

No. 829,665.

PATENTED AUG. 28, 1906.

M. D. L. McCOLLUM.

COAL SIFTER.

APPLICATION FILED JUNE 16, 1904.

2 SHEETS—SHEET 1.

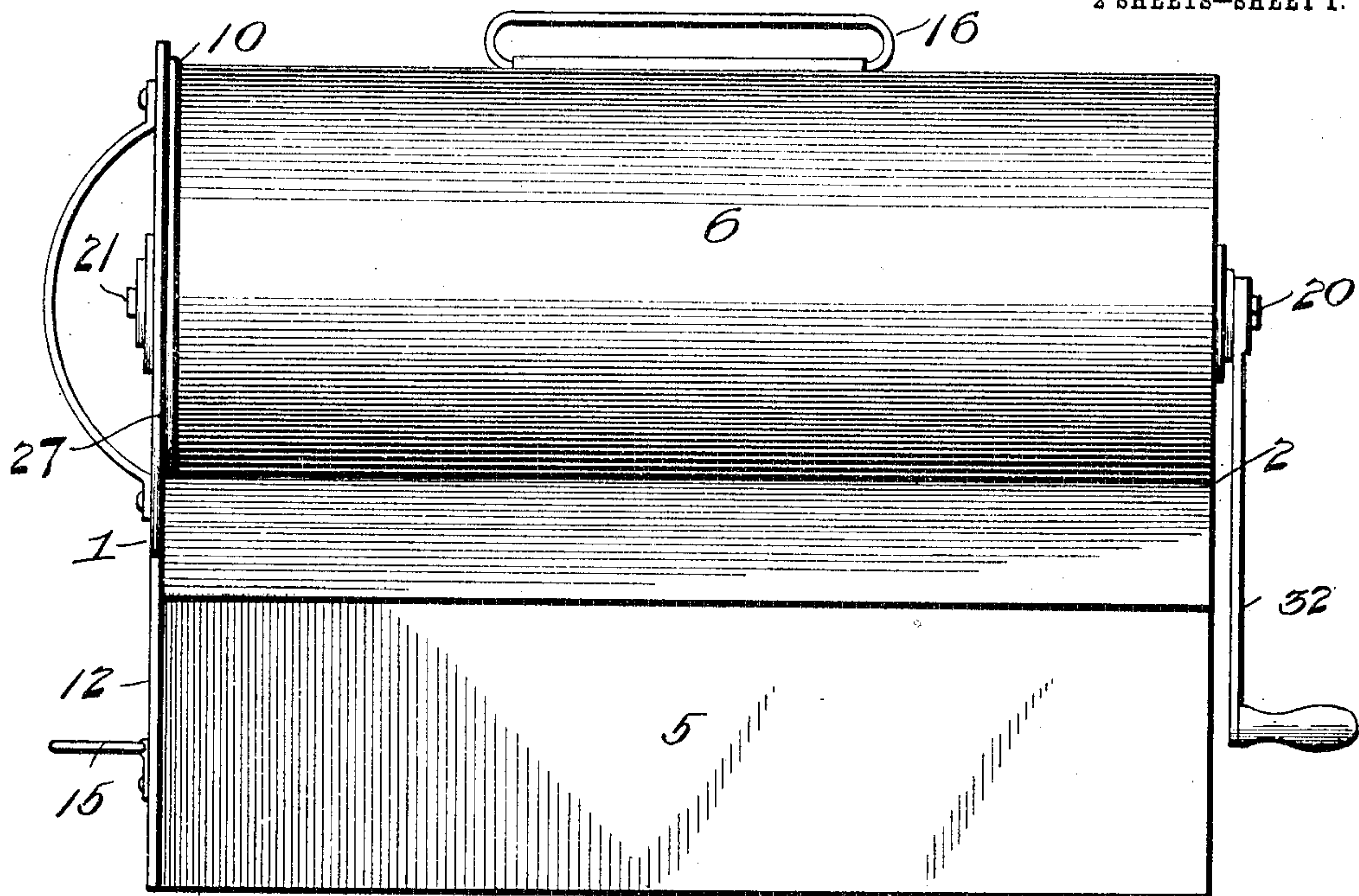
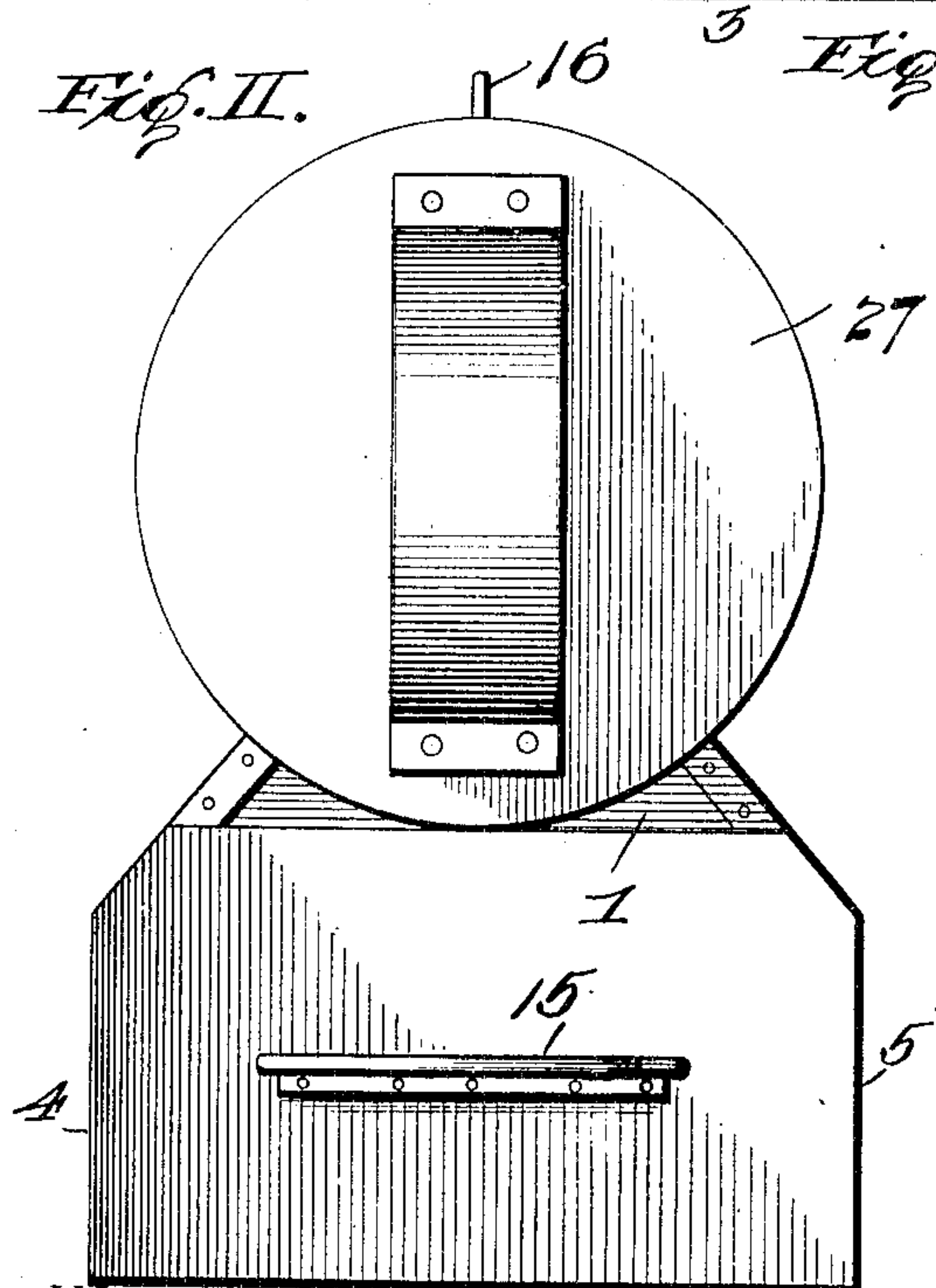


