

No. 689,504.

Patented Dec. 24, 1901.

C. H. MICHAEL.
FANNING MILL.

(Application filed Jan. 14, 1901.)

(No Model.)

2 Sheets—Sheet 1.

FIG. I

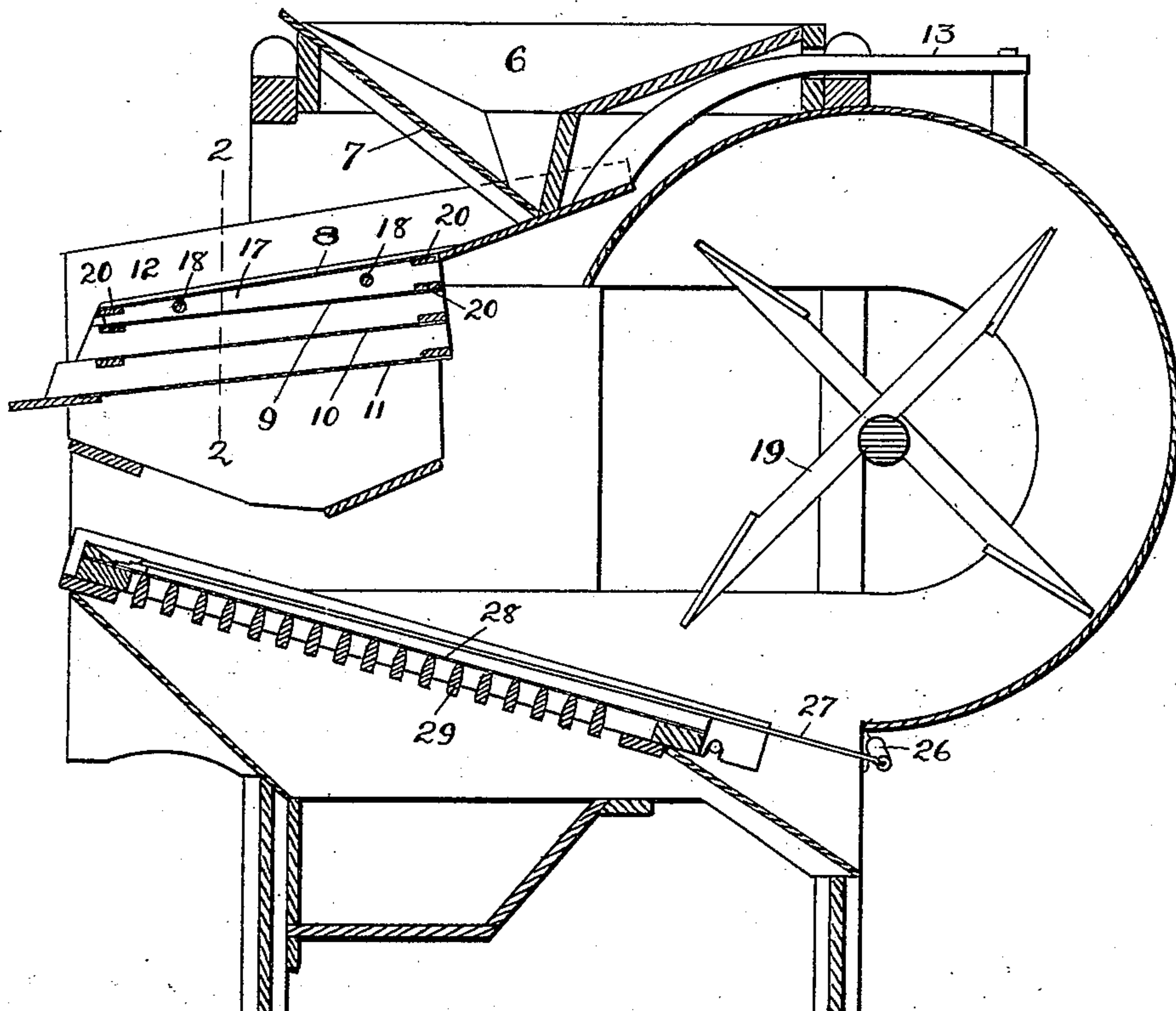
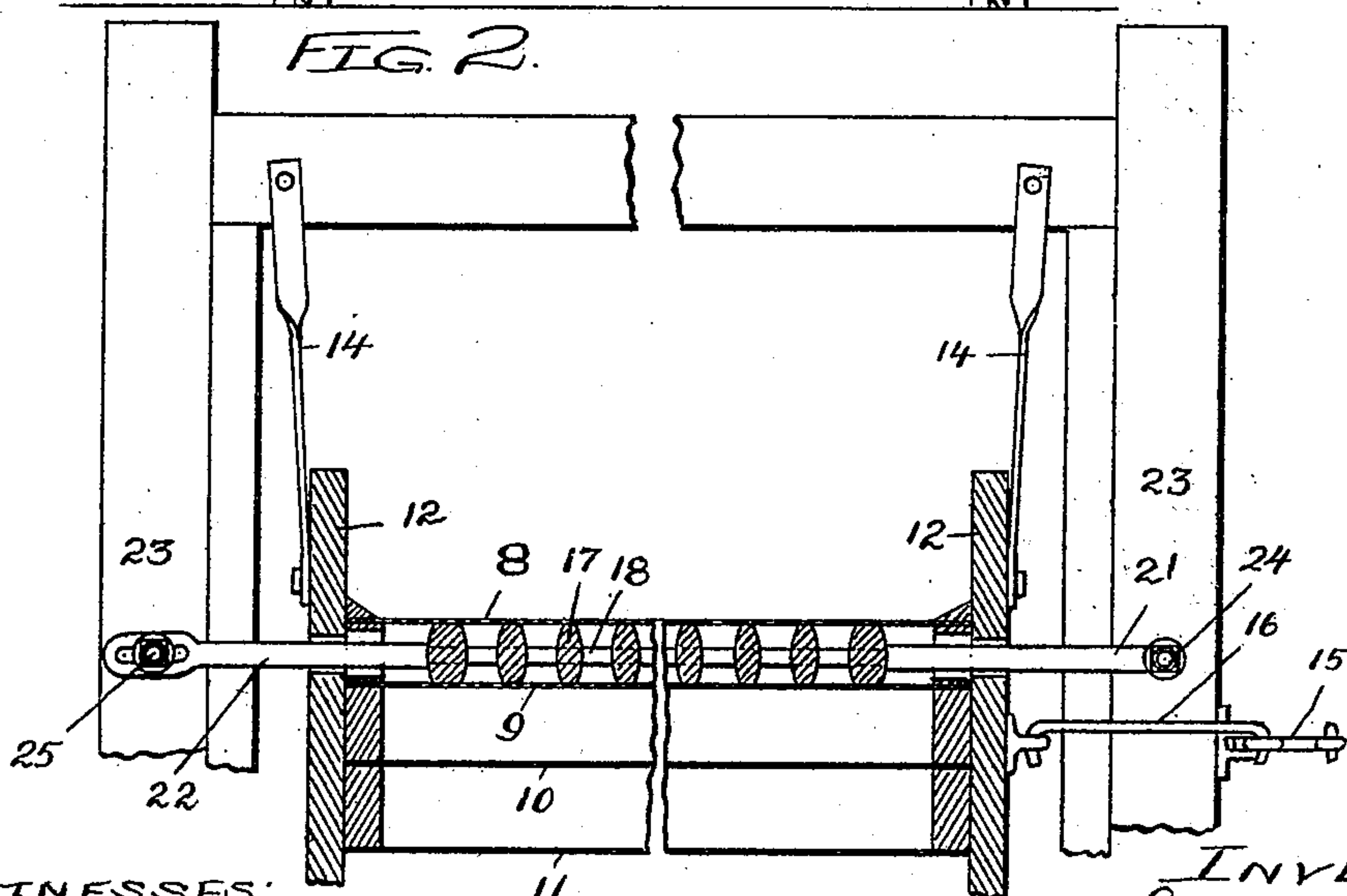


FIG. 2.



