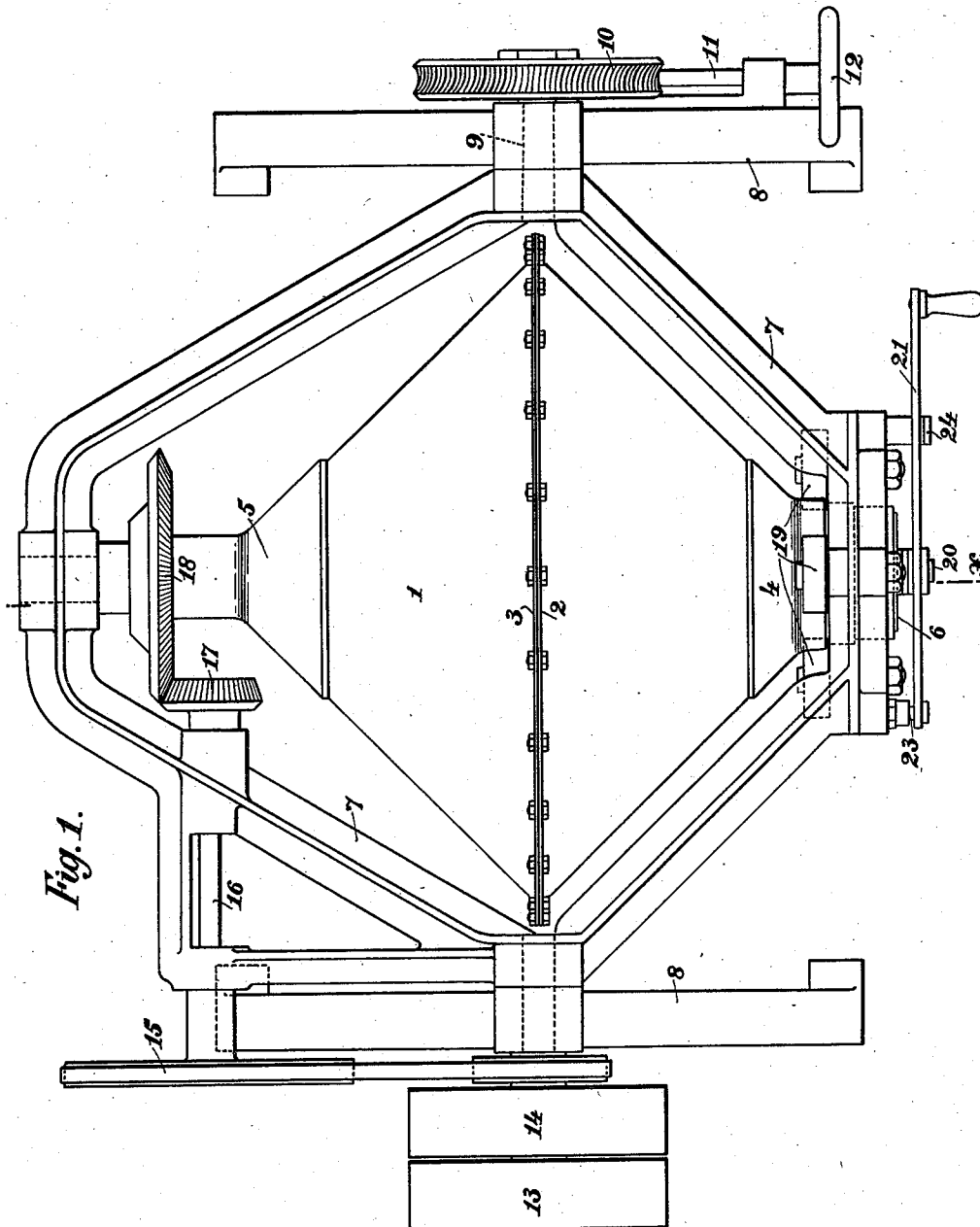


1,010,229.

Patented Nov. 28, 1911.

5 SHEETS—SHEET 1.



WITNESSES.

