

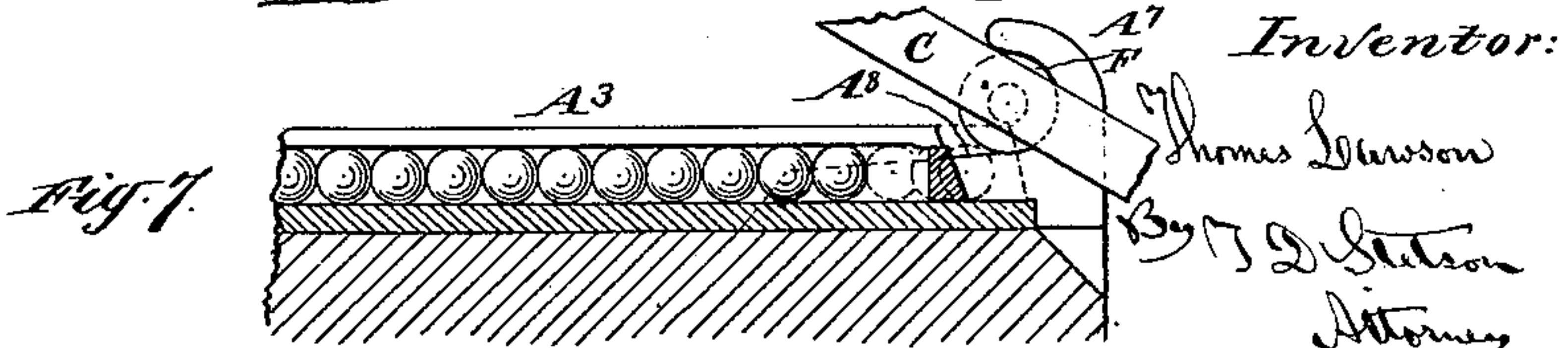
