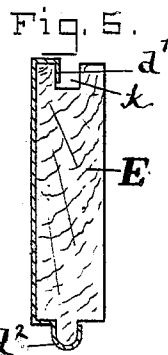
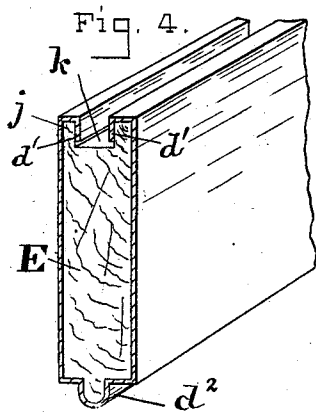
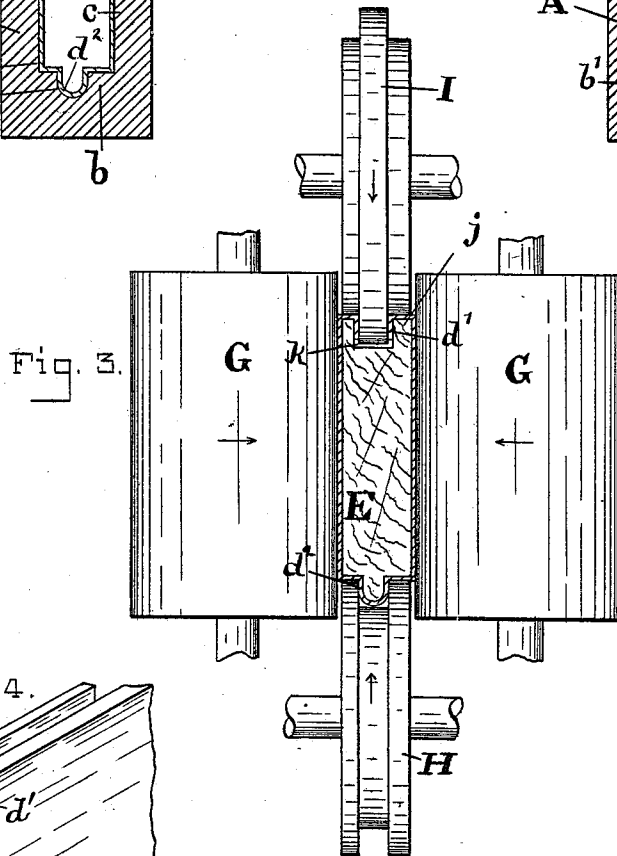
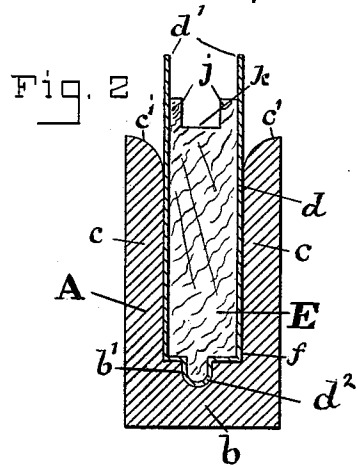
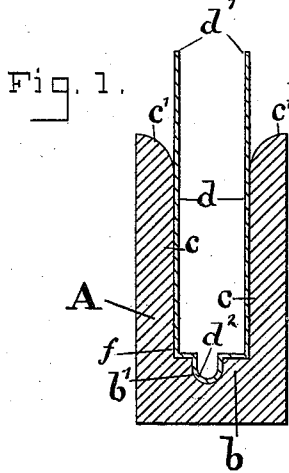


(No Model.)

C. D. KUBACH.
METAL PLATED LUMBER.

No. 514,233.

Patented Feb. 6, 1894.



WITNESSES:

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CHARLES D. KUBACH, OF BALTIMORE, MARYLAND.

METAL-PLATED LUMBER.

SPECIFICATION forming part of Letters Patent No. 514,233, dated February 6, 1894.

Application filed September 27, 1893. Serial No. 486,598. (No model.)

To all whom it may concern:

Be it known that I, CHARLES D. KUBACH, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Metal-Plated Lumber, of which the following is a specification.

My invention relates to metal-plated lumber for building purposes such as planks, joists, flooring, wainscoting, partitions, &c.

The object of the invention is to tightly envelop finished lumber with sheet-metal in a special manner so as to make it fire-proof.

By my invention the wood is compressed and the sheet-metal is wrapped or enveloped about it tightly while compressed, so that when relieved of pressure the wood will have the sheet-metal around it skin-tight.

The invention will be made clear by the specification taken in connection with the accompanying drawings, in which latter—

Figure 1 is a cross-section of a metal die and a piece of sheet-metal to be used for plating, partly formed in the die. Fig. 2 is a similar view to Fig. 1 of the die and sheet-metal, and also shows a board forced down edgewise into the sheet-metal while the latter is in the die. Fig. 3 illustrates the method by which the board, with the sheet-metal partly about it as in Fig. 2, is subjected to further compression, and shows how, while the board is under compression, the sheet-metal is finally closed about the board and fastened. Fig. 4 is a view of the finished sheet-metal plated board. Fig. 5 is a view of a plank or joist plated, and shows a modification in the manner of fastening the sheet-metal.

The letter, A, designates a metal die having a bottom, *b*, and two side-walls, *c*, thus forming a groove or space between the sides. The inner edge of each wall is beveled or rounded, as at, *c'*, to facilitate the entrance of the sheet-metal to the groove. The inner surfaces of the two walls are not quite parallel with each other, but are a little inclined so that the width of the die-groove between the two side-walls adjacent to the bottom, is more contracted or narrower, as at, *f*, than at the entrance just below the rounded edges, *c'*. In the present instance the bottom, *b*, of

the die on its inner surface has a small longitudinal groove, *b'*, for a purpose to be explained hereinafter.

