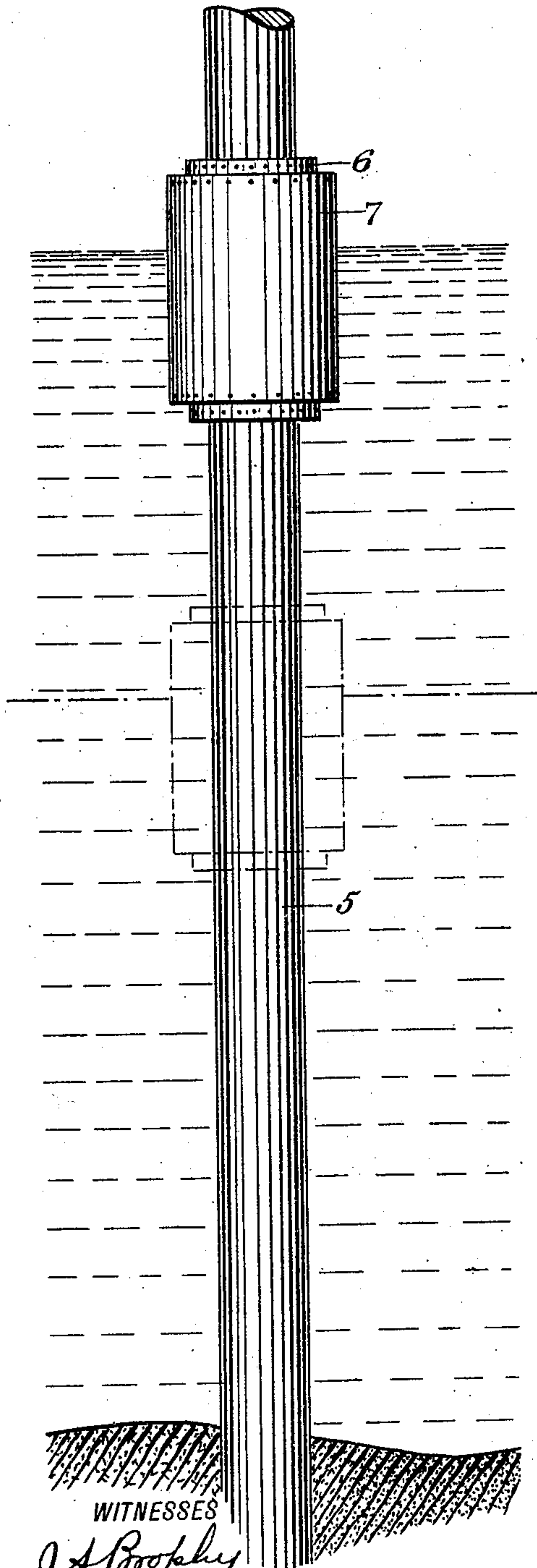


C. N. HUBBARD.  
 PILE PROTECTOR.  
 APPLICATION FILED MAR. 8, 1909.

Patented Sept. 14, 1909.

934,176.

