

(No Model.)

L. D. CASTLE.  
CONVEYING APPARATUS.

No. 597,837.

Patented Jan. 25, 1898.

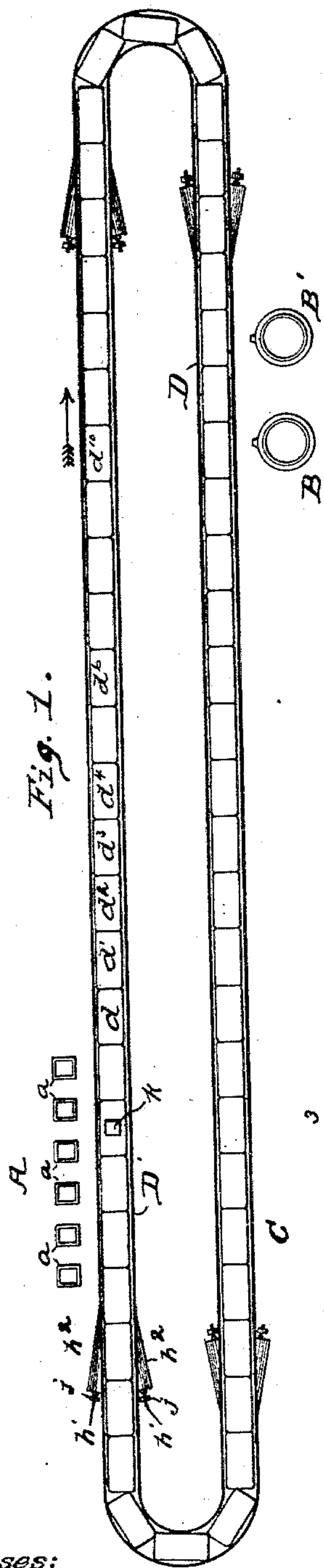


Fig. 1.

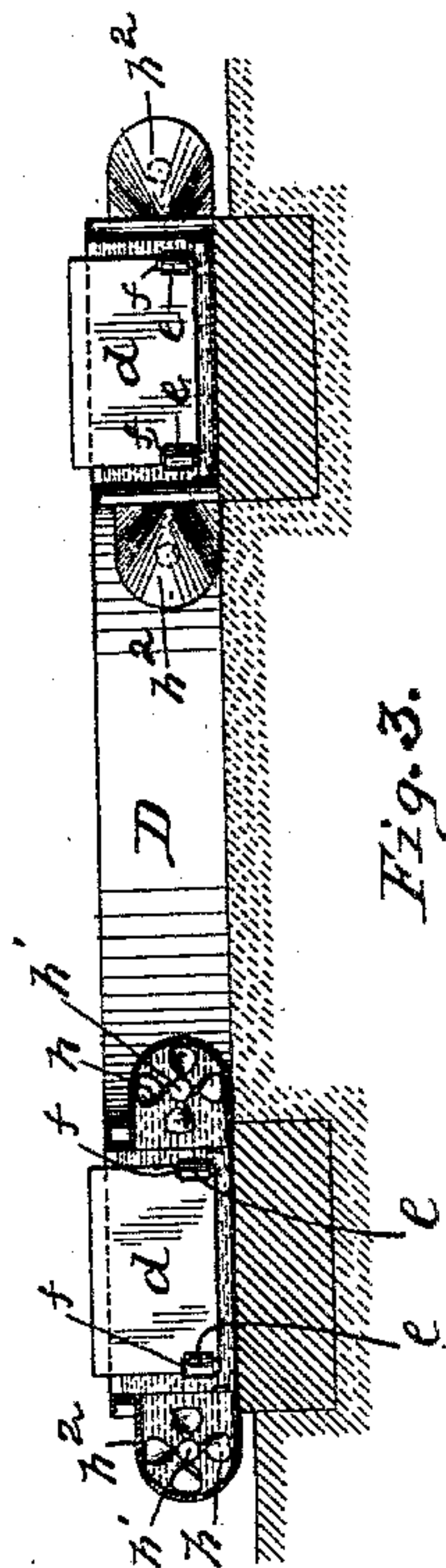


Fig. 3.

