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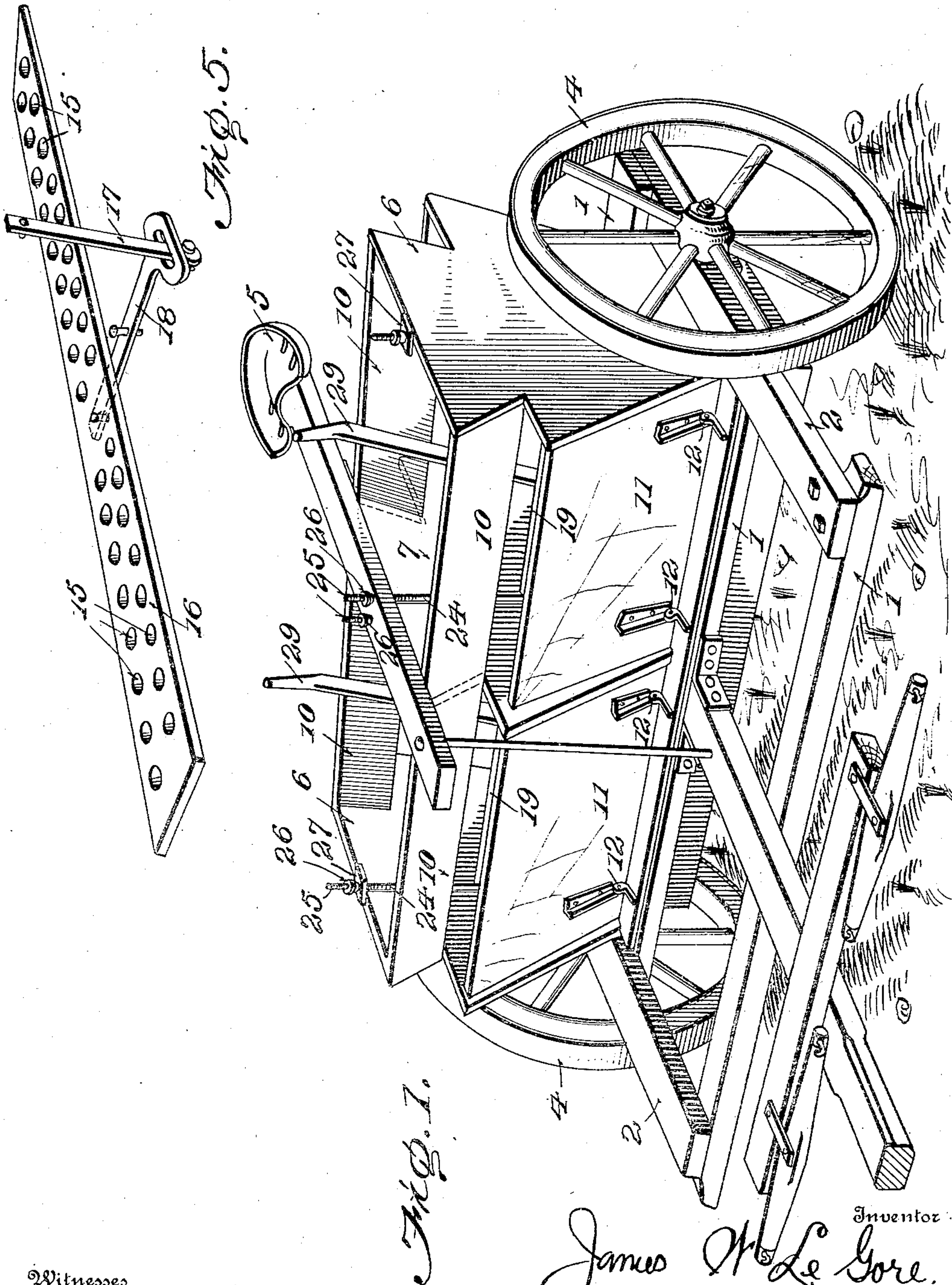
DISTRIBUTER.

APPLICATION FILED JUNE 22, 1909.

Patented Nov. 16, 1909.

3 SHEETS—SHEET 1.

940,538.



