J. CALDER.

APPARATUS FOR SHOCKING GRAIN.

APPLICATION FILED MAY 25, 1904.

914,790.

Patented Mar. 9, 1909.

3 SHEETS—SHEET 1.

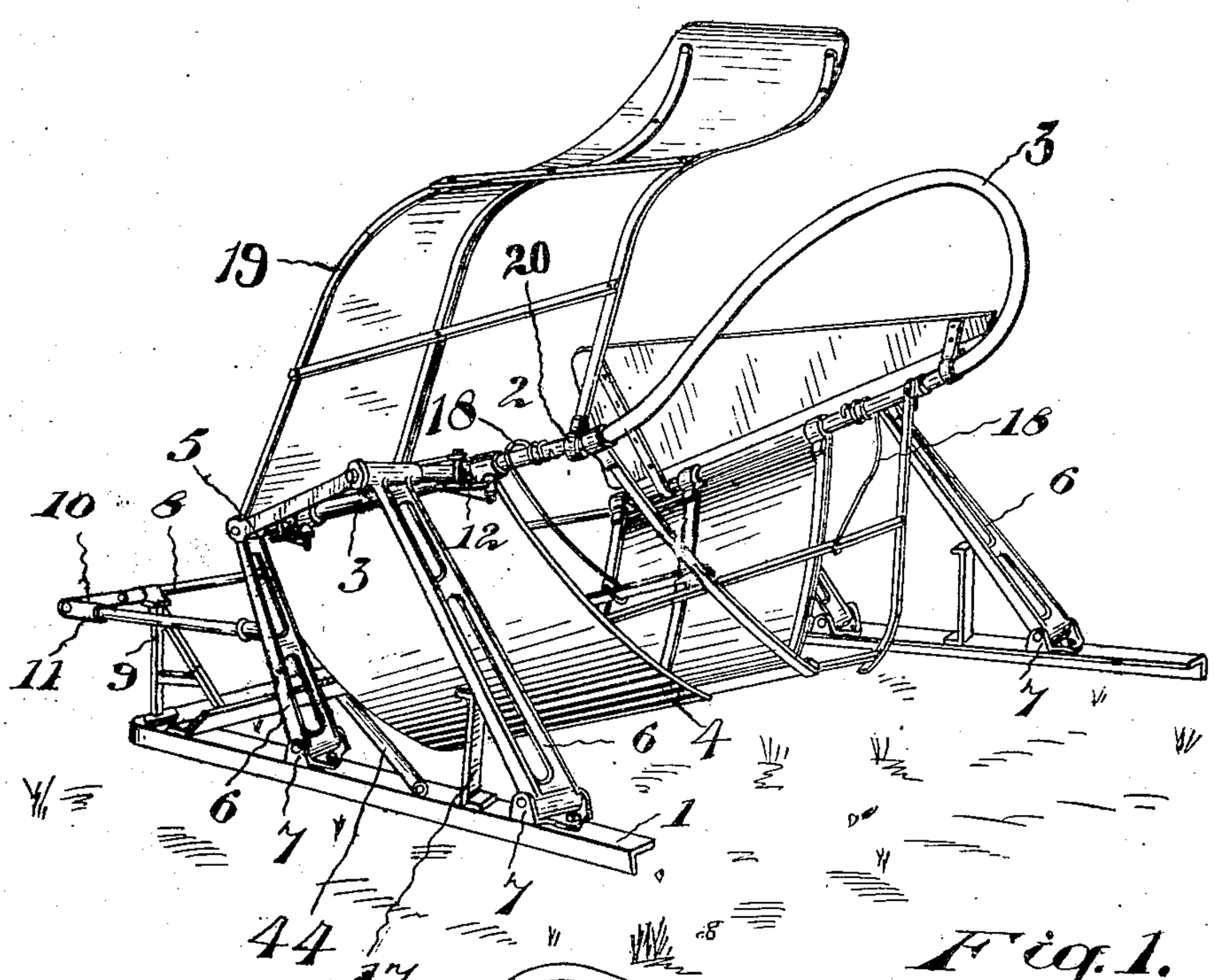

Fig. 1.

