A. L. LOGAN.

HOPPER DOOR OPERATING DEVICE.

APPLICATION FILED OCT. 16, 1913.

1,103,523.

Patented July 14, 1914.

2 SHEETS—SHEET 1.

Fig. 1.

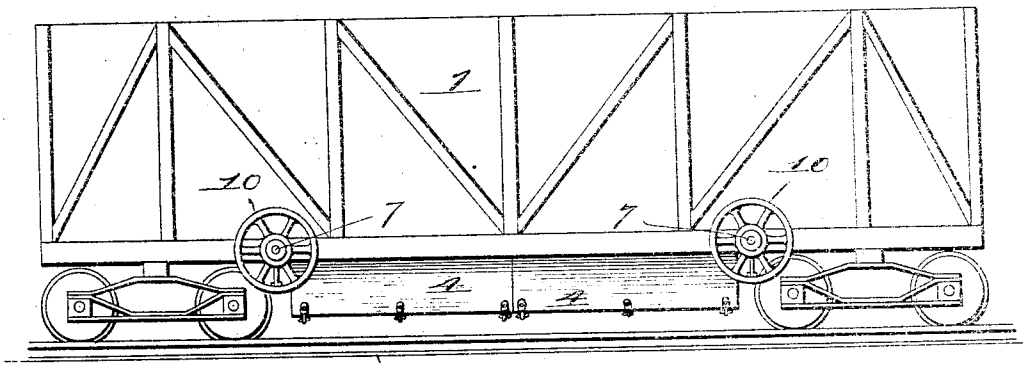


Fig. 4.

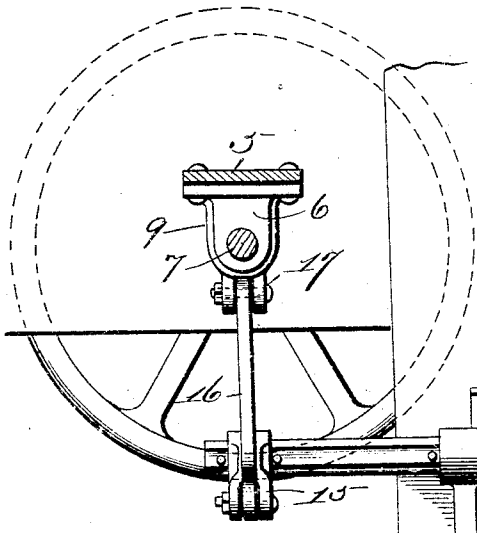
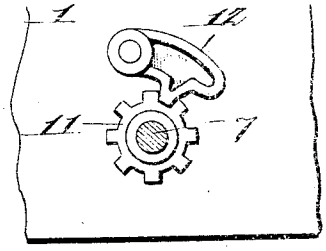


Fig. 5.



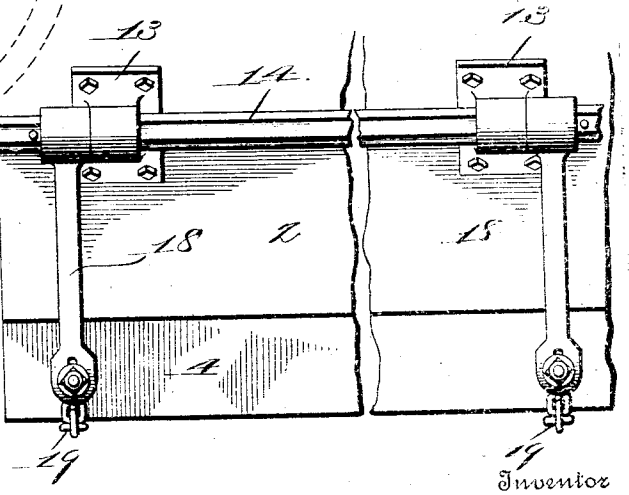
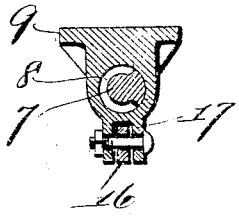


Fig. 6.



