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HANGER SOCKET FOR REINFORCED CONCRETE.

APPLICATION FILED JAN 21, 1909.

923,188. Patented June 1, 1909.

Fig. 4.

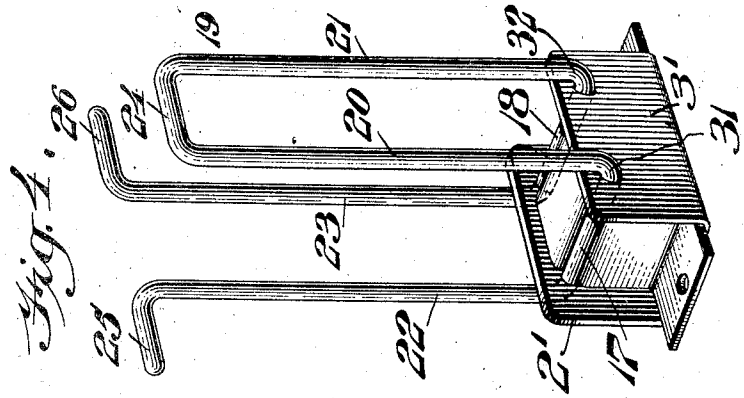


Fig. 2.

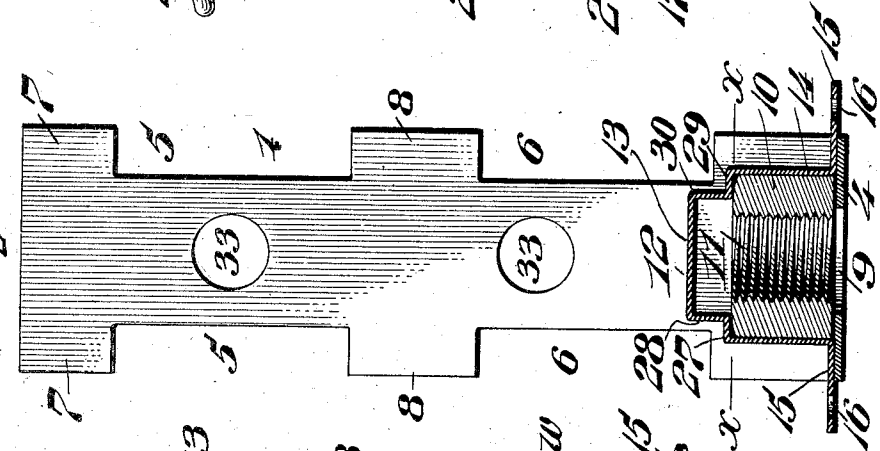


Fig. 1.

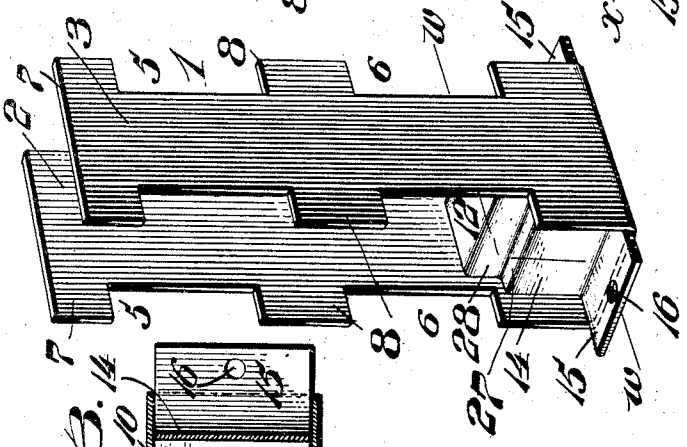
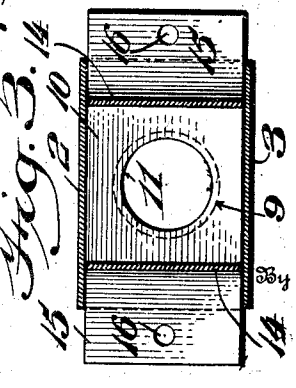


Fig. 3.



Witnesses

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HANGER-SOCKET FOR REINFORCED CONCRETE.

No. 923,188. Specification of Letters Patent. Patented June 1, 1909.

Application filed January 21, 1909. Serial No. 473,447.