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INVENTOR:
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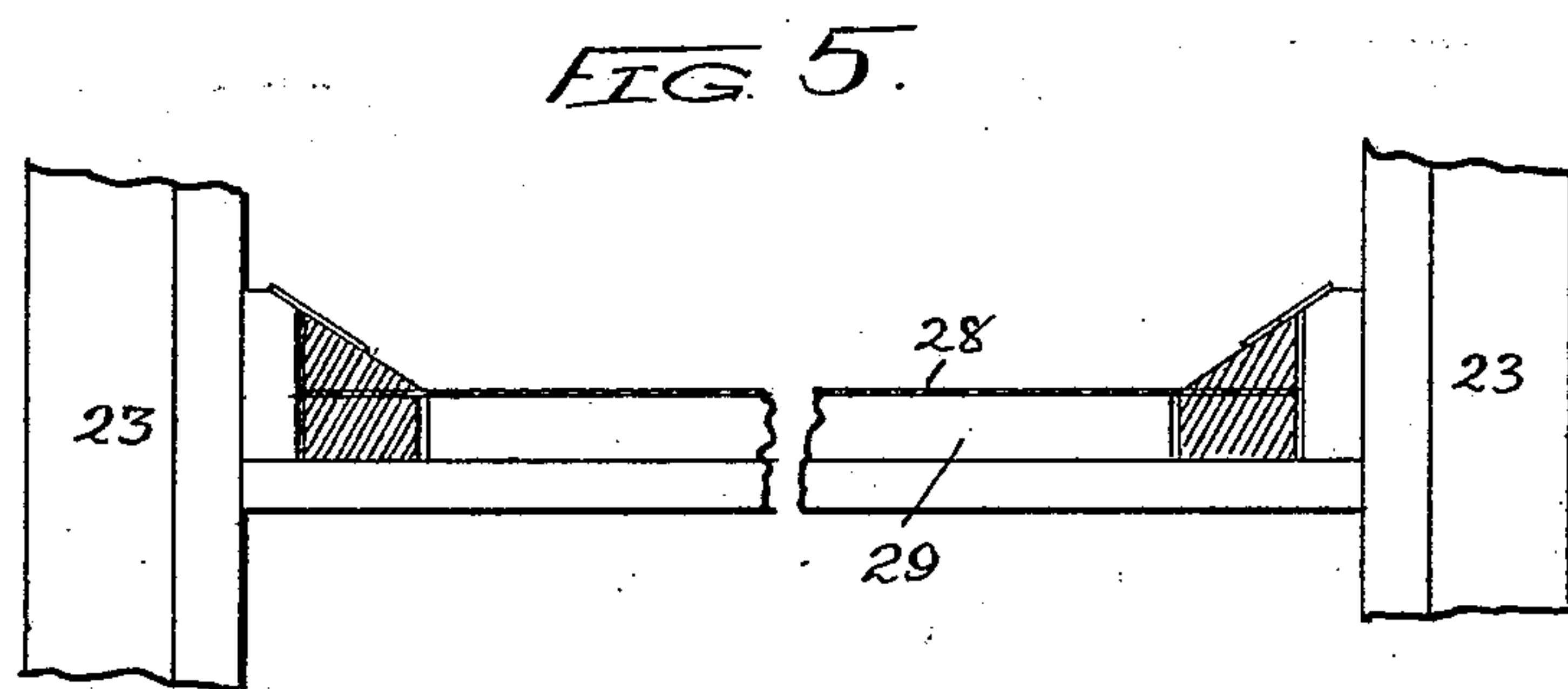