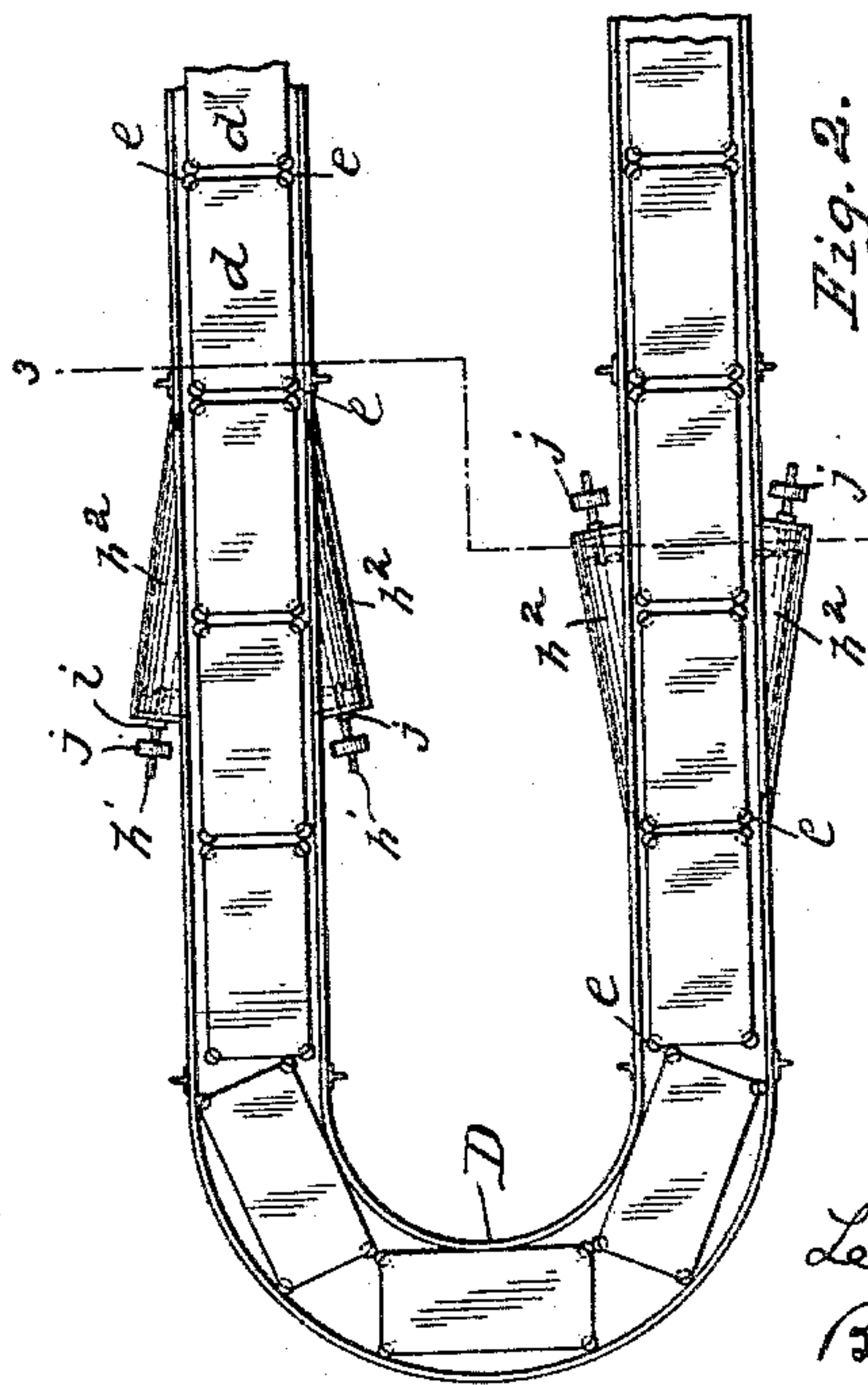


Fig. 2.

