

No. 702,572.

Patented June 17, 1902.

A. J. MARSHALL.  
GRAIN EJECTOR FOR CORN PLANTERS.

(Application filed Aug. 24, 1901.)

(No Model.)

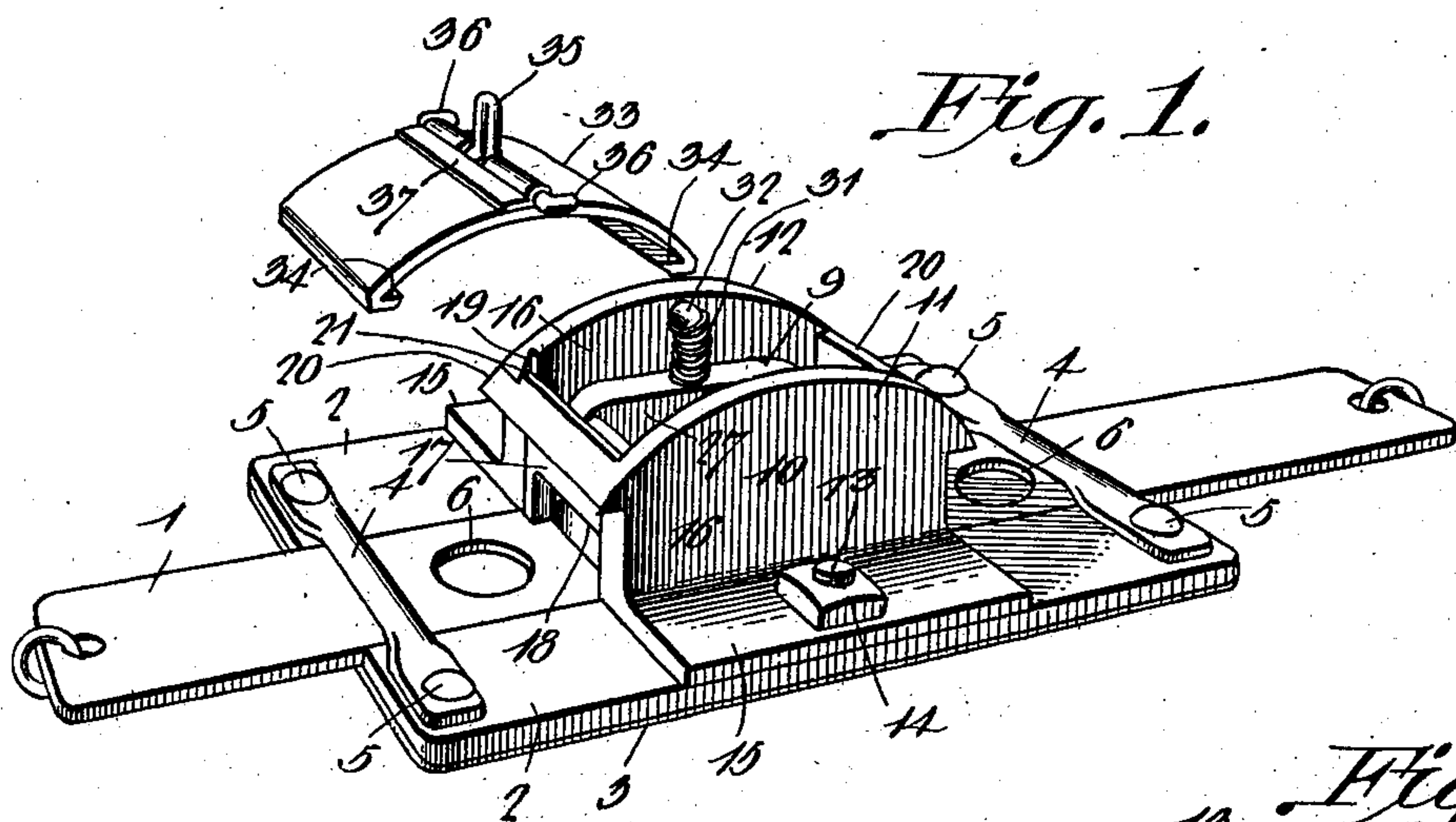


Fig. 1.

