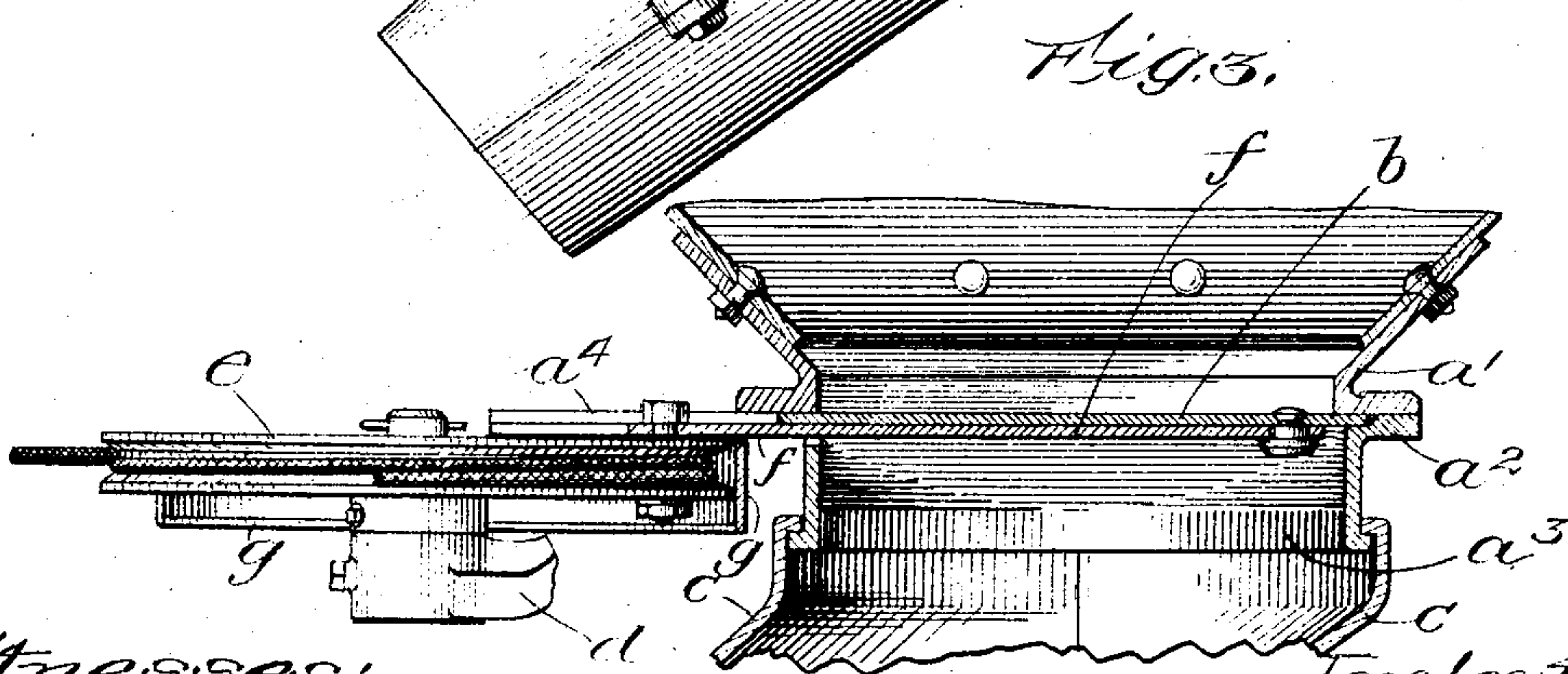
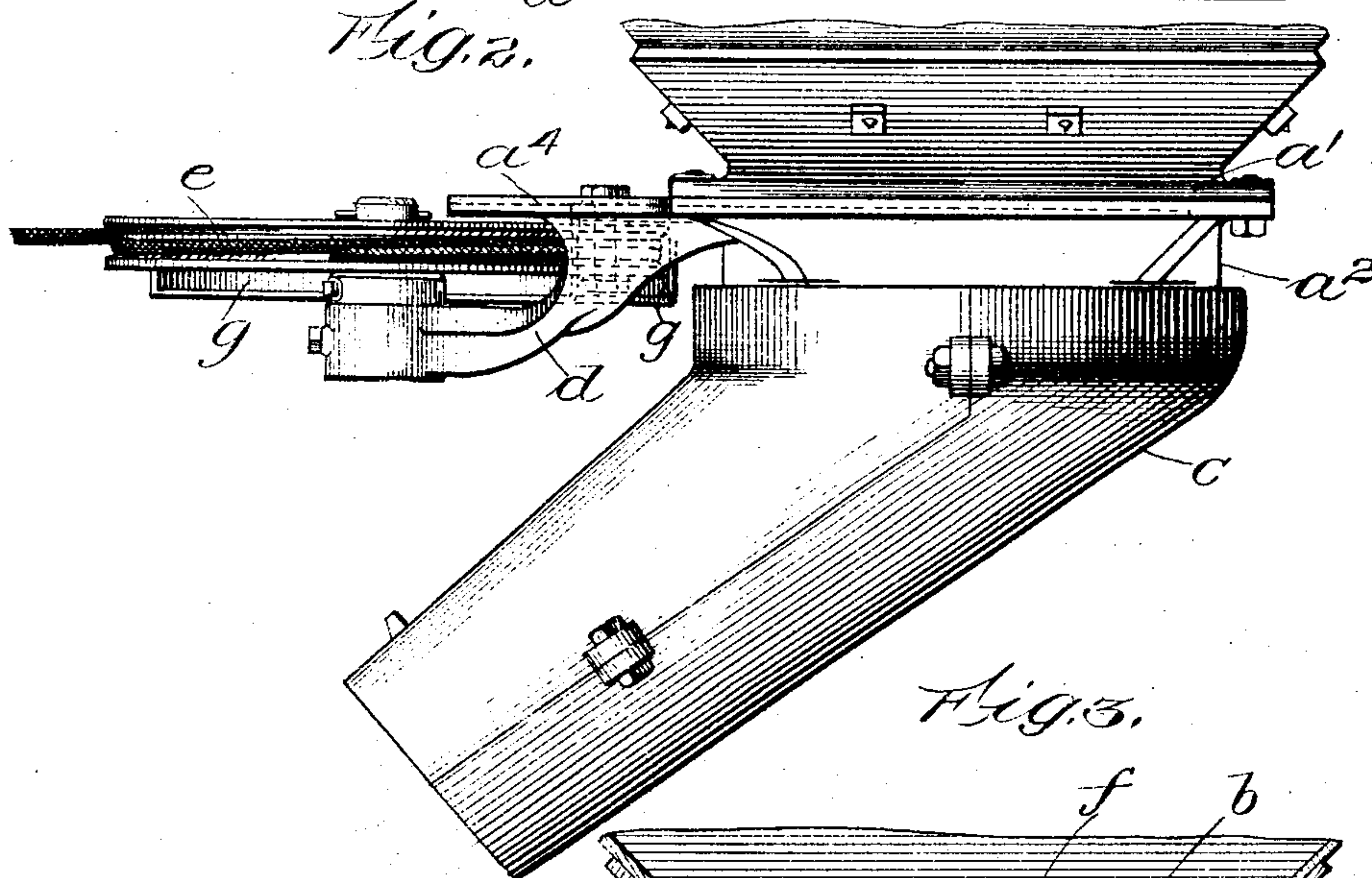