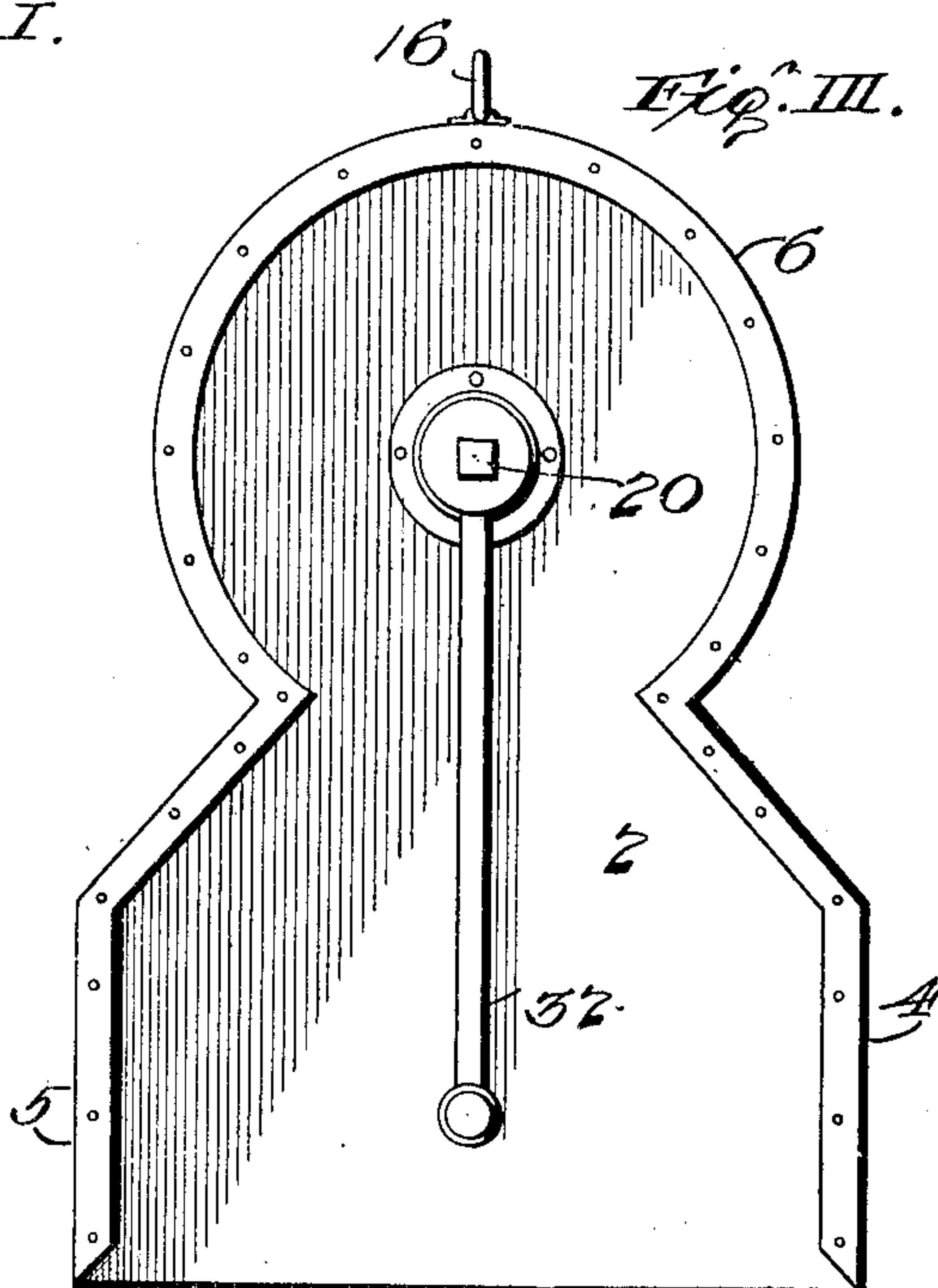
Fig. II.



