H. M. LEHR.

AUTOMATIC GRAIN CUT-OFF HOLDER.

APPLICATION FILED JAN. 19, 1920.

1,401,991. Patented Jan. 3, 1922.

Fig. 1.

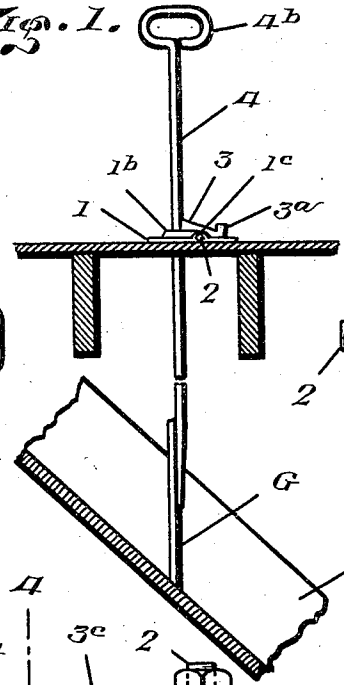


Fig. 5.

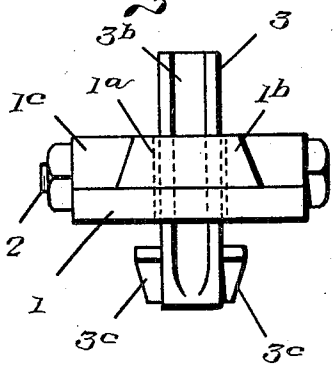


Fig. 4.

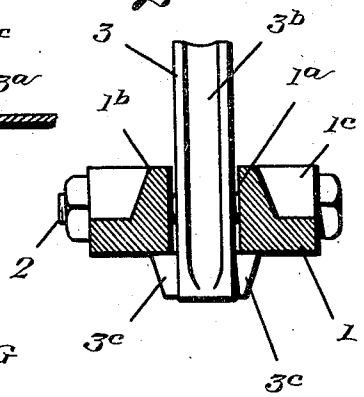


Fig. 2.

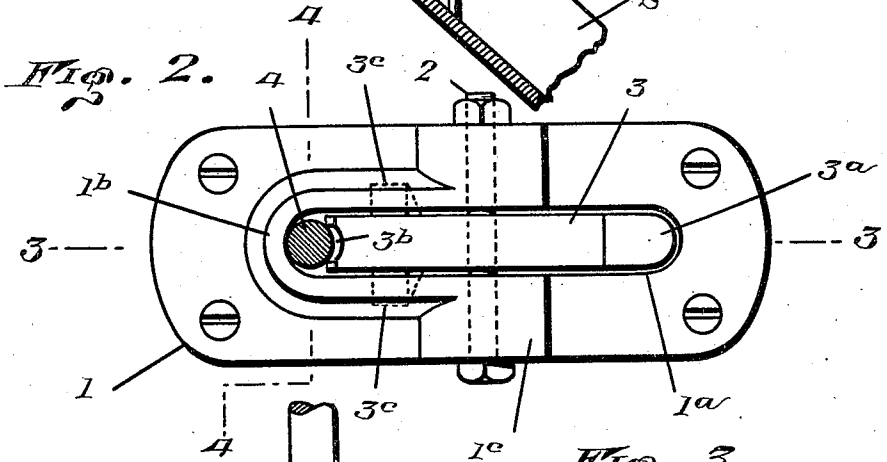
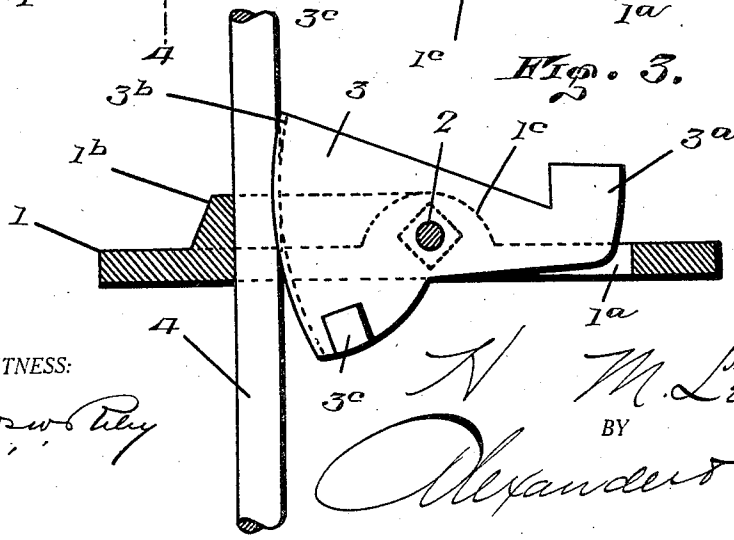


