No. 734,773. PATENTED JULY 28, 1903.

W. H. STUART.

MECHANICAL DEVICE FOR RECEIVING SAND AND DISCHARGING IT THEREFROM UNDER PRESSURE.

APPLICATION FILED JULY 26, 1902.

NO MODEL.

Fig. 1.

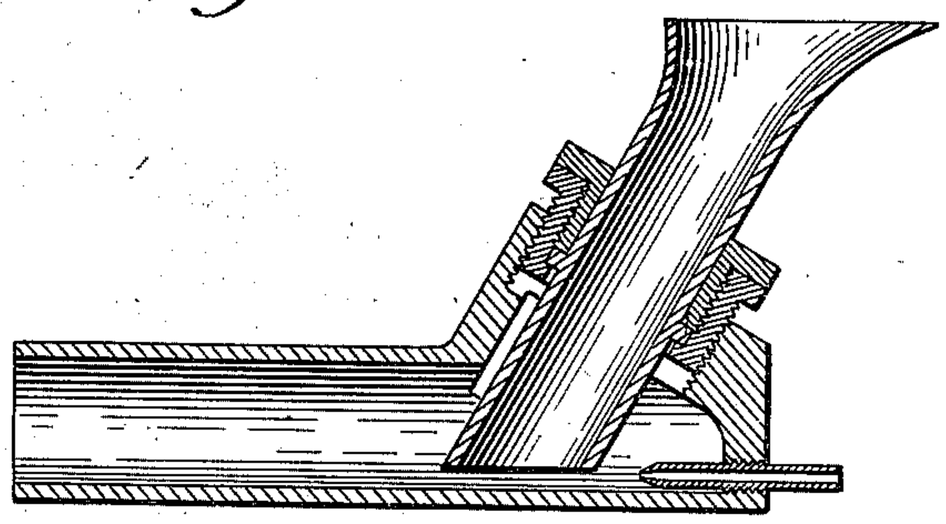
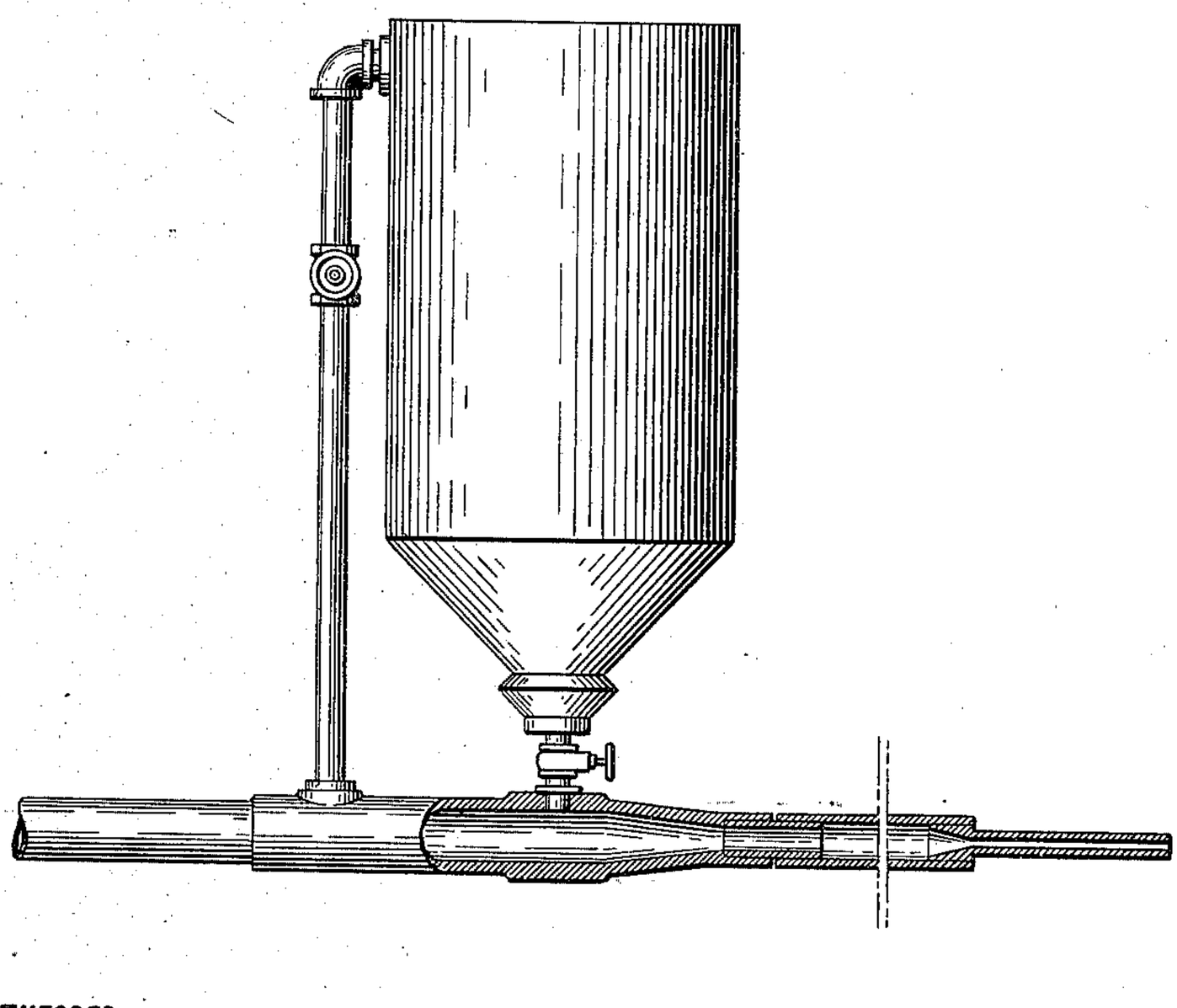


Fig. 2.



