

(No Model.)

2 Sheets—Sheet 1.

G. W. WATERS.
WHEAT SCOURER AND SEPARATOR.

No. 467,325.

Patented Jan. 19, 1892.

FIG. 1.

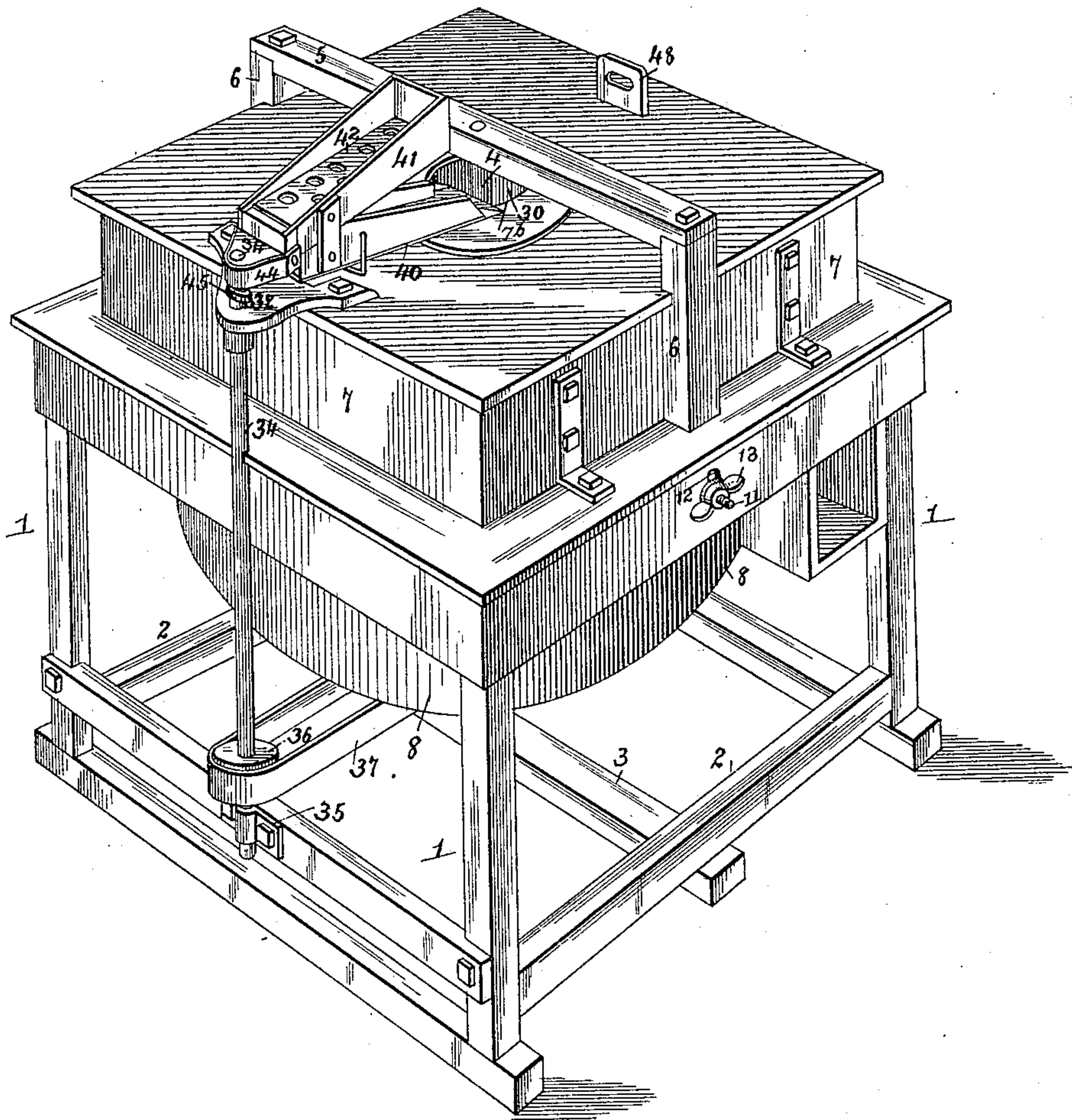
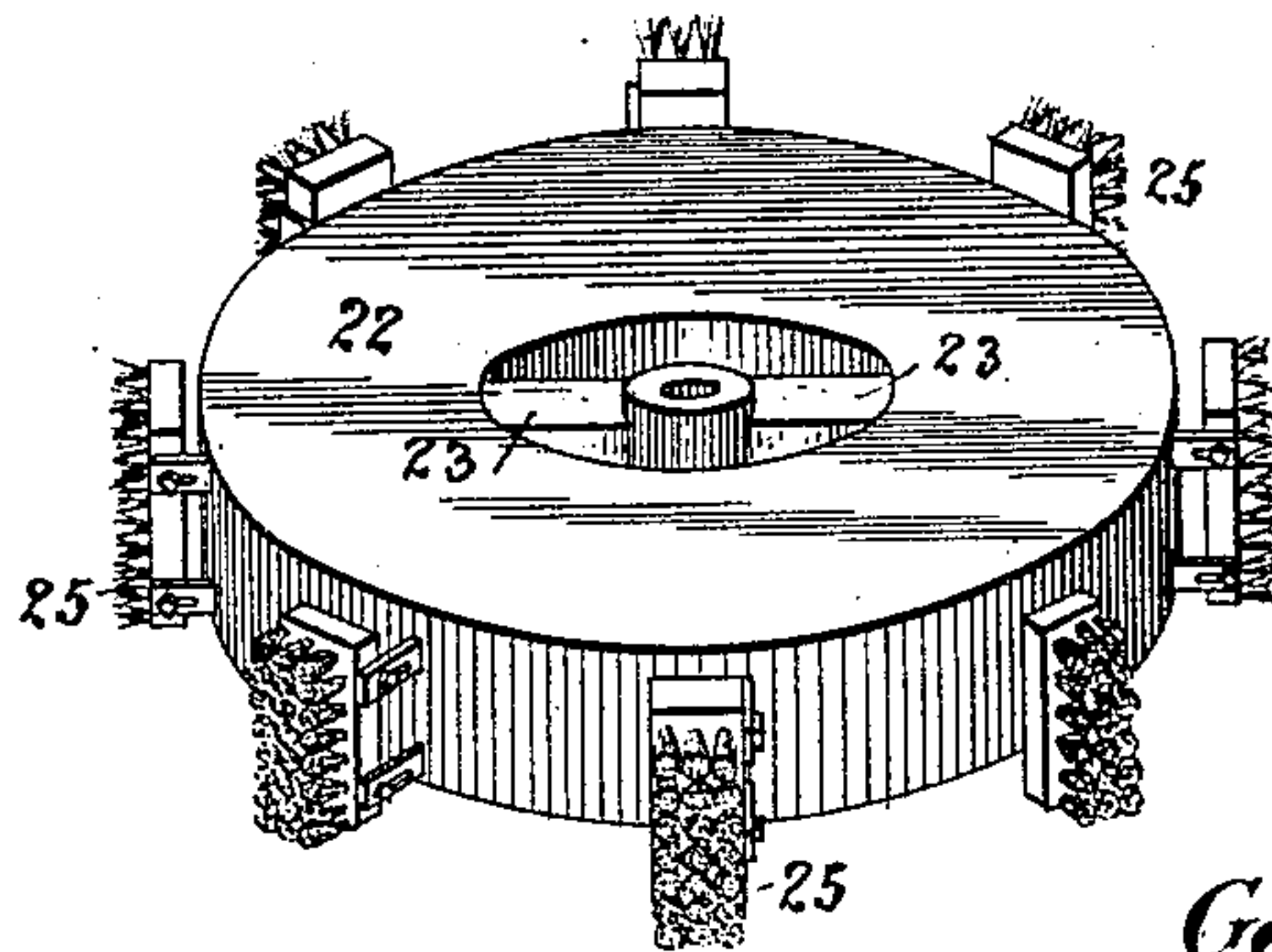


FIG. 4.