W. H. Keeler
W. H. Keeler

INVENTOR *George F. Bull*

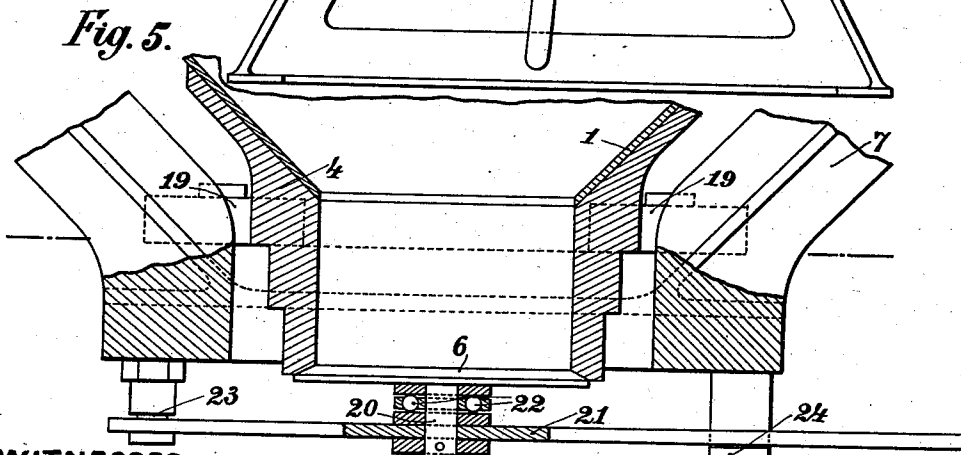
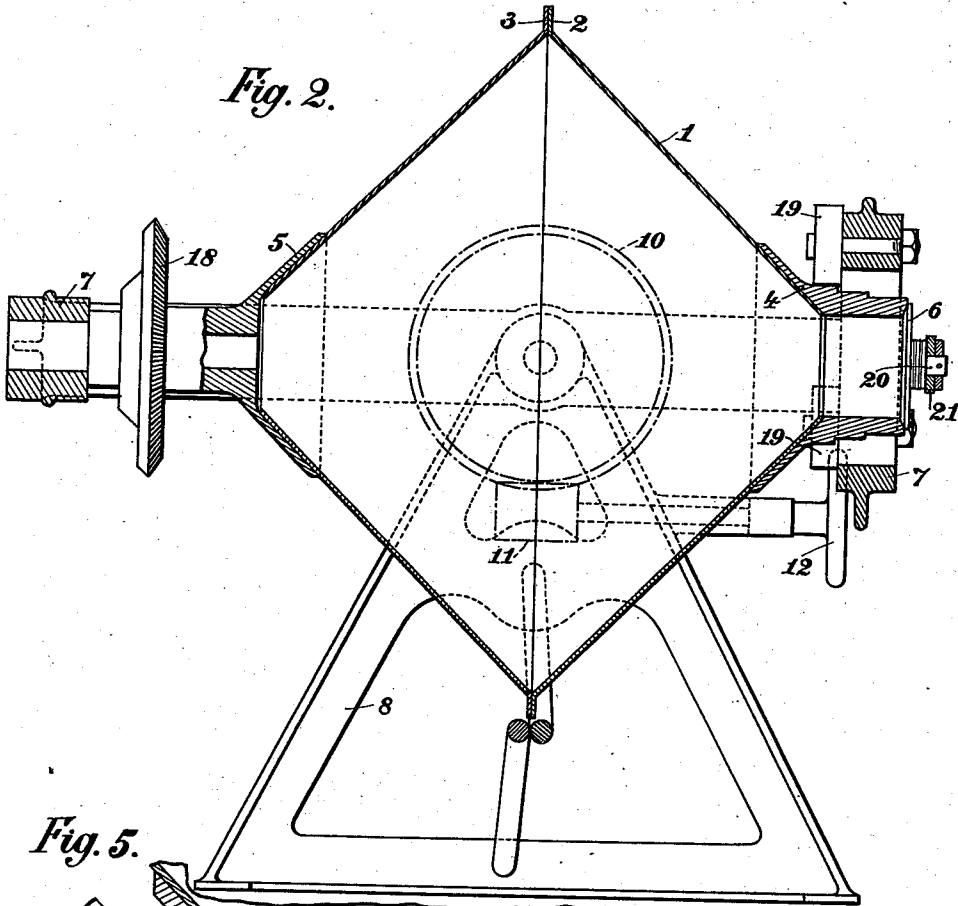
By *James L. Norris*
Att'y.

G. F. BULL.
SHAKING BARREL.
APPLICATION FILED MAY 6, 1910.

1,010,229.

Patented Nov. 28, 1911.

