

C. KUHN.
DUMPING HOPPER.
APPLICATION FILED DEC. 27, 1909.

984,010.

Patented Feb. 14, 1911.

2 SHEETS-SHEET 1.

Fig. 2,

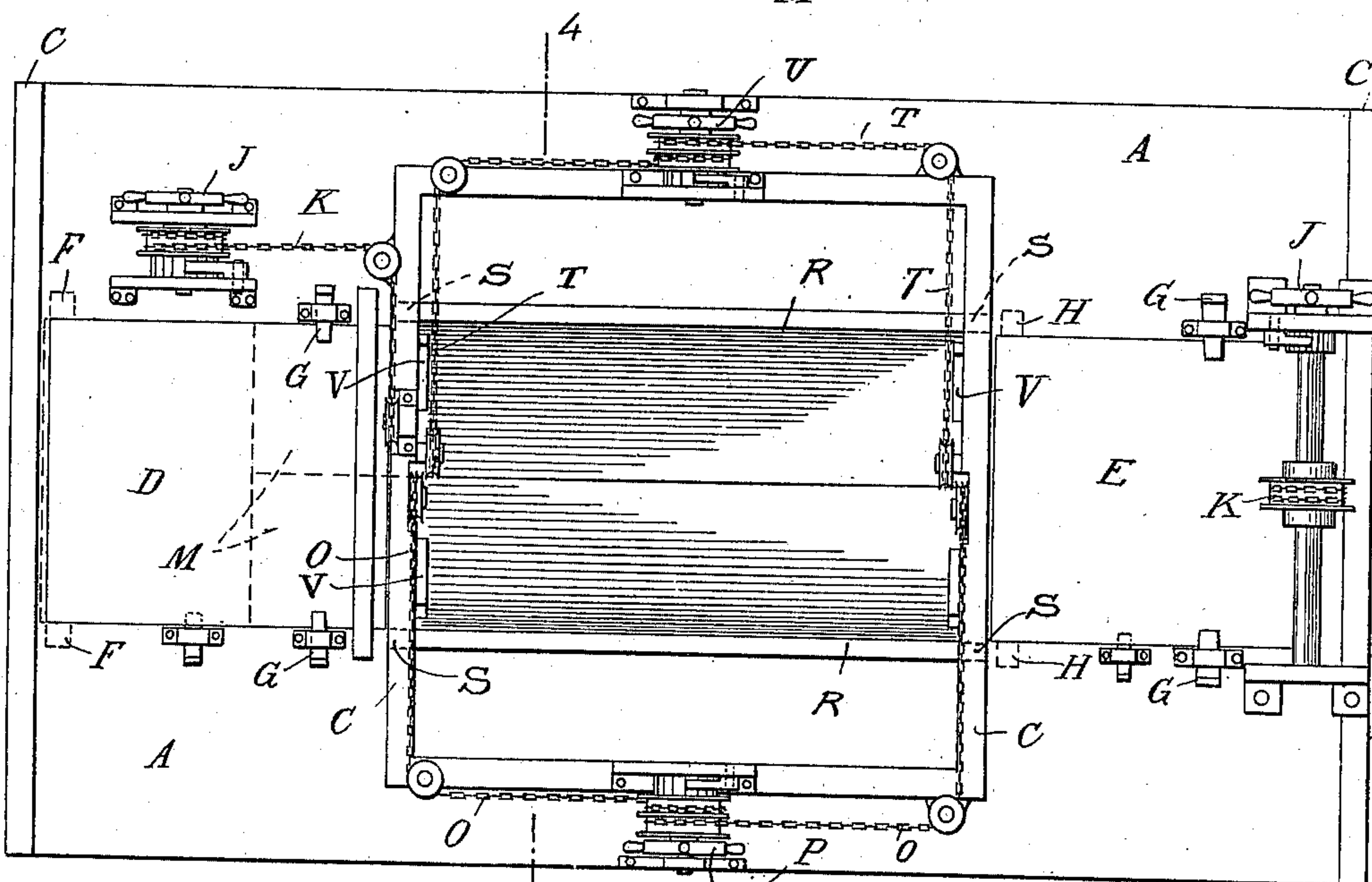
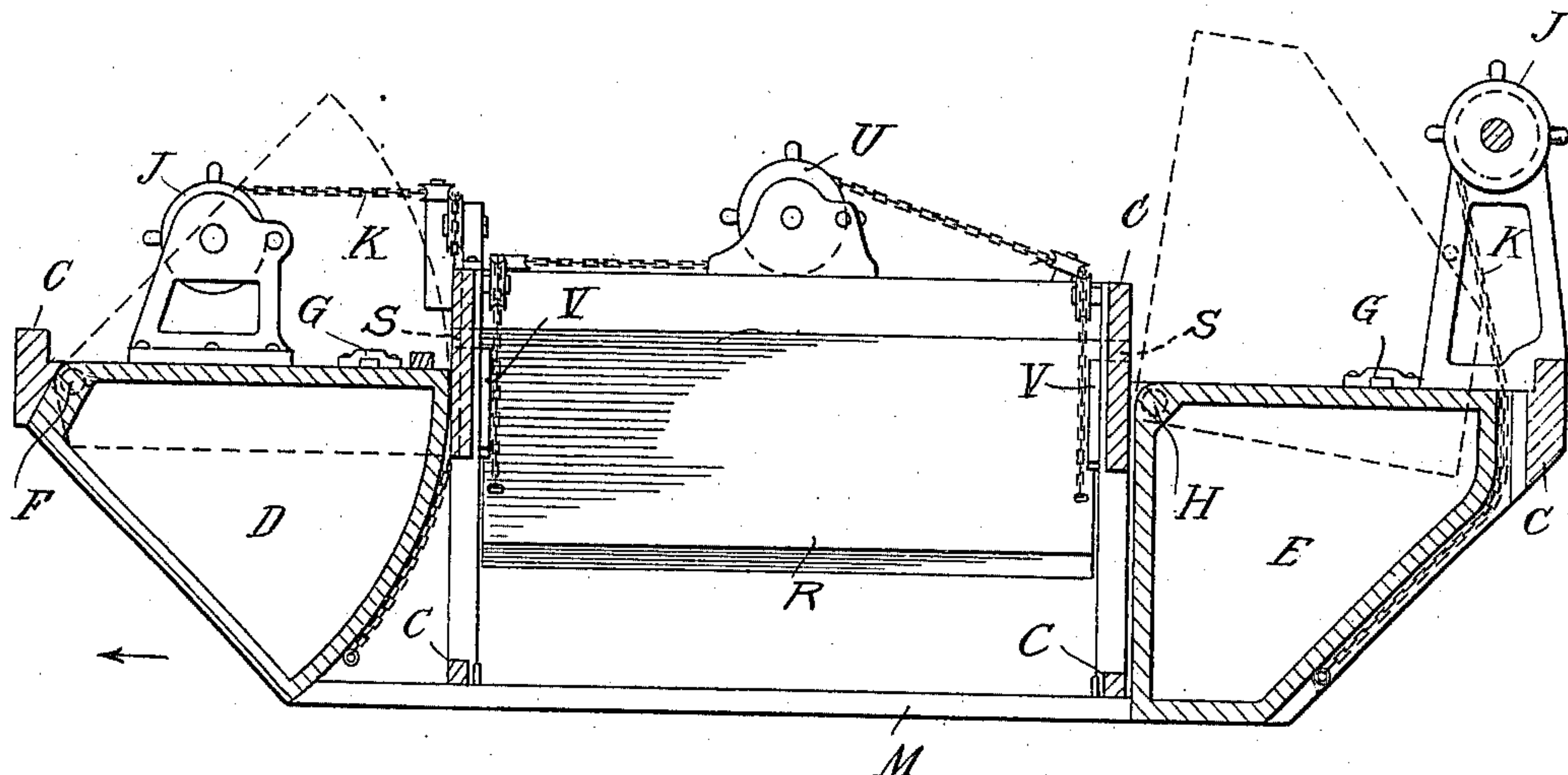


