No. 824,162. PATENTED JUNE 26, 1906.

C. M. WATSON.

LOADING APPARATUS.

APPLICATION FILED AUG. 3, 1904.

3 SHEETS—SHEET 1.

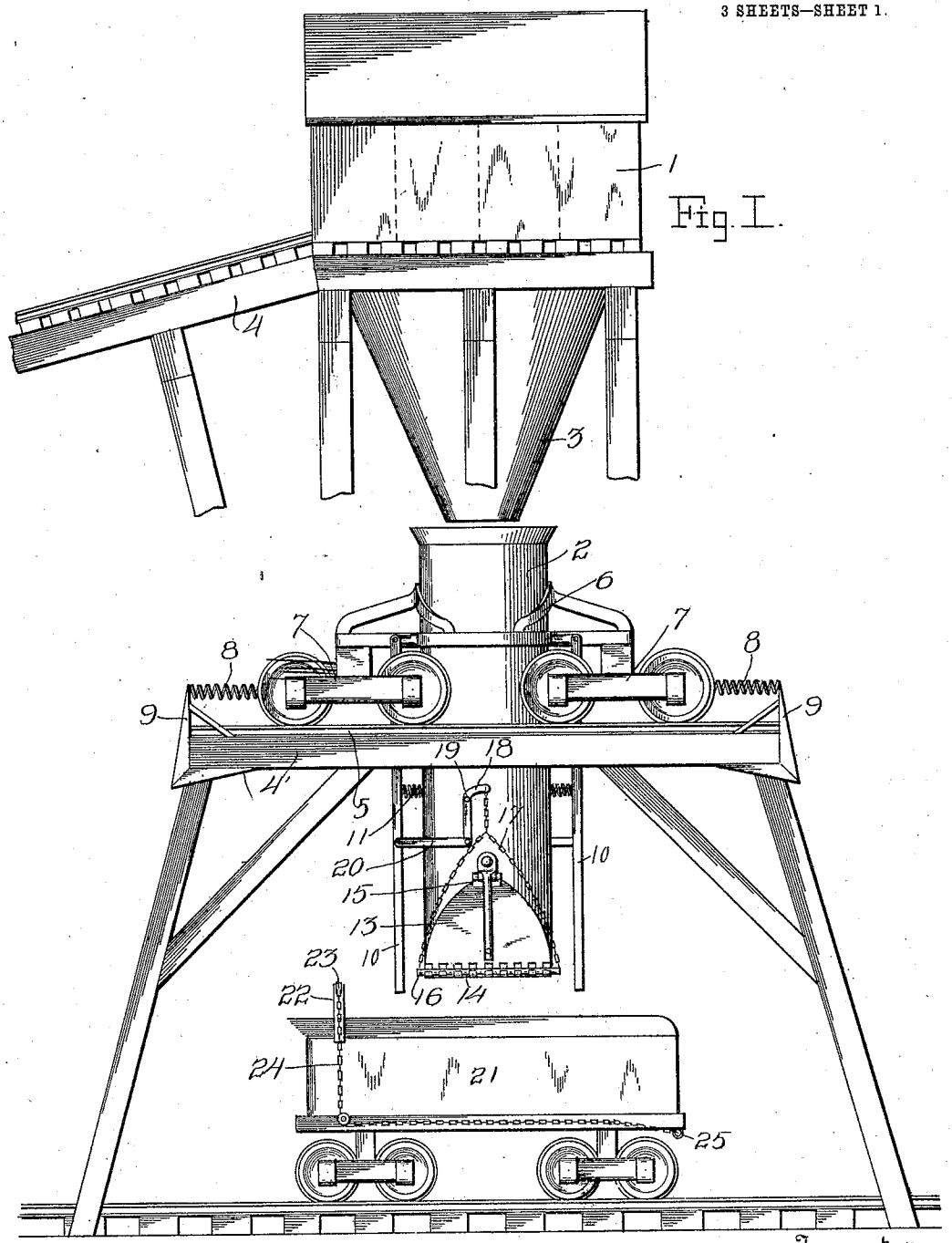

Fig. I.

