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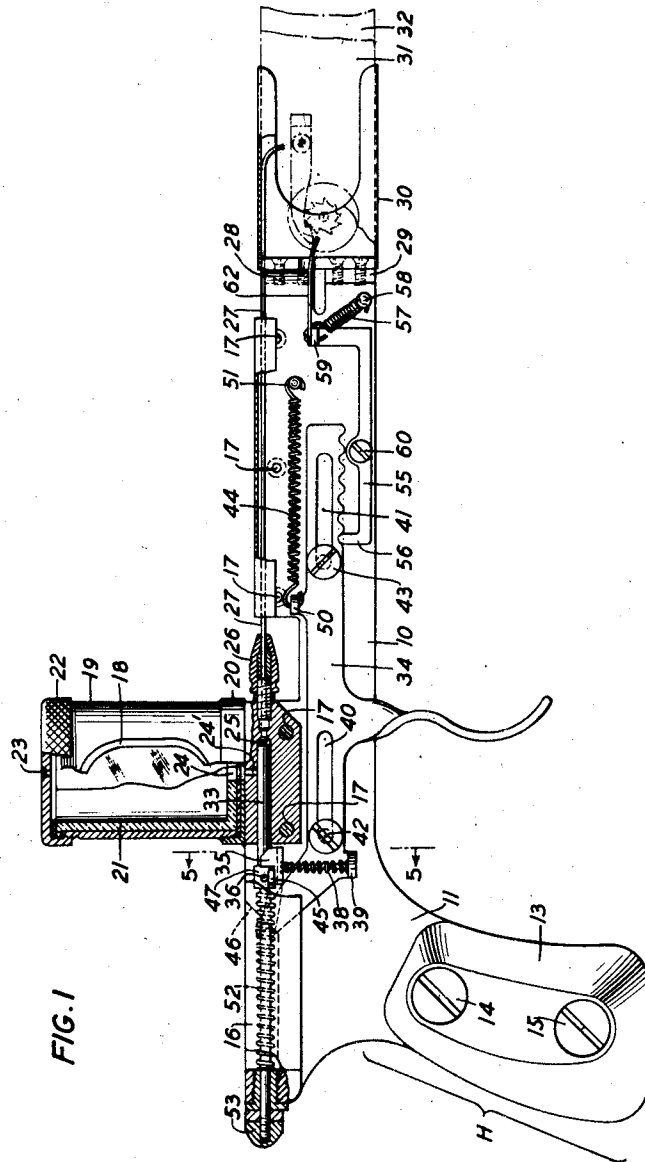
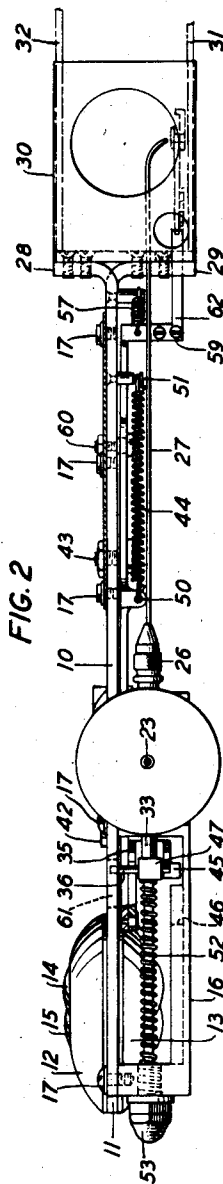
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CLEANING TOOL

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2 Sheets-Sheet 1



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CLEANING TOOL

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5 Claims. (Cl. 141—1)

This invention relates to tools, and more particularly to a type of tool for use in cleaning the actuating mechanisms of counting devices without removing them from service.

5 In telephone exchanges, for example, a relatively great number of counting devices are used for registering telephone messages. These counting devices generally consist of a motor magnet to the armature of which is pivotally
10 mounted a pawl for engagement with a ratchet wheel mechanically connected to the unit wheel of the counting device and a retractile spring is provided for returning the armature and the operating pawl carried thereby to normal unoperated position upon the deenergization of the motor magnet. In such mechanisms, however, it
15 often happens that gummy substances accumulate around the pivot of the pawl and prevent the free movement of this pawl on its pivot with the consequent failure of the counting device to register the telephone message. The cleaning operation of these message registers has been rendered difficult due to the fact that they are
20 mounted in closely grouped parallel rows and can not be removed from their support without the necessity of breaking the soldered joints connecting the motor magnet to its operating circuit.