Fig. 1,

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2 SHEETS—SHEET 2.

Fig. 3,

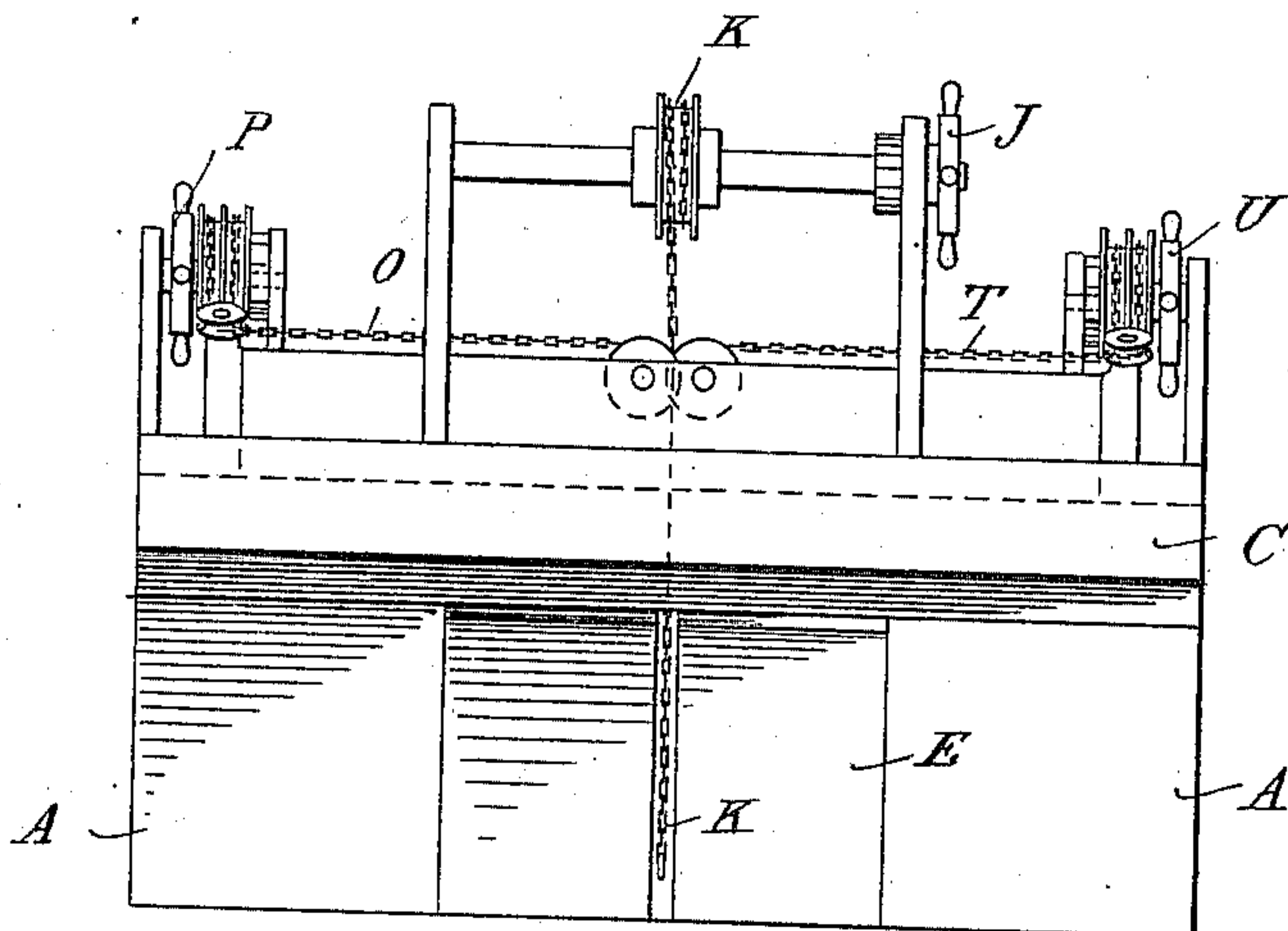
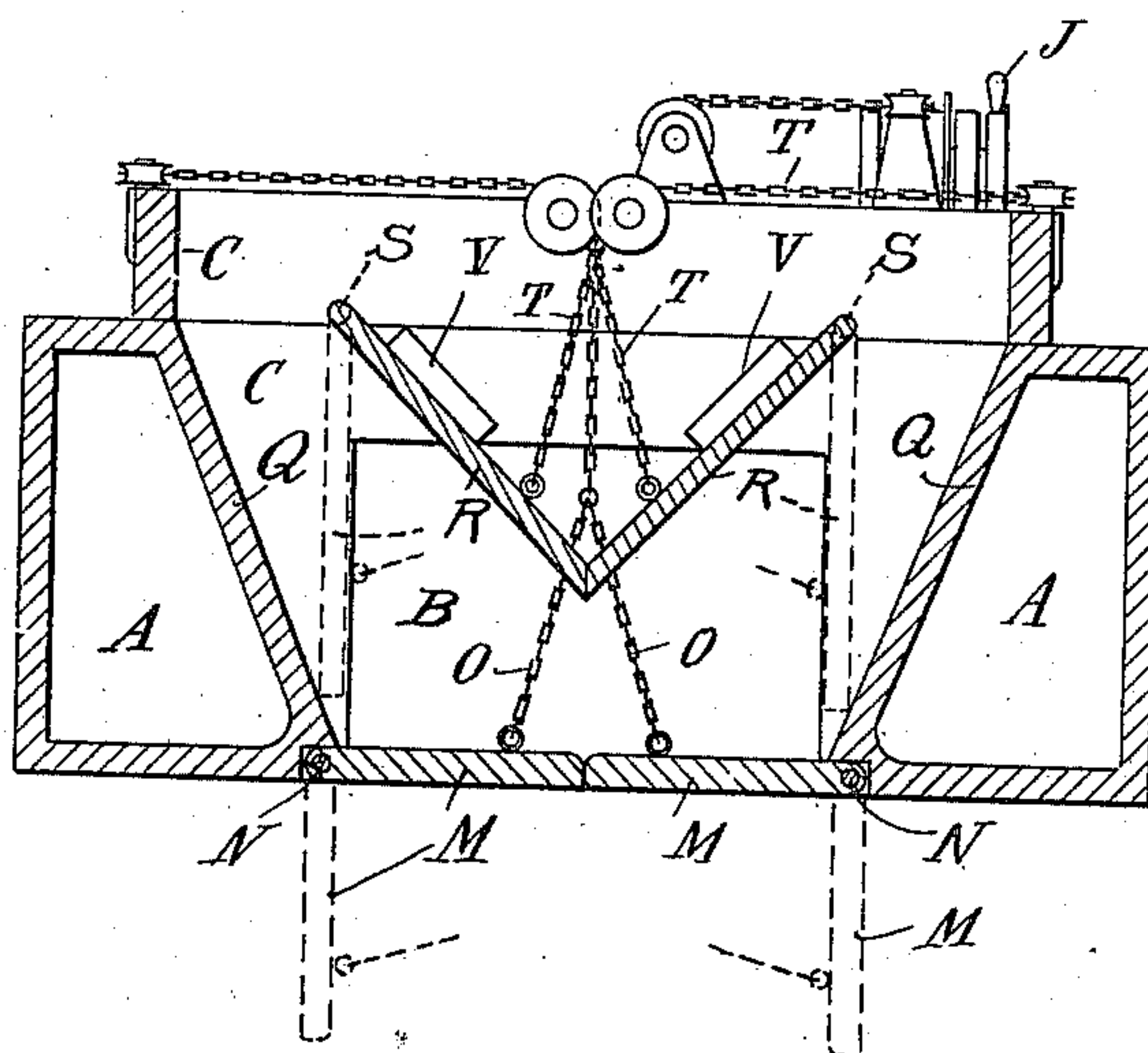


