

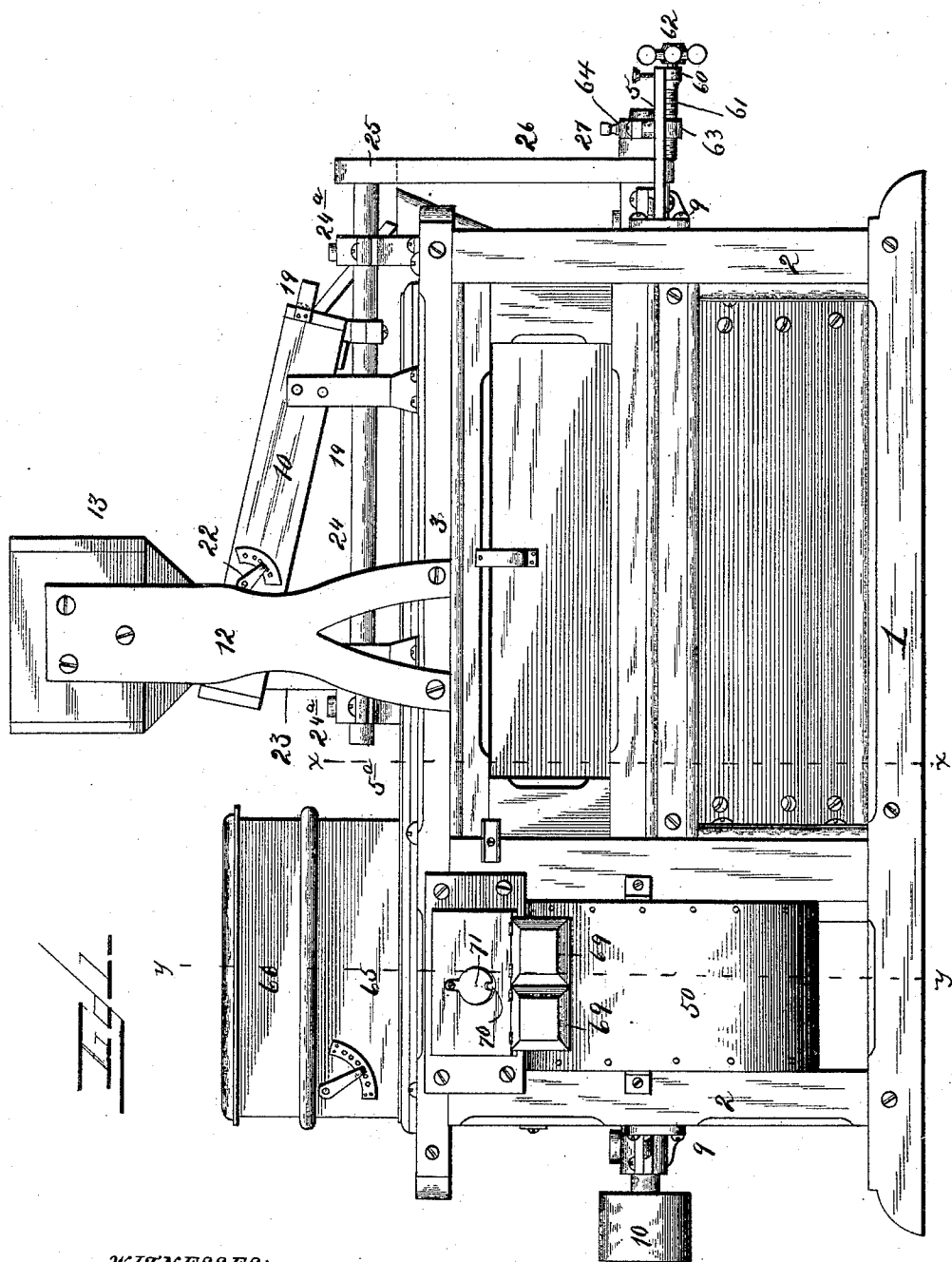
(No Model.)

4 Sheets—Sheet 1.

F. M. DRAKE.
GRAIN SCOURER.

No. 487,259.

