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R. P. SMITH.

ANCHORAGE FOR BUILDING PURPOSES.

APPLICATION FILED DEC. 20, 1906.

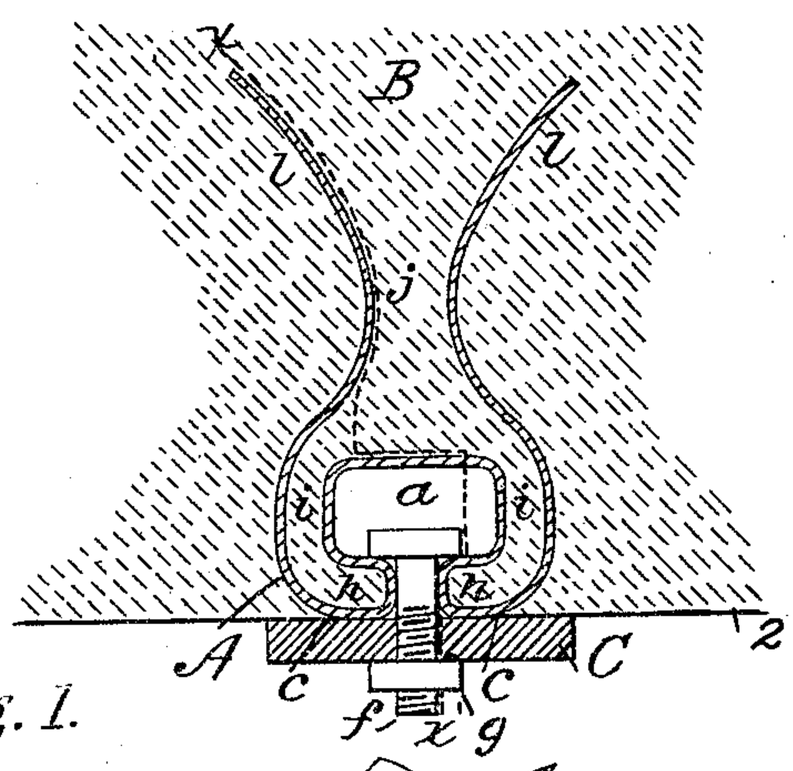
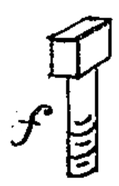


Fig. 1.

Fig. 4



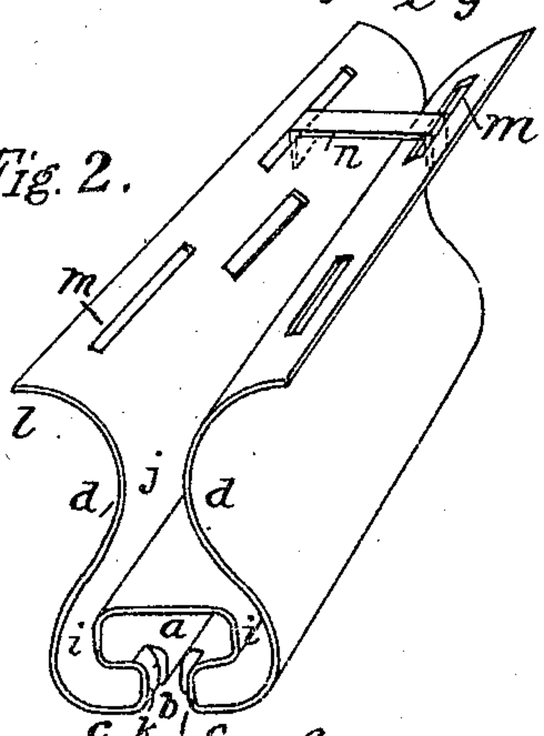


Fig. 2.

Fig. 6.

