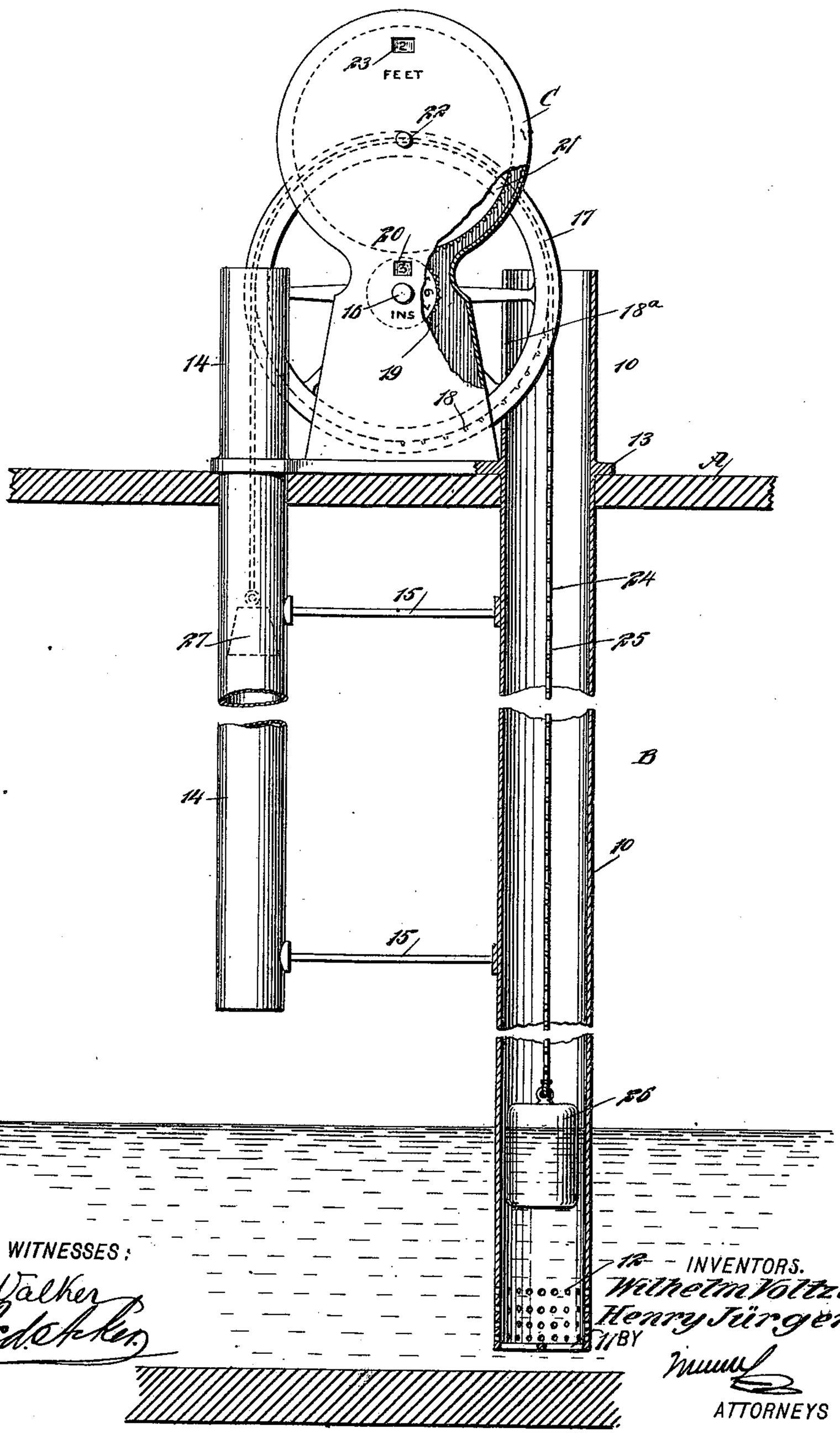
No. 675,307. Patented May 28, 1901.

W. VOLTZOW & H. JÜRGENS.

WATER INDICATOR.

(No Model.) (Application filed Aug. 15, 1900.)



UNITED STATES PATENT OFFICE.

WILHELM VOLTZOW AND HENRY JÜRGENS, OF NEW YORK, N. Y.

WATER-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 675,307, dated May 28, 1901.

Application filed August 15, 1900. Serial No. 26,979. (No model.)

To all whom it may concern:

Be it known that we, WILHELM VOLTZOW and HENRY JÜRGENS, citizens of the United States, and residents of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Device for Indicating the Depth of Water in Receptacles, of which the following is a full, clear, and exact description.

One purpose of the invention is to construct a machine by means of which the depth of water in a receptacle will be accurately indicated in feet and inches at any desired point above or below the receptacle or compartment in which the water is received or contained or at any point within the receptacle or compartment, the measurement being automatically presented and changed as the water rises and falls.

