No. 890,758. PATENTED JUNE 16, 1908.

H. P. CROCKETT.

MACHINE FOR DRYING, SCOURING, AND CLEANING GRAIN.

APPLICATION FILED OCT. 21, 1907.

3 SHEETS—SHEET 1.

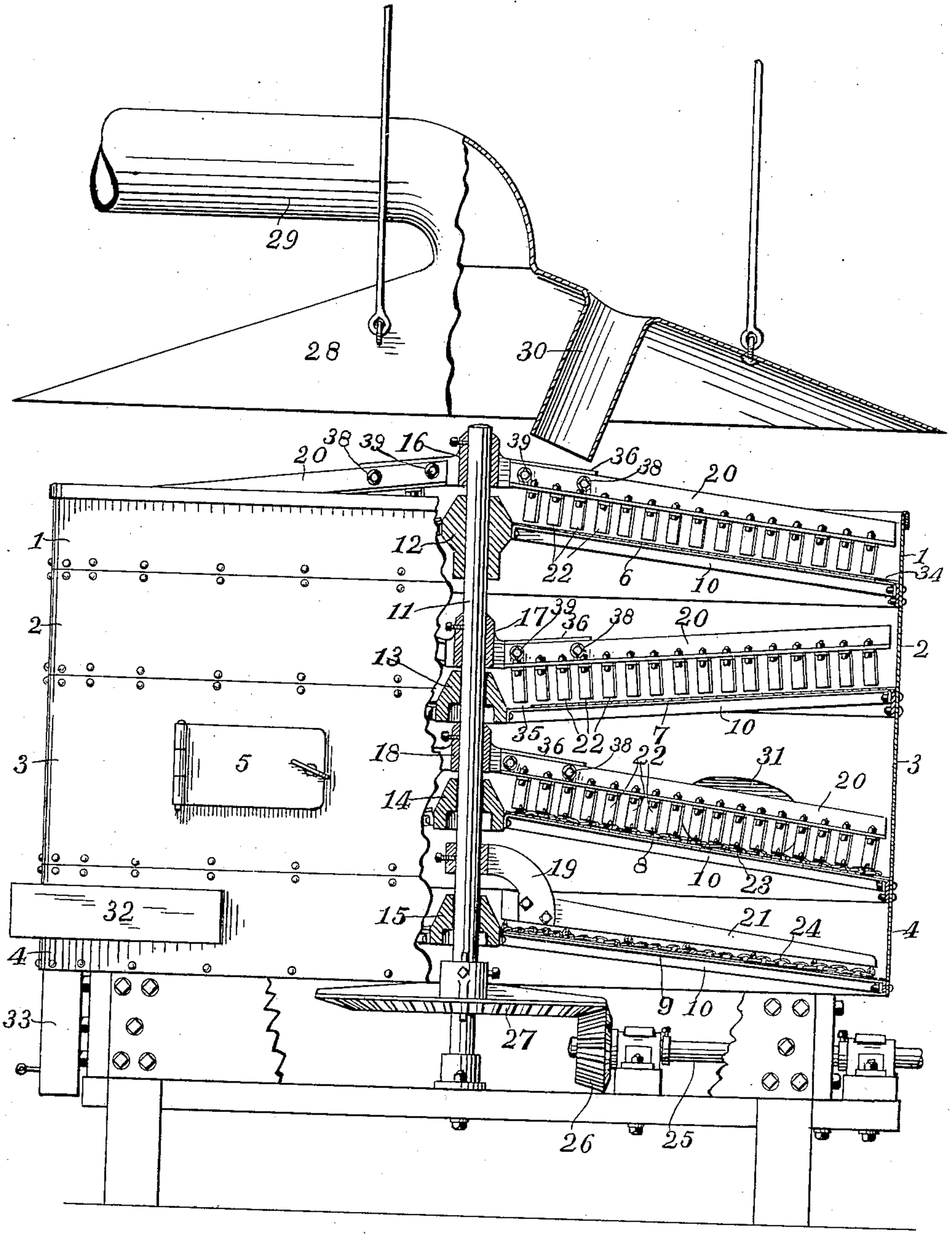

Fig. 1.