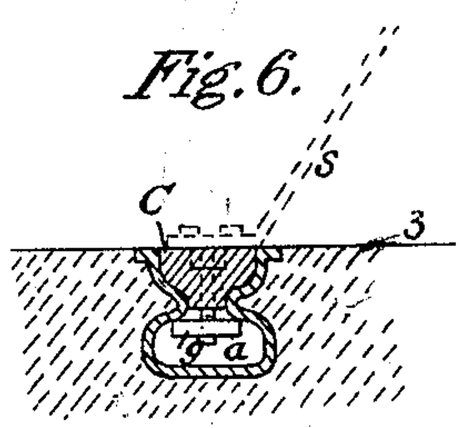
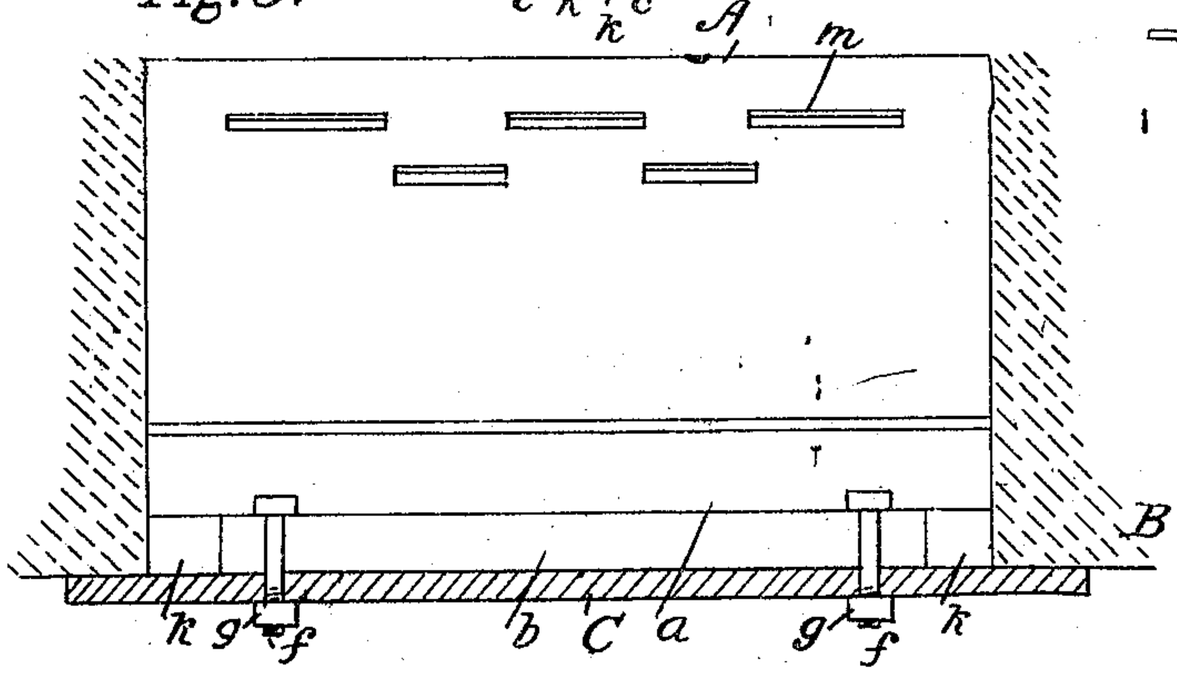


Fig. 3.



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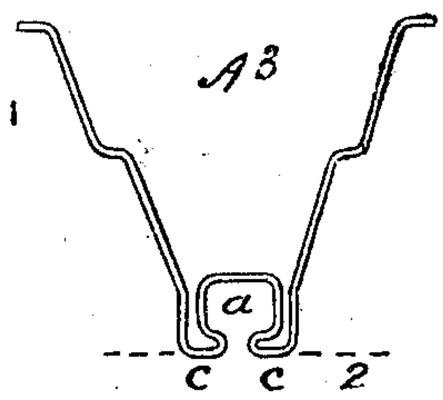

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UNITED STATES PATENT OFFICE.

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ANCHORAGE FOR BUILDING PURPOSES.

No. 849,817. Specification of Letters Patent. Patented April 9, 1907.