Fig. 4



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UNITED STATES PATENT OFFICE.

CHARLES KUHN, OF NEW YORK, N. Y.

DUMPING-HOPPER.

984,010.

Specification of Letters Patent. Patented Feb. 14, 1911.

Application filed December 27, 1909. Serial No. 534,909.

To all whom it may concern:

Be it known that I, CHARLES KUHN, a citizen of the United States, and a resident of the city, county, and State of New York, have invented certain new and useful Improvements in Dumping-Hoppers, of which the following is a specification.

This invention relates to dumping-hoppers, more particularly to dumping-scows which are used for dumping refuse at sea, and the objects of the invention are to provide means for dumping the scows or hoppers whereby the dumping is rendered certain in a short period of time, thereby obviating difficulties due to clogging and arching of the material in the hopper or scows.

To the accomplishment of the above objects, and to such others as may hereinafter appear, the invention comprises the novel construction and combination of parts hereinafter described and particularly pointed out in the appended claims.

Referring to the drawings: Figure 1 is a plan view of a dumping scow constructed according to my invention; Fig. 2 is a side view in cross section, taken through the longitudinal center of Fig. 1; Fig. 3 is an end view of Fig. 1 looking from the right; Fig. 4 is an end view in cross section on the line 4-4 of Fig. 1.

In the drawings A designates two longitudinal buoyancy chambers which form the side portions of the scow, these chambers are spaced part to form a well B as shown in the drawings, by means of the partitions or cross braces C so that an opening extends from the front to the rear between the two chambers A. The openings at each end of the scow between the buoyancy chambers A are provided with buoyancy valves D and E which are adapted to close the space between the ends of the chambers A and to conform to the general outline of the ends of the scow or chambers A, as shown in Figs. 1 and 2.

The buoyancy valves D and E are both pivoted at one end to the top portion of the chambers A, the valve D being forward the same is pivoted as shown at F so that when it is desired to wash out the scow the water will force the valve upward, as shown in dotted lines, the scow being towed in the direction of the arrow. When it is not desired to flush the scow with water, the valve D is held down by means of locking devices G, the buoyancy valve E being aft is pivoted

as shown at H so that when it is desired to wash out the scow and the same is being towed as before described the valve E will assume the position shown in dotted lines. For normally holding the valve E in position locking devices G are also provided similar to the locking device on the valve D. In case the valves D or E stick when it is desired to have them open, or in case the scow is not being towed through the water when it is desired to dump the same, suitable windlasses J with chains K are provided for forcing them open, ordinarily the same are not needed as the force of the water while the scow is being towed is amply sufficient to force the valves open. When the scow has been dumped, the same rises considerably out of the water, thereby permitting the valves to return nearly to their normal position, the final locking of the valves being accomplished by the man locking the valves standing on them to force them down. Of course if desired, suitable chains can be connected to the windlasses J for accomplishing this purpose.