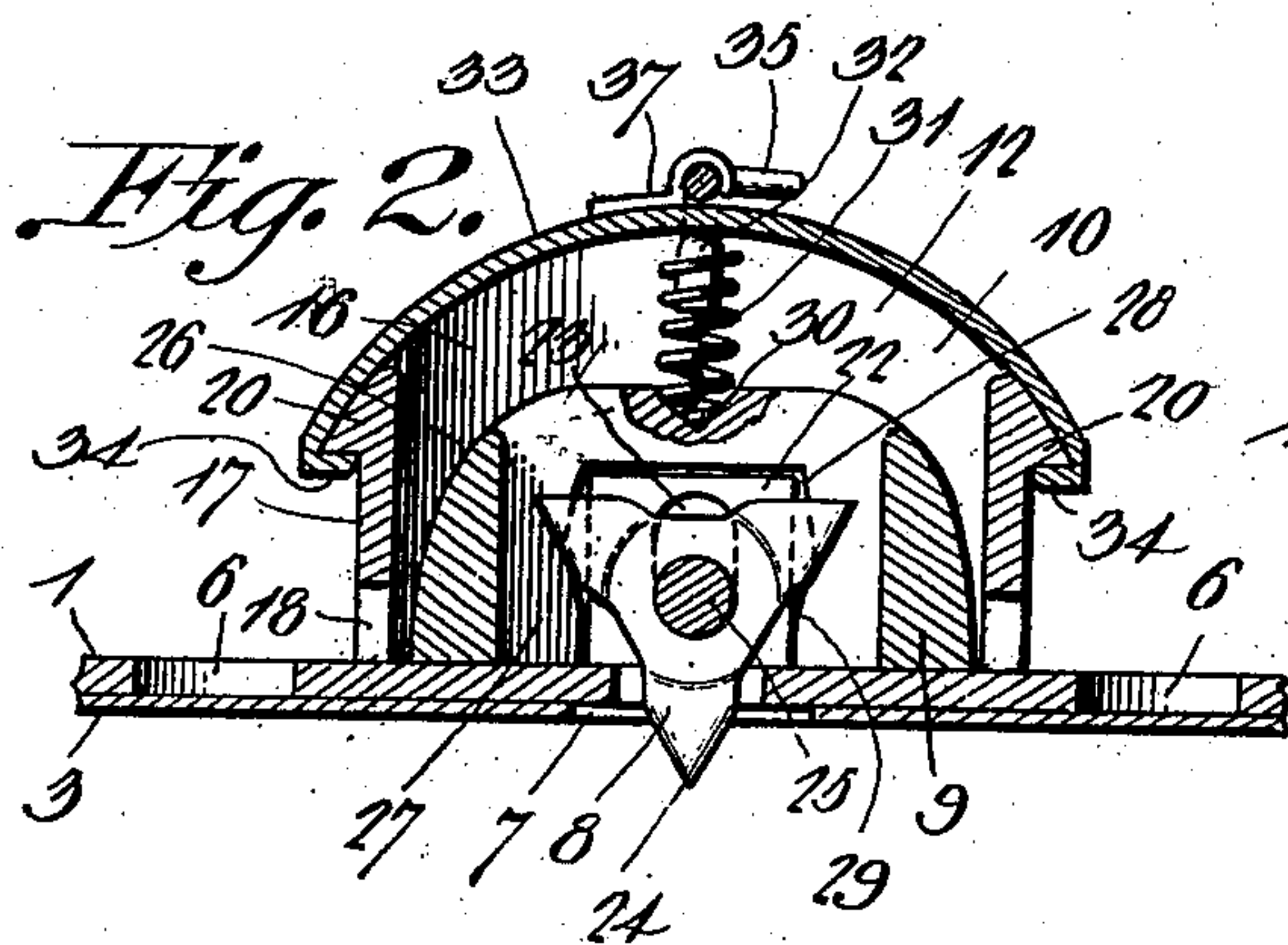


Fig. 2.