Witnesses

W. A. Williams

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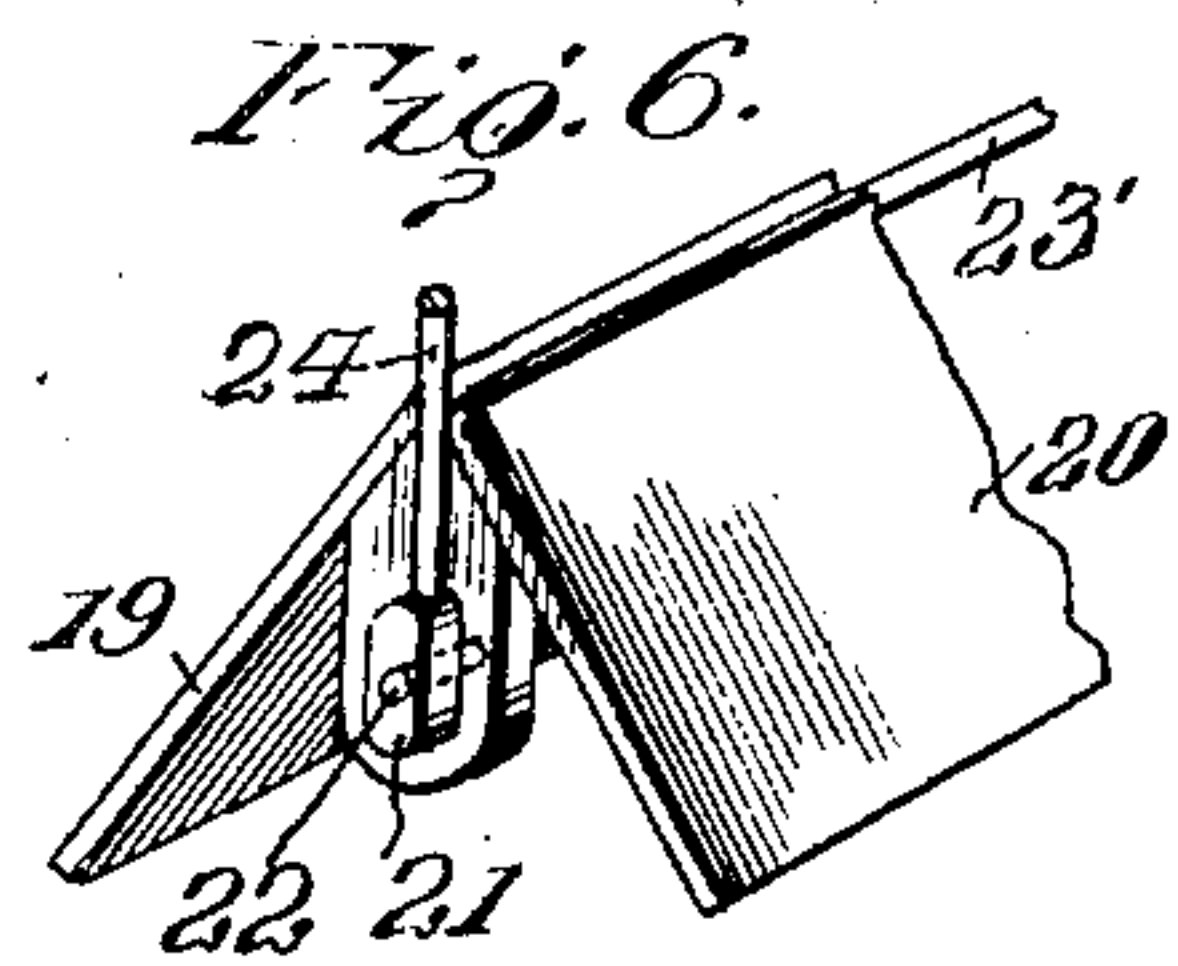
