

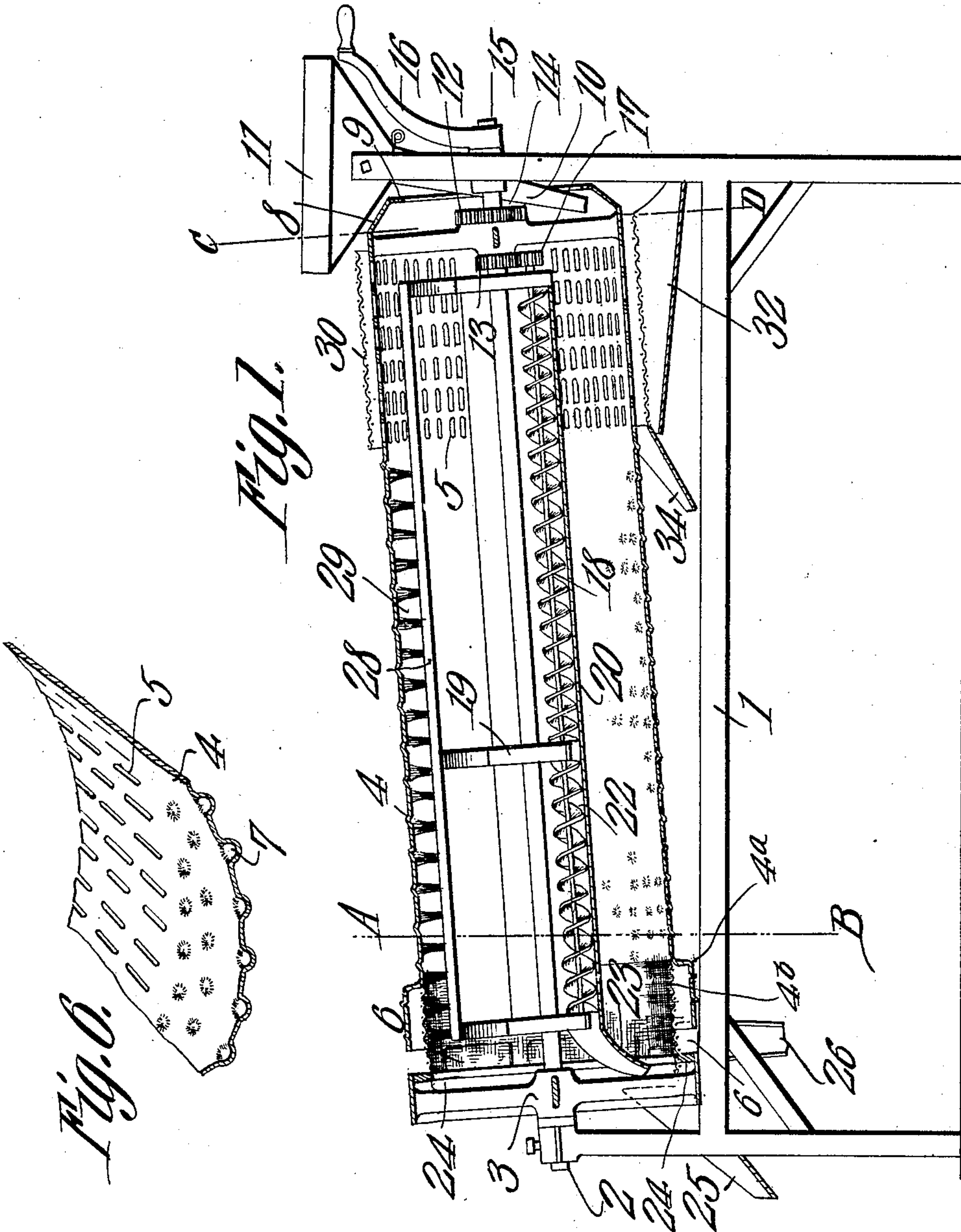
G. FEICKERT.
GRAIN SEPARATOR.

APPLICATION FILED JULY 17, 1908.

912,098.

Patented Feb. 9, 1909.

