C. C. WEST.

HOPPER SCREEN DEVICE.

APPLICATION FILED AUG. 10, 1914.

1,129,322. Patented Feb. 23, 1915.

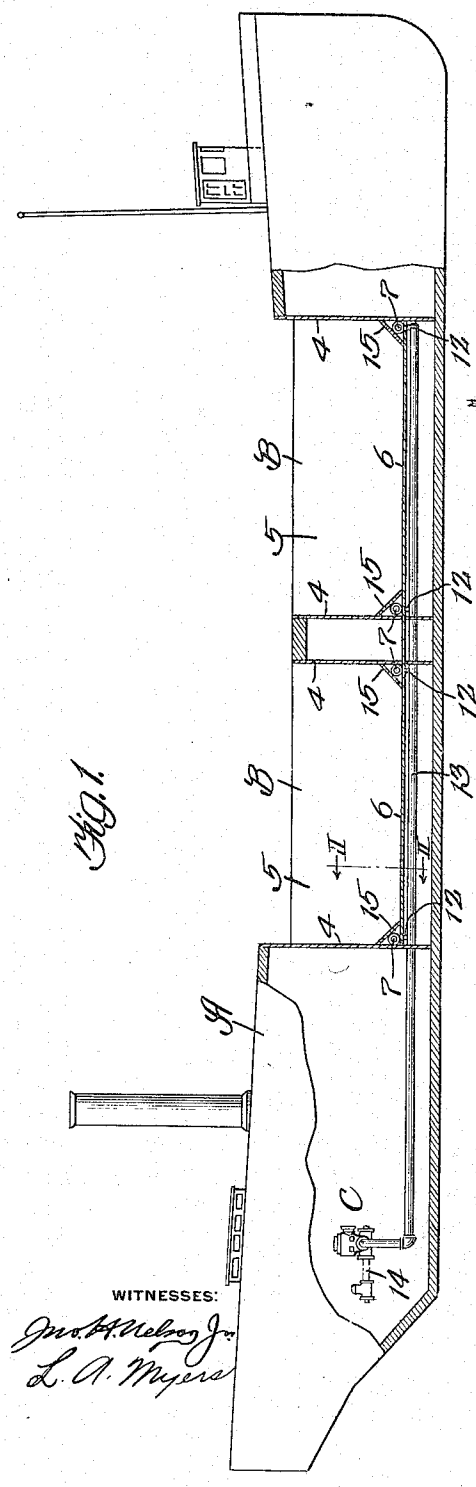


Fig. 1.

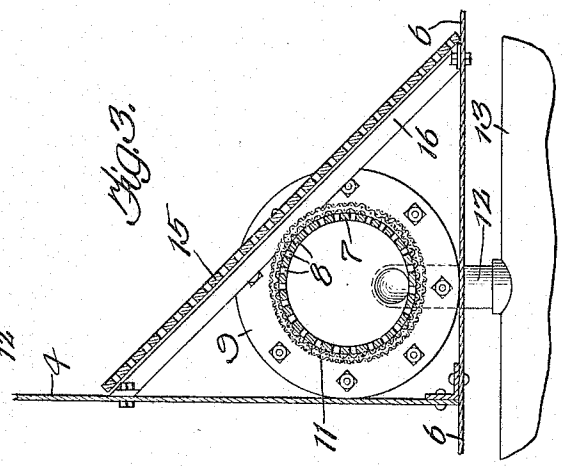


Fig. 3.

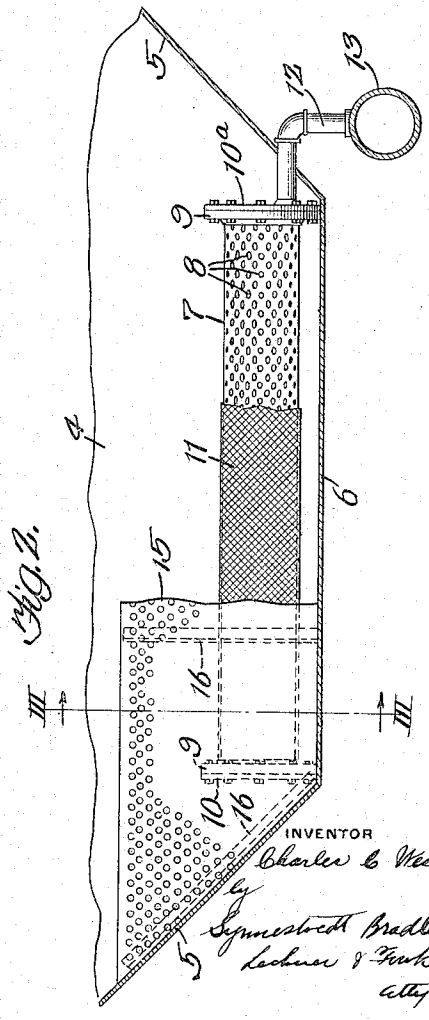


Fig. 2.

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HOPPER-SCREEN DEVICE.

1,129,322. Specification of Letters Patent. Patented Feb. 23, 1915.

