F. S. INGOLDSBY.

SYSTEM OF OPERATING DUMP CARS.

APPLICATION FILED JULY 17, 1905. RENEWED OCT. 17, 1910.

977,876. Patented Dec. 6, 1910.

Fig. 1.

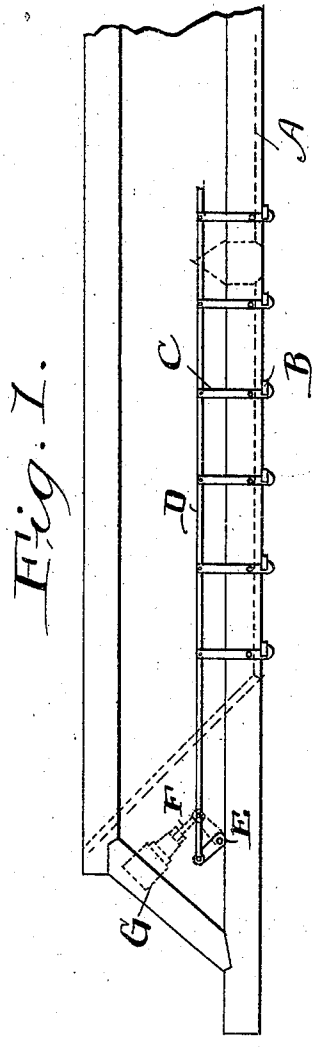


Fig. 2.

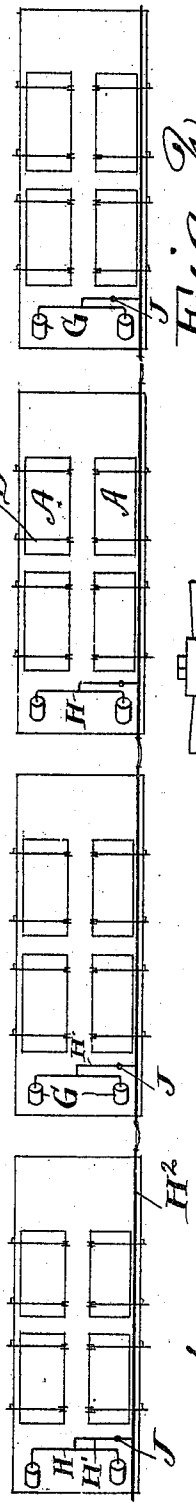
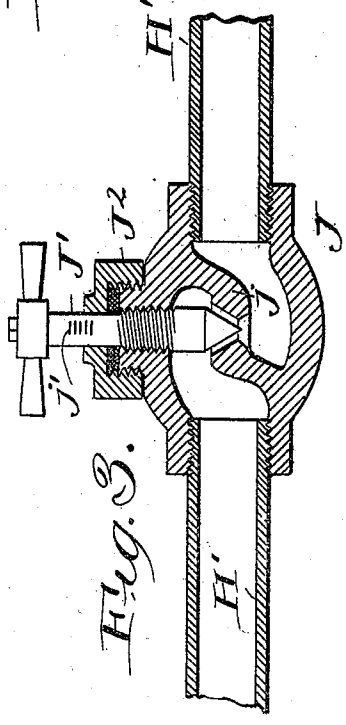


Fig. 3.



Witnesses.
E. B. Gilchrist
W. L. McGarrell

Inventor
Frank S. Ingoldsby
By his Attorneys,
Thurston & Bates.

UNITED STATES PATENT OFFICE.

FRANK S. INGOLDSBY, OF ST. LOUIS, MISSOURI, ASSIGNOR TO THE INGOLDSBY AUTOMATIC CAR COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF WEST VIRGINIA.

SYSTEM OF OPERATING DUMP-CARS.

977,876. Specification of Letters Patent. Patented Dec. 6, 1910.

Application filed July 17, 1905, Serial No. 270,019. Renewed October 17, 1910. Serial No. 587,509.

