

No. 639,704.

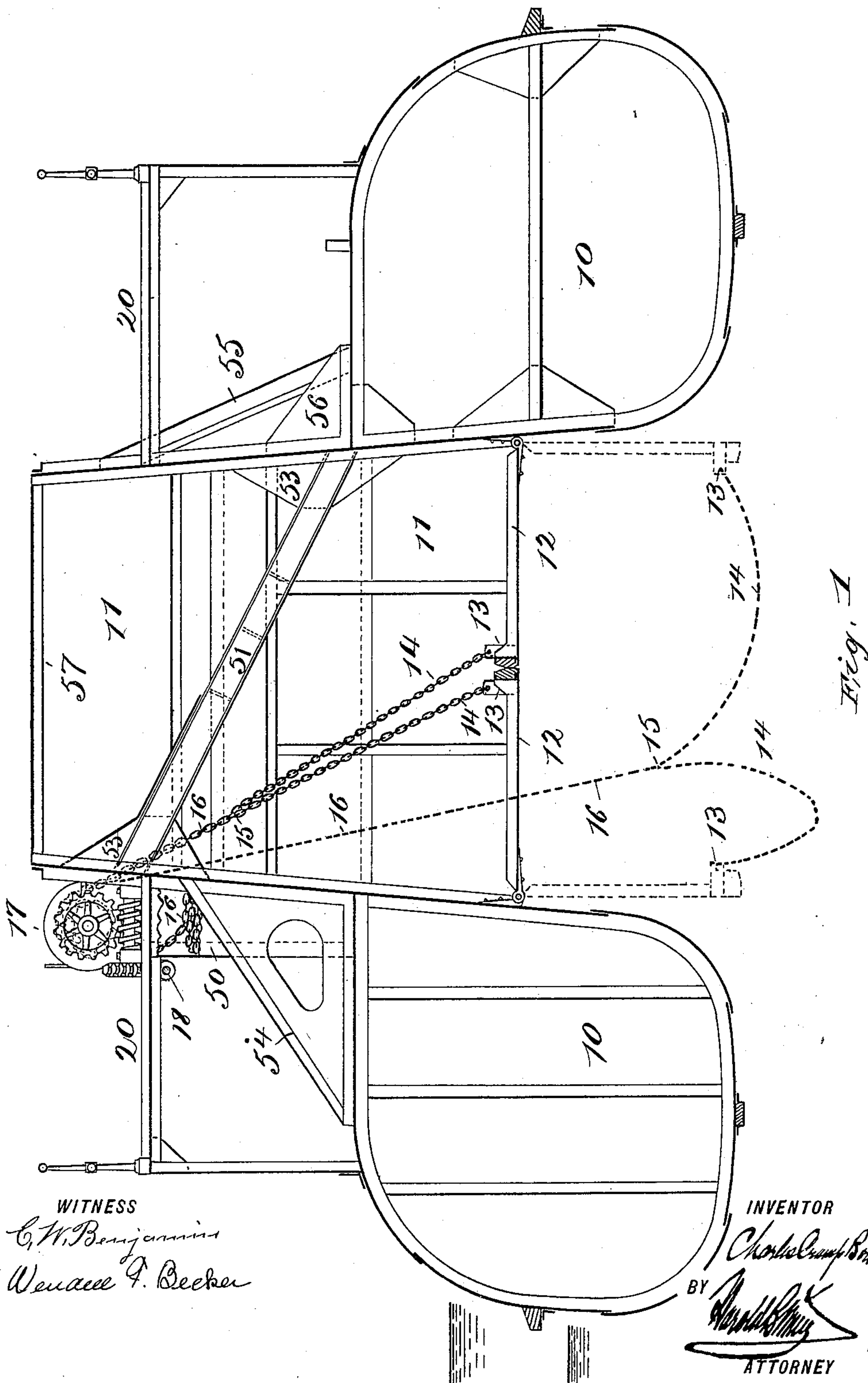
Patented Dec. 26, 1899.

C. C. BOWERS.
DUMPING SCOW.

(Application filed Jan. 17, 1899.)

(No Model.)

