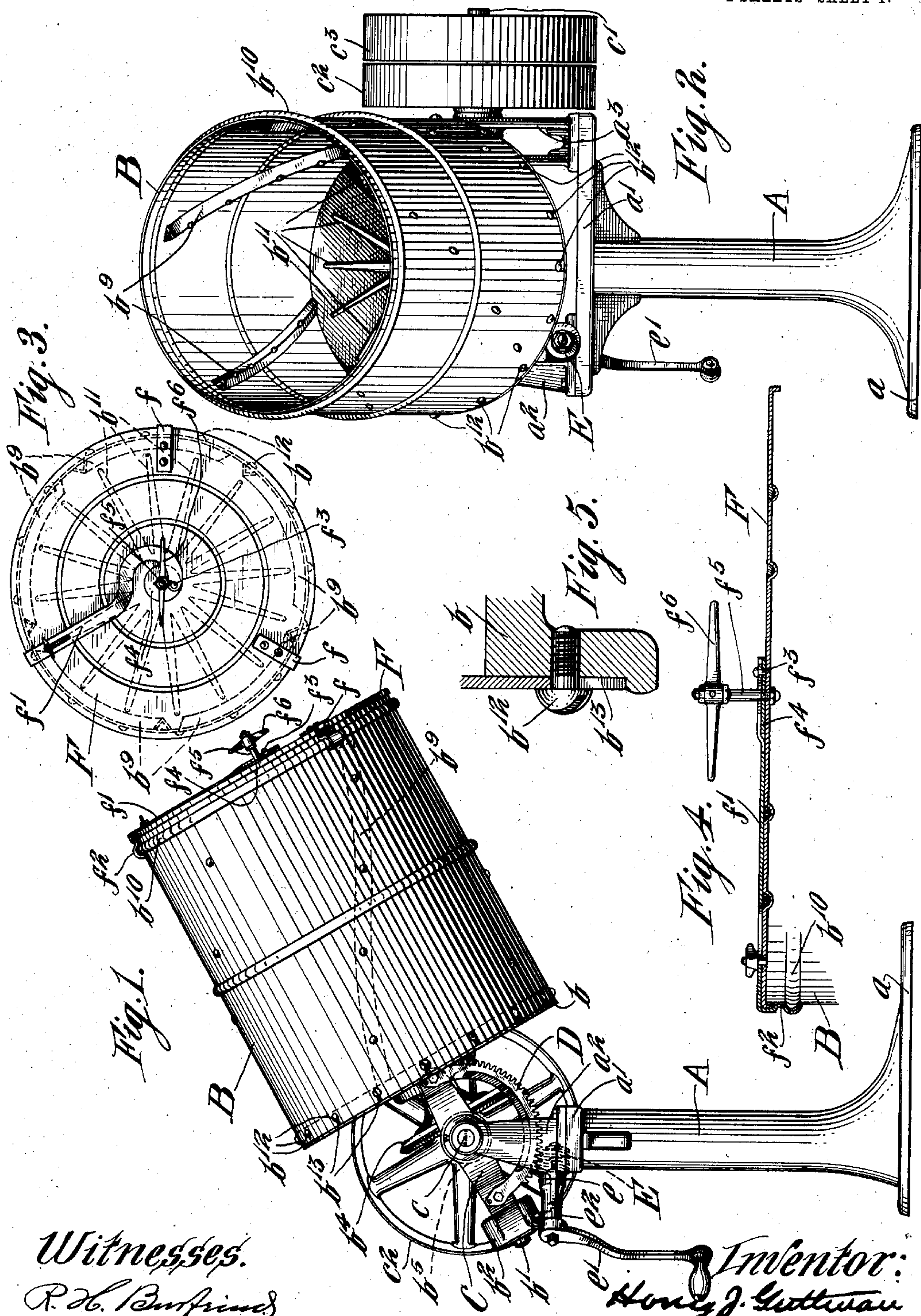


No. 864,242.

PATENTED AUG. 27, 1907.

H. J. GUTTMAN.
TUMBLING BARREL.
APPLICATION FILED JUNE 14, 1905.

2 SHEETS—SHEET 1.



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Fig. 7.

