

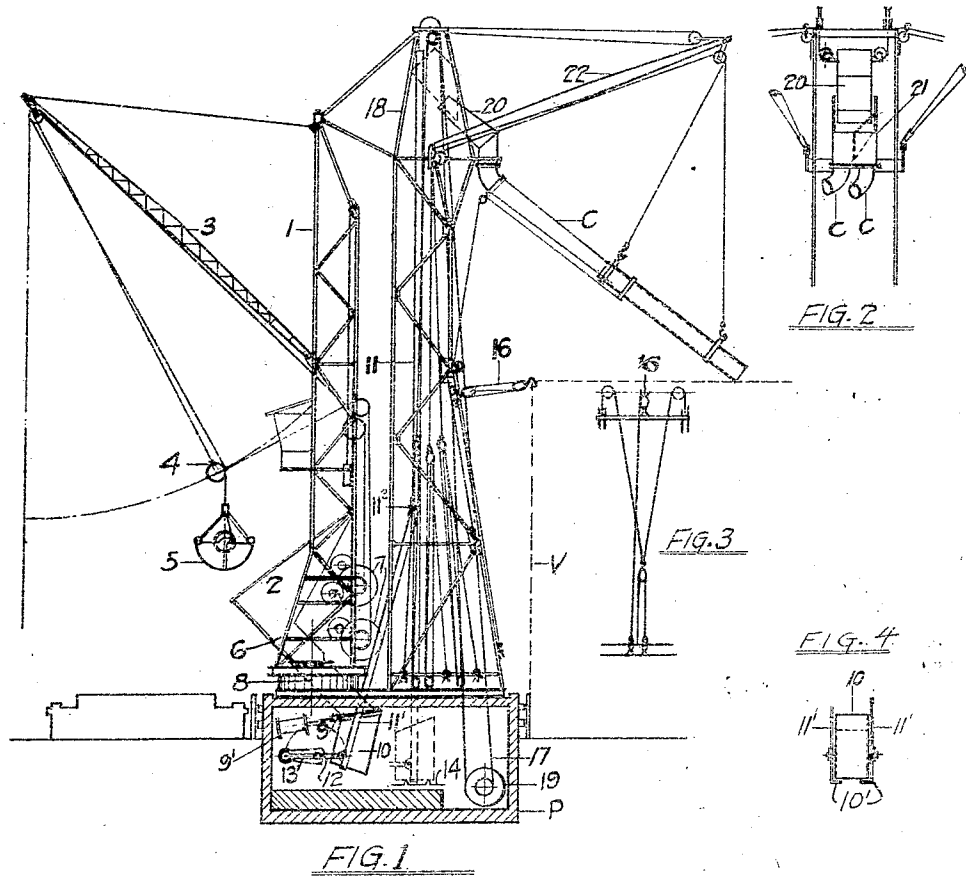
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A. SMITH

TRANSFER APPARATUS

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# UNITED STATES PATENT OFFICE.

AUGUSTUS SMITH, OF ROSELLE, NEW JERSEY, ASSIGNOR TO BERGER POINT IRON WORKS, OF BAYONNE, NEW JERSEY, A CORPORATION OF NEW JERSEY.

## TRANSFER APPARATUS.

Application filed January 14, 1922. Serial No. 529,099.

*To all whom it may concern:*

Be it known that I, AUGUSTUS SMITH, a citizen of the United States of America, residing at Roselle, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Transfer Apparatus, of which the following is a specification.

My invention relates to transfer apparatus, and particularly to that class of apparatus used for fueling or bunkering steamers. The object of my invention is to provide a transfer apparatus of this general type with means by which the material transferred, such as coal, is weighed or measured during the transfer process. The invention is not, however, limited to a coal bunkering installation, and it is to be understood therefore that it is merely to illustrate the invention that such apparatus is shown in the accompanying drawings, in which—

Fig. 1 is a more or less diagrammatic side elevation, partially in section, of a coal bunkering apparatus; and

Figs. 2, 3 and 4 are partial views at right angles thereto.

The invention contemplates—1st, a digger; 2nd, a measuring device (preferably with an associated weigher); 3rd, a hoister, and 4th, a distributor.

As illustrated, the digger comprises a stiff trussed mast 1, capable of being turned on a vertical axis so that the bucket can reach any part of an extensive, semi-circular area; a hopper 2 for receiving the coal from the bucket; a boom 3 for suspending the bucket at any desired distance from the axis of the mast; a pendulum trolley or guide-sheave frame 4 suspended from the outer end of the boom 3 and capable of being swung in and out toward or away from the axis of the mast; a digging bucket 5, preferably of clam-shell type; a delivery throat 6 communicating with the receiving hopper 2 and having its lower terminus at a point substantially concentric with the axis of the mast; rope and winding drums 7 for hoisting, lowering and closing the bucket, and for pulling in the pendulum trolley so as to pull the bucket over the hopper, all conveniently mounted on and operated from the trussed mast. The details of construction of these parts do not enter into my invention, but will be readily understood by any one

skilled in the art. The invention resides in a general organization, rather than in the specific construction of details of the apparatus.

