

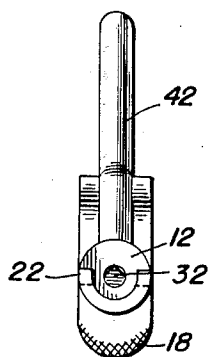
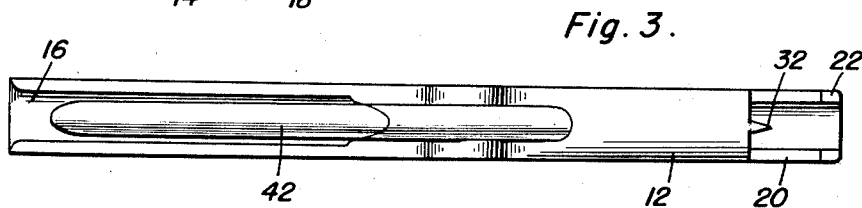
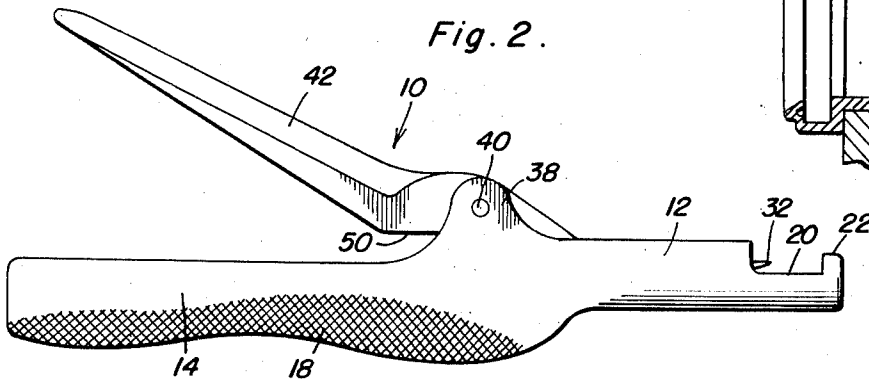
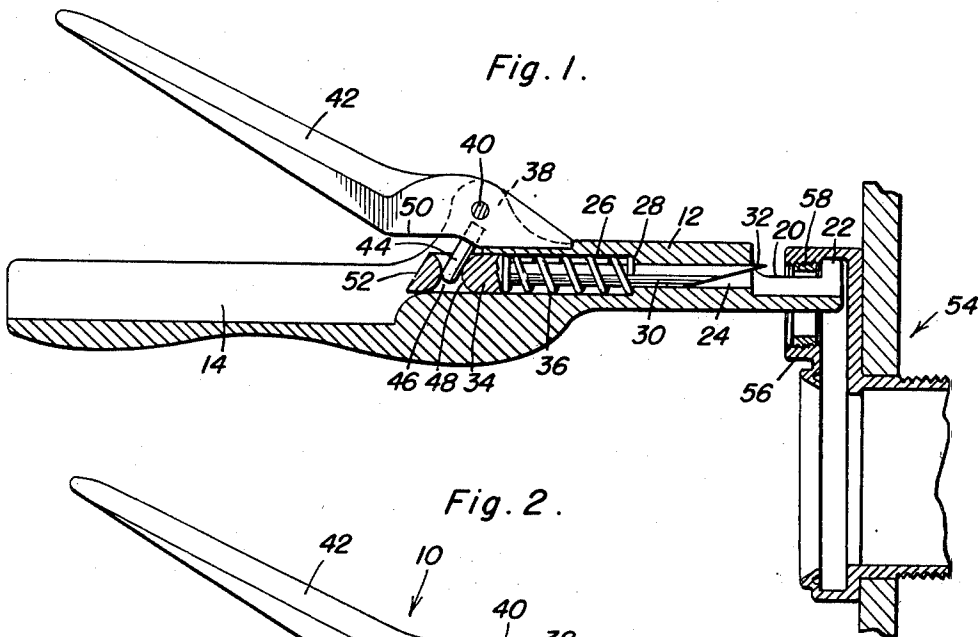
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2,591,409

TOOL FOR REMOVING OVERFLOW TUBE THREADS IN TOILETS

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TOOL FOR REMOVING OVERFLOW TUBE
THREADS IN TOILETS

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2 Claims. (Cl. 30—91)

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This invention relates to a hand tool of novel construction and design, the primary object of which is to permit the removal of an inner tube threaded within an outer tube without materially injuring or destroying the internal threads of the outer tube so that another and newer inner tube may be threaded therein quickly and easily.

Another object of this invention is to provide a hand tool which will permit the ready and easy removal of broken overflow tubes, which are generally fabricated of thin copper, widely used in conventional toilet constructions and generally difficult to remove with tools presently available.

Another important object of this invention is to provide a tool for removing an inner tube threaded into an outer tube without destroying the internal threads of said outer tube comprising a tubular member having a channel handle integral therewith, a head on said tubular member adapted to grip the inner edge of said inner tube, a plunger having a pointed shearing edge slidable in said tubular member, resilient means normally urging said plunger away from said gripping head, a head on said plunger having a cam slot therein, and a lever pivoted to said handle having a pin extending into said cam slot, said pin urging said plunger toward said gripping head upon compression of said lever towards said handle.

