

H. E. WACK.

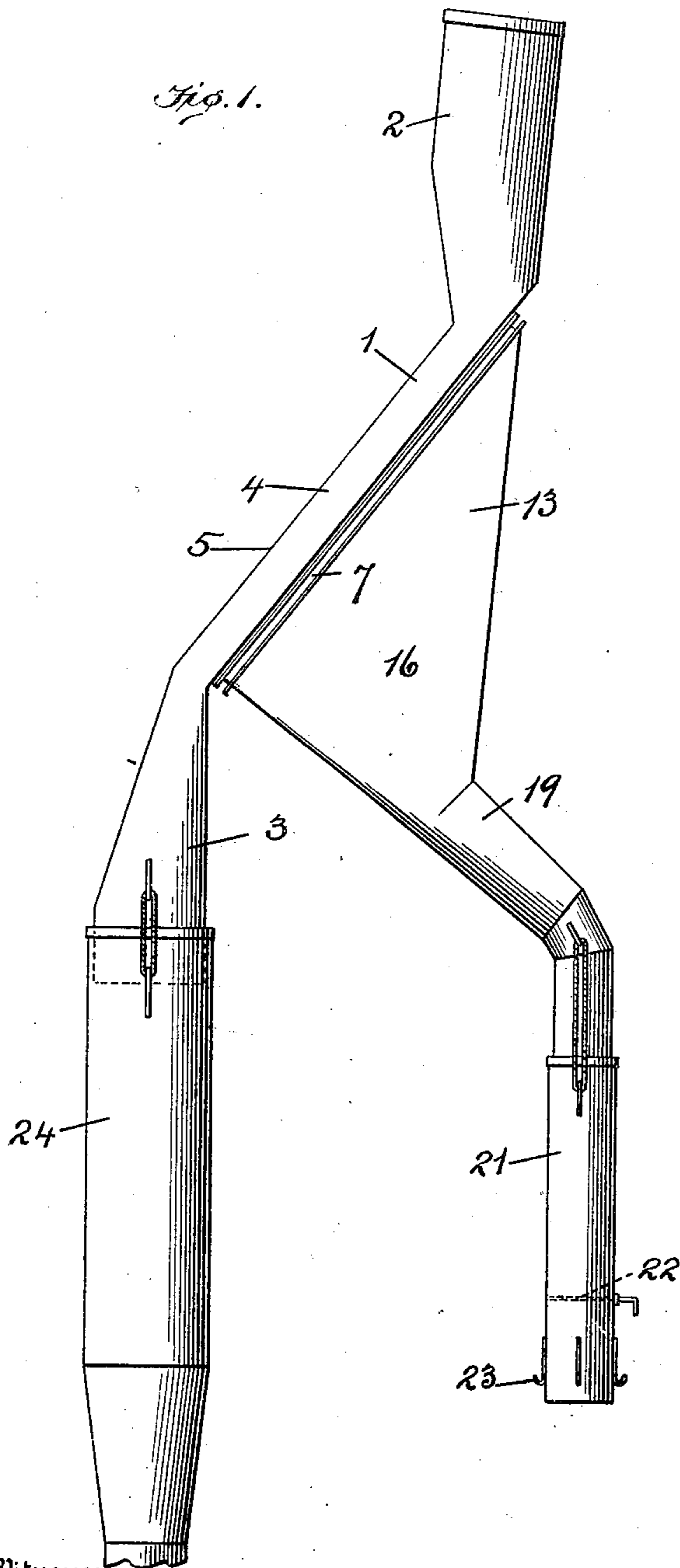
GRAIN SCREEN.

APPLICATION FILED JUNE 11, 1908.

922,220.

Patented May 18, 1909.