2 SHEETS—SHEET 1.



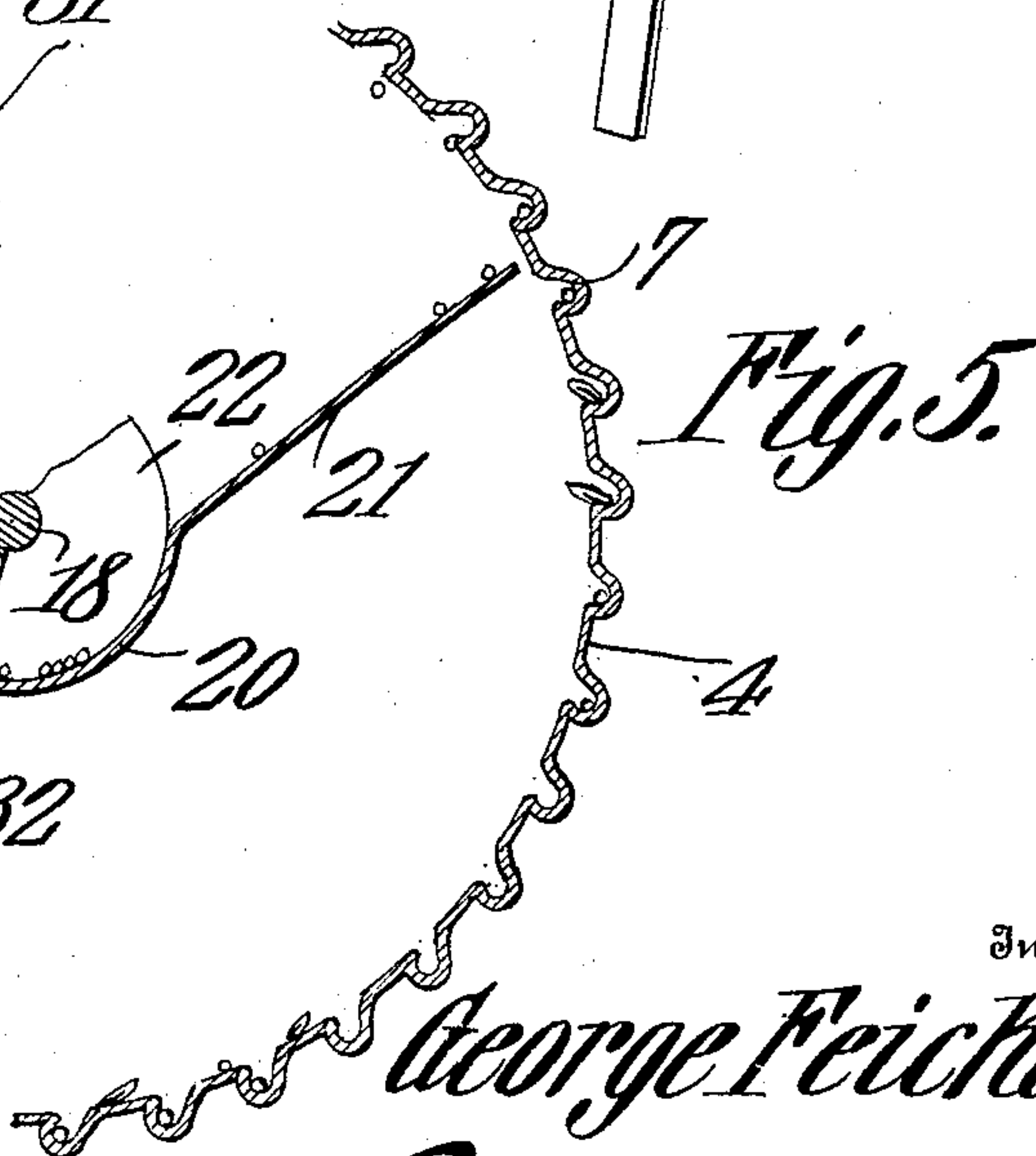