*Witnesses:*

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# UNITED STATES PATENT OFFICE.

LEWIS D. CASTLE, OF GREENSBURG, PENNSYLVANIA.

## CONVEYING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 597,837, dated January 25, 1898.

Application filed May 17, 1897. Serial No. 636,919. (No model.)

*To all whom it may concern:*

Be it known that I, LEWIS D. CASTLE, a resident of Greensburg, in the county of Westmoreland and State of Pennsylvania, have invented a new and useful Improvement in Conveying Apparatus; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to an improvement in conveying apparatus.

The object of my invention is to provide a simple and expeditious way of transferring articles of various kinds from one department to another in manufacturing or other plants.

It consists, generally stated, in an endless tank or trough made water-tight and constructed of wood or metal, as may be desired, and of any required length and depth and of width to receive a single line of floats, with a series of floats or boats of suitable size adapted to move readily in the aforesaid tank. The movement of the floats may be caused by the agitation of the water, which is made to flow forward by small propeller-wheels driven by suitable power. These propeller-wheels may be of any required number, depending on the length of the waterway and extent of the facilities required. I do not limit myself, however, to any special manner of moving the floats, as there are different means which may be employed to effect the same result.

To enable others skilled in the art to make and use my invention, I will describe the same more fully, referring to the accompanying drawings, in which I have illustrated my invention in connection with a foundry plant for making castings, although I do not limit myself to conveying castings, as it may be employed for conveying many other articles in different kinds of works.

Figure 1 is a plan view of my improved conveying apparatus. Fig. 2 is an enlarged plan view of a portion of same. Fig. 3 is a cross-section on line 3 3, Fig. 2.

Like letters represent like parts in each of the figures.

A represents the molding department of a foundry, in which there are suitable molding-machines *a*, it being understood that I do not limit myself to the use of molding-machines, as my improvement can be used in connection with molds made by hand.

The letters B B' represent suitable cupolas or melting-furnaces, and C represents the cleaning-floor, or that part of the foundry plant where the castings when taken from the flask may be properly handled.

The letter D represents an endless water-tight tank or trough which is located conveniently to the aforesaid molding, melting, and cleaning departments and may be constructed of wood, metal, or any other suitable material and of such depth and length as to suit the weight and size of the molds and the extent of the operations involved.

The letters *d d' d''*, &c., represent the floats or boats which carry the molds from the molding department A to the melting department B and from thence to C, where the castings are to be handled. These floats or boats are of any suitable size and are made practically water-tight, so that when placed in the tank D they will ride on the water in such position as to sustain the weight of the molds placed thereon. The tank is of a width to receive a single line of floats or boats, so that as they carry their loads they will pass in succession around the tank, being propelled in any suitable way by the movement of the water in the tank or by positive connection with the floats. At each corner of each float I provide a friction-roller *e*, suspended in suitable brackets *f*. These friction-rollers serve to prevent friction of the floats against the sides of the waterway in case they come in contact with the walls of the tank, as well as provide facility of movement when the float is required to traverse the circular ends of the tank. The floats might be moved by hand; but to secure their automatic movement I provide propeller-wheels *h*, with shafts *h'*, arranged in bearings *i* and adapted to be driven by suitable power connected by belt to the pulley *j*. Said propeller-wheels are preferably located in recesses *h''*, formed in said tank. These propeller-wheels when in operation cause the water in the tank D to flow in the direction of the arrow, Fig. 1, and as the floats or boats are subject to this movement they are carried in the same direction. Although the floats are not shown as connected rigidly with each other, it is obvious that, being contiguous, the movement of the float in the rear will act on the one in front



and thus the whole line be propelled by the action of the water. If it is considered desirable to do so, it is obvious that the action of the propeller-wheels may be reversed and the floats moved in a backward course. I do not limit myself to any form of propeller or to the manner of creating a current in the water, but include in my invention any means by which the moving of the water will act to move the floats or boats or any other means for imparting movement to said floats.

