

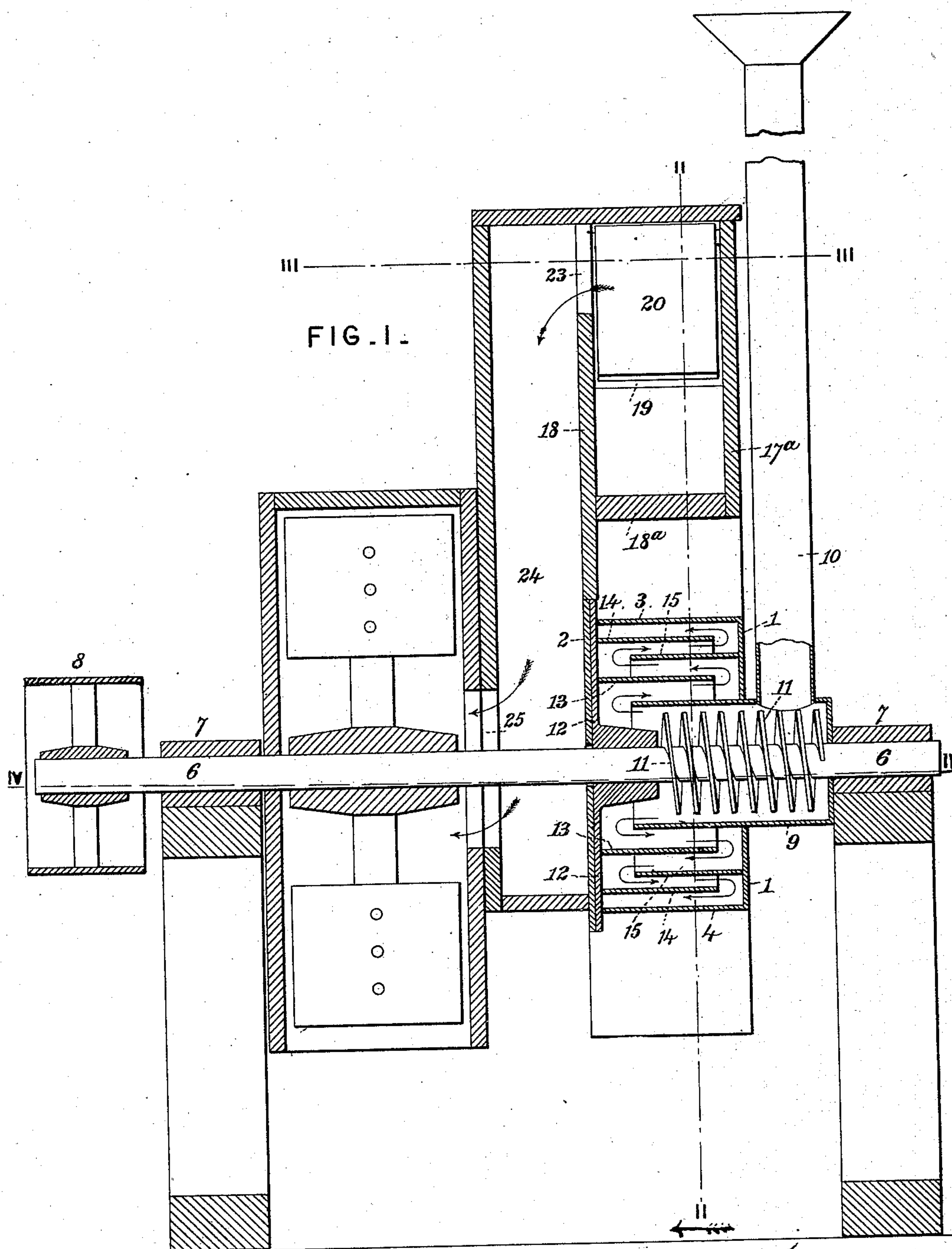
(No Model.)