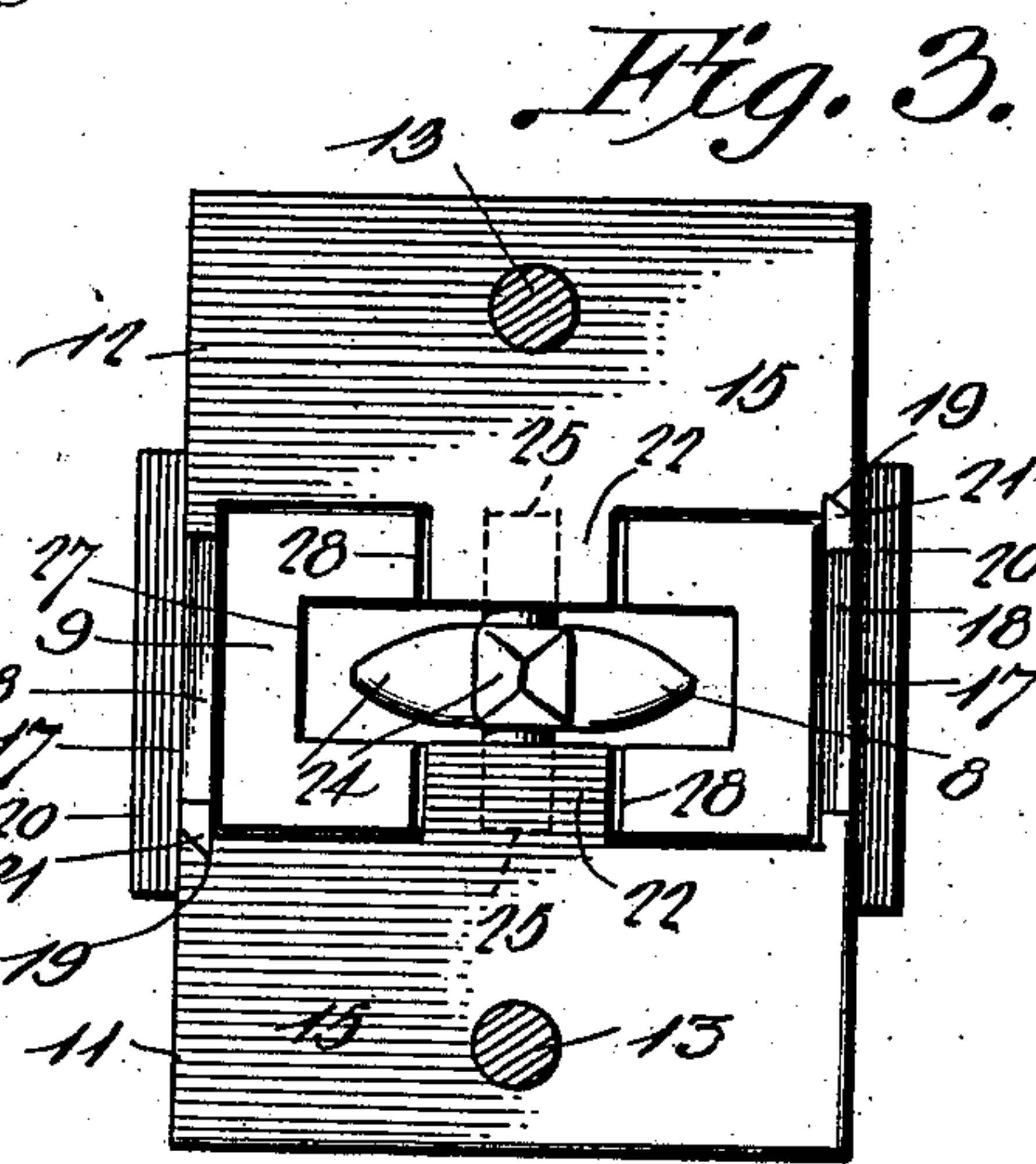


Fig. 3.

