

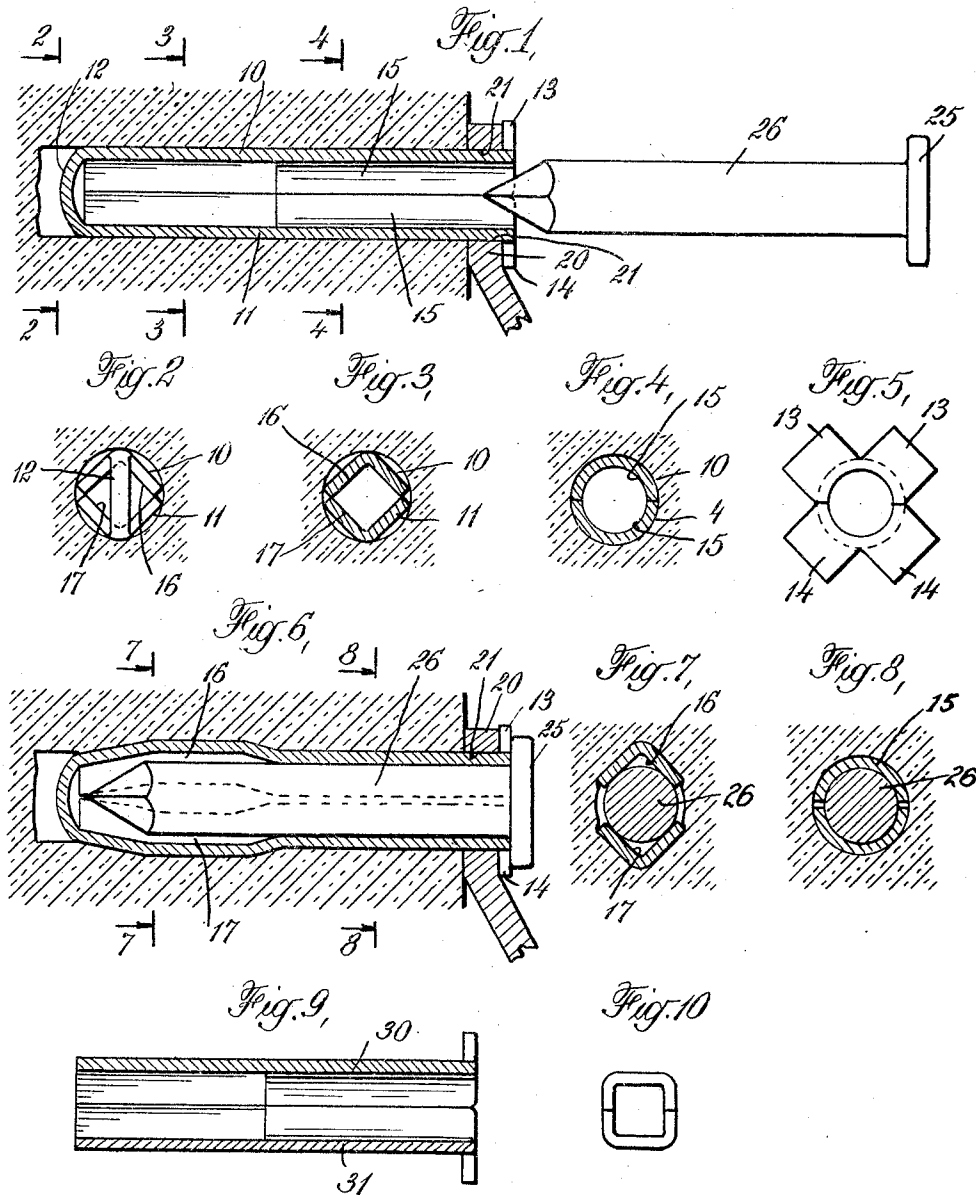
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EXPANSION SHIELD

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EXPANSION SHIELD.

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This invention relates to improvements in expansion shields of the character employed for obtaining anchorage in walls of brick, stone and cementitious material not adapted to directly receive a threaded member.

One of the objects of the invention is to provide an expansion shield so constructed and arranged as to possess superior gripping qualities.

Another object of the invention is to provide an expansion shield adapted to be used with and expanded by a driven expanding element.

Further objects of the invention will appear from the following specification taken in connection with the drawings, which form a part of this application, and in which:

Fig. 1 is a sectional elevation of a wall opening having disposed therein an expansion shield constructed in accordance with the invention, the expanding member being positioned at the entrance to the shield.

