

No. 784,286.

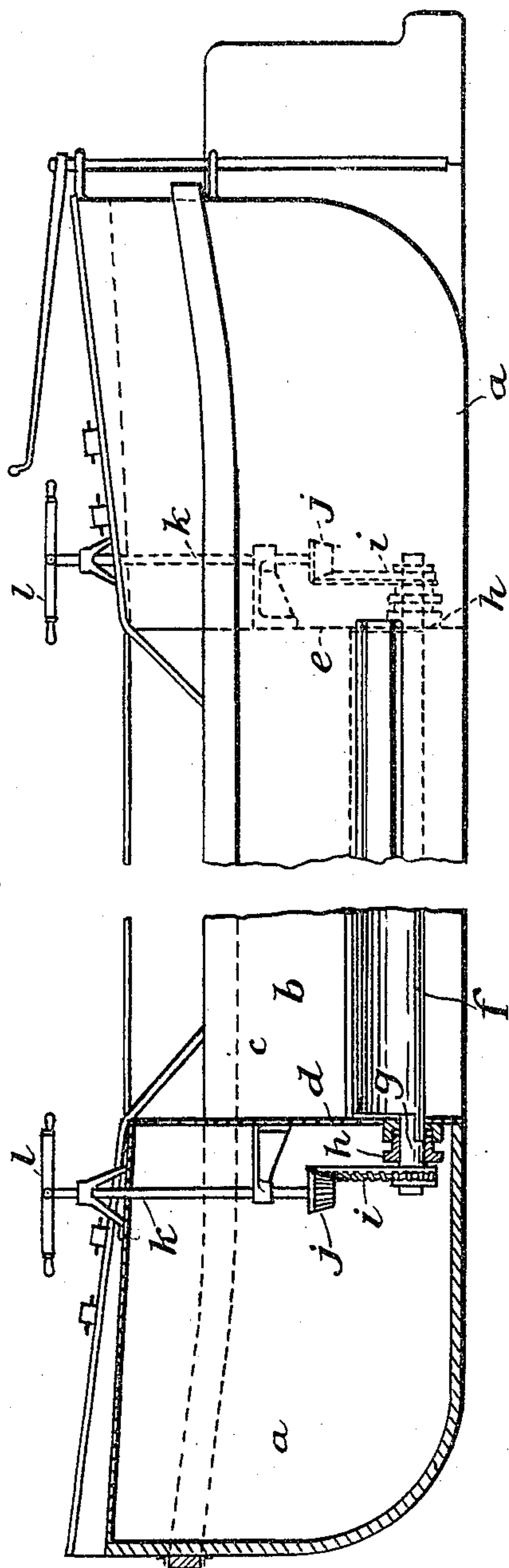
PATENTED MAR. 7, 1905.

J. VOLKER-TÏSZOON.
HOPPER BARGE.

APPLICATION FILED APR. 6, 1904.

