A. C. TWINING.

MODE OF UNITING TIMBERS.

No. 36,812. Patented Oct. 28, 1862.

Fig. 1.

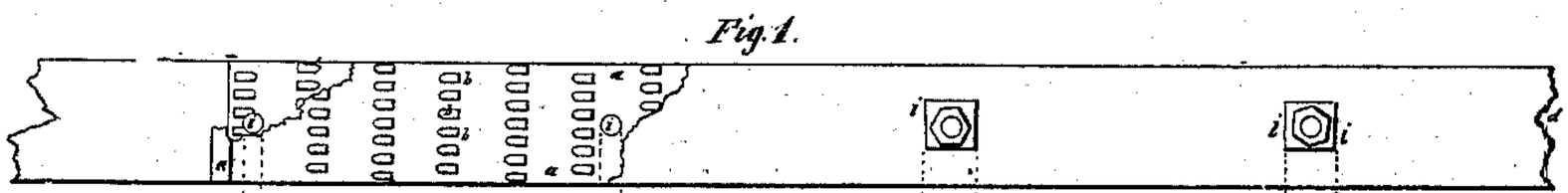


Fig. 2.

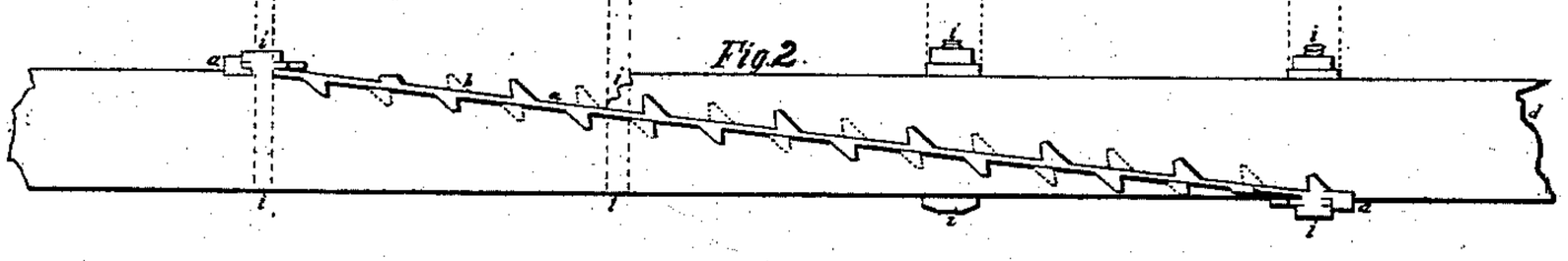


Fig 3

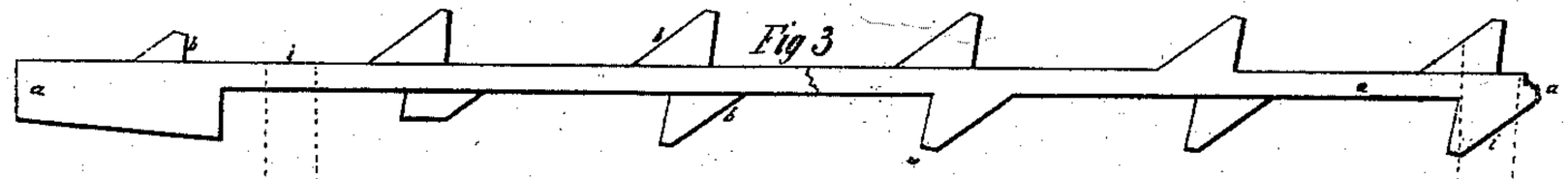
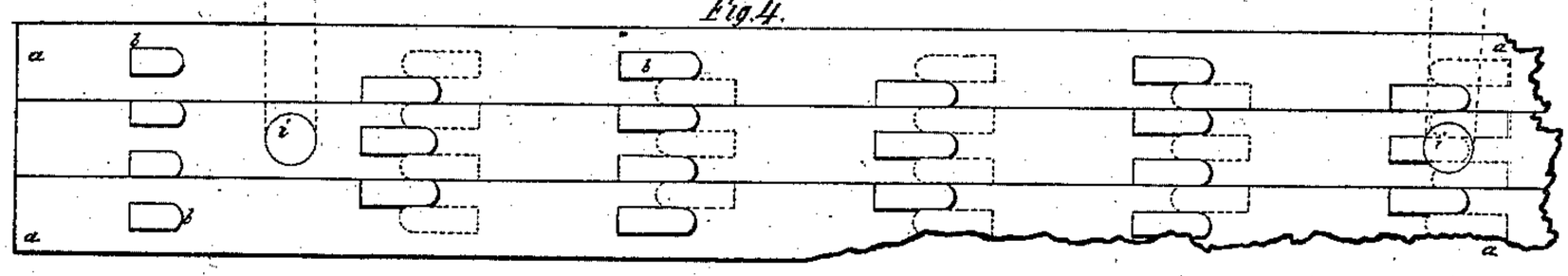
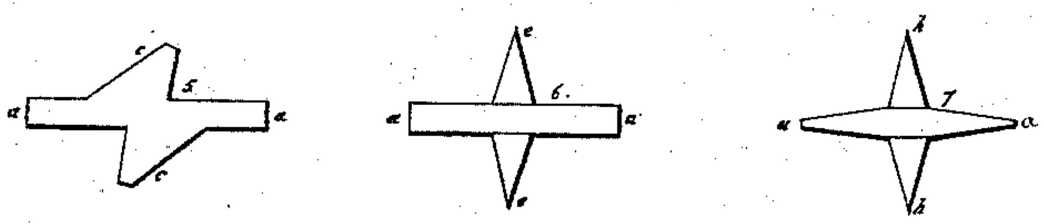
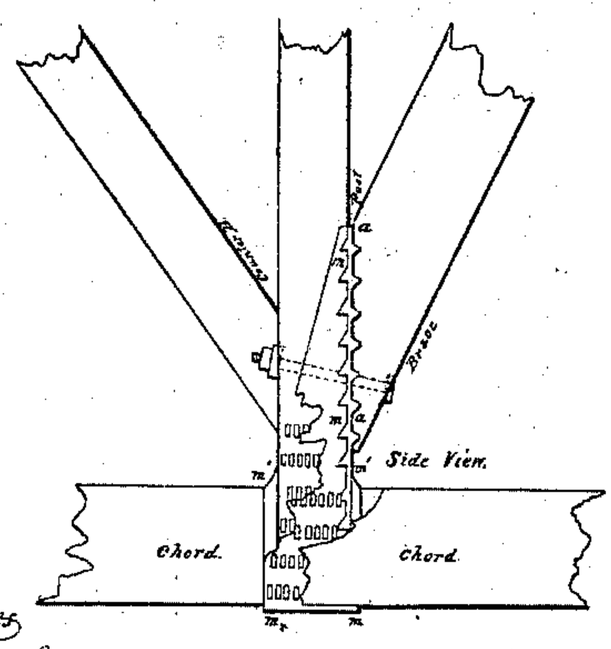
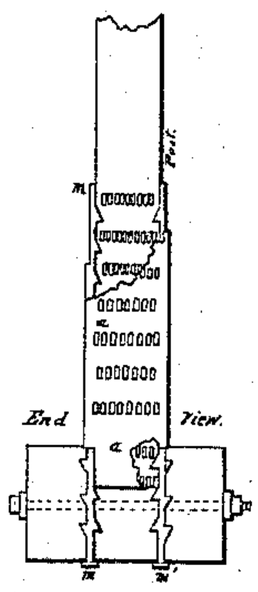