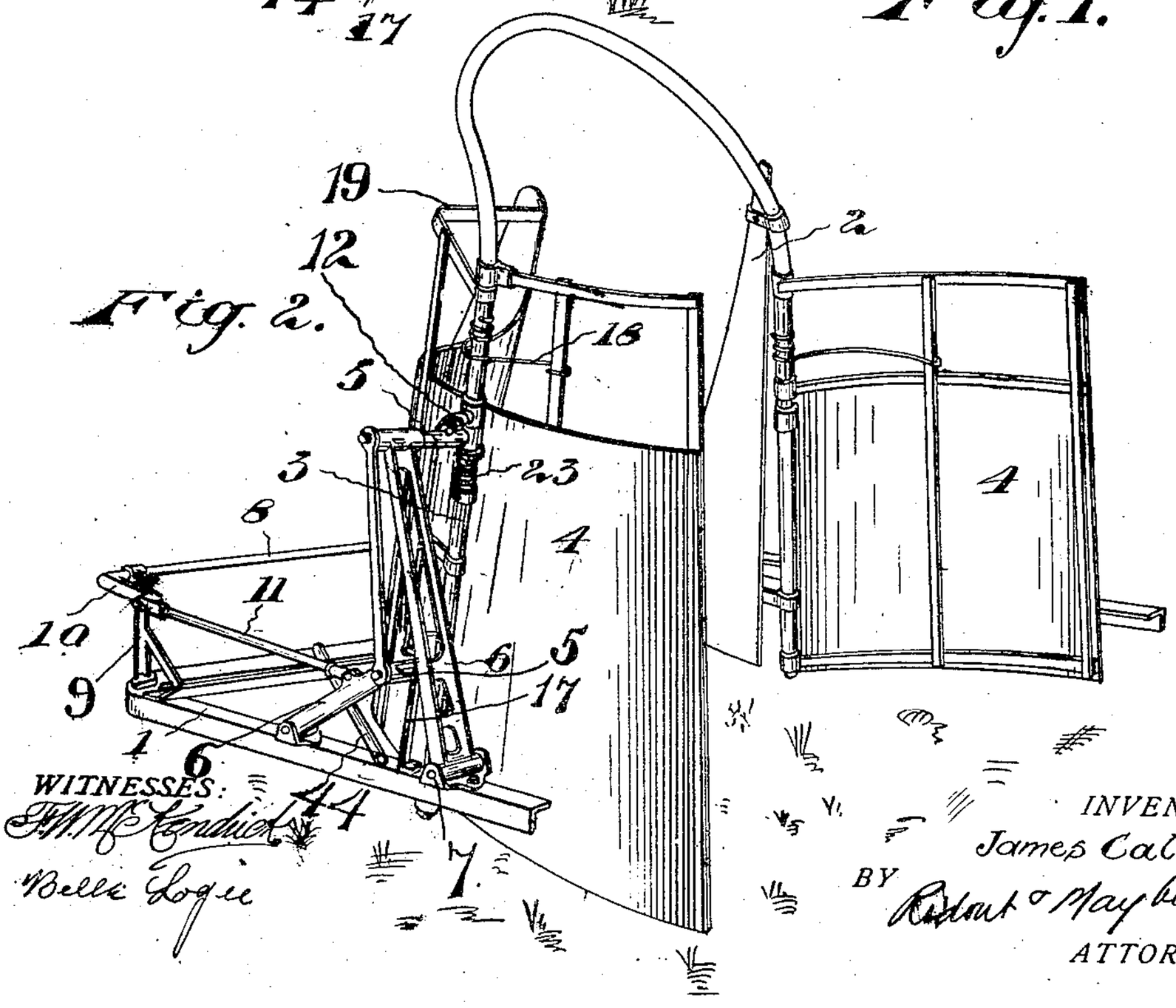

Fig. 2.

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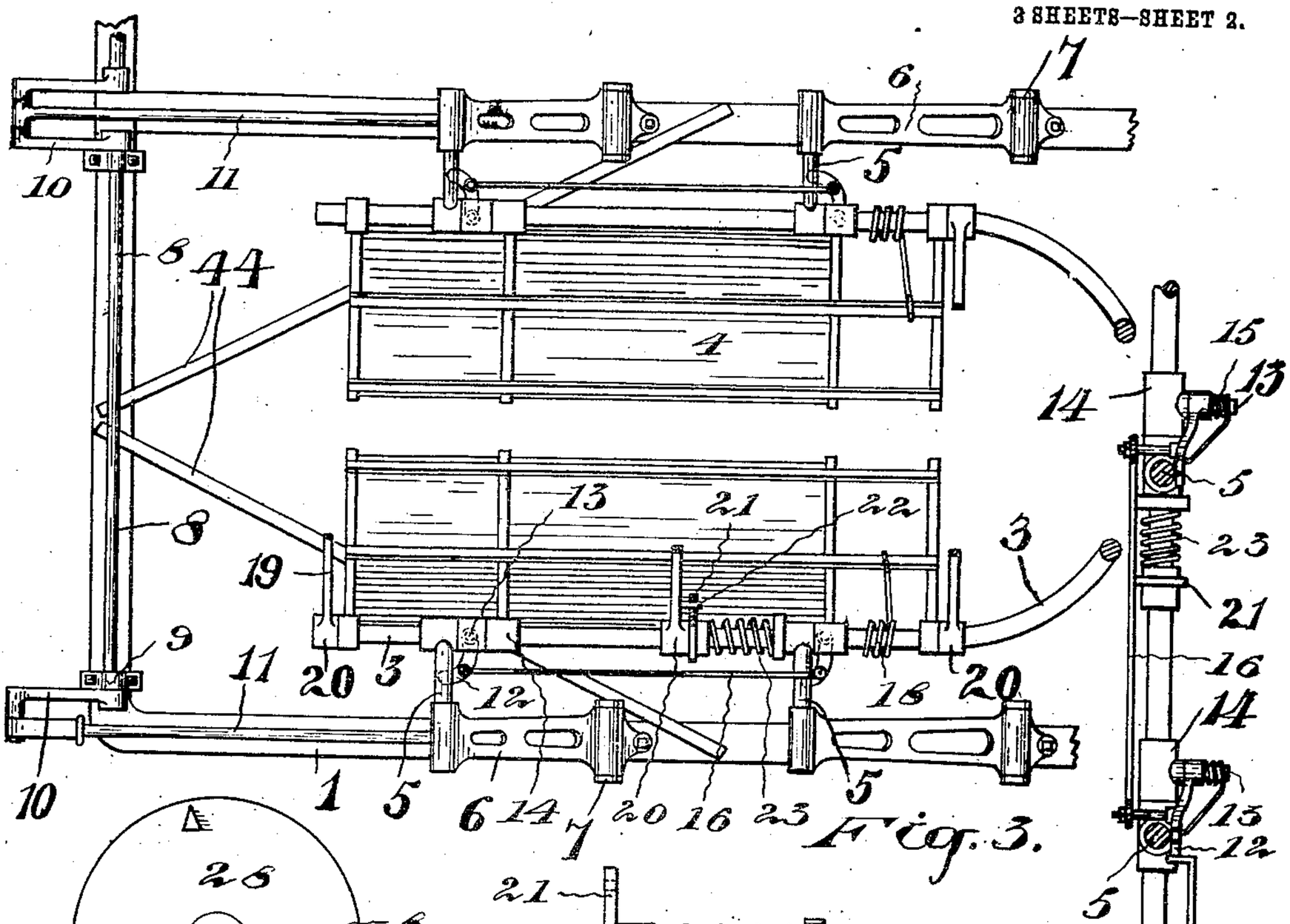

Fig. 3.