The measuring device consists of a fixed chute 8 communicating with the lower end of the hopper throat 6, and closed at the bottom by a cut-off gate 9 for positively cutting off flow of coal. As shown, this gate comprises a slide or guillotine, operated by a steam ram 9' of sufficient power to drive the gate through a solid lump of coal, cutting it as a knife. Below the gate is a measuring container 10 of known dimensions, brought to a fixed point with relation to the cut-off gate 8 in respect to both horizontal and vertical measurements, so that when the container 10 is in its selected position, and the cut-off gate is open, a fixed and uniform quantity of coal will fall from the inclined chute into the container, (provided there is a surplus of coal in the chute and hopper above it) depending upon the natural coefficient of friction of the coal, which has a constant and determinable value for any given kind of coal. The fixed vertical relation of the container with respect to the gate is obtained by suitable stops 10' at the bottom of the hoistway guide.

Means for bringing the container 10 from the bottom of the hoistway to proper position under the gate for receiving a measured charge of coal consists, as here shown, of the lower portion 11' of the hoistway tracks 11. This lower portion of the trackway is hinged at 11<sup>2</sup>, and is swung by a pair of cranks 12 and suitable connecting rods 13 extending from each of the tracks. When the container is in the position shown in full lines in Fig. 1, it underlies the throat 8 and is ready to be filled and charged with coal from the hopper and chute, the amount of coal entering the container being a definite measured quantity by virtue of the arrangement described. When the trackway 11' is swung to its vertical position in alignment with the upper fixed portion 11, the container is in position to be raised.

If it is desired to weigh the charge before the container is lifted, I may provide a weighing device. This preferably consists of an ordinary platform scale 14 equipped with a lever (not shown) in the usual manner, so that by means of the lever the platform may be raised and thus lift the con-

tainer with its load of coal from the limit stop at the bottom of the lower end of the hoistway track, and taking the full weight of container and coal in it for the purpose of weighing. This operation can be performed with every load of coal, or only occasionally, at the discretion of the operator; or it may be omitted altogether if weighing is not desired.

A further adjunct of the weighing device when used on a floating pontoon, is some suitable means for insuring horizontality of the platform scale, or verticality of the application of the load to be weighed upon the platform scale. In the present embodiment of my invention this is accomplished by so ballasting the pontoon P that it normally careens away from the high sided vessel V that is to be coaled, and by providing a suitable tackle 16 at some elevated point above the deck of the pontoon so that the latter can be pulled toward the high sided vessel and the careening corrected until the scale is horizontal and qualified to read correct weights. This may be conveniently evidenced by a careening indicator pendulum (not shown), as commonly used on vessels to determine or correct listing. A further utility of this careening ballast of the pontoon and high correcting tackle is to firmly lash the transfer pontoon with its apparatus to the ship that is being coaled.

The hoisting device comprises a skip hoist rope 17, supported in a rigid steel tower 18 and operated by a differential drum 19 of the type shown in my Patent No. 929,508, July 27, 1909. Any suitable hoisting device may be used, however, for lifting the coal, after it has been measured or weighed, to a point high enough to allow it to slide by gravity to its destination.

The distributing devices comprise a pair of swiveling telescopic chutes C receiving the coal from an apron 20 onto which the skip is dumped. A deflector 21 may be associated with the apron so that the coal can be shunted into one of the chutes, or if the deflector be held in mid position the coal from the skip may be divided equally between the chutes. The usual conveniences in the way of derricks 22 for handling the chutes are provided, one for each chute, as part of the distribution system. If the coal

is to be delivered at a point more remote than can be readily reached by the chutes, portable conveyors (not shown) may be provided in extension of the chutes, and to which the latter deliver. This feature, however, is quite independent of the main elements of the installation to which my invention is directed.

If desired, the pontoon may be of sufficient size to carry a plurality of like transfer devices so that they may operate simultaneously at different points along the length of the coal barge, or other supply point, and deliver to different bunkers or the like in a vessel, or vessels, to be coaled. While the invention is illustrated in connection with coaling ships from barges, it is not limited to this utility and may be used to advantage in an installation on land for transferring from coal cars to coal storage pile; or in transferring from a coal dump to cars. In the latter case the apparatus may conveniently be mounted upon trucks traveling on rails.

The details of construction of the various parts are susceptible of modification in many ways, without departing from what I claim as my invention.

I claim—

1. In transfer apparatus, a chute, a hoistway, guides thereon, a container designed to travel up and down the hoistway, and means whereby said container with the lower portion of the hoistway and guides may be shifted from hoisting position to loading position with said container directly under the discharge end of the chute, and while the container maintains its position on the hoistway guides.

2. In transfer apparatus, the combination of a rotatable hopper, a fixed inclined chute to which the hopper discharges, a hoistway, guides thereon, a container designed to travel up and down the hoistway, and means whereby said container with the lower portion of the hoistway and guides may be shifted bodily from hoisting position to loading position with said container directly under the discharge end of the chute, and while the container maintains its position on the hoistway guides.

In testimony whereof I have signed my name to this specification.

AUGUSTUS SMITH.