Witnesses

Vernon J. Lilly.

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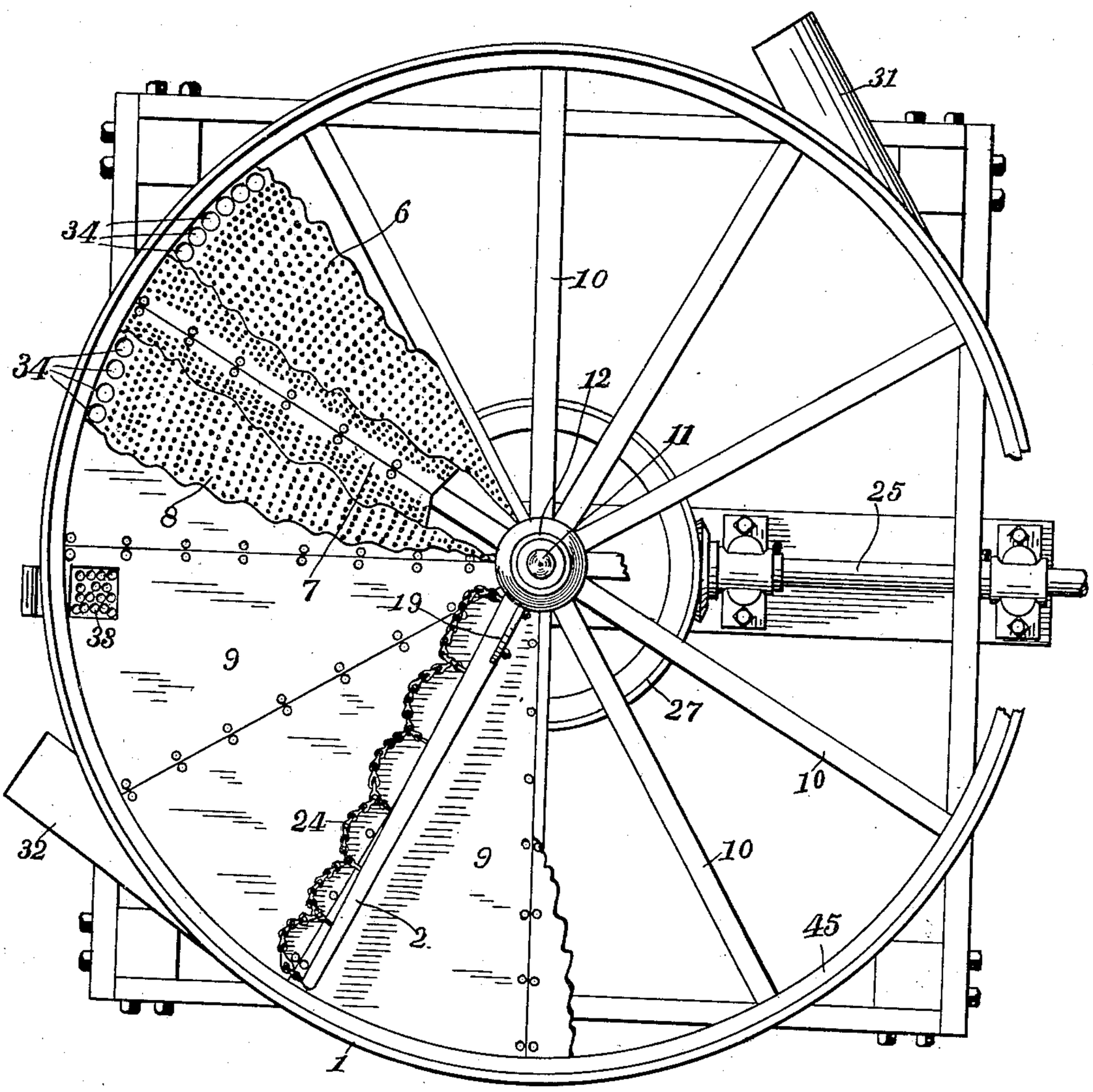

Fig. 2.