Witnesses

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FIG-3-

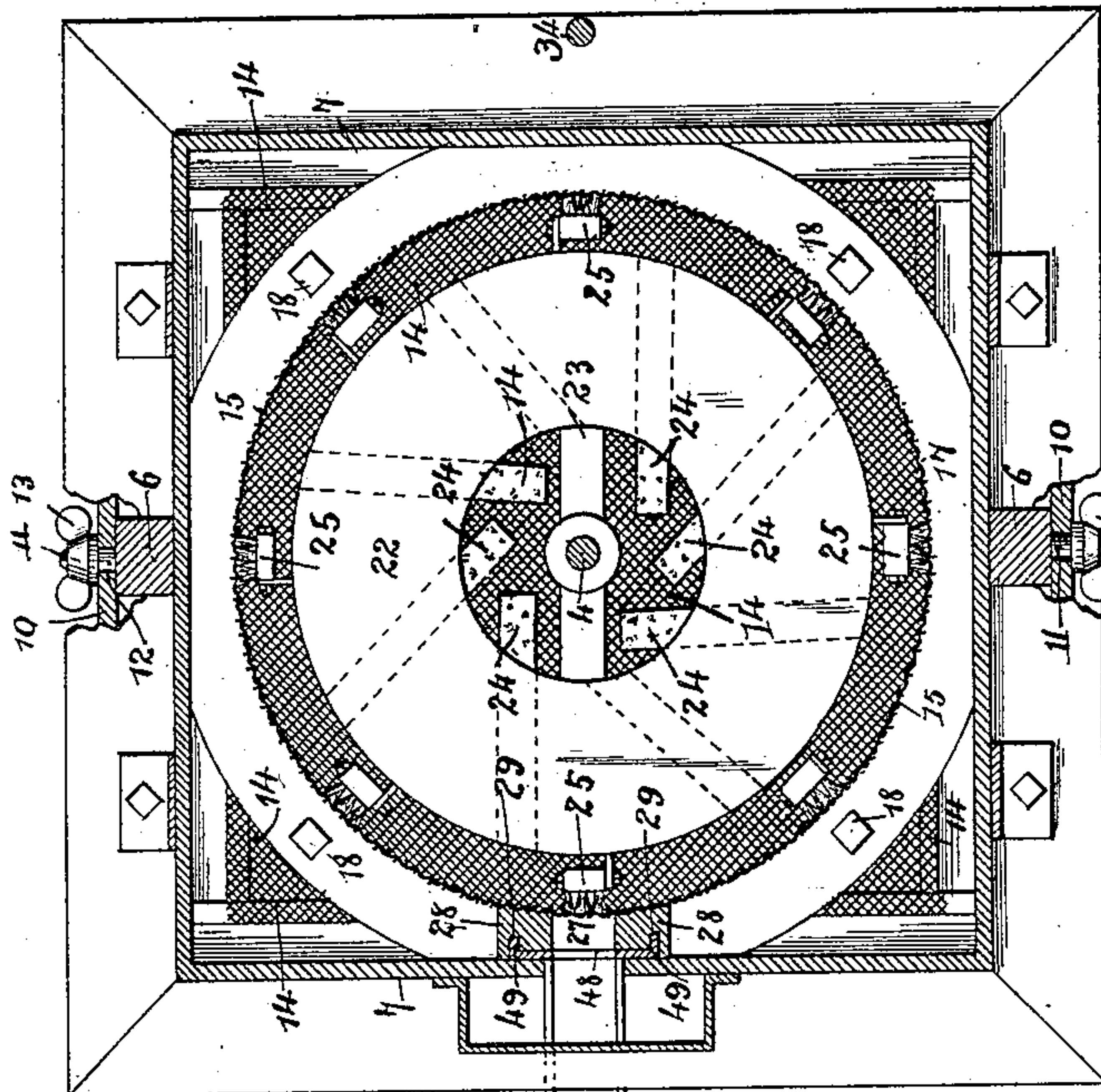


