No. 802,357. PATENTED OCT. 17, 1905.

J. LAWSON.

BIN GATE.

APPLICATION FILED OCT. 18, 1904.

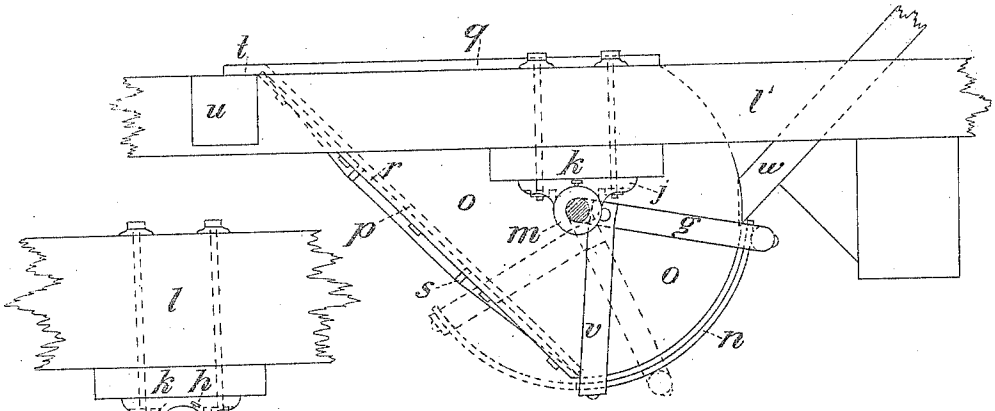


Fig. 2.

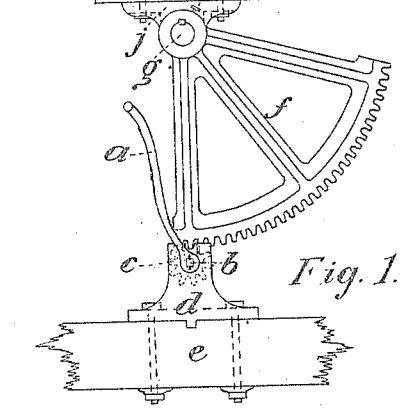


Fig. 1.

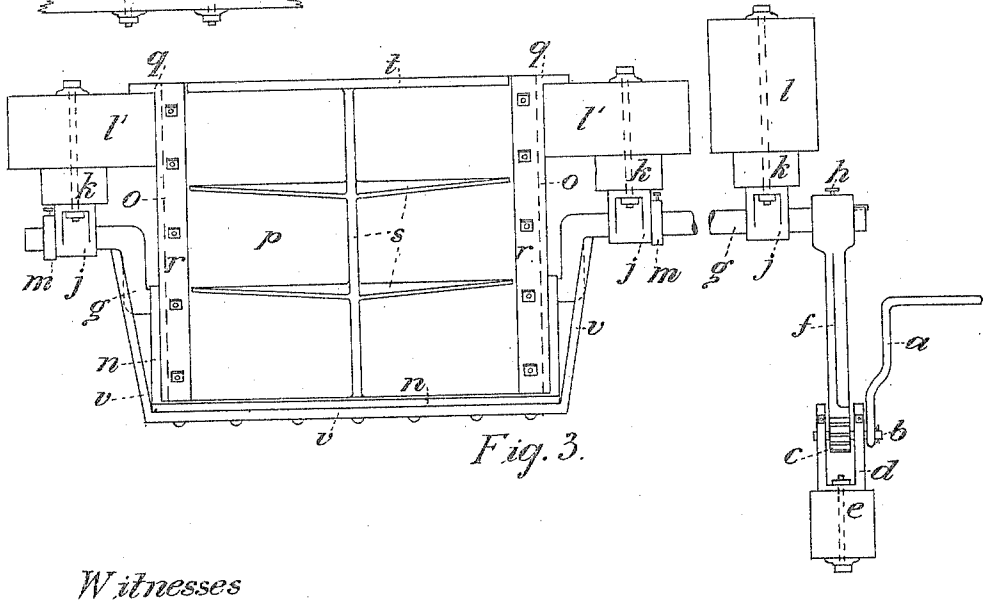


Fig. 3.