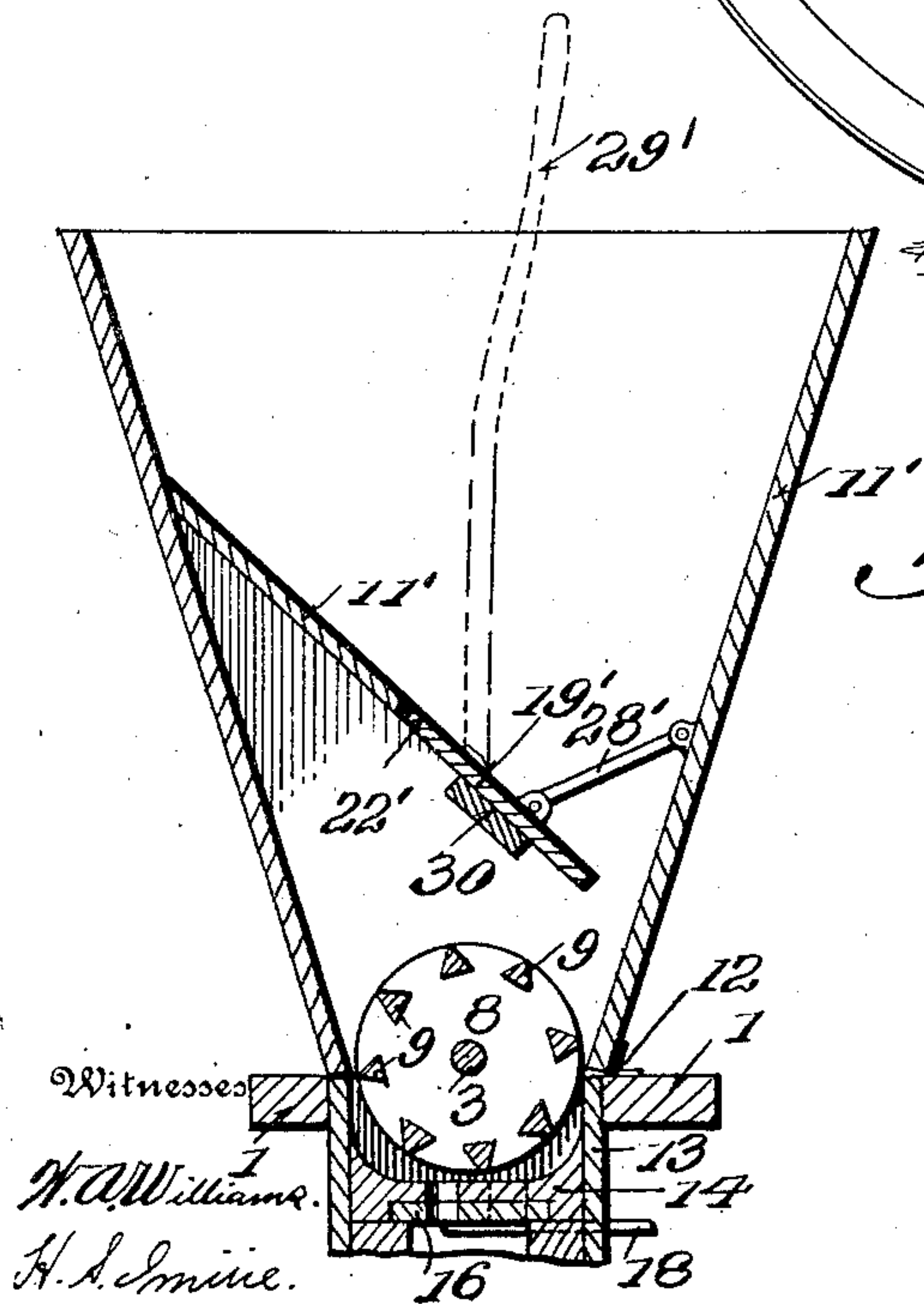
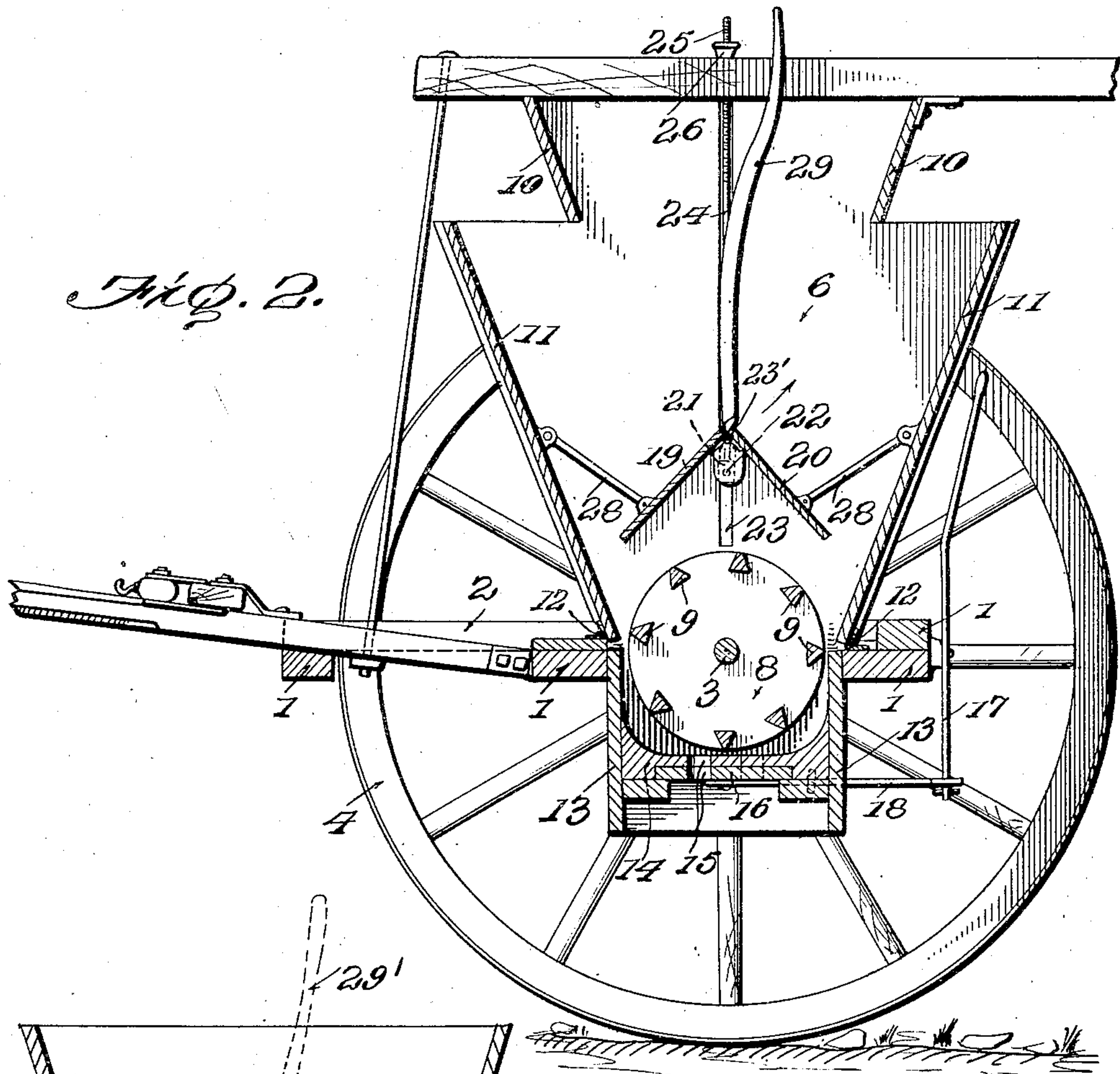
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3 SHEETS—SHEET 2.