The object of this invention is to provide a
30 tool for cleaning the operating mechanism of message registers which will be simple, cheap to manufacture, convenient to use and which avoids the removal of these registers from service during the cleaning operation.

35 According to the invention a tool is provided whereby the actuating mechanism of a counting device is cleaned by imparting vibrating movements to the operating pawl of the counting device through the operation of a lever member operatively connected to a manually operable
40 camming bar, the operation of the camming bar being effective to actuate a pump for ejecting cleaning fluid onto the pawl's pivot in predetermined sequence with respect to the movement of the lever member which actuates the pawl, with means for returning the pump and the camming bar to normal unoperated position upon the release of its operating member by the operator.

Other features and advantages of the invention will be apparent from the following de-

scription and by the claims appended thereto, reference being had to the accompanying drawings in which:

Fig. 1 is a side assembly view showing the camming bar and the pump piston in their unoperated position with a number of operating parts
5 in section;

Fig. 2 is a top view;

Fig. 3 is a side view showing the camming bar and the pump piston in partially operated position; and

Figs. 4 and 5 are partial views, Fig. 5 being a sectional view taken along the line 5—5 of Fig. 1.

Through the several views of the drawings, 10 indicates an oblong shaped mounting plate having at one of its ends a curved extension 11 to form with two complementary portions 12 and 13 a handle H, portions 12 and 13 being preferably made of wood or other fibre material secured to the plate portion 11 by screws 14 and 15.

On the plate 10 is mounted a bracket 16 which is held securely thereon by a number of screws such as 17 shown in Figs. 2 and 4. The bracket 16 is formed with a circular flange portion 20 which is interiorly screw-threaded for receiving 25 a similarly threaded portion of a shell 19 provided for protecting against breakage a cylindrically shaped glass container 21 shown in Figs. 1 and 3 held in place therein by a cap 22 threadedly engaging the top end of shell 19, this shell being 30 provided with an opening 18 to permit visual observation of the level of the cleaning fluid in the glass container 21.

The cap portion 22 is provided with an air-hole 23 and the glass container 21 and the bracket 35 16 are provided with registering holes 24 and 24' to permit the cleaning fluid to flow by gravity from the container 21 into a chamber or cylinder 25, in which a piston in the form of a rod 33 is fitted.

A connector member 26 screwed in bracket 16 coextensive with cylinder 25 is provided for securing one end of a tubing 27, the other end of this tubing extending beyond the front end of plate 10 for a purpose that will be hereinafter 45 described in detail.

At its front end the plate 10 is provided with two oppositely bent lug portions 28 and 29 best seen in Fig. 2 to which a shell 30 of square cross-section is secured as by rivets or screws, this shell 50

being provided for telescopically engaging the counting device supporting plates 31 and 32 shown in dotted lines in Figs. 1, 2 and 3 for holding the tool in position wherein the end of tubing 27 extends in juxtaposition to the pivot of the counting device operating pawl.

To the middle portion of rod 33 is mounted a head piece 47 having a pin 36 extending from both sides thereof for engagement with a duplex pawl 35, pivotally mounted at the upwardly extending end of a bar 34. The pawl 35 is normally held in engaged relation with the pin 36 through the tension of a spring 38 having one of its ends abutting against the under surface of the pawl and its other end against a lug 39 laterally extending from the bar 34, a slot 61 in the plate 10 being engaged by the pin 36 for preventing the turning movement of rod 33 and thereby holding the pin 36 in adjusted relation with the duplex pawl 35.

The bar 34 is provided with slots 40 and 41 engaged by screws 42 and 43 threadedly engaging the plate 10 and a trigger portion as shown is formed with this bar adjacent the handle H for actuating it against the tension of a retractile spring 44, this spring having one of its ends hooked to a lug 50 carried by the bar 34 and its other end to a pin 51 secured to the plate 10.

The duplex pawl 35 is formed with a lug portion 45 disposed in engageable relation with a cam portion 46 formed with the bracket 16 for disengaging this pawl from pin 36 upon the movement of bar 34 and the piston 33 actuated thereby from the position shown in Fig. 1 to the position shown in Fig. 3, the return movement of piston rod 33 being effected automatically under the tension of a spring 52 which has one end abutting against the attaching portion of bracket 16, as shown in Figs. 1, 2, 3 and 4 and its other end against the head piece 47, and a nut screw 53 at the end of piston rod 33 is provided for limiting the effective movement of this rod and thereby the amount of cleaning fluid to be ejected from tubing 27 as will be hereinafter described in detail.

