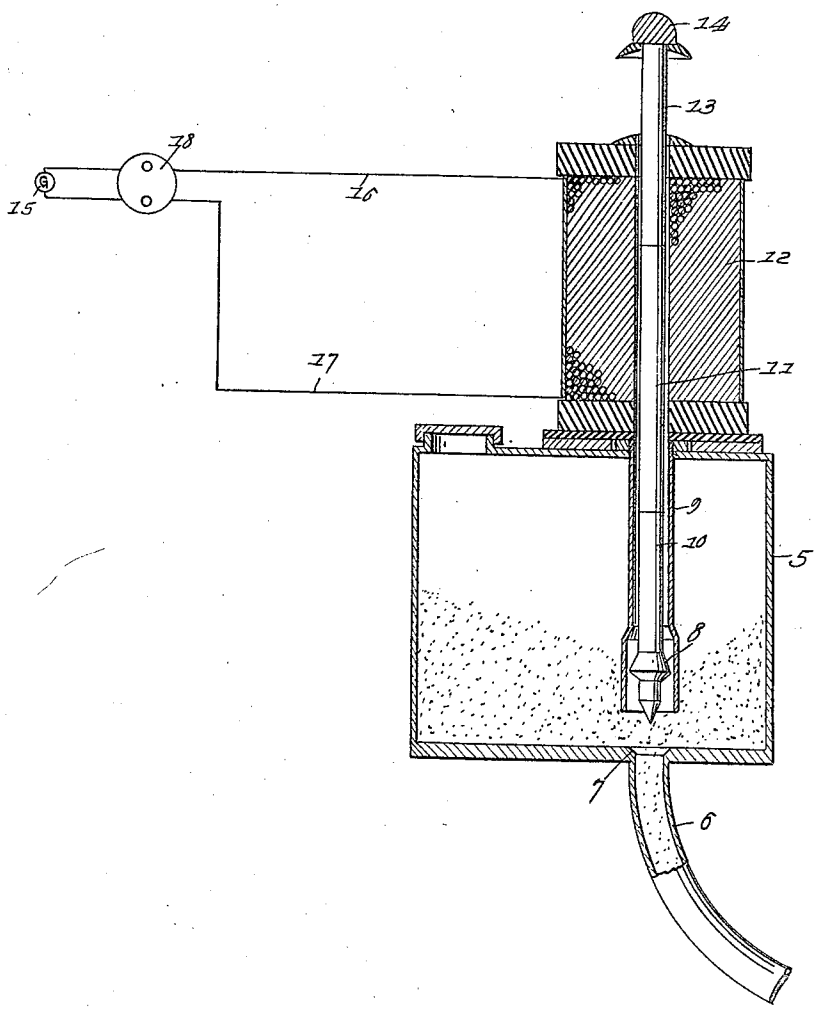
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ATTACHMENT FOR SAND BOXES

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# UNITED STATES PATENT OFFICE.

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## ATTACHMENT FOR SAND BOXES.

Application filed June 8, 1922. Serial No. 566,814.

*To all whom it may concern:*

Be it known that I, ANDREW HUMPHREY, a citizen of the United States of America, and resident of Glenlyon, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Attachments for Sand Boxes, of which the following is a specification.

This invention relates to sand distributing mechanisms for use on railway locomotives, cars or the like, having sand boxes, and the invention is more specifically intended for use on railway locomotives whether electrically or steam driven, since the steam driven locomotives now in common use have generators for lighting purposes, so that the current from the generator of a steam locomotive, or the current supply for an electric locomotive may be used for operating the feed control of this invention.

It is an object of this invention to produce a novel auxiliary or attachment for such sand boxes that can be readily installed in those boxes now in use, which can be supplied in new constructions of locomotives and street railway equipment.

It is an object of this invention to provide a valve for the discharge pipe of a sand box with electrically charged valve operating mechanism, effective to lift the valve from its seat to permit the escape of sand, the said valve being automatically re-seated by gravity when the electrically charged element is demagnetized.

It is a further object of this invention to produce a valve so protected as to be free to operate under the influence of the operating mechanism just mentioned.

With the foregoing and other objects in view, the invention consists in the details of construction, and in the arrangement and combination of parts to be hereinafter more fully set forth and claimed.

In describing the invention in detail, reference will be had to the accompanying drawing in which the invention is illustrated by a sectional view of a sand box showing the device embodying the invention applied thereto.

In these drawings 5 denotes a sand box having a discharge spout 6. A valve seat 7 is provided in the sand box at the junction of the pipe 6 therewith, and this valve seat is intended to be engaged by a valve 8 when the escape of sand from the box is to be prevented.

A tube 9 of brass or other non-magnetic material depends from the top of the sand box and terminates a distance from the valve seat to produce a clearance between the end of the tube and the bottom of the box for the passage of sand. The tube 9 acts as a guide for the valve stem 10 to which the valve 8 is connected and by which it is carried, and the said valve stem is preferably formed of brass or some such material which is comparatively inexpensive. A solenoid core 11 constitutes an extension of the valve stem, and the said core operates in a solenoid 12 arranged to lift the core when the solenoid is magnetized. An extension 13 of brass or non-conducting material projects at the top of the solenoid and is provided with a weight 14 which is effective to cause the valve to seat by gravity when the solenoid is demagnetized. The solenoid is, of course, connected with a source of electricity 15 by conductors 16 and 17 and preferably, a switch 18 is interposed in order that a circuit may be established from the source of electricity through the winding of the solenoid, or the circuit, of course, may be broken. The switch is here conventionally shown and one skilled in the art will, it is thought, understand its operation.

The valve is larger than the valve stem and the tube 9 is enlarged in diameter at its lower end to form a clearance for the valve, so that the valve may move upwardly, in the lower end of the tube without encountering obstruction, due to the presence of sand.

In the operation of the device, an engineer or motorman may move the switch to energize the solenoid and he may then operate the switch to interrupt the current to the solenoid, so that by the simple expedient of the electrical control, the valve of the sand box may be actuated to open or close the sand discharge orifice of the sand box.

It would only be necessary for the installation of these devices on sand boxes now in common use to insert the tube and valve and install the electrically operated mechanism, for sand boxes now in common use are supplied with valve seats and discharge tubes.

I claim:

1. In an attachment for sand boxes, the combination with a sand box having a valve seat, a tube depending into the box above the seat, the said tube having an enlarged

lower end, a valve stem guided in the tube, a valve carried by the stem, the said valve being operative in the enlarged portion of the tube, a solenoid core forming an extension of the valve stem, a solenoid in which the core is operative, a weighted extension carried by the solenoid core and projecting above the top of the solenoid, and means for controlling current to the solenoid.

2. In an attachment for sand boxes, the combination with a sand box having a valve seat, a tube of non-magnetic material depending into the sand box above the seat, a valve stem and valve movable in the said tube and adapted to coact with the valve seat, a solenoid core forming an extension of the valve stem, a solenoid in which the said core is operative, a weighted element connected to the core and projecting above the solenoid, and means for magnetizing the solenoid.

ANDREW HUMPHREY.