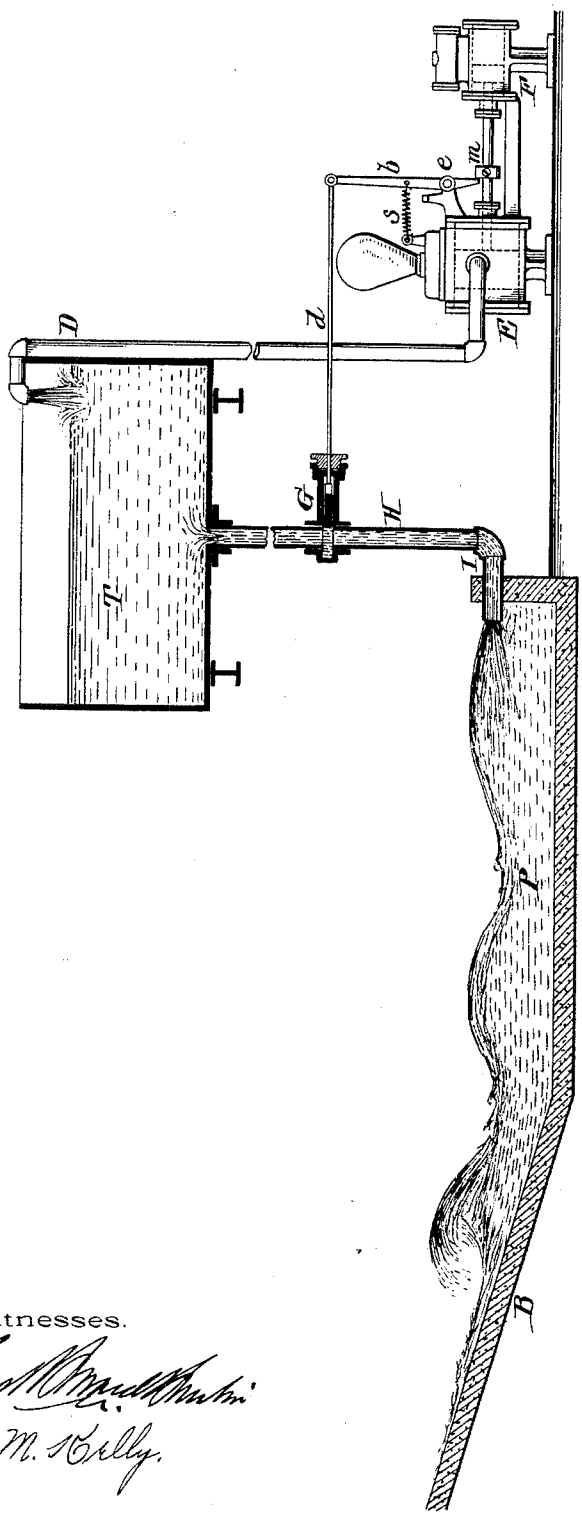
(No Model.)

# W. WHARTON, Jr.

## AMUSEMENT APPARATUS.

No. 586,718. Patented July 20, 1897.




Witnesses.

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# UNITED STATES PATENT OFFICE.

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## AMUSEMENT APPARATUS.

SPECIFICATION forming part of Letters Patent No. 586,718, dated July 20, 1897.

Application filed December 22, 1896. Serial No. 616,632. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM WHARTON, Jr., of the city and county of Philadelphia, State of Pennsylvania, have invented an Improvement in Amusement Apparatus, of which the following is a specification.

My invention has reference to amusement apparatus designed to produce artificial waves or breakers upon a sloping beach; and it consists of a tank or pond of considerable dimensions having a sloping beach and adapted to contain water, and certain hydraulic wave-producing apparatus used in connection therewith, as hereinafter set forth.

My invention will be better understood by reference to the accompanying drawing, which represents an elevation view of my improved wave-producing apparatus, partly in section.

P represents a tank or pond of any suitable construction for containing water. At one side I arrange a sloping beach B, toward which the artificial waves made by the wave-producing apparatus are impelled.

T represents a large storage-tank into which water is raised through the pipe D by means of the force-pump E, which may be operated by a steam-engine F or by an electric motor or any other convenient motor. The storage-tank T is elevated at some height above the level of the water in the pond P, so that when the valve G is opened a body of water is allowed to descend out of the storage-tank through the outgoing pipe H with considerable velocity and momentum. At I there is a bend in the outgoing pipe, so that the motion of the descending body of water is changed to a horizontal direction, or nearly so, as may be desired. A body of water is thus projected horizontally with great impetus and effect against the water in the pond P, by which means a wave is produced and is impelled toward the opposite side of the pond. When this wave reaches the sloping beach B, it will rush upward thereon and the effect of an ocean-wave will be artificially produced.

