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Patented July 31, 1900.

A. F. HOWARD.  
LOGGING EXHIBITION APPARATUS.

(Application filed Mar. 15, 1900.)

(No Model.)

3 Sheets—Sheet 1.

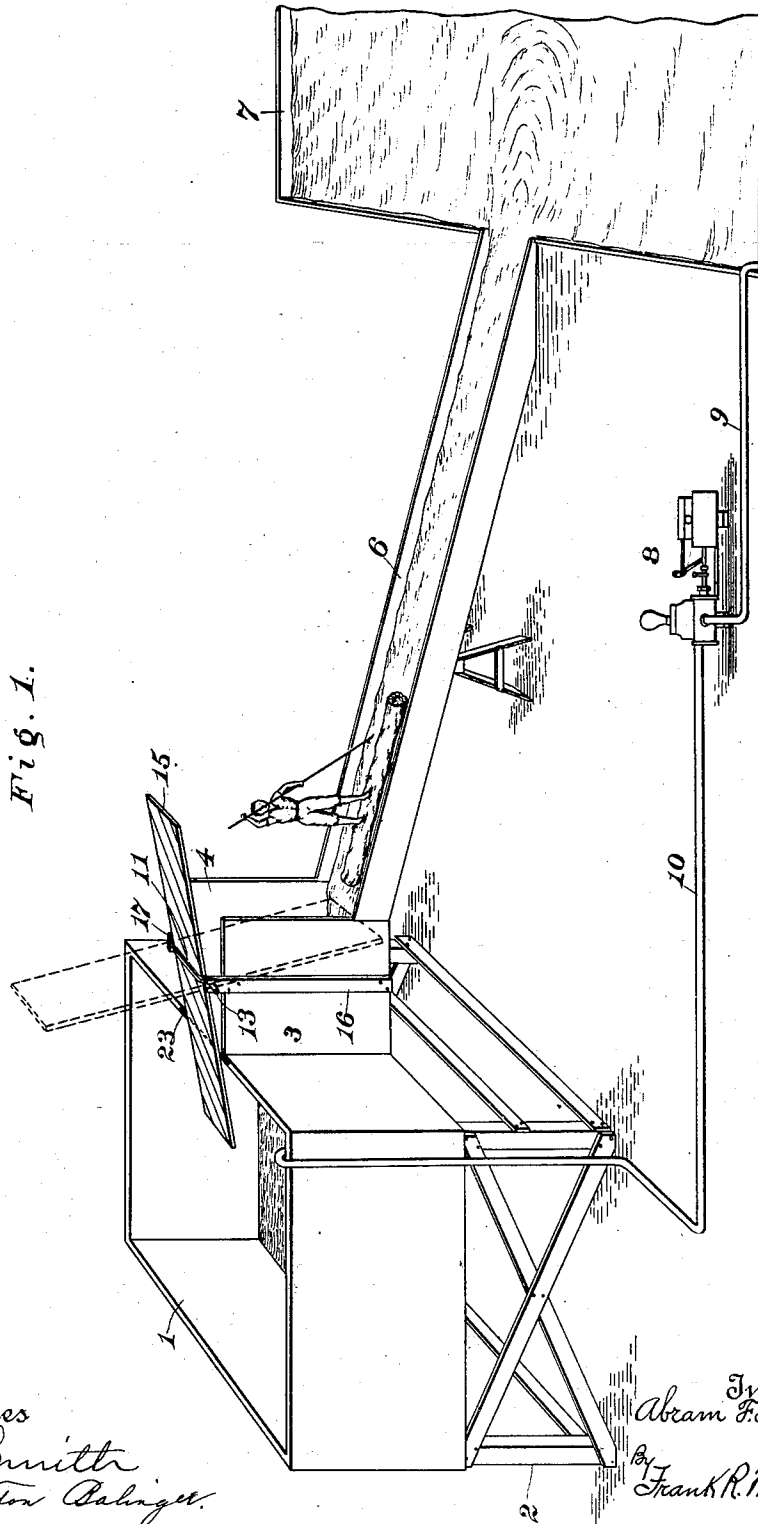


Fig. 1.

Witnesses  
Jas. S. Smith  
R. Clinton Calver.

