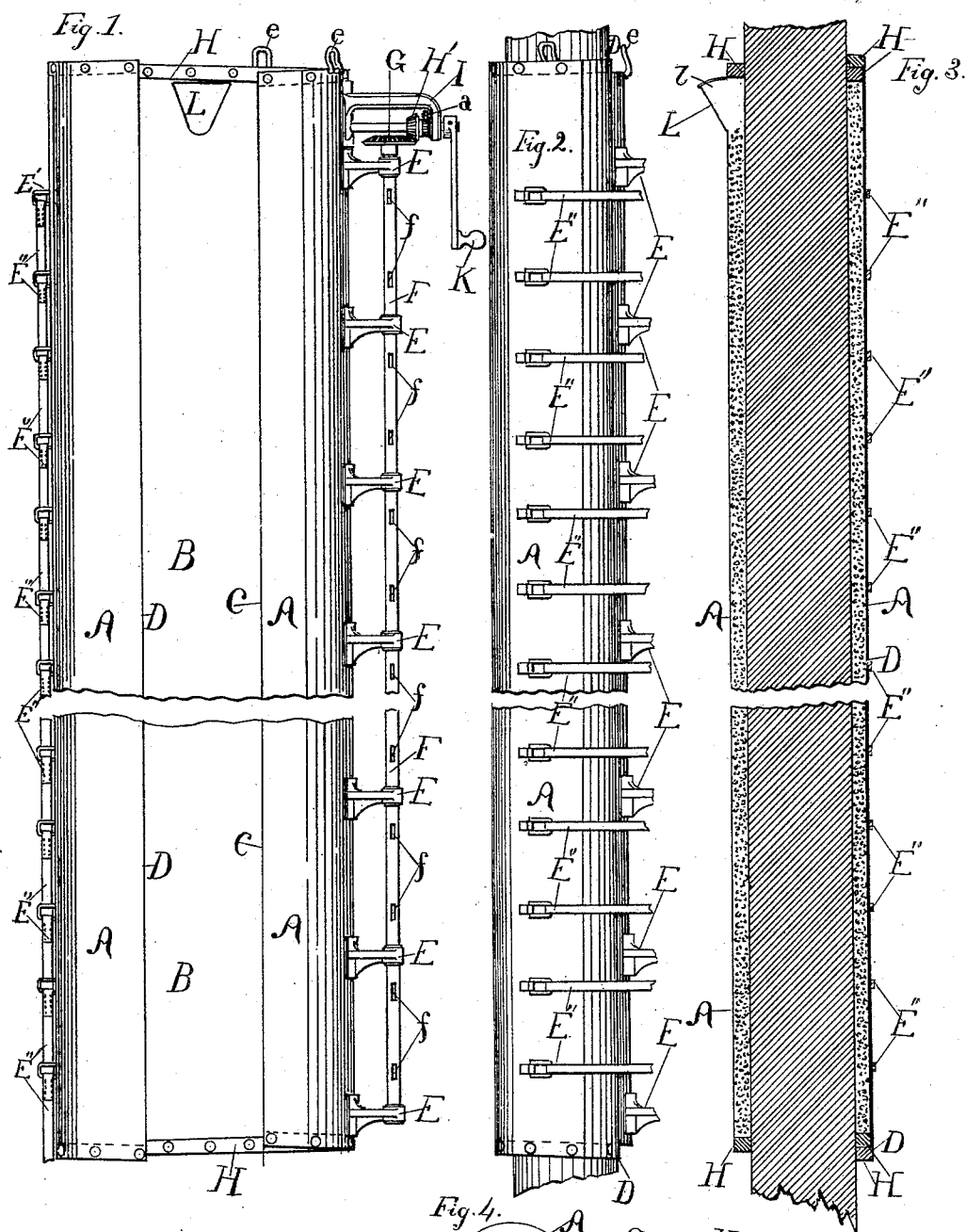


(No Model.)

E. DAVIS.
PLIABLE FLANGE PILE CASING.

No. 464,960.

Patented Dec. 15, 1891.



Witnesses.

M. M. Lee.

James P. Frey.

Inventor

Edward Davis
by Hazard & Townsend
his Attys.

UNITED STATES PATENT OFFICE.

EDWARD DAVIS, OF REDONDO, CALIFORNIA.

PLIABLE-FLANGE PILE-CASING.

SPECIFICATION forming part of Letters Patent No. 464,960, dated December 15, 1891.

Application filed January 15, 1891. Serial No. 377,816. (No model.)

To all whom it may concern:

Be it known that I, EDWARD DAVIS, a citizen of the United States, residing at Redondo, in the county of Los Angeles and State of California, have invented a new and useful Pliable-Flange Pile-Casing, of which the following is a specification.

My invention relates to mechanism for applying a coating of cement, concrete, or other suitable material to the surfaces of piles to preserve them from the attacks of the teredo or other destroying agents.

The object of my invention is to provide a device for applying a coating of cement or concrete to the exterior of piles standing in water, in a quick, cheap, and convenient manner.

The accompanying drawings illustrate my invention.

Figure 1 is a front view of my device opened to permit its being placed around the pile. Fig. 2 is a front view of a pile with my device, with the tightening-shaft broken away, in position ready to receive the cement or concrete. Fig. 3 is a longitudinal mid-sectional view of a pile encircled by my device with the concrete in place between the casing and the pile. Fig. 4 is a top view of a pile encircled by my device.

