IMPLEMENT FOR INSTALLING OR EXTRACTING ELECTRONIC TUBES OR FOR OTHER PURPOSES

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1 Claim. (Cl. 81—3)

This invention relates to the insertion of electronic tubes into or the removal therefrom, their sockets, and the main object is the provision of a simple and easily handled implement whereby direct contact of the fingers of the user with the tube is unnecessary so that such tubes may be easily removed when hot as well as removed or installed in tight places or where the sockets are difficult to reach. The present implement may also be applied to other uses and industries.

Another object of the invention is the provision of a tool for the purposes mentioned consisting of a spring steel coil so constructed that when the appropriate end is applied over an electronic tube to be pulled and the spring is rotated with slight pressure in a direction to engage the spring more firmly with the tube, with a wiggling motion the tube may be worked out of its socket in the usual manner.

The above broad as well as additional and more specific objects will be clarified in the following description wherein reference numerals refer to like-numbered parts in the accompanying drawing. It is to be noted that the drawing is intended solely for the purpose of illustration and that it is therefore neither desired nor intended to limit the invention necessarily to any or all of the exact details of construction and operation set forth except insofar as they may be deemed essential to the invention.

Referencing briefly to the drawing,

Fig. 1 is a side view of an implement presenting an embodiment of the present invention.

Fig. 2 is a similar view of the implement, showing the same with one end applied to an electronic tube.

Fig. 3 is a view similar to Fig. 2, showing the implement in contracted condition about the tube.

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 3.

Referencing in detail to the drawing, the numeral 10 indicates the implement of the present invention which comprises a single length of spring steel or wire shaped into the form of a helical spring. Preferably the intermediate portion of the spring, shown at 11, is of a constant diameter and of a smaller diameter than that of the size of electronic tube upon which it is adapted to be used. One end section 13 of the spring is composed of a series of coils of larger diameter, also constant, than that of the intermediate section 11. The other end 12 of the spring has a number of coils whose diameter is larger than that of the coils at the end 13. The smaller end 13 is adapted to be applied to relatively small tubes 14, and the larger end 12 is adapted to larger tubes, not shown. By manufacturing the implements 10 in a variety of sizes, it is obvious that they may be made to accommodate tubes of all commercial sizes. Assuming that the tube 14 is fixed in its socket, not shown, and it is desired to remove it, the lower end of the implement is passed over and slipped down the tube. Then, with the upper end 12 or both the latter and the upper portion of the intermediate section 11 grasped in the fingers, the implement is rotated, in the case of the form of spring illustrated in the drawing, with a slight pressure, in a clockwise direction, Fig. 4. While slipping the end 13 over the tube, the implement may, if necessary, be rotated with a slight pressure, in the opposite direction thereby slightly expanding the coils 13 to enable them to be passed down over the tube. Upon rotation of the implement clockwise, as mentioned, the coils 13 are contracted about the tube to hold the same so that it may be wobbled in the usual manner to permit lifting it out of its socket by means of the implement or, if space permits and the tube is not hot, by reaching it with the fingers. It is to be noted that in the form of coiled spring illustrated at 10, the descending path along the spring in a downward direction, Fig. 2 and 3, is in a counter-clockwise direction. However, such a spring may be coiled in the opposite direction so that the said descending path would be clockwise. In the latter case the coils are tightened about the tube after passing one end of the spring over the tube, by rotating the spring in a counter-clockwise direction.

In the case of a larger tube for which the end 12 of the implement is appropriate, the latter is passed over the tube in the same direction and in the same manner as just described for the end 13. It is to be noted that the differences in lateral and longitudinal dimensions of the spring in Fig. 3 as compared with the spring in Fig. 2, are greatly exaggerated for the purpose of illustration.

A tube may be set into its socket in a place which is difficult to reach with the fingers, by means of the implement 10, in a manner which is believed readily apparent. I claim:

An implement of the class described comprising a coiled substantially helical spring having a series of coils at one end of the spring of a larger diameter than the coils of the spring adjacent said end and having a series of coils at the other end of the spring of larger diameter than that of the coils comprising said first-named series.

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