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Witnesses
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DISTRIBUTER.

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3 SHEETS—SHEET 3.

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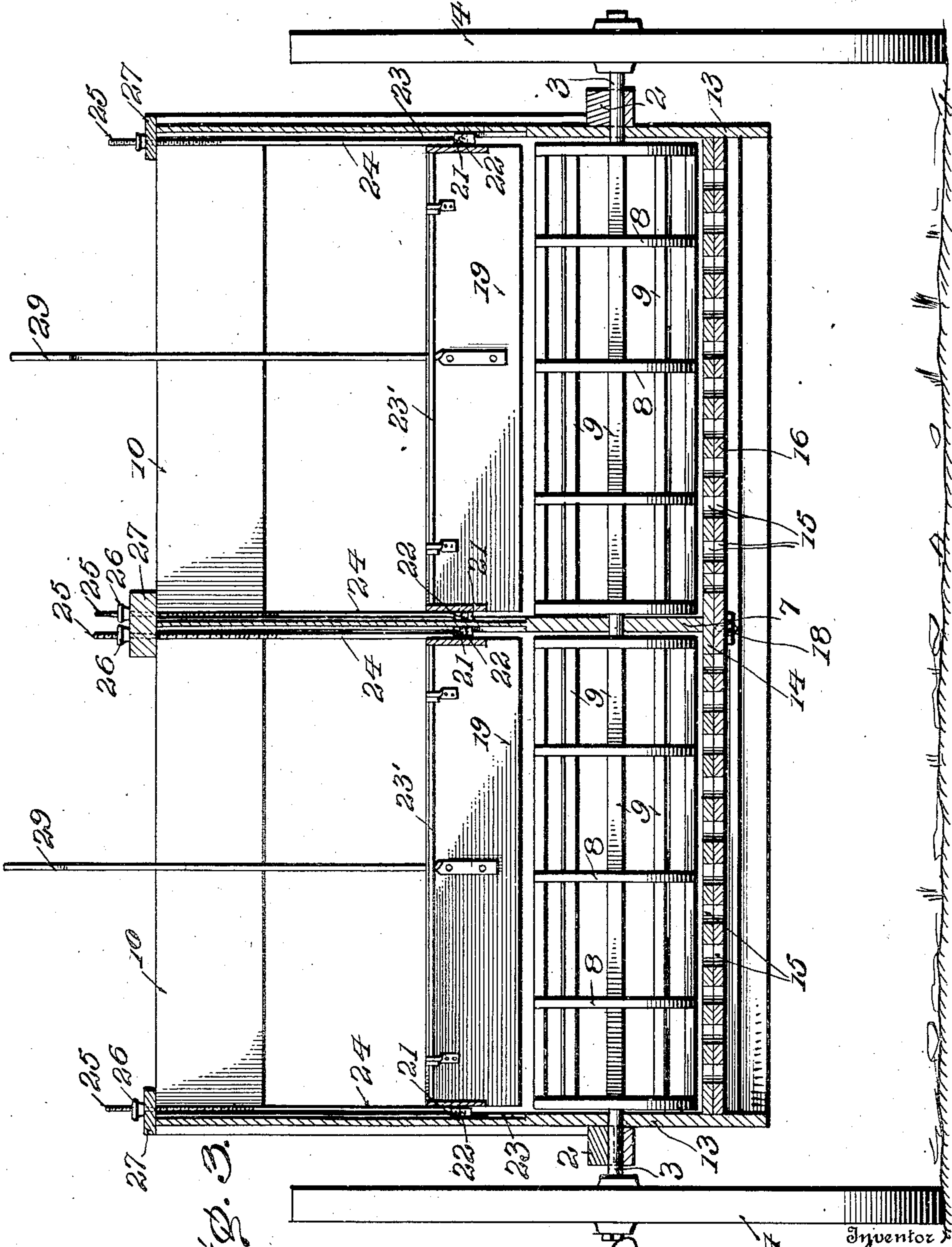


