

No. 754,903.

PATENTED MAR. 15, 1904.

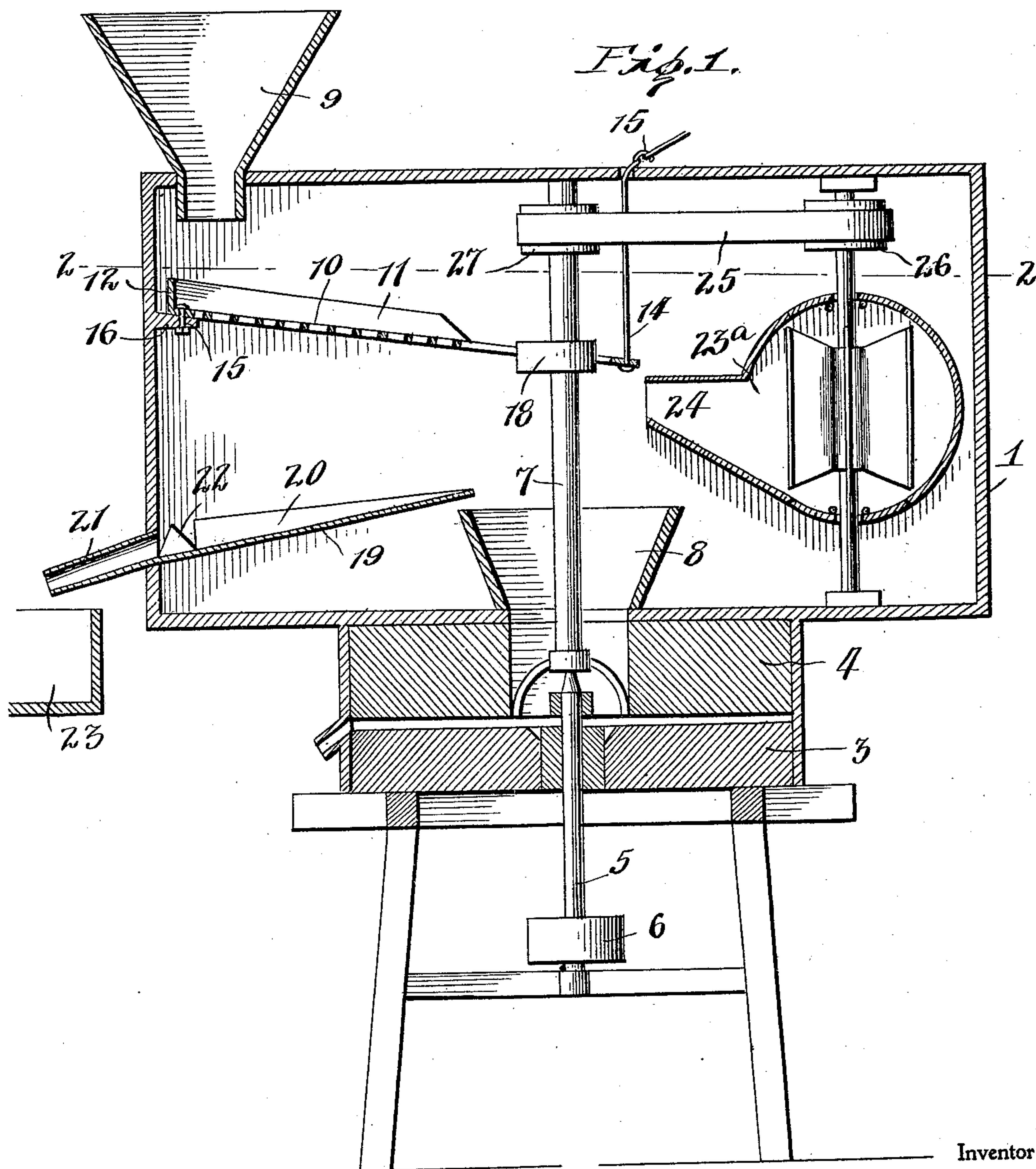
S. L. SHELBY.

