

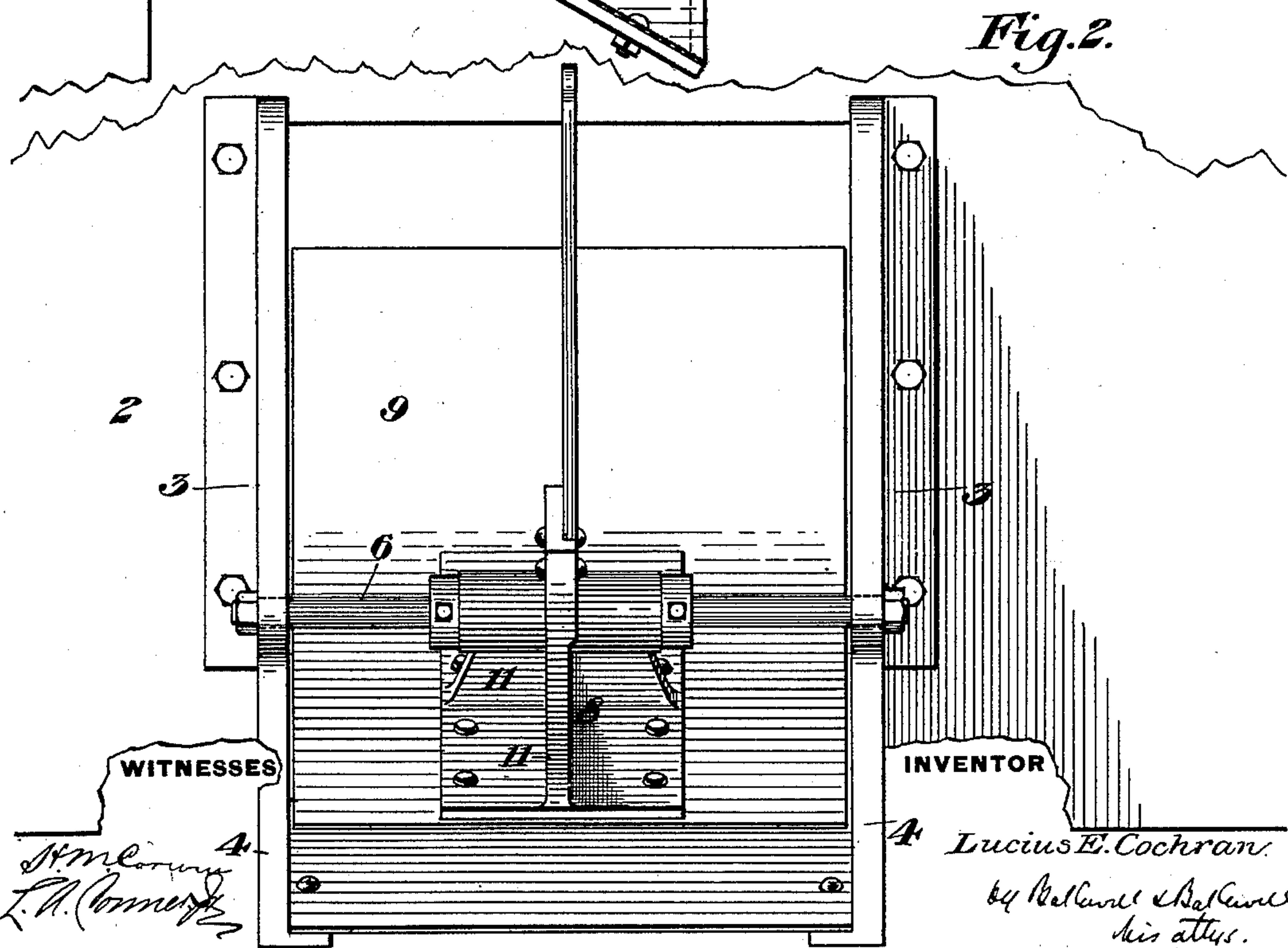
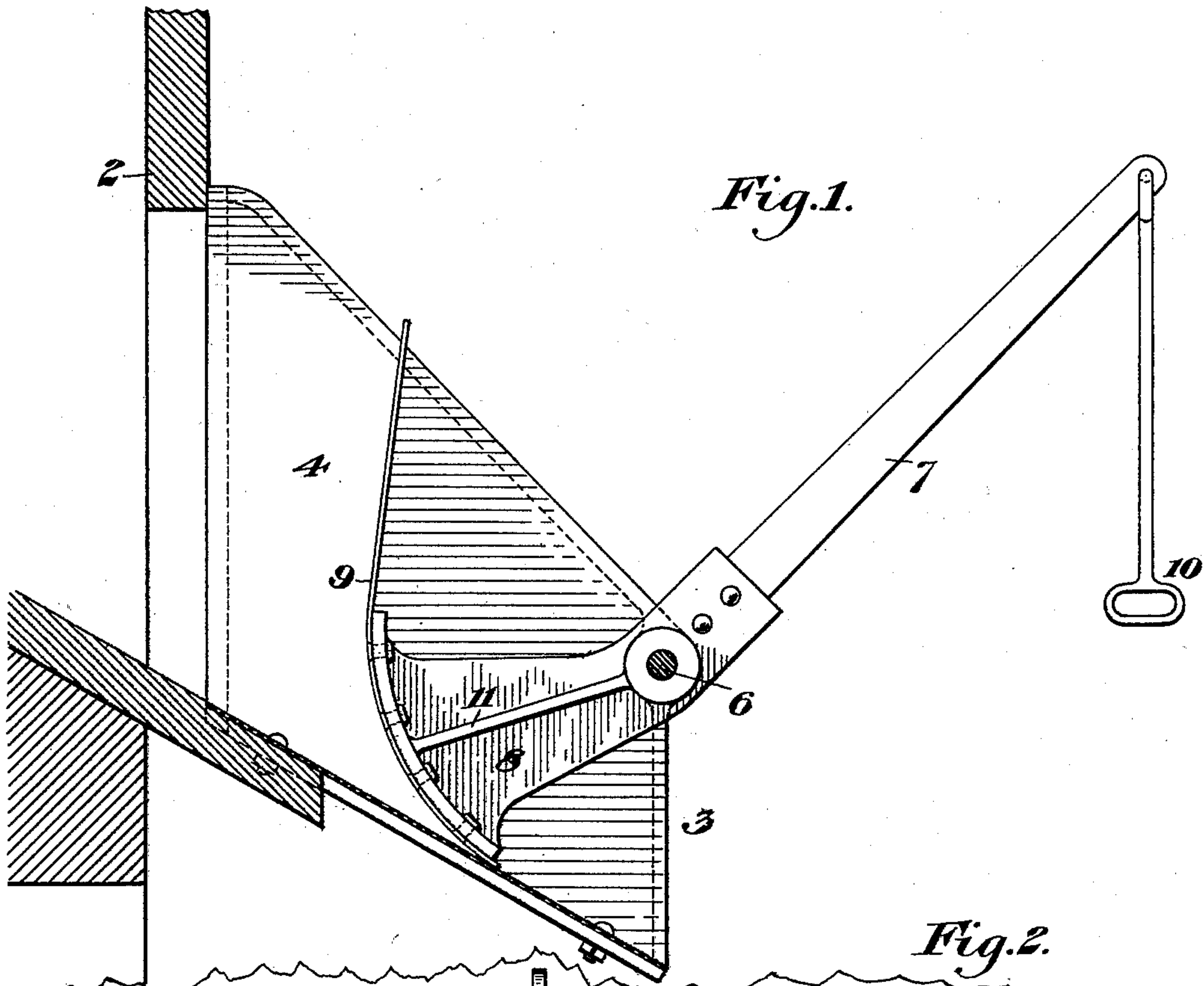
No. 613,026.

