

J. H. BELL.
 REINFORCING OR STAY BOLT FOR TOOL HANDLES.
 APPLICATION FILED MAY 14, 1919.

1,374,713.

Patented Apr. 12, 1921.

FIG. I.

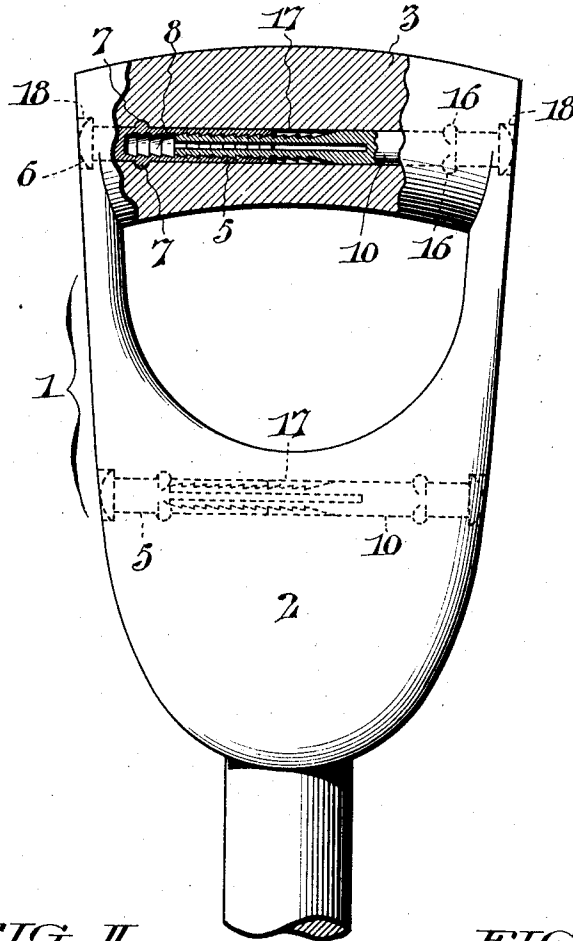


FIG. II.

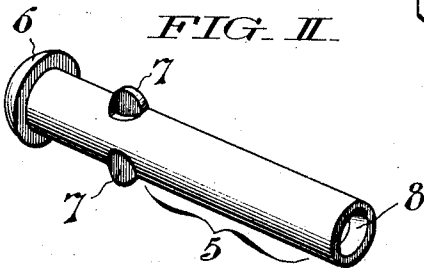
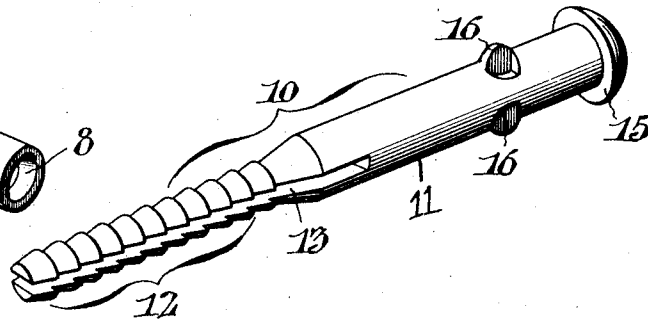


FIG. III.



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REINFORCING OR STAY BOLT FOR TOOL-HANDLES.

1,374,713.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JAMES-H. BELL, a citizen of the United States, residing in the city and county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Reinforcing or Stay Bolts for Tool-Handles, whereof the following is a specification, reference being had to the accompanying drawings.

The invention relates to bolts such as are more particularly useful in reinforcing wooden shovel handles or similar structures.

Such handles are ordinarily manufactured from a single piece and so carved as to afford appropriate hand grips. In order to reinforce the handles against splitting under rough usage, it is customary to provide them, at one or more regions, with transverse stay bolts initially headed at one end, and subsequently riveted over at the other, after insertion. While the assemblage thus completed is very satisfactory initially, after a time however, the bolt ends invariably begin to protrude by reason of the shrinkage of the wood. In attempting to remedy this defect, hammering of the bolt ends is generally resorted to, which, instead of restoring the security of the bolt, results in lateral flexure of the same, and in turn causes the splitting of the handle.

The purpose of the present invention is to obviate the difficulties above pointed out; and to this end comprises a composite reinforcing stay bolt consisting of a socketed member, and a shanked member which is adapted to be inserted into said socketed member; and coöperative means whereby said members may be permanently interlocked against subsequent separation, said means, however, permitting relative axial adjustment of the members in the opposite direction to compensate for shrinkage of the structure with which the bolt is associated, and maintaining the positive interlock notwithstanding such adjustment.

In the drawings, Figure I, is an elevation of a shovel handle stayed by reinforcing bolts conveniently embodying my invention; the grip portion of the handle being illustrated partially in section so as to more clearly show the structure.

