Dec. 25, 1945. W. S. MILES ET AL 2,391,792

WALL CONSTRUCTION AND FASTENER THEREFOR

Filed Jan. 23, 1942

Fig. 1.

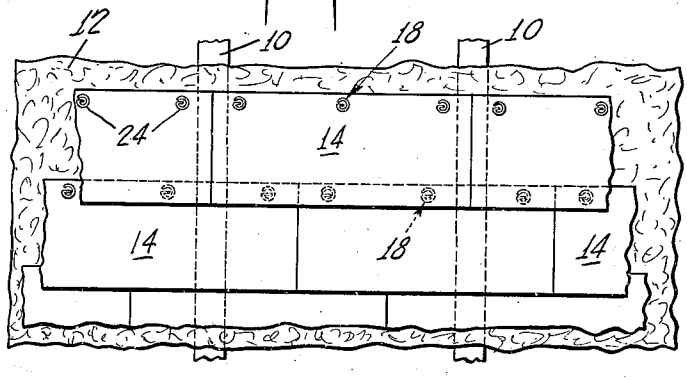


Fig. 2.

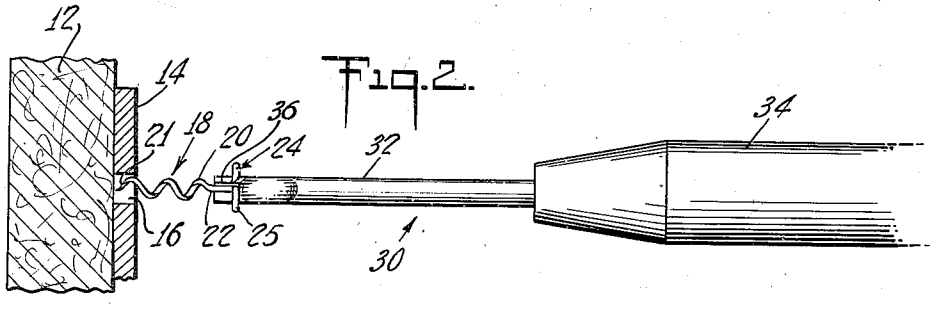


Fig. 3.

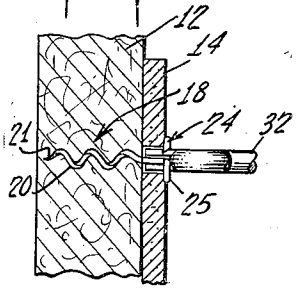


Fig. 4.

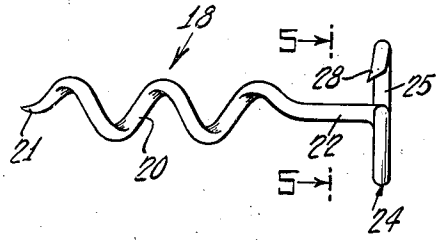


Fig. 5.

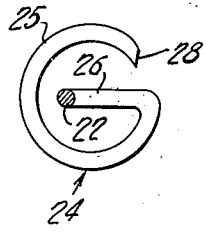


Fig. 6.

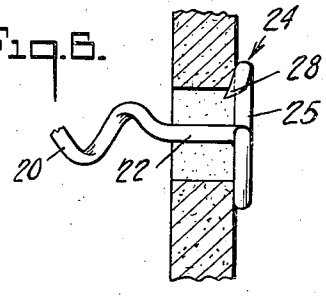
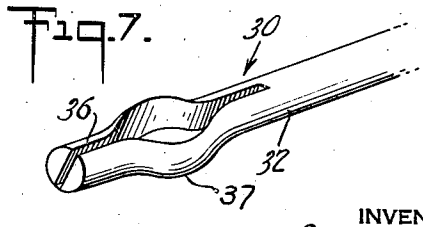


Fig. 7.



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WALL CONSTRUCTION AND FASTENER THEREFOR

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Application January 23, 1942, Serial No. 427,874

8 Claims. (Cl. 108—33)

The instant invention relates to building constructions, and more particularly to improved wall or partition structures and to means for securing shingles, siding, or the like thereon. It will be understood that the terms "wall" and "partition" are used herein in a generic sense to denote both side walls and walls such as roofs, ceilings, and the like.