WITNESSES:

J. L. Boettcher
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Fig. III.



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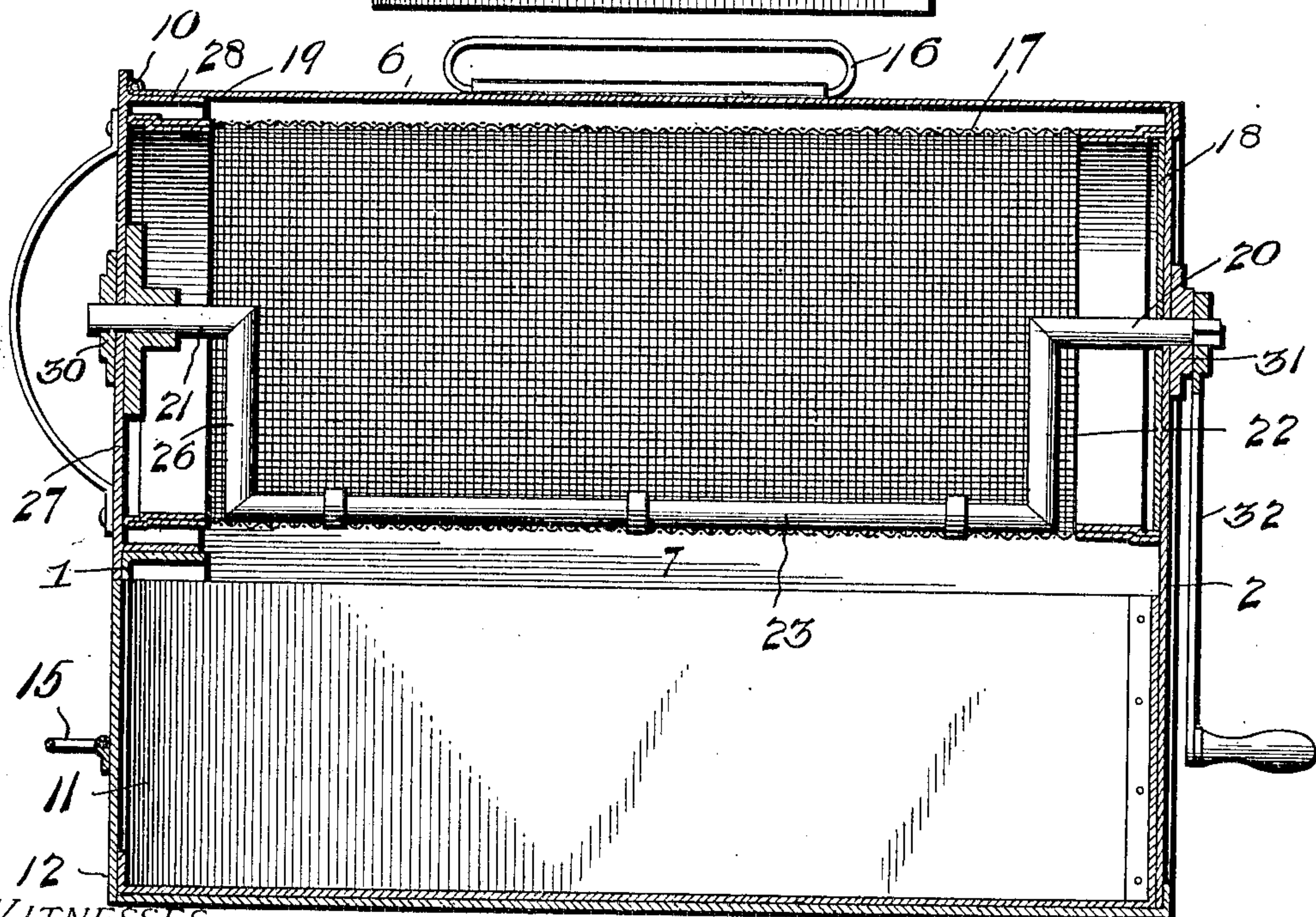
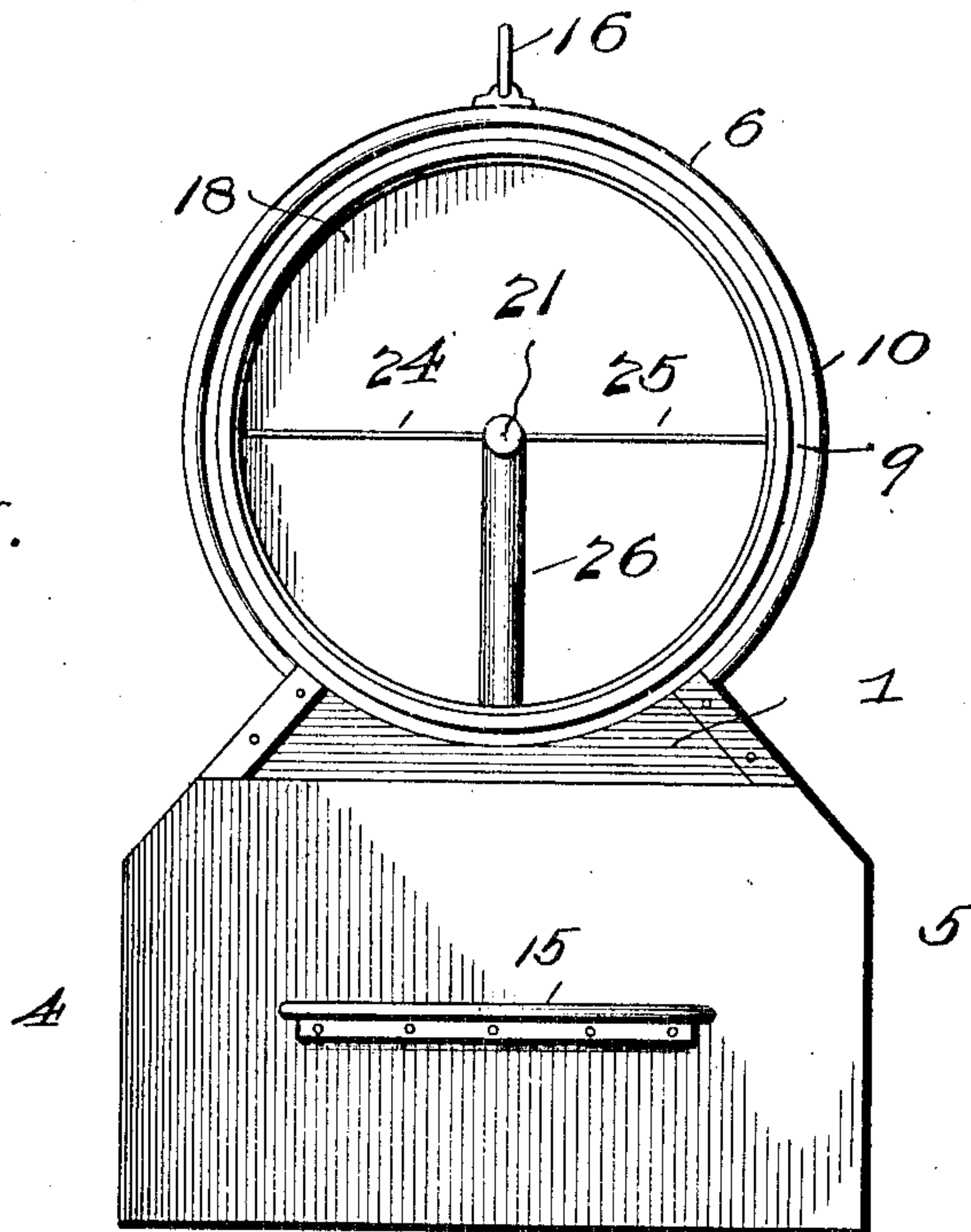
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2 SHEETS—SHEET 2.

