J. ROSS.

ORE CHUTE.

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899,076. Patented Sept. 22, 1908.

Fig. 1.

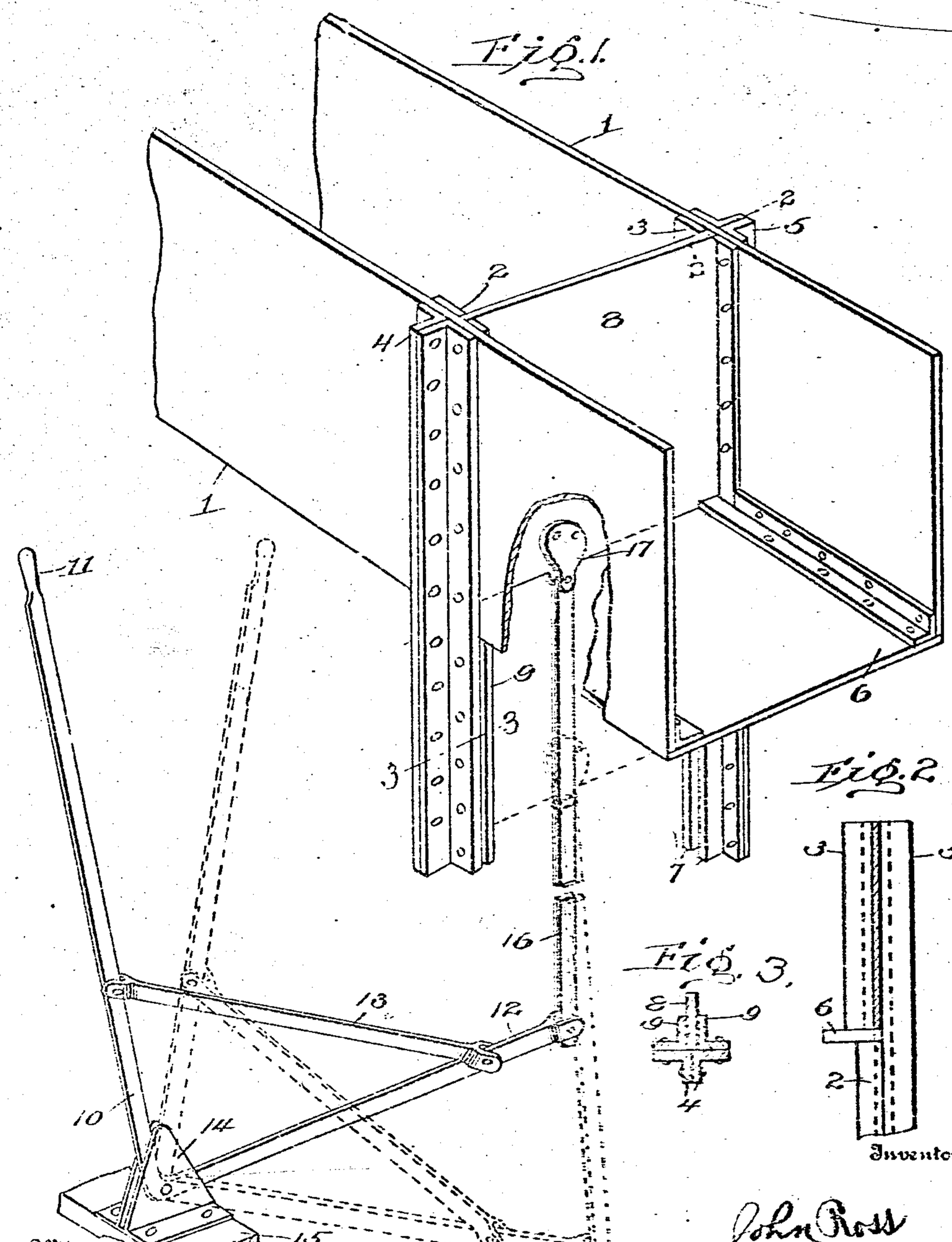


Fig. 2.




Fig. 3.




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# UNITED STATES PATENT OFFICE.

JOHN ROSS, OF LANDLOCK, DISTRICT OF ALASKA.

## ORE-CHUTE.

No. 899,076. Specification of Letters Patent. Patented Sept. 22, 1908.

Application filed January 2, 1908. Serial No. 409,023.

*To all whom it may concern:*

Be it known that I, JOHN ROSS, a citizen of the United States, residing at Landlock, in the District of Alaska, have invented certain new and useful Improvements in Ore-Chutes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in chutes and mechanism for regulating the action thereof and particularly to chutes designed to convey material in bulk as crushed ore, sand and the like.

The invention comprises the provision of a chute formed near the lower end thereof with guiding means for accommodating a gate together with a lever and connecting mechanism for operating the gate or door for regulating the flow of material through the chute.

The invention further comprises the provision of a chute formed with ways secured to the walls thereof and bracing means for holding said ways rigidly in position together with auxiliary ways for forming an extension to the first mentioned way so that a gate or door moving in the said ways may be entirely removed from the chute.

The object in view is the provision of a chute formed with means for permitting loose material in bulk to pass through the chute or to shut off same as may be desired without moving the position of the chute.

Another object in view is the provision of a chute formed with guide ways and lever mechanism for moving a gate across said chute or for removing a gate or door from across the chute as may be desired.

With these and other objects in view the invention comprises certain constructions, combination and arrangement of parts that will be hereinafter more fully described and explained.