Inventor  
Abram F. Howard,  
By Frank R. McCormick,  
Attorney

A. F. HOWARD.  
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Fig. 2.

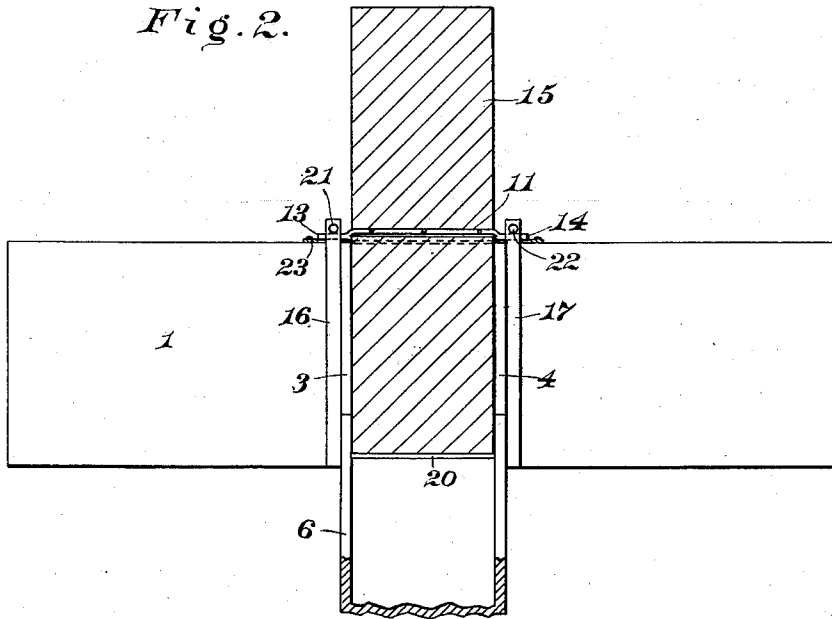


Fig. 3.

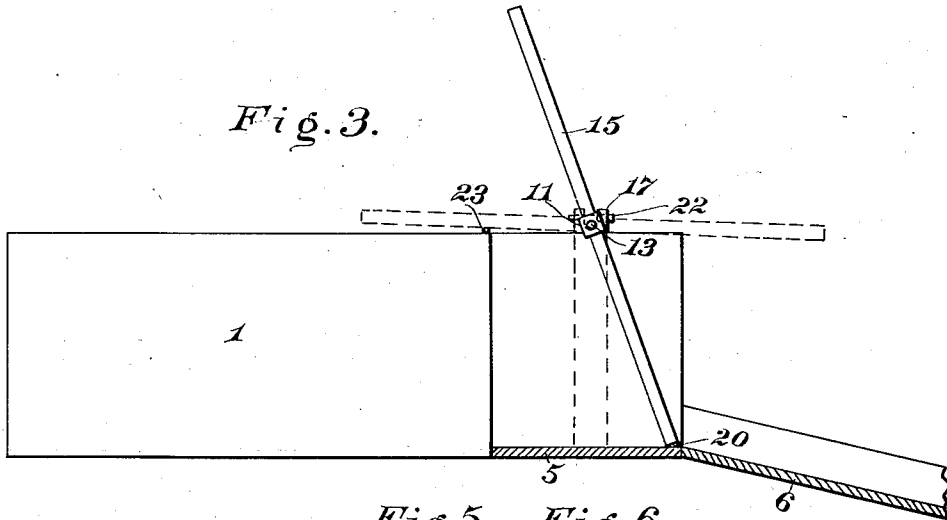
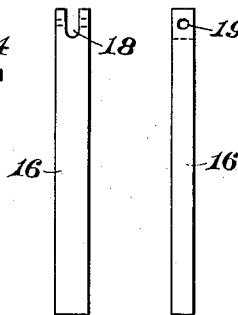


Fig. 4.



Fig. 5. Fig. 6.