Fig. 3.

Witnesses

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DISTRIBUTER.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JAMES W. LE GORE, a citizen of the United States of America, and a resident of Le Gore, in the county of Frederick and State of Maryland, have invented certain new and useful Improvements in Distributers, of which the following is a specification.

My invention relates to distributers and is especially adapted for sowing hydrated lime and other comparatively fine material. Considerable difficulty has been experienced in the effort to distribute hydrated lime for the reason that it sticks to any surface with which it comes in contact and does not slide readily and because it tends to become jammed in the feeding devices and to clog the same. Furthermore great difficulty has been experienced in securing a uniform flow at the desired rate. In order to overcome these difficulties I have devised a construction in which the pressure of the lime in the hopper is taken off from the feeding devices by a pivoted supporting shield or deflector and in which the sides of the hopper which are connected thereto are pivoted so that the parts named are free to vibrate or may be positively vibrated by the operator to promote the flow of the material.

As will more fully appear later on in the specification I greatly prefer to so arrange the parts referred to that the slant of a given side of the shield and the slant of the side of the hopper facing it may be increased simultaneously. This will obviously immediately increase the flow on the side in question owing to the increased steepness of the adjacent sides.

One of the principal objects of the shield or deflector is to enable a large quantity of material to be carried in the hopper and yet to permit the feeding device or devices to operate freely. These devices may be of any suitable sort, whether rotatable or otherwise, although I prefer to employ a rotatable reel. The shield is located above the reel and thus holds the material off from it preventing jamming of the material, and leaving the reel a space within which it can rotate freely, the material being fed to it only to the extent desired. The shield may be adjusted vertically so that the depth of the material in the reel may be varied.

Other features of my invention will be

hereinafter described and its nature will be made more fully to appear.

My invention, therefore, consists in the invention described in the specification, illustrated in the drawings and more particularly pointed out in the appended claims.

Referring to the drawings Figure 1 is a perspective view of the distributer. Fig. 2 is a transverse vertical cross section. Fig. 3 is a longitudinal vertical section. Fig. 4 is a transverse vertical section of a modification of the invention, and Fig. 5 is a detail of the slide for controlling the delivery openings. Fig. 6 is a detail perspective.

My distributer is provided with a suitable frame conveniently constructed of beams 1 which run crosswise of the machine and of beams 2 running at right angles to the beams 1. This frame is mounted on the axle 3 which is provided with wheels 4. The usual tongue is secured to the frame. Upon the frame thus described is mounted the hopper wherein particularly my invention consists. On this hopper and frame are supported the seat bar and seat 5. The machine is usually some six or eight feet wide and it is convenient to provide the hopper with a transverse partition so as to make it practically two hoppers arranged end to end. This is the arrangement illustrated, though I do not of course wish to limit myself to it. In the double hopper thus explained, 6 are the ends and 7 is the central partition which virtually forms the inner end of each hopper. Through these ends and partitions extends the axle 3 on which are fixed feed reels which rotate therewith. These reels are made up of disks 8 located at comparatively short distances along the axle and supporting in grooves at their peripheries rods 9 which I have found it preferable to make conical in cross section, the apex of the cone pointing outward, although the rods may be cylindrical or of other suitable shape. The reel is so located that the path of the rods is close to the bottom.

As stated each of the hoppers illustrated (see particularly Fig. 2) is complete and a description of either will make clear the important features of my invention. The hopper, or each hopper if there are two, is in the preferred form of my invention, provided with an upper stationary hopper section having sides 10. Immediately below

this stationary hopper section is a lower hopper having sides 11 pivoted at their lower ends at 12 near the bottom of the hopper. A box 13 and a common bottom 14 are suitably provided for both of the hoppers, and this bottom has holes 15 which, in Figs. 2 and 5 I have shown arranged in staggered relation. 16 is a slide to control said holes and is located to slide endwise and is operated by the hand lever 17 mounted within convenient reach of the driver, through suitable connections as the lever 18 pivoted to move in a horizontal plane.