4 Sheets—Sheet 1.

J. M. CASE.
GRAIN SCOURER.

No. 410,070.

Patented Aug. 27, 1889.



Attest:
Geo. T. Smallwood.
J. M. Hopkins

Inventor
John M. Case
By *Knights Bros* Attys

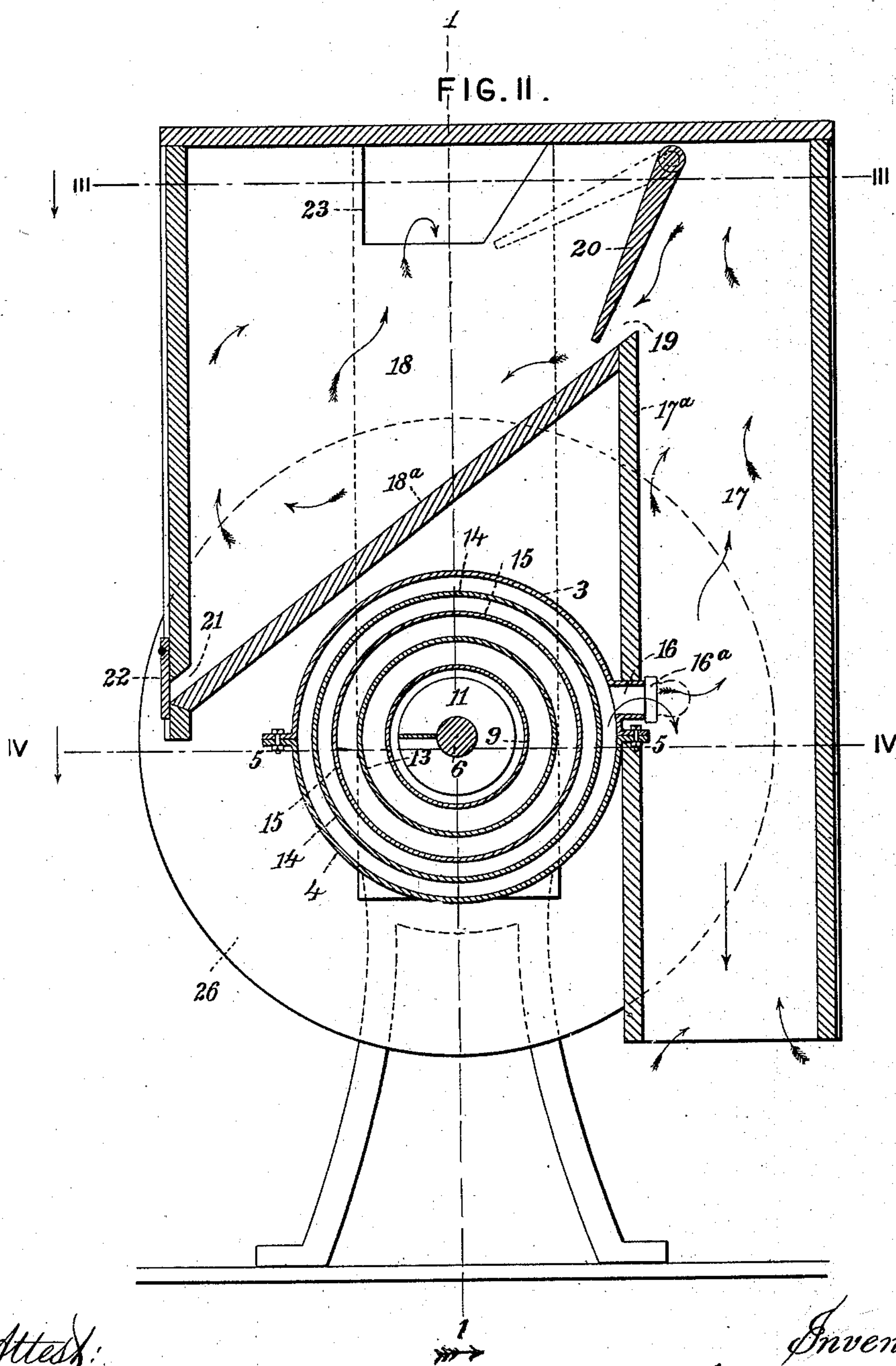
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GRAIN SCOURER.