Patented Dec. 6, 1892.



WITNESSES:

F. L. Curand.
J. L. Coombs

INVENTOR:

Francis M. Drake,
of Davis & Bagger Co.
Attorneys

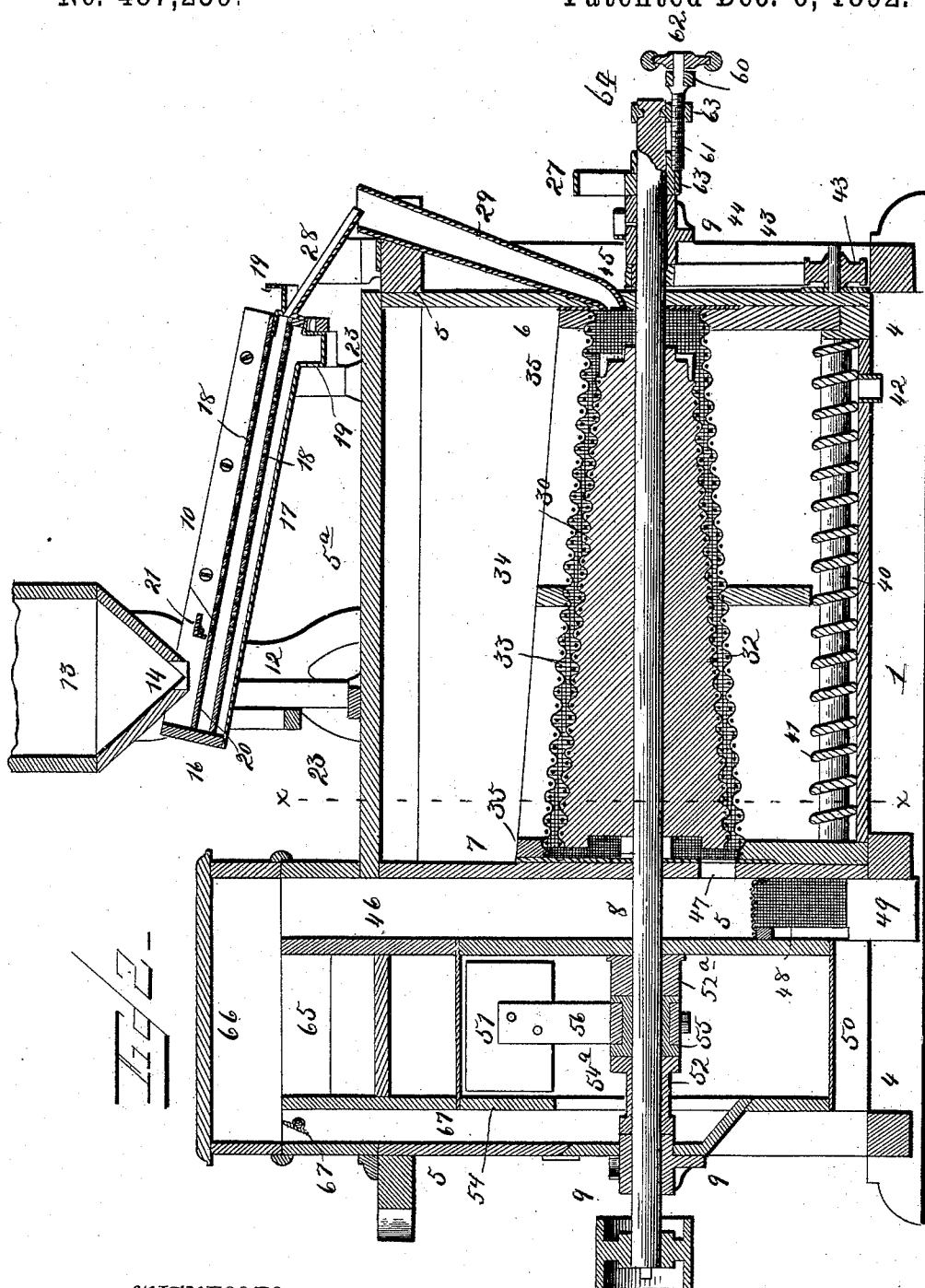
(No Model.)

