

(No Model.)

C. W. HUNT.
CUT-OFF DEVICE FOR CHUTES AND HOPPERS FOR DELIVERY
OF COAL, ORE, &c.

No. 543,182.

Patented July 23, 1895.

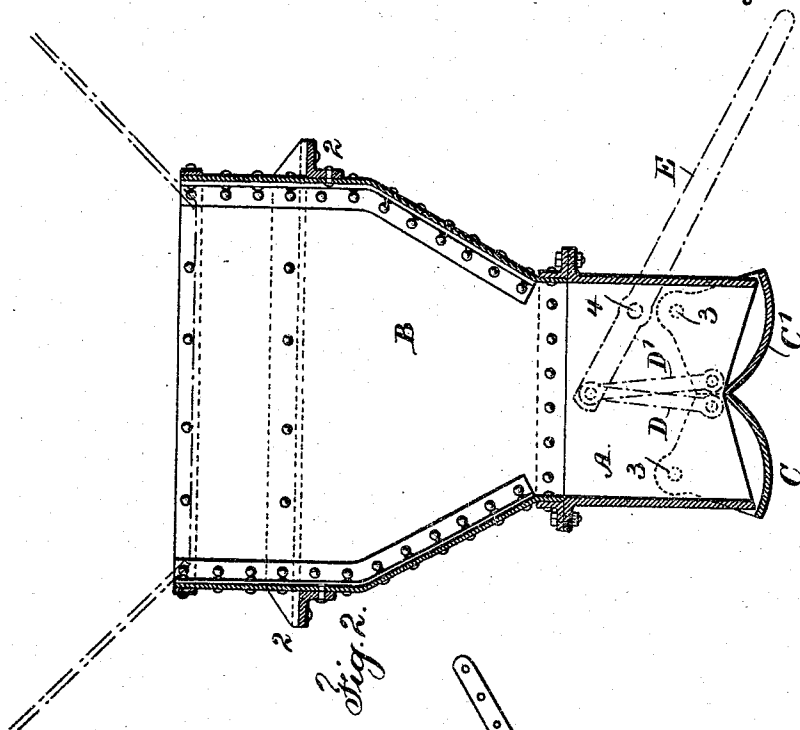


Fig. 2.

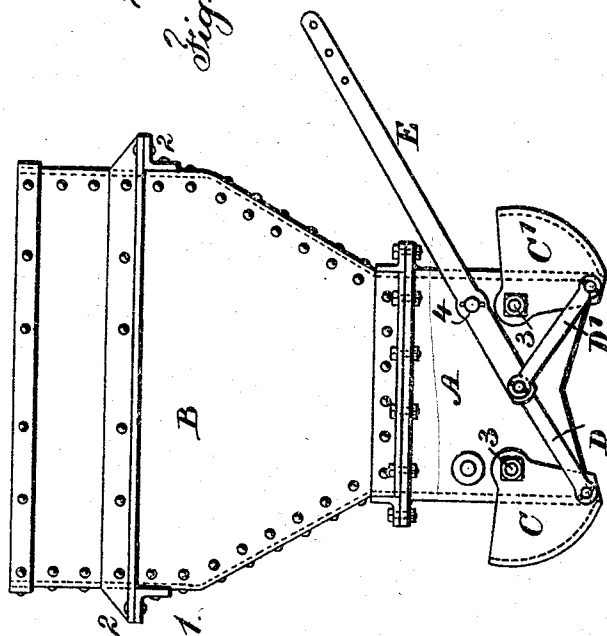


Fig. 1.

Witnesses

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CUT-OFF DEVICE FOR CHUTES AND HOPPERS FOR DELIVERY OF COAL, ORE, &c.

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Application filed March 29, 1895. Serial No. 543,818. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. HUNT, a citizen of the United States, residing at West New Brighton, in the county of Richmond and State of New York, have invented an Improvement in Cut-Off Devices for Chutes and Hoppers for the Delivery of Coal, Ore, and other Substances, of which the following is a specification.

In supplying coal or ore into cars or delivering grain or other substances from a hopper or spout difficulty has been experienced in opening and closing the lower or delivery end in consequence of the weight of material hanging upon the closing devices and often tending to swing the closing devices open, and the power exerted in operating and holding the cut-off devices has been excessive.

In my present improvements I make use of swinging cut-offs pivoted upon the trunk or delivery-spout, and the pivots are located with reference to equalizing the power required to open and close the cut-offs. For example, if the pivots upon which the cut-offs swing were in line, or nearly so, with the outer edges of the spout the weight hanging upon the cut-offs would tend to swing them open and less power would be required to open them than to close them, and, in addition to this, positive securing devices would be required to prevent the cut-offs swinging by the action of the weight resting upon them. Upon the other hand, if the pivots upon which the cut-offs swing were located nearer together and over the inner edges of the cut-offs that come together the power required to open the cut-offs would be much greater than that required to close them.