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3 SHEETS—SHEET 2.

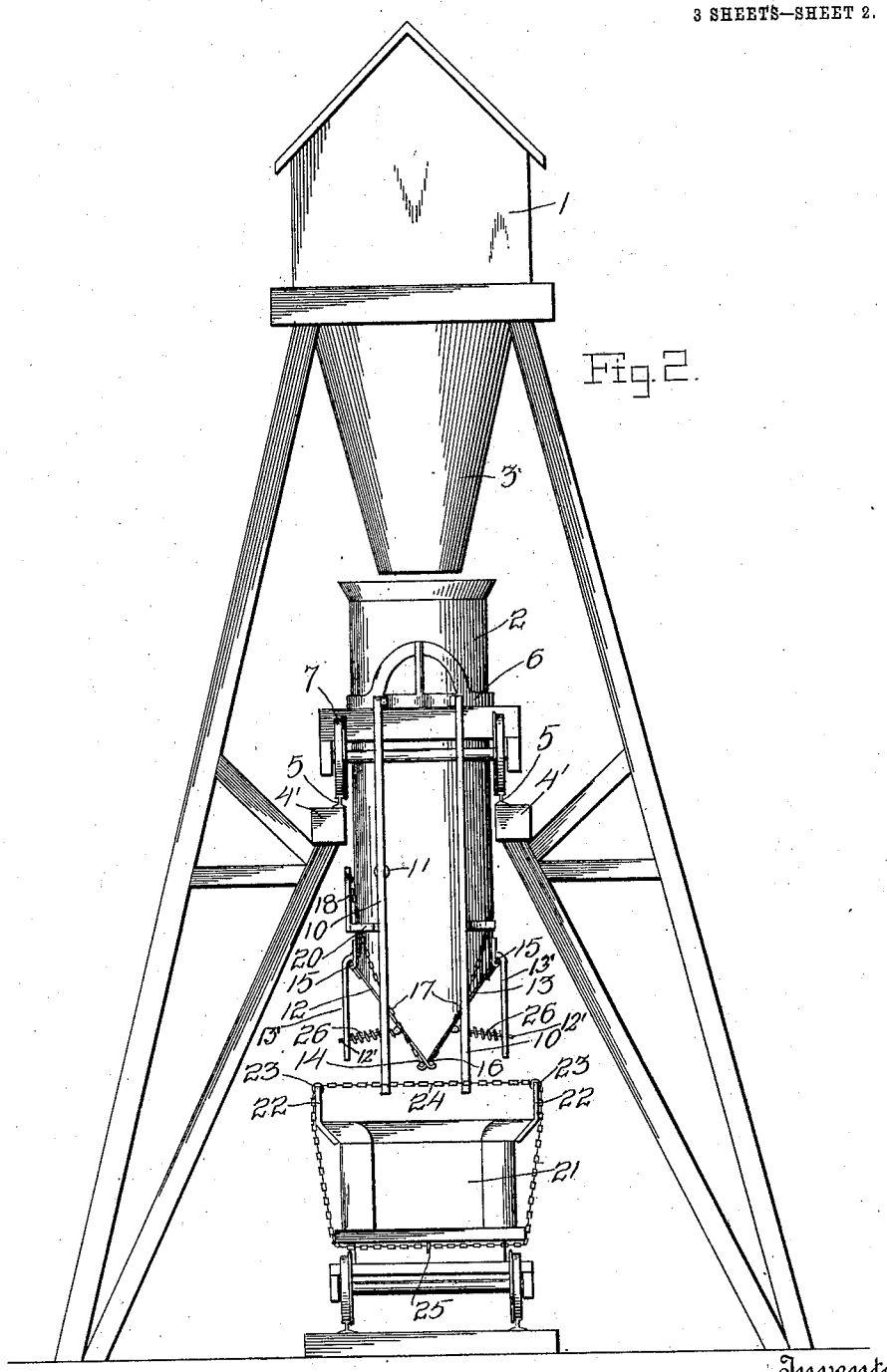

Fig. 2.