5 SHEETS—SHEET 2.



WITNESSES

W. B. Kessler
Chas. Kessler

INVENTOR

George F. Bull

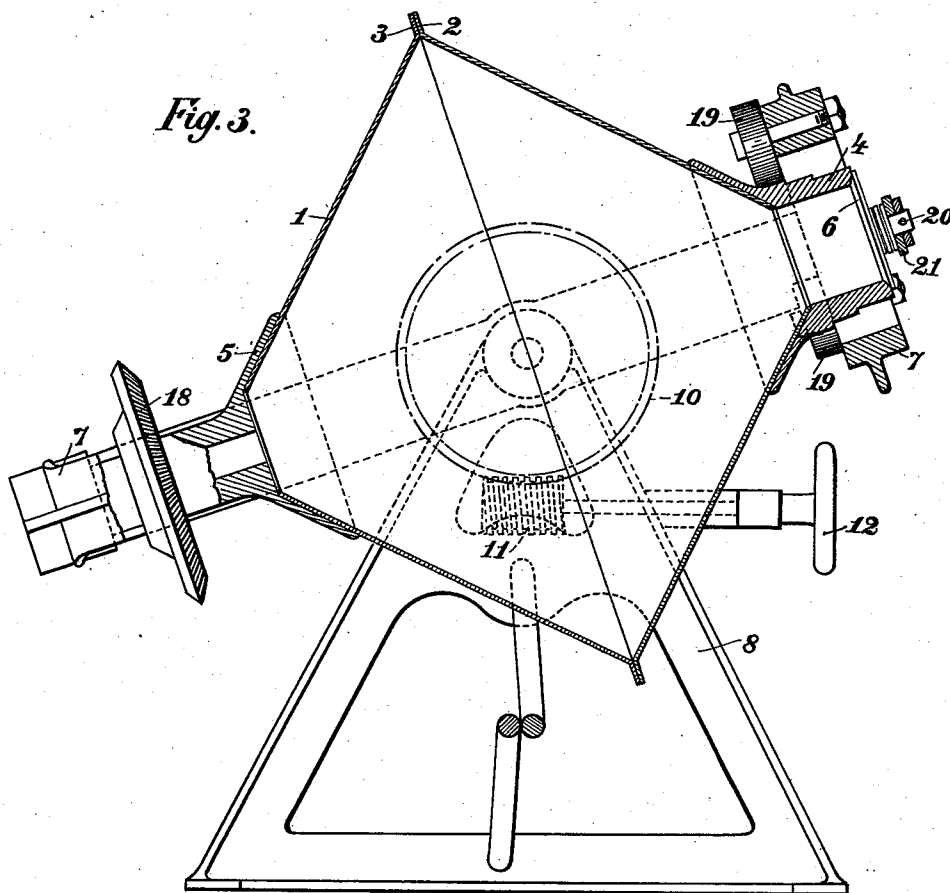
By *James L. Norris*
1911

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Patented Nov. 28, 1911.

5 SHEETS—SHEET 3.



WITNESSES.

[Signatures of witnesses]

INVENTOR *George F. Bull*

James L. Morris Jr.
[Signature]

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6 SHEETS—SHEET 4.

