Oct. 17, 1939. G. F. BARNETT 2,176,450

JOIST ANCHOR AND SUPPORT

Filed June 21, 1938

Fig. 1.

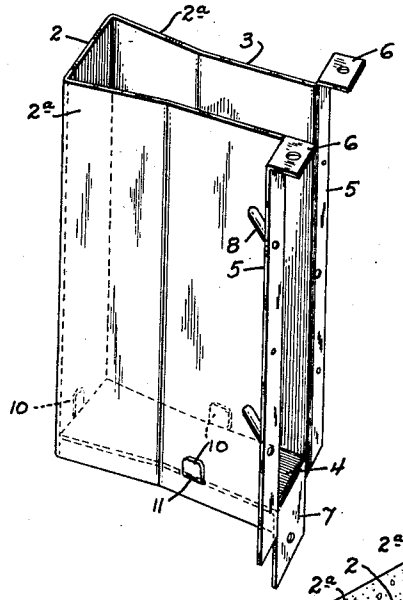


Fig. 2.

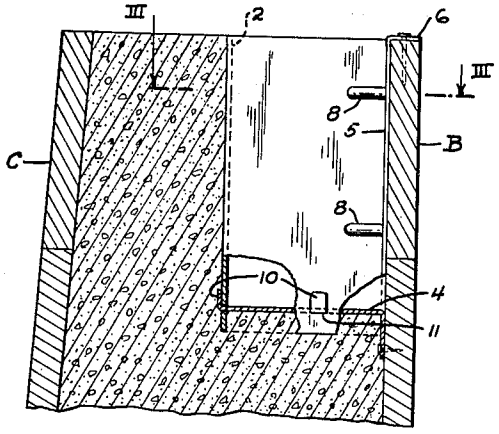


Fig. 3.

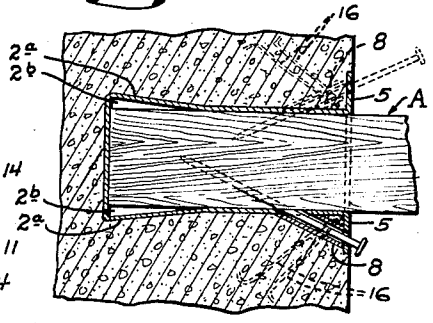


Fig. 4.

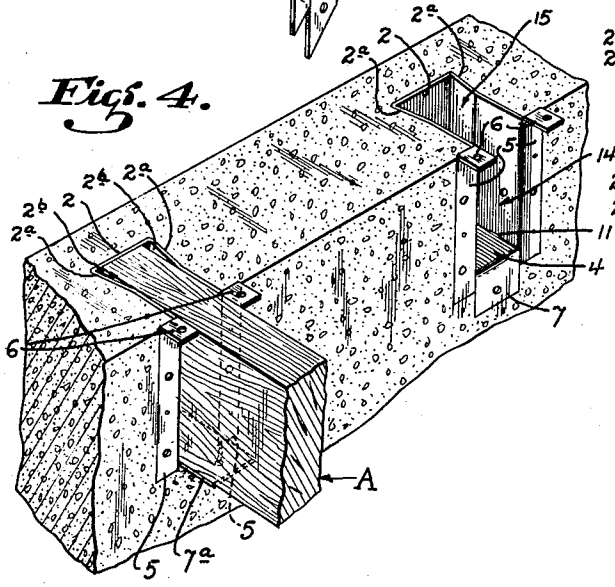


Fig. 6.

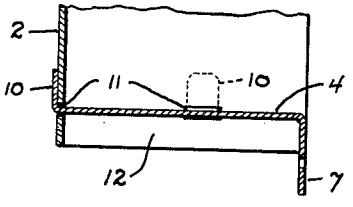
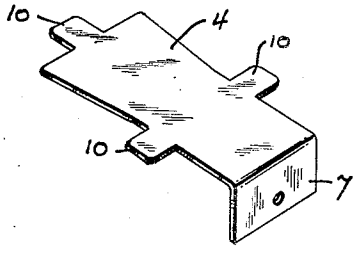


Fig. 5.



INVENTOR.
George F. Barnett.

BY

Chas. E. Townsend.
ATTORNEYS.

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JOIST ANCHOR AND SUPPORT

George F. Barnett, San Francisco, Calif.

Application June 21, 1938, Serial No. 214,890

8 Claims. (Cl. 72—108)

This invention relates to a joist anchor and support which is intended for use in conjunction with concrete and brick walls.