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No. 734,773. Patented July 28, 1903.

UNITED STATES PATENT OFFICE.

WILLIAM HENRY STUART, OF BALTIMORE, MARYLAND, ASSIGNOR TO ECONOMY LOCOMOTIVE SANDER COMPANY, OF BALTIMORE, MARYLAND, A CORPORATION OF DELAWARE.

MECHANICAL DEVICE FOR RECEIVING SAND AND DISCHARGING IT THEREFROM UNDER PRESSURE.

SPECIFICATION forming part of Letters Patent No. 734,773, dated July 28, 1903.

Application filed July 26, 1902. Serial No. 117,213. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HENRY STUART, a citizen of the United States, residing in the city of Baltimore, State of Maryland, have invented certain new and useful Improvements in Mechanical Devices for Receiving Sand and Discharging it Therefrom Under Pressure, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to mechanical devices used in the arts and industries, having inclosed chambers and discharge-passages into which sand or other finely-comminuted substance is introduced at or above normal pressure and from which it is discharged by a current of steam or other fluid pressure. In such devices the tendency of the sand (which carries more or less moisture) to clog the passages, to oxidize or rust the inner walls of such passages, and therefore more quickly clog them as well as destroy them, the tendency of the normally rough surface of such walls to create frictional resistance to a moving body of sand, and, finally, the tendency of the sharp sand to cut the metal of surfaces with which it makes frictional contact are disadvantages well known to users of all such devices.

The object of my invention is to overcome these defects by the provision of suitable means to that end; and my invention consists broadly in providing the inner walls of the valvular and other sand-passages of such devices with a substantially smooth and non-oxidizable surface, whereby the clogging of such passages from accumulated corrosive oxidation resulting from the damp sand will be entirely obviated and the life and utility of the device prolonged and increased; also, in providing a particular character of such non-oxidizable surface—namely, a coating or plating such as produced by galvanizing—which is so smooth as to be slippery in the sense of being incapable of producing perceptible frictional resistance, in order that the natural tendency of the moving body of sand to create frictional resistance against the walls of said sand-passages will be largely, if not wholly, overcome, producing thereby an economy in operation, as less fluid-pressure will therefore necessarily be required to discharge the sand.

In the drawings, Figure 1 is a vertical section of a locomotive sanding device, and Fig. 2 a like section of the sand-hopper delivery and combining tubes of a sand-blast apparatus.

To either of these classes of devices my invention is applicable, although it is obviously applicable to other devices in the arts in which sand or finely-comminuted mineral matter is received and discharged through closed tubular or other passages therein.

Practically applied to either of the devices shown in the drawings the inner walls of the cast-metal sand-receiving chamber and its tubular discharge-passages leading therefrom are preferably first cleaned by any known means for cleaning the surfaces of castings, and then such surfaces are to be galvanized by any known means for galvanizing such metallic surfaces. It is obvious, however, that in lieu of galvanizing the inner wall-surfaces of the said passages may be coated or lined with or made of any known antifriction and non-oxidizable coating capable of being attached to metal or they may be electroplated or otherwise provided with a metallic or other deposit commonly applied in the other arts to metallic surfaces in any well-known way to impart those properties and functions to such metallic surfaces; but I have found that galvanizing, especially if the surface be preliminarily cleaned and smoothed, as stated, will be found to be the most efficient and economical.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A sand-delivery device containing sand receiving and discharging passages in and through which a body of sand or other finely comminuted mineral substance is introduced under atmospheric or higher pressure and discharged therefrom by fluid-pressure, said passages having their inner walls provided

with a substantially smooth and non-oxidizable surface; substantially as and for the purposes set forth.

2. A device for receiving a body of sand and discharging it therefrom under fluid-pressure, the inner walls of the sand-passages having a substantially smooth and non-oxidizable surface, which is slippery in the sense of being incapable of creating perceptible frictional resistance to a body of sand moving through said passages under fluid-pressure; substantially as described.

3. A device for receiving a body of sand and discharging it therefrom under fluid-pressure, having tubular and other sand-passages the walls of which have been preliminarily deprived of normal roughness by known means, and having superposed thereon a smooth and non-oxidizable galvanized surface-coating; substantially as described.

In testimony whereof I have hereunto affixed my signature this 24th day of July, A. D. 1902.

WILLIAM HENRY STUART.

Witnesses:
MILLARD LEONARD,
JOHN S. BRIDGES.