Having in mind the object to be accomplished of arranging the cut-offs so that they can be moved toward each other for closing the spout and cutting off the material or moved away from each other for opening the spout by the expenditure of about the same amount of power in either movement, I pivot the cut-off devices at a place between the two extremes before mentioned, and I find that the power is more nearly equalized by pivoting the cut-offs above and a little farther out than the centers of the surfaces upon which the coal or other material rests, and I make the cut-offs as segments of cylinders, as shown, so that they can be moved with less power

than would be required if such cut offs were substantially flat.

In the drawings, Figure 1 is an elevation showing the lower end or delivery-spout with the cut-off open, and Fig. 2 is a sectional view with the cut-off closed.

The spout or chute A is to be of any desired size or shape. I have represented the same as at the lower portion of the hopper-shaped trunk B, which is at the bottom of a pocket, bin, or hopper containing the material that is to be delivered from the chute, and I have represented flanges 2, by which the trunk and spout or chute are to be supported by connections to suitable framework or timbers carrying the hopper or other inclosure containing the coal, ore, or other material.

The cut-off sections C and C' are pivoted at 3 upon the chute or spout A, such cut-off sections having ends that pass up outside the spout or chute, and I remark that the configuration of the lower end of the spout or chute is advantageously rectangular; but I do not limit myself in this particular.

It will be observed that the inner edges of the cut-off sections C C' come together as the sections are closed in opposite directions, and that when swinging apart both cut-off sections are to be moved simultaneously, so that the opening whether wider or narrower between the inner edges of the cut-off sections will be substantially central to the spout or hopper.

The links D D' are advantageously pivoted to the ends of the cut-off sections and also to the lever E, which is pivoted at 4 upon the chute A, and by moving the outer end of this lever E into the position shown by dotted lines in Fig. 2 the cut-off sections will be drawn toward each other and finally closed, and when swung in the opposite direction the lever E will move the cut-off sections away from each other and allow the free discharge of the material from the hopper or other containing device, as shown by full lines in Fig. 1.

In consequence of pivoting the cut-off devices at a little distance outside of a plane passing vertically above the center of each cut-off section the preponderance of weight will be upon the inner part of each cut-off and will tend to swing the cut-off open; but the friction of the material upon the upper

surface of the cut-off will be sufficient to prevent motion taking place, and when the two cut-off sections are moved toward each other the discharge of the material is gradually
 5 stopped and the material resting upon the top of the cut-off sections and adjacent to the inner sides of the hopper or trunk remains stationary, and this stationary portion of the material is wider in an upward direction and
 10 eventually forms a mass of stationary material similar to an arch, while the material which is beneath the arch is running out between the two cut-offs as they are closed toward each other. By this arrangement the
 15 flow of the material downwardly in the hopper or spout is arrested before the edges of the cut-offs come together, and for this reason the material falling away from between the moving edges and there being little or no
 20 pressure above those edges the cut-offs can be moved toward each other easily and brought directly into contact to entirely close the further discharge of the coal or other material, and of course such coal or other material may
 25 gradually subside and rest upon the top surfaces of the cut-offs after they have been entirely closed, and I find that by properly positioning the pivots 3 the power exerted in closing the cut-offs can be made the same, or
 30 nearly the same, as that exerted in opening such cut-offs, and by this means the action of the apparatus is rendered as nearly uniform as possible and undue strain upon any portion is entirely avoided.

35 In consequence of making the cut-offs as

sections of cylinders described from the pivots on which they swing, or nearly so, there is no lifting action on the material in closing and the cut-offs can be moved in either direction with but little power, there being only
 40 the friction due to the sliding of the cut-offs when in contact with the stationary material.

I claim as my invention—

1. The combination with a stationary delivery spout or chute having an open lower
 45 end, of two cut-off sections formed as segments of cylinders, pivots above such sections and upon which they swing, said pivots being near the centers of the cylinder segments and
 50 located nearly above the center portion of each cut-off section when closed and means for opening and closing such cut-off sections, substantially as and for the purposes set forth.

2. The combination with a stationary delivery spout or chute having an open lower
 55 end, of two cut-off sections formed as segments of cylinders, stationary pivots above the middle portions of such cut-off sections when closed and near the centers from which
 60 such cylinder segments are described, a lever, and connections for swinging the cut-off sections upon their pivots in opposite directions, substantially as set forth.

Signed by me this 25th day of March, 1895. 65

CHAS. W. HUNT.

Witnesses:

ALFRED A. REED,
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