FIG-5-

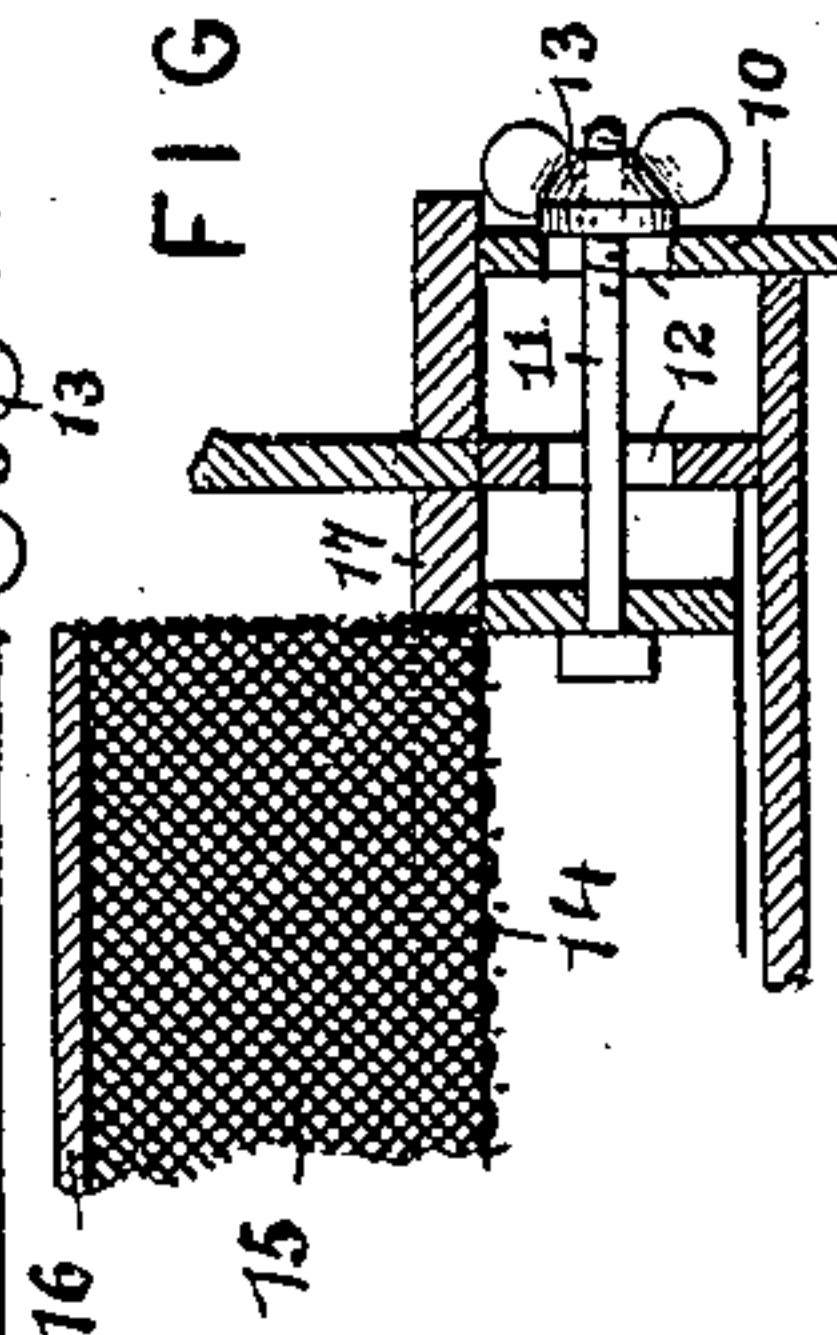
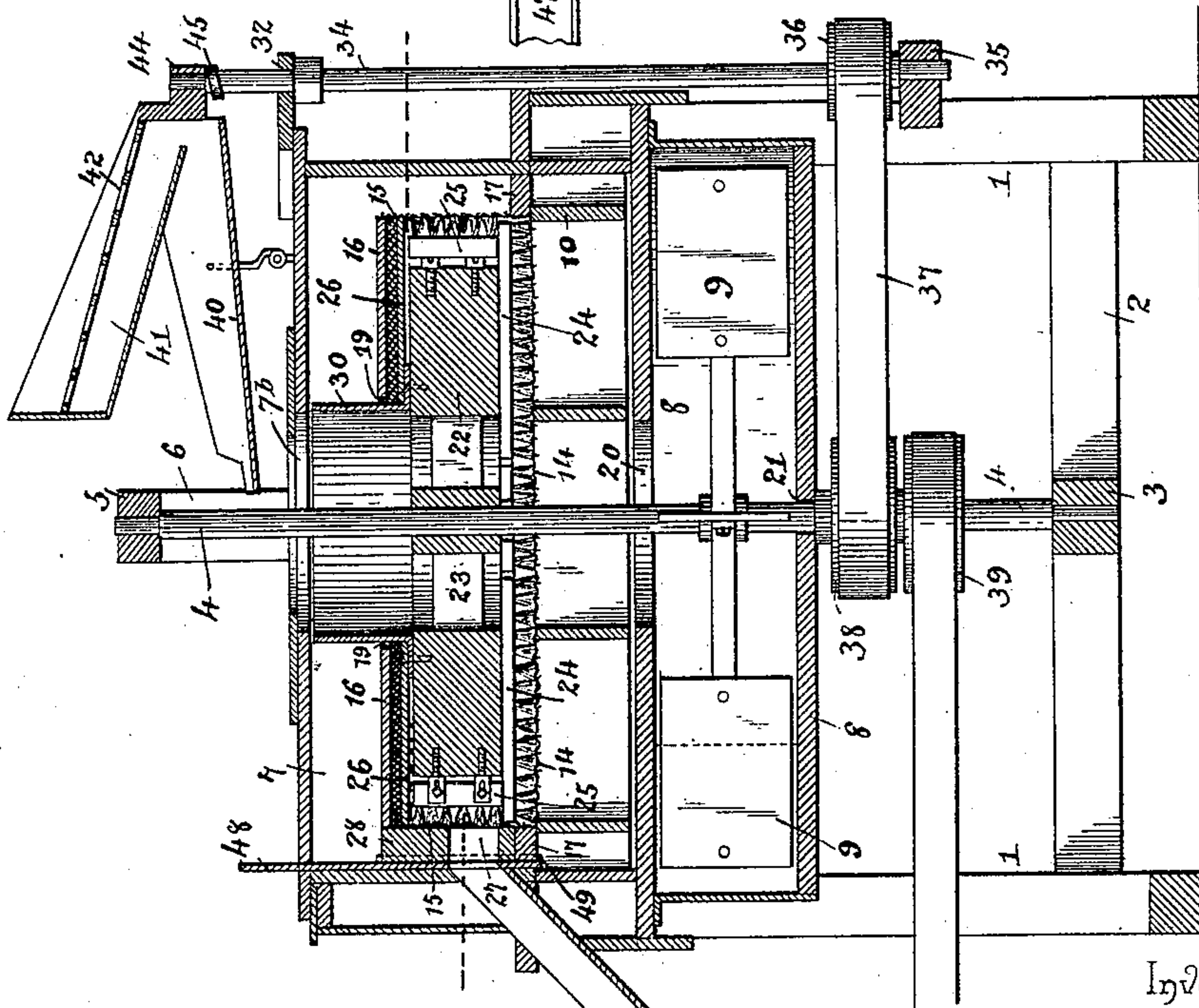


FIG-2-



Witnesses

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UNITED STATES PATENT OFFICE.