GRIST MILL.

APPLICATION FILED JULY 6, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 2.

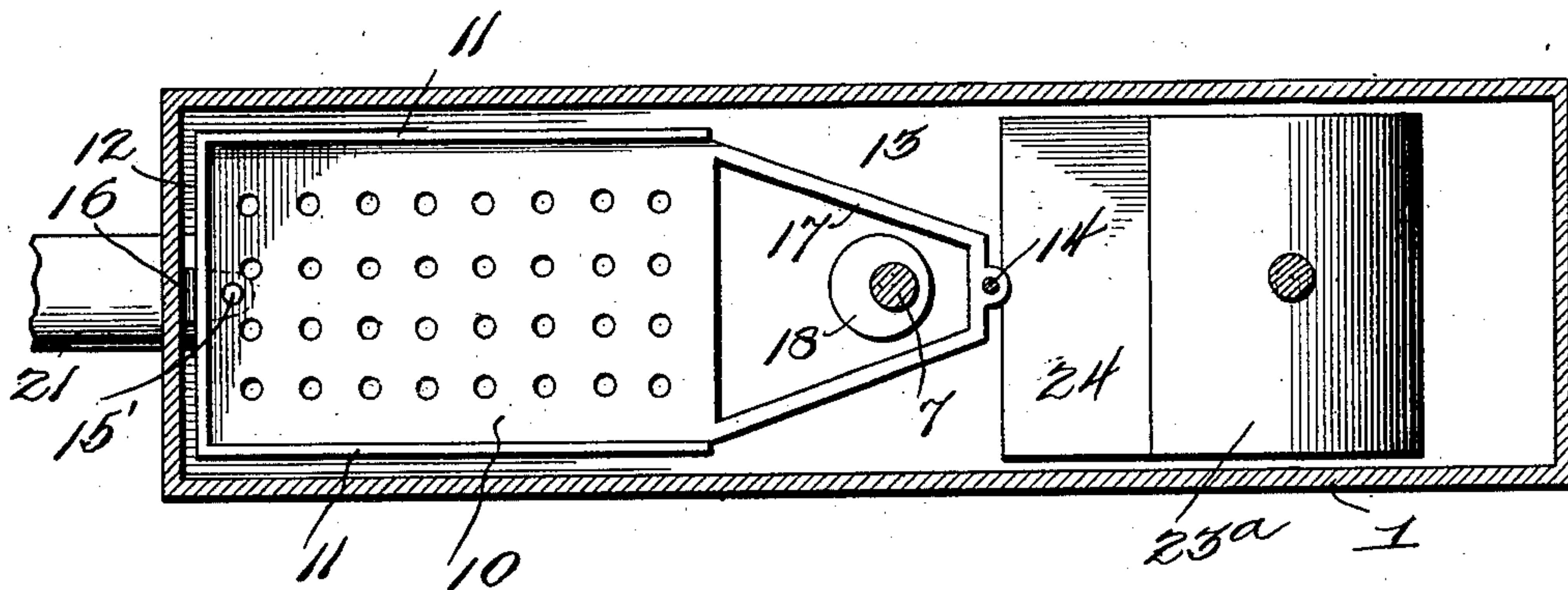


Fig. 3.