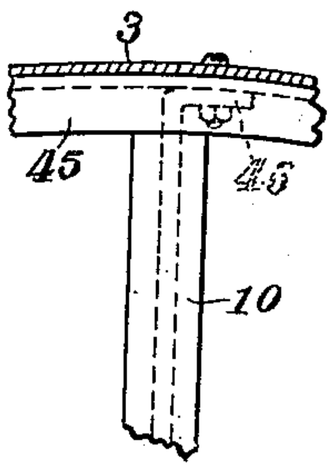

Fig. 3

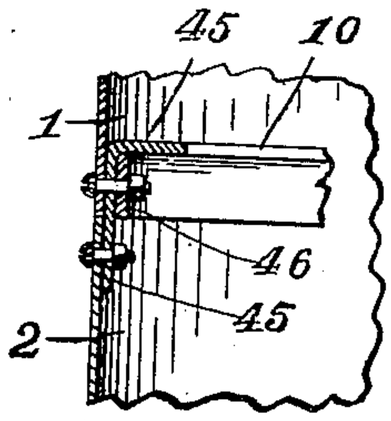

Fig. 4.

Witnesses
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3 SHEETS—SHEET 3.

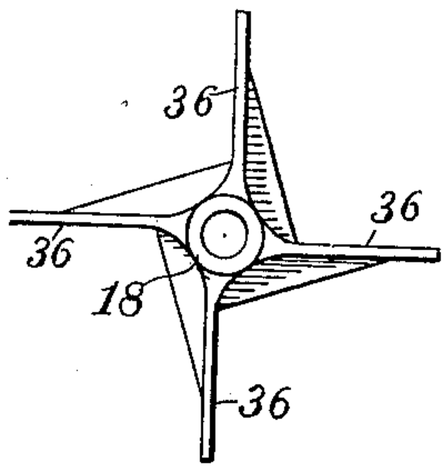

Fig. 5.

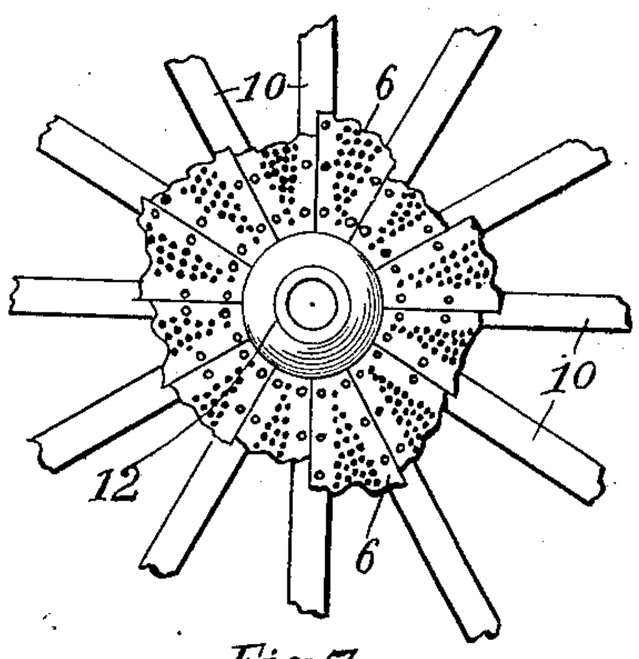

Fig. 7.

Fig. 6.