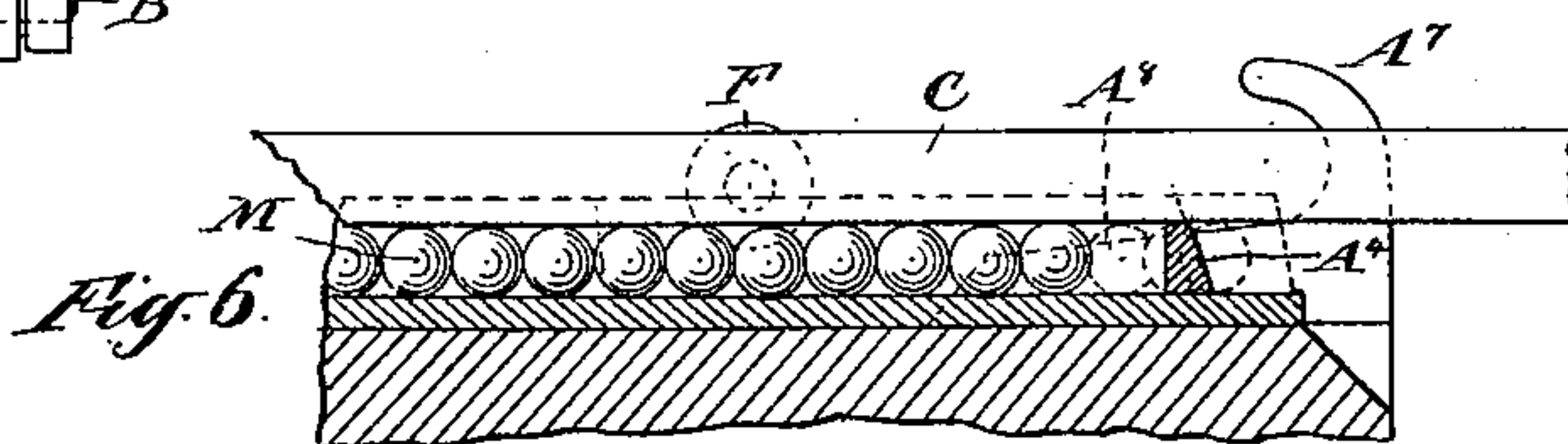
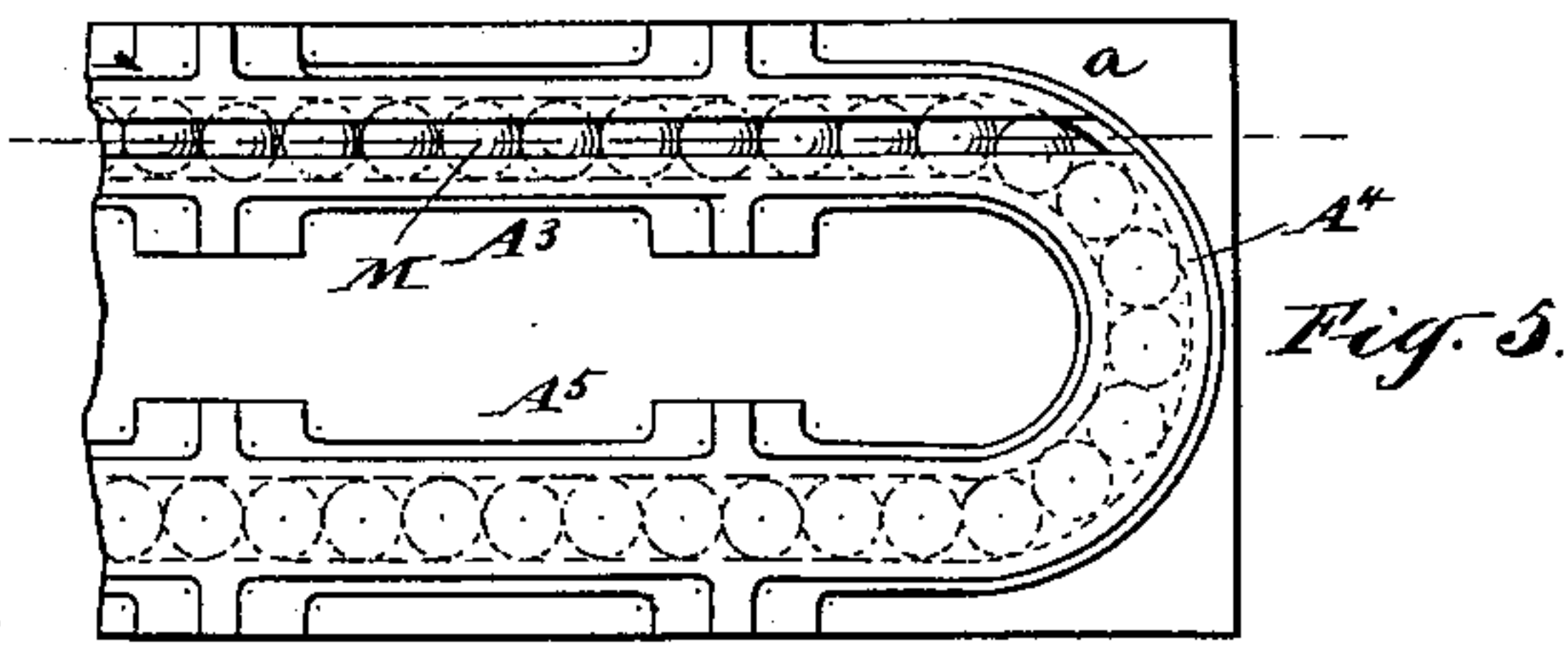