My invention consists of a flexible case open on one side, operating mechanism for opening and closing such casing when in place around the pile, and means for gaging the distance between the case and the pile.

The outer flexible case A is formed of a sheet of galvanized iron, sheet-steel, or other suitable material, bent into approximately-cylindrical shape with the opening B on one side thereof of sufficient width to permit the entrance of the pile therebetween. When the casing A is drawn into position around the pile, the edges C D must overlap sufficiently far to form a tight joint. By means hereinafter fully described I am enabled to use the same casing in treating various-sized piles.

Longitudinally along the outside of the casing, about one-quarter the entire width of the casing from the edge C, I secure a series of brackets E, through which is journaled the tightening-shaft F, the upper end of which is provided with the beveled cog-wheel G, into which meshes the beveled driving cog-wheel

H', which is provided with the handle K, and is journaled to the standard I, secured to the casing A. On the opposite side of the casing 55 from the brackets E' E', I attach a series of bands or straps E'' at about the same distance from the edge D of the casing as the standards E are from the edge C. In the drawings I have shown straps; but ropes, 60 chains, or other suitable bands may be used. At the top I provide a feed-opening L, provided with a lip L, to introduce the cement or other substance into the casing. On the inside of the casing A, at the bottom and also 65 at the top, I secure a spirally-arranged pliable flange H, of leather, rubber, or other suitable material, of the thickness it is desired to have the coating of cement or concrete and of suitable width. The insertion-edge C of 70 the casing A is shorter than the embracing-edge D, and the ends of the casing are beveled from the edge D to the edge C, and the flanges H are secured to the inside of the casing flush with the beveled ends thereof, so 75 that when the casing is closed to embrace the pile the insertion-edge C and the ends of the flanges H secured thereto will enter between the other ends of such flanges, which are secured to the embracing-edge D, and the flanges H 80 are thus caused to form continuous packings at the ends of the casing between the pile and the casing. It will be seen that through means of the pliable flange H and the overlapping flexible case A piles of varying di- 85 ameters can be treated with the same ease.

The manner of using is as follows: The machine is suspended from the cap of the piles by ropes or other suitable means attached to eyes e e, and the casing is placed 90 around the pile to be treated. The straps or other suitable devices E'' are attached to the tightening-shaft F by passing the ends of the straps E'' through the slots f, or by hooks or other suitable means. The device is then 95 lowered to the depth desired, and the tightening-shaft F is rotated by turning the handle K, and the straps E'', winding upon the shaft F, draw the edge D past the edge C and on the outside thereof, and the band H, being drawn into contact with the pile, causes 100 the casing A to conform to the shape of the pile. The ratchet a holds the shaft from unwinding. The cement or concrete is intro-

duced into the casing through the spout or lip L until the space between the casing and pile is full of the material. The pliable flange H forms a tight packing between the bottom 5 of the casing and the pile and prevents the cement from passing out at the bottom of the casing, and also acts as a gage to the thickness of the coating of cement or concrete. The pliable flange H at the top acts simply 10 as a gage, and may be omitted at both the top and bottom and a series of lugs (not shown) be placed around the inside of the case to act as a gage; but in such cases the casing A must rest upon the soil to prevent the cement or concrete from passing out of the casing 15 at the bottom before it is set. In many cases it is necessary only to protect certain portions of the pile, as is illustrated by the tredo, which only work in the space included between mean high-water mark and mean low- 20 water mark, and by using the pliable flange H the cement or concrete can be applied to any portion of the pile desired by lowering the casing to the desired position and then 25 closing it tightly about the pile. I consider the pliable flange preferable; but my invention is not limited thereto. The straps E'', or other suitable means for drawing the casing into position around the pile, are placed a 30 short distance apart and prevent the thin material necessarily used in the casing from bulging out at any point. Care must be taken to have the tension of the straps E'' or other devices uniform. After the material 35 has set, I remove the casing by rotating the tightening-shaft F in the reverse direction. The casing A springs open, the straps or other devices are unfastened from the shaft

F, the casing is removed from the pile, and the operation is repeated on another pile. 40

It is obvious that various modifications of my device will present themselves to mechanics, and I do not wish to be limited to the form shown. It is also obvious that my device may be used for other purposes than 45 casing piles with cement.

It is to be understood that I do not regard the cog-wheel mechanism and crank shown to be the only suitable means for controlling the tightening-shaft, for many forms of mechanism for this purpose will readily suggest 50 themselves to mechanics.

Now having described my invention, what I claim as new, and desire to secure by Letters Patent, is— 55

1. In a device for coating piles, the combination of the open flexible casing, the tightening-shaft secured to one side of the casing and journaled to revolve, the flexible bands fastened to the other side of such casing and 60 attached to the tightening-shaft, and means for operating such shaft.

2. A device for coating piles, comprising the combination of an open flexible casing having its insertion-edge shorter than its embracing-edge and provided with the feed-opening and with the spirally-arranged pliable flanges at the ends, and operative mechanism for opening and closing such casing. 65

3. In a device for coating piles, the flexible casing A, provided at its ends with the spirally-arranged pliable flanges H. 70

EDWARD DAVIS.

Witnesses:

JOSEPH H. CURRIE,

ALFRED I. TOWNSEND.