

Aug. 16, 1960

P. J. SUMERAK

2,949,142

THREADED INSERT WITH PROJECTIONS

Filed Aug. 16, 1957

2 Sheets-Sheet 1

Fig. 1

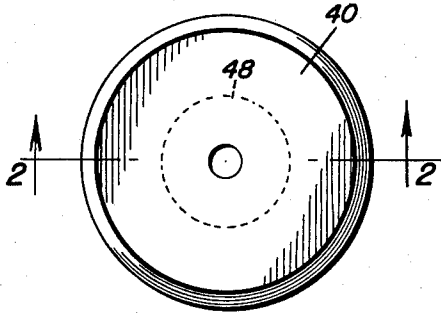


Fig. 3

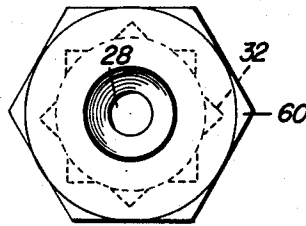


Fig. 2

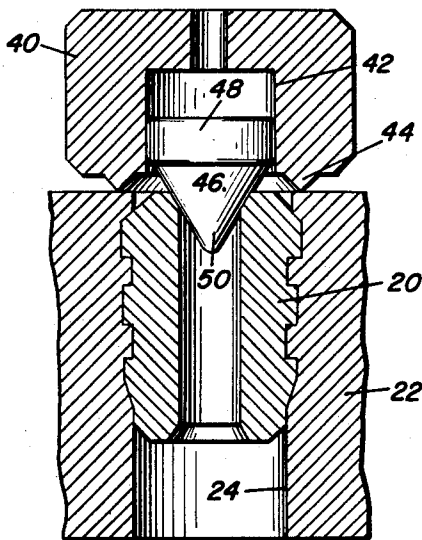


Fig. 4

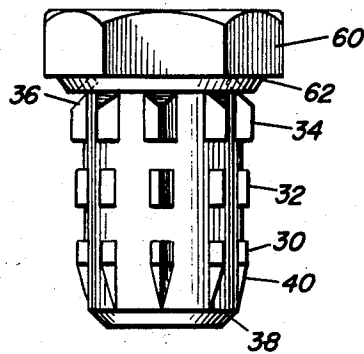


Fig. 5

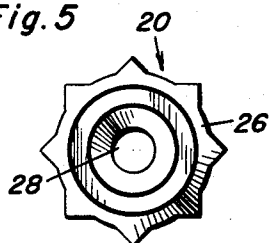
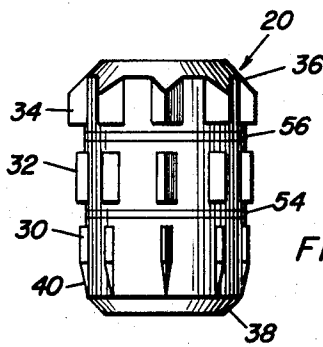