Figs. 2, 3 and 4 are transverse sectional elevations taken substantially on lines 2—2, 3—3 and 4—4 of Fig. 1.

Fig. 5 is an end elevational view of the outer end of the shield.

Fig. 6 is a view similar to Fig. 1, but showing the shield expanded.

Figs. 7 and 8 are transverse sectional elevations taken substantially on lines 7—7 and 8—8 of Fig. 6.

Fig. 9 is a longitudinal sectional elevation of another shield constructed in accordance with the invention.

Fig. 10 is an end elevation of the inner end of the shield showing shield of different cross section.

The invention briefly described consists of an expansion shield which may be formed of one piece or a plurality of pieces of material. The shield throughout a portion of its length may be cylindrical in cross section, but the portion which performs the main gripping action is preferably angular in section, the angular expansible portions being forced by the expanding member into a firm gripping engagement with the wall opening. The angular portion may be square as shown. The shield is preferably used in conjunction with a driven expanding element, such as a nail. Further details of the invention will appear from the following description.

In the form of the invention illustrated in

Figs. 1 to 8 inclusive, the shield comprises a pair of sections 10 and 11 connected at their inner ends by a bridging portion 12. The outer ends of the sections 10 and 11 are flanged as shown at 13, 13 and 14, 14. The flanges at each section are separated by a V-shaped notch since this facilitates bending and minimizes distortion of the metal when the metal is bent to form the flanges.

The outer portion or the portion of the shield disposed at the outer end of the opening is preferably formed cylindrical as shown at 15. The inner portion of the shield shown in Figs. 1 to 8 is angular in section, the two angular portions 16 and 17 forming a square when the shield is not expanded.

The object 20 to be supported by the shield is provided with an opening 21 preferably of such diameter as to receive the shield and the object is positioned between the shield flanges 13, 13 and 14, 14 and the wall in which the shield is inserted.

The expanding member illustrated in the drawing consists of a nail having a head 25 and a shank 26 and the shank preferably has a diameter slightly greater than the internal diameter of the cylindrical portion of the shield 15. Thus when the nail is driven into the shield as shown in Fig. 6, the cylindrical portion 15 as well as the angular portion 16, 17 will be expanded. It will be understood that the expansion of the angular portions as shown in Fig. 7 forces these portions into firm and secure gripping engagement with the wall opening and that these portions perform the main gripping function of the shield.

The construction shown in Fig. 9 is similar to that shown in the preceding figures but differs therefrom in that the shield comprises a pair of separate sections 30 and 31. In this form of the invention as in the other, the outer portion of the shield is cylindrical and the inner portion is angular in cross section.

In Fig. 10 each section of the shield is U-shaped instead of V-shaped as in Fig. 3.

Although certain specific embodiments of the invention have been particularly shown and described, it will be understood that the invention is capable of modification and that changes in the construction and in the arrangement of the various cooperating parts may be made without departing from the

spirit or scope of the invention, as expressed in the following claims.

What I claim is:

1. An expansion shield formed of relatively hard metal of uniform thickness comprising a pair of sections, each bent outwardly at one end to form parts of an interrupted flange of single thickness, curved transversely through a portion of its length and bent transversely through another portion of its length to form together a cylindrical part and a square part with flat sides.

2. An expansion shield formed of relatively hard metal of uniform thickness comprising a pair of sections, each bent outwardly at one end to form parts of an interrupted flange of single thickness, curved transversely through a portion of its length and bent transversely through another portion of its length to form together a cylindrical part and a square part with flat sides, the ends of said sections being notched to facilitate bending.

3. An expansion shield formed of relatively hard metal of uniform thickness comprising a pair of sections, each bent outwardly at one end to form parts of an interrupted

flange of single thickness at the outer end of the shield, curved transversely through a portion of its length and bent transversely through another portion of its length to form a cylindrical part and a square part with flat sides, the ends of said sections being notched to facilitate bending, said sections being connected at their inner ends by an integral bridging portion.

4. An expansion shield formed of relatively hard metal of uniform thickness comprising a pair of sections, each bent outwardly at one end to form parts of an interrupted flange of single thickness, curved transversely through a portion of its length and bent transversely through another portion of its length to form a cylindrical part and a square part with flat sides, the ends of said sections being notched to facilitate bending combined with an expander having a diameter larger than the internal diameter of the cylindrical part of the shield and a head adapted to overlap and reinforce the interrupted flange.

In witness whereof, I have hereunto set my hand this 11th day of May, 1925.

RALPH E. OGDEN.