No. 410,070.

Patented Aug. 27, 1889.



Attest:
Geo. T. Smallwood,
J. W. Hopkins

Inventor:
John M. Case
By *Freight Bros*
attys

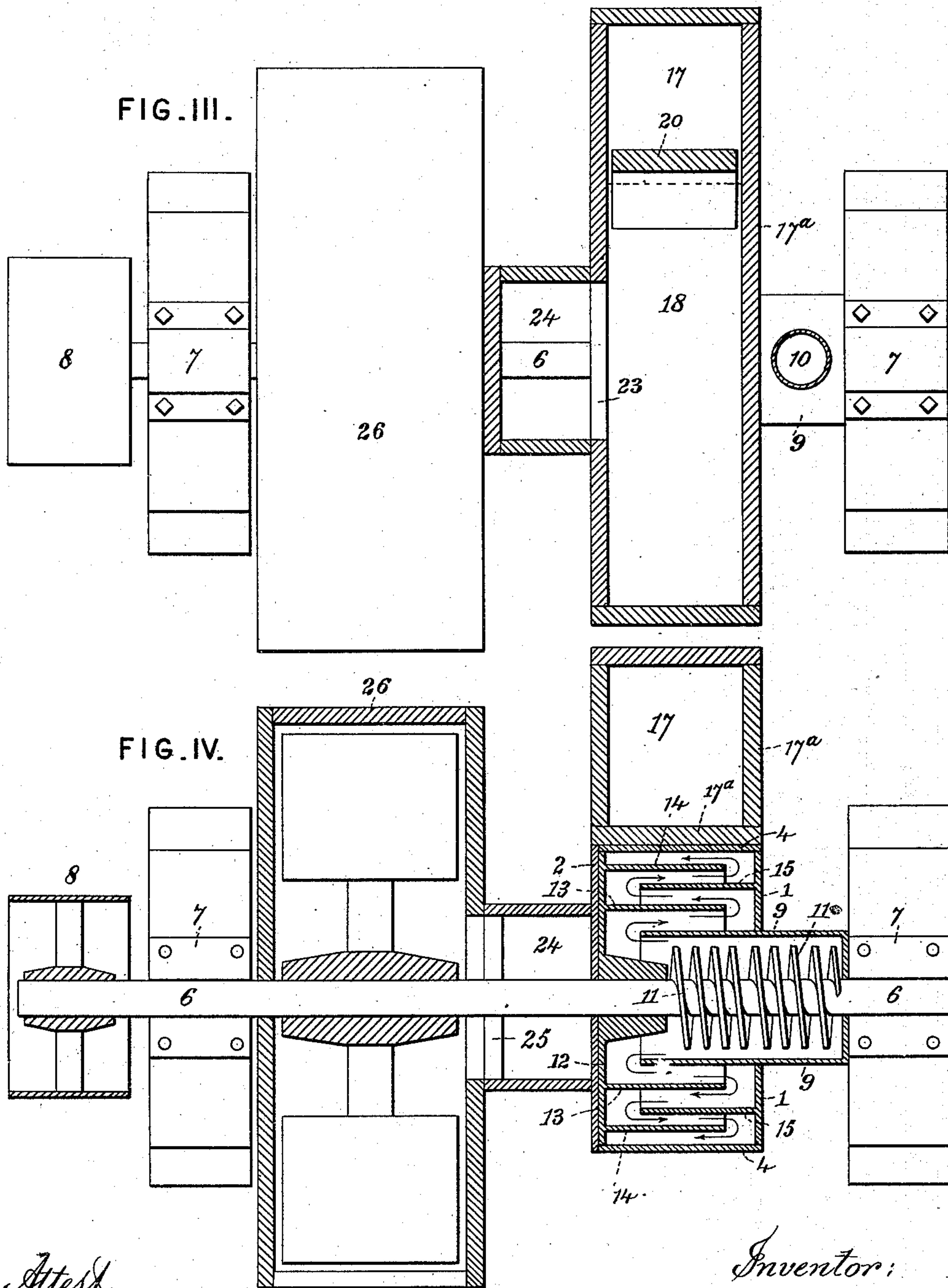
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Attest.
Geo. P. Smallwood,
Attorney