Fig. IV.



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Fig. V.

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UNITED STATES PATENT OFFICE.

MARQUIS D. L. McCOLLUM, OF WILLIAMSPORT, PENNSYLVANIA.

COAL-SIFTER.

No. 829,665.

Specification of Letters Patent.

Patented Aug. 28, 1906.

Application filed June 16, 1904. Serial No. 212,872.

To all whom it may concern:

Be it known that I, MARQUIS D. L. McCOLLUM, of Williamsport, in the county of Lycoming, State of Pennsylvania, have invented certain new and useful Improvements in Coal-Sifters, of which the following is a complete specification, reference being had to the accompanying drawings.

The object of my invention is to produce an improved machine for separating entirely waste products of combustion from partially consumed material, or, in ordinary parlance, an ash-sifter which shall be for all practical purposes perfectly dust-tight, as well as simple, economical, durable, conveniently portable, and perfectly efficient in operation.

In the accompanying drawings, Figure I is a side elevation of my machine. Fig. II is a front elevation thereof. Fig. III is a rear elevation. Fig. IV is a front elevation with the bearing-cap removed; and Fig. V is a longitudinal vertical section of the machine, showing in side elevation the preferred bent form of bearing-shaft.

In the drawings, the outside shell of my machine consists, preferably, of a single structure comprising, as indicated by the reference-numerals on the drawings, a number of members. The members referred to are end pieces 1 and 2, bottom 3, side pieces 4 and 5, and a hood 6, of mutilated tubular form, being open, as indicated at 7, to form a throat communicating with the base defined below it by the bottom, end, and side pieces. The side pieces are preferably inclined at their upper parts, respectively, toward their juncture with the hood in order to provide within the base for ample ash-receptacle space without excessive expanse of throat. The shell may be made of any suitable material, preferably of sheet metal throughout, bent to form the corners of the structure and having the overlaps riveted to the parts which they overlap or otherwise by any ordinary or preferred means united to constitute a stiff, fireproof, and dust-tight structure. The corners may be stiffened with wire infolded in the ordinary manner well known in sheet-metal manufacture, and the mouth 9 of the hood is preferably reinforced with such a ring as is indicated at 10. The back piece 2 completely closes the end of the shell which it occupies, while the front piece 1 is of narrow dimensions, defining above it the mouth 9 previously specified and below it an opening into the ash-receptacle within which fits snugly an

ash-drawer 11, preferably provided with a flanged front 12 and convenient handle 15.

16 indicates a handle surmounting the hood and affording convenient means for carrying it from place to place as required.

Within the hood I provide a rotary screen of a diameter and longitudinal extent sufficiently less than those of the hood to permit freedom of operative movement of the screen within the hood. The screen preferably consists of a cylindrical side wall 17, which may be made of wire-netting of suitable mesh or of foraminous sheet metal. It is closed at one end, preferably by a solid disk 18, to which the side wall 17 is fastened in any suitable manner and is open at its opposite end. The disk 18 is located in use in juxtaposition to the end wall 2, while the open end of the screen corresponds in position to the mouth 9 of the hood. The open end of the screen is preferably finished with an annulus 19, which is preferably made of metal and of requisite stiffness to keep its shape in use.