In order to retain the load in the well B, bottom gates M are provided which extend longitudinally from the end of the valve E to the lower end of the valve D as shown in Figs. 1 and 2. The gates M are two in number and the same are pivoted as at N so as to permit of their assuming the position shown in dotted lines in Fig. 4. The gates M are held closed by means of the chains O which pass over suitable idlers and operated by means of a suitable windlass P by means of which the gates M are opened and closed.

In order to carry as great a load as possible and in order to make the gates M as narrow as possible, so that the same will not be overloaded, the inner sides of the buoyancy chambers are inclined inward toward the bottom as shown at Q in Fig. 4. These sloping or inclined sides of the scow facilitate the clogging or bridging of the material or refuse in the scow and prevent dumping even after the gates M are opened as shown in dotted lines in Fig. 4. It is to obviate this difficulty that the buoyancy valves D and E are provided. These valves are so constructed that the force of the water against the valves in towing the scow will open the same and leave a large opening for the passage of water to wash out the material or refuse in the scow. To further prevent the clogging or bridging of the mate-

rial in the scow, partition gates R are provided which are pivoted at each end as shown at S, so that the same can assume either the full line or dotted line position shown in Fig. 4. The partition gates R may be made any desired width, the same in the present instance being wide enough to meet at their lower edges, as shown in full lines in Fig. 4, and in such position the portions of the well B between the outer sides of the partition gates R and the sides of the scow are wider at the bottom than at the top, so as to effectively prevent any clogging or bridging of the material when the bottom gates M are opened. It is also evident that the ends of the partition gates need not touch each other at the bottom throughout their entire length, as it is often desirable when heavy material is loaded in the scow to permit the same to run out of the pocket formed between the two partition gates R so as to fill up the bottom of the scow first so as to support the gates R when the scow is completely filled. To accomplish this purpose the gates R may be made of slats with spaces between the same through which the material may pass in a more or less restricted manner. The partition gates R are held closed by means of the chains T which pass over suitable idlers and are operated by means of a suitable windlass U, by means of which the partition gates are opened and closed.

When the scow is empty and before any material is dumped into the same, the partition gates are forced against the blocks or stops V as shown in Fig. 4. The material or refuse can then be dumped into well B completely filling the space between the partition gates R and between the partition gates R and the sides Q of the scow. When it is desired to dump the scow, the bottom gates M are permitted to drop, and assume the dotted line position shown in Fig. 4, by releasing the windlass P. The partition gates R being held in their full line position, it will be seen that the material in the space outside of the gates R cannot possibly bridge, due to the shape of the openings on each side of the gates R being wider at the bottom than at the top, or the opening at the bottom of the passageway is at least of the same size at the bottom as at the top. After the portions of the well B outside of the gates R have been removed the gates R

are released and permitted to assume the dotted line position shown in Fig. 4. It is obvious that no bridging of the material retained by the gates R can possibly bridge or clog.

While the invention has been described with particular reference to the details of construction, it is not to be considered as limited thereto, as many changes may be made and still fall within the scope of the following claims.

What I claim is:—

1. In a dumping scow or hopper provided with a longitudinal opening extending from one end to the other and buoyancy valves for closing the ends of said opening as and for the purposes set forth.

2. In a dumping scow or hopper a longitudinal opening extending from one end of said scow or hopper to the other, and buoyancy valves for closing the ends of said opening, said buoyancy valves being arranged to be opened by the force of the water against the valves in towing the scow or hopper through the water as and for the purposes set forth.

3. In a dumping scow or hopper a longitudinal opening extending from one end of said scow or hopper to the other, buoyancy valves for closing the ends of said opening, and means for pivoting said valves to said scow or hopper so as to open the valves by the force of the water against the valves in towing the scow or hopper through the water as and for the purposes set forth.

4. A container for material to be dumped provided with an opening at the bottom, bottom gates for closing said opening, and partition gates in said container arranged above said opening, said partition gates being pivoted and spaced apart near their tops, their lower edges being close together when they are in closed position to retain the material between the partition gates whereby the material outside of said partition gates will be dumped by the opening of said bottom gates.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

CHARLES KUHN.

Witnesses:

LEO Z. MATTY,
D. A. DAVIES.