4 Sheets—Sheet 2.

F. M. DRAKE.
GRAIN SCOURER.

No. 487,259.

Patented Dec. 6, 1892.



WITNESSES:

J. L. Curand.
J. L. Coombs

INVENTOR:

Francis M. Drake,
J. Davis Tagger & Co.
Attorneys.

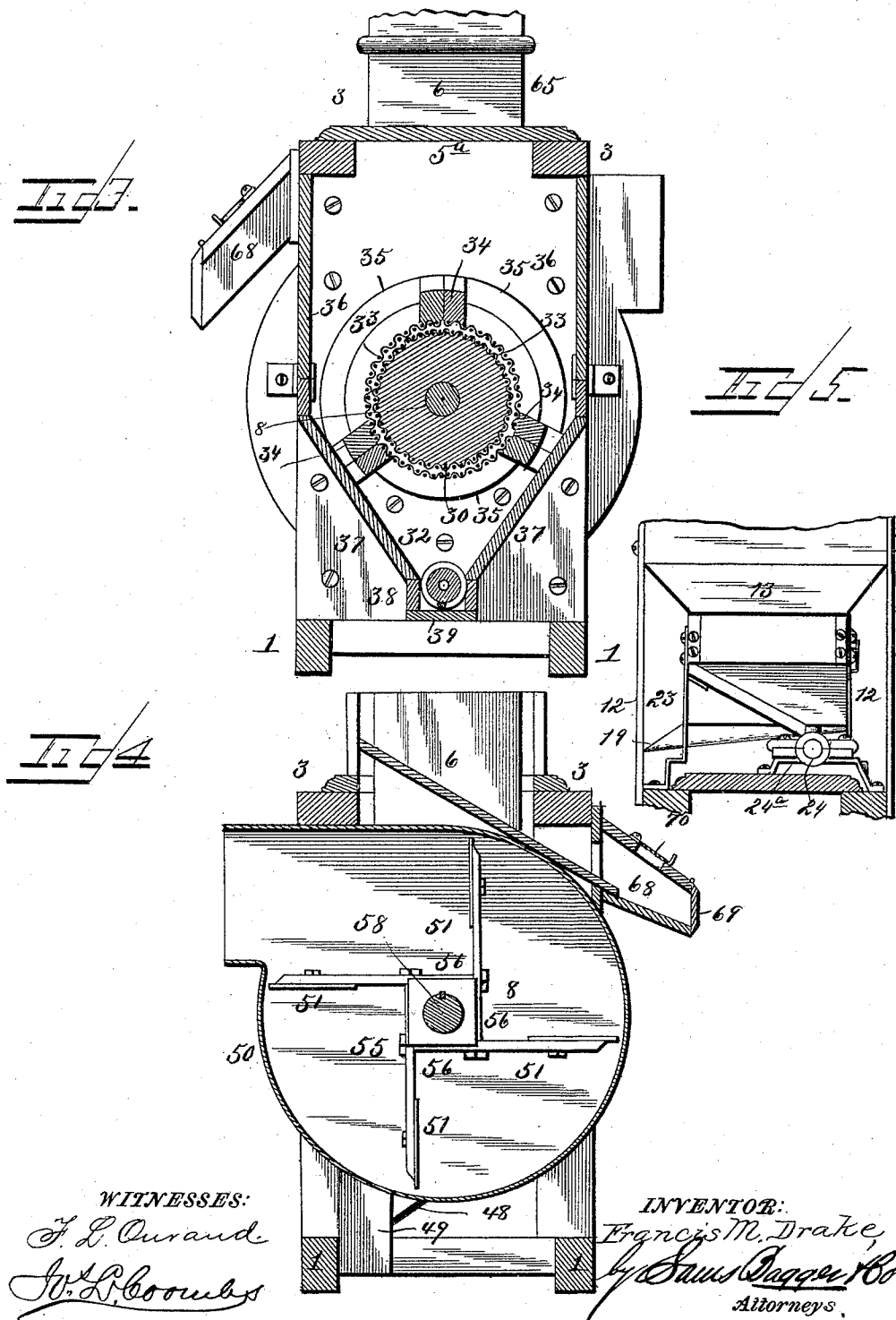
(No Model.)