Application filed December 20, 1906. Serial No. 348,712.

To all whom it may concern:

Be it known that I, ROBERT P. SMITH, residing at Winchester, in the county of Middlesex and State of Massachusetts, have invented certain Improvements in Anchorage for Building Purposes, of which the following is a specification.

The present invention relates to means for holding or supporting articles, such as hangers for shafting, from the walls, floors, or ceilings of buildings which are made of concrete or other like material, which is put in position while in a plastic state and afterward hardens, so that anything placed in the concrete while it is in its plastic state will be held firmly in position when the material becomes solid.

The invention consists in forming a holder or supporter from a sheet of iron or steel and arranging in the central portion thereof a channel for the reception of a bolt-head and extending the sides of the sheet in a zigzagged, curved, or uneven manner and putting the same in position before the concrete is in place and then inclosing it in the concrete, so as to leave exposed only the opening into the channel and the outer face of said ledges.

When the device is to be utilized, say, for the support of hangers for shafting, a plank or strip is held in or under the said channel, having suitable bolt-holes therein, and bolts whose heads are supported in the channel are passed through the blank and secured on the outer side of the plank by nuts, the plank being thus supported by the bolt-heads in the channel, and the hangers or other object may be secured to the plank in a manner well understood.

The invention also comprises a supporter adapted to serve as a reinforcer for the concrete when in position therein.

In the drawings, which illustrate the invention, Figure 1 is a cross-section of a wall or ceiling and of a supporter embedded therein. Fig. 2 is a perspective view of a supporter. Fig. 3 is a longitudinal section of a wall or ceiling and of a supporter embedded therein. Fig. 4 is a perspective view of a bolt. Figs. 5 and 6 represent modifications of the device.

Referring to Figs. 1, 2, 3, and 4, which disclose one construction of the invention, the wall or ceiling B is composed of plastic self-hardening material like concrete, which consists of Portland or similar cement, sand, gravel, or small broken stone thoroughly mixed, and 2 is the surface-line of the ceiling, and A is an end view or cross-section of a holder or supporter made from sheet metal, preferably steel, in suitable lengths and of a proper width.

The sides of the sheet are bent over to form a central channel *a* with a narrow opening *b* and then are reversed and brought upward, so that hollow ledges *c c* are formed at the mouth of the channel, and spaces *h h*, *i i*, and *j* are provided. The sides are preferably curved near to each other at *d d*, separated by the space *j*, and then they are flared outward as wings *l l*. At suitable places, as at the ends of the plate, the mouth or opening may be for a short space enlarged, as *k k*, in order that the heads of bolts may be inserted into the channel.

The support is arranged in the space the wall or ceiling is to occupy in any suitable way and may extend any distance or length, and the concrete is built up around the same, being packed into the spaces *h h*, *i*, *i*, and *j* and also against the outside walls of the support, leaving the outer face of the ledges *c c* exposed.

When the concrete hardens, the support is firmly held in place and able to sustain heavy weights. When the support is put into use, the heads of bolts *f* are introduced into the channel by way of the enlarged places *k*, or the bolt-heads may be narrower one way than the other, as shown in Fig. 4, and the head introduced by the narrow part and then turned so that the wider portion is supported by the ledges *c c*. A wooden strip or plank C, having holes to receive the bolts, is placed under the channel, and nuts *g* are screwed onto the bolts to bring the plank firmly up to the ledges. Any suitable object, as a hanger for shafting, may then be secured to the plank in a well-known manner.

I prefer to perforate the metal strip with holes *m* at frequent intervals in order that the concrete may lock through and assist in supporting the same, and before the concrete is put in place I attach metal binders *n* across from hole to hole to prevent the sheet from spreading or collapsing and leave them in position.

In Fig. 5, which is a modification, the wings are flared from the central portion in a zigzag manner to obtain further locking effect in the concrete.