4 Sheets—Sheet 1.



WITNESS

C. W. Benjamin
Wenace F. Becker

INVENTOR

Charles C. Bowers
BY *[Signature]*
ATTORNEY

No. 639,704.

Patented Dec. 26, 1899.

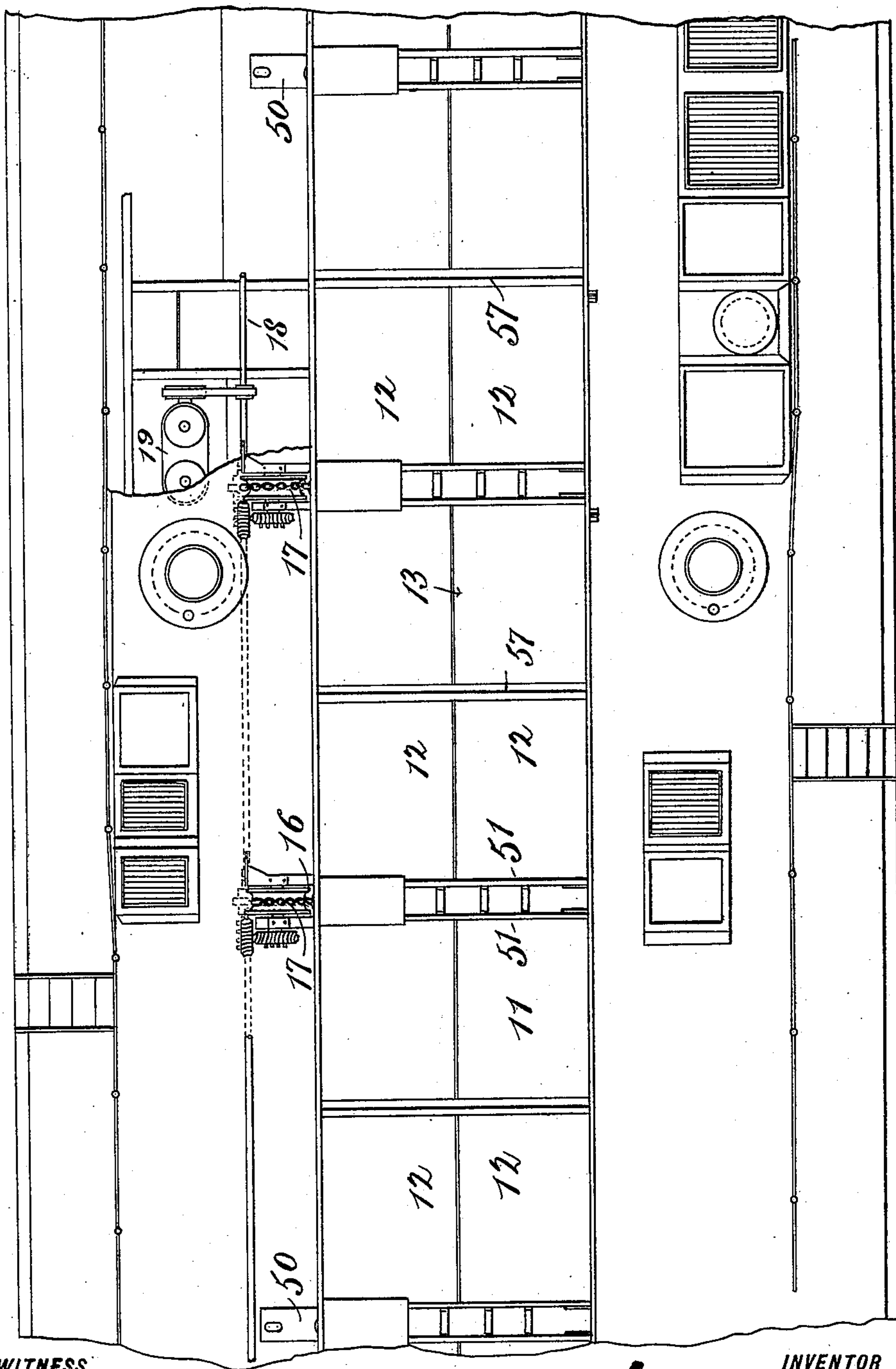
C. C. BOWERS.
DUMPING SCOW.