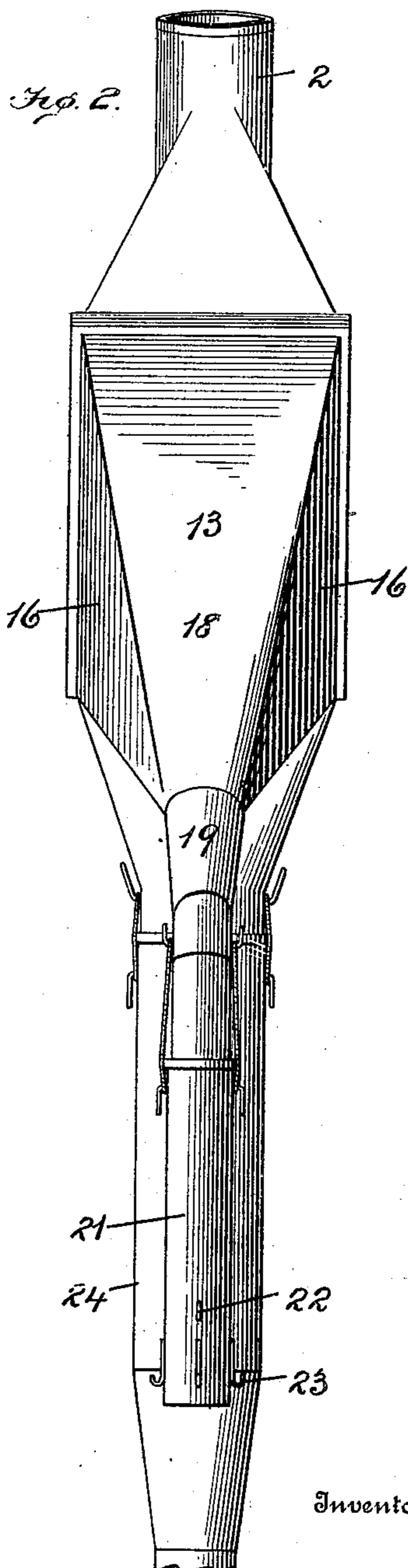
2 SHEETS—SHEET 1.



Witnesses

Edwin L. Bradford
G. Ferdinand Vogt.