Witnesses  
*Jas. D. Smith*  
*A. Clinton Ashinger*

Inventor  
*Abram F. Howard*  
 By *Frank R. McCormick*  
 Attorney

A. F. HOWARD.  
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Fig. 7.

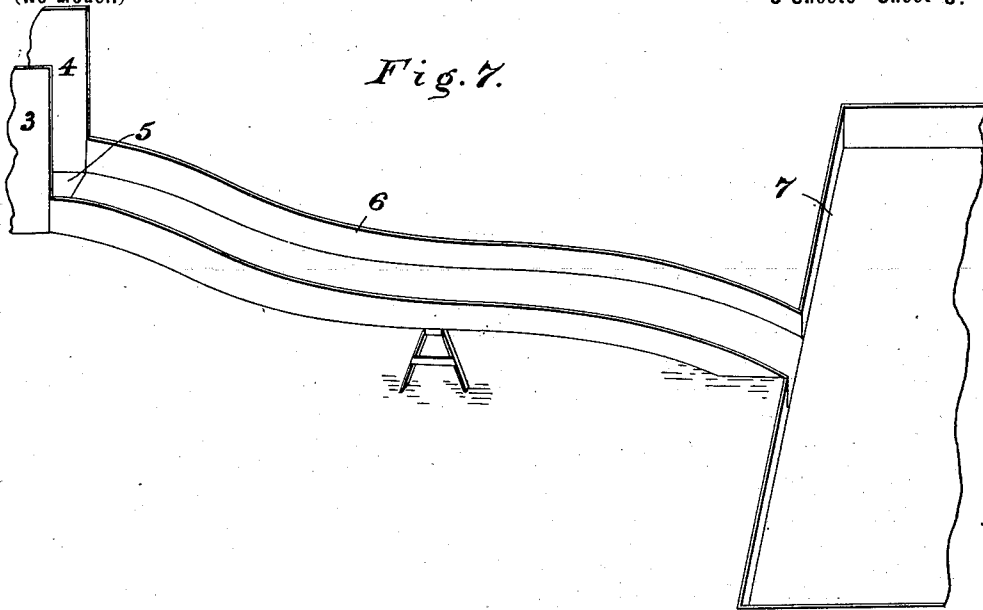
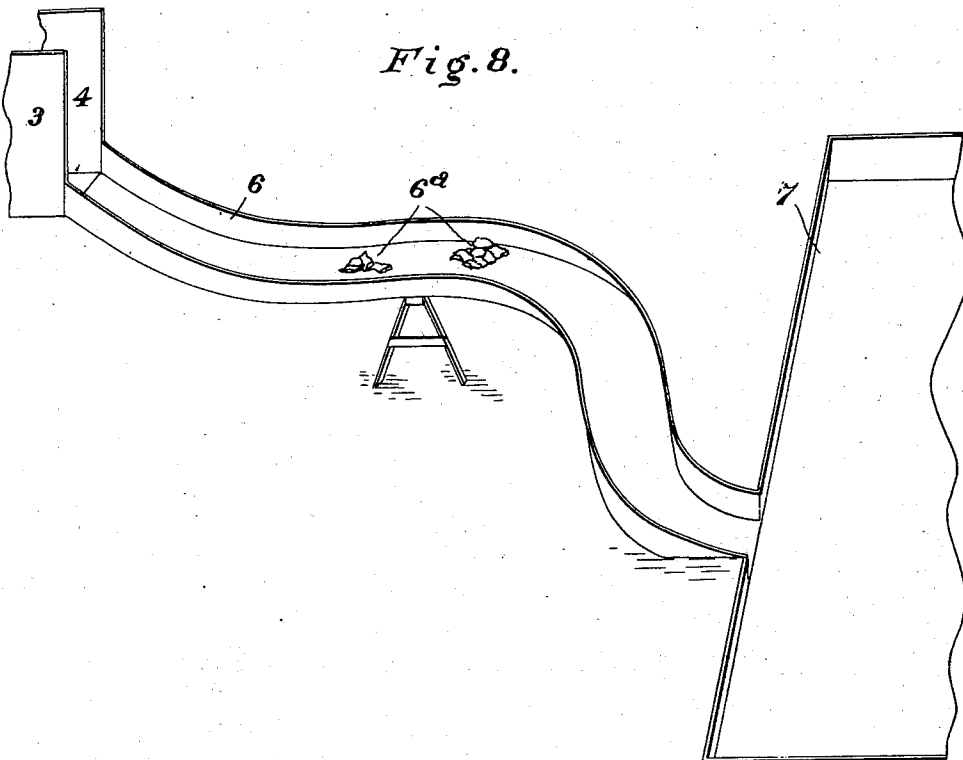


Fig. 8.



Witnesses  
*Jas. Smith*  
*R. Clinton Calhoun*

Inventor  
*Abram F. Howard*  
 By *Frank R. McCormick*  
 Attorney

# UNITED STATES PATENT OFFICE.

ABRAM FRANK HOWARD, OF MUNISING, MICHIGAN.

## LOGGING-EXHIBITION APPARATUS.

SPECIFICATION forming part of Letters Patent No. 654,980, dated July 31, 1900.

Application filed March 16, 1900. Serial No. 8,697. (No model.)

### *To all whom it may concern:*

Be it known that I, ABRAM FRANK HOWARD, a citizen of the United States, residing at Munising, in the county of Alger and State of Michigan, have invented certain new and useful Improvements in Logging-Exhibition Apparatus; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to logging-exhibition apparatus, and has for its object the production of a connected series of structures by the aid of which expert loggers may perform for the entertainment of an audience certain operations representing more or less accurately the method of bringing logs from a higher to a lower level and collecting and arranging them in rafts for transportation by waterway.

