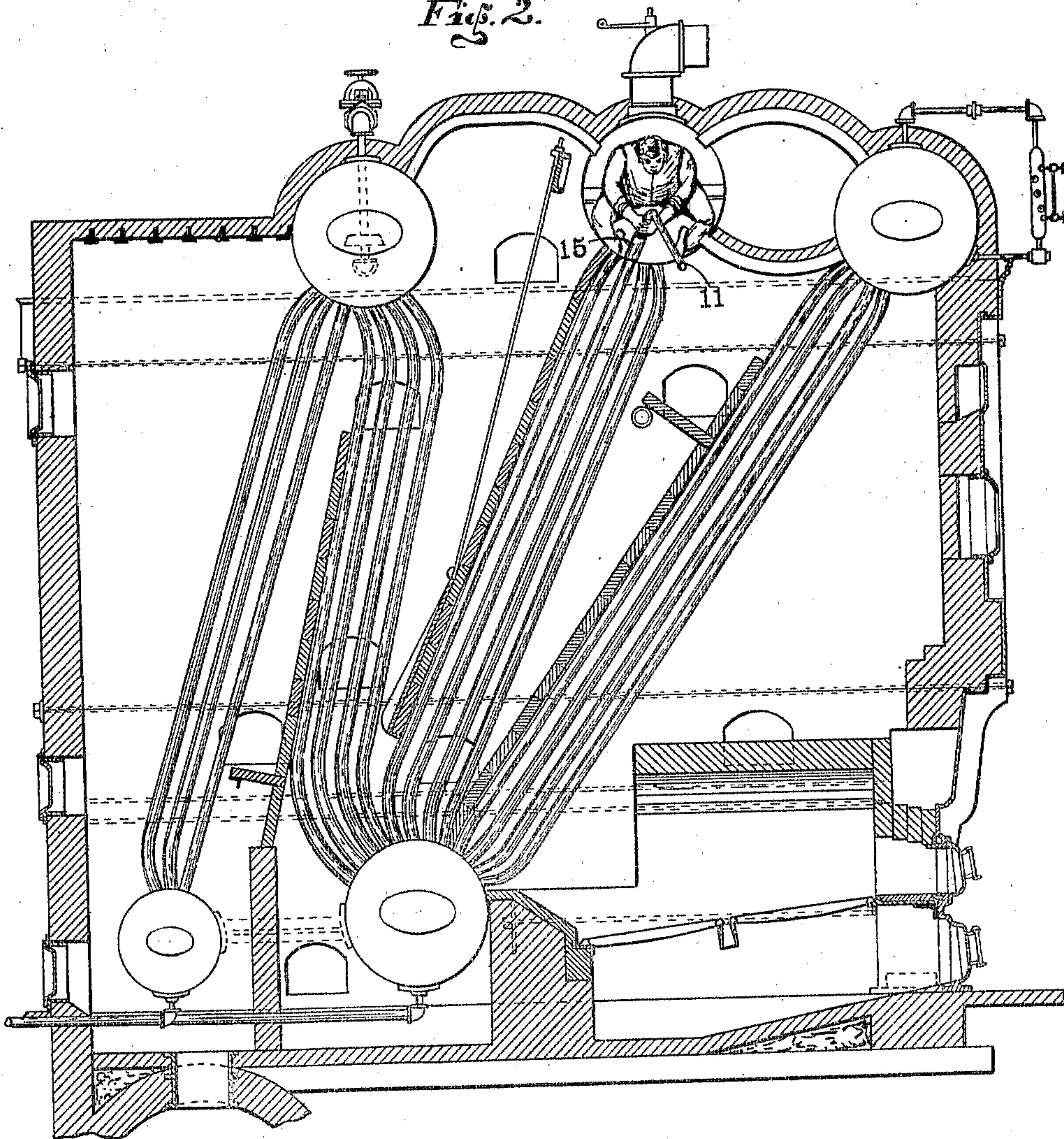


No. 811,862.

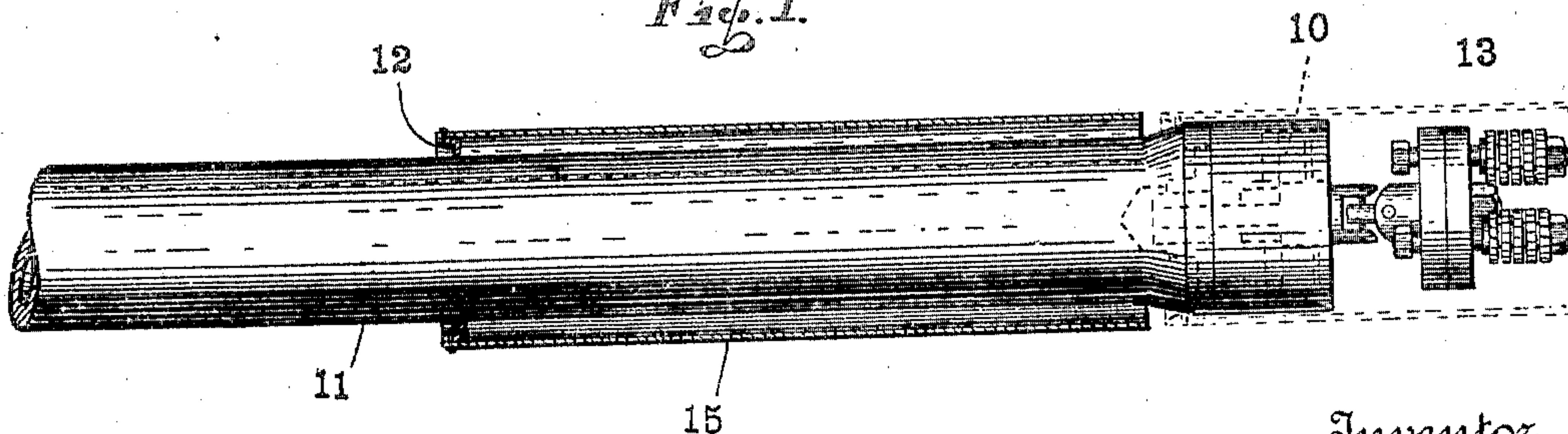
PATENTED FEB. 6, 1906.