Fig. 1



WITNESSES  
*J. A. Brophy*  
*W. W. Holt*

Fig. 2

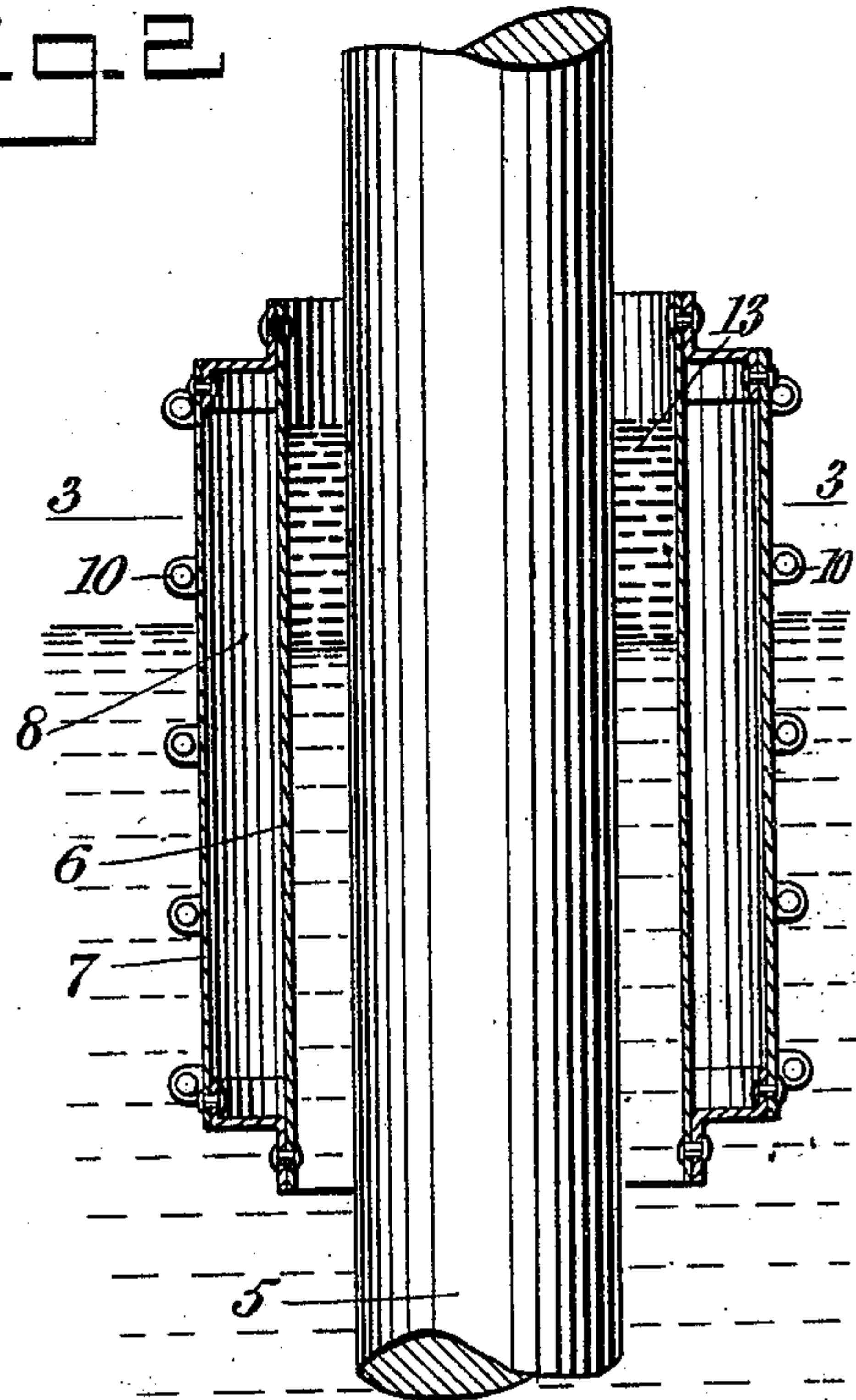
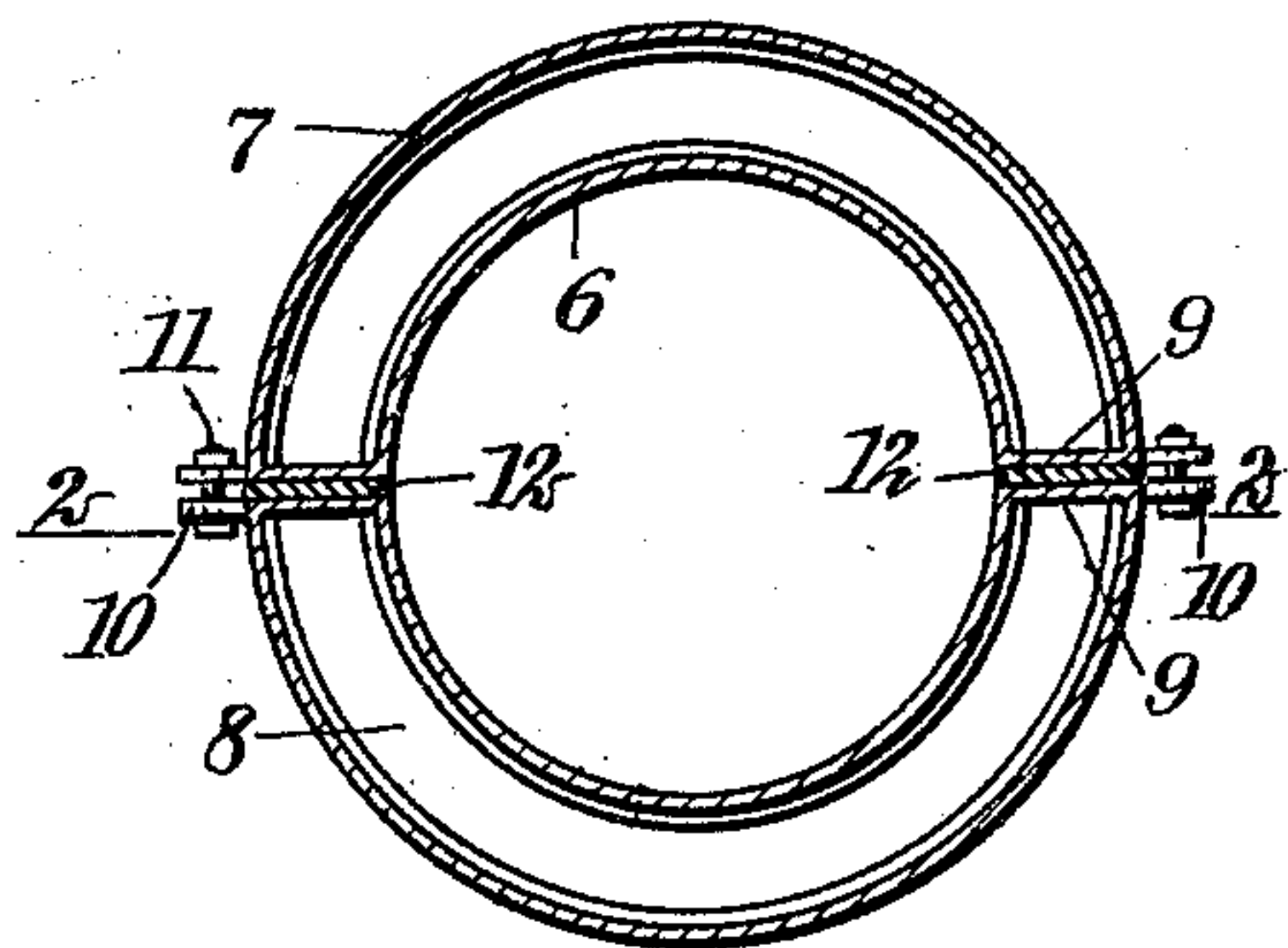