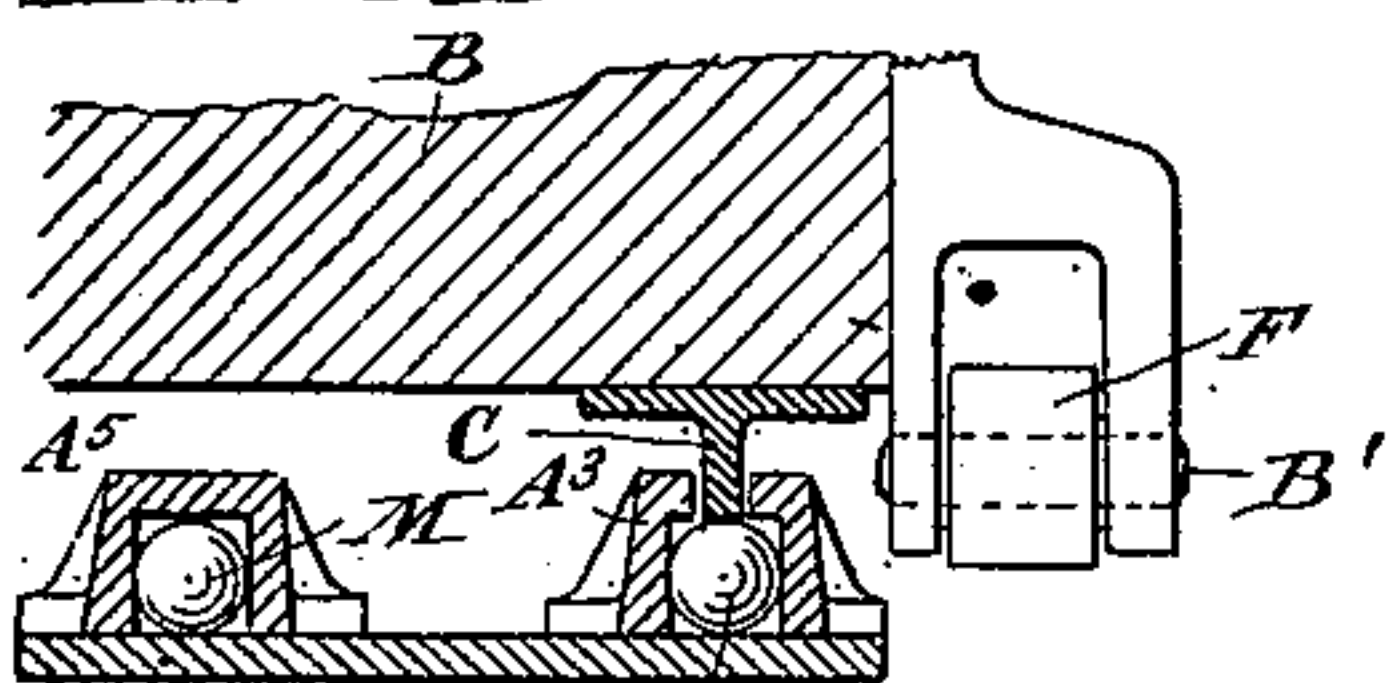