Fig. 4.

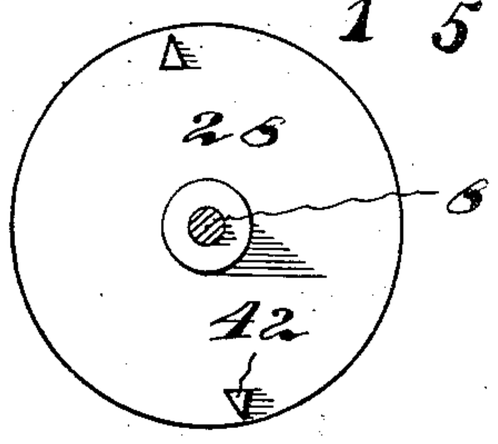

Fig. 7.

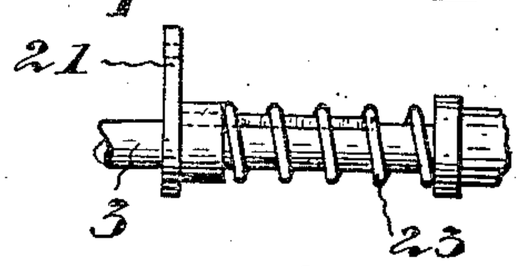

Fig. 9.

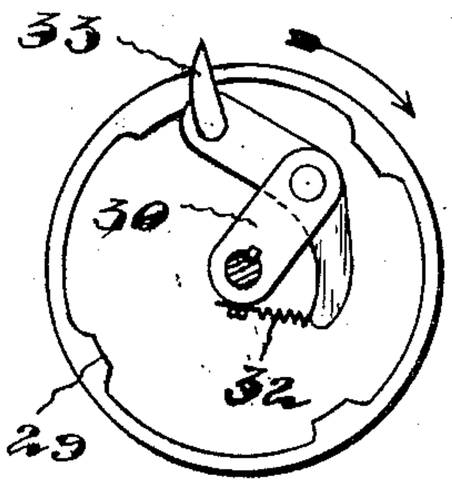

Fig. 6.

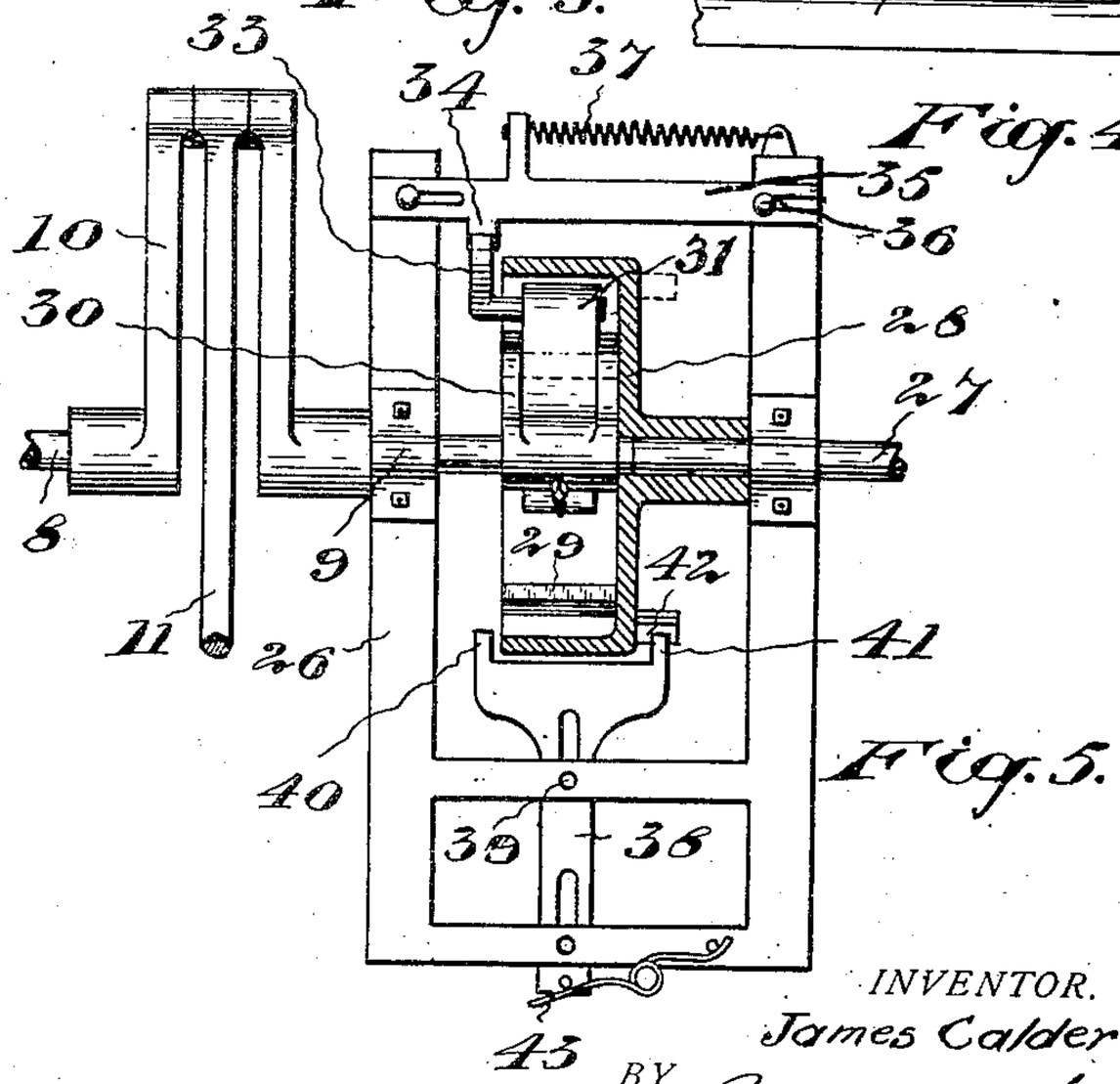

Fig. 5.