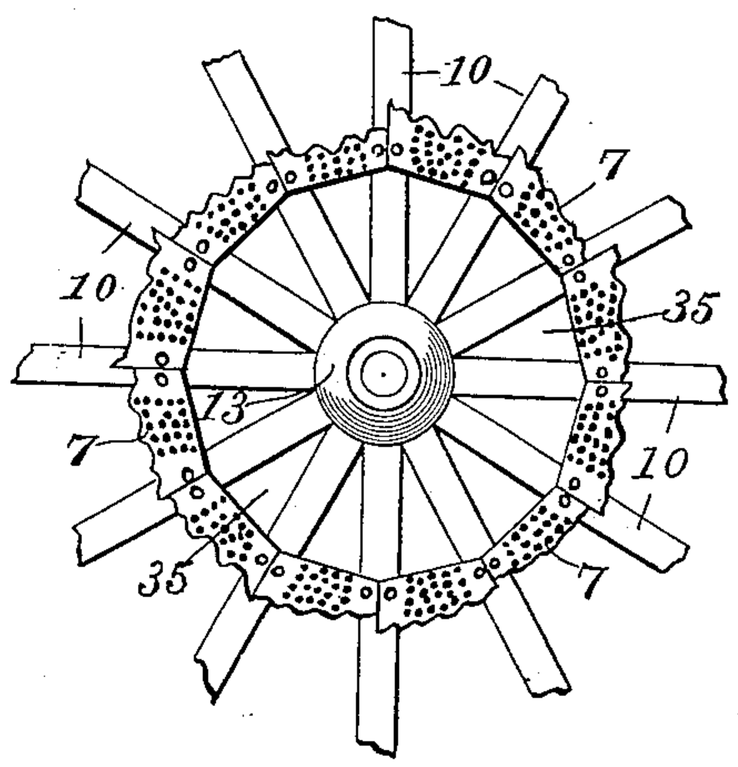

Fig. 8.

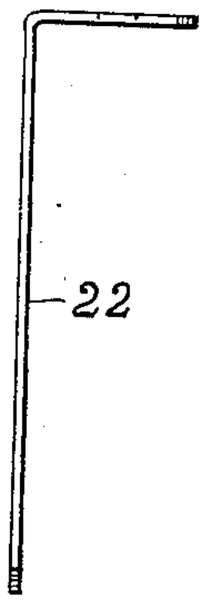

Fig. 9.

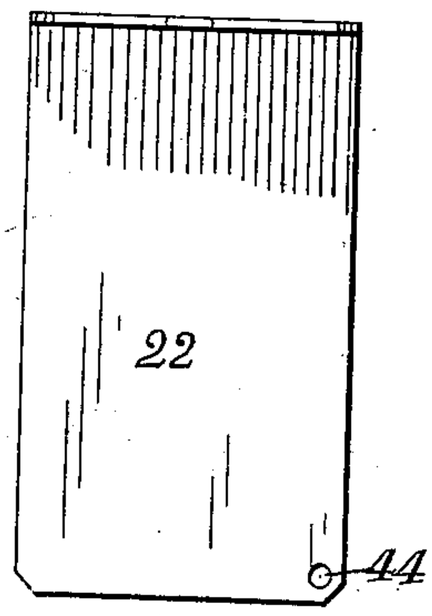

Fig. 10

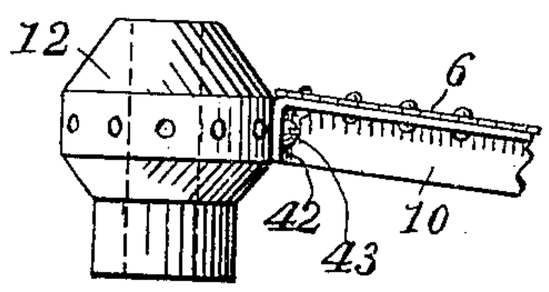

Fig. 11.

Witnesses

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Palmer A. Jours.

Inventor

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UNITED STATES PATENT OFFICE.

HENRY P. CROCKETT, OF BATTLE CREEK, MICHIGAN, ASSIGNOR TO ALANSON M. KEENEY, OF AUGUSTA, MICHIGAN.

MACHINE FOR DRYING, SCOURING, AND CLEANING GRAIN.

No. 890,758. Specification of Letters Patent. Patented June 16, 1908.

Application filed October 21, 1907. Serial No. 398,447.