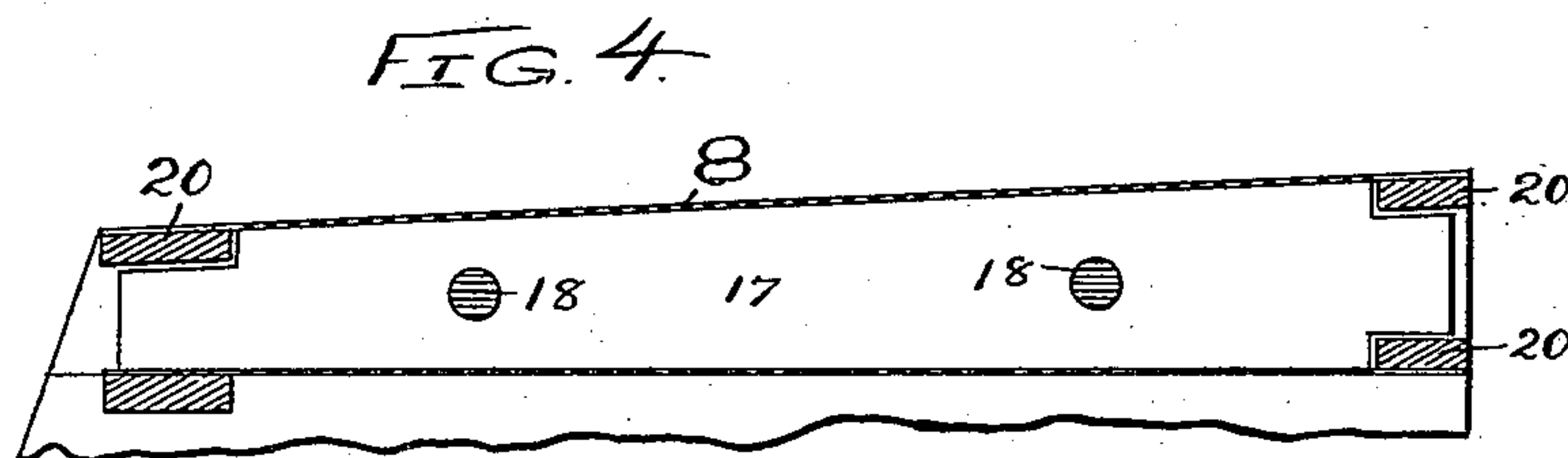
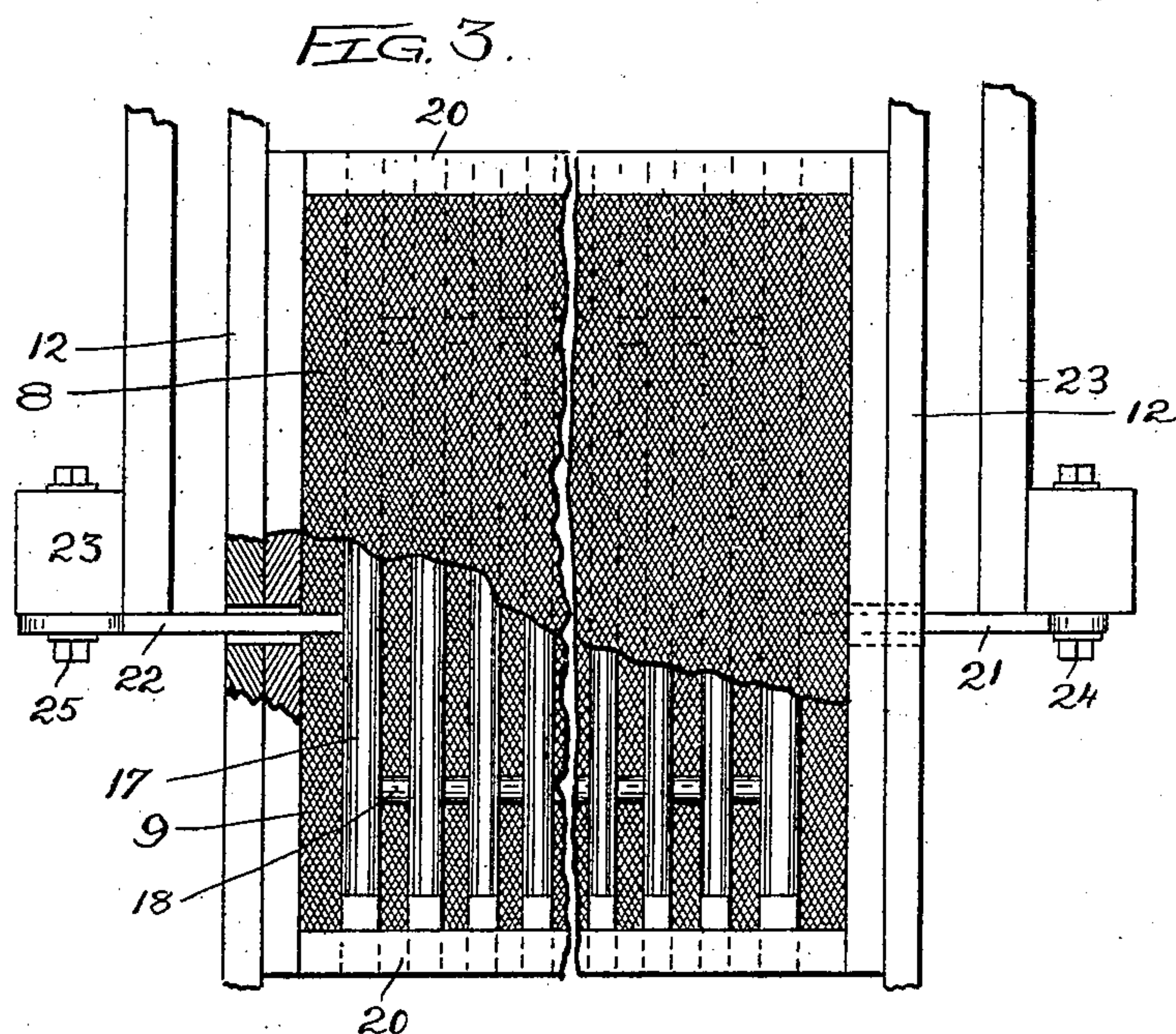
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UNITED STATES PATENT OFFICE.