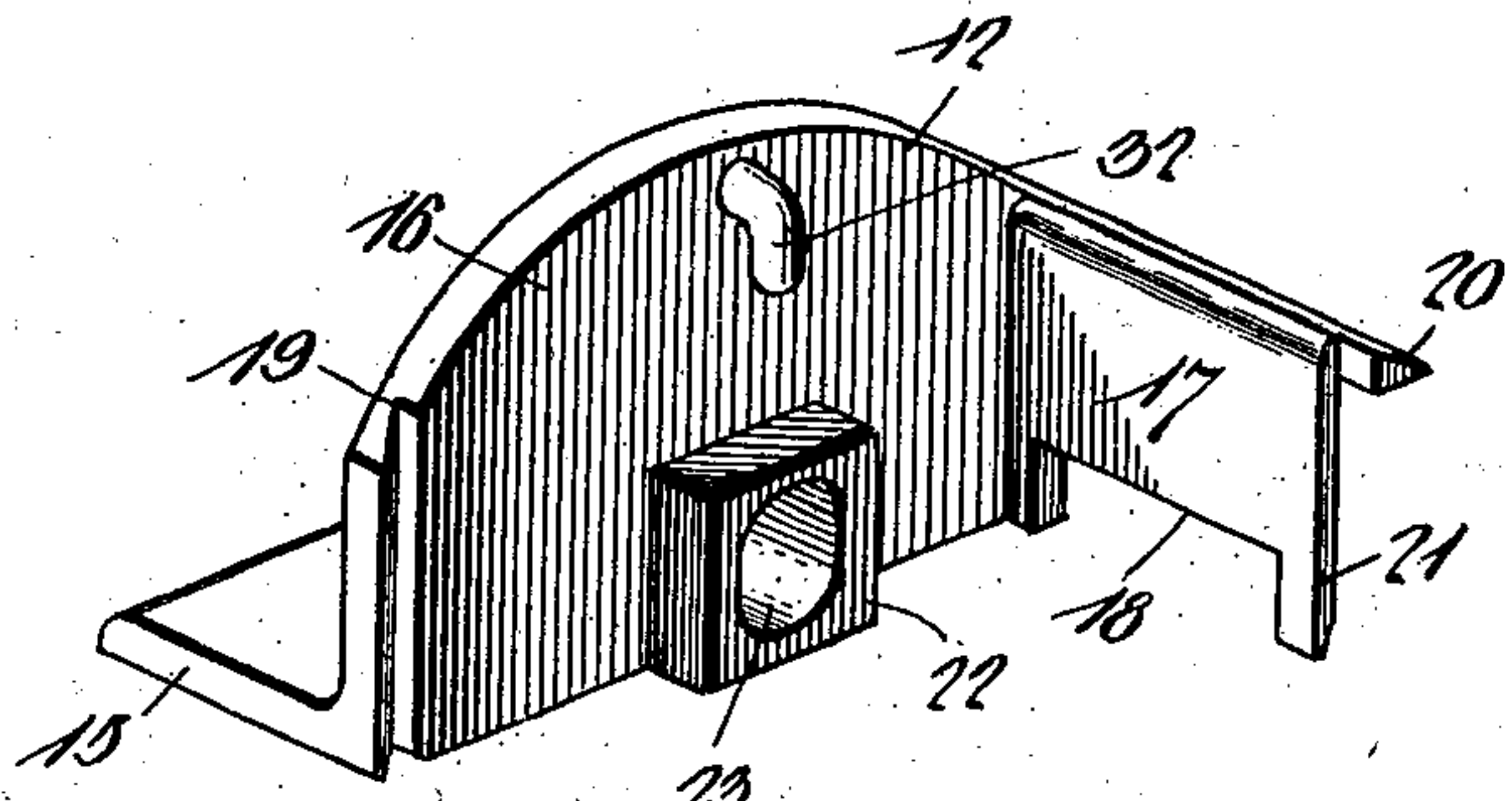


Fig. 4.