The operation of my improved conveying apparatus is as follows: The molds *k*, having been prepared either by hand or mechanism in the molding department A, are placed on the floats *d d'*, &c., in the waterway, and as the current is flowing in the direction of the arrow, Fig. 1, caused by the operation of the propeller-wheels, the floats are carried around in the waterway to the melting department or cupolas B B' and filled with the desired quantity of molten metal in the ordinary manner of pouring. As the molds are poured they move along the said waterway on the floats to the department C, where the castings are taken out of the molds. It is to be understood, of course, that the speed at which the floats move is to be regulated by the speed of the propeller-wheels and that they move at such speed as will give the workmen ample opportunity to properly place the molds on the floats, pour the metal therein, and remove the castings without inconvenience. The empty flasks, if flasks are used in the construction of the molds, are then replaced on the floats, or where no flasks are used in making the mold the empty float itself is returned through the continuous waterway to the molding department and is again ready to receive a new mold, and the process described is repeated.

I thus provide a simple and efficient form of conveying apparatus for conveying objects, such as molds, from the molding department to the melting department and from thence to the cleaning or handling floor, and returning the empty floats to the molding department. This conveying of the molds being by water no use of oil or other lubricant is necessary, as in a series of connected trucks or like carriages mounted on wheels, and it follows that much of the friction of the revolving parts of such carriers is avoided. As molding operations necessarily involve the use of sand or like grinding materials, and the dust arising from it gets into the wheel-bearings of such carriages, I do away with the expense of keeping up such carriers so far as the wheels and bearings are concerned. This latter advantage is one which may be said to be peculiar to its use in connection with a casting plant.

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

1. In conveying apparatus, the combination of an endless tank or trough containing fluid at a common level, and a series of floats therein adapted to support the objects to be conveyed, the tank being of width to receive a single line of such floats, substantially as and for the purposes set forth.

2. In conveying apparatus, the combination of an endless tank or trough containing fluid at a common level, a series of floats therein adapted to support the objects to be conveyed, the tank being of width to receive a single line of floats, and mechanism for moving said floats through said tank, substantially as set forth.

3. In conveying apparatus, the combination of an endless tank or trough containing fluid at a common level, a series of floats therein adapted to support the objects to be conveyed, the tank being of width to receive a single line of floats, and mechanism for creating a current in the fluid in said tank, substantially as set forth.

4. In conveying apparatus, the combination of an endless tank or trough containing fluid at a common level, a series of floats therein adapted to support the objects to be conveyed, the tank being of width to receive a single line of floats, and a propeller-wheel in said tank creating a current therein, substantially as set forth.

5. In conveying apparatus, the combination of an endless tank or trough containing fluid at a common level, and a series of floats therein adapted to support the objects to be conveyed, the tank being of width to receive a single line of floats and having curved corner portions of width to permit the passage of the floats around said corners, substantially as set forth.

6. In conveying apparatus, the combination of an endless tank or trough containing fluid at a common level, and a series of floats therein adapted to support the objects to be conveyed, the tank being of width to receive a single line of floats and having curved corner portions of width to permit the passage of the floats around said corners, and the floats being disconnected and having anti-friction-rollers at the corners, substantially as set forth.

7. In conveying apparatus, the combination of an endless tank or trough containing fluid at a common level, and a series of disconnected floats therein adapted to support the objects to be conveyed, the tank being of width to receive a single line of floats, substantially as and for the purposes set forth.

In testimony whereof I, the said LEWIS D. CASTLE, have hereunto set my hand.

LEWIS D. CASTLE.

Witnesses:

ROBERT C. TOTTEN,  
ROBT. D. TOTTEN.