My invention consists of an elevated tank having a delivery-pipe leading to a suitably-situated water-reservoir or pumping-station by means of which the tank may be supplied with water, a downwardly-inclined flume or chute connecting the elevated tank and a second tank or basin at a lower level, and a water-gate whereby the water may be confined in the elevated tank or permitted to flow down the flume into the lower tank when operated by the performers, as more particularly hereinafter described.

Of the accompanying drawings, wherein like numerals designate like parts throughout the several views, Figure 1 represents a general view of one form and arrangement of my invention, seen from a point at one side and slightly above it. Fig. 2 is a front view of the upper tank and its gate with part of the flume. Fig. 3 is a side view of the upper tank, showing its extension, its gate, and part of the flume. In this figure the near side wall of the tank extension is omitted to disclose the gate and to permit illustration of its normal closed position in contact with the floor of the extension. Fig. 4 represents the cross-beam or axis upon which the gate turns; Fig. 5, a side view of one of the twin gate-posts which support the beam and gate, show-

ing the longitudinal recess near the top formed to receive the trunnions of the cross-beam; and Fig. 6 shows the same post turned one-fourth way around from the position of the fifth figure in order to show the wedge-hole with which both posts are provided. Fig. 7 is an outline representation of a portion of the apparatus, showing the flume curved; and Fig. 8 shows a curved flume provided with obstacles to be avoided in descending from the upper to the lower tank.

In the drawings, numeral 1 marks the upper tank, usually made of wood. Its walls may, if desired, be boarded up ten feet to hide the men upon the logs floating therein until they appear about to enter and descend the flume. Any construction may be chosen for this tank. Ordinarily planks with seams calked and pitched water-tight will answer every purpose. To add to its appearance, I may paint or drape with bunting the outside of this tank. Tank 1 is supported at any desired height above the ground by scaffolding. About the middle of one wall of the upper tank I make an extension of its walls. The side walls of this extension are marked 3 and 4 and its floor or bottom is designated by numeral 5. (See Figs. 1, 2, and 3.) The floor and walls of this extension meet and are flush with the same parts of flume 6, which leads downwardly at a proper angle into a lower tank or pond 7.

It is my intention to move my apparatus about from place to place wherever profitable performances may be given, and where it is decided to remain for some length of time, as in the vicinity of larger towns and cities, I purpose putting in a crooked flume longer relatively than the straight flume shown in the drawings. I shall curve the flume (see Figs. 7 and 8) both horizontally and vertically to vary the performance and intensify the action. I shall also introduce obstacles in the flume, such as piles of rocks 6<sup>a</sup> 6<sup>b</sup>, and border the sides with low trees or shrubbery to create the impression that the men on the logs are "shooting a rapid." It will be understood, therefore, that I do not limit myself to the use of any particular form of flume, but may change its incline, length, and path under differing conditions.

With regard to the lower or ground tank 7,

it is usually made somewhat larger than the upper tank, but similar. Circumstances permitting, I shall take advantage of any pond or other body of water and direct the flume into it. In the greater number of instances, however, it is my practice to build the lower tank substantially like tank 1. The lower tank may be sunk flush with the ground, as shown in Fig. 1, or it may be raised above it. A most economical method is to excavate where practicable, the ground itself forming the bottom of tank 7, the sides only being boarded or concreted.

To fill the upper tank with water to the depth desired, I can avail myself of the local water-pressure, which is ordinarily more than adequate, or by means of a steam-pump 8 and pipe 9 to tank 7 or other body of water, in connection with pipe 10 to tank 1, I can use the same supply of water over and over again, as will be readily understood. (See Fig. 1.)

Fig. 4 represents the cross-beam 11, which is provided with a longitudinal slot 12 and end journals or trunnions 13 and 14. Through slot 12 passes the gate 15, consisting of a long door-like flat conveniently made by nailing boards together diagonally, as indicated. The cross-beam is secured at the middle of gate 15, which is approximately balanced therein.

Figs. 5 and 6 show one form of the twin gate-posts 16 and 17. These posts are perpendicularly secured directly opposite each other upon the outside of walls 3 and 4 of the extension of the upper tank. (See Fig. 3.) Near the top each post has a recess lengthwise, the recess in post 16 being shown in Fig. 5 and numbered 18. Each post is also bored near the top transversely to the path of the recess. The hole bored in post 16 is marked 19. (See Fig. 6.) Post 17 is furnished with precisely the same form of recess and bored hole; but it is not considered necessary to duplicate the figures to show those details.

