

No. 826,874.

PATENTED JULY 24, 1906.

S. OTIS.
DUMP CAR.

APPLICATION FILED MAR. 5, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

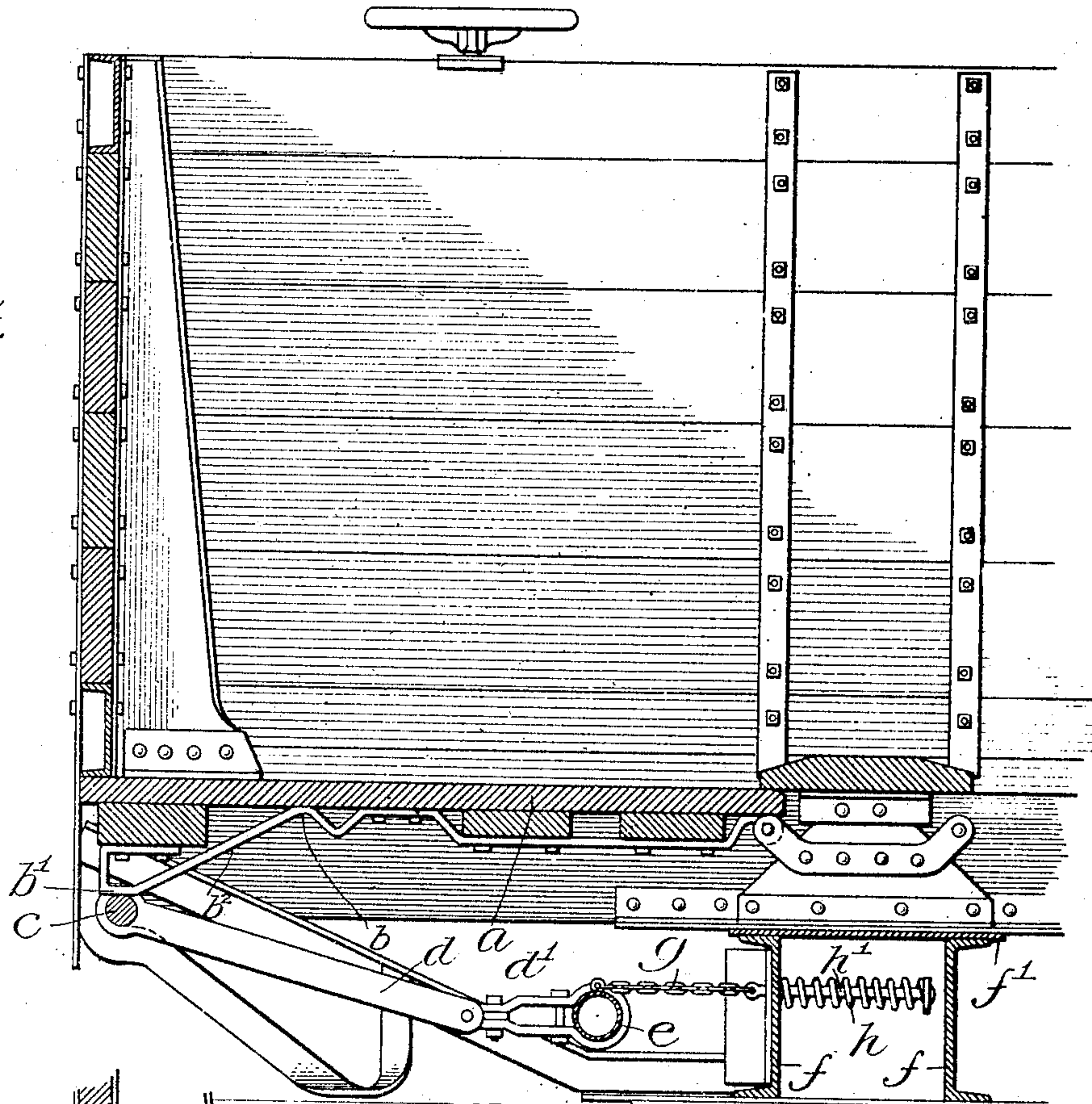
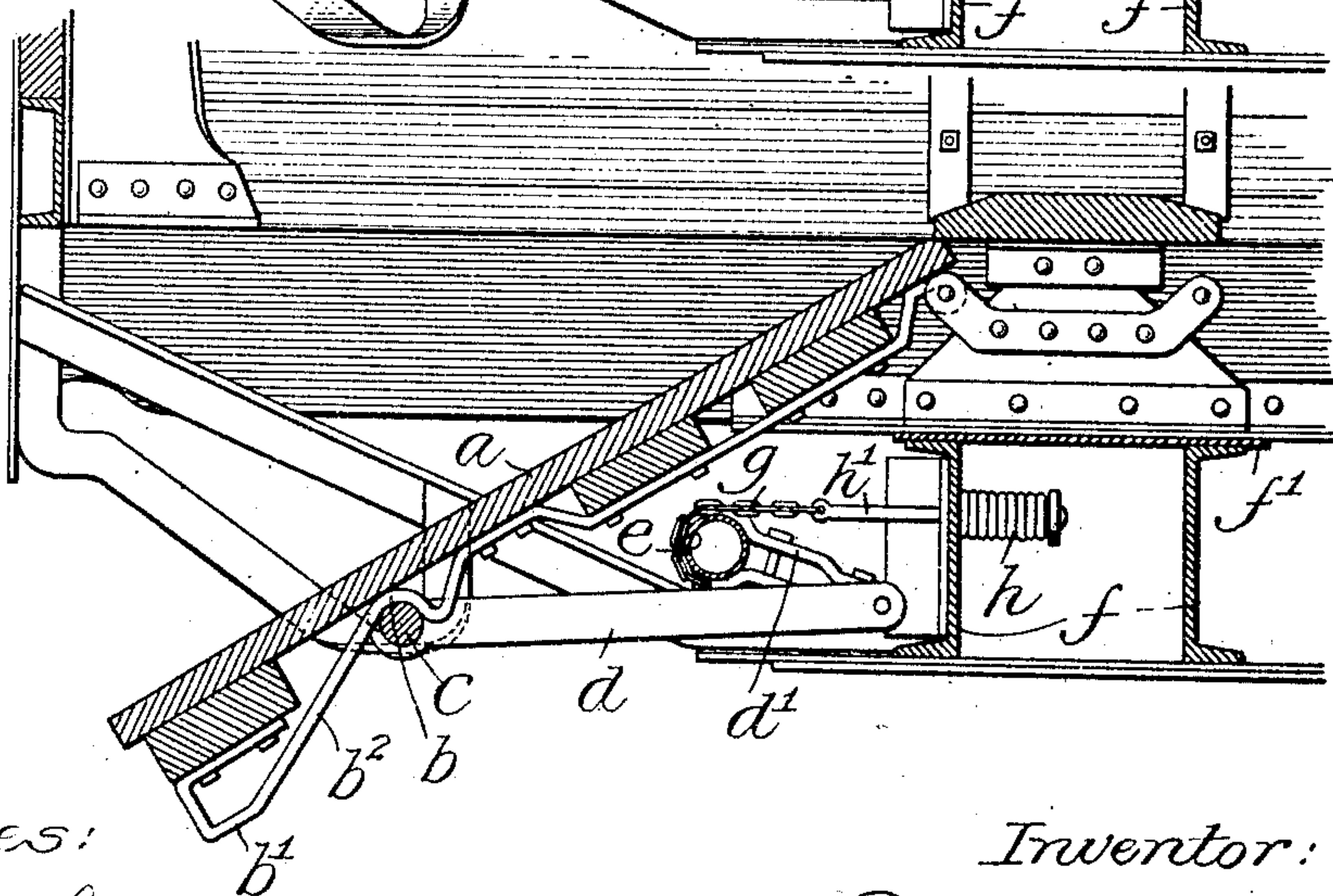