Application filed August 10, 1914. Serial No. 855,966.

To all whom it may concern:

Be it known that I, CHARLES C. WEST, a citizen of the United States, and residing at Manitowoc, in the county of Manitowoc and State of Wisconsin, have invented certain new and useful Improvements in Hopper-Screen Devices, of which the following is a full, clear, and exact specification, reference being had to the accompanying drawings, forming a part hereof.

My invention relates generally to suction screening means for sand barge hoppers designed to condition the sand while in transit for its subsequent handling, and more particularly to a construction of self-protecting screen device especially adapted for use in this connection. The invention has for one of its principal objects to provide a screening device which is capable of protecting itself against damage from clam shell or other lifting devices used to unload the sand from the hopper. Another object of my invention is to provide an improved arrangement of screening parts adapted for installation in any hopper at a minimum cost and without changing the hopper structure.

These, together with such other objects as may hereinafter appear, or are incident to my invention, I obtain by means of a construction illustrated in preferred form in the accompanying drawings, wherein:—

Figure 1 is a longitudinal partial sectional view of the sand barge illustrating the application of my invention thereto.

Figure 2 is a transverse section of the hopper along the line II—II of Figure 1 showing the arrangement of the screening device in the usual type of hopper, and wherein the various parts thereof are partially broken away to better disclose the invention; and

Figure 3 is a section taken through Figure 2 along the line III—III.

It is customary, where sand or other material is dredged from the bottom of a body of water and dumped into the hoppers of a sand barge, to discharge the same ashore in its semi-liquid state by suction pumps on arrival of the barge at its destination, where the water is allowed to drain away so as to condition it for further handling. In a copending application for Letters Patent, Serial Number 855,965, I have described a means designed to more readily condition the sand for transfer while the same is in transit, so that it may be readily and quickly discharged in a merchantable condition on its arrival at the place of discharge. My present invention aims to provide a self-protecting screening device adapted for installation in any of the existing types of sand barge hoppers without requiring any change in their construction, and which is adequately protected against damage by unloading devices.

Referring to the drawings it will be seen that the barge A is provided with one or more sand containing hoppers B, preferably having hopper bottoms and each comprising in this case the transverse walls or bulkheads 4, inclined side walls 5, and base 6.

Preferably extending transversely of the hopper bottom is a perforated pipe section 7 formed with the perforations 8, and having flanges 9 at its open ends which rest upon the base 6. These ends are closed by heads 10 and 10^a which are bolted to the flanges 9. Covering the body of the perforated pipe 7 is a wire mesh 11, preferably a very fine wire cloth, and of such relative fineness as to insure the perforations 8 against being clogged by dirt and to prevent the entrance of sand therethrough and into the pipe 7.

The head 10^a is tapped at its lowermost point to receive one end of the branch pipe 12, which latter extends through the side wall 5, and depends downwardly therefrom to have its other end connected with a longitudinal conduit underlying the hoppers B. A suction pump C is connected with this longitudinal conduit and discharges outboard through the pipe 14.

The positioning of the perforated pipe is best shown in Figure 3, which arrangement permits it to be installed in hoppers not especially constructed to receive it. In order to hold the bulk of the load away from the pipe and to protect its covering from possible damage by clam shell or other unloading devices, I provide the transverse perforate plate 15 which extends in an inclined plane between the wall 4 and base 6 and over the pipe, as in the manner shown. The plate may be carried in any suitable manner, as by the angle bars 16 bolted to the hopper wall and base, which bars serve to stiffen the plate against the pressure of the load. It will be apparent that the plate

in holding the load away from the screen device adds materially to its efficiency and at the same time adequately protects it from damage during the unloading operation.

I do not restrict myself to the exact details of construction as shown, nor to the precise arrangement of the parts, as it will be obvious that variations therefrom may be made without in any way departing from the spirit and scope of the invention as pointed out in the appended claims.

Having thus described my invention, and illustrated its use, what I claim as new and desire to secure by Letters Patent, is the following:—

1. In a sand barge of the type wherein clam shell or similar unloading devices are designed to be employed for unloading the hopper contents, the combination of the sand containing hopper, and means for conditioning the load therein comprising a tubular suction screening device disposed horizontally adjacent the juncture of hopper frame members, and a foraminous screening plate disposed in the path of travel of said unloading devices to extend in a protecting relation over said device and intermediately of the said frame members.

2. In a sand barge of the type wherein clam shell or similar unloading devices are designed to be employed for unloading the hopper contents, the combination of the sand containing hopper, means for conditioning the load therein comprising a tubular suction screening device disposed horizontally adjacent the juncture of hopper frame members, and a foraminous screening plate disposed in the path of travel of said unloading devices to extend in a protecting relation over said device and intermediately of the said frame members, said plate forming a part of said conditioning means and constructed and arranged to hold the bulk of the load away for the said device.

In testimony whereof I have hereunto signed my name in the presence of the two subscribed witnesses.

CHARLES C. WEST.

Witnesses:
ELMER WILLS,
N. A. KNUDSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."