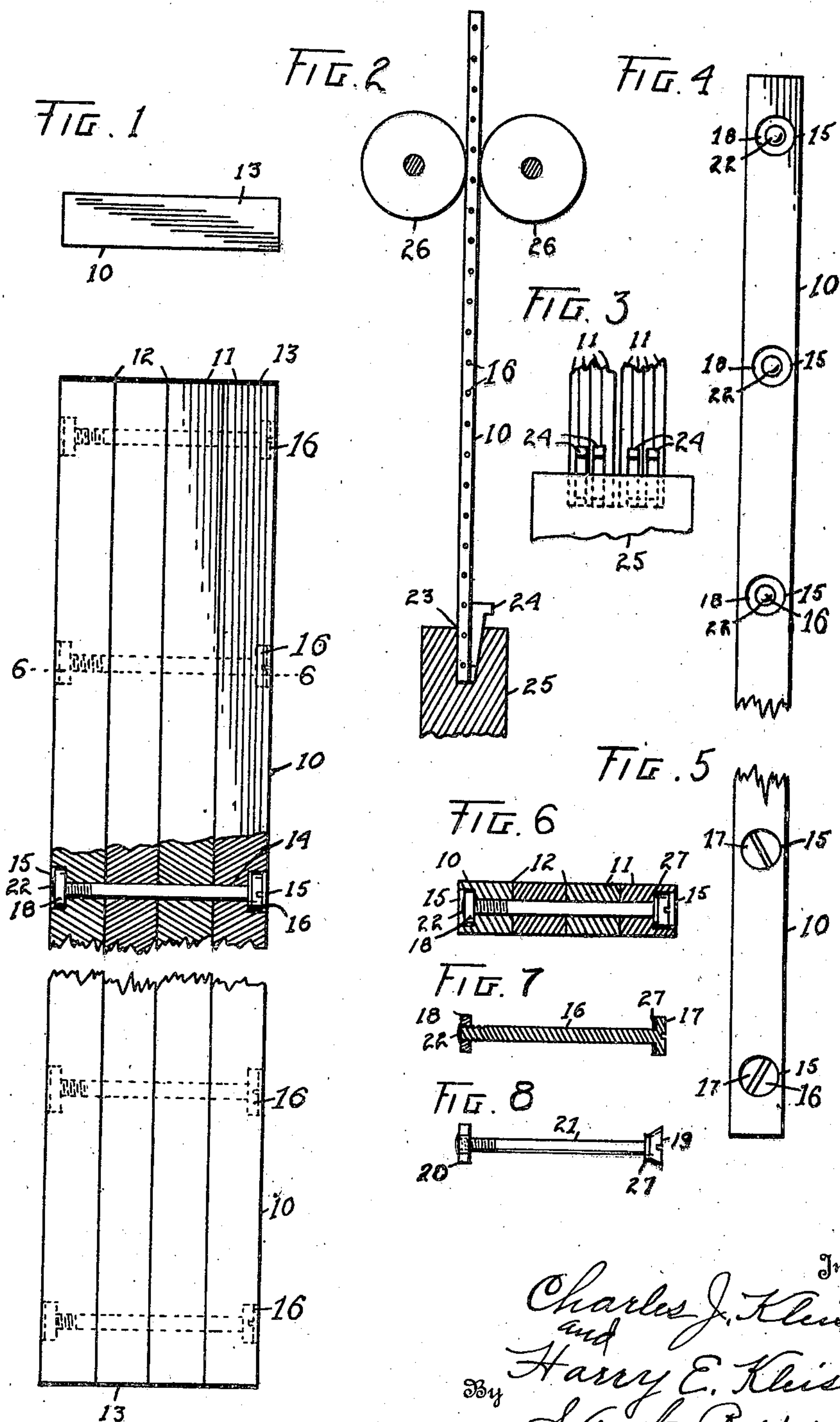


Jan. 2, 1923.

C. J. KLEIST ET AL.  
DROP HAMMER BOARD.  
FILED NOV. 4, 1921.

1,440,608.



Inventor  
Charles J. Kleist  
and  
Harry E. Kleist  
By  
S. Arthur Baldwin, Attorney



Patented Jan. 2, 1923.

1,440,608

# UNITED STATES PATENT OFFICE.

CHARLES J. KLEIST AND HARRY E. KLEIST, OF JAMESTOWN, NEW YORK.

## DROP-HAMMER BOARD.

Application filed November 4, 1921. Serial No. 512,958.

*To all whom it may concern:*

Be it known that we, CHARLES J. KLEIST and HARRY E. KLEIST, citizens of the United States, residing at the city of Jamestown, in the county of Chautauqua and State of New York, have invented certain new and useful Improvements in Drop-Hammer Boards, of which the following, taken in connection with the accompanying drawings, is a specification.

The invention relates to lifting boards for drop hammers or rams; and the improvement consists in providing a strong and durable board so constructed that it will not lose its resilience, or be easily checked, split, sprung or warped, thereby providing a strong element of safety for the operator, since the board cannot split, that is, have portions thereof split off and fly, thereby endangering the lives and persons of the operators of the drop hammer, and at the same time greatly prolonging the life of the hammer board.