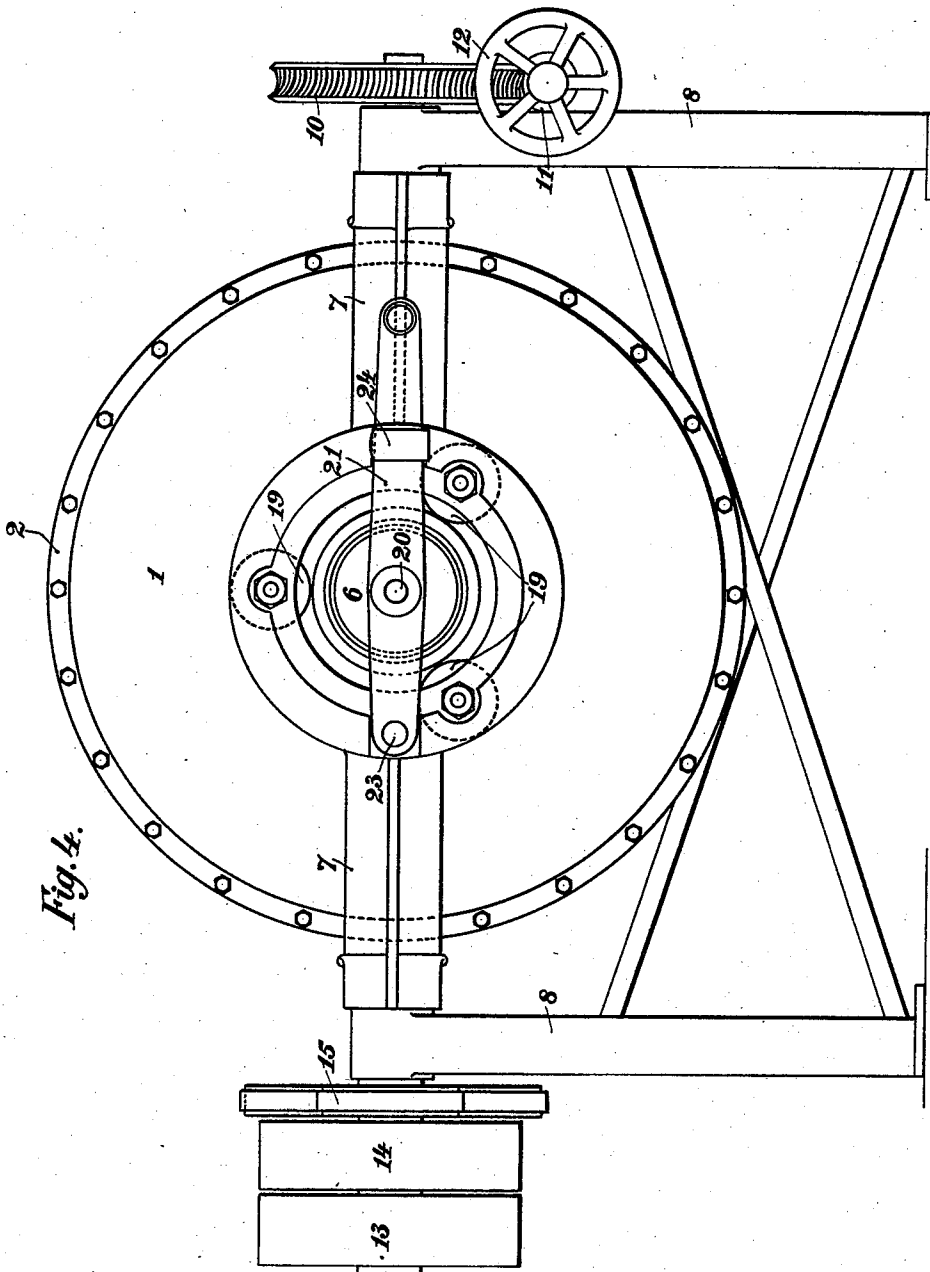


Fig. 4.

WITNESSES

[Signature]
E. H. Hester

INVENTOR. *George F. Bull*

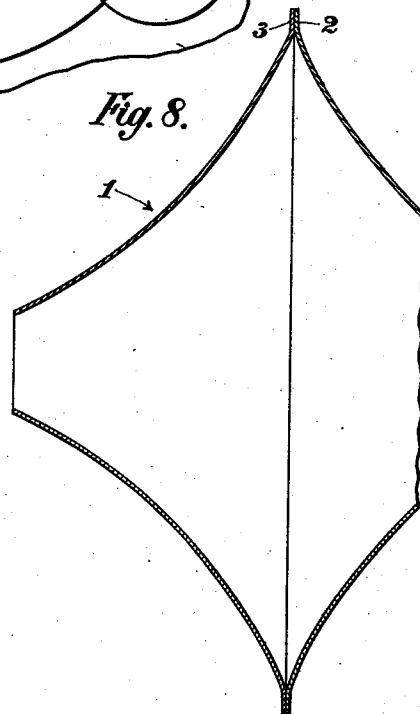
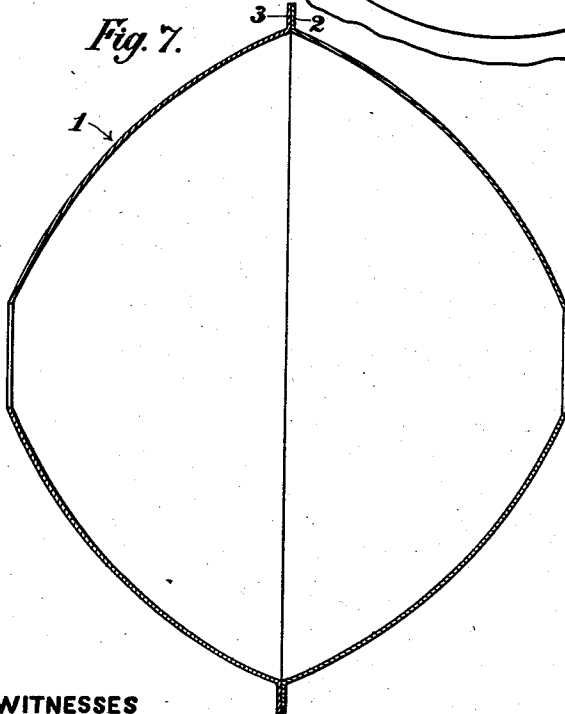
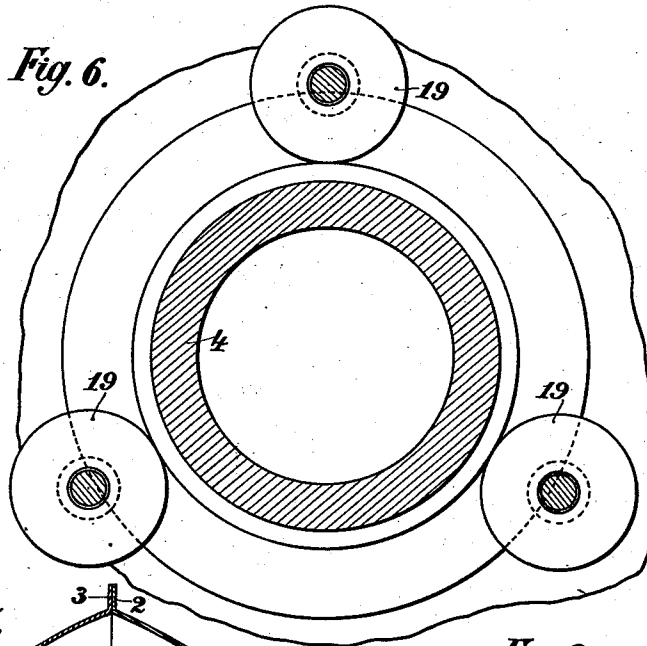
By *James L. Norris*
[Signature]