Fig. 2.



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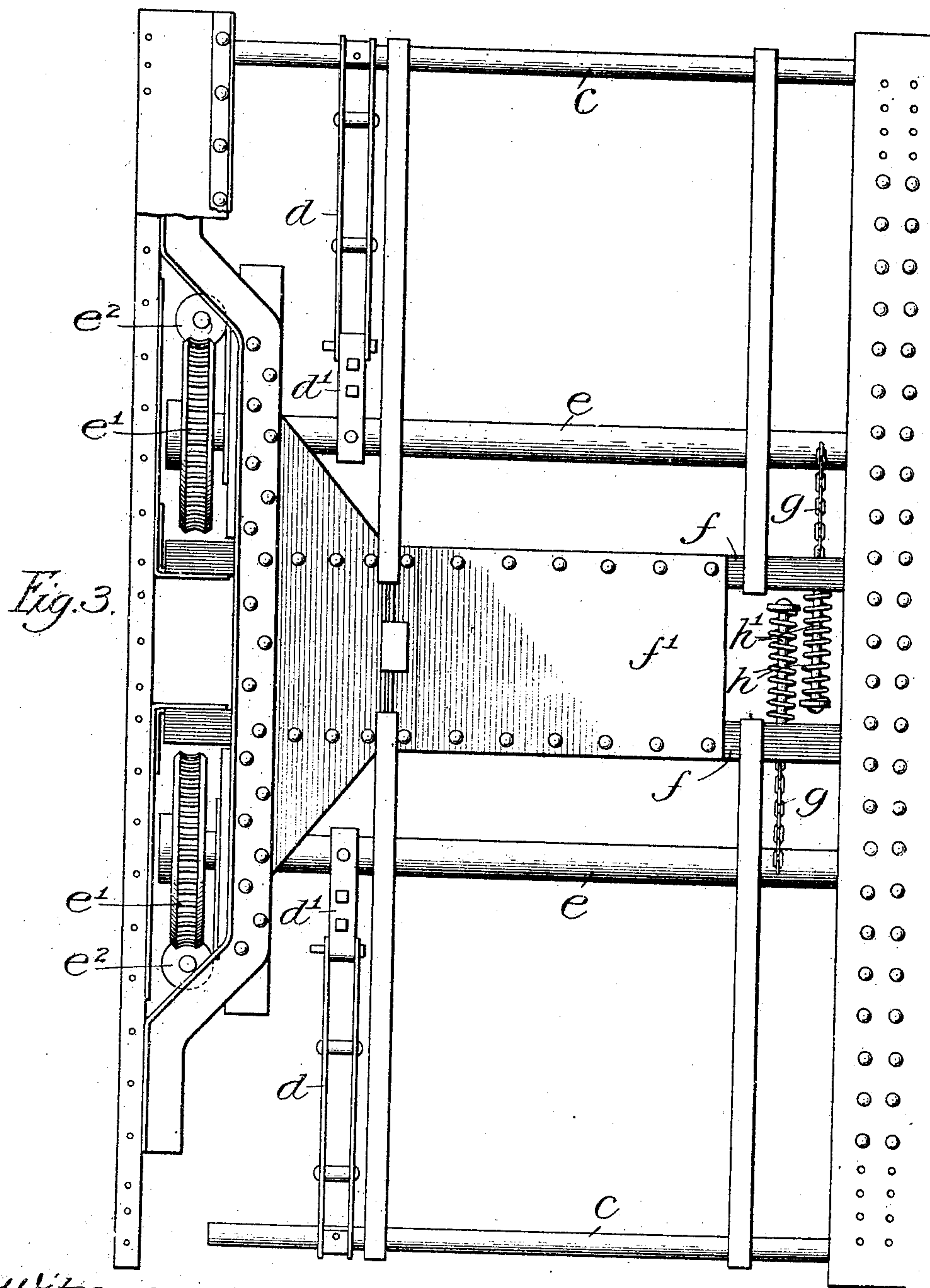
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2 SHEETS—SHEET 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

SPENCER OTIS, OF CHICAGO, ILLINOIS, ASSIGNOR TO NATIONAL DUMP CAR COMPANY, OF AUGUSTA, MAINE, A CORPORATION OF MAINE.

DUMP-CAR.

No. 826,874.

Specification of Letters Patent.

Patented July 24, 1906.

Application filed March 5, 1906. Serial No. 304,242.

To all whom it may concern:

Be it known that I, SPENCER OTIS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Dump-Cars, of which the following is a specification.

My invention relates to dump-cars having dumping-doors through which the load may be discharged, and has for its object to provide an improved mechanism for operating the doors.

My invention consists in the combinations and details hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a sectional elevation of a portion of a dump-car, showing my improved operating means, the door being in closed position. Fig. 2 is a sectional elevation of a portion of a dump-car, showing the dumping-door in open position. Fig. 3 is a plan view, certain parts being omitted to show the operating mechanism.

Referring to the drawings, *a* indicates a dumping-door forming part of the bottom of a dump-car. In the particular construction shown this dumping-door is hinged at its inner end to the center sill of the car.

b is a track for the lower face of the dumping-door, and *c* is a bar movable longitudinally of the door to open and close the door. This bar is connected to an operating-shaft *e* by a link *d*, connected to the bar and to a crank portion *d'*, connected to the shaft. The track *b* is formed at its outer end with a short horizontal portion *b'*, beneath which the bar *c* rests when the door is in closed position, and with an inclined portion *b²* adjacent the horizontal portion. By reason of this construction it is apparent that when the bar *c* is withdrawn from the horizontal portion the weight of the door, or the weight of the door and its load, will cause the door to open automatically and assume the position shown in Fig. 2.