To all whom it may concern:

Be it known that I, FRANK S. INGOLDSBY, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Systems of Operating Dump-Cars, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to a system for automatically discharging the load in dumping cars. The system is very conveniently adaptable to cars having air operated dumping mechanism.

My Patent No. 720,031, issued February 10, 1903, shows a dump car having dumping doors which may be released by air pressure, thus allowing a train of cars to be dumped simultaneously by the engineer. I have discovered that for certain work, as for instance ballast spreading or bank widening, a more satisfactory discharge of the load may be accomplished by arranging to have each car dumped at a certain interval after the car in advance thereof. By regulating this interval according to the speed of the train, a single operation by the engineer may cause each car to carry its load until it has reached a position just in advance of the load dumped from the preceding car, whereupon its load is discharged. Each succeeding car in the train thus discharges its load in front of the preceding car and by the time the train has run the required distance, all loads have been uniformly spread along the whole distance. This is much more satisfactory in bank widening and ballasting than to simultaneously discharge a train of stationary cars, for in that event no load is discharged onto the space between the truck of one car and the truck of the adjacent car and no even spreading of the material is secured. I accomplish this successive dumping by providing valves in the air pipes to the dumping cylinders, the valve on each successive car being more than nearly closed than the one in advance thereof; wherefore it takes the air longer to operate each succeeding car. The actual amount the valves are opened depends upon the speed of the train,—the faster the speed, the wider is the valve opened. By this means each succeeding car is caused to discharge its load directly in front of the discharge from the preceding car. The valve stem carries an indicator whereby the attendant may conveniently set it.

The present invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a side elevation of a car having air dumping mechanism; Fig. 2 is a diagram representing a bottom plan of a series of cars having air dumping mechanism and a valve connection to each; and Fig. 3 is a section through a suitable form of valve.

Referring to the embodiment shown in the drawing, A represents hinged dumping doors formed in the bottom of the car and supported by floor beams B which extend beyond the sides of the car and are there engaged by hooks C pivoted to the side. These hooks are connected by a link D with an arm on a rock shaft E. Another arm on this rock shaft is connected with a piston rod F leading from a piston within the air cylinder G. The admission of air to this cylinder rocks the shaft E and swings the hooks C to release the floor beams B, allowing the doors to drop and the load to be discharged. There are two cylinders G on each car, one for each side. An air pipe H leads to each cylinder from a branch pipe H′, which leads from the main train pipe H^2. From this construction it results that when air is supplied to the main train pipe each of the cylinders receives air and dumps the corresponding side of the car.

To retard the dumping of successive cars according to the speed, I insert in each of the pipes H′ a valve J which regulates the amount of opening of the pipe. A convenient form of this valve is shown in Fig. 3. There the pipe H′ is shown as interrupted by the valve body J, which has a diaphragm *j* with a conical opening which is adapted to be choked by a conical point on the valve stem J′ screw-threaded into the body. A suitable packing nut J^2 around the valve stem screws onto the body. In this construction the farther the valve is opened the more will the stem project beyond the packing nut. I am thus enabled to make a very simple indicator by putting marks *j′* on the stem. The number of marks appearing above the packing nut shows the amount the valve is opened. If desired, these marks may have a designation corresponding to the speed of the train.

I claim:

1. The combination of a series of dump

cars, each having air dumping mechanism, pipe to supply air thereto, regulating mechanism for retarding the dumping of each car, and an indicator for each regulating mechanism.

2. The combination of a train of dump cars each having door releasing mechanism and an air cylinder for operating the same, of an air pipe extending along the train, pipes connecting the same with the air cylinders, valves in said pipes, and means for indicating the amount of opening of said valves.

3. In a dump car, the combination of a dumping door, air mechanism to release the same, an air pipe leading to such mechanism, a valve on the car in said pipe operating to choke the passage thereof, and an indicator on said valve.

4. The combination with a plurality of dumping cars, and a fluid pressure actuating motor for each car-body, of means for controlling said motors from a distance, and means causing said motors to automatically move in succession.

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

FRANK S. INGOLDSBY.

Witnesses:
JOSEPH R. BOWLING,
CHAS. H. MEYER.