

L. R. ZIFFERER.
EXPANSION SHIELD.
APPLICATION FILED APR. 2, 1919.

1,352,494.

Patented Sept. 14, 1920.

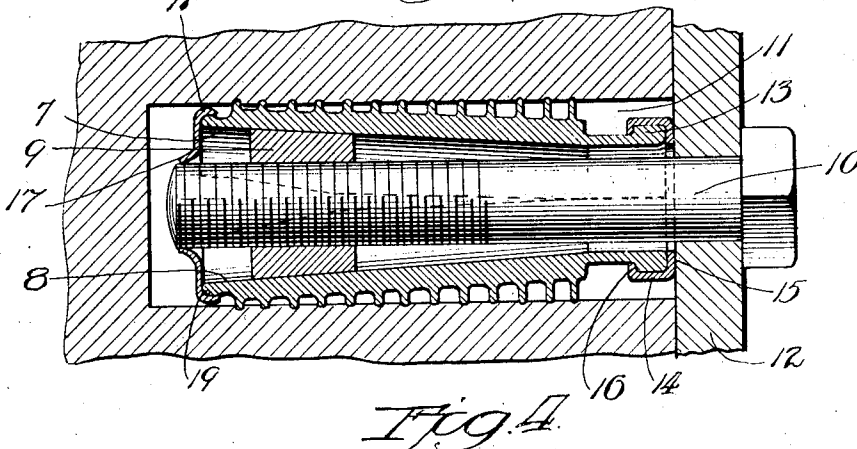
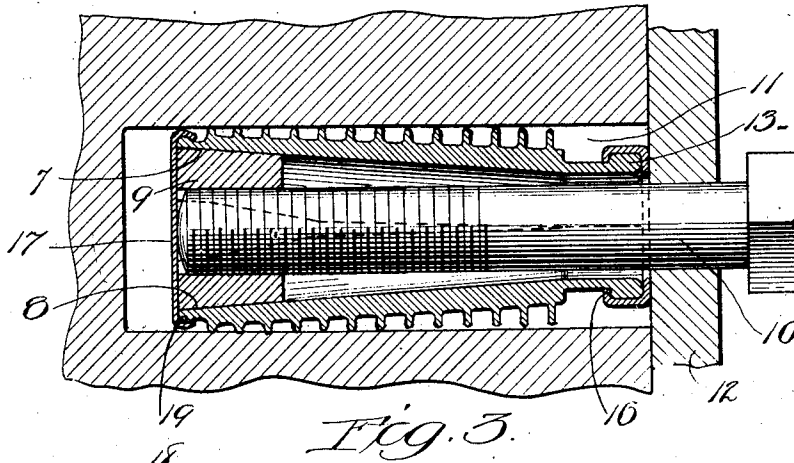
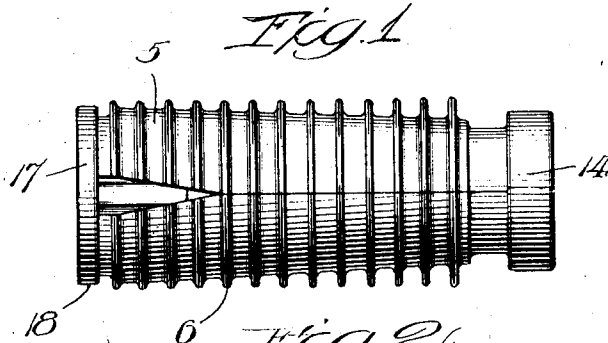


Fig. 4

WITNESSES:
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LOTHAR R. ZIFFERER, OF LANCASTER, PENNSYLVANIA.

EXPANSION-SHIELD.

1,352,494.

Specification of Letters Patent. Patented Sept. 14, 1920.

Application filed April 2, 1919. Serial No. 286,848.

To all whom it may concern:

Be it known that I, LOTHAR R. ZIFFERER, a citizen of the United States, residing at Lancaster, in the county of Lancaster and State of Pennsylvania, have invented certain new and useful Improvements in Expansion-Shields, of which the following is a specification.