By



Inventor

Henry E. Wack
Mann & Co.
Attorneys

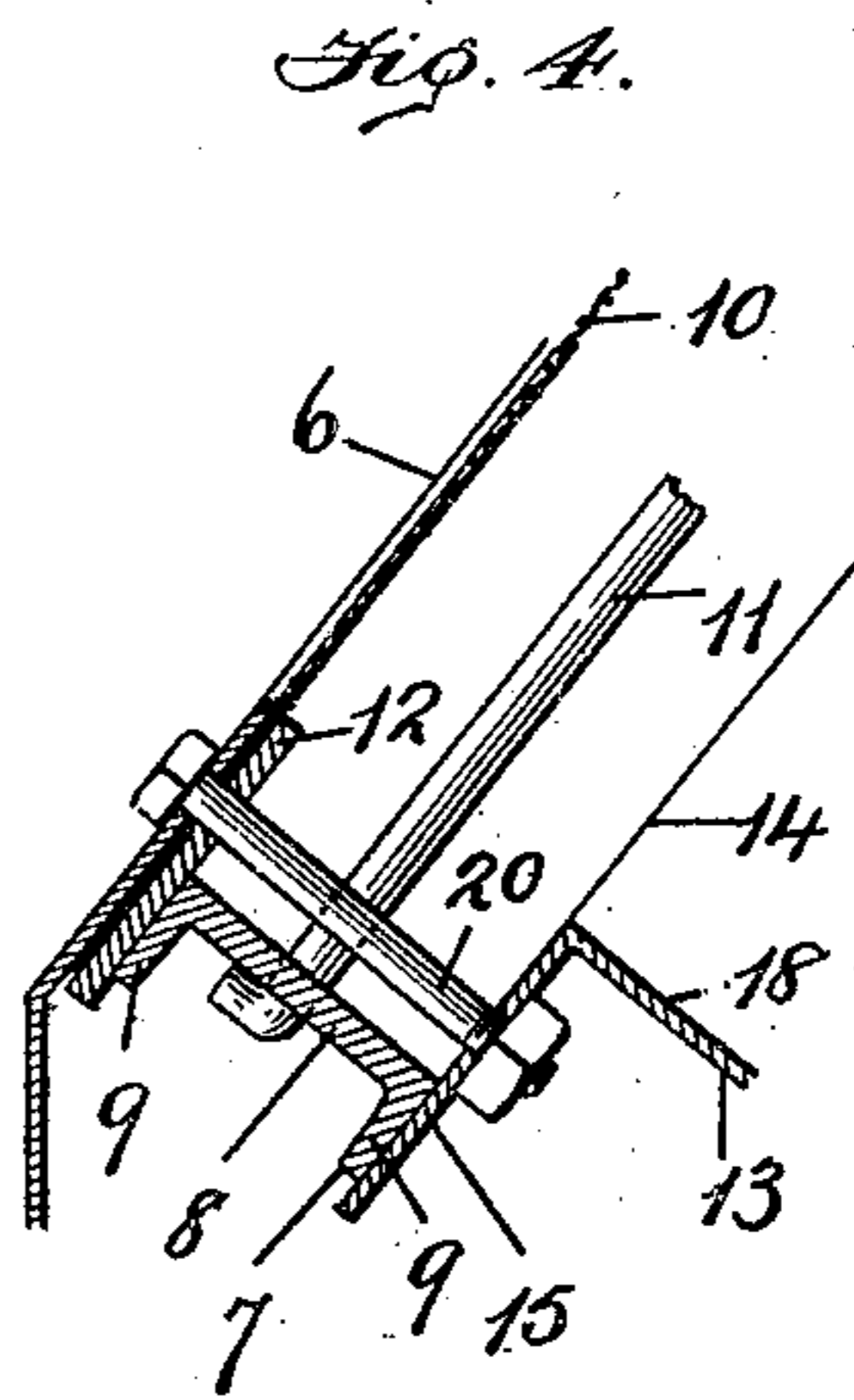
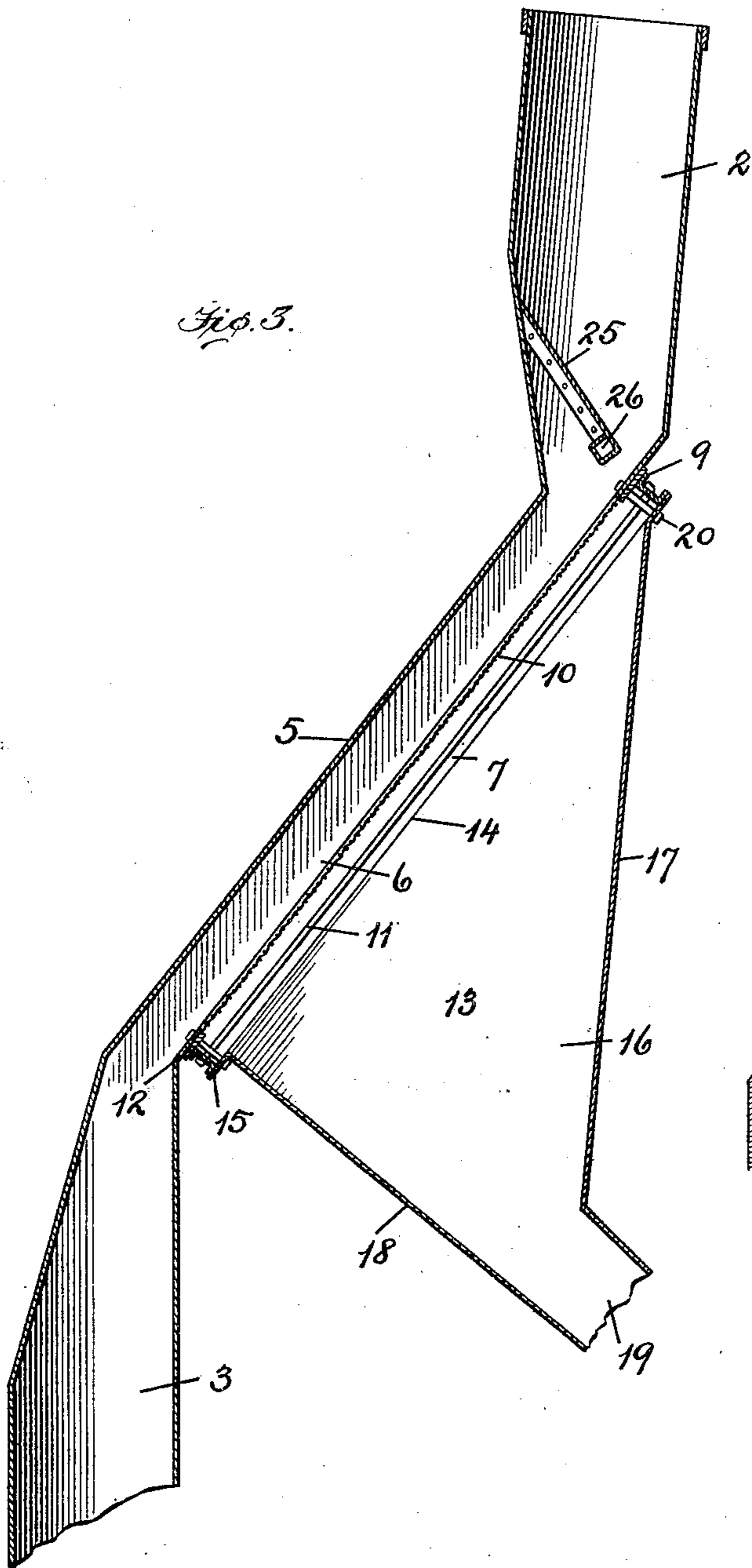
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UNITED STATES PATENT OFFICE.

