May 1, 1956 R. T. CATLIN ET AL 2,743,443

SHIELD STRUCTURE FOR EXPLOSIVELY ACTUATED TOOLS

Filed Nov. 18, 1954

2 Sheets-Sheet 1

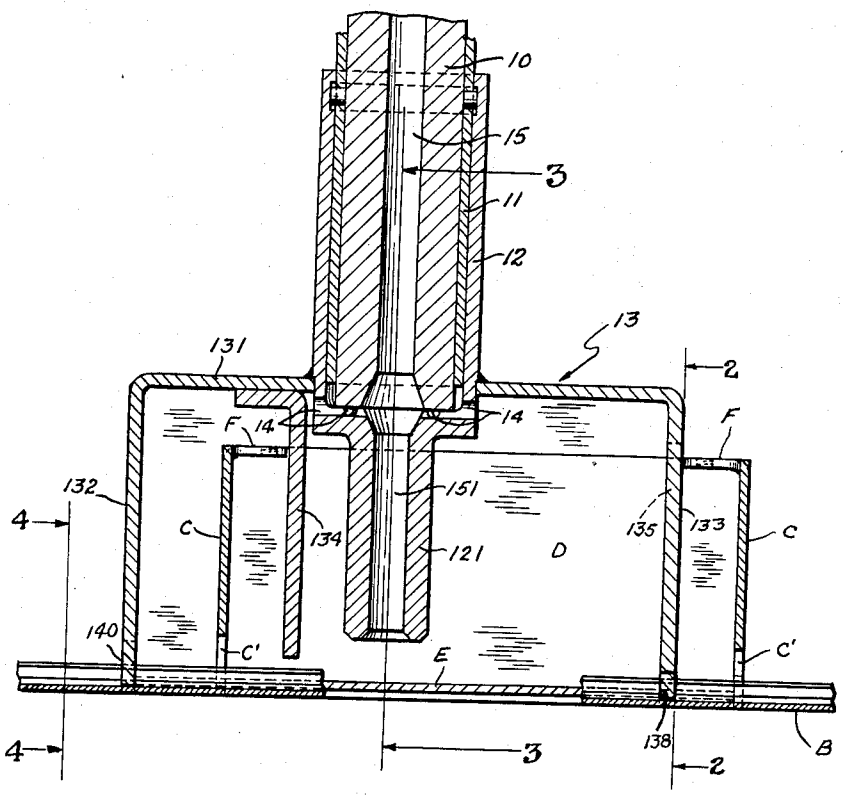


Fig. 1

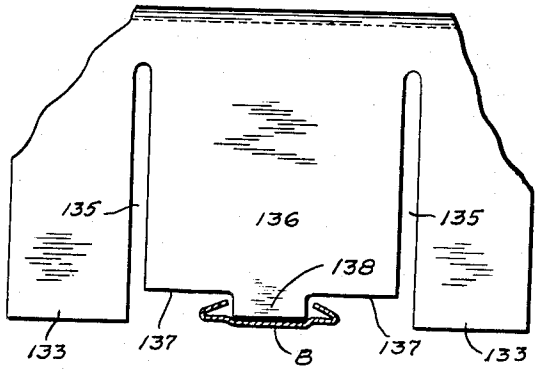


Fig. 2

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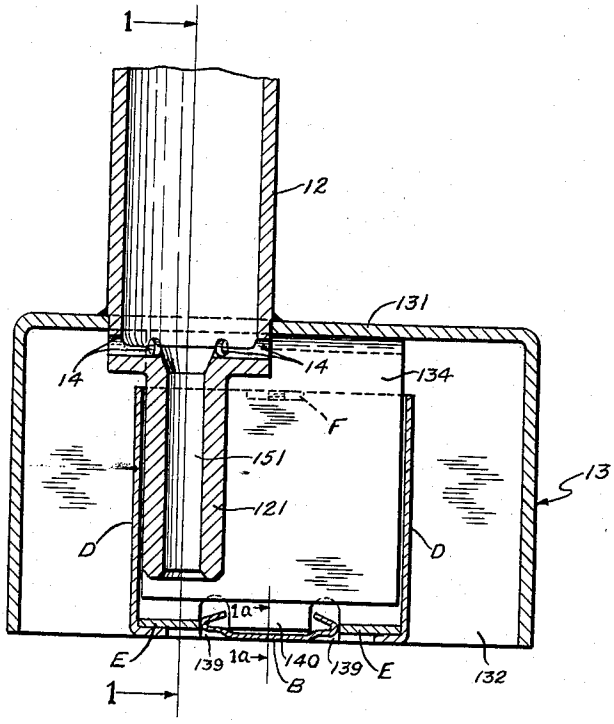