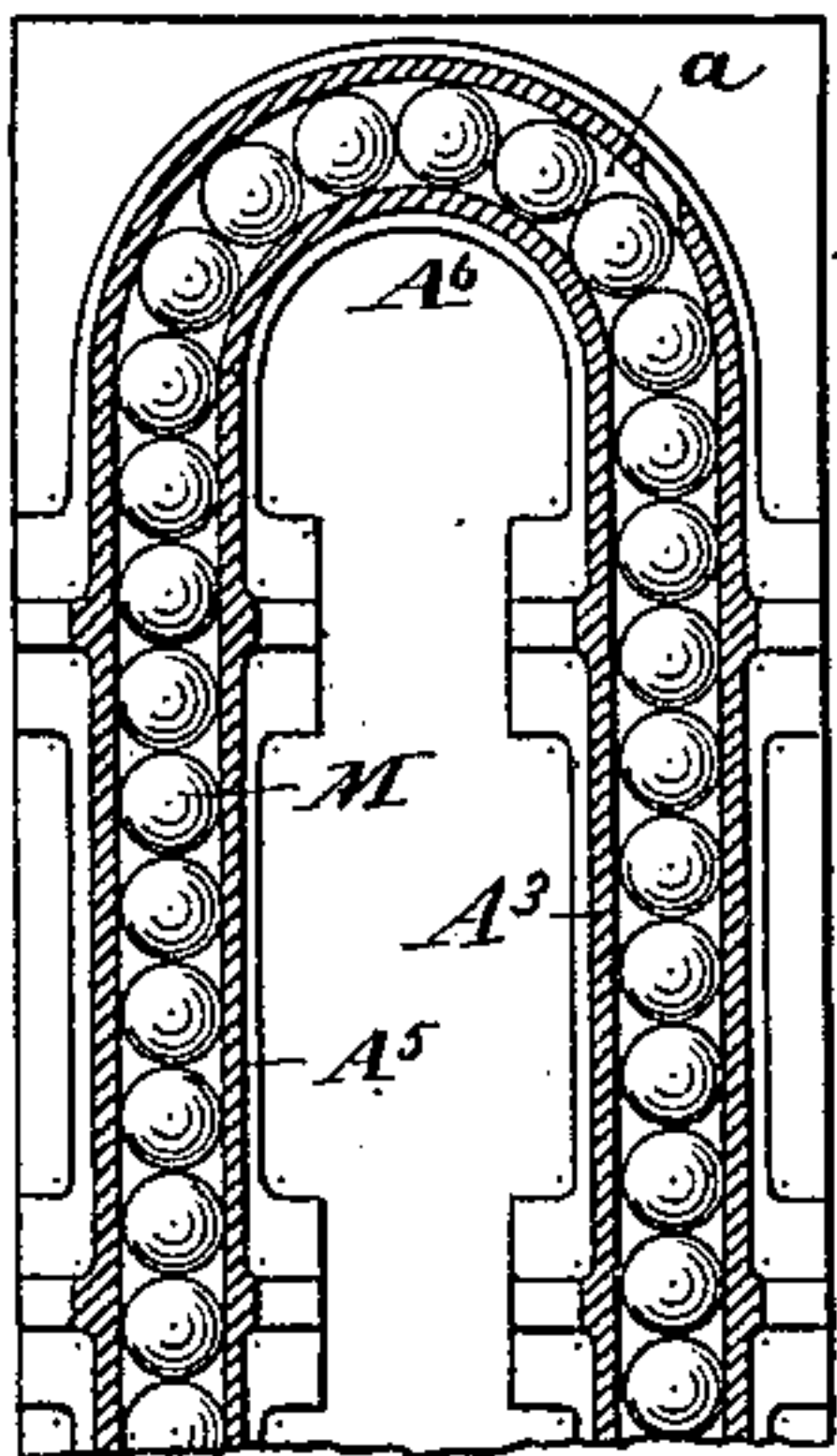
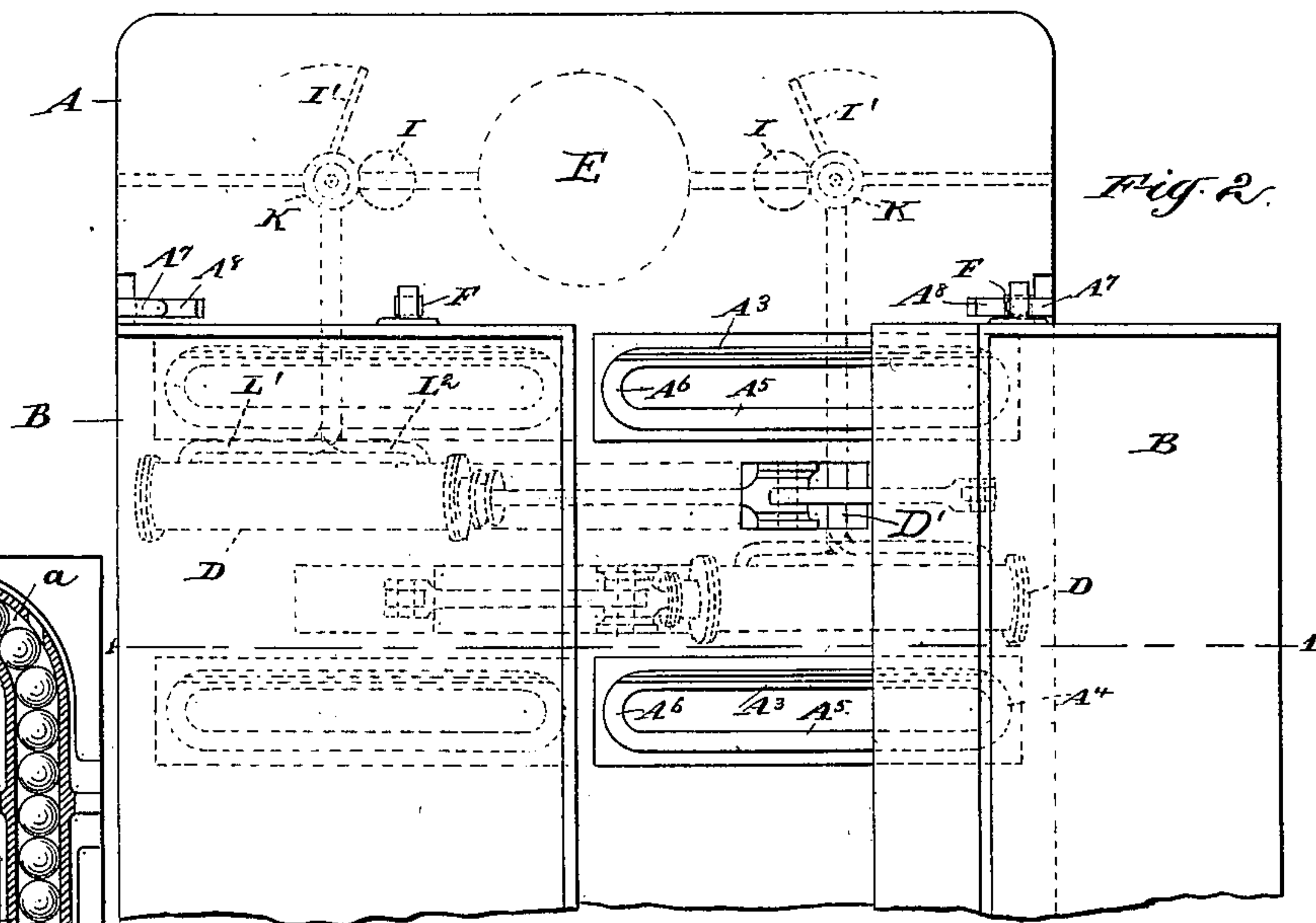