Above the feed reel and having its axis parallel thereto is pivotally mounted a supporting shield or deflector which in my preferred form has two diverging downwardly slanting sides 19, 20, the upper edges of which are adjacent to each other, although they do not necessarily meet, and are directed toward the descending material. The sides of the shield are illustrated as tied by rods 23' into a strong structure. This shield is so mounted as to be adjustable vertically. This may be accomplished in any suitable way. As shown (see particularly Fig. 6) bearing blocks 21 in which are mounted the pivots 22 of the supporting shield are located to slide in grooves 23 in the ends 6 and partition 7. Rods 24 having their upper ends 25 screw-threaded are attached to the bearing blocks and nuts or hand wheels 26 are provided for manual adjustment, the rods passing up through the supports 27. Each of the slanting sides of this supporting shield or deflector is connected to the pivoted hopper side which faces it suitably by pivotal connections 28. If desired, in order to increase the range of adjustment or movement, these connections may obviously be made extensible in any well known way. An operating rod or handle 29 is attached to each shield and forms a convenient means for tilting it in either direction about its pivots. The operating handle may of course be located on either hopper side instead of on the shield. In order to permit the movement of the pivoted sides of the hopper without the escape of any of the material the partition 7 and the ends 6 are extended farther than the greatest width of the lower hopper section.

The operation of the apparatus is as follows: Material being placed in the hopper flows outwardly at the bottom of the upper stationary hopper section, the main body of the material being supported by the shield or deflector which prevents the material from filling up the reel and packing within and about the same and leaves it a space in which to rotate freely. The material having as stated flowed outwardly below the lower end of the upper hopper section into the wider upper end of the lower hopper section rests against the slanting hopper sides and the

slanting sides of the shield and flows by gravity between the same into the reel and the lower part of the hopper filling the reel to the desired extent, this being determined by the relative position of the shield and reel which by reason of the adjustability of the shield may be varied within such limits as seem desirable. The sides and shield are pivotally mounted so that by the jolting of the frame these parts are vibrated slightly and the flow of material thus assisted but not unduly hastened. No lock is necessary to keep the parts in proper position since the sides and shield are connected and since the construction as shown in Figs. 1, 2 and 3 is symmetrical, the weight of the material acting to keep the parts in proper position. If more material accumulates on one side than on the other, its greater weight tends to turn that side of the shield and with it the corresponding side of the hopper to increase the slant of both and restore the normal condition.

Should the material become jammed on either side the flow on that side can be instantly increased by moving the handle 29 toward the side in question. The effect of this movement would be to immediately increase the steepness or slant of both the side of the hopper and of the surface of the shield facing it. This would result in an increased flow, the material tending to slide more easily from the steeper surfaces. In addition the parts may be so related as not only to increase the steepness of the facing parts referred to but to increase the distance between the side and the adjacent face of the shield. This can be done by so locating the points of connection on the sides of the hopper and on the sides of the shield as to cause the lower edge of the shield on the side in question to move through a greater distance than the corresponding point on the side of the hopper opposite to the said side of the shield. It is not necessary ordinarily to do more than vibrate and release the shield, although its operation can of course be suited to circumstances. The division of the hopper into two end to end sections has the advantage of enabling the flow of each of these two hoppers to be separately regulated, and prevents the material from sliding toward the lower end as might otherwise be the case in work on side hills.

My invention is susceptible of various modifications and in Fig. 4 I have shown a modification which, while far inferior to the form illustrated in the other figures, may yet be used. In this construction one only of the hopper sides 11' is pivoted. The shield has only one side 19' which is pivoted at 22' to the stationary part of the hopper. The pivoted side and the pivoted shield are connected together by the pivotal connections 28'. An operating handle 29' is provided.

The parts may be so proportioned and located that without any stop, they will stand normally in proper position when the hopper is full of material, automatic dumping being prevented in this way. With this arrangement the flow may be increased by simultaneously moving the side and shield about their pivots to increase the slant of both. I have however, illustrated a stop 30 against which the under side of the shield 19' ordinarily rests. When it is desired to accelerate the flow of material the side and shield are turned about their pivots to raise the shield. They are then released and the shield allowed to strike against the stop jarring the material and increasing the flow.