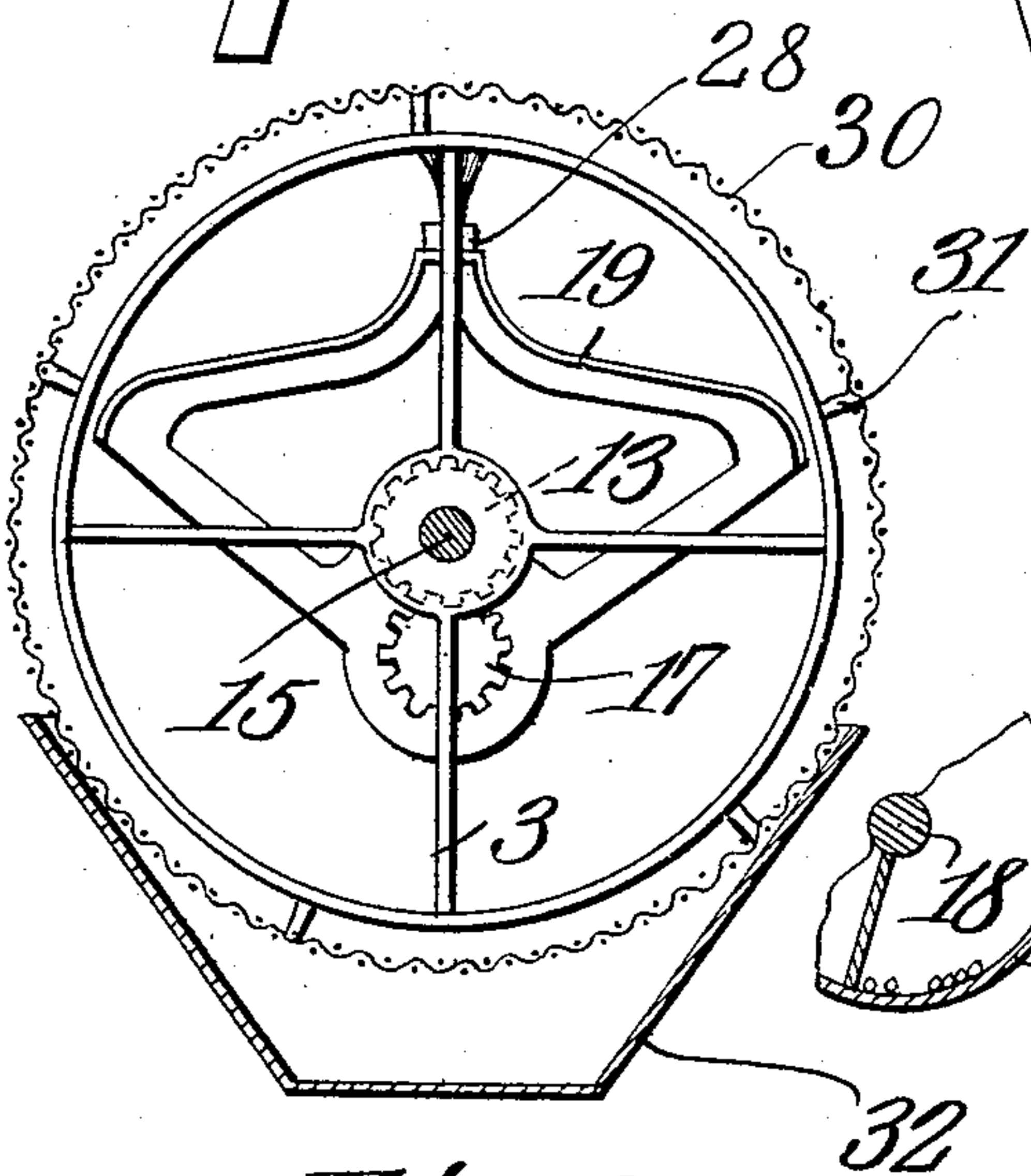
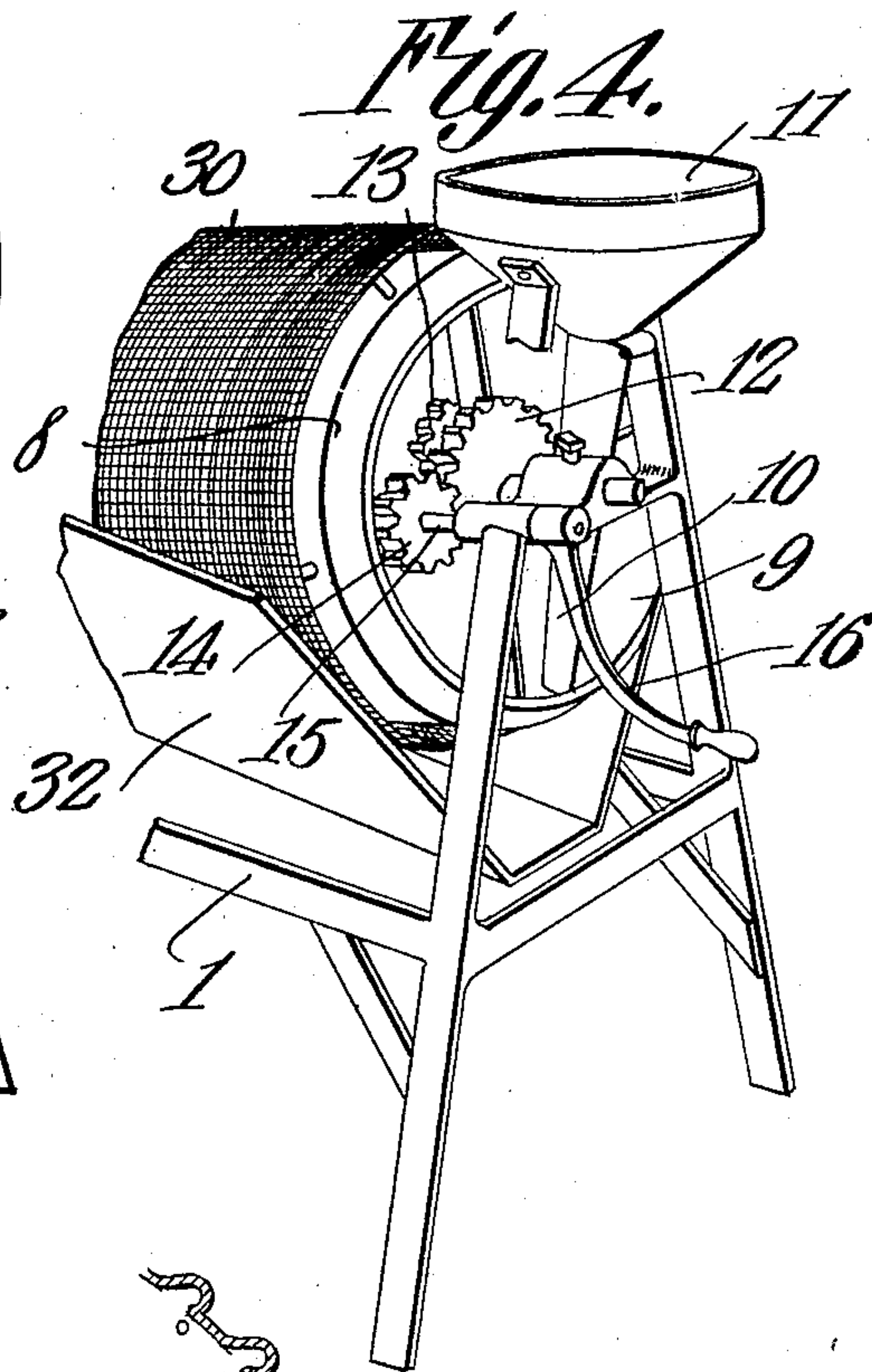