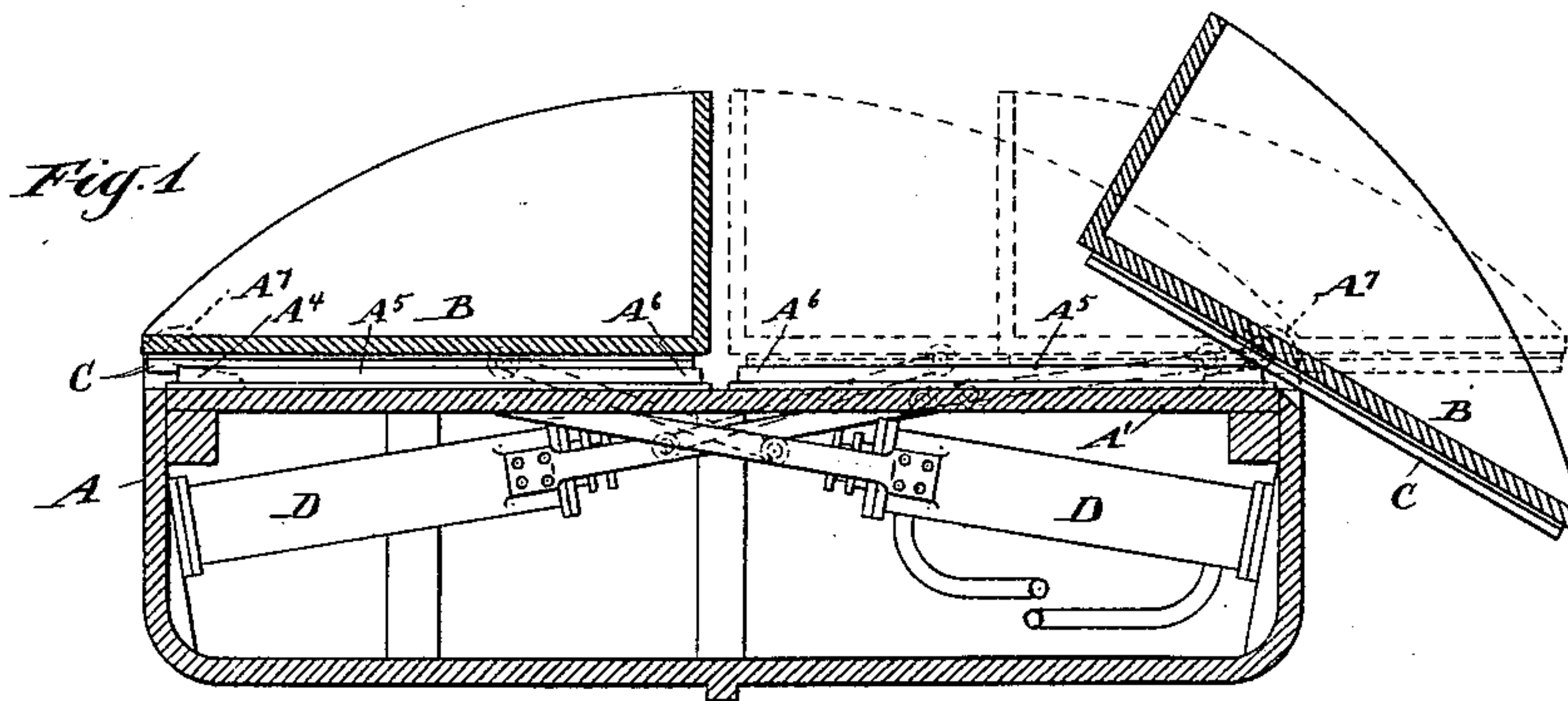
**No. 659,239.**

