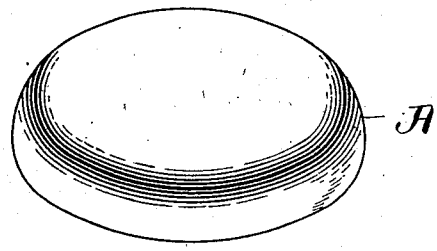
No. 718,331. PATENTED JAN. 13, 1903.

R. L. ELLERY.

FURNITURE NAIL.

APPLICATION FILED JULY 12, 1902.

NO MODEL.



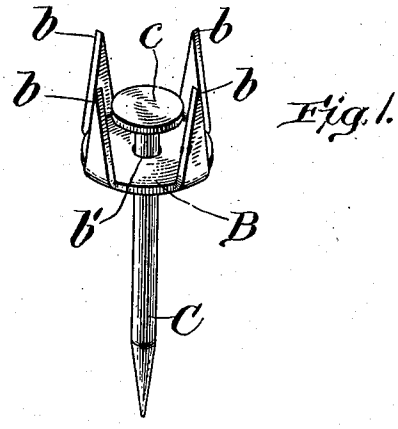




Fig. 1.

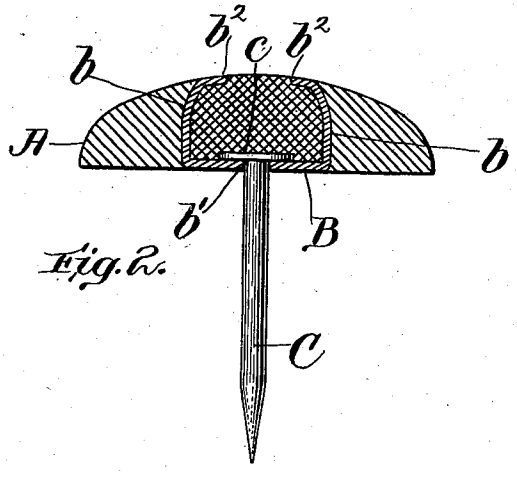



Fig. 2.

Witnesses:
Chetwin T. Randall,
Joseph T. Brennan.

Inventor:
Robert L. Ellery
by Roberts & Mitchell
Attorneys.

# UNITED STATES PATENT OFFICE.

ROBERT L. ELLERY, OF PORTSMOUTH, NEW HAMPSHIRE, ASSIGNOR TO MORLEY BUTTON MANUFACTURING COMPANY, OF SACO, MAINE, AND BOSTON, MASSACHUSETTS, A CORPORATION OF MAINE.

## FURNITURE-NAIL.

SPECIFICATION forming part of Letters Patent No. 718,331, dated January 13, 1903.

Application filed July 12, 1902. Serial No. 115,386. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT L. ELLERY, a citizen of the United States, and a resident of Portsmouth, in the county of Rockingham and State of New Hampshire, have invented new and useful Improvements in Furniture-Nails, of which the following is a specification.

My invention relates to nails; and it consists in an improved nail especially suitable for furniture or upholstery. Nails of this character have been made in large quantities and in various ways having in common a shank or spike secured to a head of solid penetrable compressible material—such as papier-mâché, leather, or leather-board—and in some instances the securement of the spike or shank to the head has been by means of clenching or upsetting prongs, which are made to enter the substance of the head and are therein deflected in one direction or the other, so that in the finished nail the clenching-prongs are embedded in the heart of the solid penetrable nail-head. Nail-heads of such solid penetrable material as I have mentioned, because of their laminated structure, are liable to be split either by the act of clenching or embedding the nail-prongs or by the strains of wear which develop the lines or planes of weakness originally determined by the entrance of the clenching-prong into the material. The prongs of the furniture nails, buttons, and similar articles, so far as the same are known to me, have been clenched in such manner as to weaken the button-head, spreading more or less at random in the material in the clenching operation.