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3 SHEETS—SHEET 3.

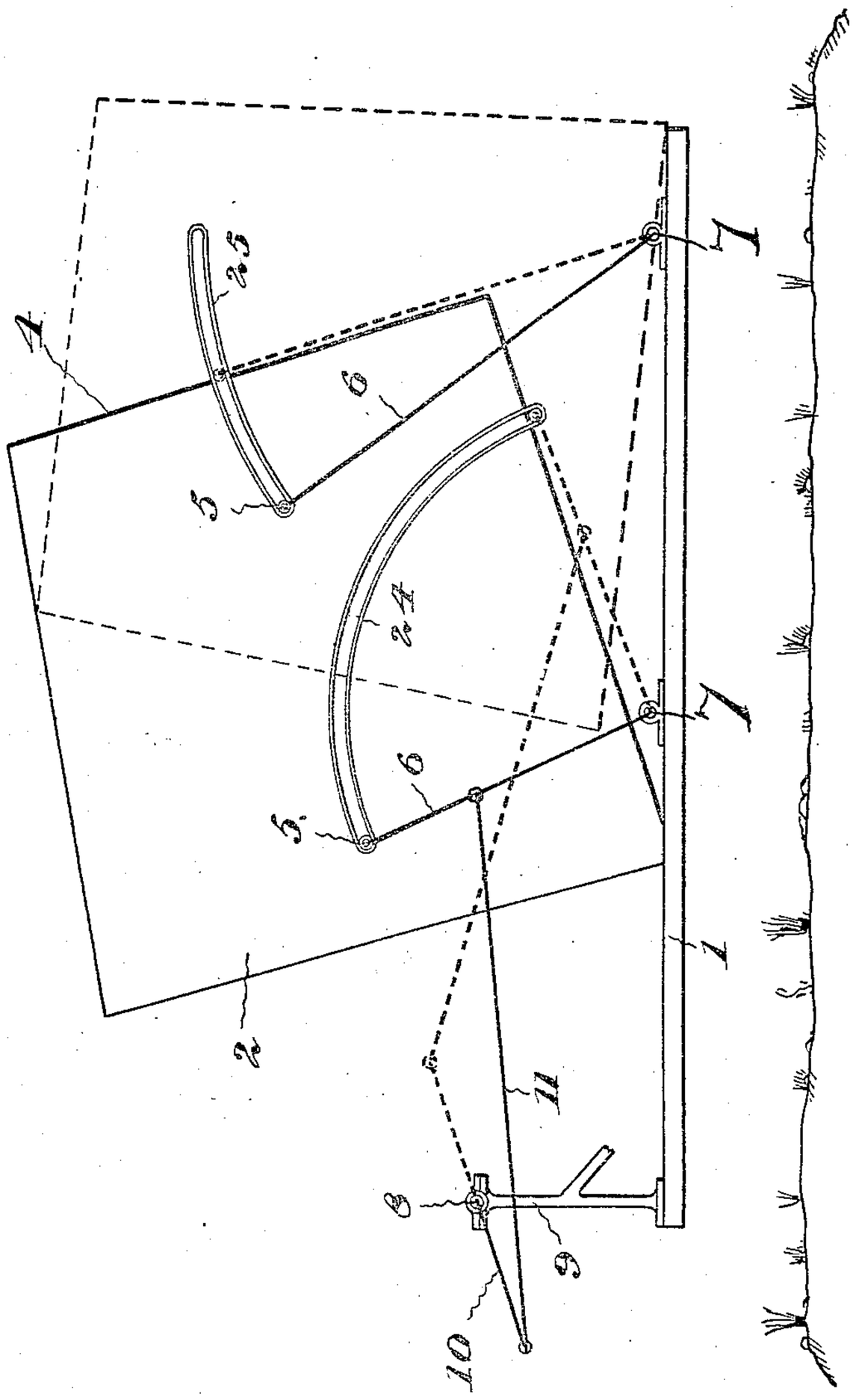

Fig. 3.

WITNESSES:

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UNITED STATES PATENT OFFICE.

JAMES CALDER, OF HAMILTON, ONTARIO, CANADA, ASSIGNOR TO THE CALDER GRAIN SHOCKER COMPANY, LIMITED, OF HAMILTON, CANADA.

APPARATUS FOR SHOCKING GRAIN.

No. 914,790. Specification of Letters Patent. Patented March 9, 1909.

Application filed May 25, 1904. Serial No. 209,818.

To all whom it may concern:

Be it known that I, JAMES CALDER, of the city of Hamilton, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Apparatus for Shocking Grain, of which the following is a specification.

This invention relates to shockers of the genus in which the grain or a number of sheaves are gathered and bound together in a substantially horizontal pivoted receptacle which is subsequently tilted to a substantially vertical position to dump the shock, and relates particularly to that species in which the grain or sheaves are deposited in the collected receptacle in the position in which they are cut and butt foremost, necessitating the forward tilting of the receptacle to dump the shock.

In constructing a practical shocker of this class several requirements must be kept in view. In order to avoid the use of an elevator the receptacle must be set low enough to receive its grain direct from the binder-deck of an ordinary binder. When so set the receptacle is too low to swing on a fixed bearing without interference with the ground, and means must be provided to raise the receptacle before it is swung to the vertical. To properly set a shock it is desirable that the receptacle and the shock should be in engagement as far as possible until the butt of the shock strikes the ground, and therefore the receptacle should only be raised a sufficient distance to clear the ground when swung, and should preferably be lowered towards the ground again to follow the dropping shock. The bottom of the shock receptacle is then necessarily behind the dumped shock and traveling towards it; hence means must be provided to get the bottom out of the way of the shock the moment the latter is dumped.

