June 26. 1945. J. M. GRINDE ET AL 2,379,349

ANCHOR DEVICE

Filed April 17, 1941

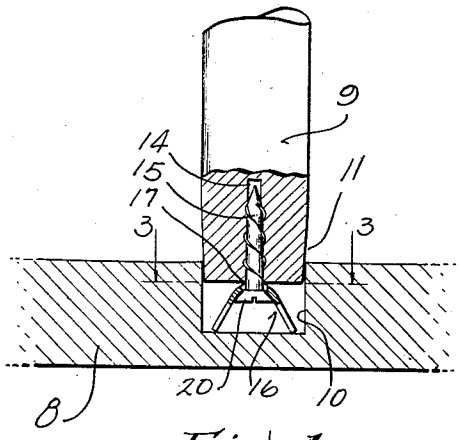


Fig. 1.

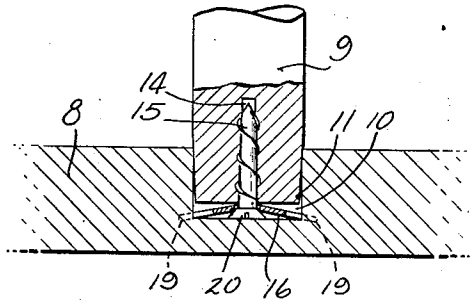


Fig. 2.

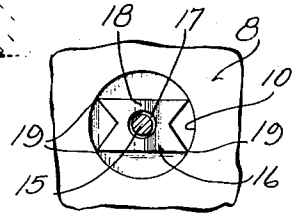


Fig. 3.



Fig. 4.

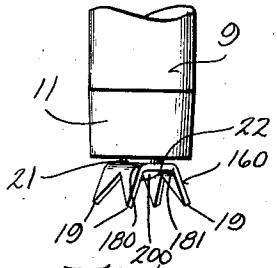


Fig. 5.

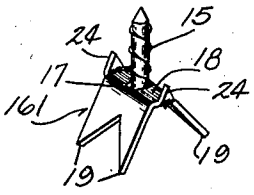


Fig. 6.

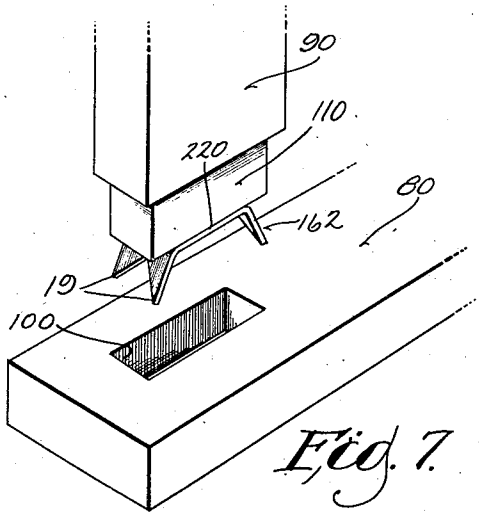


Fig. 7.

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ANCHOR DEVICE

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4 Claims. (Cl. 85—26)

This invention relates to improvements in anchor devices.

It is the primary object of the invention to provide a novel and improved anchor device which is of simplified construction and less expensive to manufacture and more effective in use than devices previously available.

More specifically, the objects of the invention include the provision of a device which can be used in hard wood or soft, and even in plastics, to anchor a tenon in a mortise or a furniture rung in a suitable bore, or other like parts, without danger of splitting; the provision of an anchor device which can be readily and inexpensively stamped from sheet metal and which is provided in its construction with prongs capable of penetrating the hardest wood or knots without splitting; the provision of an anchor which is preferably formed with but a single bend, thereby reducing manufacturing cost and also enabling the anchor to function more reliably and with less pressure than otherwise would be required; the provision of an anchor in which the connection between the anchor and the part to be held thereby is preferably made by a drive screw as distinguished from any other form of connection whereby the connection is tightened in the same operation which sets the anchor; and the provision of an anchor which, when in use, will be automatically locked against unscrewing of its retaining drive screw or other fastening means.