G. F. BULL.
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APPLICATION FILED MAY 6, 1910.

1,010,229.

Patented Nov. 28, 1911.

5 SHEETS—SHEET 5.



WITNESSES

[Signature]
[Signature]

INVENTOR

George F. Bull
James L. Morris
Atty.

UNITED STATES PATENT OFFICE.

GEORGE FREDERICK BULL, OF BIRMINGHAM, ENGLAND.

SHAKING-BARREL.

1,010,229.

Specification of Letters Patent.

Patented Nov. 28, 1911.

Application filed May 6, 1910. Serial No. 559,800.

To all whom it may concern:

Be it known that I, GEORGE FREDERICK BULL, a subject of the King of Great Britain, residing at Tilton Road, Small Heath, Birmingham, England, have invented certain new and useful Improvements in Shaking-Barrels, of which the following is a specification.

This invention relates to shaking or tumbling barrels such as are used for cleaning, polishing and finishing of small metallic articles, and for performing analogous operations.

With ordinary shaking barrels, when the scouring or polishing material is introduced into the barrel in a dry state, it does not mix properly with the articles, there being an excess of material at some points, and very little, or none at all, at other points, which renders the scouring or polishing of the articles a lengthy process. In order to insure the intimate contact of the scouring material with the articles it is often mixed with water, and introduced into the barrel in a liquid state. This method of scouring is, however, very slow, and the principal object of the present invention is to provide an improved construction of shaking barrel which insures the perfect mixing and uniform distribution of the scouring materials with the articles when used in a dry or wet state, thereby greatly reducing the time necessary for completing the operation.

According to this invention, at some point between the opposite ends, the barrel is of greater diameter than the other portions, so as to divide it into two conical or like parts, having inclined or curved walls sloping down from the greatest diameter and converging toward said ends the arrangement being such that as the barrel revolves and the articles are taken around with it, they are thrown down and fall to one point, thereby insuring the perfect mixing of the scouring materials with the articles.

Figure 1 of the accompanying drawings, represents a top-side plan of a shaking barrel constructed in accordance with this invention. Fig. 2 shows a vertical cross-section through x Fig. 1. Fig. 3 is a vertical cross-section through the barrel, showing same tilted for the purpose of charging or filling. Fig. 4 represents an end elevation of the barrel. Fig. 5 shows an enlarged section through the filling end of same. Fig. 6 is an enlarged section showing the roller-

bearings upon which the one end of the barrel revolves. Figs. 7 and 8 show longitudinal cross-sections through two slightly modified forms of barrels.