Figs. II and III, respectively, are per-

spective views, on an enlarged scale, of the two component members of my improved reinforcing bolt.

The shovel handle 1, is of the usual configuration and is reinforced, according to approved practice, at two regions,—one bolt extending through the main portion 2, of the handle, and the other, extending longitudinally through the rounded grip portion 3.

As herein illustrated, each of the reinforcing bolts comprises two component parts or members which are best shown in Figs. II and III, and respectively indicated comprehensively, by the numerals 5 and 10. Member 5, is for the greater part, tubular in form (see Fig. I) and provided at one end with a head 6, preferably of a semi-spherical configuration. At a point spaced somewhat from the head, the member 5, may be provided with a number of anchorage projections or lugs 7. These lugs are, in the present instance, set up by punching and preferably disposed radially as shown. The inner surface of the tubular portion of the member, which constitutes what may be conveniently termed a socket, is serrated internally as indicated at 8, the serrations having a saw-tooth profile, with the inclined surfaces sloping inwardly as shown.

The coöperative bolt member 10, consists of a shank 11, having a normal diameter corresponding to that of the tubular portion of the member 5, and terminating at one end in a reduced prolongation 12. This prolongation is externally serrated in complementary relation to the socket of the member 5, and split longitudinally as at 13, for a purpose which will be presently explained. The opposite end of member 10, is in turn, provided with a head 15, corresponding in size, and form, to that of the member 5, and may also be formed with anchorage projections or lugs 16, set up in a manner similar to that previously described. It will be seen that when the shank member 10 is inserted in the socket member 5, the two members will be positively interlocked effectively in divers endwise relations as the shank member 10 is inserted farther and farther into the socket member 5,—such insertion being permitted by the relative resiliency of the split shank portions,—and

that the interlock is equally effective in all angular relations of said members 5 and 10 about their common axis.

In the manufacture of the shovel handle, the latter is first bored at the locations where reinforcement is desired, the holes being represented at 17, 17, in Fig. I, of the drawings. The terminal ends of the holes are counterbored as at 18, 18, to accommodate and partially conceal the heads 6, and 15, when the bolt is finally placed in position in the handle. In assembling, the bolt sections are introduced, free ends foremost, into the prepared receiving holes, the reduced serrated split prolongation 12, of member 10, finding its way into the cooperative receiving socket in the member 5. It will be noted, that in the course of this procedure, the cooperative serrations of the two parts, by virtue of their complementary inclination, ride readily over each other, the split end 13, of the member 10, yielding readily in cooperation. After such initial assembly, the bolt sections are finally forcibly driven home as shown in Fig. I, the projections 7, 7, and 16, 16, embedding themselves firmly in the wood of the handle, and the heads 6 and 15, finding their seats in the counter-bored ends 18, 18, of the receiving hole 17. By reason of the peculiar construction herein set forth, it will be noted that after the bolt members are once assembled within the handle they are positively proof against subsequent separation, in all angular relations about their common axis, and regardless of any relative turning about it. The members 5 and 10, are however free to move axially farther toward each other to effect automatically a readjustment of the interlock in the event of shrinkage in the wood of the handle, since the outer or headed ends of the bolt members are firmly anchored wherefore the interengaging ends of the members are obliged to shift relatively in compensating for the contraction. Notwithstanding readjustment as above noted, the rigid interlock against subsequent separation of the bolt sections will be positively maintained.

In certain instances, it may be preferable

to employ the bolt without the anchorage projections. In the event of shrinkage in such cases, the readjustment of the interlock may be effected in forcing the bolt sections farther toward each other by hammering or otherwise to prevent the protrusion of the bolt heads.

While I have more particularly shown and described my invention in association with a shovel handle, it is to be understood that I do not wish to be thus limited, since it may be employed to equal advantage for analogous purposes in other similar structures.

Having thus described my invention, I claim:

1. A composite reinforcing or stay-bolt for tool handles comprising a socket member and a shank member adapted to be inserted therein; said members having cooperative interlocking means effective to positively interlock the shaft member in the socket member against separation in divers endwise relations of said members and in all angular relations of said members about their common axis, but capable of yielding to permit relative shifting of said members to effect readjustment of the interlock when shrinkage of the tool handle occurs.

2. A composite reinforcing or stay-bolt for tool handles comprising a socket member and a shank member adapted to be inserted therein; said members having cooperative means for automatically interlocking the shaft member in the socket member in divers endwise relations capable of yielding to permit relative shifting of said members to effect readjustment of the interlock when shrinkage of the tool handle occurs; and said members also having means for anchoring them in the tool handle so as to bring about such readjustment automatically.

In witness whereof, I have hereunto signed my name at Philadelphia, Pennsylvania, this 13th day of May, 1919.

JAMES H. BELL.

Witnesses:

JOHN C. BERGNER,
E. L. FULLERTON.