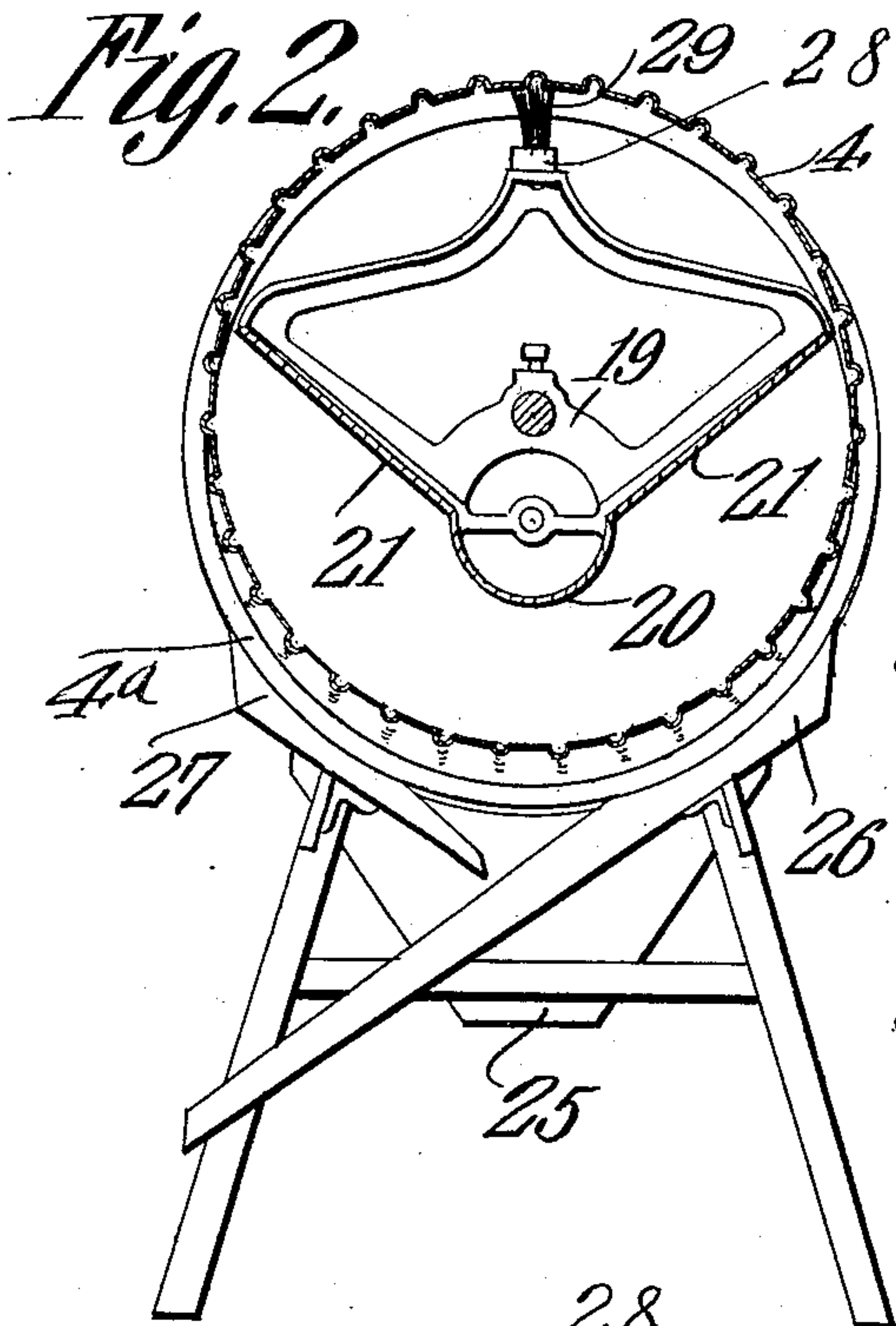
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UNITED STATES PATENT OFFICE.