E. METTLER.  
GUARD FOR BOILER TUBE CLEANERS.  
APPLICATION FILED MAR. 17, 1904.

*Fig. 2.*



*Fig. 1.*



Witnesses  
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# UNITED STATES PATENT OFFICE.

EUGENE METTLER, OF INDIANAPOLIS, INDIANA.

## GUARD FOR BOILER-TUBE CLEANERS.

No. 811,862.

Specification of Letters Patent.

Patented Feb. 6, 1906.

Application filed March 17, 1904. Serial No. 198,595.

*To all whom it may concern:*

Be it known that I, EUGENE METTLER, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Guards for Boiler-Tube Cleaners, of which the following is a specification.

In the operation of cleaning water-tube boilers it is customary for the operator to enter the upper or steam drum, carrying with him a cleaning-tool consisting of a water-turbine carrying cutters, which are revolved by the turbine against the scale in the interior of the tubes. In such operation it is practically impossible with existing tools to transfer the cutter from one tube to another without shutting off the flow of water. This consumes a great deal of time, and as economy of time of cleaning a boiler is quite material the object of my present invention is to provide a simple yet efficient means by the aid of which the operator may easily transfer the cutting-tool from one tube to another without shutting off the flow of water.

The accompanying drawings illustrate my invention.

Figure 1 is an axial section of my improvement as applied to a cleaning-tool such as I have described and claimed in my pending application. Fig. 2 is a vertical sectional view of a Stirling boiler with an operator in position using my invention.

In the drawings, 10 indicates the motor or water-turbine, to the outer end of which is attached any desired form of cutting-tool, all of said tools being provided, so far as I am aware, with radially-moving cutters adapted to engage the scale within the water-tubes. The motor-casing is attached to the end of a suitable hose 11, through which flows the motive stream of water, which not only serves to operate the cutters, but to wash the scale downward through the tubes, the hose being of such length as to enable the operator to force the cutter the entire length of the tubes. Thus far the parts described are of any desired form; and my invention consists in the provision of a short tube 15, preferably a short section of boiler-tubing of the same size as that used in the boiler being cleaned. This tube is provided at its rear end with a packing 12, of suitable material, preferably leather, rubber, or the like, which is adapted to engage the rear end of the motor-casing 10 when the tube is extended in the position shown in

dotted lines in Fig. 1, thus preventing a back-flow of water.

In operation the operator goes into the boiler, as shown in Fig. 2, and brings the tube 15 to the end of the apparatus, so as to inclose the cutter 13, thus preventing the radial cutting members from swinging outwardly more than the internal diameter of the tube to be cleaned. The water is then turned on, and by bringing the mouth of the guard-sleeve opposite the mouth of the tube to be cleaned the tool may be very readily inserted, whereupon the guard-sleeve is shoved back out of the way. When the tube has been cleaned, the tool is retracted, and if it were entirely withdrawn from the tube the cutter would become almost unmanageable by reason of the flow of water. In order to prevent this, the operator has merely to bring the guard-sleeve forward, so as to incase the tool, as already described, whereupon it may be readily shifted to another tube and the operation repeated. By this means I have found by actual practice that an operator may clean a boiler in very much less time than has been possible where it was necessary to discontinue the supply of water each time of shift from one tube to another.

I claim as my invention—

1. The combination, with a water-tube-boiler-cleaning tool of the rotary fluid-stream type, of a guard-tube slidably mounted upon the supply-hose and adapted to incase the tool during the time of transfer from one tube to another, said guard-tube being so constructed as to prevent backward movement of the fluid stream when the guard-tube 2 is extended over the tool.

2. The combination with a water-tube-boiler cleaner of the rotary fluid-stream type, of a guard-tube sleeved upon the supply-hose and provided with a packing at its inner end and adapted to engage the main body of the cleaner, the arrangement being such that said guard-tube may be moved longitudinally upon the supply-hose and may be caused to incase the tool during the time of transfer from one tube to the other.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 8th day of March, A. D. 1904.

EUGENE METTLER. [L. S.]

Witnesses:

ARTHUR M. HOOD,  
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