(Application filed Jan. 17, 1899.)

(No Model.)

4 Sheets—Sheet 2.

Fig. 2.



WITNESS

C. W. Benjamin
Wendell Becken

INVENTOR

Charles C. Bowers

BY

[Signature]

ATTORNEY

No. 639,704.

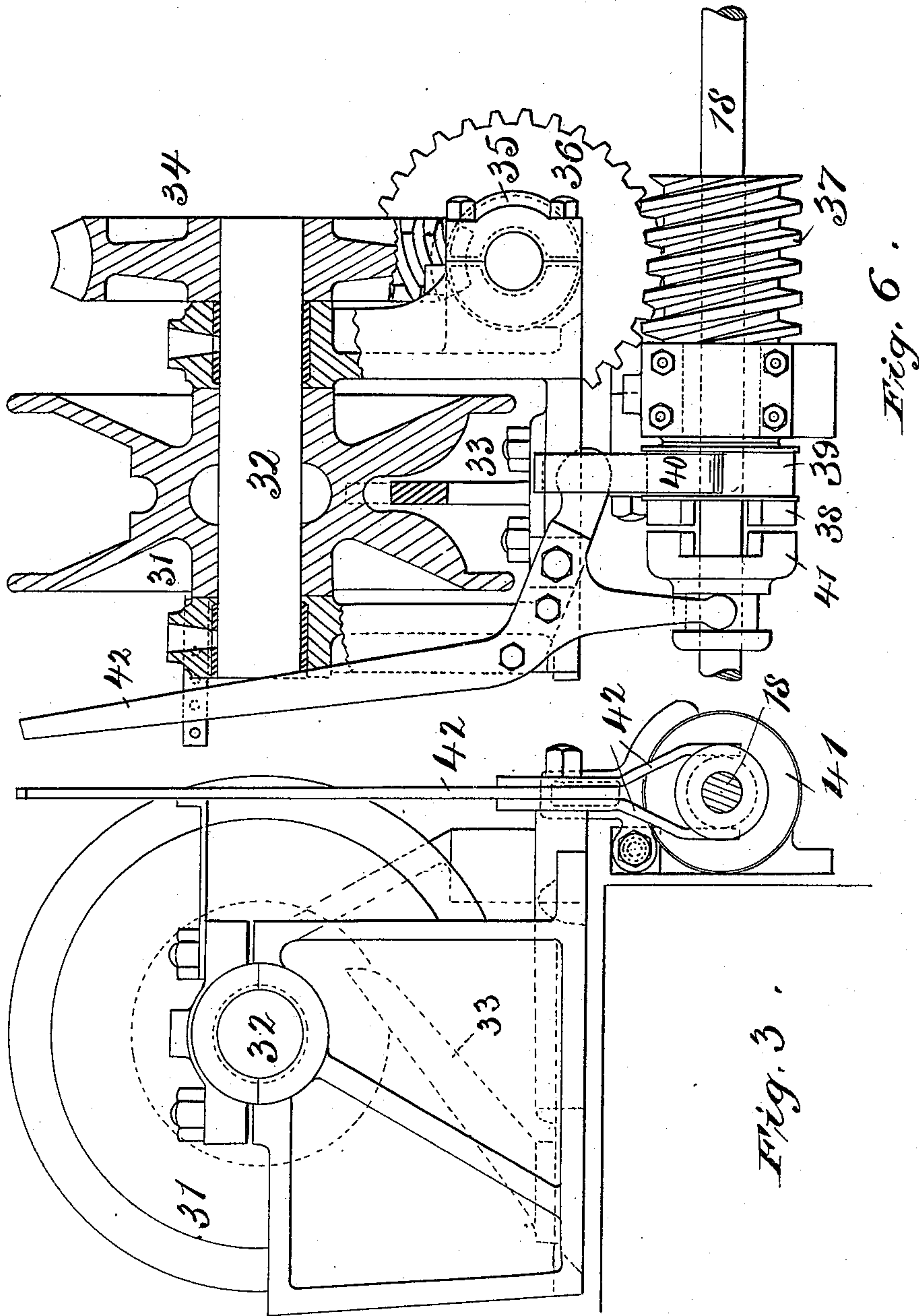
Patented Dec. 26, 1899.