To all whom it may concern:

Be it known that I, HENRY P. CROCKETT, a citizen of the United States of America, residing at Battle Creek, in the county of Calhoun and State of Michigan, have invented certain new and useful Improvements in Machines for Drying, Scouring, and Cleaning Grains; 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 improvements in machines for drying, scouring and cleaning grains, and its object is to provide the same with various new and useful features hereinafter more fully described and particularly pointed out in the claims, reference being had to the accompanying drawings, in which:

Figure 1. is an elevation partially in vertical section of a device embodying my invention; Fig. 2. a plan view of the same with parts removed to show the construction; Fig. 3. an enlarged detail illustrating the construction of the frame and the case and shown in plan view; Fig. 4. a vertical section of the same; Fig. 5. a plan view of one of the spiders; Fig. 6. an elevation of the same with parts broken away; Fig. 7. a detail of the center of one of the outwardly inclined floors; Fig. 8. the same of the inwardly inclined floor; Figs. 9 and 10 enlarged details of one of the paddles; and Fig. 11 a detail illustrating the manner of securing the various sills to the collars surrounding the shaft.

Like numbers refer to like parts in all of the figures.

The device is provided with a cylindrical case made of superposed sections 1, 2, 3, and 4, the number of these sections being more or less according to the size of the machine required or the space in which it is erected and each section provided with one or more doors 5, as occasion requires. These superposed sections are connected by iron bands 45, the vertical members of which bands overlap the seams between the sections and to which bands the sections are secured by removable bolts, as shown in Fig. 4.

Each floor consists of a series of segmental plates supported upon iron sills 10, which sills are secured at their outer ends to the bands 45 by means of the same bolts that secure the lower edge of the case sections. These irons 10 are fitted to the bands 45 by removing a portion of the horizontal top member and bending the extending vertical member of the sill at right angles and perforating it to receive the said bolt as illustrated in Figs. 3 and 4. Various collars 12, 13, 14 and 15 surround a vertically disposed rotative shaft 11 in the axis of the case, in which collars this shaft is rotative, the upper collar 12 serving as a journal bearing for the shaft. The inner ends of the sills 10 are secured to the respective collars by removing a portion of the vertical member of the sill and bending the horizontal member downward and securing the same to the collar by screws 43 inserted therein as illustrated in Fig. 11. The segmental plates supported upon these sills constitute various floors 6, 7, 8 and 9, four being shown, which floors are all except the lower one perforated with small perforations to permit the hot air to pass upward therethrough and also to allow the fine particles of dust to pass downward. These perforated floors 6, 7, and 8 slant alternately outward toward the periphery, and inward toward the axis of the structure, the lower perforated floor 8 having an outward slant and the bottom floor 9 which is not perforated has a corresponding outward slant. The outwardly inclined perforated floors except the lower one also have large openings 34 at the periphery to discharge the grain downward upon the periphery of the next floor below and the inwardly inclined floor 7 is open at the center as illustrated at 35 in Fig. 8. to discharge the grain downward upon the next floor below.

The material to be dried is supplied through a spout 30 in a conical hood 28 suspended above the machine, and provided with a pipe 29 at the apex to collect and carry away the steam and hot air. The lower perforated floor has no openings at the periphery and in the case is a discharge spout 31 to receive the dried grain from this floor and convey the same away from the machine. The dust passing through the small openings in the various floors accumulates upon the imperforate floor and 9 is discharged into a

spout 33 arranged at the periphery of the same. The shaft 11 is rotated by means of a gear 27 fixed thereon and engaged by a pinion 26 mounted on a driving shaft 25 rotated by any convenient means.