These objects are attained by providing selected strips of quarter sawn hard wood, preferably hard maple, which are attached to one another by glued joints, the ends being also covered with an adhesive which prevents checking, said strips being held firmly together by means of spaced headed bolts or rivets, as further shown and described in this specification and drawings and pointed out in claim.

In the drawings, Figure 1 is an end and plan view of the hammer board showing the preferred construction of the same, said board being broken away at one of the crosswise holding bolts or rivets to show the preferred construction and arrangement of the same. Fig. 2 is an edgewise elevation of the hammer board attached to the hammer at its lower end and extending up through the frictional lifting rolls; and Fig. 3 is a side elevation of the attachment to the hammer. Fig. 4 is an elevation of a portion of one edge, and Fig. 5 of a portion of the other edge of the hammer board, showing the spaced screw bolts with the riveted nuts thereon preferably of the round construction so as not to weaken the wood of the hammer board more than is necessary, the head of the nut being countersunk sufficiently to permit the smooth running of the board. Fig. 6 is a sectional view at line 6-6 in Fig. 1, showing an elevation of the crosswise bolt in position with countersunk

end portions; and Fig. 7 is a sectional view of the preferred form of bolt. Fig. 8 is a side elevation of a form of bolt which may be used without departing from our invention.

Like characters of reference refer to corresponding parts in the several views.

The numeral 10 designates the hammer board which is made from strips 11 of quarter sawn stock, a sufficient number of strips being used to provide the required width and length from as straight grained stock as possible.

The width and length of drop hammer boards vary according to the weight of the hammer or ram. They are usually proportioned about one and one-fourth to two inches in thickness by three to nine inches in width and from six to ten feet in length. The strips must be made from air seasoned or dried stock since the heating of the stock in dry kilns seems to kill the resilience of the wood. The best wood is hard maple, and the boards preferably have from three to eight strips according to the grade of the stock.

The lengthwise joints 12 are preferably true and straight, and the strips so selected as to keep the board straight and true under the blows of the heavy hammer as it drops. The lengthwise joints 12 are glued, the hammer boards being placed in the gluing clamps for that purpose. The ends 13 are also covered with glue or other tough and strong adhesive which prevents checking and splintering of said ends under the heavy shock strain of the blows of the hammer.

The board 10, after gluing the strips, has the crosswise holes 14 bored therethrough at spaced distances, the holes 14 near the ends 13 being a sufficient distance therefrom to prevent the blows of the hammer breaking into said end holes. Each of the ends of the holes 14 is countersunk as shown at 15 to receive therein the head 17 and washer 27 on one side and nut 18 on the other end of the screw bolt 16, which bolts fit closely in the holes 14. The series of bolts clamp and hold the strips against splitting or separating. This form of screw bolt is preferred since it holds strongly upon the wood of the hammer board with a minimum weakening of said board. The beveled countersunk head 19 and hexagonal nut 20 in the modification 21 of the bolt 16 may



be used, though the round holding head 17 and nut 18 are usually preferred.

After the bolts 16 are turned as tightly as possible into the nuts 18 to clamp the 5 wooden strips, the ends of the bolts 16 are headed or riveted as shown at 22 onto the nuts 18, thereby ensuring that the blows of the hammer 25 will not shiver or split the hammer board or start the nuts 18. A rivet 10 might be used in place of the bolt 16. The bolt is preferred, however. The glue or adhesive covering for the ends of the board assists in preventing this non-splitting of the end of the board. Both ends are so 15 covered so that the board is reversible. This will be appreciated when it is understood that the board 10 is held in the mortise 23 by the wedges 24 in the hammer 25 so that when the grip of the lifting rollers 26 20 is released and the hammer 25 drops, the impact of the hammer blow brings a strong crushing strain upon the entire board and particularly upon its lower end.

The common single-piece board as here- 25 tofore made, usually lasts from five to nine days under this shivering strain, whereas the boards made according to our improved construction, last from four to six weeks, thereby not only providing a strong factor

of safety for the operator of the drop ham- 30 mer, but also proving far more economical, though the cost of manufacture is increased somewhat over the board as formerly made. The longer life of the improved boards is also a great economy, since it takes about 35 two hours to change boards when one gives out, causing the loss of two high-priced operatives and the use of the costly machine for that length of time.

What is claimed as new is:

A drop hammer board comprising a plu- 40 rality of wooden strips attached to one another by glued joints, the ends of said hammer board covered by a strong adhesive to prevent checking, spaced bolts placed 45 crosswise through said strips to hold the same against splitting, said bolts having countersunk heads and nuts and riveted bolt ends on said nuts to rigidly hold said 50 wooden strips.

In testimony whereof we have affixed our signatures in the presence of two witnesses.

CHARLES J. KLEIST.  
HARRY E. KLEIST.

Witnesses:

CORINNE V. SWANSON,  
THEO. THOMAS HAAG.