4 Sheets—Sheet 3.

F. M. DRAKE.
GRAIN SCOURER.

No. 487,259.

Patented Dec. 6, 1892.



WITNESSES:

J. L. Curand
W. L. Coombs

INVENTOR:

Francis M. Drake,
Saus & Bagger Co
Attorneys.

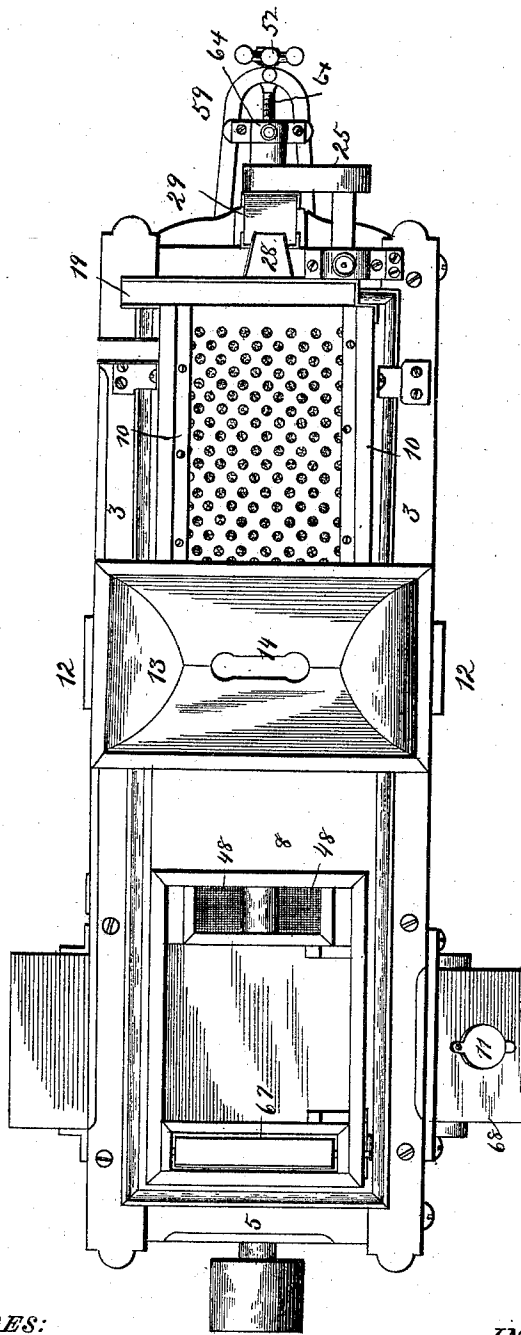
(No Model.)

4 Sheets—Sheet 4.

F. M. DRAKE.
GRAIN SCOURER.

No. 487,259.

Patented Dec. 6, 1892.



WITNESSES:
J. L. Ourand.
J. L. Coombs

INVENTOR:
Francis M. Drake
by S. S. Daguerre & Co.
Attorneys.

UNITED STATES PATENT OFFICE.

FRANCIS M. DRAKE, OF WALDO, OHIO.

GRAIN-SCOURER.

SPECIFICATION forming part of Letters Patent No. 487,259, dated December 6, 1892.

Application filed November 30, 1891. Serial No. 413,567. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS M. DRAKE, a citizen of the United States, and a resident of Waldo, in the county of Marion and State of Ohio, have invented certain new and useful Improvements in Grain-Scourers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to grain-scouring machines and is designed as an improvement upon the invention disclosed in Letters Patent granted to me December 27, 1887, No. 375,612.

The invention consists in the novel construction and combination of parts herein-after fully described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of an apparatus constructed in accordance with my invention. Fig. 2 is a central longitudinal section of the same. Fig. 3 is a cross-section on the line *x x*, Fig. 1. Fig. 4 is a similar section on the line *y y*, Fig. 1. Fig. 5 is a detail view of the hopper. Fig. 6 is a plan view of the apparatus, the top or cover of the chaff or scouring chute being removed.