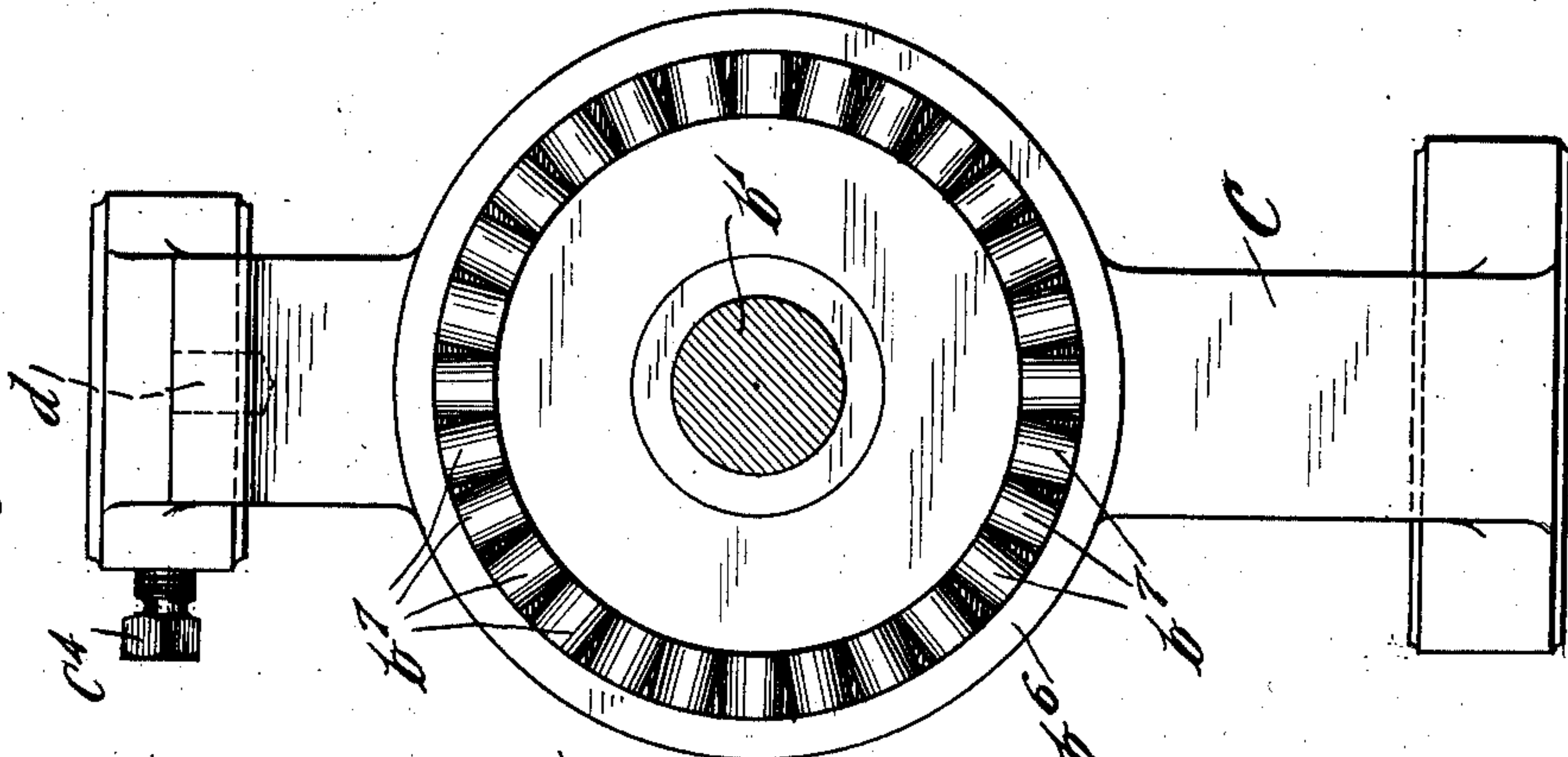
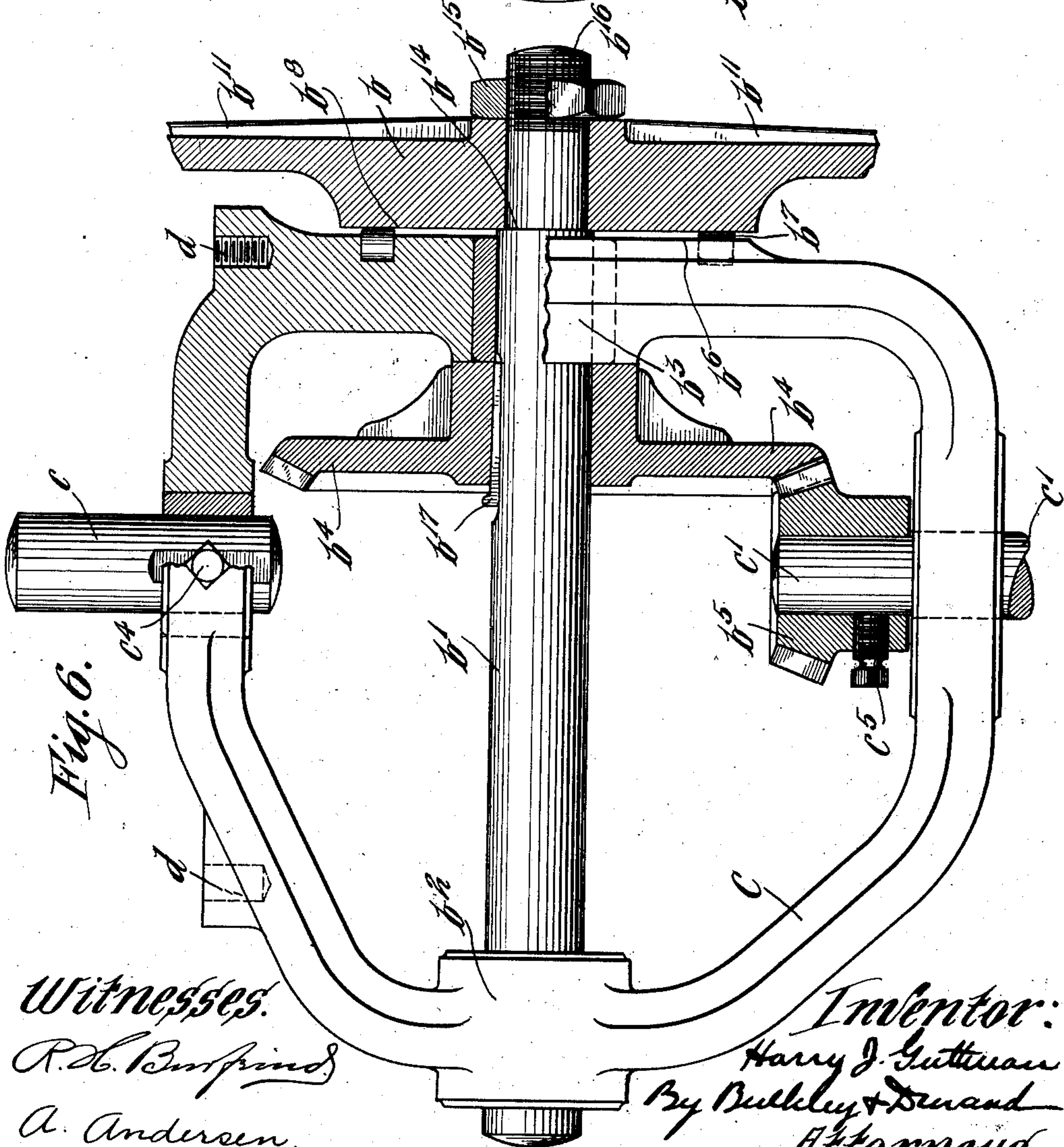