An object of the instant invention is the provision of an improved wall construction employing fastening elements allowing the use of sheathing which has relatively little ability to hold ordinary nails or other conventional fastening means, the invention being particularly applicable where the sheathing is fibre board, plaster board, or the like. Heretofore, it has been proposed to use sheathing of this type and to secure shingles or siding elements thereover by means which pass through the sheathing and are locked on the inner side of the wall. As will be readily understood, in many instances this procedure is objectionable as it necessarily requires the exterior wall to be completed before the interior plaster and lath or other finish may be applied. Also, it has the disadvantage of requiring a multiplicity of operations. Accordingly, another object of the instant invention is the provision of a construction and fastener for use therein in which all operations are carried on entirely from the exterior of the wall and with a minimum number of operations.

A further object of the invention is the provision of an improved fastener particularly for use in constructions of the type referred to above and which will secure covering units or the like under yielding tension and will be locked against withdrawal.

Our invention will be more fully understood and further objects and advantages thereof will become apparent when reference is made to the more detailed description thereof which is to follow and to the accompanying drawing, in which:

Fig. 1 is a face elevational view of a portion of a wall constructed in accordance with the invention;

Fig. 2 is a sectional view on an enlarged scale through the wall of Fig. 1, illustrating one operation in forming the construction of the invention;

Fig. 3 is a view similar to Fig. 2, illustrating a further stage in the operation;

Fig. 4 is a side elevational view of a fastener in accordance with the invention;

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 4;

Fig. 6 is a detail, fragmentary, sectional view on an enlarged scale, illustrating the fastener in final position; and

Fig. 7 is a fragmentary, perspective view on an enlarged scale of a fastener-applying tool.

Referring now to the drawing and particularly to Figs. 1 to 3, there is shown a wall structure, which, for the purposes of illustration, comprises an exterior vertical wall. However, as will be understood, the invention is equally applicable to roof walls and to interior walls of various types. The wall includes studs 10 to which is secured sheathing 12. As previously stated, sheathing 12 may comprise material such as fibre board, plaster board, or the like, which, though readily adapted to receive ordinary shingle securing nails, does not have sufficient nail-holding properties to permanently retain them.

Overlying sheathing 12 are covering elements 14, which, for the purposes of illustration, have been depicted as siding shingles. These may be of any suitable type; for example, asbestos-cement shingles, and include preformed perforations 16 for the reception of fasteners. Here again it will be understood that the invention is in no way limited to shingled constructions and that any suitable type of material may be secured to a sheathing or the like. In accordance with the invention, fasteners 18 are employed for securing the covering elements to the sheathing, each comprising a helical or corkscrew portion 20 having a pointed end 21. Portion 20 is integrally united to a shank 22, which, in turn, is preferably integrally united to a head 24. The fastener may be formed of any suitable material; for example, steel wire, and is preferably plated with a rust-proofing material, such as zinc, cadmium, or the like. The head of the fastener, in the preferred form, comprises a partially closed ring 25 connected to shank 22 by means of bar 26. The ring terminates in a preferably pointed end 28, which is depressed from the plane of the ring as shown particularly in Fig. 4. Ring 25 extends toward its free end in the same direction of rotation as the helix of portion 20 as illustrated. The inner diameter of the ring is preferaly at least as great as the diameter of the perforations 16 formed in the shingles or other covering elements 14 and may be somewhat larger, as indicated in Figs. 1, 2, 3, and 6. It will be understood that the perforations 16 are of sufficient diameter to receive the helical or corkscrew portions of the fasteners, as illustrated particularly in Figs. 2 and 3.

In applying covering units to a wall structure employing the fastener and to form the construc-

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tion of the instant invention, a tool is employed, as indicated at **30**, comprising a shaft **32** and operating handle **34**. Shaft **32** is of a diameter to fit within ring **25** and preferably also within perforations **16**. The end of the shaft includes a relatively deep slot **36** of a size to preferably tightly receive bar **26** of the fastener head. An abutment is provided, for example by bending the portions of the shaft **32** as indicated at **37** to prevent the shaft from extending too far into the fastener. Due to the depth of the slot, the shaft portion may exert a resilient holding action on the fastener.