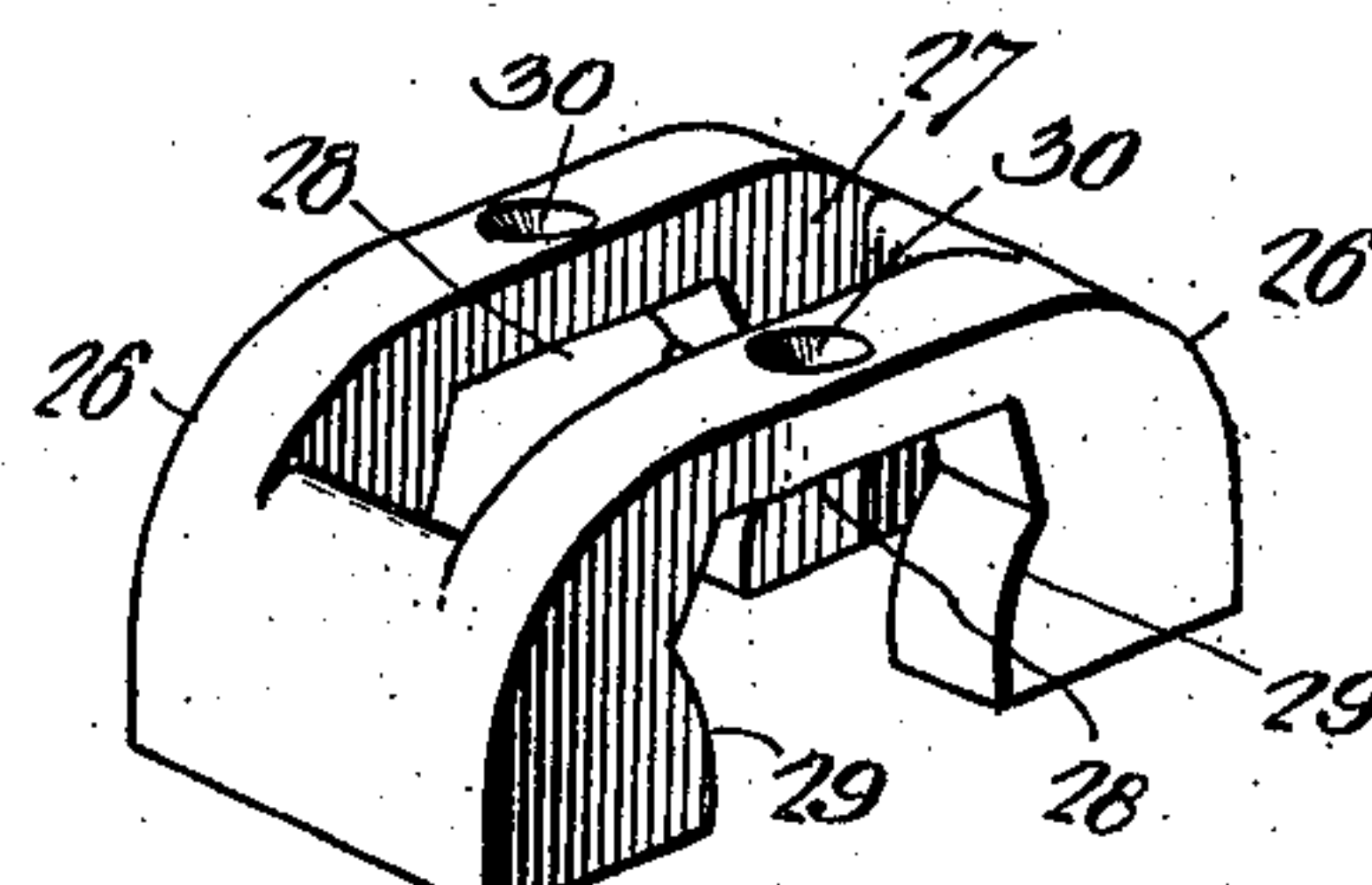


Fig. 5.

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# UNITED STATES PATENT OFFICE.

ANDREW JACKSON MARSHALL, OF TIMMONS, TENNESSEE.

## GRAIN-EJECTOR FOR CORN-PLANTERS.

SPECIFICATION forming part of Letters Patent No. 702,572, dated June 17, 1902.

Application filed August 24, 1901. Serial No. 73,167. (No model.)

*To all whom it may concern:*

Be it known that I, ANDREW JACKSON MARSHALL, a citizen of the United States, residing at Timmons, in the county of Maury and State of Tennessee, have invented a new and useful Grain-Ejector for Corn-Planters, of which the following is a specification.

This invention relates to corn-planters, and particularly to a novel form of grain-ejector coacting with and operating automatically to free the openings of the seed-slide from seeds or other substances that may lodge therein and clog the same.

The object of the invention is to present a grain-ejector for corn-planters which shall combine simplicity of construction, high efficiency and durability in use, and positiveness of operation; that may be applied to an ordinary corn-planter without necessitating any radical change in its structural arrangement; that may be readily manufactured and applied to position for use, and that in case of damage or breakage of one or more of its parts may readily and cheaply be repaired.

With these and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of parts of a grain-ejector for corn-planters, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which like numerals of reference indicate corresponding parts, there is illustrated one form of embodiment of the invention capable of carrying the same into practical operation, it being understood that the elements herein exhibited may be varied or changed as to shape, proportion, and exact manner of assemblage without departing from the scope of the invention; and in these drawings—

Figure 1 is a view in perspective of the device, the lid or cover thereof being removed and disposed to one side. Fig. 2 is a view in longitudinal section. Fig. 3 is a view in vertical plan, the bottom plate constituting one of the members of the seedbox-bottom being removed. Fig. 4 is a perspective detail view of one of the members of the housing or casing of the ejector mechanism. Fig. 5 is a similar view of the cut-off.