Fig. 6.



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UNITED STATES PATENT OFFICE.

HARRY J. GUTTMAN, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-THIRD TO ALEXANDER E. KEITH AND ONE-THIRD TO SAMUEL COLE, OF CHICAGO, ILLINOIS.

TUMBLING-BARREL.

No. 864,242.

Specification of Letters Patent.

Patented Aug. 27, 1907.

Application filed June 14, 1905. Serial No. 265,225.

To all whom it may concern:

Be it known that I, HARRY J. GUTTMAN, a citizen of the United States of America, and a resident of Chicago, Cook county, Illinois, have invented a certain new and useful Improvement in Tumbling-Barrels, of which the following is a specification.

My invention relates to tumbling barrels in general, but more particularly to tumbling barrels of a size and character to be readily and easily adjusted by hand.

Ordinarily, devices of this character comprise a rotatable receptacle called the tumbling barrel, and are adapted to receive the saw-dust and small castings to be treated—that is, to receive the materials or articles which are to be tumbled about for the purpose of taking off the sharp edges and smoothing down the rough surfaces. It is the practice to operate these barrels either by hand or by power, according to their size or capacity, and according to the character of the articles or materials to be treated. My invention, however, as stated, relates more particularly to tumbling barrels which are operated by belt and pulley or other power-transmitting connections, but which are of a size and character to be readily and easily adjusted or properly positioned by hand.

Generally stated, the object of my invention is the provision of an improved, simplified and highly efficient tumbling barrel adapted for use in connection with various kinds of work, either dry or wet.

