

No. 718,066.

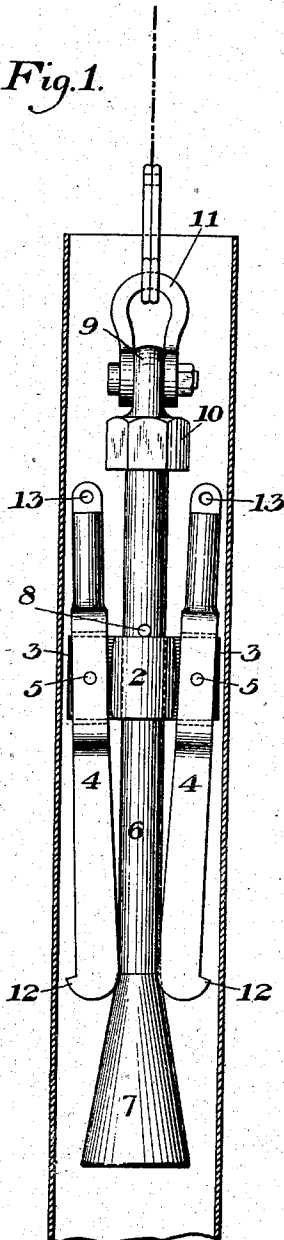
PATENTED JAN. 6, 1903.

F. McWILLIAMS.
TUBE EXTRACTOR.

APPLICATION FILED OCT. 16, 1901.

NO MODEL.

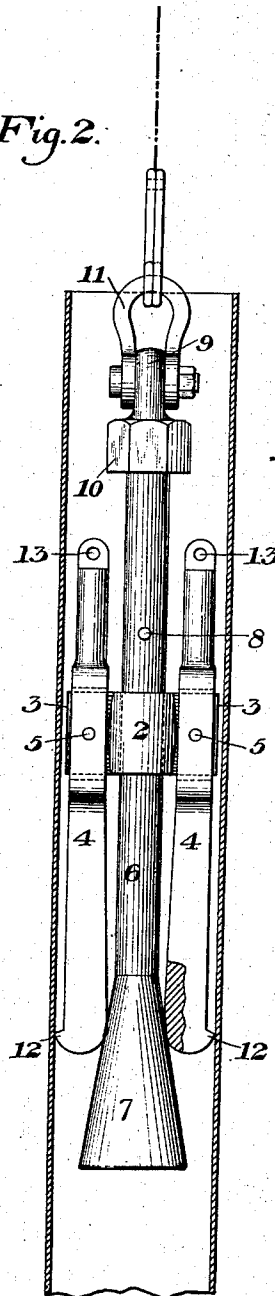
Fig. 1.



WITNESSES

Warren W. Swartz,
H. M. Corwin

Fig. 2.



INVENTOR

Francis McWilliams
by R. H. K. & S. J. M.
his attys.

UNITED STATES PATENT OFFICE.

FRANCIS MCWILLIAMS, OF DUQUESNE, PENNSYLVANIA.

TUBE-EXTRACTOR.

SPECIFICATION forming part of Letters Patent No. 718,063, dated January 6, 1903.

Application filed October 16, 1901. Serial No. 78,325. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS MCWILLIAMS, of Duquesne, Allegheny county, Pennsylvania, have invented a new and useful Tube-Extractor, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of the tool within a tube, the jaws being in retracted position; and Fig. 2 is a similar view showing the position of the parts when a lifting force is exerted upon the tool.

My invention relates to the extracting of tubes or pipes, and particularly to the extracting of boiler-tubes from boilers.

The object of the invention is to provide a simple and efficient extracting-tool which may be inserted within the tube or pipe and will grip it automatically when a pulling force is exerted upon the tool.

In the drawings, 2 represents a block or support having oppositely-projecting lugs 3 3, entering slots in gripping-levers 4 4, which are pivoted to the lugs by pins 5. The block 2 is provided with a central hole, through which extends the sliding stem 6 of an expander 7 of conical form. This stem is provided above the block 2 with a through-pin 8, which limits the downward movement of the stem, as shown in Fig. 1. To the upper end of the stem is secured an eye 9, which has a base portion 10, which may be screwed to the top of the stem or held thereto by a cotter-pin, and with the eye is engaged a clevis 11, to which a suspending cable or chain is secured. The lower ends of the jaws are preferably provided with projections 12, which are rounded slightly to fit the interior surface of the tube, and the inner faces of the jaws are preferably made concave at their lower ends to fit the surface of the expanding-cone.

In using the tool for extracting the tube of a vertical water-tube boiler it is lowered within the tube, and power then being applied

to draw the tool upwardly the stem of the expander slides through the jaw-support and expands the jaws, causing them to firmly grip the tube, as shown in Fig. 2. As the pulling force is increased the gripping action of the jaws is increased, and the tube is thus lifted out of the boiler. The extractor is then removed by loosening the jaws and withdrawing the tool. To aid in loosening the tool when the jaws cannot be reached by hand, I provide their upper ends with holes 13, to which cords may be connected. By drawing upon the cords the jaws are moved away from the cone and the device thus loosened.

The advantages of my invention result from the simplicity, cheapness, and ease of operation of the tool. No screwing action is necessary for expanding the jaws, and the gripping action of the tool is made quicker and more effective by reason of the loose sliding connections between the holder for the jaws and the stem of the expander.

Changes may be made in the form and arrangement of the parts without departing from my invention.

I claim—

A tube-extractor for metallic tubes, consisting of an upwardly-tapering expanding-cone of circular cross-section having a stem provided with an eye at its upper end, a jaw-supporting block having a central cylindrical hole through which the cone-stem passes freely, arms pivoted upon side extensions of the block, and having at their lower ends outer gripping portions and inner concave portions arranged to fit upon the cone-surface, and a stop on the stem above the block to restrain the movement; substantially as described.

In testimony whereof I have hereunto set my hand.

FRANCIS MCWILLIAMS.

Witnesses:

GEORGE J. BRYEN,
JOHN BJORNBERG.