Witnesses

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JOHN LAWSON, OF COPPER CLIFF, CANADA.

BIN-GATE.

No. 802,357. Specification of Letters Patent. Patented Oct. 17, 1905.

Application filed October 13, 1904. Serial No. 228,939.

To all whom it may concern:

Be it known that I, JOHN LAWSON, mine superintendent, of the town of Copper Cliff, in the District of Nipissing, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Bin-Gates; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to improvements in gates for releasing material from overhead bins, in which the gate proper is a segment of a cylinder and is rotated by suitable gearing in contact with the curved edges of the sides of the hopper. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is an end view showing the arrangement of the rotating gear. Fig. 2 is an end view of the gate and hopper. Fig. 3 is a side view of the whole mechanism with timber *u* removed.

Similar letters refer to similar parts throughout the several views.

The wrought crank *a* is attached to the shaft *b* of the cast pinion *c*, which is mounted in the cast bearing *d*. This in turn is bolted to the supporting-timber *e*. The pinion *c* engages with the cast segmental gear *f*, which is keyed onto the main shaft *g* of the gate and held in position by the set-screw *h*. This shaft is mounted in cast boxes *j j j*, which are bolted with the filler-blocks *k k k* to the timbers *l l' l'*, which form part of the bottom frame of the bin. The shaft *g* is held in position longitudinally by the collars *m m*, fastened with set-screws. The gate *n* is of wrought plate bent to a segment of a cylinder, with the concave side inward toward the hopper. The hopper is cast and of three pieces, the vertical sides *o o* and the sloping back *p*. The vertical sides *o o* have one edge forming an arc of slightly smaller radius than the inside of the gate-plate *n*. The tops have horizontal flanges *q q*, turning outward and supporting the hopper on the timbers *l' l'*. On the remaining edges are flanges *r r*, turning inward and to which the inclined back *p* of the hopper is bolted on the inside. The back *p* has stiffening-ribs *s s s* and a flange *t*, which rests on the supporting-timber *u*, which extends transversely to the timbers *l' l'*. The gate *n* is riveted along one edge to the shaft *g* (which is bent U-shaped to pass around it) and is supported along the other edge by a strap *v*, which passes up outside the vertical side *o o* and is riveted to the shaft close to the bend. The gate *n* and the edges of the vertical sides *o o* are arranged concentrically with the shaft *g*.

The full lines in Fig. 2 show the gate *g* in position closed with the edge just outside the lower edge of the inclined floor *w* of the bin. The dotted lines show the gate partially open, allowing the material to fall through from the hopper.

In operation the crank *a* is revolved in either direction—to the right to close, to the left to open—and the gate *n* travels along the edges of the vertical sides *o o*, preserving a uniform clearance throughout its motion.

On account of its construction the shaft *g* forms no obstruction to the free passage of material through the hopper, and the gate can be easily and completely closed without any possibility of jamming, owing to the concave surface being next to the material in the hopper and the last part of the gate travel at the closing edge being nearly vertical and at the extreme edge of the line of flow of the material.

I am aware that prior to my invention bin-gates have been made with curved plates. Therefore I do not claim such a combination broadly; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. A bin-gate having in combination with the gate, a U-shaped crank attached to the gate; substantially as described.

2. A bin-gate having in combination with the gate, a U-shaped crank attached to the gate, and a strap also connecting the gate with the crank-shaft; substantially as described.

3. The combination of the three pieces, viz. the U-shaped shaft, *g*, the U-shaped strap, *v*, and the bent plate, *n*, forming a gate.

4. The combination of the cast vertical sides *o*, *o*, *o*, and of the back, *p*, with each other, and with the timbers *l*, *l' l'*, *u*, to form a hopper, substantially as shown and described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN LAWSON.

Witnesses:

THOS. STODDART,

GEO. R. CRAIG.