Fig. 4.









Witnesses
Geo. L. Sands
Herman Winter

Inventor.
Alex. C. Twining

UNITED STATES PATENT OFFICE.

ALEXANDER C. TWINING, OF NEW HAVEN, CONNECTICUT.

IMPROVED MODE OF UNITING TIMBERS.

Specification forming part of Letters Patent No. **36,812,** dated October 28, 1862.

To all whom it may concern:

Be it known that I, ALEXANDER C. TWINING, of New Haven, Connecticut, have invented an Improved Mode of Uniting Timbers, of which the following is a specification.

Instead of tuscums extending entirely across the plates, as proposed by S. M. Ling, I break them into rows of separate knobs; and, instead of slots across the timber for the ribs or tuscums to enter, I fit separate holes for the knobs, so that each must tear out a block of solid timber before there can be a separation.

I cast or roll a strip or strips, or a plate of metal, (see *a a*, Figures 3 and 4 of the accompanying drawings,) with knobs of any suitable shape, cylinders, prisms, pyramids, &c., as *b b*, &c., which plates and knobs are shown in the Figs. 3 and 4, thick enough, probably, and of sufficient projecting dimensions for uniting the largest timbers. The plate is drawn flat, but may be curved or bent. For scarfing timbers the two parts would first be beveled when they come together, as seen in a diminished scale of drawings in Figs. 1 and 2. When *d d*, &c., are the pieces to be united and the plates and knobs are lettered, as in the before-mentioned Figs. 3 and 4, the small bolts *i i*, *i i*, with their nuts and washers, are simply intended to clamp the beveled parts that embrace the plate and its projections or knobs. The strip or plate by itself I denominate a "knob-plate;" but the plate, together with its knobs, I call simply a "knob." If the front of the knob is hooked, as in Figs. 2 and 3, so that from base to point the front inclines forward of the plane-section square across the timber, or at right angles to the axis of the scarfed compound piece, there will obviously be a draw co-operating with the bolts. Where knobs are employed on opposite surfaces, I lap the opposite bases, or lines of base, as in the drawings, past one another about half the basis length, to strengthen that part of the plate on which the strain is greatest. The laterally-alternating position of the knobs in the successive pairs or rows in relation to one another will ordinarily be expedient. If the knobs are sharp-pointed, as in Figs. 6 and 7, they may force their own way into wood.

The two figures marked "side view" and "end view" at the bottom of the sheet show different applications of the knob.

For the advantage of working the slots with the grain of the timber, the knobs may be made to stand lengthwise in the faces touching the chords no less than on the faces touching the posts, although those two directions are square across one another.

The knob, it is obvious, derives its great advantage over Ling's ribs or tuscums from the fact that the blocks or strips against which the fronts of the knobs press cannot slip except by overcoming adhesion at their sides as well as along their bases. It has been found that sound white pine beveled and scarfed as above, and without increase of either breadth or thickness, breaks in every fiber of the solid wood before the splice will part.

In case the building material is iron, the pieces to be united may have the knobs cast on the surface of one piece and the slots in the corresponding surface of the other. In this case the pieces themselves become the knob or plates to keep the knobs from rolling.

I do not claim the construction and employment of a bearing or strip of cast-iron furnished with lugs or tuscums which are let into corresponding notches; but

I claim—

The construction and employment of such iron bearings or strips when formed or furnished with teeth or knobs standing apart and in rows, substantially as and for the purpose described, also the hooked front of the rows or knobs for giving a draw, as above described, also the construction and employment of rolled-iron strips with teeth or knobs, substantially as above.

New Haven, Connecticut, September 22, 1860.

ALEX. C. TWINING.

Witnesses:

CHAS. A. WHITNEY,

EDMD. P. ROGERS.