Referring to the drawings, 1 designates a

seed-slide, which is guided for longitudinal movement between two plates 2 and bears upon a plate 3, the plates being held assembled by cleats or cross-braces 4, secured near their ends by rivets 5, said plates to constitute the bottom of the seed-hopper. (Not shown.) The seed-slide 1 is provided with a plurality of openings 6, suitably spaced apart, and the plate 3 is provided with a seed-opening 7, arranged beneath the ejector 8, as usual. The seed-plate and the bottom of the hopper may be constructed as herein shown or otherwise and still be within the scope of the invention. The ejector 8 and cut-off 9 are inclosed by a housing or casing, (designated generally 10,) the same consisting of two like members 11 and 12, suitably held assembled with the bottom-plate of the seedbox by bolts 13 and nuts 14. As the members of the housing are counterparts of each other, this arrangement being adopted to permit casting of the parts from a single pattern, thereby to cheapen the production of the structure, a description of one will serve for both. Each member comprises a base or flange 15, through which passes one of the bolts 13, a side wall 16, extending at right angles to the base 15, and an end wall 17, undercut at 18 to permit passage thereunder of the seed-slide 1. The side wall is provided on the inner face of one end with an angular groove or recess 19, and the end wall is formed or provided with an outward-projecting flange 20, extending at right angles to the side wall 16, one end of the flange 20 being extended beyond the said wall and the vertical edge of the wall being beveled, as at 21. When the two members of the housing are assembled, the recess 19 is engaged by the beveled edge 21 of the end wall of the other member, and the side of this latter member adjacent to the end recess is engaged by the projecting end of the flange 20, as clearly shown in Fig 1. By coaction between the beveled edges of the two walls and the angular recesses of the side walls the members of the housing are held securely assembled against lateral or longitudinal play when the bolt 13 and nuts 14 have been secured in place.

Projecting inward from each side wall and disposed to bear upon the seed-slide 1 is a shoulder or boss 22, having a vertical elongated opening 23 therein to be engaged by



the shaft or axle of the ejector 8. As herein shown, the shoulders 22 constitute an integral part of the members 11 and 12; but it is to be understood that, if preferred, these shoulders may be separate elements suitably associated with the said members. The ejector 8, which constitutes one of the salient features of the invention, comprises a three-armed structure, the arms 24 of which are pyramidal in shape, as being best adapted for the work to be performed, although they may be otherwise shaped and still be within the scope of the invention. The arms are of somewhat less diameter than the openings in the seed-slide and are of a length to project some distance below the bottom of the seed-hopper, thereby in practical operation to effect positive dislodgment of seeds or other substances that might lodge in the seed-slide openings. The ejector is provided with pintles 25, preferably integral with the body of the ejector and constituting the axles thereof, these pintles to work in the openings 23 of the shoulders 22, as clearly shown in Figs. 2 and 3, the contour of the said openings being such as to permit a limited amount of vertical play to the ejector, thereby to prevent crushing or mutilating of a seed that has lodged in one of the openings of the seed-slide. Ordinarily, as where a grain of corn becomes lodged in such opening, the first impact of the point of one of the arms with the seed will be sufficient to dislodge it without injury, and should considerable resistance be presented to its dislodgment the further pressure exerted thereon by the downward-projecting movement of the arm through the seed-slide will effect its removal without injury, the resistance to dislodgment causing the pintles of the ejector to ride upward in the openings 23. If, however, the substance lodged in the seed-slide opening still resist dislodgment, it will be forcibly crushed and ejected as soon as the pintles come in contact with the upper walls of the said openings, as at this point further yielding of the ejector in an upward direction is positively checked.

As a means for controlling the feed of grain to the ejector the cut-off 9 is provided, the same comprising a hollow rectangular piece of metal having rounded corners 26 and being of less length than the chamber formed by the members 11 and 12. The cut-off is provided in its top with a rectangular orifice 27 to present space in which the arms of the ejector may work and in its sides with openings 28, adapted to fit over the shoulders 22, the sides of the openings being rounded at 29 to allow rocking movement of the cut-off on the shoulders when a large grain becomes lodged in the seed-slide, thus to permit the grain to be carried to the ejector, where it is dislodged, the rounded corners 26 of the cut-off coacting with the rounded sides 29 of the openings 28 to further this rocking movement.