Fig. 3.



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AUTOMATIC GRAIN-CUT-OFF HOLDER.

1,401,991. Specification of Letters Patent. Patented Jan. 3, 1922.

Application filed January 19, 1920. Serial No. 352,321.

To all whom it may concern:

Be it known that I, HARRY M. LEHR, a citizen of the United States, residing at Lincoln, in the county of Lancaster and State of Nebraska, have invented certain new and useful Improvements in Automatic Grain-Cut-Off Holders; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

This invention is a novel device for gripping and holding the gate-rods of grain cut-off gates in grain elevators and mills when it is desired to hold the gate open, and for readily releasing the rod when it is desired to close the gate.

Heretofore it has been customary for the operator to hold the gate in raised position by lifting and holding the vertical gate rod in his hands until the desired amount of grain is delivered; or when larger quantities of grain were to be delivered, the operator would lift the gate by the rod and prop up the rod by some makeshift means. Both of these methods of operating the gate are laborious, and frequently result in wasting the grain by permitting too much grain to pass the gate.

By use of my novel device the gate can be readily opened by lifting it by means of the vertical rod attached to the gate and the rod is automatically caught and held in raised position while the grain is passing through the spout; and when it is desired to close the gate a slight pressure of the foot upon the cam lever of the device releases the rod and the gate quickly closes by its own weight.

In the accompanying drawings I have shown one practical device embodying the invention, and which is hereinafter described; and the novel construction and combination of parts for which I desire protection are set forth in the claims.

In said drawings:

Fig. 1 is a detail diagrammatical section view showing my novel gate holding device in engagement with the vertical operating rod of the gate or cut-off.

Fig. 2 is enlarged top plan view of the holding device.

Fig. 3 is a longitudinal section of the device on the line 3—3, Fig. 2.

Fig. 4 is a transverse section on line 4—4, Fig. 2.

Fig. 5 is a front view of the device with the cam-head fully raised.

The gripping device comprises a base plate 1, having a longitudinal slot or opening 1^a and provided on its upper side at one end of said slot with an integral upwardly extending U-shaped flange 1^b, which partly surrounds that end of the slot, and the ends of this flange merge into enlarged lugs 1^c at opposite sides of the slot and at about the center of the base; and through these lugs passes a pivot bolt 2, that extends across the slot 1^a.

Pivotally mounted on bolt 2 within the slot 1^a is a cam lever that has a cam-shaped head 3 on its end adjacent flange 1^b, the outer edge of which cam-head is adapted to engage the vertically disposed operating rod 4 of the grain cut-off or gate G in the grain spout or chute S, Fig. 1, and when so engaged will hold the gate in raised position, as indicated in Figs. 1–3.

The outer edge of this cam-shaped head 3 is preferably grooved or concaved as at 3^b to increase the biting surface of the cam-head 3 against the gate operating rod 4; to effectively lock said rod in raised position when the cut-off gate G is raised.