A further object is generally to simplify and improve the construction, arrangement and operation for one or more of the purposes mentioned, and still other objects will be apparent from the specification.

In the drawing:

Fig. 1 is a view partially in elevation but primarily in section through the furniture anchor and the parts to be joined thereby, the anchor being illustrated in position for use.

Fig. 2 is a view similar to Fig. 1 showing the anchor and associated parts after pressure has been applied to expand the anchor into its fixed position.

Fig. 3 is a view on line 3—3 of Fig. 1.

Fig. 4 is a detail end elevation of the sheet metal portion of the anchor.

Fig. 5 is a view showing a modified embodiment of the invention in side elevation.

Fig. 6 is a fragmentary detail of a preferred sheet metal part used in the anchor.

Fig. 7 is a view in perspective showing a further modified embodiment of the invention useful where mortise and tenon connection is desired.

Like parts are identified by the same reference characters throughout the several views.

The wood may comprise a furniture piece 8 and a furniture rung 9 as shown in Figs. 1, 2 and 3. A hole 10 is bored in the furniture piece 8 to receive the rung, and the end of the rung is preferably beveled at 11 in the usual way. This joint is not intended to replace the use of glue, although it will hold fast without glue where necessary. It greatly strengthens a glued joint and eliminates any necessity of using clamps to hold the parts engaged while the glue sets.

The furniture rung 9 is preferably provided with a drilled pilot bore 14 into which the drive screw 15 is hammered or pressed. The drive screw passes through the sheet metal part 16 of the anchor which has an aperture 17 sufficiently large to receive the drive screw and is of a U-shaped or V-shaped form in side elevation, having a single bend 18 on a transverse line through the aperture 17.

The two ends of the sheet metal strip 16 are notched or bifurcated to provide the points or prongs 19 best shown in Figs. 1, 3 and 4.

As initially applied, the head 20 of the screw engages the inner faces of the sheet metal strip 16 at either side of the bend 18 as best shown in Fig. 1, the shank of the screw being loose in hole 17 as clearly illustrated in that view.

The size of the sheet metal anchor 16 is so chosen with reference to the bore of the hole 10 that the points or apices 19 will best fit within the bore in the manner shown in Fig. 3.

When the parts are now subjected to a squeezing or driving pressure axially of the drive screw 15, they will move to the relative positions shown in Fig. 2. The pressure of the rung 9 upon the bend 18 in the sheet metal portion 16 of the anchor will flatten such sheet metal portion, forcing the points 19 into the wood. The claws or points will readily penetrate the wood, even the hardest wood, without splitting, and it is not necessary to sharpen them except as they may be left sharp by the stamping operation. They will operate successfully where a chisel point would not.

In addition to the spreading of the claws, the drive screw 15 will be forced further into the rung 9 beyond the end of pilot bore 14 due to the pressure provided by encounter of the head 20 of the screw with the end of the bore 10 in the work piece 8. The head 20 will now tightly fit into the aperture 17 in the sheet metal portion 16 of the

anchor, being permitted to move into such aperture by the spreading of the sides of the sheet metal portion with which the head was originally engaged, as shown in Fig. 1.

In repair work it may be found that the hole 10 is too deep to permit of this operation exactly as described above. In any such case it is possible to insert one or more washers at 21 between the work piece 9 and the sheet metal device 160. The sheet metal portion of the anchor 160 corresponds to that shown at 16 in Figs. 1 to 4 except that instead of being provided with a single bend it may have spaced bends at 180 and 181 between which it is provided with a flat portion at 22 to engage washer 21 with a firm seat. The drive screw preferably corresponds to that shown in Figs. 1, 2 and 3 except that in the Fig. 5 construction it may have a flat-shouldered head 200 instead of a tapered head shown at 20 in Fig. 1 and Fig. 2.