Patented Oct. 25, 1898.

L. E. COCHRAN.  
CHUTE FOR BINS.

(Application filed Aug. 30, 1898.)

(No Model.)



WITNESSES

*H. McCombs*  
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INVENTOR

*Lucius E. Cochran*  
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*his attys.*

# UNITED STATES PATENT OFFICE.

LUCIUS E. COCHRAN, OF YOUNGSTOWN, OHIO.

## CHUTE FOR BINS.

SPECIFICATION forming part of Letters Patent No. 613,026, dated October 25, 1898.

Application filed August 30, 1898. Serial No. 689,820. (No model.)

*To all whom it may concern:*

Be it known that I, LUCIUS E. COCHRAN, of Youngstown, in the county of Mahoning and State of Ohio, have invented a new and useful Improvement in Chutes for Bins, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

10 Figure 1 is a vertical longitudinal section showing my improved chute in place, and Fig. 2 a front elevation of the same.

My invention relates to the discharge-chutes employed in connection with bins, and more especially those employed for stock-bins in connection with blast-furnaces, and is designed to provide an improved gate or shut-off plate for these chutes, by which the flow of the material may be more easily controlled and the gate be made less liable to injury in opening or closing.

In the drawings, 2 represents the side of a bin to which is secured the inclined chute 3. Connecting sides 4 of this chute is a shaft 6, which also acts as a stay for these sides, and to the center of this shaft is loosely pivoted a lever 7, the inner arm 8 of which is provided with an eccentric shut-off plate or gate 9. As clearly shown in Fig. 1, this plate is curved eccentrically to the axis of the lever, so that when it moves upwardly in opening the chute it clears itself from the material, and on account of the relief from pressure may be easily opened. In closing the gate the material itself acting upon the curved eccentric surface tends to keep it closed. The outer end of the lever is provided with

a depending link 10, having a handle at its lower end by which the gate may be operated. The inner arm of the lever may be provided with strengthening-ribs 11 or any suitable braces to withstand the pressure of the material.

The advantages of my invention will be apparent to those skilled in the art, since a gate or door is thus provided which may be easily opened and which the material itself tends to keep shut when it is closed.

Many variations may be made in the form of the chute and the gate without departing from my invention.

I claim—

1. The combination with a chute, of a swinging gate arranged to move across the same, said gate having a curved face eccentric to its axis; substantially as described.

2. The combination with an inclined chute, of a shut-off plate swinging upon a horizontal axis therein, said plate having a curved face eccentric to the said axis; substantially as described.

3. The combination with a chute, of a transverse shaft extending between its sides, a lever pivoted upon the shaft, and a curved plate secured to the inner end of the lever and having a curved face eccentric to the axis; substantially as described.

In testimony whereof I have hereunto set my hand.

LUCIUS E. COCHRAN.

Witnesses:

HORACE P. NEEDY,  
T. E. BENSON.