

No. 775,081.

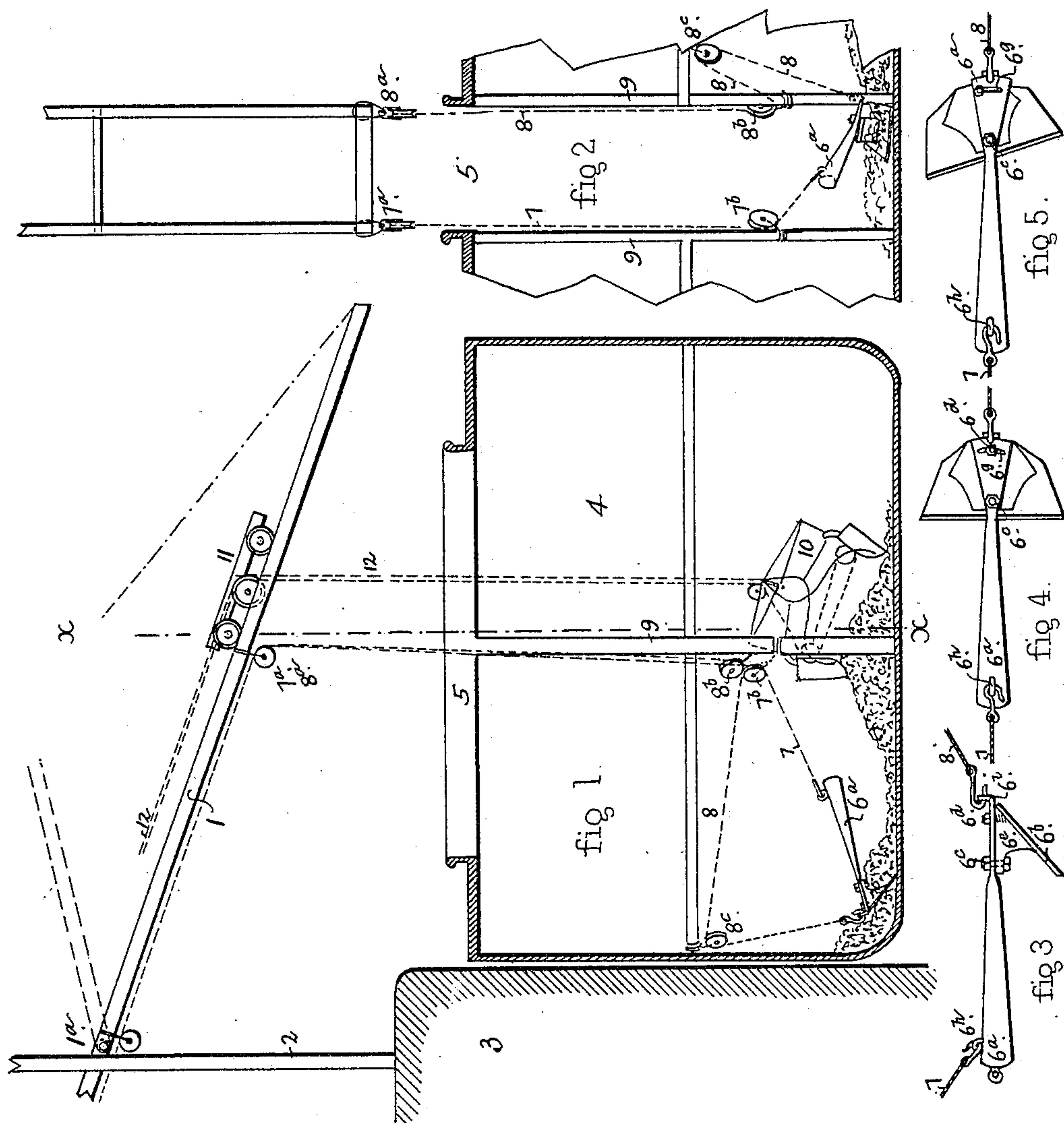
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SCRAPER.

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NO MODEL.



WITNESSES:

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SCRAPER.