To the side of plate 10 is pivotally mounted as on screw 60 a double armed lever 55, one end of which terminates in an upwardly bent portion 56 for engaging with the toothed portion of bar 34 under the tension of a retractile spring 57 having one end hooked to lever 55 and the other end to a pin 58 secured to plate 10. Lever 55 is provided with a laterally extending lug 59 for mounting a spring 62, the free end of which engages the under surface of the free end of the counting device operating pawl as shown in Figs. 1 and 3 when the tool is placed in position on the counting device mounting plates 31 and 32 for vibrating this pawl simultaneously with the ejecting of the cleaning fluid on its pivot through the movement of piston rod 33 in cylinder 25.

In a typical example of cleaning operation the tool is placed in a position wherein the guiding frame 30 of the tool telescopically engages the mounting plates 31 and 32 of the counting device, with the free end of the tube 27 disposed in juxtaposition to the pivot of the counting device operating pawl. The movement of the bar 34 through its trigger portion from the position shown in Figs. 1, 2 and 4 to the position shown in Fig. 3 is effective to move the piston rod 33 against the resistance of spring 52 a distance to permit the cleaning fluid to flow by gravity from container 21 to the cylinder 25 through registering holes 24, 24'. A continued movement of bar

34 and the duplex pawl 35 is effective to engage the lug 45 of pawl 35 with the cam 46 for disengaging this pawl from the pin 36 and thereby releasing the piston rod 33, which under the tension of spring 52 is moved to the position shown in Figs. 1 and 4, thus forcing the cleaning fluid through the tube 27 onto the pivot of the pawl.

Upon the release of the piston rod 33 by the pawl 35 as above described, the movement of the bar 34 is continued until brought to stop by the limit of the slots 40 and 41 against the screws 42 and 43, thus vibrating the double armed lever 55 and therefore the pawl of the counting device through its engagement with spring 62 simultaneously with the ejection of the cleaning fluid on the pawl's pivot for cleaning it.

Upon the release of the trigger portion of bar 34 by the operation this lever is returned to the unoperated position, shown in Fig. 1 under the tension of spring 44, thus preparing the fluid ejecting and the pawl vibrating mechanisms for a subsequent operation.

What is claimed is:

1. A tool for cleaning the actuating pawl of a counting device, said tool comprising a mounting plate having means at one end for engaging the device, a lever mechanism for operatively engaging the actuating pawl, a sliding bar mounted on said plate for actuating said mechanism, and a pump actuated by the movement of said bar for ejecting cleaning fluid on the pivot of the actuating pawl during the operation of said lever mechanism and said pawl.

2. A tool for cleaning the pivot of the actuating pawl of a counting device, said tool comprising a plate having a handle at one end, a camming element mounted on said plate, a lever mechanism actuated by the movement of said element and having means for operatively engaging the actuating pawl of the counting device, and a pump operatively connected to said element for ejecting cleaning fluid on the pivot of said tool upon the operation of said element and the movement of the actuating pawl.

3. A tool for cleaning the actuating pawl of a counting device, said tool comprising a plate having a handle at one end and a guiding element at the other end for engaging the supporting frame of the counting device, operable means carried by said plate for imparting movement to the counting device actuating pawl, and a pump operatively connected to said means for ejecting cleaning fluid on the pivot of said pawl in predetermined sequence with respect to the operation of said operable means.

4. A tool for cleaning the pivot of the actuating pawl of a counting device, said tool comprising a mounting plate having a handle at one end and a guiding element at the other end for engaging the supporting frame of the counting device, a longitudinally movable bar mounted on said plate, a fluid container mounted on said plate, a pump connected to said container, means for manually actuating said bar, a spring member compressed upon the movement of said bar for actuating said pump for ejecting cleaning fluid on said pivot, and a lever mechanism for vibrating the pawl upon the movement of said bar.

5. A tool for cleaning the pivot of the actuating pawl of a counting device, said tool comprising a mounting element having a member for engaging the supporting frame of the counting device, a fluid container mounted on said member, a pump connected to said container, a

piston and a cylinder for said pump, a mechanism for actuating the piston of said pump one way for permitting the fluid to flow into the cylinder of said pump, said mechanism comprising
5 a longitudinally movable bar, a pawl carried by said bar, means carried by said piston normally engaged by said pawl, camming elements carried by said mounting element for disengaging
10 said pawl from said means upon a predetermined movement of said piston under the action of

said mechanism, a spring compressed by the movement of said bar for actuating the piston of said pump upon the release of said pawl from said means for ejecting cleaning fluid on the counting device pawl's pivot, and means actuated by the movement of said bar for vibrating
5 the counting device actuating pawl upon the operation of said pump.

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