C. C. BOWERS.
DUMPING SCOW.

(Application filed Jan. 17, 1899.)

(No Model.)

4 Sheets—Sheet 3.



WITNESS

C. W. Benjamin
Andrew. Becker

INVENTOR

Charles C. Bowers

BY

Attorney

ATTORNEY

No. 639,704.

Patented Dec. 26, 1899.

C. C. BOWERS.
DUMPING SCOW.

(Application filed Jan. 17, 1899.)

(No Model.)

4 Sheets—Sheet 4.

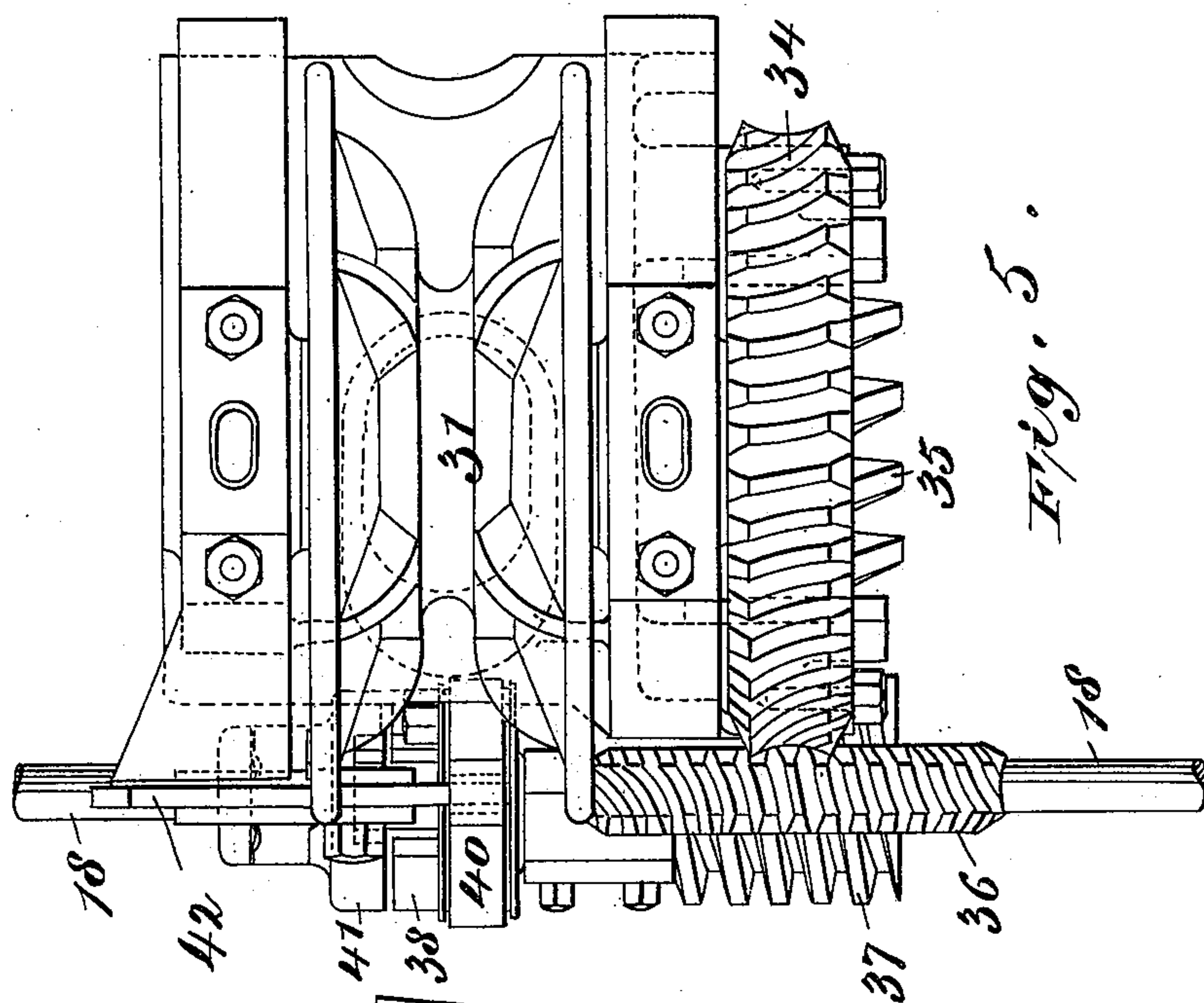


Fig. 5.

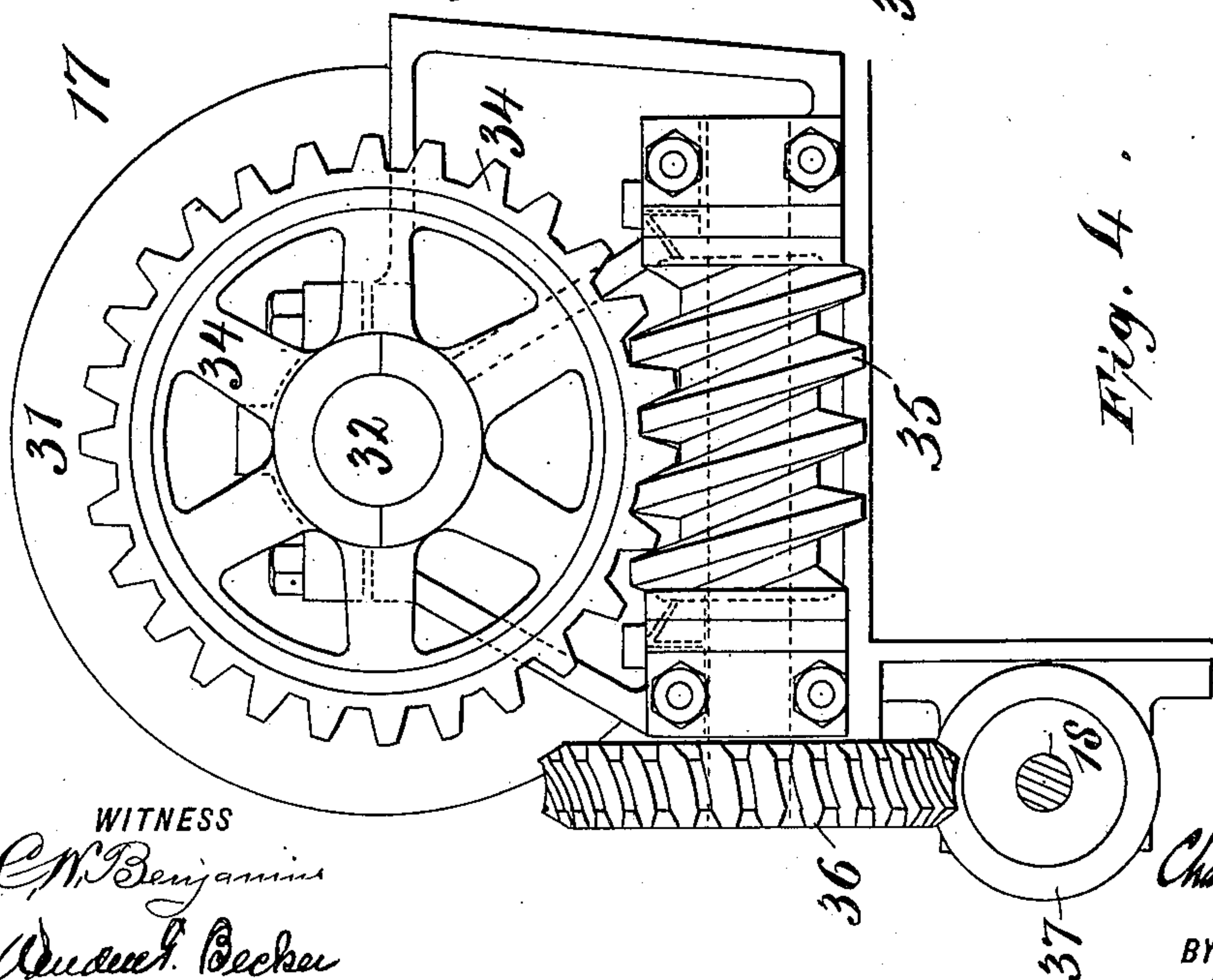


Fig. 4.