It is believed the advantages of my invention are obvious from the foregoing description and the accompanying drawings; yet it will not be amiss to state that the peculiar position and construction of the deflector or shield prevents the material from packing by producing an empty, vacant space beneath it at the top of the reel, thus enabling the crowded material to loosen and drop, by gravity, direct into the reel or feeding device and thus constantly avoiding the tendency of the material to overcrowd or pack in the machine. By the supporting shield covering and protecting the feeding device the material is kept loose so that, by gravity, the material is moved regularly into the reel or feeding device. The hollow space produced by the shield prevents any of the surplus material from becoming packed, as the weight of the material prevents it from rising up and filling the empty space above the reel or feeding device; so that the mass is kept looser at the bottom than at the top of the hopper, which is impossible under ordinary condition or construction of hoppers.

What I claim as my invention is:

1. In apparatus of the character described, a hopper having a pivoted side, a supporting shield or deflector within said hopper extending lengthwise thereof and located above the pivotal point of said side, and means for turning the side about its pivot.

2. In apparatus of the character described, a hopper having a pivoted side, a movable supporting shield or deflector having a continuous active face slanting downwardly toward the side of the hopper, a bottom for the hopper provided with feed openings, a rotatable feed reel above said bottom and below the deflector, means for moving the deflector to increase the opening between its lower end and the side of the hopper toward which it slants, and means for moving the said side about its pivot.

3. In apparatus of the character described, a hopper, a pivoted supporting shield or deflector within the hopper having a continuous active face slanting downwardly toward

the side of the hopper, and manually operable means to vibrate said shield to increase the flow of material in the hopper.

4. In apparatus of the character described, a hopper, a pivoted supporting shield or deflector having an active face slanting downwardly toward the side of the hopper, rotatable feeding means extending lengthwise of the hopper below the supporting shield or deflector, and manually operable means to vibrate said shield or deflector to suddenly vary the slant of said face to increase the flow of material in the hopper.

5. In apparatus of the character described, a hopper, a pivoted supporting shield or deflector within said hopper extending lengthwise thereof said shield or deflector having downwardly diverging sides, and means for turning the said shield or deflector to increase the slant of one of its sides.

6. In apparatus of the character described, a hopper, a pivoted supporting shield or deflector within said hopper extending lengthwise thereof, said shield or deflector having downwardly diverging sides, feeding means below said supporting shield or deflector, and means for turning the said shield or deflector to increase the slant of one of its sides.

7. In apparatus of the character described, a hopper having pivoted sides, a pivoted supporting shield or deflector within said hopper extending lengthwise thereof, said shield or deflector having sides which diverge downwardly, connections between each side of the hopper and the corresponding side of the shield or deflector below its pivot, and means acting through said connections for simultaneously moving said shield or deflector and either of the hopper sides to increase the slant of one of the sides and the slant of the corresponding side of the shield or deflector.

8. In apparatus of the character described, a hopper having pivoted sides, a pivoted supporting shield or deflector within said hopper extending lengthwise thereof, said shield or deflector having sides which diverge downwardly, feeding means extending lengthwise of the hopper below said shield or deflector, connections between each side of the hopper and the corresponding side of the shield or deflector below its pivot, and means acting through said connections for simultaneously moving said shield or deflector and either of the hopper sides to increase the slant of one of the sides and the slant of the corresponding side of the shield or deflector.

9. In apparatus of the character described, a hopper, feeding means near the bottom thereof, a pivoted supporting shield or deflector above said feeding means having an active face slanting downwardly toward the side of the hopper, the side of the

hopper opposite the said face being pivoted, connections between said face and side, and means for moving them to simultaneously vary the slant of both.

5 10. In a portable distributor, a frame, a hopper thereon, ground wheels supporting said frame and hopper, a rotatable feed reel within the hopper and driven from one of the ground wheels, a pivoted supporting
10 shield or deflector above said feed reel and having an active face slanting downwardly toward the side of the hopper, the side of the hopper opposite the said face being pivoted, connections between the shield below its
15 pivot and said side, and means for moving them to increase the slant of both.

11. In a portable distributor, a frame, a hopper thereon, ground wheels supporting said frame and hopper, a rotatable feed reel within the hopper and driven from one of the ground wheels, a supporting shield or
20 deflector within said hopper above the reel, both the sides and the shield being pivoted, operative connections between said shield and sides, and means for simultaneously in-
25 creasing the slant of one side of the shield and the slant of the side facing it.

12. In apparatus of the character de-
scribed, a hopper having sides pivoted near
30 the bottom thereof, a supporting shield or deflector within said hopper extending lengthwise thereof and having downwardly diverging sides, connections between the
35 sides of the hopper and the sides of the shield, and means for simultaneously turning the shield and one of the sides of the hopper about their pivots to vary the slant of one of the sides of the shield and the corre-
sponding side of the hopper.