The cover which I employ to envelop the lumber, as shown in Fig. 4, is a single piece of sheet-metal which covers the two opposite sides and also the opposite edges of the board or other piece of lumber and fits it skin-tight by reason of the compression to which the board is subjected during the operation of applying the cover.

The blank of sheet-metal which is to constitute the plating or envelope, is forced down into the die and shaped thereby, as follows: Said metal blank is placed flat over the top of the two walls, *c*, and a metal plunger (not shown) of shape to correspond with and fit into the die-groove, comes down onto the flat metal blank and forces it into the die-groove and also into the small groove, *b'*, and gives it the shape shown in Fig. 1, where the two sides are designated, *d*, the edges, *d'*, and the tongue, *d''*. The plunger referred to is withdrawn leaving the partly-formed sheet-metal envelope remaining in the die, as in Fig. 1. The board, E, which, in the present instance, has been tongued - and - grooved, is then pressed edgewise down into the partly-formed envelope, as in Fig. 2, and in this operation the lowermost edges of the board are compressed by the narrowed or contracted part, *f*, of the inclined surfaces of the two walls of the die-groove. This edge of the board, therefore, is reduced slightly in thickness. It will be seen that by this method the sheet-metal blank has first imparted to it a portion of the shape or configuration which exactly corresponds to a portion of the piece of lumber over which it is to fit, and after this has been done the piece of lumber is forced or pressed into this shape or configuration, and thereby all injury to the sharp edges or other protuberances of the lumber is avoided. The board, and the partly-formed envelope about it, are then together removed from the die and subjected to further compression, and at the same time the two edges, *d'*, of the sheet-metal are closed and fastened. This may be done by any suitable means or machinery. Fig. 3 illustrates or indicates mechanism for this purpose. The broad

sides of the board and the sheet-metal about it, as it comes from the die, see Fig. 2, are further compressed by and between two vertical rollers, G; a lower roller, H, or any suitable support, bears on the tongued edge, d^2 , of the sheet-metal, while a suitable roller or rollers, I, successively turn the two sheet-metal edges, d' , toward each other; fold each of said edges over one of the edges, j , of the grooved board; and finally fasten the sheet-metal edges to the board by bending them down and forming a hook which takes in the groove, k , of the board, as seen in Figs. 3 and 4. It will thus be seen that my method contemplates that the lumber shall be subjected to compression during the various stages of operation of applying the sheet-metal cover.

Fig. 3 shows only one roller, I, but several rollers may be employed in series—one after the other—each roller having its circumference or rim provided with a shape adapted to treat or act on the sheet-metal edges so as to bend them or form them by gradation, until finally they are fastened as shown.

The plated board shown in Fig. 4 has the wood compressed and the metal skin-tight about it. This board represents a tongued-and-grooved piece such as may be used for flooring, wainscoting, partitions and other purposes. The tongue, d^3 , of one board enters the groove, k , of another board and thereby the hook-shaped sheet-metal edges are confined.

It is obvious that where the wood that is covered has an irregular shape, such as a molding or rail, the rollers to compress and fasten the sheet-metal must have a corresponding shape.

Fig. 5 shows how the sheet-metal may be confined on lumber not tongued and grooved; in this case a plank or joist may have a groove, k' , and the sheet-metal edges hooked into the groove and confined by a strip, l , forced into the groove. In some cases the sheet-metal edges may be confined by nails or tacks, but in all cases the wood is compressed and the sheet-metal put on skin-tight and secured while under compression.

The wood may be separately subjected to compression preliminary to the operation of applying the sheet-metal cover. During the various stages of applying the sheet-metal cover, however, the lumber will be further

compressed simultaneously with the application thereto of the sheet-metal cover.

The wood or the sheet-metal, or both, may be coated with a suitable preservative or non-corrosive material so as to preserve the wood and also prevent oxidation or corrosion of the metal. I may also interpose between the wood and the metal some suitable material which is a non-conductor of heat, such as asbestos paper. I may also interpose between the wood and the metal some material which will cause the two to adhere or stick together.

This lumber may be any material used as a substitute for wood, that is, any artificial or manufactured lumber.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The method of covering or enveloping lumber with sheet-metal consisting of compressing the piece of lumber and simultaneously wrapping the sheet-metal tightly about the piece of lumber during the operations of compression and securing the edges of the sheet-metal.

2. The method of covering or enveloping lumber with sheet-metal, consisting of first imparting to the sheet-metal a shape or configuration corresponding to a portion of the piece of lumber over which it is to fit; second, forcing and compressing the piece of lumber into the sheet-metal cover so that the correspondingly-shaped portions of the sheet-metal cover and piece of lumber shall be in coincidence; then further compressing both the lumber and the sheet-metal during the final operations of applying the sheet-metal, and securing the edges of the sheet-metal.

3. As an article, lumber for building purposes, such as boards, joists, flooring, &c., comprising the piece of lumber having a groove and a single piece of sheet-metal covering and enveloping the piece of lumber on the two opposite sides and the opposite edges, and the two edges of the sheet-metal formed with hooks both of which take into the said groove where they are fastened.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

CHAS. D. KUBACH.

Witnesses:

L. ISMY VAN HORN,
CHARLES B. MANN, Jr.