My invention hereinbelow described preserves all the advantages of the solid-headed nails as heretofore made and used and at the same time is free from the disadvantages due to the weakening of the nail-head from the causes above mentioned. The prong-fastenings which I employ are so shaped and arranged that the act of clenching them compacts the material of the button-head and protects the penetrated portions against splitting.

In the drawings hereto annexed, Figure 1 illustrates in perspective an embodiment of my invention, showing the several parts as they are arranged to form the completed nail; and Fig. 2 shows in cross-section the completed nail and the peculiar features which characterize my invention.

A is the nail-head, composed of solid penetrable compressible material—such as pasteboard, papier-mâché, or leather-board—and is shown in Fig. 2 as having the usual plano-convex shape. The spike or shank of the nail C is in the instance herein shown a common wire nail having a head *c*. The spike C is passed through the aperture *b'* in the prong-plate B, from the edges of which the prongs *b* extend upward. In the illustration of my invention here shown the prongs *b* are of such length that if they were allowed to penetrate the button-head A without any clenching or deflecting effect they would pass entirely through the button-head and emerge on the upper side. When, however, the clenching pressure is applied in the usual manner to the nail-head and prong-plate, the member of the press which comes in contact with the top of the head A covers and presses upon the convex top, and thus reinforces with its metal surface the softer and more yielding button-head A. By reason also of the convex shape of the button-head A and the corresponding concavity of the upper member in the press in which the buttons are made the pressure of the press member is communicated to the prongs *b* as they approach the upper surface of the button-head in their passage through the material, and thus a deflecting or clenching effect is felt and responded to by the prongs *b* before they actually reach the upper surface of the button-head. When the prongs have completely traversed the thickness of the button-head and emerge therefrom on the upper side, they strike against the metallic surface of the clenching member of the press and are still further deflected and clenched flush with the upper surface of the head A. The presence of the small metallic points of the prong *b* can be detected by close scrutiny before the button is finished by being colored or japanned; but after the finish is put on the exposed ends of the prongs *b* are entirely unnoticeable. Indeed the slight resiliency of the button-head causes it to expand after the prong-setting pressure is removed, so that

the ends of the prongs are slightly drawn into the head below the surface thereof, as if countersunk. The finishing coats of paint or varnish fill the depressions over the prongs and completely conceal every trace of their presence at or near the surface of the button-head. The result of this mode of clenching the spike-prongs in the button-head will at once be appreciated. As the laminations of the leather-board or similar material of which the head A is composed are substantially parallel to the flat side of the head, the direct penetration of the material of the head by the prongs *b* does not tend in any way to disturb or separate the layers of which the button-head is composed, and the deflection or clenching of the prongs *b* being inward from the periphery of the prong-base serves to bind and compress the material of the button-head firmly rather than to separate it into splits or layers, as has heretofore been the case with buttons wherein the clenching-prongs were deflected outwardly toward the edges of the button-head or at random therein. This mode of construction can be applied to specific forms of nails which differ from the one herein shown, and the advantages of my invention may thus be secured in many styles of solid-head buttons. The specific arrangement of headed spike, prong-plate, and button-head herein shown is, however, believed to be advantageous by reason of the simplicity and strength of the parts and the ease with which they are assembled to form the complete button.

The mode of clenching the fastening-prongs inwardly and flush with the surface of the convex head is also believed to have advantages, as its tendency is to compact all that portion of the button from top to bottom which is included between the prongs and directly over the spike or shank, which communicates to the button-head the ordinary strains of wear.

What I claim, and desire to secure by Letters Patent, is—

1. In a nail, the combination of a head of solid penetrable compressible material, a spike, clenching-prongs, the said prongs extending convergently through the solid material of the head and clenched flush with the top thereof.

2. In a nail, the combination of a head of solid penetrable compressible material, a spike, clenching-prongs, the said prongs extending convergently through the solid material of the head and clenched flush with the top thereof, the central portion of the head embraced and compacted by the prongs.

Signed by me at Portsmouth, New Hampshire, this 12th day of May, 1902.

ROBERT L. ELLERY.

Witnesses:
THOMAS H. SIMES,
O. B. HUMPHREY.