In the said drawings the reference-numeral 1 designates sills, to which upright corner-posts 2 are secured at their lower ends and at their upper ends are connected with the side pieces 3. These sills 1 are connected together by cross-pieces 4 and the side pieces 3 by similar cross-pieces 5, to which is secured a top 5^a. The frame thus formed is provided at one end with a wall 6 and near the other end with a partition 7. Passing centrally through apertures in this wall and partition is the main shaft 8, which is journaled in boxes carried by transverse bars 9, secured to the end or corner posts 2. This shaft at one end is provided with a driving-pulley 10.

The numeral 12 designates uprights secured to the side pieces 3 near the center thereof, which carry a hopper 13, having a contracted delivery-chute 14. Located underneath the

hopper is an inclined vibrating feeding-riddle, consisting of side boards or pieces 15, end pieces 16, and a bottom 17. Connected with the side pieces 15 and parallel with the bottom of the riddle is a series of sieves, consisting of wire-gauze or imperforate metal plates 18, the meshes of which are of different sizes or dimensions. I have shown two of these sieves, the meshes in the upper one being larger than those in the lower. At their front ends these sieves communicate or connect with inclined transverse troughs 19. At the rear end of the riddle, directly underneath the delivery-chute of the hopper, is a transverse plate 20 of imperforate metal, and near the front of this plate is an adjustable plate 21, journaled in the side pieces 15, provided with an operating-crank, by means of which its inclination may be varied and the flow of grain to the sieves regulated.

Pivoted to the under side of the riddle at one side are bars or arms 23, which extend diagonally toward the opposite side thereof, where they engage with a cam-shaft 24, journaled in boxes 24^a, secured to the top of the frame of the apparatus. This shaft is provided at its front end with a pulley 25, connected by means of a belt 26 with a pulley 27 on the main shaft 8. The bottom of the riddle communicates by means of spout 28 with a chute 29, leading to the scouring-cones.

Secured to the main shaft, so as to revolve therewith, is a conical scouring-cone 30, having its surface covered with card-board, wire-cloth, or corrugated metal. Surrounding this revolving cone is a similarly-shaped casing made in three equal sections 32 and 33. These sections are made of card-cloth, wire-gauze, or imperforate metal, with horizontal strips 34, by which they are connected together, and segmental flanges 35, by which they are bolted or secured to the wall 6 and partition 7. This casing is inclosed by upper side walls 36 and inclined lower side walls 37, the latter being provided with downwardly-depending walls 38 and a bottom 39, forming a trough in which is located a revoluble longitudinal shaft 40, having wound spirally thereon a cord 41, so that any chaff or impu-

rities escaping from the casing will fall into said trough and by means of the revolving shaft and spirals by wound cord be carried to the front end of the apparatus and discharged through spout 42. The shaft 40 is provided with a pulley 43, connected by means of a belt 44 with pulley 45 on driving-shaft 8, by which it is rotated.

Immediately in rear of the partition 7 is a vertical chamber 46, communicating with the casing by means of a passage-way 47. The lower end of this chamber is provided with an inclined bottom wall 48, made of wire-gauze or perforated metal, leading to a delivery-spout 49 at one side of the apparatus. Intermediate of the chamber 46 and the rear end of the casing is a fan-casing 50, in which work the fan-blades 51.