Certain special objects of my invention are the provision of an improved interior formation for the barrel, tending to produce a more efficient tumbling action; to provide an improved cover or closure for the end of the barrel, which can be quickly opened or closed; to provide an improved arrangement whereby the axis about which the barrel rotates can be given any suitable or desired inclination; to provide an improved construction and arrangement which will permit the inclination of the barrel to be varied or changed without stopping its rotation; and to provide certain details and features of improvement tending to increase the general efficiency and serviceability of a tumbling barrel of this particular character.

To the foregoing and other useful ends, my invention consists in matters hereinafter set forth and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a tumbling barrel involving the principles of my invention. Fig. 2 is a front elevation of the machine shown in Fig. 1. Fig. 3 is a top view of the removable cover or closure for the mouth or upper end of the tumbling barrel. Fig. 4 is an enlarged detail cross-section of the said cover or closure. Fig. 5 is an enlarged detail sectional view showing the method of connecting the side walls of the barrel to its base or bottom. Fig. 6 is an enlarged plan view of the yoke,

a portion thereof, as well as certain adjacent parts, being shown in section. Fig. 7 is an end view of the said yoke, showing the circular row of anti-friction rolls for taking up friction between the yoke and the bottom of the tumbling barrel.

As thus illustrated, my invention comprises an upright standard or pedestal A having a base *a* adapted to be secured to a floor or other supporting structure. The said pedestal or standard is of a height to support the rotary barrel B and other operative parts in suitably elevated positions. For this purpose, the upper end of the pedestal or upright is provided with a horizontal portion *a*¹ having mounted thereon a couple of upright bearings *a*² and *a*³. The tilting yoke C is positioned between these two bearings and supported thereon by means of trunnions whereof one is simply a short pin or stud *c* and the other a rotatable shaft *c*¹. The said shaft *c*¹ is provided with fast and loose pulleys *c*² and *c*³, whereby the shaft may be operated by a suitable belt. As illustrated, the said barrel B is provided with a bottom *b* having secured thereto a shaft or axis *b*¹, the latter being supported for rotation in bearings *b*² and *b*³ carried at the opposite ends of the tilting yoke C. A power-transmitting connection, consisting of a bevel-gear *b*⁴ on the said shaft or axis *b*¹, and of a bevel-pinion *b*⁵ meshing with the said pinion and mounted on the shaft *c*¹, is provided for communicating power and motion from the fast pulley *c*² to the said barrel. The bevel-gear *b*⁴ has its hub portion adapted to engage the bearing *b*³, so as to act as a collar for the purpose of preventing the shaft or axis *b*¹ from being shifted endwise or displaced when the machine is operated. The upper end of the yoke is also provided with a thrust-bearing *b*⁶ provided with anti-friction rolls *b*⁷ adapted to bear upon the opposing thrust-bearing *b*⁸ formed on the bottom of the barrel. In this way, the said barrel is adapted to be rotated at any angle to which the said yoke C may be adjusted.

The inclination of the barrel, and of the yoke upon which it is supported, may be changed or varied by any suitable means. For example, the said yoke may be provided with a semi-circular rack D adapted to engage a horizontally disposed screw or worm E, the latter being supported in a bearing *e* carried by the upper portion of the pedestal or upright. The outer end of the shaft upon which the said screw or worm is mounted can be provided with a hand-crank *e*¹, whereby the screw or worm may be rotated for the purpose of tilting the yoke C about its axis. Also, a split collar *e*² can be mounted upon the outer end of the screw or worm-shaft, and adapted to have an engagement with the said bearing of such character that it will not rotate when the shaft is rotated. With this arrangement, the split collar can be tightened sufficiently to act as a friction device for holding the shaft in any position to

which it may be rotated by the said crank. In this way, the crank e^1 can be employed for rotating the set-screw or worm in either direction, so as to either raise or lower the barrel B.