This invention relates to an expansible shield consisting of two or more parts, and particularly to a means for connecting the shield parts, as well as a means for insuring their initial expansion. It is customary in the production of these articles to assemble the shield parts, so that the device may be handled as a unit. For this purpose, various means have been employed, one of the most desirable being clamping lugs formed on one shield part and in embracing relation with the other. This necessitates, however, the use of separate sets of patterns for the casting of the two parts—an added expense and annoyance. With a view of devising a very simple and inexpensive fastening—one which will allow the use of a single set of patterns—the present invention has been conceived.

A typical embodiment of this fastening is shown in the several figures of the drawing wherein—

Figure 1 represents in elevation a two-part expansion shield of the indirect type equipped with my improved fastening means;

Fig. 2 is a longitudinal section through the shield inserted in an aperture the parts appearing as in the initial stage of expansion;

Fig. 3 is a similar view, showing the attaching bolt advanced against the work; and

Fig. 4 is a sectional detail of the fastening means employed.

I would have it understood that this invention in one of its phases at least, is applicable to shields of the direct type wherein a bolt engages directly with the tapering surfaces on the interior of the shield to cause expansion; or to a shield of the indirect type wherein a nut engaging with the interior of the shield is adapted to be advanced longitudinally by means of the attaching bolt. With the indirect type, moreover, my invention is capable of a further use, as will presently appear.

Referring to the drawing, by way of illustration I have shown a shield of two parts

which are designated as 5 and 6. Interiorly these parts are formed to present tapering surfaces 7 and 8 respectively, against which a nut 9 may lie and be advanced with rotation of the attaching bolt 10. In Figs. 2 and 3, the device is shown as inserted within an aperture 11 which may be formed in a wall or other structure, the work to be tightened thereupon being designated by the numeral 12. The exterior of the shield may be formed in any approved manner, it being desirable for the present purposes that some sort of an annular rib or series of projections 13 be formed near the outer end.

Each shield section may be a counterpart of the other, and after being assembled in operative relation, a band 14, probably of sheet metal, is fitted around the shield over the rib 13. Initially this band may be formed with a flange 15 at one side (see Fig. 4) arranged to abut the shield end, but upon being fitted in place, its other side 16 is preferably crimped or turned in, as appears clearly in Figs. 2 and 3. The effect of this is to secure the band upon the shield in an irremovable manner, so that the shield parts are held together in hinged relation at their forward ends, being prevented from moving apart, sidewise, or endwise upon each other.

With shields of the indirect type, a cap 17 may be employed to advantage in the manner now to be described. This cap—see Figs. 2 and 3—is flanged as at 18 so as to be turned or crimped over an annular rib or other projecting element 19 formed at the inner end of each shield part. When so positioned it serves as a closure to keep the nut 9 from coming out. It serves further as a wall or abutment for the extremity of the bolt so as to prevent, in the initial stage of expansion, travel of the bolt until after the nut has been advanced a sufficient distance to crowd apart the shield sections to a point where they frictionally engage the walls of the aperture to resist turning therein. The effect of this action is to induce an early expansion such that the shield will quickly take hold of the wall. Having proceeded thus far, continued rotation of the bolt will rupture the cap (see Fig. 3), so that its head will tighten upon the work. As a condition precedent, it will be noted that the shield parts must offer greater resistance to the movement of the nut than will be offered by the cap to the continued travel of the bolt.

The structure shown is preferred, but changes are clearly possible without departing from the principle of this invention which I now define as follows.

5 I claim:

1. An expansion shield of the indirect type having a closure at its inner end consisting of a cap fitted to the shield and forming a frangible abutment for the bolt, substantially as described.

2. An expansion shield of the indirect type having an annular rib adjacent its inner end, a cap fitted over the rib and crimped thereupon, the cap being frangible in nature to afford a temporary abutment for the bolt, substantially as described. 15

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Witness:

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