In dumping the shock it is desirable that the top of the shock should not be thrown forward, otherwise this movement plus the movement due to the ordinary forward motion of the apparatus will be likely to upset the shock towards the front when the forward motion of the butt is stopped by its contact with the ground. This requirement can not be filled by a shock receptacle centrally pivoted, and an endeavor has been made to provide for it by giving the receptacle a bodily movement rearwardly after the receptacle has been tilted to a vertical position. But it is very undesirable that there should be much rearward movement as it takes too much time, necessitating the providing of means for holding back a large quantity of grain between the binder and the shocker, owing to the fact that the cutting of the harvester-binder continues while the shock receptacle is out of its normal position.

I have filled these various and conflicting requirements by adopting a construction by which the receptacle is displaced somewhat rearwardly and upwardly, and is then swung to its vertical position, and preferably dropped somewhat towards the ground so that in its tilted position it is substantially as near the ground as it was in its original position. I obtain these results by the construction shown in the accompanying drawings, in which—

Figure 1 is a perspective view of my improved shock receptacle in its normal position. Fig. 2 is a perspective view showing the shock receptacle in its tilted position. Fig. 3 is a plan view of the shock receptacle partly broken away. Fig. 4 is a detail in vertical elevation showing the locks for the gates of the receptacle just about to engage the releasing device. Fig. 5 is a plan view, partly in section, of an arrangement whereby a dwell may be secured in the movements of the shaft which effects the dumping of the shock. Fig. 6 is a face view of the clutch drum. Fig. 7 is a rear elevation of the same clutch. Fig. 8 is a diagrammatical view illustrating the movements of the shock receptacle in dumping a shock. Fig. 9 is a detail in side elevation of the clutch holding the arched top stationary.

In the drawings like numerals of reference indicate corresponding parts in the different figures.

1 is the frame of the shocker suitably shaped to support the different parts. When the device is in operative position it will be supported in any suitable manner adjacent to the outer edge of the binder-deck of a harvester-binder, but such connections or support form no part of the present invention, and are not herein described or shown.

2 is the shock receptacle, which comprises the frame 3, on which are hinged the gates 4, which serve to form the bottom of the receptacle when the latter is in the position shown in Fig. 1. The sheaf receptacle is provided

with trunnions or pivots 5, by means of which it is pivotally connected with the ends of the links or rock arms 6 of unequal length. It will be noted that one pair of these pivots is adjacent to the forward end of the receptacle and the other adjacent to the rearward end of the receptacle (see Figs. 1 and 3). The lower ends of the rock arms 6 are pivoted at 7 on the main frame of the apparatus. At the forward end of the frame a discharge shaft 8 is journaled in suitable bearings 9. This shaft is provided with the cranks 10. Each crank is pivotally connected with a pitman 11, and each pitman is pivotally connected with one of the forward rock arms 6. The gates are normally held closed, as shown in Fig. 1, by means of locks 12, which are journaled on suitable pivots 13, forming part of the hinges 14 of the gates 4. Coil springs 15, connected at one end to the pivots 13 and at the other end to the locks, tend to maintain the locks in the position shown in Figs. 1, 3 and 4, in which their bent ends engage the under or rearward sides of the pivots 5. The hinges are thus prevented from turning on the tubular frame 3, and the gates securely held in the position shown in Figs. 1 and 3.

In order that the locks may operate together those at each side of the receptacle are pivotally connected to a rod or link 16. This rod, it will be seen, is normally on the opposite side of the pivots 5 to the locks, which latter are bent downwardly to enable them properly to engage the pivots 5. When the receptacle is tilted to its vertical position, as hereinafter described, the lower locks engage the trips 17 secured to the frame of the shocker at each side thereof. These trips are so located that they engage the lower locks just before the shock receptacle has reached its lowest position. Consequently as the shock receptacle moves downward the locks are lifted up and as the gates swing open pass over the tops of the pivots 5. The gates, when the locks are raised, are swung open by means of springs 18, each coiled on and connected at one end to the receptacle frame 3 and engaging the gate with its other end. These springs are, however, not essential as the dumped shock itself will cause the gates to swing open.

The shock receptacle is preferably provided with a curved top 19, which extends in an arch over the gates. This top is provided with hinges 20 journaled on one side of the receptacle frame 3. The top extends over towards the other side of the receptacle but is not connected thereto, a sufficient opening being left through which sheaves may be deposited in the receptacle. This arched top is normally held stationary by any suitable means. I show for this purpose a clutch 21 longitudinally slidable but non-rotatable on the frame 3 of the receptacle by means of an ordinary feather key and key-way. (See Fig. 9). This clutch is provided with a hole adapted to engage the pin 22, or other projection from one of the hinges 20 of the arched top. A coil spring 23 engaging the clutch and any suitable collar on the frame 3 serves to maintain the clutch and the pin in engagement, as shown particularly in Figs. 3 and 9.

Before describing the mechanism shown in Figs. 5, 6 and 7 it will be well to describe the operation of the parts already described.

The movements of the shock receptacle will be best understood on reference to Fig. 8 taken in connection with Figs. 1 and 2. It will be seen that, owing to the forward and rearward links being of different lengths, and owing to the position of the pivots of these links and the position of the front and rear pivots 5 between the receptacle and the ends of the links, as the crank shaft 8 is rotated from the position shown in full lines in Fig. 8 to the position shown in dotted lines the front pivots 5 travel from the front to the rear of the arc 24 while the rear pivots 5 travel from the front to the rear of the arc 25, and then move forward again to a point intermediate the ends of the arc, as shown. The result of these movements of the front and rear pivots 5 is that the shock receptacle is first moved rearwardly and upwardly while maintaining very nearly the normal approximately horizontal position shown; but as the movements of the parts continue the receptacle is tilted quickly and dropped slightly to the position shown in dotted lines in Fig. 8. Though I show rock arms of different lengths for the purpose of effecting these movements it is evident that any other means which would cause the pivots 5 to travel in the arcs 24 and 25 in the manner shown would answer the purpose of my invention. The results of the movements described are important. A certain amount of backward movement is given to the receptacle which partly compensates for the forward motion of the apparatus when the latter is connected with a harvester-binder. The upward movement allows the corner of the receptacle nearest to the ground to swing without touching the latter, as would be the case if the receptacle were rotating on stationary pivots. The downward drop as the receptacle reaches a substantially vertical position serves to cause the receptacle to partly follow the shock as the latter drops so that the shock is supported until the last possible moment of time. As the tilt to the vertical takes place on the rearward or upper pivots 5 there is scarcely any forward movement to the top of the shock, which thus drops to the ground under the most favorable conditions to insure its standing erect when the receptacle has passed away from it. As soon as the shock receptacle reaches the vertical position the locks 12 are released, as already described, and the gates open up as the recep-

tacle is drawn away from the shock leaving the latter standng on the field.