Fig. 3

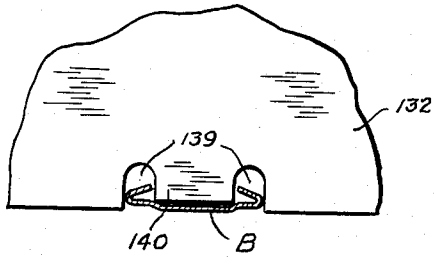


Fig. 4

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SHIELD STRUCTURE FOR EXPLOSIVELY ACTUATED TOOLS

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Application November 18, 1954, Serial No. 469,652

6 Claims. (Cl. 1—44.5)

This invention relates to a guard or shield for powder actuated tools, and contemplates a boxlike guard of a marginal configuration conforming substantially to the contour of workpieces to be secured in place by use of the tool.

A now familiar type of explosively actuated tool contemplates the driving of a fastening device or stud into difficultly penetrable materials, such as brick, cement and cinder block, poured concrete and steel. A common use of the tool is in the securing of various objects to surfaces of such materials, and among the objects to be thus secured are tubular electrical conductor containers and outlet fittings therefor.

The present invention is directed specifically to a guard adapted to receive the basal portion of such a tubular container and in assembled relation therewith an outlet fitting, the guard being so constructed as to receive such elements and at the same time provide a substantially continuous shield about the point of penetration of the driven stud, thereby preventing the escape of such objects as fragments of the material being penetrated.

In the drawings:

Fig. 1 is a sectional side elevation of the guard and associated parts of the members to be fastened, the section being substantially on the line 1—1 of Fig. 3, except that the lower end portions are on line 1*a*—1*a* of Fig. 3.

Fig. 2 is a fragmentary transverse sectional elevation, substantially on the line 2—2 of Fig. 1.

Fig. 3 is a fragmentary transverse sectional elevation, substantially on the line 3—3 of Fig. 1.

Fig. 4 is a fragmentary transverse sectional elevation, substantially on the line 4—4 of Fig. 1.

Numeral **10** identifies the end portion of the barrel of an explosively actuated tool which may be of any desired type, such, for example, as the one shown in the patent to Walker, No. 2,645,772. The barrel is arranged for longitudinal movement in sleeve **11** assembled therewith. The drawings show the barrel in its foremost or firing position. Sleeve **11** is received within and for rotation relative to a tubular member **12** which is rigidly secured to a guard box identified generally by numeral **13**. The end portion **121** of tubular member **12** within the guard box is of reduced exterior and interior dimensions for a purpose to be described, and adjacent the junction of the full diameter and reduced diameter portions of said member and also within the guard box said member may be laterally vented as shown at **14**. The bore of part **121** is preferably of substantially the same diameter as the bore **15** of the barrel.

The guard of this invention is especially designed for use in the assembly and securing of electrical conduits and fittings of the type known as "Florduct." The Florduct conduit comprises a base member B and a cap member, not shown, adapted to be snapped over the marginal portions of the base B. As clearly shown in Figs. 2, 3 and 4, said base B is of channel or troughlike configuration, comprising a flat mid-portion and upwardly and inwardly extending marginal portions. The junction or

outlet box to be assembled to the base B, and together therewith to be secured say to a concrete wall, comprises end walls C, side walls D, and bottom flanges E which are spaced to receive but not pass the base B, as illustrated in Fig. 3. At the upper mid-portions of the end walls C are inturned ears or flanges F comprising threaded apertures adapted for the reception of cover plate securing screws. The lower mid-portions of end walls C are recessed as shown at C' to receive both the base B and a cap (not shown) of the Florduct. The guard of the present invention contemplates positioning the outlet box relative to the guard and positioning the assembly of guard and outlet box transversely with respect to the base B, the perimeter of the open face of the guard being in contact with the surface to which the work is to be secured, and all lateral openings in the guard being substantially filled by the work.