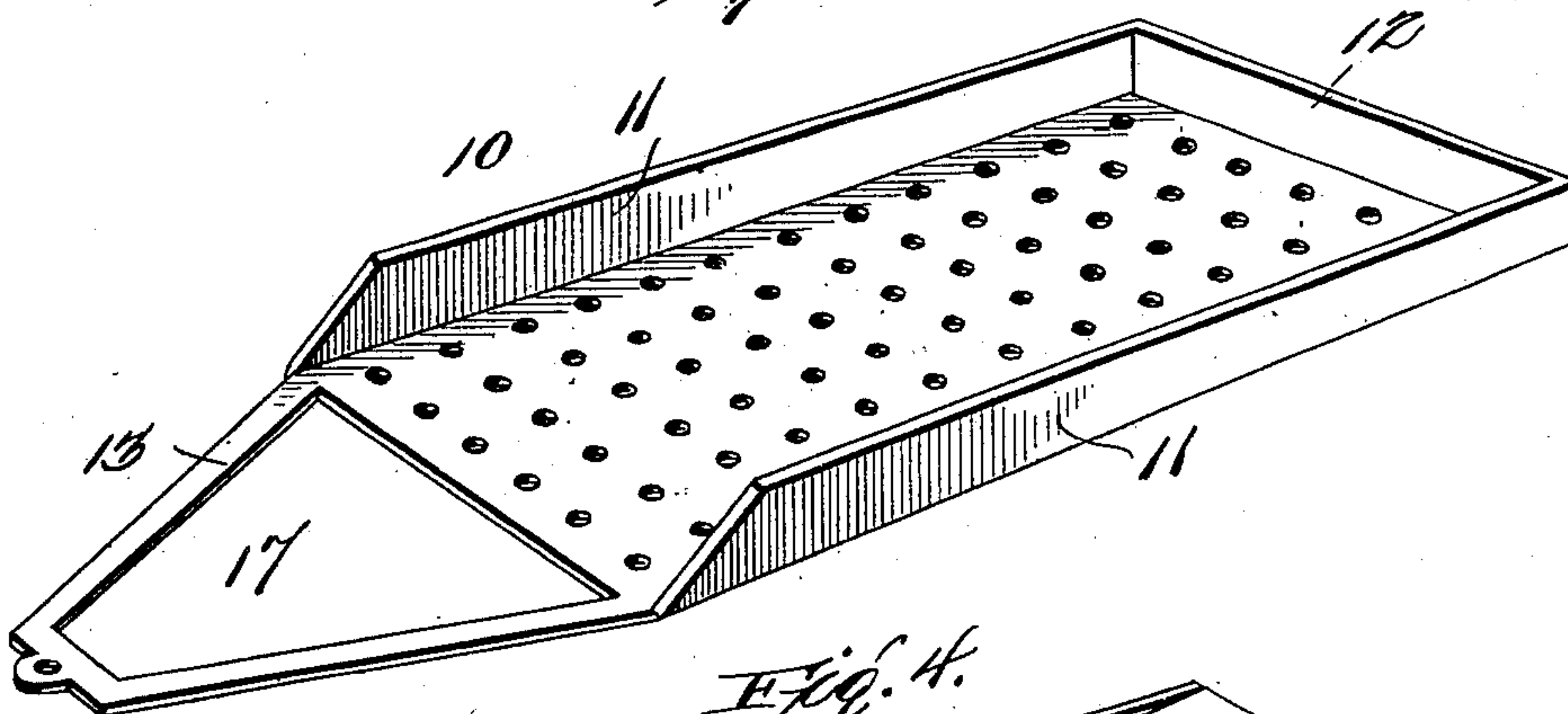