The shock receptacle being operated, as already described, by the rotation of the shaft 8, it becomes necessary, in order that the shock receptacle remain stationary a sufficient length of time to enable it to be drawn away from the shock by the forward movement of the machine, to provide means for driving the shaft which will automatically produce this dwell. For this purpose I provide the mechanism shown more particularly in Figs. 5, 6 and 7.

On the bracket 26 supporting the bearing of the inner end of the shaft 8 is journaled a driving shaft 27 in axial alinement with the shaft 8. To the shaft 27 is secured the hub of the clutch member 28, the inner side of the periphery of which is provided with a plurality of teeth 29. To the shaft 8 is secured the arm 30 carrying the pivoted clutch dog 31, the outer end of which is adapted to engage the teeth 29. A coil spring 32 connects the tail of the dog with the hub of the arm 30 and tends normally to throw the other end of the dog to engage the teeth 29. A catch 33 extends laterally from the end of the dog 31, and then radially. A trip 34 is formed on a bar 35 having bolt and slot connections 36 with the bracket 26 so as to be slidable thereon longitudinal of the shafts 8 and 27. The coil spring 37, secured to the bar and to the bracket 26, normally maintains the trip in the position shown, in which it engages the catch 33 and disengages the dog from the clutch. At the opposite side of the clutch to the trip 34 is a second bar 38 provided with a bolt and slot connection 39 with the bracket 26 whereby it is adapted to slide on the bracket radial to the shafts 8 and 27. A trip 40 is formed on this bar in the path of the catch 33. A lip 41 is also formed at the other side of this bar in the path of the V-shaped lugs 42, formed on or secured to the back of the clutch member 28. A spring 43, engaging the bar 38 and the bracket 26, normally maintains the bar 38 in the position shown.

When it is desired to dump the shock from the shock receptacle the bar 35 is moved to disengage the trip 34 from the catch 33. The spring 32 immediately causes the dog 31 to move outwardly in position to be engaged by one of the teeth of the clutch member 28, which latter in practice will be continuously driven from a harvester-binder through the medium of the shaft 27. As soon as the dog is engaged with the clutch member the driving shaft and the discharge shaft rotate together and the shock receptacle, through the medium of the crank and pitman connections already described, is tilted to the vertical position. One half revolution of the shaft is all that is required to effect this movement. The catch 33 at this time engages the trip 40, and the dog 31 is thrown out of engagement with the clutch member 28, causing the dwell in the movements of the shock receptacle already referred to. This dwell lasts until one of the lugs 42 moves around into engagement with the lip 41, thus pressing back the bar 38 and causing the trip 40 to release the catch 33. This allows the dog to again engage the clutch member, and the discharge shaft is once again driven until the parts reassume their original position. At this moment the catch 33 again engages the trip 34, and the dog is once more thrown out of engagement with the clutch member 28.

It is important that the shock receptacle be as short a time as possible away from its normally approximately horizontal position, and as some time is consumed by the dwell during which the shock is passing away from the receptacle, or rather the receptacle from the shock, it is important to close the gates forming the bottom as rapidly as possible after the discharge of the shock. I therefore provide means by which the closing movement of the gates is commenced substantially simultaneously with the commencement of the return movement of the shock receptacle to its normal position. To effect this closing movement I provide the stationary converging bars 44 connected to the frame 1. These bars are so located that they engage the edges of the gates and gradually force them together until, when the receptacle has resumed its normal position, the gates have been closed sufficiently to allow the locks 12 to slip over the pivots 5 and reëngage themselves therewith, as shown in Figs. 1 and 4.

What I claim as my invention is:

1. In a shocker the combination of a shock receptacle normally approximately horizontal, and comprising a frame, a bottom hinged on the frame and capable of opening outwardly, and a releasable lock for holding the bottom closed; a main supporting frame; a pivot on the frame of the receptacle; supporting means for the pivot carried on the main frame and adapted to permit of the pivot being moved rearwardly in a vertical plane longitudinal of the machine and a rock arm pivoted on the frame and on the frame of the receptacle, whereby the receptacle may be tilted on the aforesaid pivot to a vertical position, substantially as described.

2. In a shocker the combination of a shock receptacle having an opening in one side said receptacle being normally approximately horizontal, and comprising a frame, a curved top; a bottom hinged on the frame and capable of opening outwardly, and a releasable lock for holding the bottom closed; a main supporting frame; a pivot on the frame of the receptacle; supporting means for the pivot carried on the main frame and adapted to permit of the pivot being moved rearwardly in a vertical plane longitudinal of the machine and a rock arm pivoted on the frame

and on the frame of the receptacle, whereby the receptacle may be tilted on the aforesaid pivot to a vertical position, substantially as described.

3. In a shocker the combination of a shock receptacle having an opening in one side said receptacle being normally approximately horizontal, and comprising a frame, a curved top; a bottom hinged on the frame and capable of opening outwardly, and a releasable lock for holding the bottom closed; a main supporting frame; a pivot on the frame of the receptacle; supporting means for the pivot carried on the main frame and adapted to permit of the pivot being moved rearwardly in a vertical plane longitudinally of the machine and a rock arm pivoted at its lower end on the frame, normally inclined forwardly and pivoted on the receptacle, whereby the receptacle may be tilted on the aforesaid pivot to a vertical position, substantially as described.