GEORGE W. WATERS, OF KANSAS, ILLINOIS.

WHEAT SCOURER AND SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 467,325, dated January 19, 1892.

Application filed January 15, 1891. Serial No. 377,903. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. WATERS, a citizen of the United States, residing at Kansas, in the county of Edgar and State of Illinois, have invented a new and useful Wheat Scourer and Separator, of which the following is a specification.

This invention relates to machines for scouring wheat and other grain and for separating the same from dust and other impure particles; and it has for its object to provide a machine of this class which shall be simple in construction and effective in operation without the necessity of running it at a dangerously high rate of speed.

The invention consists in the construction, arrangement, and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings hereto annexed, Figure 1 is a perspective view of a machine constructed in accordance with my invention. Fig. 2 is a vertical sectional view. Fig. 3 is a horizontal sectional view taken on the line 3 3 in Fig. 2. Fig. 4 is a perspective detail view of the revolving beater-cylinder. Fig. 5 is a sectional detail view.

Like numerals of reference indicate like parts in all the figures of the drawings.

The frame of my improved grain-scouring machine is supported upon suitable legs or uprights 1 1, and is provided with cross-braces 2 2, connected by a sill 3, in which is stepped the lower end of the vertical shaft 4, the upper end of which has a bearing in a cross-piece 5, mounted upon uprights or brackets 6 6, rising from opposite sides of the frame. The latter consists, essentially, of a box 7, under the bottom of which a fan-case 8 is arranged horizontally, as shown, the fan, which is designated by 9, being mounted upon the shaft 4.

10 designates a frame the sides of which are provided with bolts 11, extending through vertical slots 12 in the sides of the box or fan, and are provided with thumb-nuts 13, by means of which the said frame may be held securely in any position to which it may be adjusted. The upper side of the frame is

covered with a stout netting 14, of steel wire, which forms one of the scouring-surfaces of my improved machine.

15 designates a cylinder, likewise made of steel-wire netting. Said cylinder is provided with a top piece or cap 16, and it has at its lower edge a flange 17 to receive bolts 18, by means of which the said cylinder is securely connected with the vertically-adjustable frame 10. The top piece 16 of the cylinder has a central opening 19, and the bottom of the frame or box is provided with an opening 20, communicating with the fan-case. The bottom of the latter is also provided with an opening 21 for the passage of the shaft 4.

Suitably mounted upon the shaft 4, above the scouring-surface 14 and within the cylinder 15, is the beater cylinder or disk 22. The latter, which is provided with arms or spokes 23 by which it is mounted upon the shaft, has on its under surface a tangentially-arranged series of brushes 24, and its perimeter is likewise provided with vertically-arranged brushes 25. The latter are mounted adjustably in such a manner that they may be moved in an outward direction in order to compensate for wear. The upper edge of the beater-cylinder has an annular flange 26, which is almost in contact with the surrounding scouring-cylinder 15, for the purpose of preventing the grain from escaping in an upward direction and blocking the space between the top of the beater-cylinder and the cap 16 of the scouring-cylinder. The latter is provided at one side with an opening 27, surrounded by a frame 28, having vertical grooves 29, for the purpose to be hereinafter set forth.

The beater-cylinder is provided with a flange 30, extending upwardly from its inner edge through the opening 19 in the top piece or cap 16 and into the box 7, terminating under the lid or top piece of the latter, which has the feed-opening 7^b. Said box is secured detachably to the frame by means of screws or bolts. The box or frame 7 is provided with a bearing 32 for the upper end of a counter-shaft 34, the lower end of which is stepped in a brace 35, connecting two of the legs of the

frame, and having a drum 36, connected by a band 37 with a pulley 38 upon the main shaft 4. The latter is also provided with a pulley 39 to receive motion from some suitable source of power. The upper side of the frame is provided with a pivoted vibrating chute 40, having an oppositely-inclined supply-chute 41, which latter is provided with a screen 42, having openings of sufficient size to admit of the passage of grain, while sticks and similar obstructions are separated and carried off. The feed-chute 40 conveys the grain through the opening in the upper side of the box. The outer end of the compound chute 40 41 has a perforated bracket 44, resting upon an eccentric or cam-shaped shoulder 45 at the upper edge of the counter-shaft 34, which latter thus imparts a vibrating motion to the said chute.