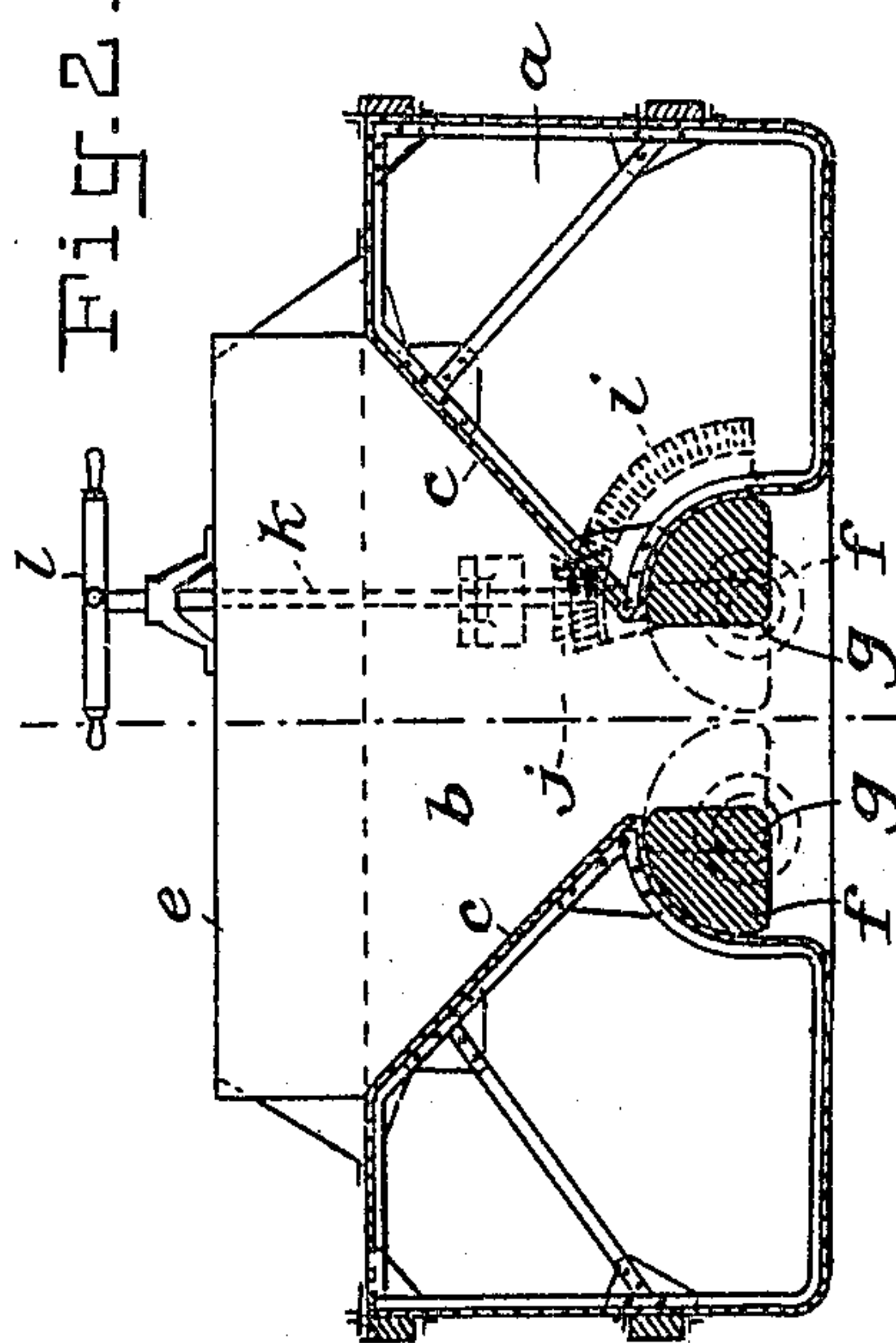
2 SHEETS—SHEET 1.

Fig. 1.



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Fig. 2.