4. In a shocker the combination of a shock receptacle having an opening in one side said receptacle being normally approximately horizontal, and comprising a frame, a curved top; a bottom hinged on the frame and capable of opening outwardly, and a releasable lock for holding the bottom closed; a main supporting frame; a pivot on the frame of the receptacle supporting means for the pivot carried on the main frame and adapted to permit of the pivot moving on an upwardly and rearwardly inclined line longitudinal of the machine; and a rock arm pivoted at its lower end on the frame, normally inclined forwardly and pivoted on the receptacle, whereby the receptacle may be tilted on the aforesaid pivot to a vertical position, substantially as described.

5. In a shocker the combination of a shock receptacle having an opening in one side said receptacle being normally approximately horizontal, and comprising a frame, a curved top, and a bottom normally held in position to hold a shock, but adapted to be moved to release a dumped shock; a main supporting frame; means carried by said frame normally supporting the receptacle in its approximately horizontal position, and adapted by movement in longitudinal vertical planes to raise the receptacle bodily and then tilt it to a vertical position to deposit a shock, substantially as described.

6. In a shocker the combination of a shock receptacle having an opening in one side said receptacle being normally approximately horizontal, and comprising a frame, a curved top, and a bottom normally held in position to hold a shock, but adapted to be moved to release a dumped shock; a main supporting frame; means carried by said frame normally supporting the receptacle in its approximately horizontal position, and adapted by movement in longitudinal vertical planes to raise the receptacle bodily, tilt it to a vertical position, and then lower it to its vertical position toward the ground to deposit a shock, substantially as described.

7. In a shocker the combination of a shock receptacle normally approximately horizontal, and comprising a frame, a bottom hinged on the frame and capable of opening outwardly, and a releasable lock for holding the bottom closed; a main supporting frame; a pivot on the frame of the receptacle; supporting means for the pivot carried on the main frame and adapted to permit of the pivot being moved rearwardly in a vertical plane longitudinal of the machine and a rock arm pivoted at its lower end on the frame, normally inclined forwardly and pivoted on the receptacle, whereby the receptacle may be tilted on the aforesaid pivot to a vertical position, substantially as described.

8. In a shocker the combination of a shock receptacle normally approximately horizontal, and comprising a frame, a bottom hinged on the frame and capable of opening outwardly, and a releasable lock for holding the bottom closed; a main supporting frame; a pivot on the frame of the receptacle; supporting means for the pivot carried on the main frame and adapted to permit of the pivot moving on an upwardly and rearwardly inclined line longitudinal of the machine and a rock arm pivoted at its lower end on the frame, normally inclined forwardly and pivoted on the receptacle, whereby the receptacle may be tilted on the aforesaid pivot to a vertical position, substantially as described.

9. In a shocker the combination of a shock receptacle normally approximately horizontal, comprising a frame, and a bottom normally held in position to hold a shock, but adapted to be moved to release a dumped shock; a main supporting frame; means carried by said frame normally supporting the receptacle in its approximately horizontal position, and adapted by movement in longitudinal vertical planes to raise the receptacle bodily and then tilt it to a vertical position to deposit a shock, substantially as described.

10. In a shocker the combination of a shock receptacle normally approximately horizontal, comprising a frame, and a bottom normally held in position to hold a shock, but adapted to be moved to release a dumped shock; a main supporting frame; means carried by said frame normally supporting the receptacle in its approximately horizontal position, and adapted by movement in longitudinal vertical planes to raise the receptacle bodily, tilt it to a vertical position, and then lower it in its vertical position toward the ground to deposit a shock, substantially as described.

11. In a shocker the combination of a shock receptacle normally approximately horizon-

tal, comprising a frame, a bottom hinged on the frame and capable of opening outwardly, and a releasable lock for holding the bottom closed; a main supporting frame; pivots for the receptacle toward opposite ends of the shocker frame; and means for displacing said pivots in longitudinal vertical planes to tilt said receptacle to a vertical position to deposit a shock, substantially as described.

12. In a shocker the combination of a shock receptacle normally approximately horizontal, comprising a frame, a bottom hinged on the frame and capable of opening outwardly, and a releasable lock for holding the bottom closed; a main supporting frame; pivots for the receptacle toward opposite ends of the shocker frame; and means for displacing said pivots in longitudinal vertical planes to raise said receptacle bodily and to tilt said receptacle to a vertical position to deposit a shock, substantially as described.

13. In a shocker the combination of a shock receptacle normally approximately horizontal, comprising a frame, a bottom hinged on the frame and capable of opening outwardly, and a releasable lock for holding the bottom closed; a main supporting frame; pivots for the receptacle toward opposite ends of the shocker frame; and means for displacing said pivots in longitudinal vertical planes to raise said receptacle bodily, to tilt said receptacle to a vertical position, and then lower it in its vertical position toward the ground to deposit a shock, substantially as described.

14. In a shocker the combination of a shock receptacle having an opening in one side said receptacle being normally approximately horizontal, and comprising a frame, a curved top; a bottom hinged on the frame and capable of opening outwardly, and a releasable lock for holding the bottom closed; a main supporting frame; pivots for the receptacle toward opposite ends of the shocker frame; and means for displacing said pivots in longitudinal vertical planes to tilt said receptacle to a vertical position to deposit a shock, substantially as described.

15. In a shocker the combination of a shock receptacle having an opening in one side said receptacle being normally approximately horizontal, and comprising a frame, a curved top, and a bottom normally held in position to hold a shock, but adapted to be moved to release a dumped shock; a main supporting frame; a short link pivoted at its lower end on the main frame and at its upper end on the frame of the receptacle near one end; and a longer link pivoted on the frame of the receptacle toward its other end and also pivoted on the main frame, the said links being adapted when swung in a vertical longitudinal plane to tilt the receptacle to a vertical position without lateral displacement, substantially as described.