Inventor:
John M. Case

By Knights Bros

attys

(No Model.)

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FIG. V.

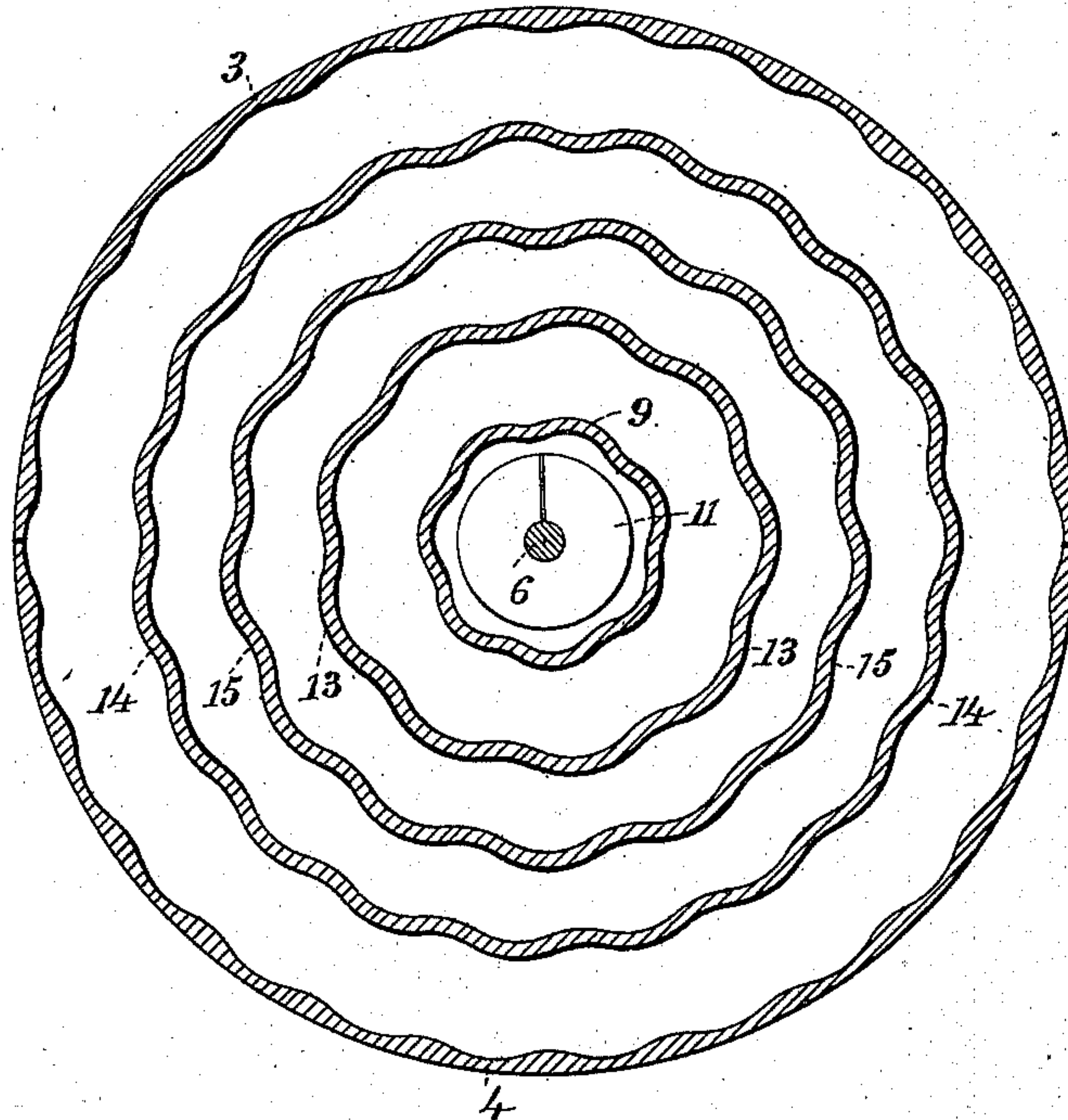
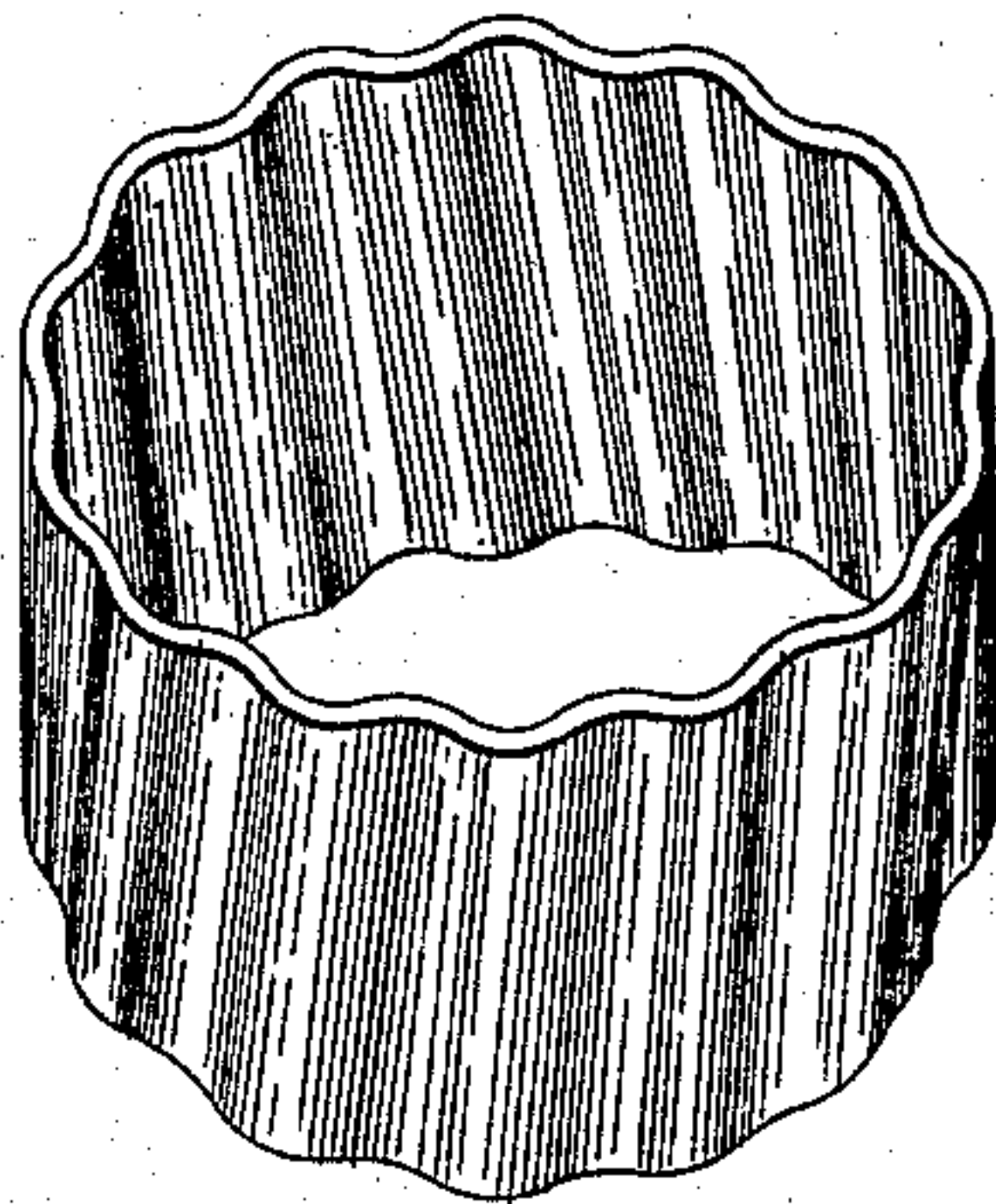


