E. O. KEATOR.

BOLT SOCKET FOR CONCRETE STRUCTURES.

APPLICATION FILED FEB. 9, 1917.

1,264,189. Patented Apr. 30, 1918.

Fig. 1

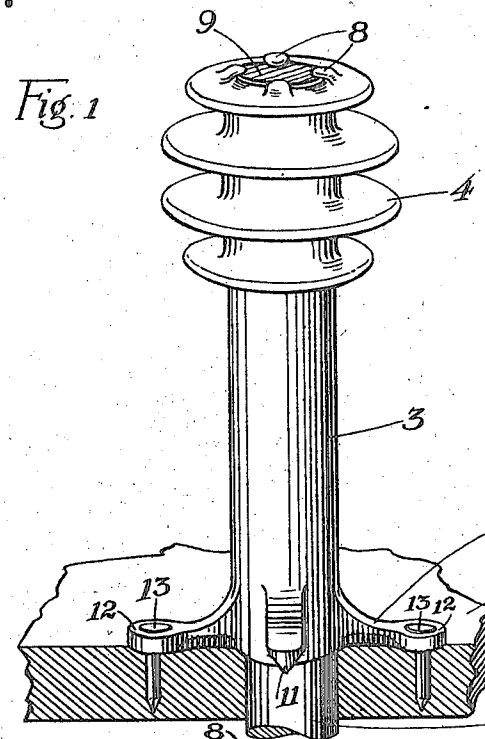
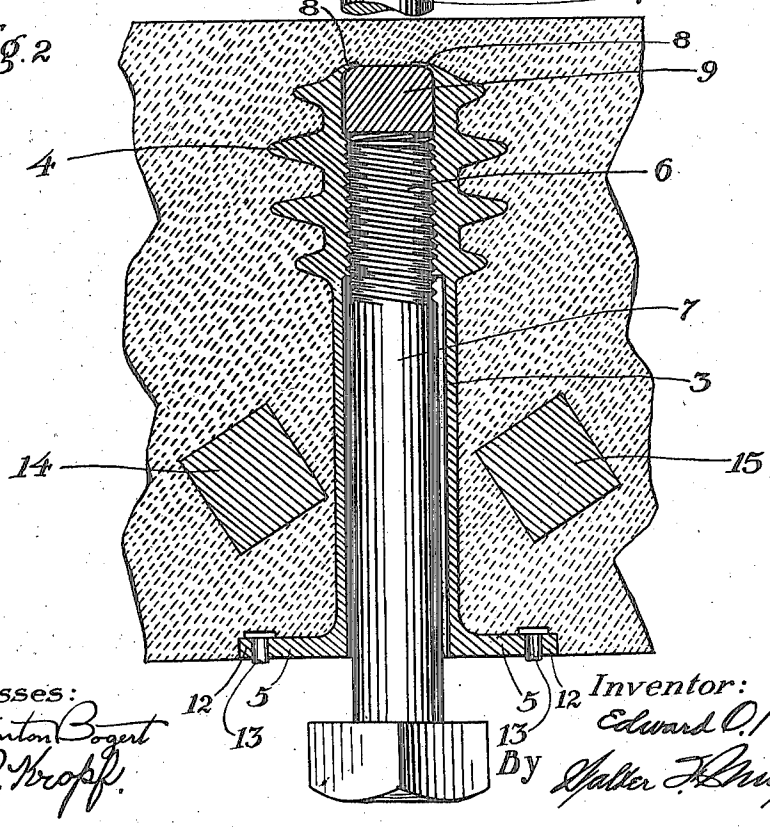


Fig. 2



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UNITED STATES PATENT OFFICE.

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BOLT-SOCKET FOR CONCRETE STRUCTURES.

1,264,189. Specification of Letters Patent. Patented Apr. 30, 1918.

Application filed February 9, 1917. Serial No. 147,523.

To all whom it may concern:

Be it known that I, EDWARD O. KEATOR, a citizen of the United States of America, and resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in Bolt-Sockets for Concrete Structures, of which the following is a specification.

An object of my invention is to produce an improved bolt-socket for the ceilings of reinforced concrete structures, for the supporting of sprinkler systems and the like which will direct the load to the reinforcement and not to the concrete.

A further object is to produce an improved bolt-socket, which, previous to the pouring of the concrete, will permit of adjacent inserts being more readily located and more securely fastened against accidental displacement from spaced relation to one another on the supporting formwork of concrete structures in which they are employed, than other bolt-sockets now on the market.

These and other objects are attained in the bolt-socket described in the following specification and illustrated in the accompanying drawings, in which:

Figure 1 is a perspective view of a bolt-socket embodying my invention, located on a supporting formwork shown in section and fragmentally, with a bolt located therein and shown fragmentally.