**Patented Oct. 9, 1900.**

**T. LAWSON.**

(Application filed July 7, 1900.)

(No Model.)



Witnesses:  
L. Fairley.  
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# UNITED STATES PATENT OFFICE.

THOMAS LAWSON, OF NEW YORK, N. Y.

## DUMPING-SCOW.

SPECIFICATION forming part of Letters Patent No. 659,239, dated October 9, 1900.

Application filed July 7, 1900. Serial No. 22,773. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS LAWSON, a citizen of the United States, residing in the borough of Manhattan, in the city and State of New York, have invented a certain new and useful Improvement in Dumping-Scows, of which the following is a specification.

My improvement applies to that class of scows or boats which can dump from the sides, either both sides at once or one side at a time, for economically dumping in filling in to "make land." I provide for easily and rapidly shifting the material on each side outward and inward relatively to the center line and for dumping it automatically by simply running it rapidly to its extreme outboard position. My scow may be first inclined from the land and grounded in that condition on the inclined shore, and then after all on the shore side has been dumped, a portion of the load dumped near or on the shore, the boat may be floated off and turned around to repeat nearly the same operation in unloading the other side. I attain this movement of the material by the aid of movable platforms, bins, or strong capacious carriers running inward and outward on transverse tracks equipped with ball-bearings, the balls moving on one part loaded and returning on the other part adjacent light. I employ mechanism whereby the carriers may be moved easily at will from the center of the scow outward, so as to project beyond the side, and provide for tilting automatically, but can use means to restrain the tilting when required, as in running a load out on the wrong side, to simply incline the scow to allow of getting nearer a sloping shore.