Inventor:
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By *Richard J. [Signature]*
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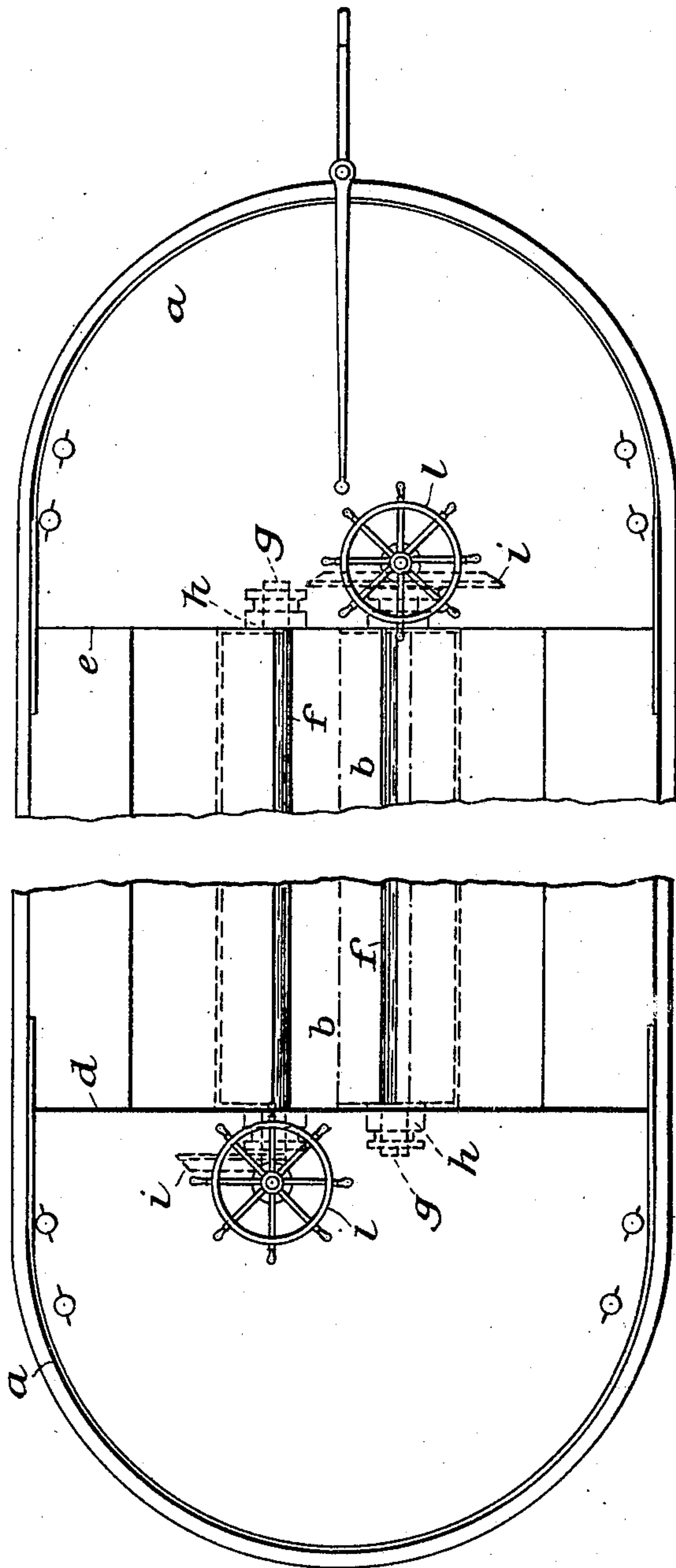
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2 SHEETS—SHEET 2.

Fig. 3.



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UNITED STATES PATENT OFFICE.

JAN VOLKER-TÛSZOON, OF DORDRECHT, NETHERLANDS.

HOPPER-BARGE.

SPECIFICATION forming part of Letters Patent No. 784,286, dated March 7, 1905.

Application filed April 5, 1904. Serial No. 201,741.

To all whom it may concern:

Be it known that I, JAN VOLKER-TÛSZOON, contractor of dredging-works, a subject of the Queen of the Netherlands, residing at Burge-meester de Raedtsingel No. 21, Dordrecht, Kingdom of the Netherlands, have invented certain new and useful Improvements in Hopper-Barges, of which the following is a specification.

10 This invention relates to hopper-barges of the kind in which the dredged material is removed through an aperture in the bottom of the barge; and it consists of a novel device for closing the said aperture. Self-emptying
15 barges of this kind have heretofore been provided with hinged bottom flaps which are hung to chains and opened and closed by means of a windlass. Such flaps, however, do not close the bottom of the hopper-barge perfectly, and they
20 are liable to be dashed about by moving water when they hang down in the opened position below the barge. Such flaps also increase the draft of the barge—that is to say, increase the depth of water necessary for the useful
25 employment of the barge. In order to obviate this latter objection, the flaps have in some cases been arranged in a space in the barge open at bottom, but kept normally closed by the flaps. In any case, however, a considerable consumption of power is required to effect the closing of these flaps, especially when
30 a part only of the dredged material has been passed through the discharge-aperture and the flaps have to be closed again with the rest of the cargo still lying upon them.

According to my present invention instead of using bottom flaps of the kind above mentioned I employ rotatable slides, which are
40 turned by hand from the deck. These slides form the bottom of the cargo space or hopper. The side walls of this space are inclined and are kept quite smooth. The slides when in the open position remain within the profile of the barge, and therefore do not affect the
45 draft of the latter.

In the accompanying sheet of drawings, Figure 1 is a side view, partly in longitudinal

section; Fig. 2, a cross-section, and Fig. 3 a plan, of a hopper-barge with my invention applied thereto.