The screen being rotary, as above specified, I prefer to mount it upon journals 20 and 21, coaxial with the screen, which in order that they may offer the least obstruction within the body of the screen are preferably formed upon opposite ends of a bent shaft 22, whose backbone 23 is firmly secured to the side wall 17 of the screen. The journal 20, passing through the disk 18 of the screen, projects coaxially from the outer face thereof. The other journal 21, projecting through the open end of the screen, must be provided with means for preserving its concentricity with the annulus 19 and is for that purpose preferably provided with braces 24 and 25, which, extending between the inner end of the journal 21 and the annulus 19, cooperate with the radial section 26 of the bent shaft, of which the journals constitute terminal members, to hold the journal 21 fixedly in concentric relation to the annulus aforesaid. The annulus 19 defines a mouth to the screen within and concentric with the mouth 9 of the hood which is designed in charging the machine for operation to receive the material to be separated, but which during the separating operation it is desirable should be kept perfectly closed in order to confine the dust wholly within the interior of the shell. To accomplish this important object of my invention, I provide a cap 27, having a deep flange 28 to fit within the mouth 9 of the hood and by reason of its extent to ob-

tain a sufficiently-firm purchase upon the hood for the performance of its function hereinafter specified. The cap is provided with a centrally-disposed bearing 30 for the reception of the journal 21, so that the cap is thereby made to constitute a removable bearing for the rotary screen and a dust-tight door for the hood. The journal 20 is supported coaxially with the journal 21 in a bearing 31, provided in the end piece 2 of the shell. The journal 20, projecting through the bearing 31, is squared or threaded or otherwise adapted to operatively engage a driving member—such, for example, as a crank 32.

In operation, the lower part of the shell being closed by the introduction of the drawer 11, the shell, with the cap 27 removed, is set in an upright or slightly-tilted position, so as to present the open mouth of the screen in convenient position for the reception of a charge of material to be separated. The screen may be filled partially or substantially to its capacity, when the cap, being inserted into the mouth of the hood, with the journal 21 within its bearing 30, the machine is ready to do its work. Thereupon the operator imparts to the screen, by turning the crank 32, a certain number of revolutions, when after giving the dust a moment or two to settle the drawer 11 may be removed and the screenings within the screen deposited in any suitable receptacle for immediate or future use. The number of turns which should be given to the screen in order to perfectly screen the contents thereof can be determined by experiment; but for machines of ordinary size I have ascertained that eleven turns will reliably accomplish the purpose intended.

The ready portability of the machine renders it available at any number of different points where ashes accumulate, and it is one of the advantages of my machine that it may be used on the spot wherever it is needed without the necessity of the usual multitude of handlings and rehandlings of the material

necessary to the sifting of ashes with ordinary contrivances provided for that purpose.

While my invention is especially adapted for use as a coal-sifter, it may be also used as a separator in connection with other analogous materials.

What I claim is—

1. The combination with a shell having a hood with ends, of a rotary screen, a bent shaft having its backbone secured to the side wall of the screen and projecting at the opposite ends of the screen in coaxial journals, bearings in the ends of the hood for said journals respectively, and means for operating the screen.

2. The combination with a closed dust-tight shell having a hood closed at its ends, one entire end being removable, of bearings in said ends, a rotary screen operatively mounted in said bearings and journals in said screen working in the aforesaid bearings, the journal in one end of the screen being supported by a plurality of radial members.

3. The combination with a closed dust-tight shell having a hood closed at its ends, one end being removable, of bearings in said ends respectively, a rotary screen closed at one end and open at the other, and coaxial journals on said screen working in the aforesaid bearings, the journal in the mouth of the screen being supported in concentric position by a plurality of radial members.

4. The combination with a closed dust-tight shell having a hood closed at its ends, one end being removable, of bearings in said ends respectively, and a rotary screen, closed at one end and open at the other, mounted in said bearings, whereby the open end of said screen may be lowered to discharge its contents upon removal of the adjacent end of said hood.

In testimony of all which I have hereunto subscribed my name.

MARQUIS D. L. McCOLLUM.

Witnesses:

MARY A. WILSON,
JOSEPH L. ATKINS.