16. In a shocker the combination of a shock receptacle normally approximately horizontal, comprising a frame, and a bottom normally held in position to hold a shock, but adapted to be moved to release a dumped shock; a main supporting frame; a short link pivoted at its lower end on the main frame and at its upper end on the frame of the receptacle near one end; and a longer link pivoted on the frame of the receptacle toward its other end and also pivoted on the main frame, the said links being adapted when swung in a vertical longitudinal plane to tilt the receptacle to a vertical position without lateral displacement, substantially as described.

17. In a shocker the combination of a shock receptacle normally approximately horizontal, a main supporting frame, a pivot on the frame of the receptacle; supporting means for the pivot carried on the main frame and adapted to permit of the pivot being moved rearwardly in a vertical plane longitudinal of the machine; and a rock arm pivoted at its lower end on the frame, normally inclined forwardly and pivoted on the receptacle.

18. In a shocker the combination of a shock receptacle normally approximately horizontal; a main supporting frame, a pivot on the frame of the receptacle; supporting means for the pivot carried on the main frame and adapted to permit of the pivot being moved rearwardly in a vertical plane longitudinal of the machine; and a rock arm pivoted at its lower end on the frame, normally inclined forwardly and pivoted on the receptacle.

19. In a shocker for harvester-binders, the combination with a frame, of a shock receptacle; a plurality of rocker arms pivoted to said shock receptacle at different points of the length thereof and also having pivotal connections with the frame at relatively fixed positions, whereby the planes of vibration of the respective rocker arms are relatively constant; and means for rocking said arms to bodily tilt and displace said shock receptacle on its pivots on said rocker arms, substantially as described.

20. In a shocker for harvester-binders, the combination with a frame of a shock receptacle adapted to tilt bodily from a substantially horizontal position to an upright position without lateral displacement bodily; a plurality of rocker arms of different lengths pivoted to said shock receptacle at different points of the length thereof and also having relatively fixed pivotal connections with the frame, whereby the planes of vibration of the respective rocker arms are relatively constant; and means for bodily tilting and

displacing said shock receptacle on said rocker arms as bearings, substantially as described.

21. In a shocker for harvester-binders, the combination with a normally substantially horizontal tiltably mounted shock receptacle composed of swinging gates adapted to open away from each other; of means for tilting the shock receptacle into upright position to discharge the shock therefrom and back to normal position; springs for automatically opening said gates when the shock receptacle is tilted to upright position; locking mechanism carried on the receptacle for holding the gates closed when the shock receptacle is in normal position; means for releasing said locking mechanism when the shock receptacle is in upright position; and means for automatically closing the gates on returning the shock receptacle to normal position, substantially as described.

22. In a shocker, a shock receptacle adapted to tilt bodily from a substantially horizontal to a substantially vertical position, and composed of spring-opened gates whose free portions close toward each other and together form the bottom of the receptacle when it is in substantially horizontal position; automatically acting locks on the receptacle for locking said gates when in said horizontal position; means for automatically closing said gates when the shock receptacle is returned to horizontal position; means for releasing said locks when the shock receptacle is in vertical position to permit the gates to automatically open away from each other; and means for bodily tilting the shock receptacle from horizontal to vertical position and back again, substantially as described.

23. In a shocker for harvester-binders, the combination with a shock receptacle having a frame and a bottom gate hinged thereon, of a pivot on said frame; a bearing for said pivot on which the receptacle may be tilted from a vertical to a horizontal position; a lock pivoted on the gate and adapted to engage the pivot of the frame to hold the bottom gate closed; a part adapted to be engaged by the lock to release the lock when the receptacle is in the vertical position; and means for automatically closing the gate and for reëngaging the lock as soon as the gate is closed, substantially as described.

24. In a shocker or harvester-binders, the combination of a main frame; a shock receptacle pivoted thereon and adapted to tilt from a substantially horizontal to a substantially vertical position, and vice versa; a bottom gate hinged on the receptacle; a lock pivoted on the gate; a part having a relatively rigid relationship to the receptacle and adapted to be engaged by the lock to hold the gate closed; and a part adapted to be engaged by the lock when the shock receptacle reaches its vertical position to disengage the lock, substantially as described.

25. In a shocker for harvester-binders, the combination of a main frame; a shock receptacle pivoted thereon and adapted to tilt from a substantially horizontal to a substantially vertical position, and vice versa; a bottom gate hinged on the receptacle; locks pivoted on the gate; a pivoted link connecting the locks; parts having a relatively rigid relationship to the receptacle and adapted to be engaged by the locks to hold the gate closed; and a part adapted to be engaged by the locks when the shock receptacle is in its vertical position to disengage the locks, substantially as described.

26. In a shocker for harvester-binders, the combination of a main frame; a shock receptacle pivoted thereon and adapted to tilt from a substantially horizontal to a substantially vertical position, and vice versa; a bottom gate hinged on the receptacle; locks pivoted on the gate; a pivoted link connecting the locks; parts having a relatively rigid relationship to the receptacle and adapted to be engaged by the locks to hold the gate closed; a part adapted to be engaged by the locks when the shock receptacle is in its vertical position to disengage the locks; and a spring tending to reengage the locks, substantially as described.

27. In a shocker for harvester-binders, the combination with a shock receptacle having a frame and a bottom gate hinged thereon, of a pivot on said frame; a bearing for said pivot on which the receptacle may be tilted from a horizontal to a vertical position; locks pivoted on the gate and adapted to engage the pivot of the frame to hold the bottom gate closed; a pivoted link connecting the locks; a part adapted to be engaged by the locks to release the locks when the receptacle is in the vertical position; and means for automatically closing the gate and for reëngaging the locks as soon as the gate is closed, substantially as described.

JAMES CALDER.

Witnesses:
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E. A. ELMS.