WITNESS
E. M. Benjamin
Wm. F. Becker

INVENTOR
Charles C. Bowers
BY *[Signature]*
ATTORNEY

UNITED STATES PATENT OFFICE.

CHARLES CRAMP BOWERS, OF ELIZABETH, NEW JERSEY, ASSIGNOR TO
FRANCIS B. DELEHANTY, OF NEW YORK, N. Y.

DUMPING-SCOW.

SPECIFICATION forming part of Letters Patent No. 639,704, dated December 26, 1899.

Application filed January 17, 1899. Serial No. 702,488. (No model.)

To all whom it may concern:

Be it known that I, CHARLES CRAMP BOWERS, engineer, of Elizabeth, New Jersey, have invented certain new and useful Improvements in Dumping-Scows, of which the following is a description, referring to the accompanying drawings, which form a part of this specification.

The invention relates most particularly to the class of dumping-scows which is exemplified in the patent to Daniel Delehanty, No. 542,408, of July 9, 1895, and assuming that the reader is familiar with that class of scows the explanation of the present invention will be facilitated. Where several dumping-pockets are arranged in a row on such a scow, it is convenient to be able to dump the pockets severally or all together. The doors, which form the bottoms of the pockets, are usually hinged at the sides and come together at the center of each pocket, so that when they are dropped the whole bottom of the pocket is open.

Part of the present invention contemplates mechanical hoisting devices for raising and closing the doors and for sustaining the weight of the material in the pockets when the doors are closed.

Another part of the invention contemplates peculiar bracing, so as to enable the scow to withstand the strains due to the weight of material resting upon the doors.

A third part of the invention contemplates a novel and convenient manner of storing away the slack chain or rope.

The nature of the invention is such that it will best be understood by describing one preferred embodiment of it, which is illustrated in the accompanying drawings.

Figure 1 is a transverse cross-section through the scow. Fig. 2 is a plan view with the upper deck partly broken away to show certain details and with two of the hoisting devices removed. Fig. 3 is an end view of one of the hoisting devices looking along the main shaft. Fig. 4 is an opposite end view of the same. Fig. 5 is a plan view; and Fig. 6 is a front view, partly in section.

Throughout the drawings like numerals of reference indicate like parts.

The particular form of the scow selected

for illustration is of the double-pontoon or catamaran type. The two boats or pontoons are shown at 10. The interval between the two pontoons is occupied for at least a portion of the length of the scow by a plurality of pockets 11 for the garbage, ashes, or other material to be carried. The side walls of the pockets 11 are inclined or overhang the pocket slightly, so as to facilitate the discharge of the contents of the pocket when the doors at the bottom are open, and to this inclination of the wall of the pocket the peculiar system of bracing which I am about to describe has a particular relation. The doors 12, hinged at either side of each pocket, form the bottoms of the pockets. The doors are each supported near their meeting edges at two points 13 by means of four chains 14, which run to the common point or link 15 and are connected with the hoisting-chain 16, of which there is one for each pocket or bin passing up through or over the side of the bin opposite the center. The dotted lines in Fig. 1 show the position of the chains when the doors are dropped for dumping. Chain-hoists or wildcat mechanisms are placed centrally for each pocket, so as to act centrally upon the chain 16 and the four chains 14. These hoisting mechanisms are preferably placed along one of the upper decks 20 and are connected with the main or counter shaft 18, which is driven from the engine 19 or other source of power. Each of the hoisting mechanisms 17 is connected by powerful reduction-gearing to the shaft 18 by a clutch, so that it may be connected and disconnected at will. The details of the preferred form of the hoisting mechanisms which I have designed are shown in Figs. 3 to 6, inclusive. At 31 is the wildcat or hoisting-drum, which is fitted to the links of the chain 16 and which turns on the shaft 32. A stripper 33 is provided, which insures the stripping of the loose portion of the chain from the wildcat 31, so that it will clear itself from the wildcat and fall into the upright column 50, (see Fig. 1,) which forms a receiving-chamber for the chain, as will be presently described. The wildcat 31 is actuated by double reduction-gearing from the shaft 18. The reduction-gearing shown consists of a worm-wheel 34, actuated by worm 35, which is in turn