FIG. VI.



Attest.
Geo. T. Smallwood,
[Signature]

Inventor:
John M. Case.
By *[Signature]*
Atty.

UNITED STATES PATENT OFFICE.

JOHN M. CASE, OF COLUMBUS, OHIO, ASSIGNOR TO THE CASE MANUFACTURING COMPANY, OF SAME PLACE.

GRAIN-SCOURER.

SPECIFICATION forming part of Letters Patent No. 410,070, dated August 27, 1889.

Application filed June 20, 1887. Serial No. 241,866. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. CASE, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Grain-Scourers, of which the following is a full, clear, and exact description.

The invention consists in certain features of novelty, which are hereinafter more particularly pointed out in the claims, being first fully described with reference to the accompanying drawings, in which—

Figure I is a vertical section of my improved machine on the line II, Fig. II, looking in the direction of the arrow. Fig. II is a vertical section thereof on the line II II, Fig. I, looking in the direction of the arrow. Fig. III is a horizontal section thereof on the line III III, Figs. I and II, looking downward. Fig. IV is a horizontal section thereof on the line IV IV, Figs. I and II, looking downward. Fig. V is a transverse section of a series of scouring-rings of preferred form. Fig. VI is a perspective view of one of said scouring-rings removed.

In the device which forms the subject of my present invention the grain is fed to the machine under pressure, whereby it is caused to pass through narrow spaces between overlapping rings, some of which are revolved, whereby the grain is thoroughly scoured, after which it is subjected to a blast of air sufficient in strength to carry off all the dislodged dust and other impurities, together with light grains, such as cheat, &c.

1 and 2 represent plates forming the end walls of the casing, the sides being formed by a pair of semi-cylindrical sheet-metal plates 3 4, formed at their meeting edges with flanges 5, projecting outward and secured together by bolts, as shown in Fig. II, in order that the continuity of the inner surface of the casing may not be broken.

6 is the shaft of the machine, which passes through the end walls 1 2 of the scouring-chamber concentrically with the cylindrical sides thereof, said shaft being journaled near its ends in suitable boxes 7 and provided with a pulley 8 for receiving a belt, whereby it is

revolved. The plate 1 is cut away for affording admission to a horizontal pipe 9, which projects into the scouring-chamber concentrically with the sides thereof and terminates near the opposite end plate 2 of said chamber. This pipe 9 projects some distance from the outer surface of the end plate 1 and is closed at its outer end, except for an opening just sufficient in size to permit the passage of the shaft 6. With the top side of the projecting end of this pipe 9 communicates the lower end of a stand-pipe 10, by which it is supplied with the grain to be scoured, said stand-pipe being of such diameter and height as to cause a heavy pressure within the pipe 9.

Secured to that portion of the shaft 6 which is situated within the pipe 9 is a spiral conveyer 11, which operates to further increase the pressure on the grain and feed it into the scouring-chamber with great force. Secured to the shaft 6 in close proximity to the end plate 2 of the casing is a disk 12, to the inner surface of which is secured any desired number of short cylinders or rings 13 14, which project toward the opposite end of the scouring-chamber and terminate in close proximity to the plate 1. These rings 13 14 are concentric with the shaft 6, and will of course be rotated thereby, being secured to the disk 12, which in turn is fast on the shaft.