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3 SHEETS—SHEET 3.

Fig. 3.

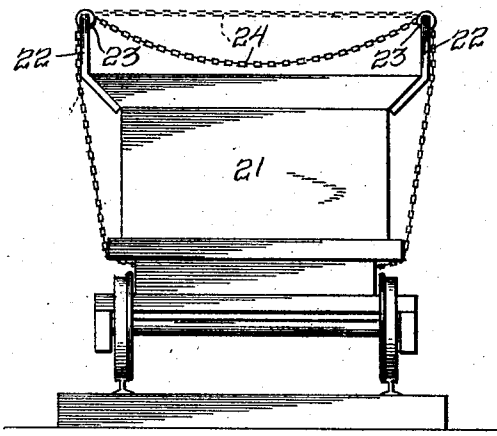


Fig. 4.

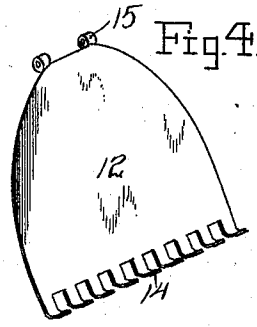


Fig. 5.

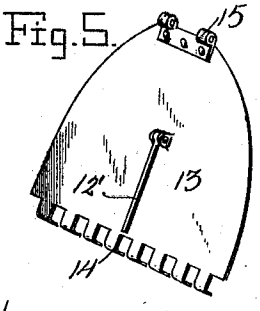
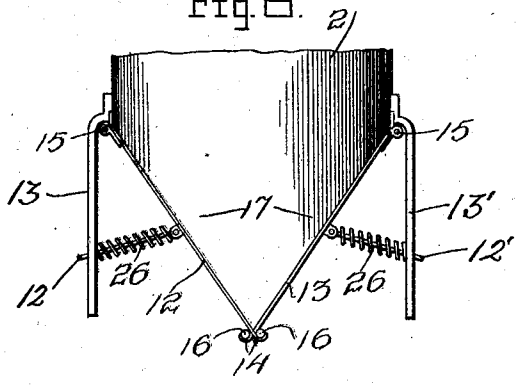


Fig. 6.



Witnesses
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UNITED STATES PATENT OFFICE.

CLARENCE M. WATSON, OF WADSWORTH, OHIO.

LOADING APPARATUS.

No. 824,162. Specification of Letters Patent. Patented June 26, 1906.

Application filed August 3, 1904. Serial No. 219,338.

To all whom it may concern:

Be it known that I, CLARENCE M. WATSON, a citizen of the United States, residing at Wadsworth, in the county of Medina, State of Ohio, have invented certain new and useful Improvements in Loading Apparatus; 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 devices or apparatus used in connection with railroad traffic for the supplying of coal or other fuel to the tenders of locomotives.

One object of the invention is to construct and arrange a device of the character named wherein there is an automatic discharge of the coal or other fuel.

Another object of the invention resides in the provision of a device to act in the capacity of a coal-station, discharging the coal or other fuel into the tender only when mechanism is actuated by the moving train or tender.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the present invention.

In the drawings, Figure 1 is a side elevation of my invention. Fig. 2 is an end elevation of my improved device or mechanism. Fig. 3 is an end view of the tender, illustrating the mechanism for actuating or accomplishing the discharge of the fuel into the tender. Fig. 4 is a detail perspective view of one of the doors or gates of the receiver. Fig. 5 is a detail perspective view of the other door of the receiver; and Fig. 6 is an enlarged detail view of the lower end of the receiver, illustrating the means for automatically closing the doors or gates of the receiver and locking them in a closed position.