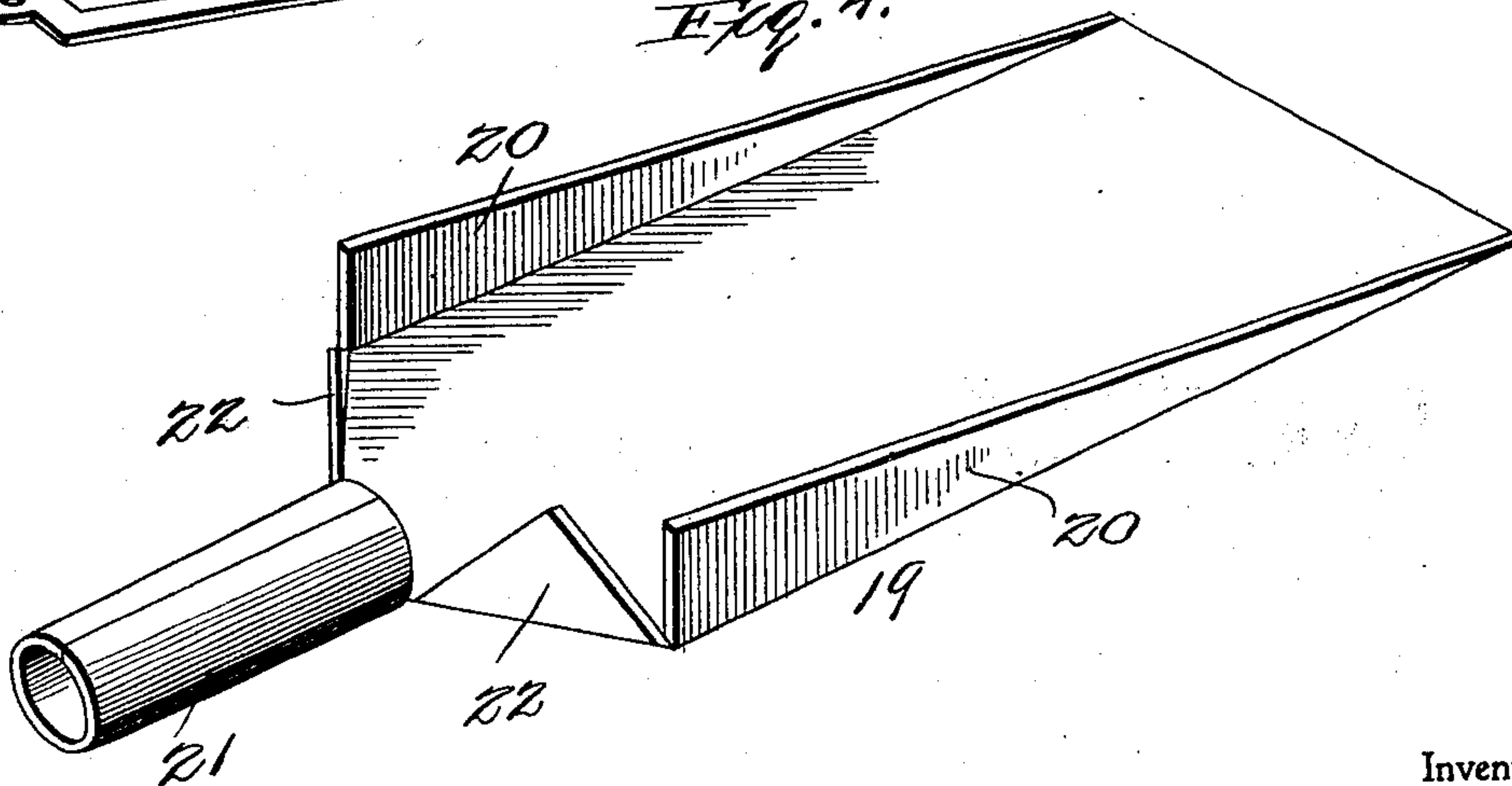


