June 19, 1928. 1,673,890

E. H. SMITH

CONDENSER TUBE CLEANER

Filed Nov. 18, 1926

Fig. 1.

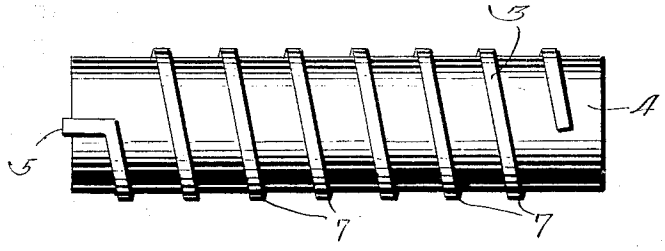


Fig. 2.

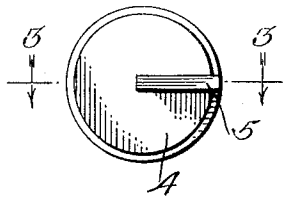
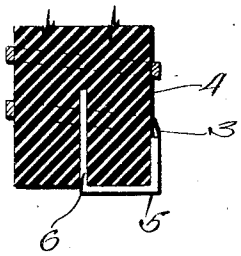


Fig. 3.



Inventor

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UNITED STATES PATENT OFFICE.

ERNEST HOPE SMITH, OF CLEVELAND, OHIO.

CONDENSER-TUBE CLEANER.

Application filed November 18, 1926. Serial No. 149,254.

The object of my invention is to provide a cleaner or plug that can be shot or forced through the tubes of condensers with air or water pressure, and that will scrape the tubes clean and carry the dirt through the tube, and that will not come apart in use.

Figure No. 1 is a complete side view of the cleaner.

Figure No. 2 is a view of one end of the cleaner showing manner of fastening the metal spring.

Figure 3 is a sectional view of the cleaner.

To such end and object, my invention relates to a cylindrical, resilient rubber plug 4 with a metal spring wire 3 having sharp edges wound spirally around it which acts as a scraper. The spring 3 is fastened to the rubber plug 4 tightly and in such a manner 5 to prevent it coming off and it is made from metal hard enough to scrape and clean the walls of the tubes. The spring 3 is wound spirally around the rubber plug 4; then it is bent over one end of the plug 5 and the end of the metal spring wire is inserted into the rubber 6. This is an improvement over any previous construction in that the spring wire 3 cannot come off the rubber plug 4 and the bent over end 5—6 provides a metal bumper to withstand the shock when the cleaner leaves the end of tube and/or strikes any obstacle. The rubber plug 4 is resilient enough to allow considerable "give and take" or contraction when the cleaner is shot through an exceedingly dirty tube, thus preventing sticking in the tube. The rubber plug 4 does not touch the wall of the tube. It does none of the cleaning and takes none of the wear. The rubber plug 4 is a resilient cushion inside the spring wire 3 and serves to hold the cleaning surface 7—7 of the spring wire against the walls of the tube with just enough pressure to scrape off the dirt but not enough pressure to injure the tube or cause the cleaner to stick in the tube. The rubber plugs 4 are made in various sizes to fit different size tubes and the metal spring 3 is wound around the rubber plug 4 so as to make a snug fit when inserted in the tube.

I claim:

1. An improvement in a condenser tube cleaner consisting of a cylindrical shaped solid rubber plug with tempered steel spring wire wound spirally around it, in that the wire is bent over the plug on one end and the end of the wire is inserted into the end of the rubber plug.

2. An improvement in a condenser tube cleaner having a metallic cleaning surface consisting of a strip of hard metal wound spirally around a resilient, solid rubber, cylindrical shaped core which acts as a cushion to hold the metal cleaning surface against the walls of the tube with enough pressure to clean but not enough pressure to injure the tube.

3. An improvement in a condenser tube cleaner consisting of a hard metal strip made from square shaped spring metal, which is wound snugly around a cylindrical shaped, solid, resilient, rubber core, in that the metal spring projects around the rubber core and makes contact with the inside walls of condenser tubes into which it may be inserted.

In testimony whereof, I have hereunto signed my name.

ERNEST HOPE SMITH.