Referring now more particularly to the accompanying drawings, the reference character 1 indicates a coal-house mounted upon a suitable trestle or skeleton framework, as clearly illustrated in the accompanying drawings. This house is divided into a number of compartments, as shown in dotted lines in Fig. 1, for the purpose of receiving varying tons or other quantities of coal, enabling the attendant at the house to discharge the desired amount of fuel signaled for by the engineer into the receiver 2, the fuel being admitted into the receiver by way of the chute 3, the house being supplied through the instrumentality of any suitable conveying means by way of the supply track or way 4. The receiver may be circular, rectangular, or other form in cross-section. If the receiver 2 were fixedly mounted, it is possible that whenever the mechanism of the tender is arranged for actuating the same there would likely be more or less concussion of such character as to possibly loosen parts of the mechanism or damage the receiver, and therefore I have so mounted the receiver 2 as to permit of a free bodily movement thereof whenever the actuating mechanism is brought into operation. In other words, by reference to Fig. 2 of the drawings it will be seen that within the trestle or framework I have mounted the receiver 2 between a pair of beams 4′, having track-rails 5 thereupon, and that since these beams are arranged in the line of travel of the tender and there being no other obstructions to interfere the receiver is permitted to give or move bodily for the purpose above stated.

To support the cylinder in such manner as to permit of the movement described, I hang or suspend the receiver from a metallic or other suitable jacket 6, fixedly secured thereto in any suitable manner and support this jacket upon a pair of trucks 7, arranged upon opposite sides thereof, which trucks are permitted to work backward and forward upon the rails 5. These trucks are provided with suitable cushioning means to provide for the necessary cushioning effect of the cylinder for overcoming jarring occasioned when the coal or fuel is discharged from the chute into the receiver. It will now be understood that when the actuating mechanism is tripped by the tender the receiver will be moved slightly until the tripping by the tender has been completed, and by reason of the stiff springs or other suitable resilient means 8, secured between each truck and an upright 9 at each end of the beams 4, the said means 8 being of strong tension, the return of the cylinder to its proper position beneath the chute is insured.

Pivotally connected in any suitable man-

ner to the jacket 6, upon opposite sides of the receiver 2, are arranged a pair of trip-arms 10, which extend beneath the lower end of the receiver. These arms are held out of contact with the receiver by means of coiled springs 11 or any other suitable cushioning medium, the cushioning medium also serving to hold the arms in their proper position for actuating the mechanism hereinafter described.

The lower end of the receiver 2 is normally closed by means of a pair of shovel-shaped doors 12 and 13, whose lower ends are turned inwardly and notched in such manner as to form crooked or bent fingers 14, the fingers of one door being arranged with relation to the fingers of the other as to permit of a clasping engagement thereof when closed. These doors are adapted to swing outwardly from each other, the same being hinged, as at 15, in any suitable manner to the lower end of the receiver. In view of the great weight of the coal or other fuel upon these doors when admitted to the receiver I have provided a pair of lock-bars 16, each designed to fit between the fingers of one door and the back of the companion door, as clearly shown in the drawings. Attached to the lock-bars 16 are the chains 17, upon opposite sides of the receiver, each of which chains is preferably arranged in the form of an inverted **Y**, the tail of the **Y** having connection with an angular lever 18, pivoted at 19 to the receiver 2, having its other end connected in any suitable manner to a link 20, which latter is pivoted in any suitable manner to the trip-arms 10.

21 designates a tender of the usual or any improved construction, provided with a pair of standards 22, each having a pulley 23 arranged in its upper end, over which a chain 24 is designed to travel. This chain is preferably endless and extends over the said standards down upon both sides of the tender and beneath the same, there being a link connection 25 in the line of the chain, whereby the latter may be connected up in any suitable manner to the air-brake system of the train for a purpose presently understood.