Fig. 6



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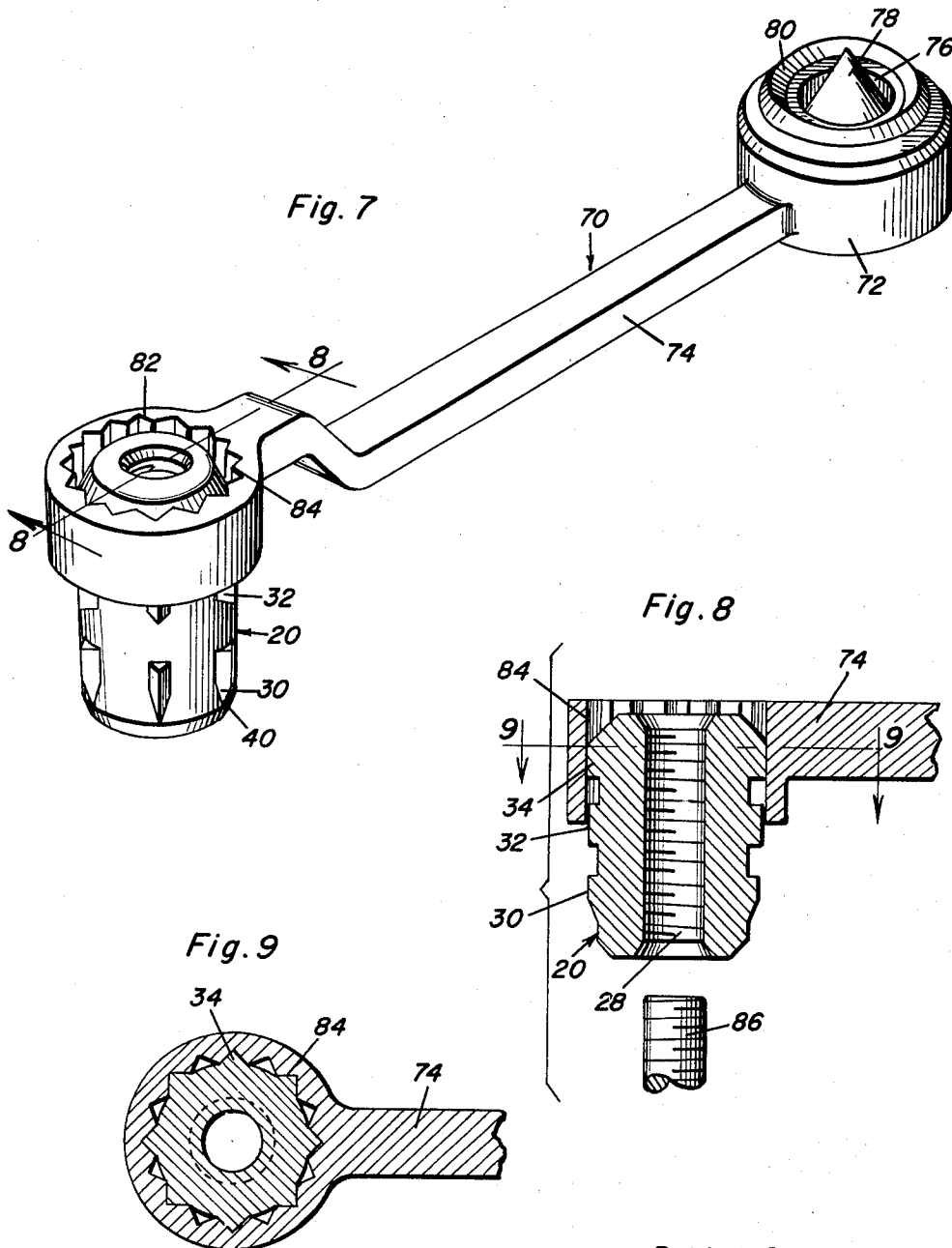
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2 Sheets-Sheet 2



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2,949,142

THREADED INSERT WITH PROJECTIONS

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1 Claim. (Cl. 151—41.73)

This invention relates to an insert or bushing adapted to be employed in machine parts and the like and to a tool for enabling the insert to be more easily secured.

The primary object of the present invention resides in the provision of an insert for machine parts or the like that may be readily forced into an aperture or recess in the machine part whether the aperture or recess is threaded or not and which will be retained from backing out because of the novel construction of the projections incorporated on the insert.

A further object of the present invention resides in the provision of a convenient tool for enabling the insert to be secured in place.

An important feature of the inserts constructed in accordance with the concepts of the invention is that they are self-aligning and locking.

Still further objects and features of this invention reside in the provision of a bushing which may be utilized as a nut, which may be formed either with a head or without as may be desired, and which is inexpensive to produce thereby permitting wide use.

These, together with the various ancillary objects and features of the invention which will become apparent as the following description proceeds, are attained by this insert and tool for positioning the insert, preferred embodiments being shown in the accompanying drawings, by way of example, wherein:

Figure 1 is a plan view of one form of the tool employed in the present invention;

Figure 2 is a sectional detail view as taken along the plane of line 2—2 of Figure 1 illustrating the tool in use in securing an insert;

Figure 3 is a plan view of one form of the insert constructed in accordance with the concepts of the present invention;

Figure 4 is a side elevational view of an insert;

Figure 5 is a plan view of a modified form of insert;

Figure 6 is a side elevational view of the modified form of the insert;

Figure 7 is a perspective view illustrating another form of tool which has an end adapted to be used as a socket wrench for employment in rotating the insert when the insert is used as a nut or the like;

Figure 8 is a sectional detail view as taken along the plane of line 8—8 in Figure 7 illustrating the manner in which the tool is used for securing the insert on a threaded shank; and

Figure 9 is a sectional detail view as taken along the plane of line 9—9 of Figure 8.