actuated by the worm-wheel 36 and cooperating worm 37. The worm 37 turns loosely upon the shaft 18 and is provided with or turns with one part 38 of a clutch. It is also
 5 provided with an annular brake-bearing 39 upon which the brake-shoe 40 acts. The other part 41 of the clutch turns with the shaft 18, but is splined to move longitudinally upon the shaft into or out of engagement with
 10 the part 38 of the clutch. A hand-lever 42 is connected to actuate simultaneously the clutch member 41 and the brake-shoe 40, so that by throwing the hand-lever 42 to the left of Fig. 6 the brake-shoe will be raised and the
 15 clutch thrown in gear, causing the shaft 18 to actuate the wildcat 31, and thereby raise or lower the doors 12 by means of the chains 16 and 14. As each one of the wildcats has its separate controlling-lever 42 it is clear that
 20 all of the doors may be operated simultaneously or any pair operated at will. When the lever 42 is thrown to the right of Fig. 6, it disconnects the clutch and puts on the brake 40, so as to stop the wildcat instantly.

It has been found in practice that the great strain caused by the chain 16 acting upon the unbraced center of the pocket is apt to deform the wall of the pocket. The system of struts or braces shown in Fig. 1 is so designed
 30 that it distributes strain caused by the chain 16 directly onto the two pontoons 10 without relying on the strength of the walls of the bin or pocket 11. To accomplish this, each of the hoisting mechanisms 17 is mounted on
 35 a vertical plate-iron column 50, so that any vertical strains are carried directly down to the left-hand pontoon 10, as seen in Fig. 1. The diagonal brace 51, which may conveniently consist of a pair of I-beams, extends
 40 directly from the hoisting mechanism to the inner and upper portion of the right-hand pontoon 10, as clearly shown in Figs. 1 and 2. The chains 16 preferably run midway between each pair of braces 51 when they are
 45 used in pairs, as shown. The junction of the braces 51 and the walls of the pocket 11 are preferably strengthened and the distribution of forces improved by the vertical plates 53. As the vertical force upon the two pontoons
 50 10 would be largely at the inner sides of the pontoons diagonal braces 54, 55, and 56 are placed in such a manner as to carry the forces outward upon the pontoons, as will be clearly understood by reference to Fig. 1.

55 The transverse walls 57 between the several pockets brace the pontoons, the pockets, and the whole structure of the scow transversely.

The upright columns 50, being formed of
 60 sheet-metal plates and channel-bars and placed directly beneath the hoisting mechanisms 17, are arranged to receive the slack ends of the chains 16 and form chain-pockets, as clearly indicated in Fig. 1. In this manner
 65 economy of space is combined with neatness in appearance.

So far as the bracing system which I have

described is concerned I make no claim to having invented features or combination of features not pointed out in the following
 70 claims, as certain features are the invention of other parties and the subject of separate applications for patents. I desire to be understood, however, that in describing the preferred embodiment of the invention as it has
 75 been actually designed and used I do not mean to imply that the form and details of the several parts are subject to no modification. On the contrary, it is clear that a difference in the proportions or general arrange-
 80 ment of the scow would require considerable modifications in the details I have described, and even in the form of scow shown these details could be modified by mere engineering skill without departing from the principles
 85 involved. I also desire to be distinctly understood that although I have shown a chain-hoist instead of a wire rope or other hoisting mechanism, a rope, band, or other tension device is to be regarded as the mechanical
 90 equivalent of the chain which I have shown, though on account of its greater flexibility and convenience in preventing its slipping on the hoisting apparatus the chain is decidedly
 95 preferable to a wire rope.