SPECIFICATION forming part of Letters Patent No. 775,081, dated November 15, 1904.

Application filed January 5, 1901. Serial No. 42,166. (No model.)

To all whom it may concern:

Be it known that we, FRANK K. HOOVER and ARTHUR J. MASON, citizens of the United States, and residents of Kansas City, in the county of Jackson, in the State of Missouri, have invented certain new and useful Improvements in Scrapers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

Our invention relates to improvements in scrapers, having more particular relation to a scraper intended to be used for moving the cargo of a vessel from between the hatchways to a point under the hatchway where it may be reached and taken up by a self-loading bucket for unloading.

It has been found in practice that for the most efficient working of a scraper to move the cargo to a point under the hatchway within the reach of the self-loading bucket the material so moved should be taken up by the bucket and unloaded as fast as it is brought within reach of the bucket by the scraper—that is to say, the operation of the bucket and the scraper should be simultaneous.

To accomplish this, our invention consists in such arrangement of the operating lines and parts of the apparatus as will permit the continuous operation in the same hatchway at the same time of both the bucket and the scraper without interference the one with the other as well as in providing an improved scraper and embodies certain features of novelty hereinafter described, and pointed out in the claims.

Figure 1 represents a vertical cross-section of the hold of a vessel, showing the arrangement and mode of operation of our improved apparatus. Fig. 2 represents a longitudinal vertical section on the line *x x* of Fig. 1. Fig. 3 represents a side elevation of our improved scraper. Fig. 4 represents a top plan view of the same. Fig. 5 represents a top plan view of the same with the edge of the scraper-blade set at an oblique angle to the beam or stem.

Similar numerals refer to similar parts throughout the several views.

4 represents the hold of a vessel, and 5 one of the hatchways to the same.

1 and 2 represent a cantaliver structure of familiar construction, such as shown in our application, Serial No. 33,866, filed October 22, 1900, erected upon the dock 3, the arm 1 of said structure overreaching the vessel being hinged at 1^a to permit the elevation of said arm to allow the passage of the masts of the vessel as it moves alongside the dock.

6 represents our improved scraper, which is of a generally hoe-like form and includes as an element a head 6^e, which is weighted or made heavy enough to cause it to properly enter the material. Said head may be made hollow or of a suitable framework weighted with lead or like material to give the desired weight within small compass. Upon said head is fixedly secured the blade 6^b at a suitable angle to enter into and carry the load. Upon said head is also adjustably mounted the beam or stem 6^a. Said stem is secured to the head by the bolt 6^c and is flattened at its rear end and provided with a slot 6^d, through which passes a stud-bolt 6^d, secured in the head and provided with a suitable nut whereby when said stem is adjusted to the desired position it may be clamped and fixedly secured upon the head. It has been observed in practice that when the scraper-blade is set directly across the line of the stem, as shown in Fig. 4, in moving the material in certain directions a straight pull on the stem tends to draw the scraper out of the material, so that it will fail to take its load; but by adjustment of the stem as above provided, so that the edge of the blade sets at an angle oblique to the stem, as shown in Fig. 5, the pull on the stem tends to draw the scraper into the pile of the material, so that it will effectively load. This arrangement also acts to prevent the scraper from falling over when working along the side slope of the material to be scraped. It is also noted that with the connection of the stem above described an excess-

ive strain upon the stem occasioned by the blade catching upon some immovable or heavy object the damage which might otherwise occur will be prevented by the yielding of the connection and slip of the bolt in the slot. The stem is preferably weighted at that end thereof which is remote from the head to secure the proper dumping of the scraper when the load is moved to the desired point under the hatchway. In the construction shown this weighting of the stem is effected by making the stem solid and of heavy material, as iron, and giving it a tapered form with its enlarged and heavy end remote from the head and blade. Eyes 6^h and 6ⁱ are provided upon the stem at the opposite ends for the attachment of the operating-lines.