The end of the lever opposite head 3 is provided with an upstanding toe portion 3^a which projects above the base 1 in position to be readily engaged by the foot of the operator. The position of the fulcrum 2 of lever 3, and the weight of the cam-head 3, causes the cam-head to engage rod 4 by force of gravity, and to remain in locked engagement therewith until the head is disengaged from the rod by pressure on the other end 3^a of the lever 3, which releases the cam-head from engagement with rod 4. And when the cam head once engages the rod 4 the weight of the rod and gate simply assist in causing the cam-head to more tightly clamp the rod in and against the bend of the flange 1^b.

The cam-head 3 is provided below the base with laterally projecting lugs 3^c (see Figs. 3—4—5), which are adapted to come into contact with the under side of the base plate 1 and prevent the cam head 3 being raised too far or thrown out of operative condition when pressure is applied to the end 3^a

of the lever; and therefore the cam-head 3 will always be in position to engage the operating rod 4 of the gate as soon as the pressure on the end 3^a of the lever is removed.

The gate rod 4 passes through the slot 1^a in plate 1 and between the curved flange 1^b—and the grooved edge 3^b of cam-head 3, and when the came is engaged therewith, as in Figs. 1, 2 and 3, the rod is firmly clamped between the face of cam 3, and the flanged end of the slot. The flange 1^b and lugs 1^c, strongly reinforce the base plate at the points where greatest strain is exerted thereon and enable it to readily withstand such strains without breaking.

The gate rod 4 usually has a hand hold 4^b on its upper end, and in order to place the locking device in operative position in relation to an already installed gate rod, the bolt 2 can be taken out, the cam lever detached from the plate, and the latter then slipped over the hand hold, which passes through slot 1^a; then the cam lever can be replaced and secured by the bolt 2, and the base plate fastened to the floor in proper position by screws or bolts as indicated in the drawings.

The cam-head 3 normally drops by gravity into position to engage and hold the rod 4 of the grain cut-off gate, and holds it firmly when the rod is raised until disengaged by pressure on the end 3^a of the lever. The device is simple and positive in operation and it enables the gate to be held securely when wholly or partially raised and to be readily released when desired.

What I claim is:

1. A grain cut-off gate holder, comprising a base plate having a longitudinal slot; bearing lugs at opposite sides of said slot; a pivot bolt mounted in said lugs; a lever mounted on said bolt having a cam-shaped head on one end adapted to engage the gate operating rod which passes through the slot and between the cam end of the lever and the end of the slot; the other end of said lever being adapted to be pressed down to disengage the cam shaped head from the said rod; and said cam head having means to limit the upward movement of the cam-head when pressure is applied to the end of the lever opposite the cam head, substantially as described.

2. A holder for grain cut-offs, comprising a base plate having a longitudinal slot; a flange on the upper side of the plate surrounding one end of the slot; transversely disposed lugs rising from the upper face of the plate at opposite sides of the slot; a bolt transfixing said lugs, a lever pivotally mounted on said bolt and having an enlarged cam head on its end adjacent the flange, said cam head depending through the slot below the base plate and provided below the base plate with means to limit the upward movement of the cam head and assist the gravital action thereof; and the other end of said lever being adapted to be engaged by the foot of the operator to cause the cam head to disengage the gate rod passing between the flanged end of the slot in the base plate and the curved face of the cam head.

3. The herein described holder for grain cut-off and the like, comprising a base plate having a longitudinal slot; a flange on the upper side of the base plate surrounding one end of the slot; transversely disposed lugs at opposite sides of the slot rising from the upper face of the plate at the ends of said flange; a bolt transfixing said lugs, a cam lever pivotally mounted on said bolt and having an enlarged cam shaped head at the side adjacent the flange, the outer edge of this cam head being concaved; the said cam head depending through the slot below the base plate and provided on opposite sides below the base plate with laterally projecting lugs adapted to limit the upward movement of the cam head and assist the gravital action of the cam head; and the other end of said lever being provided with an upwardly projecting toe adapted to be engaged by the foot of the operator to cause the cam end to disengage a gate rod passing between the flanged end of the slot in the base plate and the curved face of the cam head.

In testimony that I claim the foregoing as my own, I affix my signature.

HARRY M. LEHR.