The following is a description of what I consider the best means of carrying out the invention.

The accompanying drawings form a part of this specification.

Figure 1 is a transverse section on the line 1 1 in Fig. 2. Fig. 2 is a plan view. These figures show one of the carriers in the act of being moved outward and dumped. The remaining figures show certain portions on a larger scale. Fig. 3 is a horizontal section in the plane of the centers of the ball-bearings. Fig. 4 is a vertical section relatively to the scow and transverse to the ways. Fig. 5 is a

plan view of a portion with the carrier removed. Fig. 6 is a vertical cross-section showing some of the balls with a portion of the carrier traversing thereon. Fig. 7 is a corresponding section after the carrier has reached its extreme outboard position and is in the act of dumping its load.

Similar letters of reference indicate corresponding parts in all the figures where they appear.

A is the scow, and A' a stout deck strongly supported by stanchions and carrying several straight ways or tracks A<sup>3</sup> A<sup>5</sup>, extending transversely from the center line to each side of the scow. These straight ways are in pairs connected at each end by a short curved transverse way. The circuit thus joined, comprising the long straight portion A<sup>3</sup>, short curved outboard end portion A<sup>4</sup>, second long straight portion A<sup>5</sup>, and the inboard curved portion A<sup>6</sup>, is loosely filled with balls M, of steel, of uniform size, which constitute ball-bearings for flat runners above.

B B are platforms, each having stiffly-attached upright borders on its inner edge and at each end, constituting carriers, adapted to receive earth and allow it to be transported outward from the center line of the scow. Each platform is provided with runners C, fitted to ride on the balls rolling in a continuous circuit—for example, rolling outward in the way A<sup>3</sup> carrying the load and returning inward in the way A<sup>5</sup>. This arrangement allows the carrier to be moved outward and inward easily and also supports it strongly. There are several sets of these compound ways and corresponding series of balls on each side of the scow. Each carrier is capable of being supported alternately on its respective runners C or on cylindrical trunnions B', carrying corresponding rollers F, so that each carrier may tilt to dump by the turning of its trunnions each in its proper strongly-supported roller.

D D are hydraulic cylinders arranged transversely of the scow and having connections D' to the carriers—one hydraulic cylinder near each end of each carrier.

I I are pumps operated by steam supplied from a boiler E. Levers I' I', operated by the attendant, control valves K K, which supply water through pipes L' and L<sup>2</sup> from the



pump to either end of each hydraulic cylinder, according as the valve is set, thus applying the hydraulic power as required to move either carrier outward or inward.

5 The under face of each runner C is straight and, assuming the scow to be on an even keel, level. The bottoms of the ways on which the balls run are also level, except that they are depressed a little at the parts  $a$ , where the  
10 balls enter and leave the straight ways  $A^3$ . It is important that each ball bears its portion of the load during the greater portion of its transverse run along the way  $A^3$ ; but in entering or leaving through the proper curved  
15 portion  $A^4$  or  $A^6$  of its route it shall be relieved from load, so as to be free. Sinking the bottom of the track for a little distance near the points  $a$  will suffice.