The object of the present invention is generally to improve and simplify the construction and operation of devices of the character described; to provide a joist anchor and support which is particularly intended for hillside foundations and other places where it is important to place the floor joists of a building or similar structure as low as possible with relation to the foundation; to provide an anchor and support which is easily installed by merely nailing it to the upper edge and inner face of the cribbing or forms in which the concrete is poured, so that it will become completely surrounded and embedded in the concrete and form a permanent part of the foundation when completed; to provide an anchor and support which forms a non-corrosive metal lining between the ends of the joists and the foundation, to prevent moisture from the foundation from entering the joists and rotting the same; to provide an anchor and support which is provided with side flanges to reinforce and protect the edges of the concrete from breaking and chipping; and further, to provide in combination with said flanges a series of tubular members welded or otherwise secured to the flanges and the side walls of the anchor, said tubes forming passages through which nails are adapted to be driven into the ends of the joists on a suitable angle, to secure the joists when placed in position.

The anchor and support is shown by way of illustration in the accompanying drawing, in which:

Fig. 1 is a perspective view of the anchor and support;

Fig. 2 is a cross section of the foundation showing the anchor member and support secured to the inner face of the boards forming the cribbing or form in which the concrete is poured;

Fig. 3 is a horizontal section taken on line III—III of Fig. 2;

Fig. 4 is a perspective view of a portion of a foundation showing the joist anchor and supporting members in place;

Fig. 5 is a perspective view of the bottom portion of one of the joist anchors and supports; and

Fig. 6 is a central vertical section of the lower end of a joist anchor and support showing the manner in which the bottom is secured therein.

The joist anchor and support is best shown in Fig. 1. It is made of sheet iron or a similar material, and consists of a back wall section 2, connected side wall sections 3—3, and a bottom section 4. Formed integral with the side walls 3—3, or suitably secured thereto, are side flanges 5—5, and at their upper ends are formed lugs 6—6, and forming a part of the bottom section is a lug 7. Secured by welding or similar means between the side flanges 5—5 and the side walls 3—3 are a plurality of tubular members 8, which align with perforations made in the side flanges and the side walls, to permit heavy nails or spikes to be placed therein and driven into the joist A as shown in Fig. 3.

The bottom section 4 may be secured to the back and side walls in any suitable manner, but as here shown (see Figs. 5 and 6) is provided with lugs 10 which extend through slots 11 formed in the back and side walls, and are then bent over to secure the bottom against removal. It should also be noted that the bottom is not flush with the lower ends of the back and side walls (see Fig. 6), but is slightly raised with relation thereto, to form a recess 12 into which concrete or mortar will enter to assist in anchoring or securing the device as a whole when placed in a wall structure. The side walls 2—2 are flared outwardly as shown at 2a for a similar purpose, and also to provide air spaces 2b to permit air circulation so as to prevent dry rot.

If the joist anchor and support is to be used in a concrete wall, a cribbing or form built up of boards such as shown at B and C in Fig. 2 is first constructed. The joist anchors and supports are then hung by means of the lugs 6—6 from the upper edge of the board B; they are then properly spaced, and thereafter are nailed in place with shingle or other small nails which are driven through the lugs 6—6, the side flanges 5—5, and the bottom lug 7, it being understood that the several lugs and flanges are perforated to permit such nailing. When the anchor members are all hung and nailed in place, the concrete may be poured, and all of them will thus become embedded in the concrete, and when the concrete has taken a proper set, the form or cribbing boards may be removed, leaving the joist anchors and supports permanently embedded and secured in the concrete, and as the front faces are open, as indicated at 14, and the upper ends are similarly open, as indicated at 15, a series of recesses or sockets are formed in the foundation to receive the ends of the joists. The joists when placed therein are permanently anchored and secured by placing heavy nails or spikes in the tubes 8 and finally driving them

into the ends of the joists. The tubes may be placed on any suitable angle, as shown in Fig. 3, and while they are welded or otherwise secured to the side walls and the flanges 5—5, it is also desirable to anchor the tubes to the concrete itself, for instance by tying wires or the like 16 around the tubes and extending them inwardly so that they become thoroughly embedded in the concrete when this is poured. The reason for this is as follows: At the point where the nails or spikes are driven in, the edges of the concrete are reinforced and protected by the side flanges 5—5, but even so, it is possible that when the nails are driven in and when the last blows are imparted, the concrete surrounding the tubes might chip or break, and also that the tubes might break away from the flanges, etc., but as they are tied to the concrete by the reinforcing wires 16, a permanent anchorage will still be retained. The bottom lug 7 may also be used to secure the joist, as it may be bent up against the under side of the joist, as shown at 7*a* in Fig. 4, and there secured by nailing or the like. The lugs 6—6 may remain as they are or they may be broken off or bent flush with the flanges 5—5.