Having now fully set forth the particulars of my invention, so as to enable engineers and others conversant with the related art to make use of the invention, I claim, and desire to secure by these Letters Patent, the follow-
 100 ing features:

1. In combination in a dumping-scow and with the inclined or overhanging walls of a pocket thereof, the pair of doors forming the
 105 bottom of the pocket, a hoisting device 17 supported near the upper edge of one of the said inclined or overhanging walls, chains for closing and supporting the said doors, actuated by the said hoisting mechanism, and a brace
 110 51 extending from the said hoisting mechanism and from the inclined wall in vicinity of said hoisting mechanism, diagonally across the said pocket, substantially as described.

2. In combination in a dumping-scow and with the two pontoons thereof, the pocket be-
 115 tween the said pontoons provided with a movable bottom or doors, hoisting mechanism and chains for closing and supporting the said bottom or doors, a column which supports the said
 120 hoisting mechanism upon one of the said pontoons and a brace extending from the said hoisting mechanism across the said pocket to the other of said pontoons, substantially as described.

3. In a dumping-scow and in combination
 125 with the pontoons, and the pocket having one or more movable doors or bottoms, hoisting mechanism, a hollow column supporting the hoisting mechanism, and a chain 16 for operating the said doors or bottoms, the said chain
 130 extending around the said hoisting mechanism and into the said column, substantially as described.

4. In combination in a dumping-scow and

with a hoisting mechanism for the doors or bottoms of one of the pockets, a combined supporting-column and chain-locker or chain-pocket, the said column being hollow and sur-
 5 mounted by the said hoisting mechanism, and the loose end of the said chain extending down into the said column, substantially as described.

5. In combination in a dumping-scow, the
 10 two pontoons thereof, a plurality of pockets arranged between the said pontoons, and provided with movable doors or bottoms, a plurality of hoisting mechanisms at the sides of
 15 the said pockets connected to operate the said doors or bottoms, columns supporting the said hoisting mechanism upon one of the said pontoons, diagonal braces extending from the said
 20 hoisting mechanisms to the other of the said pontoons, an actuating main shaft common to the said hoisting mechanisms, and a source of power therefor, substantially as described.

6. In combination in a dumping-scow, the plurality of pockets thereof having movable
 25 doors or bottoms, the plurality of hoisting mechanisms arranged at the side and opposite the center of each of the said pockets for operating the doors or bottom thereof, an actuating-shaft 18, common to the said hoisting
 30 mechanisms, reduction-gearing connecting the said shaft to said hoisting mechanism, and independent clutches for connecting each of the said hoisting mechanisms with the said shaft, and for disconnecting them, substantially as described.

35 7. In combination with a plurality of pock-

ets with movable doors or bottoms, a plurality of hoisting mechanisms for operating the said doors or bottoms and a main actuating-shaft, common to said hoisting mechanisms and provided with separate clutch mechanisms for
 40 each of said hoisting mechanisms, substantially as described.

8. In combination with a plurality of pockets provided with movable doors or bottoms, and with the operating-chains 16 therefor, a
 45 plurality of wildcats or hoisting mechanisms for the said chains, an actuating-shaft 18 for the said mechanisms, a plurality of worms, mounted and free to turn upon the said shaft, a plurality of clutches for connecting and dis-
 50 connecting the several worms with the said shaft, and worm-wheels for the several hoisting mechanisms, actuated by the said worms, substantially as described.

9. In combination with a chain-operated
 55 dumping device for a pocket, the chain-hoist or wildcat 31, a worm 37, a worm-wheel 36 for actuating the said chain-hoist or wildcat 31, a shaft concentrically mounted with the said
 60 worm 37, a clutch for connecting the said worm with the said shaft, a brake for the said worm, and a lever 42 for simultaneously actuating the said clutch and the said worm, substantially as described.

In testimony whereof I have hereunto set
 65 my hand this 15th day of January, A. D. 1898.

CHARLES CRAMP BOWERS.

Witnesses:

H. A. SWANTON,

JAMES R. HARRISON.