50 The interior of the barge-body *a* has formed in it a cargo space or hopper *b*. This space is formed by the inclined longitudinal walls *c*, the front wall *d*, the after wall *e*, and bottom *f*, the latter consisting of two rotatable
55 slides. These slides are of circular segmental section and are provided with pins or gudgeons *g*, on which they turn parallel to the longitudinal axis of the barge. These pins or gudgeons *g* turn in water-tight stuffing-
60 box bearings *h* in the cross-walls *d* and *e*. As seen in Fig. 2 a chamber is formed in the lower part of the barge-body *a*, into which the slides *f* are closely fitted in such manner that no part of them projects beyond the outer
65 surface of the barge.

The apparatus for turning the slides consists of segmental bevel-wheels *i*, fixed on the pins or gudgeons *g* of the slides, and corresponding bevel-wheels *j*, fixed on the vertical
70 shafts *k*, which can be turned from the deck by means of hand-wheels *l*.

Fig. 2 shows that in the closed position of the slides *f* (indicated by dotted lines) the bottom of the barge is completely closed and that
75 when the slides are open (indicated by full lines) the discharge-aperture is quite free and clear.

If the barge is to be emptied by means of a sand suction-pump, sufficient water must be
80 added to the material in the hopper, and large pieces—such as blocks of wood, stones, &c.—can be easily removed. With the above-described rotatable slide devices this can be effected in a very simple way, for if the slides
85 *f* are only opened slightly water can enter from outside to dilute the cargo. If it is desired to remove the part of the contents that cannot be drawn out with the sand-pump, the slides are opened a little more and then
90 closed again as soon as the said part has been discharged.

The smooth inclined walls of the hopper facilitate the emptying of the same, and as there

are no chains, flaps, or other obstacles in the way no material can remain hanging to them and the emptying is very completely effected.

As there are no flaps projecting below the bottom of the barge, the latter can be emptied in shallow places, even when it touches the ground, as it is always possible to open the slides, and immediately the cargo falls through between them the barge rises, and is thereby simultaneously emptied.

The cost of a barge fitted with the above-described discharging or emptying apparatus is not higher than one constructed with the apparatus heretofore used and offers great advantages over the latter, for the slides close securely, which is not the case with flaps, inasmuch as these become distorted, the chains stretch, &c.

As the slides work without hinges and chains, the wear and tear is quite insignificant, while the hinges of flaps quickly wear out. Furthermore, as the slides close well together there is no fear of losing more or less of the cargo. There is no fear of injury of any kind to the slides, because they are completely protected and always remain wholly within the barge, whether in the opened or closed position. On the contrary, flaps are easily injured when they hang down freely in the opened position, especially in stormy weather, when the entire flap arrangement is liable to be swept away. The slides can be closed again when the barge is partly emptied, so that only so much of the cargo need be discharged at a time as may be desired.

The slides in the open position leave the whole discharge aperture quite free, whereas in the case of flaps, where chains are always hanging in the cargo-space, the movement of the cargo is interfered with more or less by such chains. As the slides do not project beyond the outer surface of the barge, it follows that wherever the barge can go when loaded it can be discharged, while flaps can only be

opened when there is room enough between the ground and the bottom of the barge.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a hopper-barge, devices for opening and closing the discharging-aperture in the bottom thereof which consist of rotatable portions of circular segmental section placed within chambers formed at the bottom of the barge, and means by which said portions may be rotated on their axes, substantially as described.

2. In a hopper-barge, devices for opening and closing the discharging-aperture in the bottom thereof which consist of rotatable portions of circular segmental section placed and working in chambers inside the barge parallel to the longitudinal axis thereof, and means for turning the said portions on their axes into such a position that they bear against each other when the discharging-aperture is closed, or into such a position as will leave the said aperture free and clear when the discharging-aperture is opened, substantially as described.

3. In a hopper-barge, the device for opening and closing the discharging-aperture in the bottom thereof, which consist of rotatable portions *f* of circular segmental section, chambers formed at the bottom of the barge to contain the slides *f*, pins or gudgeons *g* on the said portions, stuffing-boxes in the ends of said chambers through which the said pins or gudgeons pass, sectors *i*, pinions *j*, shafts *k*, and means for rotating said shafts, combined and operating substantially as described with reference to the drawings.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JAN VOLKER-TÛSZOON.

Witnesses:

JAN T. MINYARK,
JOHANNES D. FÜHRING.