Referring to Fig. 3, it will be noted that the tubular member **12** and its extension **121** are so located with respect to the perimeter of guard box **13** that the barrel extension **151** formed by the reduced diameter tube **121** is in vertical alignment with one of the flanges E, so that a stud projected from the tool perforates the flange E and penetrates the concrete wall or other structure to which the workpieces are to be secured. By reversing the position of the guard **13** with respect to the outlet box, a second stud can be driven through the opposite flange. Secured to the top or back **131** of guard box **13** and projecting downwardly parallel to the end walls **132** and **133** of said box is a locating plate or baffle **134** of such depth as to just clear the marginal portions of the base B and of such width as to be rather closely received between the side walls D of the outlet box, thus laterally locating the inner end of the outlet box. The end wall **133** of the guard box comprises vertically disposed slots **135** adapted to receive the side walls D of the outlet box and defining a plate **136** having a bottom margin **137** which just clears the upturned marginal portions of base B. A tongue **138** projecting downwardly from the mid-portion of plate **136** is received between the marginal portions of base B and substantially fills the trough formed thereby. The engagement of side walls D of the outlet box in slots **135** locates the outer end of the outlet box transversely with respect to the guard, and the engagement of tongue **138** within the base B locates the assembly of guard and outlet box transversely with respect to base B. Longitudinal placement of the outlet box with respect to the guard is effected by the engagement of the ends of the ears F with the outer surface of box wall **133** and baffle **134** respectively, as clearly shown in Fig. 1.

Since it is contemplated that the base B may extend beyond the outlet box, the end wall **132** of the guard is apertured to receive the base, as shown in Fig. 4. The aperture comprises cut-outs **139** adapted to receive the upturned marginal portions of base B and defining a tongue **140** adapted to pass between said marginal portions and being of such length as to enable the edge of the end wall **132** to engage the surface to which the work is to be secured while substantially filling the trough of base B. Said tongue **140** also serves to locate the end wall **132** of the guard box transversely with respect to the base. The assembly is thus held in such a manner as to insure that the driven studs will penetrate the flanges E while the outlet box is correctly positioned upon base B.

What is claimed is:

1. A shield for a powder actuated stud driving tool adapted to facilitate the attachment to a work face of a fitting comprising side walls and end walls, said shield comprising an open-face boxlike structure having a perimeter adapted to engage the work face, there being in a wall of said shield slots adapted to receive the side walls

of said fitting and define a plate received between said side walls, and a baffle within said shield adapted to interiorly engage an element of an end wall of said fitting and together with said plate locate said fitting transversely and laterally in said shield.

2. A shield and work holder for a powder actuated stud driving tool adapted to facilitate the assembly and attachment to a work face of a trough-like element and a hollow fitting comprising side walls and end walls having therein apertures adapted to receive said trough-like element, said shield comprising a back and side walls defining a perimeter adapted to engage the surface of said material, there being in a wall of said shield slots adapted to receive the side walls of said fitting and define a plate received between said side walls, a tongue projecting from the free end of said plate adapted to enter said trough-like element, a baffle within said shield adapted to interiorly engage a portion of an end wall of said fitting and together with said plate locate said fitting transversely and laterally in said shield.

3. Apparatus according to claim 2, in which said plate comprises an extension received transversely within said trough-like element, thereby locating the assembly of said shield and said fitting with respect to said element.

4. Apparatus according to claim 3, in which a second wall of said shield comprises a recess and a projecting tongue adapted to be received transversely within said trough-like element, thereby locating the assembly of said shield and said fitting with respect to said element.

5. Apparatus according to claim 3, in which said shield has secured thereto and extending outwardly from the back thereof a tubular member adapted to receive the barrel assembly of said stud driving tool.

6. Apparatus according to claim 5, in which said tubular member comprises a portion within said shield which is of reduced exterior and interior dimensions.

No references cited.