CHARLES H. MICHAEL, OF LAPORTE, INDIANA.

FANNING-MILL.

SPECIFICATION forming part of Letters Patent No. 689,504, dated December 24, 1901.

Application filed January 14, 1901. Serial No. 43,257. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. MICHAEL, a citizen of the United States, residing in Laporte, in the county of Laporte and State of Indiana, have invented a new and useful Improvement in Fanning-Mills, of which the following is a specification.

This invention relates to improvements in fanning-mills, intended to increase their efficiency in cleaning the grain. In my improvement I provide the shoe with a stationary device acting to concentrate the upward current of air passing through it into a series of separate streams or columns, each of which acts upon that portion of the screen immediately above the channel through which it moves, and as the screen is by the shaking movement of the shoe continually shifting back and forth over this air-regulating device it presents its whole area to the concentrated air columns in each full stroke of the shaking movement, though only separated portions of it are receiving the air-columns at any one time. The channeled air-regulating device is preferably made to fill substantially the vertical space between two screens of the shoe, and when thus made it distributes or spreads the grain very evenly over the lower one of the two screens, and the air-currents moving through it bring about a more even distribution of the grain on the upper screen than has been possible heretofore. I prefer that the channels of the regulating device shall be made somewhat flaring or enlarged at both top and bottom, so that the air, which becomes concentrated or compressed as it moves through the channels, will as it enters them from below move in converging lines and when it issues from them at the top move in diverging or expanding lines. From my use of the invention I attribute some of its success to this feature.

The regulating device as used by me occupies about half of the area of the screen, and consequently if the same volume of air is forced through it as has been heretofore forced through the shoe it necessarily follows that the streams into which the current is divided by the regulator will be concentrated and strengthened and their velocity increased, so that much better and more thorough work

in separating the chaff from the grain is accomplished by them than is accomplished in prior constructions by diffused and undivided currents.

The nature of my improvement is more fully disclosed below, and is also illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal vertical section of a fanning-mill embodying my invention. Fig. 2 is a partial vertical section on the line 2 2 of Fig. 1. Fig. 3 is a plan of the shoe enlarged and partly broken away. Fig. 4 is a longitudinal vertical section of the shoe. Fig. 5 is a cross vertical section of the lower shoe.