Fig. 2 is a longitudinal sectional view of my improved bolt-socket with a bolt located therein and shown fragmentally, embedded in a concrete floor slab.

My improved bolt-socket consists of a hollow cylindrical body portion 3, open at both ends, having flanges 4 at its upper end, a smooth exterior below the flanges, and with lugs forming feet 5 at its lower end for supporting it upon the temporary formwork upon which it is located in spaced relation to other bolt-sockets located thereon. The interior of the upper end of the bolt-socket is provided with screw threads 6 adapted to receive the screw threaded nut of a bolt 7 employed for supporting the sprinkler system, shaft hangers and other elements to be attached to the completed structure, the interior of the lower end of the bolt-socket being left plain and somewhat enlarged to receive the shank of the bolt freely. Flanges 4 at the upper end of the bolt-socket are of such a shape and size as to extend into the concrete surrounding them, sufficiently to prevent being pulled therefrom, the flanges being spaced apart a distance sufficient to receive the concrete poured over them and thus form keys extending into the concrete to prevent withdrawal of the bolt-socket. Above the flanges are formed lugs 8, which when the bolt-socket is supplied to the trade, are left in their vertical positions. At the time of placing the bolt-socket in the structure, a wooden plug 9 is driven into the upper end thereof and the lugs 8 are bent over the plug to hold it in position as disclosed. To facilitate the placing of the bolt-socket I have omitted the screw threads from the extreme upper end of the bolt-socket as disclosed in Fig. 2. This wooden plug prevents the entrance of concrete to the interior of the bolt-socket and keeps the interior clean for the reception of the bolt 7. The lugs 5 which are provided for supporting the bolt-socket upon the temporary formwork 10 upon which it is located previously to the pouring of the concrete, extend from the cylindrical body portion 3 at right angles to one another, the sides of the lugs being tapered to come to a point 11, see Fig. 1, for the purpose of permitting the concrete to flow under the lugs in order to prevent their being seen in the ceiling of the finished structure when the temporary formwork is removed. Two of the lugs 5 are provided with enlarged ends 12 in which openings for the reception of nails 13, are provided. The coöperating lugs are left plain, being provided merely for supporting the bolt-socket vertically with relation to the formwork when secured in position thereon as disclosed in Fig. 1.

In locating the bolt-sockets in position on the temporary formwork, they are placed preferably between adjacent reinforcing rods 14 and 15 of the structure, so that the flanges are above the rods, thus the exterior being smooth the load is conveyed to the rods and not to the concrete, thus preventing breaking of the concrete surrounding the bolt-socket, away from the remaining concrete of the structure. The bolt-socket, in this position, is best adapted to support the load imposed upon it without danger of weakening the concrete slab in which it is embedded. In removing the molding formwork, the nails 13 with which the bolt-sockets are held in their upright positions, are left projecting from the surface of the concrete. Since they cannot easily be with-

drawn from the bolt-socket, they are cut off close to the under sides of the lugs 5, as disclosed in Fig. 2. Any roughness left by the nails, is readily covered up by plaster.

By means of my improved bolt-socket, the load is placed at a sufficient distance above the ceiling, to prevent fire from effecting the strength of the supporting means. Moreover, the lugs 5 support the concrete about them, in case it becomes dehydrated or otherwise weakened.

Having thus described my invention, what I claim is;

1. A bolt socket for concrete structures having lugs extending radially from the lower end, adapted to support the bolt socket upon the temporary form work of a concrete structure, said lugs consisting of a series of pairs of lugs, the lugs of each series being located upon diametrically opposite sides of the socket, certain of said lugs being perforated to form sight holes to register the socket accurately with a center line marked on the temporary form work and to receive nails to secure the socket to the temporary form work, each of others of said lugs having a single V-shaped under surface adapted to form an edge for centering the socket with the single V-shaped edge of each lug on other centering lines on the temporary form work.

2. A bolt socket for concrete structures having internal screw threads at its upper end adapted to retain a bolt therein and external flanges adapted to become embedded in the concrete surrounding the socket, lugs extending radially from the lower end, adapted to support the bolt socket upon the temporary formwork of a concrete structure, said lugs consisting of a series of pairs of lugs, the lugs of each series being located upon diametrically opposite sides of the socket, certain of said lugs being perforated to form sightholes to register the socket accurately with a center line marked on the temporary formwork and to receive nails to secure the socket to the temporary formwork, others of said lugs having V-shaped under surfaces adapted to form edges for centering the socket with other centering lines on the temporary formwork, and a cylindrical portion extending from the lugs to the externally flanged portion, having a hollow interior of larger diameter than the bolt it is to receive.

In testimony whereof, I have hereunto subscribed my name this 6th day of February, 1917.

EDWARD O. KEATOR.

Witnesses:

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