HENRY E. WACK, OF BALTIMORE, MARYLAND.

GRAIN-SCREEN.

No. 922,220.

Specification of Letters Patent.

Patented May 18, 1909.

Application filed June 11, 1908. Serial No. 437,829.

To all whom it may concern:

Be it known that I, HENRY E. WACK, a citizen of the United States, residing at Baltimore, in the State of Maryland, have
5 invented certain new and useful Improvements in Grain-Screens, of which the following is a specification.

My invention relates to improvements in grain screens and has particular reference
10 to a screen for separating the broken grain or foreign particles from the whole grain.

One object of the invention is to provide an improved construction of grain screen
15 that will be of a simple and cheap construction; that may be readily put into position, and which will operate automatically to spread the grain as it passes therethrough so as to cause it to travel or flow over the
20 screen proper in a broad thin sheet form so as to subject the entire bulk of grain to the action of the screen without injuriously breaking the grain.

Another object is to provide an improved construction of screen device that may be
25 readily hung in any desired position to increase or decrease the pitch or angle of the screen proper and which may be operated to continuously screen the grain and separate the broken particles and convey them
30 in one direction while the whole grain may be conveyed in another direction.

With these and other objects in view, the invention is illustrated in the accompanying drawings, in which,—

35 Figure 1, shows an exterior side elevation of the device. Fig. 2, a rear elevation of the same. Fig. 3, a central longitudinal section thereof on an enlarged scale, and Fig. 4, a detail on an enlarged scale of the devices for
40 securing the screen frame in place.

In the drawings, the numeral, 1, designates the screen casing which in practice is preferably formed of sheet metal and said casing comprises, in the present instance, a tubular
45 inlet, 2; a tubular outlet or discharge nozzle, 3, and a flattened intermediate portion, 4, between the inlet and outlet. The intermediate portion of the casing extends in an inclined direction or at an angle with respect
50 to the inlet and outlet and while the uppermost side, 5, thereof is closed the lower side is provided with an opening, 6, through which the screenings pass, which opening, in the present instance is of a rectangular shape.

55 Around the opening in the lower side of the casing I secure a frame, 7, which has a

form or shape corresponding to the shape of said opening, and this frame is preferably constructed of channel bars, 8, having the lateral flanges, 9, at its upper and lower
60 edges. This frame forms the bottom support for the screen proper which may be a perforated sheet or woven wire, 10, as clearly seen in Figs. 3 and 4. Suitable stay rods,
11, extend lengthwise of the rectangular
65 frame and have position immediately beneath the screen and in case the screen should sag these stay rods will serve to support the screen from the under or bottom
70 side.