In the accompanying drawings: Figure 1 is a perspective fragmentary view of a chute with my invention secured thereto. Fig. 2 is a fragmentary sectional view on line 2—2 of Fig. 1. Fig. 3 is a section through one of the guiding and reinforcing means forming part of the present invention the same being taken approximately on line 3—3 of Fig. 1.

In the use of chutes it has been found desirable to provide a door for stopping temporarily the flow of material through the chute. Various means have been provided for operating the door quickly and as often as desired. It is more particularly to the class of invention in which the door may be operated as often as desired and at the exact time desired that the present invention relates.

Referring more particularly to the drawing, 1 indicates a chute of any desired kind having ways 2 and 3 positioned therein preferably near the lower end thereof. The chute 1 may be of any desired kind but is preferably constructed strongly so as to more thoroughly sustain the weight placed thereon and accomplish the work designed for the same. Opposite to ways 2 and 3 are reinforcing members 4 and 5 respectively that brace the sides of chute 1 and also assist in placing and holding in correct position ways 2 and 3. Preferably the rivets or bolts holding reinforcing and bearing members 4 and 5 in place pass through the sides of chute 1 and through ways 2 and 3. The ways 2 and 3 are preferably made of flat iron of any desired size as clearly seen in Figs. 1 and 3 and members 4 and 5 are also formed of angle irons designed to be riveted or bolted together. The irons forming way 3 extend down to engage the floor or bottom 6 of the chute 1. The reinforcing member 5 as clearly seen in Fig. 2 extends beyond bottom 6 to any desired distance and has secured thereto angle irons 7 that form a continuation of way 3, a slot being cut in bottom 6 for permitting a continuous way to be formed for door or slide 8 to operate in. Way 2 is constructed similar to way 3 and has, as an extension, angle irons 9 that form a continuation of way 2. Brace or reinforcing member 4, as clearly seen in Fig. 1, extends down any desired distance for reinforcing and holding in position angle irons 9 forming an extension of way 2. Door 8 is designed to slide in ways 2 and 3 and their extensions so as to be positioned across the chute 1 and prevent the flow of any material therethrough or be moved to a position in the extended ways 2 and 3 formed by angular irons 7 and 9. By this construction door 8 is permitted a vertical movement or a movement directly across the chute so that when it is desired to close off the flow of material through the chute all that is necessary is to force upward gate or door 8 to the position shown in Fig. 1. The provision of a sliding door entering from the bottom of the chute is an advantage over doors that are pivot-

ally swung across the chute or forced downwardly into the chute as the resistance to the movement of the door decreases as it moves to the position shown in Fig. 1. If a slide is forced down from above the material would have to be forced aside by the door as it neared the bottom rather than simply stopping the flow of the material as it does when it enters from the bottom and passes upward.

In order to provide means for easily moving door 8 to an entirely closed position as shown in Fig. 1, a partially closed position, or an entirely open position as shown in dotted lines in Fig. 1, a lever mechanism is provided. Various lever mechanism may be provided within the spirit of the invention but in order to disclose one form of the invention I have shown a lever 10 that is formed of a bar bent substantially at right-angles. After bending the bar is formed with what may be termed a handle 11 and a lever 12. The handle 11 and lever 12 are connected by a link 13 for preventing the lever or member 12 to be moved out of its correct position in relation to handle 11. The lever 10 is pivotally mounted in a fulcrum or journal member 14 that in turn is mounted in any desired kind of support 15. Pivotally secured to the outer end of lever 12 is a connecting rod or link 16 that in turn is pivotally secured to door 8 by journal member 17.

When it is desired to open door 8 the handle 11 is forced over to the position shown in dotted lines in Fig. 1 and as a result link 16 is pulled downward, consequently door 8 is moved in ways 2 and 3 until it has left the chute 1 entirely free for the passage of material therethrough. When it is again desired to close or partially close door 8 handle 11 is pulled back to the position shown in full lines in Fig. 1 or to any intermediate position and door 8 will be moved according to either a full closed position or a partially closed position.

What I claim is:

1. In a chute, the combination with a chute proper, having side walls and a bottom section, of ways positioned interiorly on said walls, angle irons positioned exteriorly on said walls forming a bracing thereof and a vertical extension for said ways, a chute section extending away from said ways provided with an opening in its bottom portion in line with said ways, a gate slidably mounted in said ways, a link pivotally connected with said gate, a lever pivotally engaging said link, and independent means for supporting said lever.

2. In a chute having side walls and a bottom section, ways vertically positioned on said side walls and away from the end of said chute, downwardly extending braces formed of angle bars exteriorly positioned on said side walls and forming an extension for said ways, a gate slidably mounted in said ways, a link pivotally secured to said gate, and a lever independently supported and pivotally connected to said link for operating said gate.

3. In a device of the character described, a chute, guide ways formed therein, reinforcing members, auxiliary guide ways secured to said reinforcing members and forming an extension of said first mentioned guide ways, a door designed to operate in said guide ways, and means for operating said door.

4. In a chute having side walls and a bottom section provided with an opening away from the end thereof, ways interiorly positioned on said side walls in line with said bottom opening, braces exteriorly positioned on said side walls and forming downward extensions for said ways, a door adapted to slide in said ways, and means connected to said door for moving the same.

5. In a chute having side walls and a bottom section provided with an opening positioned a short distance from the end thereof, ways vertically positioned on said side walls, braces forming a downward extension for said ways, a gate slidable in said ways, an inclined discharge section extending away from said ways, a link pivotally mounted on said gate, an independently supported L shaped lever operatively connected to said link and adapted to downwardly withdraw said gate from said chute.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN ROSS.

Witnesses:
A. DAHLSTRIM,
J. H. MURRAY.