13. In apparatus of the character de-
scribed, a hopper having sides pivoted near
40 the bottom thereof, a supporting shield or deflector within said hopper extending lengthwise thereof and having downwardly
45 diverging sides, a rotatable feed reel extending lengthwise of the hopper below the shield or deflector, connections between the sides of the hopper and the sides of the
50 shield, and means for simultaneously turning the shield and one of the sides of the hopper about their pivots to increase the slant of one of the sides of the shield and the corresponding side of the hopper.

14. In apparatus of the character de-
scribed, a hopper, ground wheels on which
55 it is mounted, a feed reel rotatably mounted near the bottom of the hopper and driven from one of said wheels, the sides of the hopper being pivoted near the bottom of the
60 hopper, a pivoted shield or deflector above the feed reel having downwardly diverging sides and having its axis parallel with that of the feed reel, means for adjusting the shield vertically, operative connections be-
65 tween the sides of the hopper and the ad-

jacent sides of the shield, and means for moving the said shield and one of the sides to simultaneously increase the slant of either of the sides of the hopper and the slant of the side of the shield facing it.

15. In apparatus of the character de-
scribed, a hopper, ground wheels on which
70 it is mounted, a feed reel rotatably mounted near the bottom of the hopper and driven from one of said wheels, the sides of the
75 hopper being pivoted near the bottom of the hopper, a pivoted shield or deflector above the feed reel having downwardly diverging sides and having its axis parallel with that of the feed reel, operative connections be-
80 tween the sides of the hopper and the adjacent sides of the shield, and means for moving the said shield and one of the sides to simultaneously increase the slant of either of the sides of the hopper and the slant of
85 the side of the shield facing it.

16. In apparatus of the character de-
scribed, a hopper, a hollow feed reel near the
bottom of the hopper, a shield or deflector
extending lengthwise of the hopper above
90 the reel, means to adjust said shield to vary the normal depth of the material within the reel, and means for rapidly moving the shield to increase the flow.

17. In apparatus of the character de-
scribed, a hopper having its sides pivoted
95 near its bottom, a feed reel above the bottom of the hopper, a shield or deflector extending lengthwise of the hopper above the reel, and means for moving the shield and the hopper
100 side opposite to it to increase the flow.

18. In apparatus of the character de-
scribed, a hopper comprising an upper sec-
tion having stationary sides, and a lower sec-
tion wider at its top than the width of the
105 bottom of the upper section and having its sides pivoted near the bottom, a supporting shield or deflector pivotally mounted within the lower section, connections between the said shield or deflector and the said sides,
110 and means for simultaneously moving the shield and either of said sides.

19. In apparatus of the character de-
scribed, an upper hopper section having sta-
tionary sides, a lower hopper section of
115 greater capacity than the upper hopper section, the sides of the lower section being pivoted, a pivoted shield or deflector having downwardly slanting sides whose upper edges are directed toward the entering mate-
120 rial, connections between each side of the said shield and the side of the hopper facing it, said connections being attached to the shield at a point below its center of move-
125 ment, and means for turning the shield and either of the sides.

20. In apparatus of the character de-
scribed, an upper stationary hopper section
having a relatively narrow opening at its
bottom, a hopper section immediately below
130

it having a wider opening at its top than the opening at the bottom of the upper hopper section, one of the sides of the lower hopper section being pivoted near its bottom, a feeding means near the bottom of the hopper, a pivoted supporting shield or deflector above the feeding means having a slanting surface facing the pivoted side of the hopper, operative connections between the shield and side, and means for simultaneously varying the slant of the side and the slant of the surface of the shield facing it.

21. In apparatus of the character described, a hopper having sides pivoted near the bottom thereof, rotatable feeding means near the bottom of said hopper, a hopper bottom below said feeding means provided with controllable orifices, a pivoted supporting shield or deflector above said rotatable feeding means extending lengthwise of the hopper and having meeting sides which diverge downwardly, connections between the sides of the deflector and the corresponding hopper sides, and means for moving the shield and either of the hopper sides simultaneously to increase the slant of one side of the shield and the corresponding side of the

hopper the pivotal points and points of connection being so located as to cause the said movement to increase the opening between the lower end of the said side of the shield and the corresponding side of the hopper.

22. In apparatus of the character described, a hopper for holding a supply of material, feeding devices therein, means located directly over said feeding devices for relieving said feeding devices from pressure and for permitting them to work in a free space, and means above the bottom of the hopper additional to the feeding devices for accelerating the flow of material.

23. In apparatus of the character described, a hopper having hinged sides, a reel or feeding device, a suspended adjustable covering located in said hopper directly above said reel and connected with said hinged sides and adjusted simultaneously therewith.

Signed by me at Wash. D. C., this 22 day of June 1909.

JAMES W. LE GORE.

Witnesses:

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BENNETT S. JONES.