To form the assembly, the covering unit is placed in position upon the sheathing and a fastener **18** is placed on tool **30** with bar **26** in slot **36**, as shown in Fig. 2. The point **21** of the helical portion is then inserted through a perforation in the shingle and by the simultaneous application of rotational movement and forward pressure on tool handle **34**, the helical portion is screwed into the sheathing through the perforation in a similar manner to that in which an ordinary screw is driven into a board or the like. Rotation of the fastener is continued until the head **24** is drawn firmly against the shingle or other covering unit, and, in fact, is preferably continued to slightly beyond this point to place the head under spring tension and to cause the depressed, pointed end **28** of ring **25** to become embedded to at least some extent into the surface of the shingle (see Fig. 6).

Owing to the particular configuration of the fastener and the resilience of the material from which it is formed, it holds the covering units firmly against the sheathing, while at the same time permitting slight movements of the units as may result from impacts or concussions without destruction or injury, either to the covering unit or fastener. Any tendency toward reverse rotation of the fastener and consequent release of its holding action is prevented or opposed by the pointed end **28** of ring **25**, which gouges into the surface of the shingle (see Fig. 6) under the influence of such tendency.

Having thus described our invention in rather full detail, it will be understood that these details need not be strictly adhered to, but that various changes and modifications will suggest themselves to one skilled in the art, all falling within the scope of the invention as defined by the subjoined claims.

What we claim is:

1. A wall structure comprising a sheathing, covering elements overlying said sheathing, fastener-receiving perforations in said elements, and integral fasteners including shanks extending through said perforations, helical portions integral with said shanks and engaged within said sheathing, and heads integral with said shanks and bearing against said covering elements and including a locking portion engaged in said covering elements.

2. A wall structure comprising a sheathing, covering elements overlying said sheathing, fastener-receiving perforations in said elements, and fasteners each including a shank extending through a perforation, a helical portion integrally connected to said shank and engaged within said sheathing, and a head integrally connected to said shank and including a portion substantially surrounding said perforation, said portion having a free end engaged in the covering element to oppose withdrawing rotation of said fastener.

3. A wall structure comprising a sheathing, covering elements overlying said sheathing, fastener-receiving perforations in said elements, and fasteners each including a shank extending through a perforation, a helical portion integrally connected to said shank and engaged within said sheathing, and a head integrally connected to said shank and including a portion substantially surrounding said perforation, said last-named portion having a free end engaged in the covering element to oppose withdrawing rotation of said fastener and means for cooperation with a fastener-installing tool.

4. A wall structure comprising a sheathing, covering elements overlying said sheathing, fastener-receiving perforations in said elements, and fasteners each including a shank extending through a perforation, a helical portion integral with said shank and engaged within said sheathing, and a head integrally connected to said shank and including a ring-like portion partially surrounding the perforation and having a free end engaged in the covering element, and an integral bar extending within said ring for cooperation with a fastener-installing tool.

5. A fastener for securing covering elements to a sheathing or the like, comprising a helical portion for engagement in the sheathing and a head integral therewith, said head including a partial ring lying in a plane at substantially right angles to the axis of said helical portion, and said head including a free end depressed from the plane of the ring, said head being constructed and arranged for the reception of an applying tool.

6. A fastener for securing covering elements to a sheathing or the like, comprising a helical portion for engagement in the sheathing and a head integral therewith, said head including a ring-like portion lying in a plane at substantially right angles to the axis of said helical portion, and said head including a free end depressed from the plane of said head, and an integral bar for cooperation with a fastener-applying tool.

7. A fastener for securing covering elements to a sheathing or the like, comprising a helical portion for engagement in the sheathing and a head integral therewith, said head including a bar extending at substantially right angles to the axis of said helical portion and a ring-like portion integrally connected to the end of said bar and substantially surrounding said bar.

8. A fastener for securing covering elements to a sheathing or the like, comprising a helical portion for engagement in the sheathing and a head integral therewith, said head including a bar extending at substantially right angles to the axis of said helical portion and a ring-like portion integrally connected to the end of said bar and substantially surrounding said bar and terminating in a depressed end portion.

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