It has hitherto been customary to close the doors by manually-operated means, turning the operating-shaft *e*, and I have shown in Fig. 3 a suitable form of manually-operated means consisting of a gear-wheel *e'* and a worm *e²*, the operation of which will be readily understood without particular description, reference being made to my Patent No. 804,970, November 21, 1905, for a more

complete description of the worm-gear. The particular hand-operated means, however, forms no part of my invention. It is desirable, however, to provide some means whereby the door will be closed automatically after the load is discharged. To accomplish this result, I provide the following mechanism: Within the center sill of the car, which is composed, as is ordinarily the case, of the side members *f* and top member *f'*, I place a spring *h*, surrounding a rod *h'*, having a head *h²*. The outer end of this rod is connected by a chain *g* with the operating-shaft *e*, the chain being so connected to the shaft that when the latter is turned to open the door the chain will be wound upon the shaft, as clearly shown in Fig. 2. It is apparent that the spring *h* may be made of such strength as may be necessary to close the door when the load is released—that is, the spring may more than counterbalance the door—or, if so desired, it may be made of less strength, so as to partially counterbalance the weight of the door and assist in closing it. In the latter case it will be necessary to operate the gear mechanism at the end of the car, though, of course, as readily understood, much less power will be required to close the door. I prefer, however, to make the spring of such strength that it will be sufficient to close the door. It will be understood that if the spring should fail to operate for any reason—as, for instance, the parts becoming frozen by ice in cold weather—the manually-operated mechanism may be used to assist the spring.

I claim—

1. In a dump-car, a hinged dumping-door forming a part of the bottom of the car, automatically-actuated means connected to the door to close the door, and manually-operated means to assist the door-closing means.

2. In a dump-car, a dumping-door, automatic means for closing the door, and auxiliary means to assist in closing the door.

3. A dump-car having a dumping-door in its bottom, and automatically-operated means movable longitudinally of the door to operate the door.

4. A dump-car having a dumping-door in its bottom, and spring-actuated means movable longitudinally of the door to operate the door.

5. A dump-car having a bottom contain-

ing a dumping-door, means mounted beneath the door to hold the door closed and movable longitudinally thereof to permit the door to open and to close the door, and automatic means for operating the door-closing means.

6. A dump-car having a bottom containing a dumping-door, a bar movable longitudinally of the door to close the door, and automatic means for operating the door-closing means.

7. A dump-car having load-sustaining dumping-doors in its bottom, a bar mounted beneath the doors and movable longitudinally thereof to close the doors, automatic means connected to the bar for operating the bar, and auxiliary hand-operated means connected to the bar-operating means to assist in closing the doors.

8. A dump-car having a bottom containing dumping-doors, a reciprocating bar mounted beneath the doors and in contact with the under side thereof, a crank-shaft mounted in the car-frame beneath the doors, connections between the crank-shaft and the reciprocating bar, and automatic means for operating the crank-shaft to cause the closing of the doors.

9. A dump-car having a bottom containing a dumping-door, means movable longitudinally of the door to close the door, and a spring connected to the door-closing means to cause the automatic operation of the door-closing means.

10. A dump-car having a bottom contain-

ing a dumping-door, a bar movable longitudinally of the door to close the door, and spring-operated mechanism connected to the bar for operating the bar.

11. A dump-car having a bottom containing a dumping-door, an inclined track having a horizontal end portion attached to the under side of the door, a bar mounted beneath the door resting upon the horizontal end portion of the track to hold the door closed, means for withdrawing the bar from the horizontal portion of the track to permit the door to open, and automatic means for causing a movement of the bar to close the door.

12. A dump-car having a bottom containing a dumping-door, an inclined track having a horizontal end portion attached to the under side of the door, a reciprocating bar mounted in the car-frame and traveling on the track, and automatically-operated means for causing a movement of the bar to close the door.

13. A dump-car having a bottom containing a dumping-door, an inclined track having a horizontal end portion attached to the under side of the door, a reciprocating bar mounted in the car-frame and traveling on the track, and spring-actuated means for causing a movement of the bar to close the door.

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Witnesses:

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