Fig. 3



INVENTOR  
*Charles N. Hubbard*  
 BY *Mumford*  
 ATTORNEYS



# UNITED STATES PATENT OFFICE.

CHARLES N. HUBBARD, OF KAMELA, OREGON, ASSIGNOR OF ONE-HALF TO REBECCA J. NELSON, OF KAMELA, OREGON.

## PILE-PROTECTOR.

934,176.

Specification of Letters Patent. Patented Sept. 14, 1909.

Application filed March 8, 1909. Serial No. 481,980.

*To all whom it may concern:*

Be it known that I, CHARLES N. HUBBARD, a citizen of the United States, and a resident of Kamela, in the county of Union and State of Oregon, have invented a new and Improved Pile-Protector, of which the following is a full, clear, and exact description.

The invention belongs to that class of pile protectors which operates after the pile is erected, to coat it with a preservative solution such as to abate the ravages of the teredo, limnoria and other marine worms and insects.

The object of the invention is to provide a suitable device for automatically applying the preservative along the length of the pile by the aid of the rise and fall of the water level, thus in tide water giving the pile four applications of the solution daily. To this end I provide in combination with the pile, a floating casing adapted to surround the pile and freely move up and down thereon as the level of the water falls and rises, with the upper portion of the casing liquid-tight for containing a preservative solution of less specific gravity than the water.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is an elevational view showing my improvements applied to an erected pile; Fig. 2 is a central vertical section through the pile protector in position on the pile; and Fig. 3 is a cross-section through the protector approximately on the line 3—3 of Fig. 2, with the pile removed.

For the purpose of illustrating the nature of my improvements I have shown an ordinary form of wooden pile 5 as erected for piers, wharves and other superstructures. About the pile is placed the protector, which, as shown in Figs. 2 and 3, is made up of an inner shell or casing 6 and an outer shell or casing 7, the same being concentrically arranged, with the outer casing extending approximately the full length of the inner casing and forming in connection therewith, an annular water-tight compartment 8, which

provides a float to buoyantly support a substantial portion of the protector above the water level. The protector instead of being continuous is vertically divided into two half sections, each section having end walls 9, making each half of the water-tight compartment complete in itself. The sections of the protector also have outwardly-extending lugs 10, through which bolts 11 pass in detachably securing the sections together, whereby the protector is adapted to be removed and placed upon the pile. In order that a water-tight joint may be formed between the sections of the protector, a gasket 12 is placed between each set of opposed end walls 9. The diameter of the inner casing 6 is such as to provide an annular space between it and the pile, in which is poured a preservative solution 13, such, for example, as crude oil or any effective substance with a less specific gravity than the water, whereby it will at all times remain at the top of the water and can only escape from the casing by soaking into the pile or by evaporation, the preservative being renewed at such periods as required. With the protector thus applied it will freely move up and down on the pile with the rise and fall of the water level, taking a position at low water, for example, as illustrated in dotted outline in Fig. 1, and at high water rising to the point shown in full lines in this figure, thus repeatedly applying the preservative to the wood.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. The combination of a pile, and a sectional casing surrounding the pile and having an air chamber adapting it to rise and fall with the water level.

2. The combination of a casing having a pile-receiving opening, a second casing surrounding the first and forming in connection therewith an air chamber, said casings being vertically divided into two half sections, and means detachably connecting the sections of the casings together.

3. In a pile protector, a casing adapted to surround the pile and freely move up and

down thereon as the level of the water falls  
and rises, with the upper portion of the cas-  
ing liquid-tight for containing a preservative  
solution of less specific gravity than the  
5 water, and an air-tight jacket surrounding  
and secured to the casing to buoyantly sup-  
port the casing in the water.

In testimony whereof I have signed my  
name to this specification in the presence of  
two subscribing witnesses.

CHARLES N. HUBBARD.

Witnesses:

JAS. FAY,  
LEONARD P. SMITH.