

Jan. 26, 1960

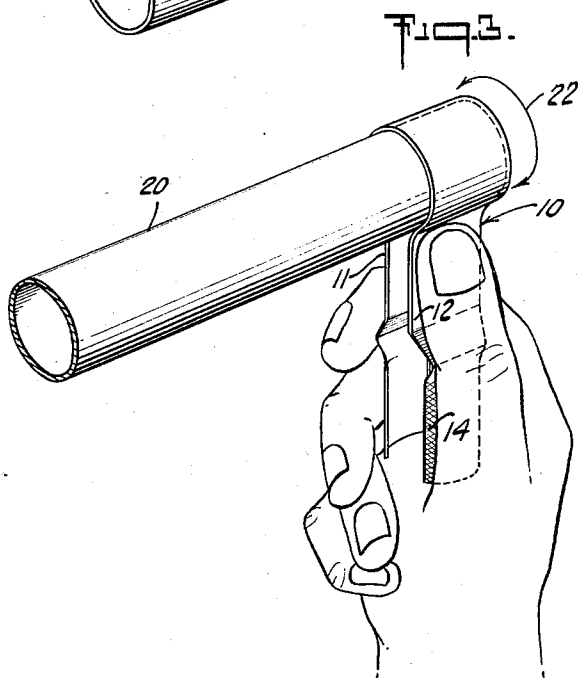
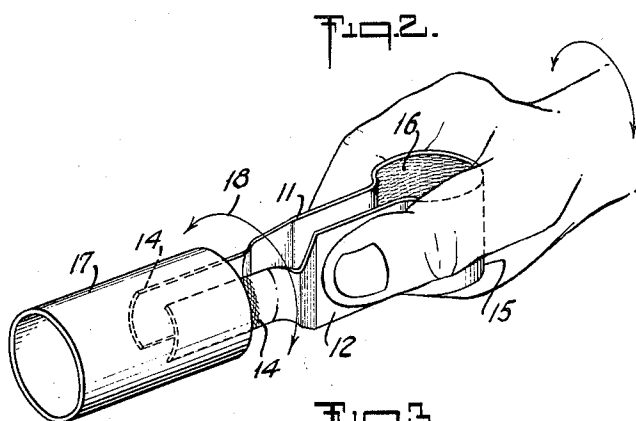
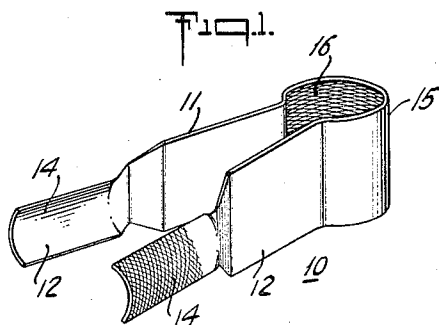
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2,922,218

PIPE CLEANING DEVICE

Filed March 27, 1957

2 Sheets-Sheet 1



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Fig. 4.

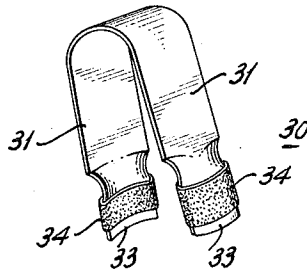


Fig. 5.

