UNITED STATES PATENT OFFICE.

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RETAINING AND REINFORCING DEVICE FOR PLASTER-BOARD AND STUCO CONSTRUCTION.

1,201,820.


To all whom it may concern:

Be it known that I, ELMENDORF J. HEDDEN, a citizen of the United States, residing at Bala, county of Montgomery, and State of Pennsylvania, have invented a new and useful Improvement in Retaining and Reinforcing Devices for Plaster-Board and Stucco Construction, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to the art of securing plaster boards or composition boards to studding and of applying plaster or stucco to such boards, and is more especially applicable to the construction of the outside walls of buildings, although applicable also to inside partition work.

In this construction the plaster boards are nailed in place upon the studding and then a coat of stucco is applied thereto. Defective work often arises from several causes. Thus, the material of which the plaster boards is formed is not such as to tightly grip the shank of the nail, as in wood-work, and thus the board tends to work loose and work out in the direction of extension of the nail. This defect is in a large measure overcome by the provision of specially constructed nails having large heads formed of convoluted wire integral with the nail; but such nails are expensive to manufacture and the head is easily broken from the shank, and moreover they cannot be driven into place as readily as the ordinary nail. Again, due to the failure of the workmen to properly wet the face of the boards, the plaster or stucco often fails to properly adhere thereto. Again, there is nothing, except the closest supervision, which is usually impracticable, to prevent the workmen from applying too thin a coat of stucco or from applying a coat of irregular thickness.

It is the object of my invention to overcome all these sources of defective, dishonest or slip-shod work.

In a patent issued to me January 25, 1916, No. 1,169,641 I have set forth and claimed a wire retaining and reinforcing device designed to be used in connection with an ordinary lath nail and intended to attain some of the objects of this invention. This patented device is not only operative, but is efficient. The device forming the subject of my present invention is, however, an improvement on the patented device, in that it has several advantages thereover. One of the objections to the patent device is the difficulty of making it at a sufficiently low cost to render its use economical in all cases. One of the objects of the present invention is to enable the device to be constructed at a substantially lower cost.

Another object of the present invention is to render the device stronger and more rigid. Another object of the present invention is to more effectively and uniformly distribute the pressure over the surface to which the device is applied.

Another object of the invention is to strengthen the key for the plaster and avoid any loose ends extending into the plaster.

Another object of the invention is to permit the device to be applied after the nail is partly driven.

A preferred embodiment of the invention is shown in the drawings, in which—

Figure 1 is a view in elevation of the device associated with a nail but before the latter has been driven home. Fig. 2 is a plan view of the same in use. Fig. 3 is a section through the wall showing the device in elevation, with the nail driven home.

The drawings show the application of the invention to a typical plaster board and stucco construction, the framework or studding being shown at a, the boards at b, and the coat of stucco at c.

For the purpose of securing the boards to the studding, I employ an ordinary eight-penny nail d. The wire retainer and reinforcing, forming the subject of my invention, may be slipped on the shank of the nail after the same has been driven into the studding and board but before it is driven home, as shown in Fig. 1.

The device comprises a single length of wire. The central portion of the wire is bent into a loop e, opening (say) downward, designed to receive the shank of the nail and to...
be confined by the nail against the face of the board. Beyond the loop e, and on each side thereof, the wire is bent upon itself to form a loop f opening in the reverse (upward) direction. The loops e and f are, preferably, in about the same plane. Beyond each loop f the wire is bent upon itself to form a loop g opening downward. The outer shank of the loop g is in a substantially higher plane than the loops e and f (as shown in Fig. 1) so that the loop g may be said to extend in a plane inclined to the general direction or extension of the device and to the plane of loops e and f. Beyond each loop g the wire is bent to form another loop h opening upward. The outer shank of loop h may be somewhat lower than the inner loop so that this loop will extend in a somewhat inclined plane. Beyond each loop h is a loop i opening downward. The outer shank of loop i is substantially below the level of the shanks of the other loops, the loop i extending in a pronouncedly inclined plane. This outer loop, is somewhat longer than the remainder of the loops.

The precise construction shown is of decided advantage and is the outcome of prolonged experiment, although the main advantages of the device may be retained without strict adherence to the preferred specific construction.

It will be noted that one of the features of the invention is that the central loop is in a plane between the two planes within which the whole device extends, and that opposite end portions (preferably the extreme ends) of the device touch the inner or lower of these two planes. When, therefore, the device is being driven into position, as shown in Fig. 1, the ends of the device just touch the surface of the board and as the nail is driven home, as shown in Fig. 2, the central part of the device is driven against the board, causing it to have a spring action, throwing the bearing to the extreme ends and distributing the pressure over a surface equal in length, to that of the device. In addition to this important advantage, it affords a specially strong key for the plaster, there being no loose or free ends of wire extending into the plaster. The central loop is preferably of uniform width; that is, its opposing shanks are parallel; or in any event the mouth of the loop should be sufficiently wide to allow the device to be applied to the nail after it has been driven into the board and studding to nearly or quite the extent shown in Fig. 1.

While the device has the peculiar advantages mentioned, it also exhibits, in a more pronounced degree, the advantages characterizing the patented device herebefore referred to. It permits the use of an ordinary nail. It prevents the board from working away from the studding. Inasmuch as most of the usual orifices for the receipt of nails are located along the margin of the board, each device applied near the margin of the board overlaps an adjacent board and thereby affords additional means for securing the latter board in place, besides maintaining flush the faces of adjacent boards. It affords reinforcement for the stucco, so that the latter will be maintained in place notwithstanding the carelessness or ignorance of the workman. An application of a coat of plaster or stucco of sufficient thickness to entirely cover or conceal the loops is absolutely necessitated, thereby insuring, without special supervision, the application of a coat of the thickness required by the specifications.

The device embodying the present invention is of a less involved contour, and its manufacture presents substantially less difficulty, than in the case of my patented device, and hence may be made and sold at a price which permits its more extensive use.

Having now fully described my invention, what I claim and desire to protect by Letters Patent is:

1. A retaining and reinforcing device for plaster board construction consisting of a length of wire comprising a central loop adapted to receive the shank of a nail and to be confined by the nail against the face of the board, end members, and connecting loops between the central loop and the end members, the opposite end portions of the device extending in a plane beneath the level of the central loop whereby when the nail is driven home and the central loop thereby forced to the level of the ends, the bearing will be thrown to the end portions and the pressure distributed.

2. A retaining and reinforcing device for plaster board construction consisting of a length of wire bent to form a series of loops opening alternately in opposite directions, the end portions of the device extending in a plane beneath the level of the central loop and a part of the wire between the central loop and the end portions extending above the level of the central loop.

3. A retaining and reinforcing device for plaster board construction consisting of a length of wire comprising a central loop, a loop on each side of and beyond and in substantially the same plane as the central loop, a third loop beyond each second loop extending in an upwardly inclined plane, a fourth loop beyond each third loop, and a fifth loop beyond each fourth loop, the latter loops extending in a substantially downward inclined plane and adjacent loops of the series opening in respectively opposite directions.

4. A retaining and reinforcing device for plaster board construction consisting of a length of wire bent to form a central loop,
an end loop and a series of connecting loops, all of said loops being so arranged that adjacent loops open in respectively opposite directions and alternate loops in the same direction, the said wire being bent between its center and each end above the level of both to afford bearings remote from and spaced from the center and to cause a part of the device to be spaced from the board to which it is applied.

In testimony of which invention, I have hereunto set my hand, at Philadelphia, on this 7th day of January, 1916.

ELMENDORF J. HEDDEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."