Projecting from the end plate 1 of the casing are similar rings, (the pipe 9 constituting in effect one, and another being shown at 15,) which alternate with the rings 13 and 14 and terminate a short distance from the disk 12. This arrangement is such that spaces of uniform width are left between the adjacent rings, so that the grain under pressure of the screw conveyer 11 is forced to flow through the channel indicated by the arrows in Fig. I until the space between the outermost ring and the cylindrical shell of the casing is reached. The grain then passes in the direction shown by the arrow in Fig. II and finds its escape through an aperture, which is preferably situated some distance above the lowest portion of the scouring-chamber, it being here shown as formed through the upper section 3 of the casing. These concentric overlapping rings may be smooth, as shown in

Figs. I and II, but are preferably corrugated, as shown in Figs. V and VI, so as more violently to rub the grain, the corrugations being also preferably formed spirally in such manner as to cause the grain to be fed forward in the direction indicated by the arrows in Fig. I.

Although I prefer to locate the discharge-opening 16 in the position shown in the drawings, yet I do not desire to limit in this respect other features of my invention, which are in no wise dependent thereon.

A slide-valve 16^a is provided for regulating the discharge through the aperture 16. The grain on leaving the scouring-chamber is discharged into a vertical air-trunk 17, which is open at bottom to permit the grain to fall and also to permit the free ingress of air. At top it communicates with a settling-chamber 18 through an aperture 19, cut in its side wall 17^a, the passage of air through this aperture being under the control of an adjustable valve 20, hinged at its top side. This arrangement of the valve causes the air entering the settling-chamber to take a downward course, thereby immediately precipitating the heavier particles which it holds in suspension.

The settling-chamber, as is usual, is made of such size with relation to the exhaust-aperture as to enable all the dust to settle therein. The floor 18^a of the chamber is inclined at such an angle as will cause all the matter which settles thereon to gravitate to an opening 21 in the side of the casing remote from the opening 19, said opening 21 being provided with a weighted valve 22, adapted to retain within the chamber a sufficient quantity of the accumulated matter to insure the perfect sealing of the said opening against the admission of air, but permitting all matter in excess of such a quantity to escape. The chamber 18 communicates through an aperture 23, formed through the wall 18^b, with a vertical air-trunk 24, which in turn communicates with the eye 25 of a fan, which may be of any ordinary or

approved construction and needs no further description here. The casing is shown at 26. It will be observed that the aperture 23 is above the lower edge of the valve 20, so that the air is caused first to descend within the settling-chamber, and the area of this chamber being so much larger than that of the opening 23 and the force of the air within the chamber so much less per square inch the result is that nearly if not quite all of the dust is precipitated.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. The combination, with the series of concentric overlapping rings, means for imparting rotary motion to the alternate rings, and a screw conveyer for forcing the grain into the central ring under pressure, substantially as set forth.

2. The combination, with the rotary shaft, of a series of concentric overlapping rings having spirally-arranged corrugations, means for connecting the alternate rings with said shaft, and a feed-pipe delivering the material to be cleaned into the central ring, substantially as set forth.

3. The combination, with a series of overlapping rings, means for revolving some of said rings, and a feed-pipe discharging into the central ring, of a circular casing having a discharge-aperture situated above the bottom thereof, substantially as set forth.

4. The combination, with a series of overlapping rings and a shaft with which some of said rings are connected, of a horizontal pipe constituting the innermost ring, a spiral conveyer situated within said pipe, and a stand-pipe communicating with said pipe, substantially as and for the purpose set forth.

JOHN M. CASE.

Witnesses:

C. N. SHOUGH,
E. D. ANDERSON.