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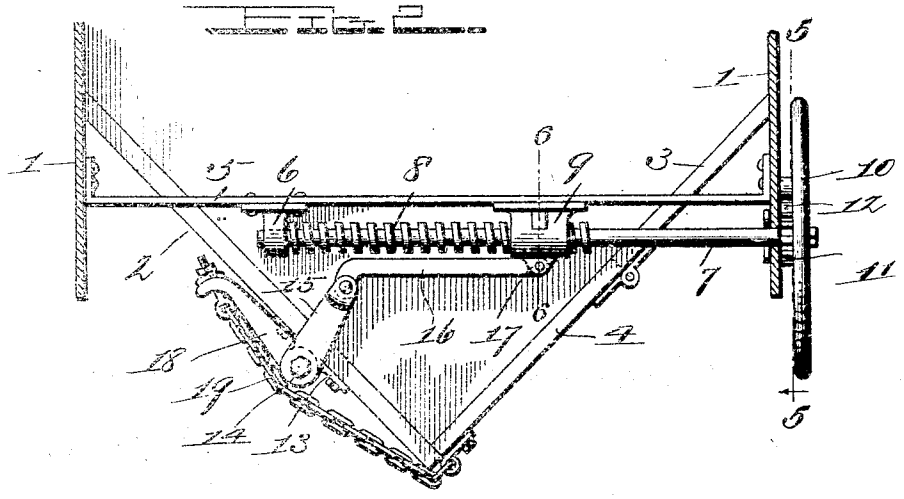
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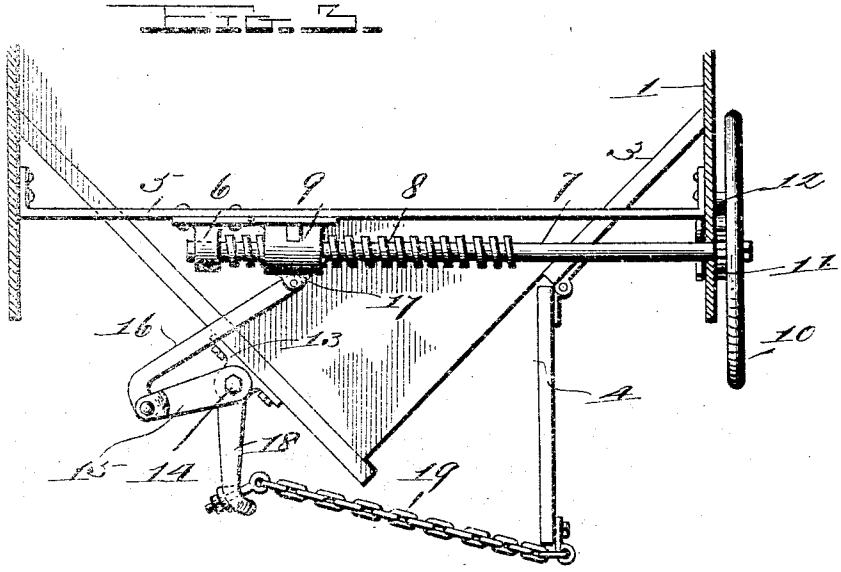
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2 SHEETS—SHEET 2.





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UNITED STATES PATENT OFFICE.

ALTON L. LOGAN, OF EDWARDSVILLE, ILLINOIS.

HOPPER-DOOR-OPERATING DEVICE.

1,103,523. Specification of Letters Patent. **Patented July 14, 1914.**

Application filed October 16, 1913. Serial No. 795,404.

To all whom it may concern:

Be it known that I, ALTON L. LOGAN, a citizen of the United States, residing at Edwardsville, in the county of Madison and State of Illinois, have invented a new and useful Improvement in Hopper-Door-Operating Devices, of which the following is a specification.

This invention relates to an operating mechanism for car hoppers and is especially adapted for that type of car having a side door discharge, and in which one inclined side of the hopper is stationary, the opposite side being hinged and movable.