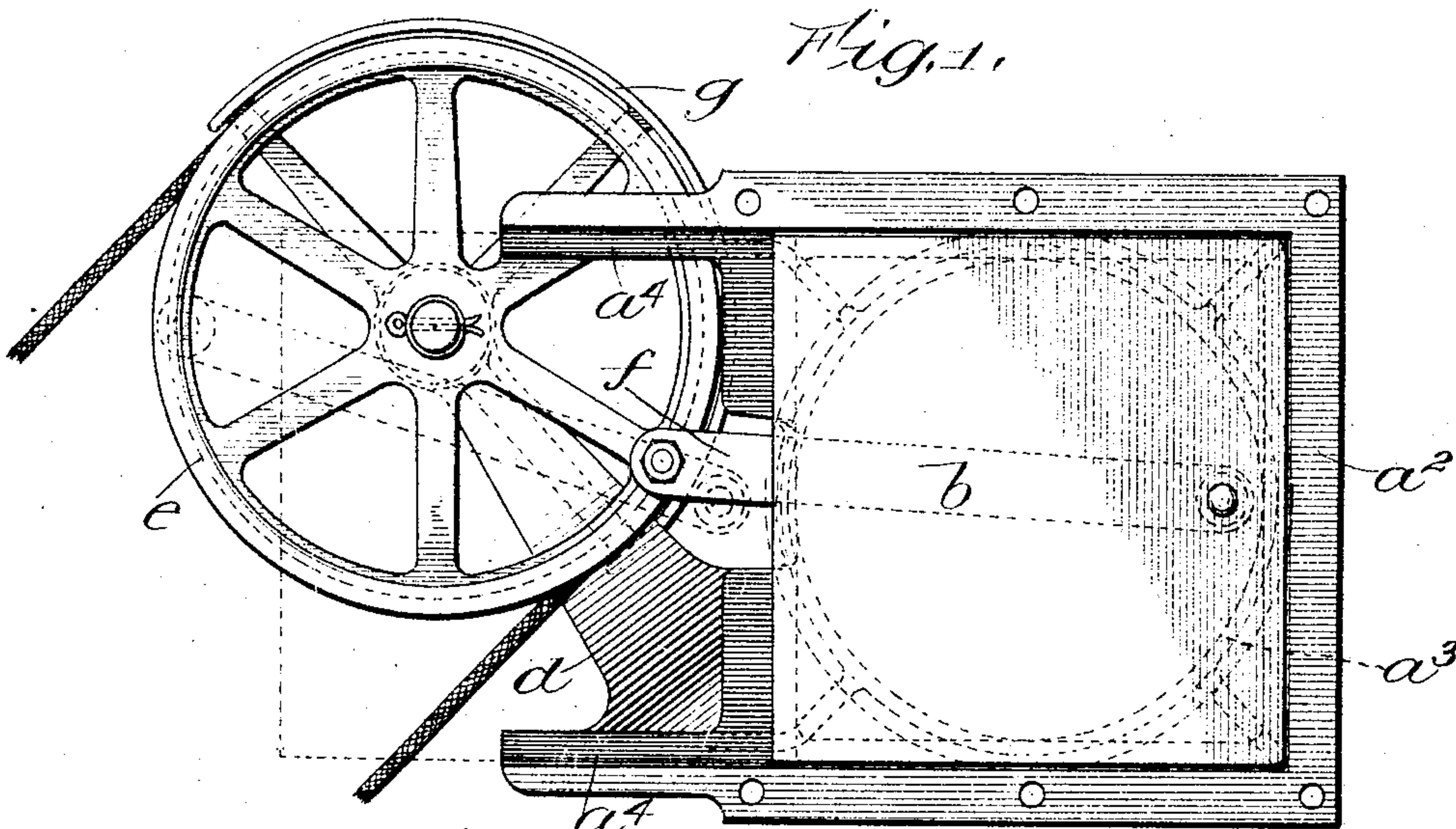