Loosely mounted on the shaft 8 is a collar 52, the ends of which abut against the journal-box 9. The rear wall 54 of the casing is provided with a central opening 54^a. The collar 52 intermediate of its ends is provided with a square hub 55, having a groove upon each of its sides, in which is seated the ends of the fan-arms 56, and intermediate of said hub and the front wall of the fan-casing is a loose pulley 52^a. As will be seen, the inner ends of each of these arms are screw-threaded and pass through an aperture in an adjoining shaft, being secured by means of nuts 57. The inner surface of the hub is provided with a feather 58, which works in a slot in the shaft 8. At the opposite end of the apparatus a transverse plate is provided with an outwardly-extending bracket 59, having a downwardly-extending lug 60 at its outer end, in which is journaled a screw-threaded shaft 61, having a hand-wheel 62. This shaft passes through a screw-threaded lug 63 of a bracket 64, secured to the end of the shaft 8. By turning the hand-wheel the shaft 61, by means of the screw-threaded lug and bracket, will cause the shaft 8 to be moved longitudinally and the scouring-cone correspondingly moved within its casing, increasing or decreasing the distance therebetween, according to the direction in which the hand-wheel is moved, so as to adapt the scouring-cones to different varieties or sizes of grain. By means of the loose collar 52 and the hub 55, with its feather working in the slot in the shaft 8, the longitudinal movement of the latter can be effected without interfering with the rotation of the hub carrying the fan shafts and blades.

At the rear end of the apparatus and mounted on the top thereof is a chaff or screenings box 65, having a removable cover 66. The upper end of the chamber 46 communicates with this box, as does also a passage-way 67, which also communicates with the fan chamber or casing through the opening 54^a. This passageway is provided with a regulating-valve 67. The bottom of box 65 is inclined and communicates with a chute 68 at one side of the apparatus, having hinged doors 69.

The chute is provided with an aperture 70 and a pivoted cover 71.

The operation of the apparatus is as follows: The main shaft 8 being rotated, the fan-blades and the scouring-cone and the riddle-vibrating shaft will also be rotated through the connections heretofore described. The grain to be scoured is placed in the hopper, from which it is delivered to the riddle through the delivery-chute, the flow of the grain to the riddle being regulated by means of the transverse plate, the nearer said plate being to the perpendicular the slower being the flow of the grain. The grain passing onto the top sieve will fall through the meshes thereof onto the next plate and from thence through the smaller meshes to the bottom plate, the chaff being carried to the troughs at the end of the riddle, from which it is discharged at one side of the apparatus. From said bottom the grain will escape through spout 28 and chute 29 to the scouring-cones. These cones will effectually sever off the beard, cuticle, and other impurities and discharge the same through the passage-way in partition 7 to the chamber 46, with such chaff as failed to fall through the meshes in the casing, and be carried off by the shaft 40 and spiral cord 41 and discharged through spout 42. The grain from the casing will fall onto the perforated bottom 48 of the chamber 46 and be discharged through spout 49, the chaff and screenings being forced upward by means of the suction-blast from the air-chamber and passage-way 67 to the screenings or chaff box 65, from whence it will pass to the chute 68 through doors 69 to a delivery-spout, (not shown,) by which said chaff may be delivered to any suitable receptacle or place. The air-blast is regulated by means of the valve 67 and the pivoted cover 71 of the chute 68.

Having thus described my invention, what I claim is—

1. In a grain-scouring apparatus, the combination, with the frame, the revoluble main shaft, the cone mounted thereon, and the stationary casing, of the loose collars mounted on said shaft, the hub carried by said collar, having a feather engaging with a slot in the shaft and provided with fan arms and blades, the bracket at the other end of the apparatus, the screw-shaft journaled in said bracket, and a bracket secured to the main shaft, engaging with said screw-shaft, substantially as described.

2. In a grain-scouring apparatus, the combination, with the frame, the main shaft, the scouring cone and casing, and the fan and its casing located at the rear of the apparatus, of the vertical chamber communicating near its lower end with the cone-casing and having a perforated bottom, the screenings and chaff box communicating with the upper end of said chamber, the vertical chamber communicating at its upper end with the chaff-box and at its lower end with the fan-casing,

the adjustable valve located in said chamber,
the chute connected and communicating with
the chaff-box, having a hinged door at its end
and provided on its upper side with an open-
5 ing and a pivoted cover for said opening, sub-
stantially as described.

In testimony that I claim the foregoing as

my own I have hereunto affixed my signature
in presence of two witnesses.

FRANCIS M. DRAKE.

Witnesses:

GEORGE W. CRAWFORD,

WILLIAM H. PORTERFIELD.