The scraper is operated by the loading-line 7 and the drawback-line 8, as shown in Fig. 1. The loading-line 7 is carried around a sheave 7^b, slung upon one of the posts 9 at one side of the hatchway, and thence over a sheave 7^a, slung upon one side of the cantaliver-arm 1 at a point above in the plane of the same side of the hatch, to a suitable operating-drum. The drawback-line 8 is carried around a sheave 8^c, slung from a point convenient to the material to be removed, and thence around a sheave 8^b, slung upon a post 9 at the side of the hatchway opposite that upon which the loading line sheave 7^b is slung, and up over a sheave 8^a, slung upon the cantaliver-arm at a point above in the plane of that side of the hatch, and thence to an operating-drum. Said operating-drum is of the usual construction and operation—such as shown in our former application, Serial No. 33,866, filed October 22, 1900—and is not here shown.

By the arrangement of the operating-lines 7 and 8 above described said lines are spread apart from the cantaliver-arm down through the hatchway into the hold, so that a self-loading bucket carried from said cantaliver-arm may be operated between said lines without interference therewith and without said lines interfering with the operation of the bucket, and thus the buckets and the scraper may be operated continuously and simultaneously without interference the one with the other.

As is obvious, the scraper is operated by drawing it back and forth by the operating-lines. The eye 6^h in the stem, to which the loading-line 7 is attached, is preferably placed upon the upper side of the stem, as shown in Fig. 4, as in this position any tendency of the scraper to turn over or upset is in great measure prevented.

10 represents a self-loading bucket operated by the lines 12 passing over suitable sheaves upon a carrier 11, arranged to travel upon the cantaliver-arm.

Having thus fully described our improve-

ments, what we claim as our invention, and desire to secure by Letters Patent, is—

1. The combination with a cantaliver structure for unloading vessels, having an arm overreaching the hatchway of the vessel and a carrier traveling upon said arm, of a self-loading bucket and operating-lines therefor passing over guide-sheaves mounted on said carrier, a scraper designed to serve said self-loading bucket arranged to be operated by drawing the same back and forth in the hold of the vessel, and operating-lines therefor passing around guide-sheaves mounted within the hold and over sheaves slung upon said cantaliver-arm, substantially as set forth.

2. The combination with a cantaliver structure for unloading vessels, having an arm overreaching the hatchway of the vessel, of a scraper arranged to be operated by drawing the same back and forth in the hold of the vessel, and operating-lines therefor passing around guide-sheaves mounted at opposite sides of the hatchway and upon the corresponding opposite sides of said cantaliver-arm, whereby said lines are spread apart to permit the operation therebetween of an unloading device without interference, substantially as set forth.

3. A scraper in generally hoe-like form, comprising in combination an inwardly-inclined scraper-blade and a stem, said stem having its outer end weighted, substantially as and for the purpose set forth.

4. A scraper in generally hoe-like form, comprising in combination a head, a scraper-blade secured upon said head, and a stem adjustably secured upon said head to vary the transverse inclination of the blade to the stem, said stem having its outer end weighted, substantially as and for the purpose set forth.

5. A scraper in generally hoe-like form, comprising in combination a weighted head, an inwardly-inclined scraper-blade secured upon said head, and a stem adjustably secured upon said head to vary the transverse inclination of the blade to the stem, said stem having its outer end weighted, substantially as and for the purpose set forth.

6. A scraper in generally hoe-like form, comprising in combination a head, a scraper-blade secured upon said head, and a tapered or cone-shaped stem secured at its smaller end upon said head, substantially as and for the purpose set forth.

7. A scraper in generally hoe-like form, comprising in combination a head, a stem pivotally mounted on said head and provided with means for varying its transverse inclination thereto, and an inwardly-inclined scraper-blade rigidly secured to the under side of said head, substantially as and for the purpose set forth.

8. A scraper in generally hoe-like form,
comprising in combination a head, an in-
wardly-inclined scraper-blade rigidly secured
to the under side of said head, a stem having
5 a weighted outer end adjustably secured upon
said head to vary the transverse inclination of
the blade to the stem, and operating devices
connected to said head and the weighted end

of the stem respectively, substantially as and
for the purpose set forth.

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