The same reference numerals indicate corresponding parts in each of the figures in the drawings.

The improved barrel 1 consists of two similar cone like halves or end portions, provided at their inner or enlarged ends with an external flange 2, 3, said flanges being riveted or bolted together so as to unite the two halves and complete the barrel. The latter is thus of a larger diameter at a point mid-way between its ends, that is, at the junction of the two conical halves, the straight sides of said halves running down from the mid-point or junction to the opposite ends 4, 5, of the barrel. The said end 4 is left open for the purpose of filling or emptying, and is adapted to be closed by a closure plate 6, hereafter more fully described. To facilitate these charging or emptying operations the barrel is rotatably supported, at its opposite ends, within a horizontally arranged cradle or framework 7 which is rotatably mounted at its opposite sides between fixed side frames or standards 8. At the one side the trunnion 9 extends through the bearing in the frame 8, and carries at its end a worm-wheel 10 adapted to be turned in either direction by the worm 11 operated by a hand wheel 12. The barrel 1 is thus capable of being turned or tilted upon a transverse axis so as to turn its open end 4 either upward into a suitable position for charging as shown in Fig. 3, or downward for discharging.

The barrel is adapted to be rotated through fast and loose pulleys 13, 14, in line with the axis of the cradle, the pulley 13 serving through the medium of the belt 15, to drive a transverse shaft 16 which revolves in bearings carried by the cradle, and which carries a bevel pinion 17 engaging with a bevel wheel 18 mounted upon the end 5 of the barrel 1, which can by this means be driven with the cradle in any position. The axis of the shaft 16 is obviously parallel to the axes of the trunnions by which the cradle is supported. As the barrel revolves the articles are taken around with it until they reach such a height that their weight overcomes the effect of the centrifugal force and causes them to fall. Owing, however, to the fact of the inside walls being inclined, and slop-

ing down upon either side of the center, the articles are all thrown down to one point, which has the effect of producing a perfect and uniform mixing of said articles with the scouring materials.

In order to reduce friction as much as possible, the end 4 of the barrel revolves upon and is supported by rollers 19 carried by the cradle 7. The closure plate 6 is provided with a shank 20 pivotally mounted in a bar 21, and to allow of the said plate revolving with the barrel, and to reduce friction, ball thrust bearings 22 are provided. The bar 21 is pivoted at one end 23 to the cradle and is engaged by a spring clip 24 so as to keep the plate 6 in its closed position. To remove the said closure plate for charging or emptying the barrel, the bar is first pulled slightly forward and then turned upon its pivot 23, taking the plate with it and having the end of the barrel open.

If desired, the barrel 1 may be provided with sides shaped as shown in Figs. 7 and 8.

Having fully described my invention, what I desire to claim and secure by Letters Patent is:—

1. A shaking barrel construction comprising the barrel proper provided with end trunnions which extend in the direction of its axis of rotation, one of the trunnions being hollow and communicating with the interior of the barrel, a frame in which the trunnions are journaled, rollers carried by the frame and engaging and supporting the hollow trunnion, a bevel wheel provided on the other trunnion, a bevel wheel carried by the frame and engaging the first-named bevel wheel, supports in which the frame is pivotally mounted, the pivotal axis of the frame being at a right angle to the axis of

rotation of the barrel, and driving means for the second-named bevel wheel.

2. A shaking barrel construction comprising the barrel proper provided with end trunnions which extend in the direction of its axis of rotation, one of the trunnions being hollow and communicating with the interior of the barrel, a support in which the trunnions are journaled for rotation, means for rotating the barrel, a closure plate for the hollow trunnion, the plate having a projecting shank, a bar pivoted on the support and through which the shank extends, and roller bearings provided between the bar and the plate.

3. A shaking barrel construction including the barrel proper, a normally horizontally disposed cradle in which the end portions of the barrel are journaled for rotation, the cradle having axially aligned trunnions at opposite sides thereof and between the bearings for the ends of the barrel, bearings in which the trunnions are journaled, a driving pulley located in axial alinement with the trunnions and outside of the cradle, a transverse shaft journaled in the cradle, the axis of the shaft being parallel to the axes of the trunnions, a pulley on the outer end of said shaft, a belt connecting said pulleys, a bevel pinion on the inner end of said shaft, and a bevel pinion on the adjacent end of the barrel and in mesh with said first-named pinion.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

GEORGE FREDERICK BULL.

Witnesses:

HENRY NORTON SKERRETT,
HENRY SKERRETT.