The top of the cut-off on each side of the orifice 27 is provided with two wells or sockets 30 to be engaged by the lower ends of spiral springs 31, the upper ends of which engage downward-extending arms or projections 32, carried by the inner sides of the walls 16, adjacent to their upper edges. These springs 31 are to exert sufficient downthrust on the cut-off to cause the latter to dislodge the seeds resting thereon without interfering with those in the seed-slide openings, but are to yield with requisite readiness to permit passage under the cut-off of seed that have lodged in the openings of the seed-slide.

The top of the housing 10, which in this instance is shown as curved, is closed by a cover 33, shaped to conform to the contour of the upper edges of the side walls and having interturned flanges 34 to interlock with the flanges 20 of the end walls 17. To prevent separation between the cover and the housing, suitable locking means is employed, consisting in this instance of a bolt 35, having two projections 36 extending at right angles to its length and to be turned down against the side walls of the housing, a keeper 37 serving to hold the bolt in operative relation to the cover.

The operation of the device is as follows: The seed-slide being reciprocated in the usual or any preferred manner, carries the seed one at a time into the housing and over the opening 7 in the bottom plate 3 of the seed-hopper bottom. Two of the points or arms of the ejector bear upon the space between two of the openings of the seed-slide; but as soon as the opening of the seed-slide approaches the center of the housing one of these arms is caught by the wall of the opening and is by the movement of the slide projected through the opening therein and through the opening in the bottom plate 3. If the seed in the opening 6 has not been discharged, the arm will effect its dislodgment without injury thereto; but should it be wedged in the seed-opening of the seed-slide the ejector will in a certain and positive manner force it out of the opening and discharge it to the ground. The arms of the ejector are so spaced with relation to the openings 6 that each opening will be engaged by an arm as the seed-slide is reciprocated irrespective of the speed at which it may be driven, so that in operation the device will be certain to perform the functions for which it is designed.

The only parts of the device liable to become damaged or broken in use are the ejector and the springs 31, and it will be apparent from the construction of these parts as shown that they may be readily and cheaply supplied in such an emergency.

A feature of this invention that renders it peculiarly advantageous of employment is that there is no possibility of the parts becoming inoperative, as by being rust-locked, as both the cut-off and the ejector are so disposed with relation to their bearing parts as effectively to overcome such contingency.



While the form of device herein shown will be found thoroughly efficient in operation and will, if constructed as shown, be reliable in use, it is to be understood that various changes in the manner of construction and assemblage of the parts may be employed and still be within the scope of the invention.

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

1. In a corn-planter, the combination with a reciprocatory seed-slide, of a rotary vertically-yieldable ejector, and a cut-off adapted for vertical yielding and rocking motion independently of the ejector.

2. A grain-ejector for corn-planters comprising a casing provided with oppositely-disposed shoulders having elongated orifices, an ejector having projections working in the orifices, and a spring-pressed cut-off straddling the shoulders and having rounded faces coacting therewith.

3. A grain-ejector for corn-planters comprising a casing provided with oppositely-disposed shoulders having elongated openings therein, a seed-slide movable in the casing, a rotary ejector having projections working in the said orifices, a cut-off straddling the shoulders and having rounded shoulders coacting therewith, and springs associated with the casing and bearing upon the cut-off.

4. A grain-ejector for corn-planters, comprising a casing provided with oppositely-dis-

posed shoulders having elongated orifices, an ejector having projections working in the orifices, a spring-pressed cut-off straddling the shoulders and having rounded faces coacting therewith, and a cover provided with means to interlock with the casing.

5. A grain-ejector for corn-planters, comprising a bottom plate, a seed-slide guided for movement thereby, and a casing inclosing an ejector and a cut-off, said casing comprising two members each of which is provided with a base-flange for attachment to the bottom plate, with a side wall extending at right angles to the base-flange, and with an end wall undercut to permit movement of the seed-plate, each side wall being provided with an angular groove and each end wall being provided with a beveled edge and with a top flange projecting beyond the edge, the angular grooves, when the members are assembled, being engaged by the beveled edges of the end walls, and the ends of the side walls being engaged by the projected portions of the flanges, a cover having inturned flanges to interlock with those of the end walls, and locking means carried by the cover.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ANDREW JACKSON MARSHALL.

Witnesses:

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H. W. THOMAS.