To all whom it may concern:

Be it known that I, FRANK N. KNEAS, a citizen of the United States, residing in Norristown, county of Montgomery, State of Pennsylvania, have invented a new and useful Hanger-Socket for Reinforced Concrete, of which the following is a specification.

My invention relates to provision for attachment of devices such as shafting or other structures to cement or concrete beams.

The purpose of my invention is to secure a socket rigidly against movement in any direction, to protect it from being filled by the concrete, and to sustain it by direct strain upon means engaging the concrete on both sides of the socket.

A further purpose of my invention is to provide a substantially U shaped support for a socket the anchorage being obtained by means of the sides of the U.

For the purpose of illustrating my invention I have shown in the accompanying drawings two forms thereof which are at present preferred by me, since the same have been found in practice to give satisfactory and reliable results, although it is to be understood that the various instrumentalities of which my invention consists can be variously arranged and organized and that my invention is not limited to the precise arrangement and organization of these instrumentalities as herein shown and described.

Figure 1 is a perspective of a structure embodying my invention. Fig. 2 is a transverse section of a structure similar to Fig. 1 upon lines *w*—*w*, thereof. Fig. 3 is a section of the structure which I have shown in Figs. 1 and 2 and taken upon line *x*—*x*, of Fig. 2. Fig. 4 is a perspective of a modified form of my invention.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings. My invention is intended particularly for use in connection with the manufacture of concrete beams and structures, whether reinforced or not reinforced, but most desirably in connection with reinforced concrete. My anchor and socket are preferably rested upon the bottom board of the matrix or form within which the beam or other concrete structure is being cast and are desirably temporarily attached to this board for the purpose of preventing displacement of the parts during the casting operation. Evidently the anchor can be so located as to present the socket at the side or top of the beam or other concrete member or to any surface of an inclined or vertical member.

1 designates an anchor comprising preferably parallel duplicate side pieces 2 and 3 and cross piece, for convenience regarded as bottom piece, 4 forming a substantially U-shaped structure preferably of flat or strip material. While the bounding surfaces of the flat standards 2 and 3 lend themselves to attachment to the concrete or cement, I preferably increase this attachment or anchorage by providing recesses 5 and 6 of any suitable number which leave projecting fins or webs 7 and 8 of corresponding size and number engaging the concrete and retaining the anchor firmly in place. The transverse, regarded in this case as the bottom portion, 4 of the yoke or U-shaped anchor member is apertured at 9 in line with the socket which is to be placed within it. This socket, 10, I have shown in the form of a plain square nut but any suitable means of attachment may be supplied in place of this, with whatever advantage the specific form of attachment desired may offer. The aperture of the socket, here bounded by thread 11, is in line with the aperture 9.

In order to provide a space above the nut or other socket, into which the bolt or other corresponding member may project, and to protect against closure of the opening of the socket by the concrete or cement, I provide a cap 12 preferably comprising a top 13 and sides 14. I may provide this with lateral extensions 15, having apertures 16 therein, in order that the device may be conveniently and securely fastened to a board of the matrix or form.

It will be noted that I provide spaced anchorages having laterally extending fins or webs for engagement with the concrete and retaining the socket between them. These spaced anchorages are preferably placed parallel with the reinforcing rods where these occur and do not interfere with them.

The cap retains the socket against movement within the anchor and holds the anchor in place against the board. The cap and the abutment of the bolt or other connection against the walls of the aperture 9 coöperate to keep the socket fixed against movement in all directions.

In Fig. 4 I have shown a modification agreeing as to the lower part of the anchor,

the socket and the cap in all particulars with the form shown in Figs. 1, 2 and 3, but having openings through the anchor for the passage of the transversely directed parts 17 and 18 of the upper part 19 of the anchor there used. This is preferably made in the form shown, with substantially parallel vertical side bars 20, 21, 22 and 23, the bars 20 and 21 being united at the middle of the device by the cross bar 24 and the bars 20 and 22 and 21 and 23 being united respectively by the transverse members 17 and 18. The vertical bars 22 and 23 are shown as terminating in lateral extensions 25 and 26 which may be omitted if desired, these lateral extensions and the transverse portion 24 materially assisting in the anchorage of the device. The transverse members 17 and 18 here perform an additional function by engagement with the surfaces 27, and 28, 29 and 30, respectively of the cap to retain the cap in place against vertical and side movement at all times even when the device is not in use. The devices shown in Figs. 1, 2 and 3 are preferably made from pressed metal which is formed by cutting and bending dies to the desired shape. An ordinary square nut is inserted between the arms of the U and the cap, also preferably formed by dies alone, is inserted laterally and placed over the nut. When not in use the cap may be readily wired to the anchor, preventing displacement thereof.