The box or frame of the machine 32 is provided with a discharge-spout 47, communicating with the opening 27 in the scouring-cylinder. A vertically-movable gate or valve 48 is also provided, having flanges 49, that work in the grooves 29 in the frame 28 for the purpose of regulating the escape of the grain from the machine.

The operation and advantages of my improved grain-scouring machine will be readily understood from the foregoing description taken in connection with the drawings hereto annexed. The grain is fed through the feed spout or chute into the central opening in the beater-cylinder and drops upon the netting 14, which constitutes the lower scouring-surface. The tangential brushes upon the under side of the beater-cylinder force the grain gradually in an outward direction, the grain being turned over and over while moving outwardly toward the scouring-cylinder 15. The vertical brushes upon the edge of the beater-cylinder carry the grain around in contact with the scouring-cylinder 15, the grain being held in contact with the latter by the centrifugal force until it reaches the escape-opening 27, where it escapes, the escape of the grain being regulated by the gate or valve. At the same time the fan arranged below the scouring mechanism creates suction through the netting 14 and through the walls of the cylinder 15, thus separating the dust and smut from the grain and carrying it up through the side opening in the fan-case. My improved scouring-machine thus serves the double purpose of scouring the grain and separating it from all impurities.

Having thus described my invention, what I claim is—

1. In a machine of the class described, the combination of a vertically-adjustable frame having a scrubbing-surface of wire-netting with a beater disk or cylinder mounted upon a vertical shaft and provided on its under side with tangentially-arranged brushes bear-

ing against the said scouring-surface and a suitable casing, substantially as set forth.

2. The combination of the vertically-adjustable frame having a scouring-surface of wire-netting, the scouring-cylinder mounted upon the said frame, and the beater disk or cylinder having the tangential and the vertically-arranged brushes and provided with a horizontal flange at its upper edge, substantially as set forth.

3. In a machine of the class described, the combination of the casing, the vertically-adjustable frame having a scouring-surface of wire-netting, the scouring-cylinder mounted upon said frame and having an imperforate top piece or cap provided with a central opening, and the beater-cylinder arranged within said scouring-cylinder and having an annular horizontal flange and an upwardly-extending flange projecting through the central opening in the cap of the scouring-cylinder, substantially as set forth.

4. The combination of the casing, the vertically-adjustable frame having a scouring-surface of wire-netting, the scouring-cylinder mounted upon said frame, the beater-cylinder mounted upon a vertical shaft within said scouring-cylinder and having a central opening for the admission of grain, the fan-case arranged below and communicating with the casing in which the vertically-adjustable frame is mounted, and the fan mounted upon the shaft of the beater-cylinder, substantially as set forth.

5. The combination of the main casing, the fan-case arranged below and communicating with the same, a vertical shaft extending through and having bearings above and below said main casing and fan-case, the vertically-adjustable frame mounted in the main casing and having a scouring-surface and a scouring-cylinder mounted thereon, the beater-cylinder mounted upon the vertical shaft within the scouring-cylinder and having a central opening for the passage of grain, an exit-opening in the side of the scouring-cylinder, and a fan mounted upon the shaft of the beater-cylinder, substantially as set forth.

6. The scouring-cylinder mounted upon a vertically-adjustable frame and having a discharge-opening, in combination with the frame surrounding said opening and having vertical grooves, the vertically-movable gate having flanges working in the said grooves, and the casing having the discharge-spout, substantially as set forth.

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

GEO. W. WATERS.

Witnesses:

L. H. BEST,
Z. T. BOWLES.