- 5 For some kinds of work it may be necessary to give the barrel practically a horizontal position, while for other varieties of work it may be found desirable to give it a more or less inclined position. Furthermore, the barrel can be tilted up to a more or less vertical position when it is desired to load it, and it may then be
10 given a more or less horizontal position when it is closed and put in operation. As shown, the sides of the barrel are provided with spiral and internally arranged ribs b^9 which increase the tumbling action—that is to say,
15 which enable the barrel to more efficiently treat the articles or materials placed within it. At its mouth or outer end, the said barrel is provided with a closure F adapted to fit tightly around the perimeter of the said barrel.
- 20 In order that the closure or cover may be quickly removed or replaced, it is provided with a couple of rigid or stationary catch devices f , each adapted to engage the rib or ridge b^{10} extending around the perimeter of the barrel, and also with a movable catch
25 device f^1 . This movable catch device consists of a bar having an end portion f^2 adapted to extend over and engage the said bead or ridge b^{10} on the outside of the barrel. At its inner end, the said bar is pivoted at f^3
30 to the disk or crank-plate f^4 which is secured to the rotatable stud or short shaft f^5 . A handle f^6 , secured to the upper or horizontal end of the said stud or short shaft, constitutes the means for rotating the disk or crank-plate f^4 , and for thereby causing the catch device f^1 to move toward and away from the edge of the
35 barrel, according to the direction of rotation. In this connection, it will be seen that the inner end portion of the bar constituting the catch device f^1 is curved and brought around the stud or shaft f^5 to its point of pivotal connection with the disk or crank-plate f^4 ,
40 thereby making possible the reciprocation of this bar by simply turning the handle f^6 one way or the other. With this arrangement, the said closure or cover F can be very quickly and easily removed or replaced, and, in addition, the cover is very firmly held in place upon
45 the mouth or open end of the barrel. It will also be seen that the bottom of the barrel is preferably provided with radially and internally arranged ribs b^{11} , these ribs being also instrumental in increasing the efficiency of the tumbling action. In other words, the
50 interior of the barrel is provided with radially extending bottom ridges or ribs, and with spirally arranged side ribs or ridges.

By referring to Figs. 1 and 5, it will be seen that the cylindrical side walls of the barrel are secured to the
55 base or bottom b by means of screws b^{12} . Preferably, each screw extends through a slot or notch b^{13} in the lower edge of the cylindrical side walls of the barrel,

whereby these screws can be loosened and the cylindrical portion of the barrel easily and quickly removed from the said base or bottom. 60

A set-screw c^4 is inserted through the yoke and employed for holding the stud or pin c against rotation in the yoke. The semi-circular rack D can be secured to the yoke by screws or bolts inserted in the threaded sockets d . Also, as illustrated, the shaft or axis b^1 is
65 provided with a shoulder b^{14} against which the bottom of the barrel is clamped and held by means of a nut b^{15} screwed upon the reduced and threaded outer end portion b^{16} of the said shaft. A key b^{17} can be employed for securing the bevel-gear b^4 to the shaft b^1 ; and a set-screw c^5 can be employed for securing the bevel-pinion
70 b^5 to the shaft c^1 .

With a tumbling barrel of the foregoing construction, the materials to be treated can be readily and easily introduced into the interior of the barrel, and can be
75 as readily and easily discharged therefrom. Furthermore, the position of the barrel can be easily changed or adjusted, according to the different requirements, and this can even be done while the barrel is rotating.

What I claim as my invention is: 80

1. A tumbling barrel comprising a tilting support, a shaft mounted in two separated bearings on said support and arranged at right angles to the axis of the latter, a power-transmitting connection including the bevel gear b^4 between the said shaft and the axis of the tilting support, said gear positioned between said bearings, a rotatable
85 barrel secured to the end of said shaft, a thrust-bearing for the bottom of the barrel, and means for giving the tilting support different positions.

2. A tumbling barrel comprising a tilting support, a shaft mounted in bearings on said support, a rotatable barrel secured to one end of said shaft, a circular anti-friction thrust-bearing intermediate of the said support and barrel, power-transmitting connections for rotating said shaft, fully encircled by said tilting support and means for giving the tilting support different positions. 90 95

3. A tumbling barrel comprising an upright pedestal, a tilting yoke mounted on said pedestal, a rotatable barrel having its bottom provided with an axis rotatably mounted in separated bearings on said yoke, a power-transmitting connection between the axis of the yoke and the axis of the barrel entirely encircled by said yoke, a curved rack carried by said yoke, a screw or worm engaging said rack and mounted for rotation in a bearing carried by the said pedestal, means for rotating said screw or worm for the purpose of changing the position of the barrel, and a friction device for holding the said screw or worm in any position to which it may be rotated. 100 105

4. A tumbling barrel comprising a tilting support, a shaft mounted in bearings on said support and arranged at right angles to the axis thereof, a bottom or base secured to the end of said shaft, cylindrical walls removably secured to said bottom or base, and a closure removably secured to the other end of said cylindrical walls, together with means for rotating said shaft. 110 115

Signed by me at Chicago, Cook county, Illinois, this 22 day of May, 1905.

HARRY J. GUTTMAN.

Witnesses:

W. E. COOKE,

W. LEE CAMPBELL.