Having thus described the essential parts of my invention, I will now endeavor to explain the operation, which is as follows: The coal or other fuel is kept in the house 1, being delivered thereto by way of the supply-track 4, there being an attendant in charge. The house is usually supported upon its trestle or open framework immediately over a side track, as well understood, and upon a signal from the engineer of the approaching train or tender, the attendant at the house discharges therefrom into the receiver 2 through the chute 3 the quantity of coal or fuel signaled for by the engineer. The operation so far described requires but little time, and as the engineer nears the coaling-station he of course switches his engine upon the side track arranged immediately beneath the receiver, in the meantime manipulating his air-brake in such manner as will tend to tighten the chain 24 between the standards 22, as shown in dotted lines in Fig. 3, so that the latter will contact with the arms 10 and, through the link 20, lever 18, and chain connection 17, cause the lock-bars 16 to be drawn upwardly out of their seats, resulting in the doors being swung open and the fuel discharged into the tender, as well understood. By having the trip-arms 10 and the same connections arranged upon opposite sides of the receiver 2 it matters not in which direction the train or tender travels, one pair of arms serving to equalize the pressure brought to bear upon the other pair of arms. It will thus be seen that the discharge of the fuel is automatic, and it will now be stated that the closing of the doors of the receiver 2 is accomplished automatically.

To each of the doors 12 is connected a rod 12′, which is passed through a bracket 13′, that depends from the body portion of the receiver 2. Upon this rod is disposed a spring 26, which when the door is opened is compressed and which when the door is released serves to return the door to its closed position. It will be understood that the doors are both opened by a downward pressure of the contents of the receiver when the bars 16 are raised.

So long as a trip-arm is displaced by the action of chain on the tender the corresponding locking-bar is held in raised position. When the tender is moved away, the chain releases the trip-arm and the springs 26 swing the doors into closed positions. The bars 16 may then be engaged by hand with the corresponding teeth 14 to hold the doors closed.

I shall not go into detail as regards the construction or arrangement of the trestle, except as regards the construction surrounding the receiver 2, which has already been explained, for it is obvious that the trestle can be put up in various forms, according to the space or desires, rendering it seemingly unnecessary to describe the different elements comprising the trestle.

What is claimed is—

1. The combination with a framework, of a housing arranged upon the framework, a chute arranged beneath the housing, a support arranged beneath the chute, trucks arranged for movement upon said support, a receiver extending beneath the support, means connected with the receiver and the trucks for supporting the former, doors hingedly connected to the lower end of the receiver, and means for opening and closing the doors automatically.

2. The combination with a framework, of a housing arranged upon the framework, a chute arranged beneath the housing, a re-

ceiver supported beneath the chute, said receiver being capable of a bodily movement, doors connected to the lower end of the receiver, and means for opening and closing said doors automatically.

3. The combination with a framework, of a housing arranged upon the framework, a chute arranged beneath the housing, a receiver supported beneath the chute in direct alinement with the latter, said receiver being capable of a bodily movement, doors arranged at the lower end of the receiver, and means for opening and closing said doors.

4. The combination with a framework, of a housing arranged upon the framework, a chute arranged beneath the housing, a support arranged beneath the chute, trucks arranged for movement upon said support, a receiver arranged beneath the chute, a connection between the receiver and the said trucks, a standard mounted at each end of said support, a flexible connection between each truck and each standard, trip-arms associated with the receiver, doors located at the lower end of the receiver, connections between the trip-arms and the doors, and means for tripping said arms to open and close said doors automatically.

5. The combination with a framework, of a housing arranged upon the framework, said housing having an inclined track leading thereto, a chute arranged beneath the housing, a receiver arranged beneath the chute, said receiver being mounted to permit of a bodily movement thereof, trip-arms associated with the receiver, doors located at the lower end of the receiver, and connections between the doors and the trip-arms, whereby the former may be opened and closed automatically.

6. The combination with a framework, of a housing arranged upon the framework, said housing having an inclined track leading thereto, a chute arranged beneath the housing, a receiver supported beneath the chute, doors located at the lower end of the chute, trip-arms associated with the receiver, connections between the said trip-arms and the said doors, a tender, and means arranged with relation to the tender for contact with the trip-arms for opening the doors of the receiver automatically.

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

CLARENCE M. WATSON.

Witnesses:

ELLA A. THOMAS,

W. O. JOHNSTON.