The invention consists in the novel features of construction hereinafter described, pointed out in the claims, and shown in the accompanying drawings, in which,

Figure 1 is a side elevation of a car with my device applied thereto. Fig. 2 is an end view of the hopper with my device applied thereto, the sides of the car being in section, and the hopper door being in closed position. Fig. 3 is a similar view the door being in open position. Fig. 4 is an enlarged side elevation of an end portion of the hopper partly broken out, a guide-bracket being in section, said view looking from beneath the car toward the side carrying the hand-operating wheel. Fig. 5 is a section on the line 5—5 of Fig. 2. Fig. 6 is a section on the line 6—6 of Fig. 2.

In these drawings, 1 represents a car having a hopper which comprises a downwardly and inwardly inclined fixed side 2 and a downwardly and inwardly inclined side 3 formed in longitudinal sections, the lower section 4 being hinged and adapted to swing downwardly and outwardly. One, two or more of these hoppers may be carried by each car, according to the length of the car, and in Fig. 1 I have shown a car provided with two of said hoppers, and in such case my operating device is arranged in duplicate adjacent each end of the car. Where a car carries but one of such hoppers only one set of operating parts is required and as these parts are duplicated in such a car as is shown in Fig. 1 a description of the operating means for one hopper will suffice for both.

As will be noted from Figs. 2 and 3, the sides of the car or any other suitable portion of the car supports adjacent the hopper in a transversely arranged guide bar 5, and upon the underside of said guide bar is fixed a bracket 6 which forms a bearing for the inner end of an operating shaft 7 provided with a screw portion 8. Upon this portion 8 works a thread block 9 the upper face of which is broadened and flattened to bear upon the underside of the guide bar, said block sliding along said bar upon rotation of the shaft 7. The upper end portion of the shaft is journaled in the side of the car and its outwardly projecting end carries an operating wheel 10 and a ratchet 11, said ratchet being engaged by a gravity pawl or lock 12 suitably pivoted upon the outer face of the car. Upon the outer face of the hopper side 2, I arrange any desired number of bearings 13, in which I journal a shaft 14, said shaft projects slightly beyond an end of the hopper and the projecting end carries an arm 15 fixed upon the shaft to which is pivoted an angled end of a link 16, the opposite end of the link being pivotally connected to suitable lugs or ears 17 formed upon the block 9. Mounted at suitable intervals upon the shaft 14 are depending arms 18. The lower ends of these arms have chains 19 connected to them, the chains being suitably anchored to the lower marginal portion of the swinging door section 4.

It will be obvious from Figs. 2 and 3 that when the hand wheel 10 is rotated so as to turn the shaft 7 in one direction the block 9 will move from the position shown in Fig. 2 to the position shown in Fig. 3 carrying a pivoted end of the link 16 with it.

This will rock the shaft 14 causing the arms 18 to swing from the position shown in Fig. 2 to the depending position shown in Fig. 3 thereby permitting the door section 4 falling to open position by gravity. By reversing the direction of rotation the parts will move in opposite direction thereby lifting the door 4 into closed position, and the gravity pawl 12 will hold the shaft 7 against any accidental rotation.

What I claim is:—

1. The combination with a hopper having a swinging side section, of a transversely arranged operating shaft having a screw portion, a thread block working upon said screw portion, a second shaft at right angles to the first mentioned shaft, an arm fixed upon the second mentioned shaft, a link pivotally connecting said arm with said block, and chains operatively connected respectively to the swinging hopper section and to said second mentioned shaft.

2. A device of the kind described comprising a swinging door section, a shaft parallel thereto, arms fixed upon said shaft, chains connecting said arms to said door, a second shaft arranged at right angles to the first mentioned shaft, said second shaft having a screw portion, a threaded block adapted to travel along said portion, means for operating the shaft, an arm fixed upon the first mentioned shaft at an angle to the first mentioned arms, and means pivotally connecting said arm with said block, as and for the purpose set forth.

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