The trunnions  $B'$  and rollers  $F$  are idle a  
20 great portion of the time; but they, in connection with the stout hook-shaped stop  $A^7$  and the short inclined approaches  $A^8$ , arranged outside of the ways  $A^3$ , perform important roles as each carrier approaches its  
25 dumping position at the extreme outboard end of its traverse. When a carrier is only shifted outboard a little to incline the scow and is afterward drawn inward without dumping, these important members remain  
30 idle; but when ready to dump the pump I is allowed to act vigorously and to run the carrier rapidly outward as far as it will go. The force applied and the momentum acquired carry the rollers  $F$  out into contact with the  
35 incline  $A^6$  and cause them to ascend until stopped by the hook  $A^7$ . The lifting is sufficient to take the load on the trunnions. The trunnions are arranged in such positions that when the carrier is supported on them  
40 it will tilt and dump its load, and that the carrier as soon as emptied will, with but little help from the hydraulic cylinders, return to its level and inboard position.

The carriers are of sufficient capacity to  
45 hold each a proper load with the outer sides entirely open. This open condition greatly facilitates dumping and contributes to the convenience of operating, especially when, as is sometimes required, the dumping is per-  
50 formed with the vessel rolling in a heavy sea.

I attach importance to the hydraulic power for operating the carriers. There are two cylinders for each carrier lying transversely of the scow, one near the bow and the other  
55 near the stern. The fluid being inelastic, the operator holding the lever  $I'$  of the several cocks can work rapidly or slowly, skewing either around to any required degree or, what is generally preferred, carrying each with  
60 truth, absolutely insured against any skewing. The connections  $D'$  are connecting-rods capable of enduring either tensional or thrusting strains, important in balancing or discharging in rough water. These connections  
65 serve with antifriction-ways and the hooks  $A^7$  and trunnions  $F$  to give absolute and easy control.

Modifications may be made without departing from the principle or sacrificing the advantages of the invention. The length of the  
70 inclines  $A^8$   $A^8$  may be increased or diminished. The pipe  $L'$ , connecting from the pump I to the outboard end of the corresponding hydraulic cylinder D, may be arranged higher  
75 instead of lower than the pipe  $L^2$ , which correspondingly supplies water to the inboard end of the cylinder. The returning-way  $A^5$  for the balls may be curved. It is obviously important that the way  $A^3$ , which lies under  
80 the runner C and supports the balls M while they are carrying the load, shall be straight.

I use the word "scow" to indicate a suitable vessel of whatever name adapted to support the carriers and to float therewith to the place where the material is to be dumped. 85

I claim as my invention—

1. In a dumping-scow, the open carriers B adapted to dump as shown, in combination with antifriction-ways and supports and with  
90 two cylinders D and two connecting-rods  $D'$  for each carrier, and with steam-pumps I and connections for directing inelastic fluid into each, substantially as herein specified.

2. In a dumping-scow, carriers adapted to transport and dump material in combination  
95 with means for also moving such carriers bodily outward and inward, comprising straight supporting-ways  $A^3$  and return-ways  $A^4$   $A^5$  and  $A^6$ , and the series of balls M adapted to travel around in either direction in such ways,  
100 and the runners C, moving with the carriers on the said balls, all arranged to serve substantially as herein specified.

3. In a dumping-scow, carriers adapted to transport and dump material in combination  
105 with means for also moving such carriers bodily outward and inward, comprising straight supporting-ways  $A^3$  and return-ways  $A^4$   $A^5$  and  $A^6$  and the series of balls M adapted to travel around in either direction in such ways  
110 and the runners C moving with the carriers on the said balls and supporting the carriers thereon during a period and the inclines  $A^8$  and hooks  $A^7$  on the scow and the trunnions B on the carriers supporting each carrier and  
115 allowing it to dump at another period, all arranged for joint operation substantially as herein specified.

4. In a dumping-scow, carriers adapted to transport and dump material in combination  
120 with means for also moving such carriers bodily outward and inward at exactly-determined rates, comprising the cylinders D, and the pump I, and connections arranged to supply water to impel the carriers laterally at will,  
125 all substantially as herein specified.

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

THOS. LAWSON.

Witnesses:

J. SICARD,  
ROSCOE C. LAWSON.