

(No Model.)

S. J. SHIMER.  
ART OF DOUBLE TONGUING BOARDS.

No. 367,675.

Patented Aug. 2, 1887.

Fig. 1.

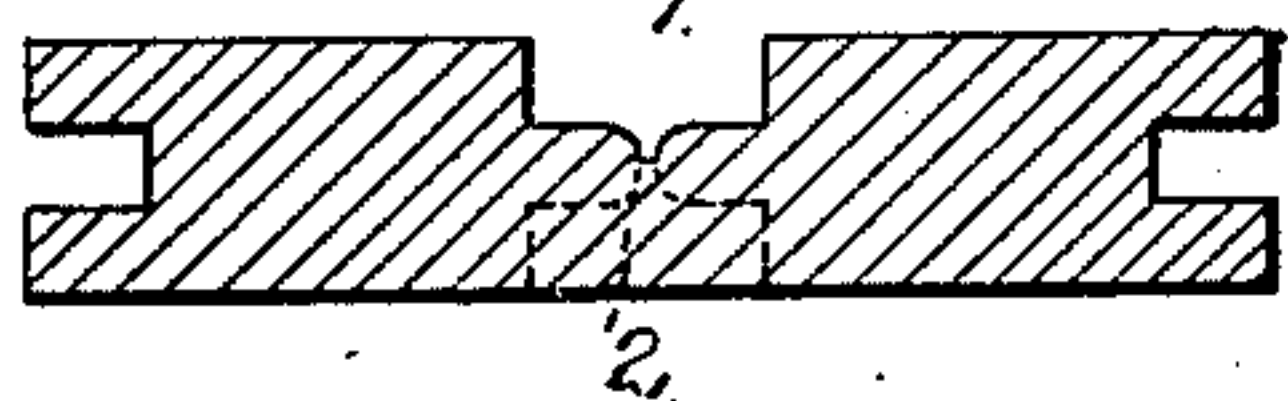


Fig. 2.



Fig. 3.

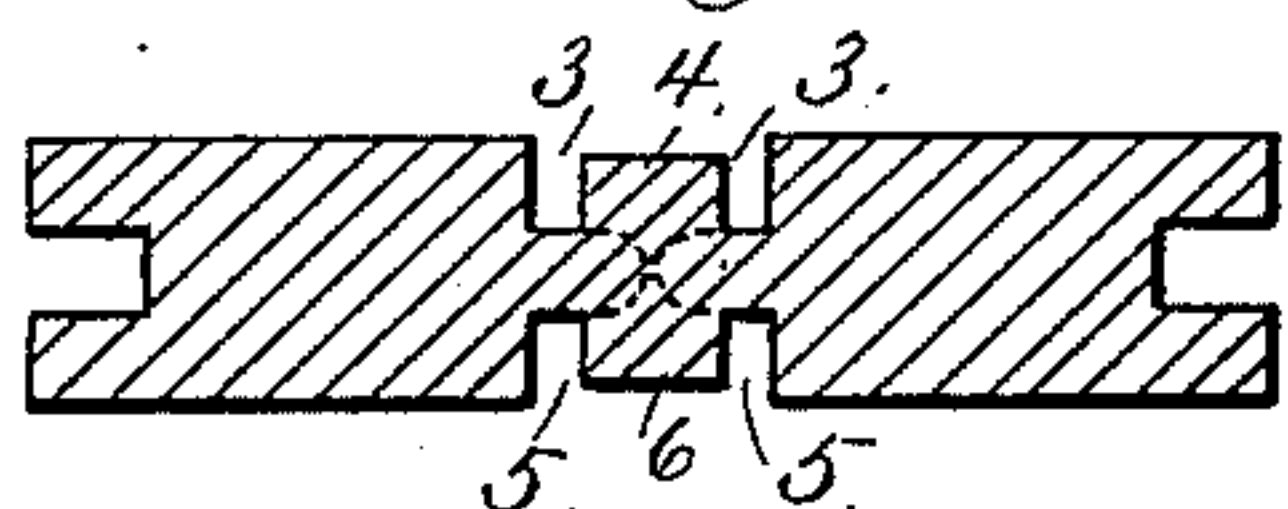


Fig. 4.