When pouring the concrete the upper open ends of the joist anchors should be closed to prevent entrance of concrete. This may be done in any suitable manner, but may be simply accomplished by employing a series of plates such as shown in Fig. 5. It will, however, be necessary to bend the lugs downwardly so that they will engage the inner surfaces of the rear and side walls and thereby frictionally retain the covers in place.

The method here disclosed of securing floor joists is of considerable importance, particularly when constructing hillside foundations, as in such instances it is important to place the floor joists as low with relation to the foundation as possible. The joists when supported in this manner are securely anchored, and they are protected both against moisture and against dry rot, as free air circulation is provided by the expanded inner ends of the side walls as shown at 2*a*, and moisture is kept from entering the joists as the metal forms a liner between the foundation and the joist. This liner, while constructed of sheet metal, may be galvanized or otherwise protected, and should accordingly form a protection which will last for many years.

Where the joists extend across a structure from one foundation to another, the joists tie the foundation walls together, as the joist ends are rigidly anchored at each end. This is of great importance, particularly in localities subject to earthquakes.

While the joist anchor and support is here shown as used in conjunction with a concrete foundation, it is obvious that it is equally applicable to brick foundations and the like; and while certain other features of my invention have been more or less specifically described and illustrated, I nevertheless wish it understood that changes may be resorted to within the scope of the appended claims, and that the finish and specific materials employed may be such as the manufacturer desires or varying conditions dictate.

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

1. A combination joist anchor and support comprising a sheet metal member adapted to be embedded and anchored in a wall, and forming with one face of the wall an open-faced socket to receive and support one end of a joist, and means on each side of the sheet metal member to receive and guide nails on an angle into the end of the joist, to secure it against removal from the socket.

2. A combination joist anchor and support comprising a sheet metal member adapted to be embedded and anchored in a wall, and forming with one face of the wall an open-faced socket to receive and support one end of a joist, and a plurality of tubular members secured to the sheet metal member, on opposite sides of the joist, to receive and guide nails on an angle into the end of the joist, to secure it against removal from the socket.

3. A combination joist anchor and support comprising a sheet metal member having a back portion, a pair of sides and a bottom portion, said member being open at the front and top, said member adapted to be embedded in the concrete of a wall and forming with the top and one face of the wall a socket to receive and support one end of a joist, a pair of side flanges bent at right angles to the sides of the sheet metal member, and angularly disposed tubes secured between the sides and the flanges to receive and guide nails on an angle into the end of the joist to secure it against removal from the socket.

4. A combination joist anchor and support comprising a sheet metal member having a back portion, a pair of sides and a bottom portion, said member being open at the front and top, said member adapted to be embedded in the concrete of a wall and forming with the top and one face of the wall a socket to receive and support one end of a joist, a pair of side flanges bent at right angles to the sides of the sheet metal member, angularly disposed tubes secured between the sides and the flanges to receive and guide nails on an angle into the end of the joist to secure it against removal from the socket, and means for anchoring the tubular members to the wall independently of the sheet metal member.

5. A device of the character described comprising a rectangularly shaped socket member having a back wall, a pair of connected side walls, and a bottom section, said socket member being open at the front and top, a pair of side flanges connected with the side walls of the socket and bent at right angles thereto, a pair of top lugs in alignment with the side flanges and bent at right angles thereto, and a bottom lug bent downwardly and at right angles to the bottom of the socket.

6. A device of the character described comprising a rectangularly shaped socket member having a back wall, a pair of connected side walls, and a bottom section, said socket member being open at the front and top, a pair of side flanges connected with the side walls of the socket and bent at right angles thereto, a pair of top lugs in alignment with the side flanges and bent at right angles thereto, and a bottom lug bent downwardly and at right angles to the bottom of the socket, said bottom section being secured to the back and sides of the socket by lugs formed on the bottom and extending through slots formed in the back and sides of the socket, and said bottom being disposed within the socket at a point above the lower ends of the back and side sections of the socket.

7. A device of the character described comprising a rectangularly shaped socket member

having a back wall, a pair of connected side walls, and a bottom section, said socket member being open at the front and top, a pair of side flanges connected with the side walls of the socket and bent at right angles thereto, and a plurality of tubular members disposed on an angle between the side walls and the side flanges and secured thereto, said side flanges and side walls being perforated in alignment with the tubes to form nail receiving passages.

8. A combination joist anchor and support comprising a sheet metal member having a back portion, a pair of sides, and a bottom portion, said member being open at the front and top, said member adapted to be embedded in the concrete of a wall, and forming with the top and one face of the wall a socket to receive and support one end of a joist, and a perforated flange on the outer edge of each side section of the sheet meteal member to receive and guide nails into the end of the joist to secure it against removal from the socket.

GEORGE F. BARNETT.