The device shown in Fig. 4 is assembled so far as indicated the same as the devices shown in Figs. 1, 2 and 3 after which the wire anchor, at that time substantially in the shape of a hair pin, is passed through the apertures in the sides 2′ and 3′ either before or after the bends at 31 and 32 have been made. The arms 22 and 23 are then bent to place and extensions 25 and 26 formed if desired.

It will be evident that the structures which I have illustrated may be constructed at a minimum of cost for labor and materials making use of such materials only as are readily available.

The structure of Fig. 2 differs from that of Fig. 1 in the apertures 33 only. These may be used with an anchor having notched edges, as shown, to increase the anchorage, or with an anchor having straight edges to provide the main anchorage. In some of the smaller forms I omit the apertures and the notching, relying upon the adhesion to the sides alone. Either with or without the apertures or notching I may also turn the upper ends of the U laterally either toward or away from each other or one in each of these directions.

It will be evident that the exact structure need not be used to obtain the main advantages of my device.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a device of the character described, a flat base, a socket resting thereon, a separate cap for said socket, means for spacing the cap vertically from the socket, and side members attached to the outer edges of the base and extending above the cap.

2. In a device of the character described, a flat base, a socket resting thereon, a separate cap for said socket, and side members attached to the outer edges of the base and extending above the cap.

3. In a device of the character described, a substantially U-shaped anchor, having an interrupted side surface for engagement with the concrete, a socket within the U, and a separable cap for said socket, the socket and cap resting upon the transverse member of the U.

4. In a device of the character described, an anchor having substantially parallel flat sides, an apertured cross bar therebetween, fins projecting from said sides, a socket resting upon the cross bar with its aperture in line with the aperture of the cross bar, a cap fitting over the socket and engaging the sides of the anchor and apertured projections from said cap for attachment to a mold.

5. In a device of the character described, a substantially U-shaped anchor having laterally projecting fins upon the parallel sides thereof in combination with a nut resting on the cross bar of the anchor, and a cap fitting the nut at the sides thereof and projecting for attachment to a form or mold.

6. In a device of the character described, a plurality of substantially parallel flat sides having fins projecting therefrom, an apertured transverse bar secured to said sides, a nut resting on the transverse bar and having its threads in line with the aperture thereof, and a cap for said nut engaging the nut and the parallel sides.

7. In a device of the character described, an anchor of flat material having straight upwardly turned finned sides, a socket resting upon the anchor, and a guard between the sides protecting the top of said socket.

8. In a device of the character described, a U-shaped flat sided anchor having an aperture in the cross bar of the U, a nut having its thread in line with the aperture of the cross bar and filling the space between the sides, and a guard covering said nut and projecting beyond the sides of the anchor.

9. In a device of the character described, a socket, a base beneath the socket and extending from one side thereof to the other, a separate cap for said socket and side members connected with the base and extending above the cap.

10. In a device of the character described, a base, side members connected thereto at the outer edges thereof, a socket upon the

base and a separate cap for said socket below the terminal of the side members and extending approximately to the plane at the bottom of the base.

11. In a device of the character described, a base, side members thereon, a socket resting thereon, a cap therefor, and an extension from the cap for the retention of the parts in place.

12. In a device of the character described, a base, side members thereon, a socket resting upon the base, a cap for said socket, and apertured extensions from said cap.

13. A means for temporarily retaining a hanger and socket upon a mold board comprising a cap for the socket, and an extension from the cap for attachment to the mold board.

14. In a device of the character described, a socket, a base extending across beneath the socket and having upwardly extended sides and a cap for the socket lying between the sides resting against the socket and extending therebelow for attachment to the mold.

15. In a device of the character described, a socket, a supporting base therefor extending across from one side of the socket to the other, sides extending upwardly from the outer edges of the socket and means between the sides for retaining the socket against the base by attachment to the mold.

16. In a device of the character described, a socket, an apertured base extending from one side to the other of the socket, the walls of the aperture opposing movement of the member engaging with the socket in all directions, upwardly extending wings from the outer edges of the base and a cap for the socket.

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