No. 771,918.

PATENTED OCT. 11, 1904.

E. A. MUNN.
GATE MECHANISM.
APPLICATION FILED MAY 21, 1904.

NO MODEL.



Witnesses:
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UNITED STATES PATENT OFFICE.

EDWARD A. MUNN, OF CHICAGO, ILLINOIS.

GATE MECHANISM.

SPECIFICATION forming part of Letters Patent No. 771,918, dated October 11, 1904.

Application filed May 21, 1904. Serial No. 209,128. (No model.)

To all whom it may concern:

Be it known that I, EDWARD A. MUNN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Gate Mechanism, of which the following is a full, clear, concise, and exact description.

My invention relates to a gate mechanism for controlling the passage of grain or the like through a hopper or chute, and is especially adapted for use in connection with the hopper-bottoms of grain-bins.

Gate mechanisms heretofore devised for grain-bin hoppers have often been objectionable on account of the vertical space which they occupy, this in turn making necessary an increase in height of the whole building in order to get sufficient incline or drop for the spouts through which the grain is discharged. Other objections have been their liability to stick and the great amount of power which is required to close them. Furthermore, such devices if efficient for their intended purpose have generally been bulky and have involved considerable mechanism.

My invention is directed toward an improved simple device which will be very compact, strong, easy to attach, easy to operate, and not likely to get out of order.

I will describe the preferred form of my invention particularly by reference to the accompanying drawings, and the parts, improvements, or combinations which I regard as novel will be pointed out in the appended claims.