Fig. 4.



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SAMUEL L. SHELBY, OF SALEM, KENTUCKY.

GRIST-MILL.

SPECIFICATION forming part of Letters Patent No. 754,903, dated March 15, 1904.

Application filed July 6, 1903. Serial No. 164,418. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL L. SHELBY, a citizen of the United States, residing at Salem, in the county of Livingston and State of Kentucky, have invented certain new and useful Improvements in Grist-Mills; and I do 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.

This invention relates to improvements in grist-mills.

The object of the invention is to provide simple and effective grain sifting or screening mechanism for mills of this character whereby the grain on its passage from the hopper to the reducer may be thoroughly screened or rid of all impurities, thus enabling meal or flour free from refuse and of fine appearance and quality to be obtained.

With these and other objects in view the invention consists of certain novel features of construction, combination, and arrangement of parts, as will be hereinafter more fully described, and particularly pointed out in the appended claims, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical section of a grist-mill embodying my invention. Fig. 2 is a horizontal section of the same on line 2 2 of Fig. 1. Fig. 3 is a perspective view of the screen or sieve, and Fig. 4 is a similar view of the refuse chute or conductor.

Referring now more particularly to the drawings, the numeral 1 represents the frame or casing of the grist-mill, which may be of suitable form, and in which is arranged a reducing device, consisting of the burs or millstones 3 and 4, which act upon the grain to grind it into meal or flour. As shown in the present instance, the lower bur 3 is stationary, while the upper bur 4 revolves and is driven by the shaft 5, which has a drive-pulley 6 receiving motion from a suitable source of power. The revoluble bur or millstone 4 is provided with the usual inlet opening through which the grain passes between the stones, and to said bur is also connected a shaft 7, which extends vertically up into the upper portion of the casing 1. A conductor 8 is disposed

concentric with said shaft and is adapted to guide the grain to the said feed space or opening in the bur 4. Disposed in the upper portion of the casing is a hopper 9, containing the grain to be fed to the reducing device 2, and disposed below this hopper, so as to take the place of the usual feed-box, is a screen or sieve 10, designed to separate the dust, fine particles of material, and other refuse from the grain prior to its discharge into the conductor 8. This sieve or screen 10 comprises a foraminous or perforate shallow pan or trough-like receptacle having a flange or side walls 11 and an outer end wall 12, the opposite end of the trough being open to permit the grain after being freed from all impurities to discharge. Extending from the inner or lower end of the screen is a projection 13, which in the present instance is of V form, and to the outer end of this projection is connected a cord or like element 14, which is designed to be secured at 15 to the top of the frame or casing 1. The closed end of the sieve is pivoted at 15' to a suitable support 16, fixed to the casing 1, and from thence the sieve is inclined toward the shaft 7, so as to allow the grain to feed by gravity from the inlet end of said sieve below the hopper to the outlet end thereof and thence to the conductor 8. The pivot 15' is vertical and allows the sieve 10 to swing or vibrate laterally and is also loose enough to permit the sieve to have some vertical play or movement. By this means the sieve may be adjusted vertically by means of the cord or flexible connection 14 to incline to a greater or less extent to suit different conditions of the grain and to effect a fast or slow feed, as desired. The shaft 7 extends upwardly through the opening 17 in the projection 13 and is provided with a cam 18, which alternately engages opposite sides of the wall of said opening 17, and thus vibrates or oscillates the said sieve 10 in a lateral direction, as will be readily understood.

Disposed below the sieve 10 is a chute or conductor 19, the same consisting of an imperforate plate or pan provided with inclined side walls 20, increasing in depth toward the outer end thereof and having at the latter a reduced neck or discharge-tube 21 and in-

clined side walls or deflectors 22 for guiding the refuse thereto. In practice the refuse falling from the screen 10 drops onto the chute or conductor 19 and passes by gravity, aided
 5 by blasts of air from the fan, hereinafter described, to the discharge-neck 21 and thence falls into a refuse-receptacle 23 on the outside of the casing 1.

In the operation of the apparatus the screen
 10 10 is vibrated laterally by the shaft 7, which receives motion through the revolution of the bur 4 from the shaft 5, and the grain dropping thereon from the hopper 9 is caused by such agitation to be loosened up, allowing all
 15 dust and particles of refuse to drop through said screen onto the conductor 19. The grain freed from such impurities is fed toward the shaft 7 and discharges through the opening 17 into the receptacle 8, and thence passes in a
 20 thoroughly clean condition to the reducing device 2. Thus instead of the dirt and other refuse being ground up with the grain a meal or flour free from all impurities will be furnished.