Another purpose of the invention is to provide a device operated by the rise and fall of water in the hold of a ship, for example, which device will at all times present to the watch or officer of the deck a true memorandum of the depth of water in the hold in feet and inches.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claim.

Reference is to be had to the accompanying drawing, forming a part of this specification, in which is represented a partial side elevation and partial vertical section of the improved device.

A represents the top portion of a receptacle B, in which water is to be received or is contained. A pipe 10 extends through the top section A of the receptacle or other equivalent support, and the pipe 10 is of such length that its lower end will extend nearly to the bottom of the receptacle B. This pipe may be of the same diameter throughout, as illustrated, or it may be decreased in diameter from a suitable point between its center and bottom, and such decrease in diameter is desirable when the pipe is to be carried upward some distance, since it renders the construction more economic. The bottom of the pipe 10 is closed by a spider 11, strainer, or its equivalent, or the bottom of the pipe may be entirely open, and the pipe 10 is also provided with perforations 12 in its vertical surface adjacent to the bottom. The pipe 10 extends up through and beyond the support A, and is either attached to or is made integral with the base 13 of the body portion of the machine. A second pipe 14 is placed parallel with the main pipe 10, and the said pipe 14 extends through and beyond the support A, and may be secured to the base 13 in like manner as is the pipe 10. The pipe 14 is closed at its bottom and need not extend as far into the receptacle B as the main pipe 10, in which latter pipe the level of the water in the receptacle B is always indicated. The two pipes 10 and 14 are preferably connected by suitable braces 15 at various points in their length. A casing C is secured to the base 13 between the upper ends of the pipes 10 and 14, and this casing C may be of any desired shape.

At or near the central portion of the casing C a shaft 16 is mounted to turn, and a peripherally-grooved pulley 17 is attached to this shaft, the pulley being located within the casing C; but in the drawing the pulley is shown as extending beyond the casing, since the pulley is adapted to enter the upper portions of the pipes 10 and 14 through suitable openings 18ª, made in the inner faces of said pipes, so that the pulley is guided by the walls of the said openings or slots. The peripheral surface of the pulley 17 is also preferably provided with series of teeth 18. (Shown in dotted lines.) A pinion 19 is likewise secured to the shaft 16 within the casing, and on the outer face of this pinion 19 numerals are produced reading from "1" to "12," and these numerals indicate inches and are adapted to appear one after the other at an opening 20, made in the front of the casing. In the upper portion of the casing C a second shaft 22 is mounted to turn, and this upper shaft 22 carries a gear-wheel 21, located within the casing, and on the front face of this gear-wheel 21 numerals are produced at regular intervals reading from zero to as high a number as may be desired. These numerals are adapted to appear one after the other at an opening 23, made in the front of the casing near its top, and said numerals on the gear-wheel 21 indicate feet. Preferably the pulley 17 is one foot in circumference, and

the pinion 19 is provided with twelve teeth, one for each numeral, and in this event the gear-wheel 21, meshing with the pinion, will be provided with one hundred and forty-four teeth; but the number of teeth may be changed, although the ratio must be maintained.

A tape 24 is passed over the periphery of the pulley 17, and one end of this tape extends down in the main pipe 10, while the other end of the tape is carried down into the auxiliary pipe 14. The tape 24 is provided with slots or apertures 25, which receive the teeth 18 at the periphery of the pulley 17, so that the tape is prevented from slipping or from producing an unpleasant sound when the machine is in operation. A float 26 is secured to the lower end of that portion of the tape which passes into the main pipe 10, while a weight 27 is secured to the other terminal of the tape 24, and this weight travels in the tube or pipe 14, which is virtually a guide and protector for the tape and for the weight. The weight 27 is of such heft that it balances the float 26 when the float is buoyed by the water. Thus it will be observed as the water rises and falls the float 26 will have a corresponding movement, and by reason of the gearing above described the depth of water in the receptacle B will be indicated in feet and inches at the front of the casing C and may be consulted by any person interested and passing the upper portion of the device. Thus at any time the depth of water in any compartment or receptacle may be ascertained easily and accurately.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

The combination of the support, two tubes extending therethrough and having their upper or rising portions slotted in their opposing sides, a wheel journaled between the tubes and projecting into them through their slots being in guiding engagement with the walls of the slots, the wheel being provided with a series of figures, a casing provided with a sight through which one of said figures may become visible, another wheel inclosed in said casing and geared with the first-named wheel, the second wheel likewise bearing a series of figures adapted to become visible through another sight of the casing, a flexible connection passing over the first-named wheel and having its ends arranged within the depending or lower portions of said tubes, a weight attached to one end of the flexible connection, and a float attached to the other end thereof.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

WILHELM VOLTZOW.
HENRY JÜRGENS.

Witnesses:
MICHAEL HOCHADEL,
FRIDERICH BARBRATT.