After being secured in slot 12 of the cross-beam the gate is placed in the position shown in Fig. 2, journals 13 and 14 engaging the recesses in the tops of the gate-posts. One end of the gate is brought into contact with a sill 20, and tapering wedges 21 and 22 (see Figs. 2 and 3) are driven through the bored holes in the posts above the journals of the cross-beam. The wedges hold the gate firmly against the sill, and the gate itself is of such width as to closely but movably fit between walls 3 and 4 of the upper-tank extension. This construction is quite tight enough to retain the water in the upper tank, and it is a very convenient form of gate. It is believed to be within the scope of my invention, however, to substitute for the gate described any other known and common form, and I do not limit myself solely to the gate mechanism specified or to any special size or form of tanks. Let it be assumed that the walls of the upper tank are boarded up eight or ten

feet high and that the tank is pumped three feet deep with water. It will be understood that men floating upon logs would be out of sight of a seated or standing audience on a level with the lower tank. Next, let the pins or wedges 21 and 22 be pulled or driven out. The buoyant effect of the water will raise the gate and cross-beam, and a slight push by one of the performers will tilt the gate into a horizontal position, causing the end (shown uppermost in Fig. 2) to fall upon the cord 23, stretched across the inner mouth of the upper-tank extension, as shown in Fig. 1. The gate being open, the men on logs appear riding down the flume, and it is a matter of considerable skill and agility for each to keep his balance and to properly direct the log carrying him, so as to avoid the obstacles. The sight is both interesting and instructive, as it exemplifies very truthfully the manner in which logs are collected and rafted for transportation. Naturally unavoidable missteps, collisions, and capsizes in flume and lower tank result in occasional comical antics on the part of the performers, while the chance of serious accident always imminent to the eyes of the average inexperienced observer is practically nothing. When all the logs and men have left tank 1 or it is desired to raise the water-level in that tank, cord 23 is cast off and the end of the gate resting upon it is lowered and placed against the sill 20, and the wedges are again inserted by an attendant stationed conveniently for that purpose. Both ends of the gate are thus rendered useful in turn.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a logging-exhibition apparatus, the combination of an upper tank raised above the ground-level upon suitable supporting structure and adapted to hold water, a downwardly-inclined flume, a water-gate constructed and arranged to open said upper tank into said flume at its highest point, a lower tank, the said flume being connected with the upper tank and with the lower tank, substantially as described.

2. In a logging-exhibition apparatus, the combination of an upper tank raised above the ground-level upon suitable supporting structure and adapted to hold water, the said upper tank having an extension at one side, a lower tank, a downwardly-inclined flume connecting the extension of said upper tank with said lower tank, a water-gate located in the extension of said upper tank and adapted to confine water in said upper tank or to permit its discharge into said flume, substantially as described.

3. In a logging-exhibition apparatus, the combination of an upper tank, a flume, a gate arranged to open said upper tank into said flume, a lower tank arranged to receive the contents of said flume, and pumping mechanism adapted to raise water into said upper

tank from said lower tank, substantially as described.

4. In a logging-exhibition apparatus, the combination of an upper tank raised above the ground-level upon suitable supporting structure and adapted to hold water, a lower tank, a downwardly-inclined curved flume connecting the said upper tank with the said lower tank, a water-gate constructed and arranged to open said upper tank into the said flume at its highest point, substantially as described.

5. In a logging-exhibition apparatus, the combination of an upper tank raised above the ground-level upon suitable supporting structure and adapted to hold water, a lower tank, a downwardly-inclined flume connecting the said upper tank with the said lower tank, artificial obstructions placed in said flume and adapted to interfere with the direct passage of logs floating down the flume, a water-gate constructed and arranged to open the said upper tank into the said flume

at its highest point, substantially as described.

6. In a logging-exhibition apparatus, the combination of an upper tank having an extension at one side, a sill 20 transversely secured on the floor of said extension, a gate 15, a cross-beam secured to the middle of the gate, said cross-beam having journals at the ends, gate-posts 16 and 17 fixed to the walls of said upper-tank extension, said gate-posts having recesses in their tops within which the journals of the cross-beam may rise and fall, and devices adapted to detachably retain the journals of said cross-beam within said gate-post recesses thereby also keeping the lower edge of the gate against the said sill, as and for the purposes described.

In testimony whereof I affix my signature in presence of two witnesses.

ABRAM FRANK HOWARD.

Witnesses:

EDWIN NINESS,  
JOSEPH H. STEERE.