A broad flat surface plate, 12, is preferably interposed between the screen and the upper
flanges, 9, of the frame so that the marginal edges of said screen may be clamped against
75 the bottom or lower side of the casing as will presently be explained.

A hopper, 13, is positioned beneath the screen and has a large rectangular inlet opening, 14, at its upper side with a laterally-
projecting flange, 15, at the marginal edge
80 of its wall. This hopper has an inclined position with respect to the inlet and outlet of the screen casing and its opposite side walls, 16, rear wall, 17, and bottom wall, 18, all
85 incline inwardly toward each other as they recede from the rectangular inlet opening. The inclination of these hopper walls toward each other serves to direct the broken grains or particles that enter the hopper toward a common point, at which point I provide the hopper with a discharge nozzle, 19.
90

By reference to Figs. 3 and 4 it will be seen that the lateral flanges, 15, of the hopper seat up close against the lower flanges, 9, of the channel-bar frame and are held in
95 close contact thereagainst by means of bolts, 20, that pass through the bottom or lower wall of the casing, then through the marginal edges of the screen proper and the reinforce plate, 12, and finally through the
100 flange, 15, of the hopper. By this means the hopper is secured close against the frame and rigidly beneath the screen. A suitable tubular chute, 21, may, and is preferably attached to the discharge-end of the
105 nozzle, 19, to direct the small particles or screenings to a desired point of discharge. A valve, 22, having the form of a damper is preferably provided in the chute so the latter may be closed when desired. Hooks, 23, or
110 other suitable securing devices may be provided at the discharge-end of the chute, 21,

to which a bag or other receptacle may be attached.

A conveyer chute, 24, telescopes over the lower end of the discharge nozzle, 3, to convey the screened grain to a point of discharge.

When the grain enters the inlet, 2, of the casing I desire and find it advantageous to provide some means for spreading it in a sheet form as it is delivered onto the upper end of the screen surface and to effect this as well as retard its movement I provide said tubular inlet with a flat spreader plate, 25. This spreader and baffle plate is reinforced at its lower edge by curling or bending the edge of the same into a tube, 26, and when placed in the inlet it has an inclined position as clearly shown in Fig. 3.

In practice the screen device is attached in any suitable manner to the discharge chute of a grain elevator, for example, so that the grain to be screened may enter the inlet, 2. The grain then drops into the inclined baffle or spreader plate, 25, and in flowing over the lower edge thereof is spread in a sheet form as it passes into the upper end of the screen proper.

In traveling over the screen surface the broken particles will pass through the latter into the hopper and are directed by the inclined walls thereof toward the outlet or nozzle, 19. The whole grains however pass over the screen surface and through the discharge nozzle, 3, of the casing and into the chute, 24.

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

1. A screen comprising a casing having a tubular inlet; a tubular outlet and a broad flat intermediate inclined portion between the inlet and the outlet,—said intermediate portion being closed at its upper side and having an opening in its lower side, and a screen also extending in an inclined direction between said inlet and outlet and having position at said opening in the lower side of the casing.

2. A screen comprising a casing having a tubular inlet and a tubular outlet and a covered broad inclined intermediate portion between said inlet and outlet,—said covered inclined portion having an opening in its under side; a screen at said opening; a hopper beneath the screen and casing and having inclined walls, and a spreader above the opening of the inclined intermediate portion.

3. A screen comprising a casing having a broad flat intermediate inclined portion with an opening at its under side, a hopper with inclined converging walls attached to the casing around said opening and having a discharge nozzle, a tubular inlet at the higher end of the broad inclined portion of the casing, a tubular outlet at the lower end of the casing and below the broad inclined portion and a screen interposed between the hopper and the opening of the broad inclined portion of the casing.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY E. WACK.

Witnesses:

G. FERDINAND VOGT,
CHARLES B. MANN, Jr.