These, together with various ancillary objects and features of the invention which will later become apparent as the following description proceeds, are attained by the device, a preferred embodiment of which has been illustrated by way of example only in the accompanying drawings, wherein:

Figure 1 is a longitudinal sectional view through the tool shown applied to a toilet construction for the removal of an overflow tube, some parts being shown in elevation;

Figure 2 is a side elevational view of the device per se;

Figure 3 is a top plan view of the device; and

Figure 4 is an end elevational view of the device looking from the left of Figures 1 to 3.

Specific reference will now be made to the drawings. In the several views, in the accompanying drawings and in the following specification, similar reference characters indicate corresponding elements throughout.

The present tool is indicated generally at 10 and includes a tubular member or portion 12 which is integral with a handle portion 14, the handle being of channel construction as shown

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at 16 and including knurled gripping recesses at its bottom edge 18. At the end opposite the handle 14, the tubular member 12 has a cut-out portion 20 which forms circumferentially spaced, upstanding gripping heads or jaws 22.

The tubular portion 12 is provided with an axial bore 24 which is communicative with an enlarged axial bore 26 forming a shoulder 28 at the junction between the two bores 24 and 26. Slidable within the bores 24 and 26 is a plunger 30 having a pointed shearing edge 32 at one of its ends and a head 34 at its other end. Wound about the plunger 30 and interposed between the head 34 and the shoulder 28 is a resilient means in the form of a coil spring 36 which normally urges the plunger 30 away from the gripping heads 22, as shown clearly in Figure 1.

The handle 14 is provided with upstanding ears 38 through which extends a pivot pin 40 upon which is mounted between the ears 38 a second handle or lever 42. Depending from and secured to the handle 42 beneath the pivot pin 40 is a pin 44 which extends into a slot 46 in the plunger head 34. The slot 46 is so cut out that it is, in effect, a cam slot, the front and rear walls of the plunger head 34 entering the slot 46 being rounded, as at 48. The lever 42 is also provided with a rearwardly extending planar face 50 which is adapted to abut or press against the rearwardly and downwardly inclined surface or face 52 of the plunger head 34 for a purpose to be later described.

In practical operation, when the tool is employed on the toilet construction 54 having an outer threaded conduit 56 and an inner, threaded overflow tube 58 therein, the tool is inserted through the tube 58 so that the gripping heads 22 abut or bear against the inner edge of the inner tube 58, as will be clear with reference to Figure 1. The lever 42 is depressed toward the handle 14 so that the pin 44 rides on the cam surface 48 of the plunger head 34, forcing the plunger, against the action of the spring 36, towards the gripping heads 22. When the shearing point 32 contacts the inner tube 58 just below the internal threads of the outer tube 56, the lever 42 has reached, but has not entered the channel 16 of the handle 14. However, a further depression of the lever 42 causes the planar face 50 thereof to engage and bear against the inclined face 52 of the plunger head 34 so that additional force may be applied to the plunger 30 for effectively causing the shearing edge and point 32 to enter and cut through the inner tube 58. After the inner tube 58 has been

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cut, the tool may be pulled outwardly or toward the left of Figure 1 to remove the inner tube 58 from the outer tube 56 without stripping the threads thereof.

In view of the foregoing description taken in conjunction with the accompanying drawings, it is believed that a clear understanding of the device will be quite apparent to those skilled in this art. A more detailed description is accordingly deemed unnecessary.

It is to be understood, however, that even though there is herein shown and described a preferred embodiment of the invention, the same is susceptible to certain changes fully comprehended by the spirit of the invention as herein described and within the scope of the appended claims.

Having described the invention, what is claimed as new is:

1. A tool for removing an inner tube threaded into an outer tube without destroying the internal threads of said outer tube comprising a tubular member having a channel handle integral therewith, a head on said tubular member adapted to grip the inner edge of said inner tube, a plunger having a pointed shearing edge slidable in said tubular member, resilient means normally urging said plunger away from said gripping head, a head on said plunger having a cam slot therein, a lever pivoted to said handle having a pin extending into said cam slot, said pin urging said plunger toward said gripping head upon compression of said lever toward said handle, and a means for applying further pressure on said plunger when the pointed shearing edge just abuts the inner tube to drive the shearing edge

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therethrough, said last-named means including an inclined surface on said plunger head and a face on the bottom of said lever adapted to bear against said inclined surface as the lever enters said channel handle.

2. A shearing tool comprising an elongated body having a gripping head at one end and a handle on the other, an elongated shearing member mounted at one end and slidable in said body, resilient means normally urging said pointed end away from said gripping head, a head on the other end of said shearing member and including a cam slot therethrough, a lever pivoted on said body and including a pin extending into said slot for urging said pointed end towards said gripping head upon movement of said lever towards said handle, and means for applying additional pressure on said shearing member after predetermined movement of said pointed end towards said gripping head, said means including an inclined surface on said shearing member head and a face on the bottom of said lever adapted to bear against said inclined surface.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
84,701	Lewis	Dec. 8, 1868
165,402	Bates	July 13, 1875
326,327	Pickett	Sept. 15, 1885
1,385,481	Williams	July 26, 1921