By a suitable device I arrange the valve G so that it shall be opened and shut off at such intervals as may be desired. One method of operating the valve G is shown on the drawing, in which the lever *b*, actuated by the piston-rod of the engine and pivoted at *e*, moves the rod *d*, connecting with the valve G. Upon the piston-rod is a ring *m*, adjustably secured thereto, and when the piston-rod has moved forward nearly to the end of its stroke the projecting edge of the ring will push against the short arm of the lever *b*, so that the long arm of the lever will then pull the rod *d* and thus open the valve G, allowing the water to descend out of the tank T. The spring *s*, pulling on the lever *b*, keeps the valve G closed at all times excepting the very short time in which the ring *m* presses against the short arm of the lever. It is desirable to have the valve G remain open but a very short time and to have it opened quickly and closed quickly. These objects are accomplished by adjusting the ring *m* so nearly at the end of the stroke of the piston-rod that the time of its pressure against the short arm of the lever *b* will be of very small duration, while the great length of the long arm of the lever *b* compared with its short arm causes the valve G to be operated quickly and fully by a very small movement of the ring *m* against the short arm of the lever. The ring *m* can be adjustably secured to the piston-rod by means of a set-screw or by its being in the form of a threaded nut working upon a screw-thread cut upon the piston-rod. In this way the length of time for keeping the valve G open can be varied by changing the position of the ring *m*. It is evident that various other means for actuating the valve G may be employed besides those shown in the drawing.

By placing the tank T at some height above the level of the water in the pond a more sudden descent of the water is caused than by placing the tank near the level of the water in the pond and the sudden impact of the volume of water thus released is more effective.

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

1. In apparatus for producing artificial waves and breakers, the combination of a tank or pond having an inclined side or beach extending from above to below the water-level, a storage-reservoir supported at a higher elevation than the water in the pond, a discharge-pipe extending downward and directed toward the water in the pond, and an intermit-

tently-actuated valve to control the flow of the water through said pipe whereby excessive and intermittent rushes of water are delivered against the water in the pond to cause it to form into long waves which are converted into breakers by the return water flowing down the inclined beach or side.

2. In apparatus for producing artificial waves and breakers, the combination of a tank or pond having an inclined side or beach extending from above to below the water-level, a storage-reservoir supported at a higher elevation than the water in the pond, a discharge-pipe extending downward and directed horizontally toward the water in an inclined or distant side or beach of the pond, and an intermittently-actuated valve to control the flow of the water from the storage-tank through said pipe whereby excessive and intermittent rushes of water are delivered horizontally against the water in the pond to cause it to form into long waves which are converted into breakers by the return water flowing down the inclined beach or side.

3. In apparatus for producing artificial waves and breakers, the combination of a tank or pond having an inclined side or beach extending from above to below the water-level, a storage-reservoir supported at a higher elevation than the water in the pond, continuously-operating water-elevating power devices for supplying water to the storage-tank, a discharge-pipe extending downward and directed toward the water in the pond, and intermittently-operating means to control the flow of the water through said pipe whereby excessive and intermittent rushes of water are delivered against the water in the pond to cause it to form into long waves which are converted into breakers by the return water flowing down the inclined beach or side.

4. In apparatus for producing artificial waves and breakers, the combination of a tank or pond having an inclined side or beach, with an elevated reservoir adjacent to the pond, apparatus for pumping water into the reservoir, and intermittently-controlled devices for permitting a large body of water to pass from the reservoir into the tank at a distance from the inclined side or beach to produce traveling waves of great length which are converted into breakers when they reach the beach by the reverse action of the water down the inclined beach.

5. A tank or pond having an inclined side or beach in combination with an elvated storage-tank T having an outgoing-pipe H adapted to discharge horizontally into the pond, a power-driven apparatus for pumping water into the storage-tank, and an intermittently-operated valve G under the control of the pumping machinery or driving apparatus for intermittently discharging the water from the storage-tank through the pipe into the pond.

6. The method of producing breakers artificially, which consists in introducing into a relatively large body of water contained in a receptacle having a gradually-sloping side at a point opposite said side, intermittent jets of water in relatively small volume in a substantially horizontal direction against said large body, substantially as described.

In testimony of which invention I have hereunto set my hand.

WM. WHARTON, JR.

Witnesses:
J. W. KENWORTHY,
ERNEST HOWARD HUNTER.