Figure 1 is a plan view of my improved gate mechanism; and Fig. 2 is a side elevation thereof, showing also a portion of the hopper-bottom and a portion of the discharge-spout. Fig. 3 is a vertical sectional view.

The same letters of reference are used to designate the same parts in all figures of the drawings.

The whole mechanism of my device may be carried by a main frame, which is preferably formed of two castings a' a'' , bolted together, as shown, with the gate b arranged to slide to and fro across the frame in horizontal guide-ways or grooves formed where the upper and

lower castings meet. The lower casting a'' carries lateral extensions or guides a^4 a^4 , which are adapted to support the sliding gate b when the same is in its open position. The lower casting a'' is also formed with an annular mouthpiece a^3 , having a flaring lip adapted to fit the upper end of the discharge-spout c , which is arranged to swing around the same as a pivot to discharge the grain at any desired angle. The upper casting a' of the supporting-frame is formed with a flaring mouth or hopper adapted to fit the bottom of the hopper and to be bolted or riveted thereto.

A bracket d extends laterally from the main frame in position to support an operating-wheel e , pivoted thereon to rotate horizontally in a plane close to the plane of the sliding gate. This bracket is preferably a part of the lower casting a'' , and the pivotal axis of the operating-wheel is preferably placed, as shown, a little to one side of the center line of the frame. A link f connects the operating-wheel with the sliding gate to cause said gate to slide longitudinally in its guideways as the wheel is rotated. Preferably the connecting-link is pivoted at one end to the under side of the gate b , near the rear thereof, and at the other end to the upper surface of the rim of the wheel. The pivoting of the connecting-link to the gate at a point near the rear thereof makes it possible to have the operating-wheel very close to the frame without sacrificing a wide range of movement of the gate. Preferably the operating-wheel is in the form of a flanged pulley with a rope or cable passed around the same, so that it may be operated conveniently from a distance. This rope may be led to any desired point which will be convenient for the operation of the gate, according to circumstances. It will be observed that the wheel and link act as toggle-levers, so that slight power applied to the operating-wheel will exert great pressure upon the gate, the leverage increasing as the gate approaches its closed position. This feature is especially advantageous, since the greatest resistance to the closing of the gate is offered toward the end of its travel. An adjustable rope-guard g may be provided, as shown, to keep the rope in engagement with the wheel.

I claim—

1. A gate attachment for hoppers comprising a framework having a flaring mouth at the top adapted to fit the bottom of the hopper, a
5 gate arranged to slide to and fro across said frame in horizontal guides, said guides projecting laterally to support said gate in its open position, a bracket projecting laterally from said frame in the direction of said guides,
10 an operating-wheel pivoted to said bracket to rotate in a horizontal plane close to the plane of movement of the gate, a connecting-link pivotally connected at one end to said wheel and at the other end to said gate; and a mouth-
15 piece formed upon said frame below the gate, adapted to fit a discharge pipe or spout for the hopper, substantially as set forth.

2. The combination with a hopper, of a gate-frame secured to the bottom thereof, a gate
20 arranged to slide horizontally in said frame across the mouth of the hopper, a bracket projecting laterally from said frame, an operating-wheel mounted to rotate in a horizontal plane upon said bracket, and a connecting-
25 link pivoted at one end to said wheel and at the other end to said gate near the rear end of the same.

3. The combination with a hopper, of a gate arranged to slide to and fro across the mouth thereof, a pulley-wheel mounted to rotate in
30 a horizontal plane slightly below the plane of said sliding gate, a bracket supporting said wheel on the under side thereof, a connecting-link pivoted at one end to the upper surface of said wheel and at the other end to the lower
35 surface of said slide, near the rear end thereof, and an operating-rope passing around said pulley-wheel, substantially as set forth.

4. The combination with a gate-frame and a gate mounted to slide to and fro therein, of
40 a bracket carried by said frame, an operating pulley-wheel pivoted to said bracket to rotate in a plane parallel to the plane of said gate, a link pivotally connected at one end to said wheel and at the other end to said gate, and
45 an operating-rope passing around said wheel and led to a distant point, as described.

In witness whereof I hereunto subscribe my name this 17th day of May, A. D. 1904.

EDWARD A. MUNN.

Witnesses:

DE WITT C. TANNER,
W. W. LEACH.