GEORGE FEICKERT, OF LEOLA, SOUTH DAKOTA.

GRAIN-SEPARATOR.

No. 912,098.

Specification of Letters Patent.

Patented Feb. 9, 1909.

Application filed July 17, 1903. Serial No. 444,034.

To all whom it may concern:

Be it known that I, GEORGE FEICKERT, a citizen of the United States, residing at Leola, in the county of McPherson and State of South Dakota, have invented a new and useful Grain-Separator, of which the following is a specification.

This invention relates to grain separators and its object is to provide mechanism of an efficient and simple character whereby grains of different sizes can be properly separated without the use of air blasts or the like.

The device is particularly designed for separating wheat from oats, barley, spelt, etc.

A further object is to provide simple and efficient means whereby the separation can be effected without injury to the wheat, simple means being provided whereby the various products of the separation are discharged into different receivers.

With these and other objects in view the invention consists of certain novel features of construction and combinations of parts which will be hereinafter more fully described and pointed out in the claims.

In the accompanying drawings is shown the preferred form of the invention.

In said drawings: Figure 1 is a central vertical longitudinal section through a separator embodying the present improvements. Fig. 2 is a section on line A—B, Fig. 1. Fig. 3 is a section on line C—D, Fig. 1. Fig. 4 is a perspective view of the drive end of the separator. Fig. 5 is an enlarged transverse section through a portion of the cylinder and the trough therein. Fig. 6 is a perspective view of a portion of the cylinder.

Referring to the figures by characters of reference, 1 designates a supporting frame on which is secured a fixed shaft 2 preferably slightly inclined. Loosely mounted on this shaft adjacent the ends thereof are spiders 3 secured within the end portions of a separating cylinder 4 the ends of which are open. This cylinder is provided in its upper end portion with annular series of apertures 5 preferably in the form of short slots while the other end of the cylinder is enlarged annularly as at 4^a and within this enlarged portion and adjacent the spider within said end are annularly arranged outlet slots 6. That portion of the cylinder between the slots 5 and 6 has pockets 7 struck into the inner surface thereof. The upper end of the cylinder 4 has a frusto-conical flange 8 thereon the

edge portion of which is disposed in a plane at right angles to the shaft 2 as indicated at 9, this flange 8 constituting the feed end of the cylinder and being designed to receive grain through a spout 10 depending from a hopper 11 which is supported by the frame 1. A screen 4^b is arranged within the enlarged portion 4^a and flush with the inner face of cylinder 4 and extends over the slots 6.

Secured to opposite faces of the upper spider 3 of the cylinder are gears 12 and 13 mounted to rotate with the cylinder and spider and upon the shaft 2. Gear 12 meshes with a drive gear 14 carried by a shaft 15 which is journaled on frame 1 and is designed to be rotated in any suitable manner as by means of a crank 16. Gear 13 meshes with a gear 17 which is secured to one end of a shaft 18 extending beneath and parallel with the shaft 2 and journaled within skeleton heads 19 keyed or otherwise secured to the shaft 2 and held against rotation thereby. These skeleton heads serve to support an inclined trough 20 having longitudinal side flanges 21 extending upwardly therefrom and having their free longitudinal edges close to the inner surface of the cylinder 4 at points slightly above a horizontal plane passing through the axis of the cylinder. A worm 22 is secured upon the shaft 18 and extends longitudinally of the trough 20 and this worm constitutes means for conveying material longitudinally within the trough from the upper end of said trough to the lower end thereof where a spout 23 is located, said spout being designed to discharge material from the trough into the lower end portion of the cylinder and outside of an interior annular flange 24 which is arranged between the outlet slots 6 and the lower end of the cylinder. A spout or trough 25 is positioned to receive tailings from the end of the cylinder and oppositely disposed spouts 26 and 27 are arranged transversely beneath the slots 6 of cylinder 4 so as to receive material discharged from said slots, one of the spouts 27 being arranged to discharge into the other spout or trough 26. The heads 19 support a longitudinal strip 28 which is located within the cylinder 4 and upon the top portions of the heads, said strip carrying brushes 29 designed to bear upon the inner surface of the cylinder.

A screen 30 surrounds the upper slotted portion of cylinder 4 which is spaced therefrom in any preferred manner as by means of

arms 31 and arranged below the cylinder is a receiving trough 32 while another receiver or spout 34 is positioned to receive tailings from the screen.