Should no glue be used or, should the glue become loosened, it might be possible to unscrew the joint made with the device specifically illustrated in Figs. 1 to 4. To preclude any such possibility I may provide an alternative sheet metal construction shown at 161 in Fig. 6. While it would operate equally well using the double bend form shown in Fig. 5, I prefer to use a sheet metal part having a single bend at 18 as illustrated in Fig. 1 and Fig. 4. At each end of the bend 18 the sheet metal part is provided with a prong 24 projecting oppositely to prongs 19, thereby being adapted to engage the work piece 9 while prongs 19 become embedded in the work piece 8. Thus relative turning movement between the work pieces is prevented and it is consequently impossible to turn the rung 9 in such a way as to unscrew it from the drive screw 15 used with any such device. While any type of screw or nail may be used, it will be understood that there are advantages in employing a driveable mounting device such as the drive screw 15, and accordingly in practice the anchor device shown in Fig. 6 will ordinarily be understood to be provided with such a drive screw.

The advantages of the driveable mounting device, particularly in an anchorage strip with a single fold, are:

1. The head of the drive member will initially seat between the prongs to hold the anchorage device securely and correctly positioned during driving and will then move to a new seat.

2. A screw or the like fully seated in advance tends to be loosened by the bending of the anchorage device, whereas the movement of the drive member to a new seat assures tightness.

3. A screw or the like driven in advance tends to split the rung whereas the present device does not penetrate deeply until the rung is supported in the socket.

4. The fact that the drive screw is set or driven home simultaneously with the expansion of the anchor, and by the same means, saves an extra operation.

The device shown in Fig. 7 is used to connect the tenon 110 of work piece 90 with the mortise 100 of work piece 80. The sheet metal member 162 is preferably identical with that shown in Fig. 5 except that its flat portion 220 is elongated and may be held by one or more drive screws or other fastening means to the tenon 110. Despite the fact that the mortise 100 is rectangular in plan, its relation to the prongs 19 and the operation of the device upon assembly is identical with that above described.

We claim:

1. The combination with a drive screw, of a metal anchor device comprising a metallic strip centrally apertured, the drive screw extending through the aperture, said strip being folded upon a transverse line through the aperture and thereby provided with end portions diverging across the head of the screw in engagement with the screw head and holding such head free of seating engagement with the centrally apertured portion of said strip, the ends of said strip having terminal prongs.

2. A device for anchoring a furniture rung in a socketed member, said device comprising the combination with a drive screw headed for engagement with said member at the bottom of the socket in said member, of a sheet metal strap having a central aperture in which the screw is positioned, the length of the strap being greater than the diameter of the socket in which the anchor is receivable, said strap being bent upon a transverse line through the aperture sufficiently to bring its end portions within the diameter of the socket, said end portions diverging across the head of the screw and being provided with terminal prongs, the head of the screw being spaced from seating engagement in the aperture of the strap and engaged between the divergent end portions of the strap whereby said screw head is movable under pressure of said member at the bottom of the socket to a new seat in the aperture of said strap at the same time that said prongs are expanded into the sides of the socketed member by the flattening of said strap.

3. A device for anchoring a furniture rung in a socketed member said device comprising a sheet metal strip of bendable material having a central aperture and a transverse fold through said aperture, and end portions divergent at opposite sides of the aperture and having terminal notches providing margins divergent toward the opposite sides of the strip at its respective ends and terminating at such sides in sharp pointed prongs, and a headed fastener in said aperture adapted to secure said strip centrally to a furniture rung, the bending of said strip adapting the strip to be received into a socket of less transverse width than the length of the strip when flattened, whereby the pressure engagement of the furniture rung with the strip will not only engage the fastener with the rung but will flatten the strip and engage its pronged ends laterally in the associated member at the base of the socket.

4. The device of claim 3 in which the fastening deivice comprises a drive screw having a high-pitched threaded shank portion loosely received in the aperture, and a head positioned between the divergent ends of the strip and engaged therewith to securely position the strip on the rung prior to insertion into said member.

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