With continuing reference to the accompanying drawings wherein like reference numerals designate similar parts throughout the various views, and with additional attention directed to the embodiments of the invention as shown in Figures 5 and 6, reference numeral 20 generally designates an insert or bushing adapted to be inserted into a machine part as at 22 having a suitable aperture or recess 24 therein. The insert 20 comprises a cylindrical body 26 having a central bore 28 there-

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through and having circumferentially extending rows of spaced projections as at 30, 32 and 34 thereon. The upper and lower ends of the insert are tapered as at 36 and 38. The lowermost portions of the lower row of projections 30 are of wedge-shape as at 40 and all of the projections including the lower projection 30 are of a triangular shape in cross-section. The uppermost projections 34 are slightly larger than the projections preceding so that they break and bend the metal to form a wall preventing the bushing from backing out or twisting. This breaking or bending of the metal forces the metal over the projections preceding. It is noted that these drive bushings or inserts eliminate the necessity of metal tapping problems and eliminate tap breakage. It is to be realized that the aperture 24 may be drilled and the bushing or insert with the desired projections may be then hammered to a desired depth preferably flush with the surface of machine part 22. A thread may be provided in the central bore 28 as desired.

In order to secure the insert 20 in place, the insert is first hammered flush with the surface of machine part 22. Then a tool such as shown in Figure 1 may be employed. This tool includes a cylindrical body 40 having a centrally disposed cylindrical recess 42 and having an annular rib or projection 44 which is triangular shaped in cross-section and is spaced outwardly from the recess 42. A center-piece 46 having a cylindrical portion 48 and a conical portion 50 is disposed within the recess 42 and has its conical portion adapted to be seated within the aperture 28. The tool is self-centering and the projection 44 will force the metal of the machine part 22 into an overlying position with respect to the insert when a striking blow is applied on the tool holding the insert in place. It is noted that since the projections 34 are larger than the projections 32 and 30 they will force metal of the machine part 22 inwardly to anchor the insert into place. Bands of solder as at 54 and 56 may be provided on the insert to further aid in anchoring the insert. This tool can also force surface metal into an overlying position on a rod or threaded shank producing an outside circular lip or on a drilled hole producing an inside circular lip.

A sweating agent such as solder may be integrally incorporated in the construction of the insert.

If it is desired, the form of the invention shown in Figures 3 and 4 may be employed which includes a head 60 incorporating thereon the annular rib or projection 62 of triangular cross sectional shapes similar to the projection 44. This form of the invention may be used without the tool 40 and may be simply hammered into place.

As shown in Figure 7, another tool as indicated at 70 may be employed which includes a cylindrical head portion 72 having the shank 74 attached or integrally formed therewith. The head 72 is provided with a central recess 76 in which a centerpiece 78 similar to the centerpiece 46 is adapted to be positioned. An annular rib or projection 80 is spaced from the recess 76 and is of similar construction to the projection 44. The other end of the shank 74 may have a conventional socket wrench end as at 82 provided with grip means as at 84 for engagement with the projections 34 whereby the insert may be used as a nut, as suggested in Figure 8, and secured on a threaded shank 86.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modification and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

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What is claimed as new is as follows:

An insert for providing a new bore of predetermined size in a member having a bore therein comprising a cylindrical body having a bore of predetermined size therein, said body being beveled at one end to facilitate insertion into said member bore, said body having a cylindrical exterior surface of uniform diameter, a plurality of projections on said body extending laterally from said exterior surface, said projections being disposed in a plurality of circumferentially extending rows, said rows being spaced axially of said cylindrical body, the projections in each row being spaced circumferentially of each other, projections in different rows being axially spaced from and in axial alignment with each other, the row adjacent said beveled end having its projections provided with wedge-shaped extremities adjacent said beveled end, the row adjacent the other end of said surface having its projections provided with wedge-shaped extremities adjacent said other end, the adjacent ends of projections in adjacent rows having parallel flat surfaces substantially perpendicular to the axis of said member, the projections of different rows being of different dimensions, the projections of the row adjacent said other end being of greater extent laterally of said body than those of the other rows, a laterally enlarged head

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on said body beyond said other end of said surface, an annular rib of triangular cross-section on said head projecting towards and of greater diameter than that of the adjacent row of projections, said body having internal threads in its axial bore.

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