5. It is believed that the operation of the separator will be fully understood from the foregoing description when read in connection with the accompanying drawings. The grain to be separated is placed in hopper 11 and is permitted to pass into the feed end of the cylinder through the spout 10. The cylinder is rotated by means of crank 16 and motion is transmitted thereto through gears 14 and 12 thus causing the spiders 3 and the cylinder to revolve about the fixed shaft 2. The grain discharged into the cylinder will thus be caused to travel slowly over the slots 5 and the finer particles will pass through the slots and into the outer concentric screen 30. At this point a further separation is effected, the tailings being discharged into the spout 34 while the smaller seeds such as flax pass through the screen and into the receiver 32. The wheat and other grain remaining within the cylinder 4 travels slowly downward by gravity longitudinally within cylinder 4 and is spread over the pockets 7. The smaller seeds will pass into the pockets sufficient distances to be conveyed thereby upwardly to such a height that when they fall from the pockets by gravity they will drop to one of the wings 21 and thus be deflected into the trough 20. The larger or wheat grains, however, will not remain a sufficiently long time within the pockets to be carried above the wings 21 but will instead fall from said pockets, and thus be kept upon the inner surface of the cylinder 4 until the screen 4^b is reached, whereupon the wheat will pass outward through the screen and into the spouts 26 and 27 while any straw in the cylinder will pass over the screen as tailings. Those of the seeds which are lifted from the wheat and dropped into the trough 20 are directed lengthwise of the trough by the worm 22 and discharged through spout 23 onto the end portion of the inner surface of cylinder 4 whereupon they pass outward as tailings through the spout 25. Should any of the seeds become lodged within the pockets 7 so as not to fall therefrom by gravity after passing above the wings 21 the brushes 27 will operate to sweep them therefrom as the cylinder rotates.

55 What is claimed is:

1. A separator comprising a revoluble cylinder having an annularly enlarged end portion provided with an annular outlet, a concentric screen within the enlarged portion for the reception of material from the inner surface of the remaining portion of the cylinder, and means for rotating the cylinder.

2. In a separator the combination with a supporting structure and a fixed shaft car-

ried thereby, of an inclined cylinder mounted to rotate upon said shaft, said cylinder having its upper or feed end perforated, the other end of said cylinder being enlarged annularly and provided with an outlet, there being pockets within the inner face of the cylinder between the said apertured and annularly enlarged end portions, a screen within the cylinder and concentric with the enlarged portion thereof, means for rotating the cylinder, and means within the cylinder for receiving material elevated by the pockets.

3. A separator comprising a fixed shaft, a cylinder mounted to rotate thereon, one end portion of the cylinder being apertured and the other end portion being enlarged annularly and provided with an outlet, that portion of the cylinder between said end portions being formed with interior pockets, a screen within the discharge end of the cylinder and concentric with the enlarged portion, said screen constituting a continuation of the pocketed portion of the cylinder, and means fixedly mounted within the cylinder for receiving material elevated by the pocketed portion thereof and for directing it past the screen and outlet.

4. In a separator a cylinder having apertures in one end portion thereof, the other end portion of said cylinder being enlarged annularly and being provided with outlets, that portion of the cylinder between said end portions being formed with interior pockets, a screen within the enlarged end portion of the cylinder and concentric therewith, said screen constituting a continuation of the pocketed portion of the cylinder, means within the cylinder for receiving material elevated by the pockets, and a screen surrounding the apertured end portion of the cylinder.

5. A separator comprising an inclined revoluble cylinder having an annularly enlarged lower end portion provided with an outlet, a concentric screen within the enlarged portion and flush with the inner surface of the remaining portion of the cylinder, the upper end portion of said cylinder being apertured and there being a series of pockets within the cylinder between said apertured portion and the enlarged lower end portion, a screen concentric with and surrounding the apertured portion of the cylinder and disposed to rotate therewith, and separate means for receiving material from said screen and from the outlet respectively.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

GEORGE FEICKERT.

Witnesses:

FRED HOFFMANN,
JOHN RIETZ.