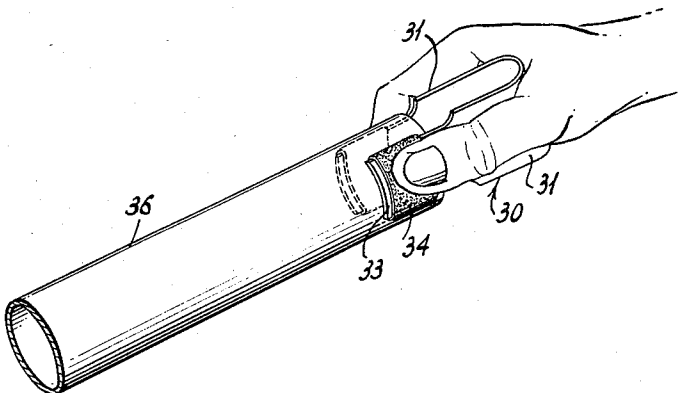
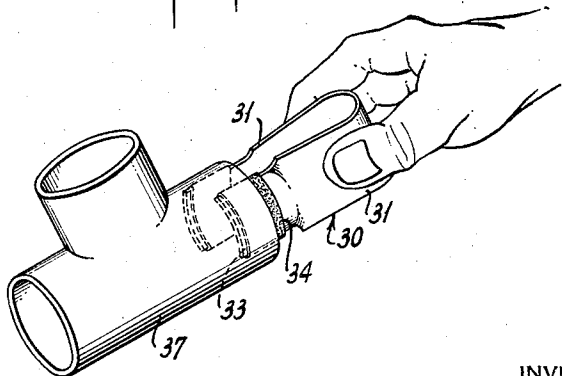


Fig. 6.



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PIPE CLEANING DEVICE

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Application March 27, 1957, Serial No. 648,919

2 Claims. (Cl. 29—78)

This invention relates to an improved hand operated device for cleaning the ends of metal pipes, fittings, and so forth in preparation for soldering them.

This application is a continuation-in-part of co-pending application Serial No. 580,812, filed April 26, 1956.

An object of this invention is to provide a simple and inexpensive tool of the above kind.

Another object of the invention is to provide such a tool which is very easy to use and which produces on a pipe end a cleaned surface of superior quality for soldering.

These and other objects will in part be understood from and in part pointed out in the description given herein-after.

In joining certain kinds of metal pipes, such as copper ones, a sleeve of larger diameter is fitted over the outside end of the pipe and then the two are soldered together. Preparing the surfaces of these parts prior to the soldering must be done carefully and thoroughly since a tight joint is usually desired and great pressure may be exerted on the joint. For solder to wet the surface of the pipe it is necessary that the metal be thoroughly cleaned of rust, dirt, grease and like impurities. At present, this is often done by holding a piece of sand paper or steel wool in the fingers and rubbing it in a circular motion over the pipe. Unfortunately, however, this operation frequently results in cut fingers and in imperfectly cleaned pipe ends. The present invention seeks to eliminate these difficulties by providing a simple and inexpensive tool which is easy to use and which gives superior cleaning.

In accordance with the present invention, there is provided a single piece tongs having the ends of its arms bent longitudinally along arcs of a cylinder. Each end is provided with a scored file surface or alternatively with a sleeve-like band of suitable abrasive material such as sand paper. The ends of the tongs are bent sufficiently so that when they are held parallel or very nearly so the tool will be in contact over an extended arc with the peripheral surface of a pipe end or fitting to be cleaned. One tool is designed to perform the complete job of cleaning both the inside and outside surfaces of a pipe and to do so far more effectively and efficiently than a person using just his fingers and a wad of steel wool, for example. The areas cleaned by this tool are very thoroughly cleaned and may be slightly scored, thus giving greater strength to the bond between solder and pipe. The time in which mating pipes can be cleaned is considerably reduced and the danger of cut fingers virtually eliminated.

A better understanding of the invention together with a fuller appreciation of its many advantages can best be gained from a study of the following description given in connection with the accompanying drawings in which:

Figure 1 is a perspective view of one tool embodying features of the invention;

Figure 2 is a perspective view of the tool being used to clean the inside end surface of a pipe fitting;

Figure 3 is a perspective view of the same tool being

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used on the outside surface of a pipe having an inside diameter equal to the outside diameter of the pipe in Figure 2;

Figure 4 is a perspective view of another tool embodying features of the invention;

Figure 5 is a perspective view of the tool in Figure 4 being used to clean the outside end surface of a pipe; and

Figure 6 is a perspective view of the tool in Figure 4 being used to clean the inside of a pipe coupling adapted to fit over the end of the pipe in Figure 5.