It may occur under some conditions that
 25 even particles of foreign matter too light to feed down through the perforations in the screen 10 may pass with the grain down through the opening 17. In order to prevent
 30 such particles from passing with the grain to the reducing device, I provide a fan 23^a, having a nozzle 24 directed to produce a blast or current of air on a line between the inner ends of the screen and outlet-chute, so that the light
 35 particles of foreign matter passing through the opening 17 will be blown outwardly and finally caused to drop upon the chute 19, thus finally ridding the grain of those particles of refuse passing the screen and allowing the
 40 grain to feed in an entirely cleanly state to the conductor 8. The fan is driven from the shaft 7 by means of a belt 25, passing around pulleys 26 and 27 on the fan-shaft and the said shaft 7.

From the foregoing description, taken in
 45 connection with the accompanying drawings, the construction and operation of my invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion,
 50 and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described my invention, what
 55 I claim as new, and desire to secure by Letters Patent, is—

1. In a grist-mill, the combination with a
 60 casing, a reducing device in the lower portion and a hopper on the upper part thereof, and a conductor for guiding the grain to said reducing device, of a sieve having its receiving end located below the hopper and pivoted to vibrate laterally and having its outlet end lo-
 65 cated above said conductor, the said screen in-

clining downward between the hopper and conductor, means disposed above and coaxially with said conductor for acting upon the discharge end of the sieve to vibrate the same, and a discharge-chute located below the sieve
 70 and extending at a reverse inclination thereto, having its inner end disposed substantially in the plane of the inner end of the screen, and provided at its outer end with an outlet extending to the exterior of the casing, substan-
 75 tially as described.

2. In a grist-mill, the combination with a casing, a reducing device in the lower portion and a hopper on the upper part thereof, and a conductor for guiding the grain to said re-
 80 ducing device, of a sieve having its receiving end located below the hopper and pivoted to vibrate laterally, and having its outlet end located above said conductor, the said sieve inclining downward between the hopper and
 85 conductor, means disposed above and coaxially with said conductor for acting upon the discharge end of the sieve to vibrate the same, a discharge-chute located below the sieve and extending at a reverse inclination thereto,
 90 having its inner end disposed substantially in the plane of the inner end of the screen, and provided at its outer end with an outlet extending to the exterior of the casing, and a
 95 blower within said casing arranged to direct a blast of air over the conductor and on a line between the screen and chute, and inversely to the direction of travel of the grain upon the screen, substantially as described.

3. In a grist-mill, the combination with a
 100 casing, a reducing device therein, and a conductor for guiding the grain to said reducing device, of a shaft extending upward from and in coaxial alinement with the conductor, a
 105 sieve having its receiving end located below the hopper and pivoted to vibrate laterally and having its outlet end located above said conductor and provided with an extension open for the passage of the shaft, the said
 110 screen inclining downward between the hopper and shaft, a cam carried by the shaft and acting on the said extension to vibrate the screen, means connected to the tip of the operating extension beyond the cam for verti-
 115 cally adjusting the screen, and a discharge-chute located below the sieve and extending at a reverse inclination thereto, having its inner end disposed substantially in the plane of the inner end of the separating portion of the screen, and provided at its outer end with an
 120 outlet extending to the exterior of the casing, substantially as described.

4. In a grist-mill, the combination with a casing, a reducing device therein, and a conduc-
 125 tor for guiding the grain to said reducing device, of a shaft extending upward thereon and in coaxial alinement with the conductor, a screen or sieve having its receiving end located above said conductor and comprising a perforated body portion having an outlet at
 130

one end and an open frame extension at the
opposite end for the passage of said shaft,
said screen inclining downward between the
hopper and shaft, a cam carried by the shaft,
5 and acting on the said frame extension to vi-
brate the screen, and a discharge-chute located
below the screen and extending at a reverse in-
clination thereto, having its inner end dis-
posed substantially in the plane of the sepa-
10 rating portion of the screen, and comprising
a body portion, said flanges deepening toward

the outlet end of the body portion, a discharge-
spout at the center of the outlet end, and
guides or deflectors between the said flanges
and spout.

15

In testimony whereof I have hereunto set
my hand in presence of two subscribing wit-
nesses.

SAMUEL L. SHELBY.

Witnesses:

JOHN. V. HAYDEN,
J. C. KINSOLVING.