In said drawings, 6 represents the hopper, having an adjustable gate 7, feeding the grain to the top screen 8 of the upper or main shoe. This shoe may embody any suitable number of sieves or screens, and the one shown contains four screens—viz., 8, 9, 10, and 11. They are arranged in the usual manner in a frame 12, and this frame is supported at the rear by the pivoted arm 13 and in front by the straps 14 14 and is oscillated from the bell-crank 15 by the link 16.

Between screens 8 and 9 is placed the air-regulating device, which in the preferred construction consists of a series of wood bars or slats 17, arranged edgewise in parallel planes and connected together by two rods 18, passed transversely through them and to which they are fastened. The slats are also arranged longitudinally of the shoe, so that the sidewise motion of the shoe will carry the screens back and forth across the slats 17. The slats aggregated together cover about half the area of the screens, and they preferably are high enough to extend from one screen to the other without creating unnecessary friction with either. As shown at Fig. 2, the vertical sides of the slats are somewhat rounded, so that the center of the interspaces or air-channels between the slats will be narrower than either the tops or bottoms of the channels, thereby producing the effect to which I have alluded above. The main body of the air from fan 19 will pass through the screen 9 into the channels of the air-regulator, though some of it may enter at the ends of the slats. The ends of the slats are offset to give room to the cross-bars 20 of the screens, and the series of slats

are supported upon screen 9 and held stationary, so that they do not move with the sieves in the shaking movements of the shoe, by two rods 21 and 22 passing through the sides of the shoe and secured one to each side 23 of the main frame of the mill by bolts 24 and 25. One of the rods 22 has an elongated slot at the outer end, so that it and rod 21 can act as a releasable clamp to hold the slats stationary. The slats may be readily inserted in any existing mill by first removing the upper screen, and they can be removed or replaced with equal facility. A similar device may be applied to the lower shoe, as seen at Figs. 1 and 5. This shoe is given a longitudinal instead of a sidewise motion by means of the crank 26 and connecting-rod 27, and it has a single screen 28, as usual. The air-regulating grate or device employed with it consists of a series of slats 29, arranged edgewise close under the screen in parallel but separated positions transverse of the shoe and connected together, supported, and held stationary in some suitable way. As the air enters this regulating device from above, the slats employed in it need to be narrowed at their top edges only; but they serve to concentrate and divide the air into columns acting at one time on one part of the grain or screen 28 and the next instant upon adjacent portions thereof, and thus increasing the efficiency of the separation. It will be noticed that in both cases the slats of the regulators are arranged at right angles to the direction in which the shoe is moved. By thus arranging them I insure the passage of the concentrated air-currents through all parts of the sieves equally, though at different times.

I claim—

1. The combination in a fanning-mill of a shaking-shoe having a sieve 8, a series of rel-

atively stationary partitions extending longitudinally of the shoe and arranged close under the sieve, and a fan delivering air to the channels between said partitions, substantially as specified.

2. In combination in a fanning-mill, a shaking-shoe carrying companion sieves 8 and 9, relatively stationary partitions extending longitudinally between them, and the whole length of said screens and subdividing the space between said screens into a series of air-passages, and a fan adapted to deliver a blast to each of said passages, substantially as described.

3. The combination with the sieve of a shaking-shoe, of a series of stationary slats for dividing the air-blast passing through the sieve, said slats forming channels which flare at top and bottom, substantially as specified.

4. The combination with the shaking-shoe having a sieve 8, of a series of separated parallel slats arranged longitudinally of and close under the sieve, means for holding said slats stationary, and a fan delivering the blast to the channels between the slats, substantially as specified.

5. The fanning-mill having in combination an upper shoe having a lateral motion, a series of stationary longitudinal slats placed under the sieve of said shoe and dividing the air longitudinally, a lower shoe having a longitudinal motion, a series of transverse stationary slats under said lower shoe dividing the air transversely, and a fan delivering air under the upper shoe and above the lower one, substantially as specified.

CHARLES H. MICHAEL.

Witnesses:

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