The grain is stirred and moved on the various floors by means of a number of small paddles 22 arranged to traverse close to the respective floors at their lower ends and at their upper ends adjustably attached by means of bolts to the horizontal member of iron sweeps 20 arranged parallel with and above the floors and extending radially from the shaft, being attached thereto and rotated thereby by means of spiders 16, 17 and 18 vertically adjustable on the shaft and having arms to which the angle bars are pivotally attached at their inner ends by cap screws 39 inserted in openings 40 in the arms and adjustably supported by bolts 38 inserted in vertically elongated openings 41 in the spider arms whereby the sweeps are adjusted parallel with the floors and by adjusting the collars vertically on the shaft, the paddles 22 may be brought in close relation to the various floors. The paddles are also adjusted about the vertical axis of the bolts which secure them to the arms at an inclination to radial lines so that they move the grain outward on the outwardly inclined floors and inward on the inwardly inclined floors. To further insure the movement of all of the grain on the floors chains 23 may be attached to these paddles which drag upon the respective floors. Above the lower and imperforate floor 9 is an arm 21 carried by a bracket 19 secured to the shaft, and a drag chain 24 attached to this arm engages and traverses the said floor whereby the dust and small particles are gradually moved outward toward the periphery of the floor and discharged into the spout 33. A pipe 32 arranged tangential to the lower section 4 of the case admits a current of hot air from any convenient source between the imperforate floor 9 and the next floor above, which air passes upward through the various perforated floors, escaping into the hood 28.

From the foregoing description, the operation of my device is obvious and needs no further explanation.

What I claim is:

1. In a drier for drying, scouring and cleaning grains the combination of superposed and alternately inclined conical and perforated floors, a shaft in the axis of the same, sweeps attached to the shaft, paddles attached to the sweeps and inclined to radial lines, chains attached to the paddles and engaging and traversing the floors, means for admitting and removing air, and means for admitting grain and removing the same.

2. In a drier for drying, scouring and cleaning grains superposed and alternately inclined and perforated floors each having openings at the lower part thereof to allow the grain to pass to the floor below, means for stirring and moving the grain downward on each floor, an imperforate floor beneath the lower perforated floor, means for admitting and removing air, means for removing dust from the imperforate floor, means for removing grain, and means for admitting grain.

3. In a drier for drying, scouring and cleaning grains the combination of superposed alternately inclined perforated and conical floors, each having openings at the lower part for the escape of grain therefrom, an imperforate conical floor below the perforated floors, means for admitting air, a rotative shaft in the axis of the floors, sweeps attached to the shaft and traversing above each floor, chains attached to said sweeps and traversing the respective floors, means for admitting grain, means for removing grain, and means for removing dust from the lower part of the imperforate floor.

4. In a drier for drying, scouring and cleaning grains, the combination of a cylindrical case, radial sills of T-iron, a band supporting the sills at their outer ends, collars to which the inner ends of the sills are attached, segmental plates attached to the sills and forming conical floors, a shaft rotative in the collars, sweeps attached to the shaft, means for stirring and moving grain attached to the sweeps and traversing the plates, means for admitting grain, means for admitting air, means for removing grain, means for removing air, and means for rotating the shaft.

5. In a drier for drying, scouring and cleaning grains the combination of a cylindrical case, an iron band at the periphery of the sections, radial sills of T iron each having its horizontal member abutting against the horizontal band and its vertical member extended and bent at right angles and also secured to the band, and a collar in the axis of the case, to which the inner ends of the sills are secured.

6. In a drier for drying, scouring and cleaning grains, a cylindrical case, an iron band, a collar in the axis of the case, radial sills of T-iron each having its horizontal member abutting against the band and its vertical member extended beneath the same and bent at right angles and also secured to the band, and also having its horizontal member bent downward and secured to the collar and its vertical member abutting against the downwardly bent horizontal member, and segmental plates attached to the sills and band.

7. In a drier for drying, scouring and cleaning grains, a cylindrical case, a hood above the case, a spout in the hood, alternately inclined and superposed conical floors

in the case, openings in the lower part of each floor to permit the passage of grain to the floor below, a shaft rotative in the axis of the case, sweeps attached to the shaft and traversing between the respective floors, paddles and chains attached to the sweeps, and means for rotating the shaft.

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

HENRY P. CROCKETT.

Witnesses:
H. F. WINGATE,
F. H. WINGATE.