Tool 10 shown in Figure 1 includes a thin broad strip 11 of a resilient material, such as spring steel, bent into a U-shape form or tongs. Each end of each of the arms 12 of the tool is longitudinally bent generally along an arc of a cylinder of a given diameter and the outer surface 14 of each end is scored and hardened to make it a file. The head 15 of the tool is bent and curved so that its inside surface 16 completes very nearly 360° of a cylinder. This inside surface is likewise serrated and hardened to make it a file.

Figure 2 shows tool 10 being used to clean the inside surface of a pipe fitting 17. Arms 12 of tool 10 are spring urged outward at their ends and thus file surfaces 14 are held firmly in contact with the curved inside end of the fitting.

By imparting to tool 10 a back and forth rotary motion as indicated by the arrow 18 a very clean surface inside the pipe is quickly and easily obtained. Since pipe 17 is intended to slip over the end of the pipe 20 in Figure 3 its inside diameter is just slightly larger than the outside diameter of pipe 20.

To enable tool 10 also to clean the outside of pipe 20, as seen in Figure 3, the radius of curvature of inside curved surface 16 is made approximately equal to the outside diameter of pipe 20. Thus when the two ends of the tool are squeezed together, surface 16 will lie snugly against and around the pipe. Then by imparting to the tool a back and forth motion in the direction of arrow 22, the outer end surface of the pipe will be scraped clean. Because of the great mechanical leverage provided by the arms of tool 10, curved file surface 16 can be clamped tightly against the pipe and the tool can easily be rotated back and forth along arrow 22. This will moreover tend to ensure that the end of the pipe is dressed round and uniformly cleaned in the shortest possible time.

Figure 4 shows another tool 30 embodying features of the invention. This tool is in the form of a U-shaped strip having arms 31 whose two ends 33 are bent generally along the arcs of a cylinder. Each end is covered by a removable band 34 of sandpaper or the like. The arms in their free condition are spread farther apart than they would be if parallel.

Referring to Figure 5, to clean the outer end surface of a pipe 36, tool 30 is held by hand with the inner surfaces of the bands 34 firmly in contact with the pipe. The curvature of arm ends 33 and their lateral spacing is chosen so that when pressed tightly together the bands 34 make contact with the outer periphery of the pipe substantially throughout their entire inner faces.

Figure 6 shows tool 30 being used to clean the inside end surface of a pipe coupling 37. The arms of the tool are spring urged outward so that abrasive bands 34 are held firmly against the inside of the coupling. Since coupling 17 is intended to slip over the end of the pipe 36 seen in Figure 5, its inside diameter is just slightly larger than the outside diameter of pipe 36. Hence the outer faces of bands 34 are substantially in contact throughout their area with the inside end of coupling 37.

It is evident from the above description that the present invention provides a very simple and efficient tool for cleaning pipes and fittings in preparation for soldering

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them. It will be appreciated of course that each tool is designed to fit only one size of pipe and fittings, but that a different size tool can be used for a different size pipe and fittings.

Various minor changes in the embodiments of the invention described may occur to those skilled in the art and these can be made without departing from the spirit or scope of the invention as set forth.

I claim:

1. A cleaning tool for pipes, fittings and the like comprising a unitary wide thin strip of spring material bent into a U shape with two elongated arms extending from the head of said tool and terminating in two free ends, said head having a curved inside abrasive surface which extends substantially around a cylindrical pipe of a given outside diameter, said arms serving as finger grips to hold the head of said tool tightly around and against a pipe

5 is hardened steel and said abrasive surface comprises file serrations.

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and as levers to work the tool back and forth to clean said pipe whereby said tool operates with great pressure against the work but is easy to use manually.

2. A tool as in claim 1 wherein said spring material

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