In Fig. 6, which represents a support or sustainer adapted for a floor 3, in this case the wooden strip enters the mouth and its outer face is flush with the top of the concrete floor, it being held in place by bolts, as in the previous figures. The flexible metal is contracted and expanded in outline to lock with the concrete B, and *s* is a brace attached to the strip by screws and may extend to any object, as a machine.

It will be readily seen that the supporters herein shown and described serve admirably also as reinforcers for the mass of concrete, as by their configuration the metal is distributed in such a way as to reinforce a large section of a wall, while at the same time it is adapted to support any object attached thereto.

I claim as my invention—

1. The combination of a wall or ceiling of self-hardening plastic material with a holder or supporter made from sheet metal bent to form a channel having inwardly-extending ledges at its mouth, and its edges extending upward and outward, portions of the metal surfaces being flush with the face of the wall or ceiling as set forth.

2. The combination with a concrete wall or ceiling, of a holder or supporter made from sheet metal having a channel formed centrally thereof with inwardly-extending ledges at its mouth and with its ends flaring upward and outward, portions of the metal surfaces being flush with the face of the wall or ceiling as set forth.

3. A holder or supporter for the purpose described adapted to be inclosed in self-hardening plastic material, composed of sheet metal beat into a longitudinal channel having inwardly-extending ledges at its mouth, and wings extending from each side of the channel in an upward and outward manner, as set forth.

4. The combination of a wall or ceiling of self-hardening plastic material, with a metal holder or supporter for the purpose described having a channel with inwardly-extending ledges at its mouth, and wings extending from each side of the channel in an upward and outward manner, portions of the metal surfaces being flush with the face of the wall or ceiling as set forth.

5. The combination of a wall or ceiling of self-hardening plastic material, with a holder or supporter of sheet-steel having a central longitudinal channel formed therein, with ledges at its mouth extending toward each other, and wings from each side of the channel curving upward and outward, as set forth.

6. The combination of a wall or ceiling of concrete, with a holder of sheet metal having a central longitudinal channel formed therein, with ledges at its mouth extending toward each other and enlarged at suitable places to receive bolt-heads, and wings from each side of the channel extending upward and outward, as set forth.

7. A holder or supporter for the purpose described composed of sheet metal formed with a central longitudinal channel having hollow ledges on each side of its mouth and with wings extending upwardly and outwardly from each side of the channel, immersed in a self-hardening plastic material which fills in between the upper sides of the wings and forms a lock or matrix about the channel and also the lower and outer sides of the wings, leaving the mouth of the channel exposed, as set forth.

8. The combination of a wall or ceiling of self-hardening plastic material, with a holder of flexible sheet metal having a central longitudinal channel formed therein, with hollow ledges at its mouth extending toward each other, and wings from each side of the channel curving upward and outward.

9. As an article of manufacture a holder of thin sheet metal formed with a central inner channel having an outward opening of less diameter than itself, the metal being reversed on itself and spaced from the walls of the channel and opening, and contracting on each side over the said channel, and then flaring outwardly.

10. As an article of manufacture a holder of thin sheet metal formed with a central channel having an opening of less diameter than itself, and its edges extending away from the opening, a cross-section thereof presenting a zigzag or uneven contour.

11. As an article of manufacture a holder of thin sheet metal formed with a central channel having an opening of less diameter than itself, and its edges extending away from the opening, a cross-section thereof presenting a zigzag or uneven contour with a strip covering the opening and secured by bolts whose heads are located in the channel.

12. An article of manufacture a longitudinal hollow supporter made of thin sheet metal with a central channel opening outward, and its edges extending away therefrom, a cross-section thereof presenting an uneven or varying contour, adapted to be inclosed in moist concrete, as set forth.

13. The combination with a mass of concrete of a longitudinal hollow metal supporter having a central channel and its edges extending away from the same, portions of the metal surfaces being flush with the face of the wall or ceiling as set forth.

In testimony whereof I have signed my name to this specifications in the presence of two subscribing witnesses, this 18th day of December, 1906.

ROBERT P. SMITH.

Witnesses:
EDMUND W. LONGLEY,
C. E. SMITH.