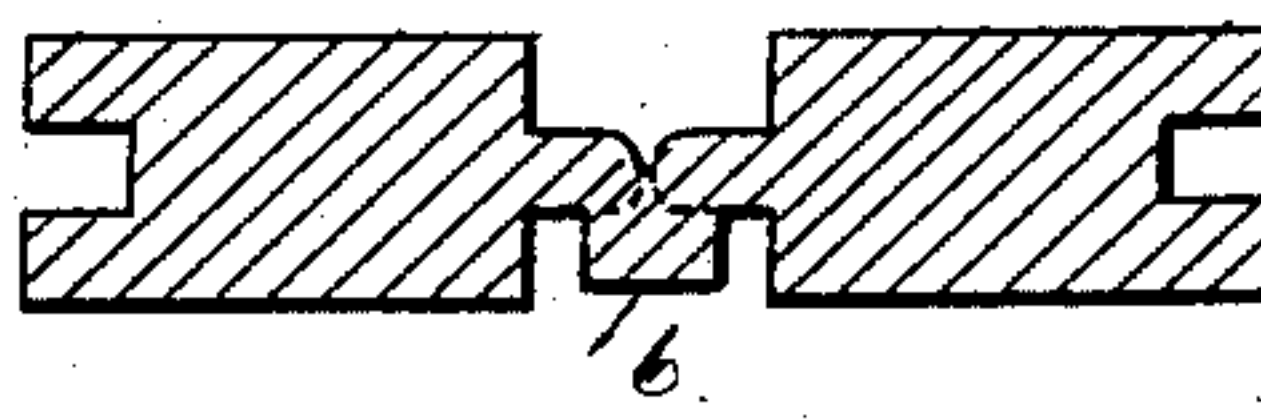
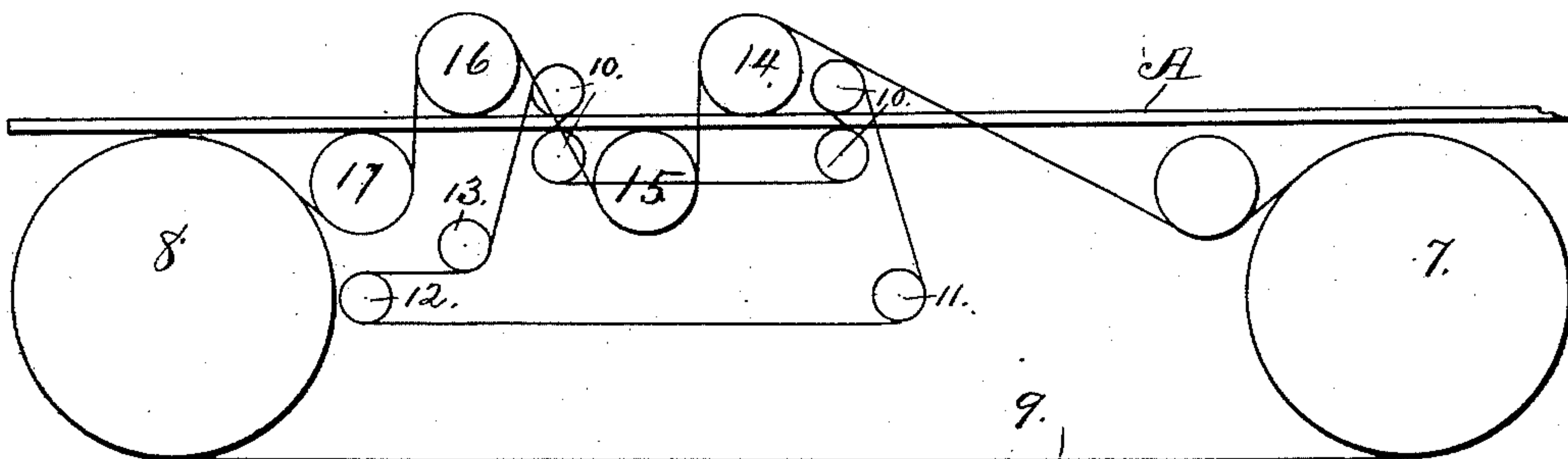


Fig. 5.



Fig. 6.



Witnesses  
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# UNITED STATES PATENT OFFICE.

SAMUEL J. SHIMER, OF MILTON, PENNSYLVANIA.

## ART OF DOUBLE-TONGUING BOARDS.

SPECIFICATION forming part of Letters Patent No. 367,675, dated August 2, 1887.

Application filed November 12, 1886. Serial No. 218,694. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL J. SHIMER, a citizen of the United States of America, residing at Milton, in the county of Northumberland and State of Pennsylvania, have invented a new and useful Improvement in the Art of Double-Tonguing Boards, of which the following is a specification.

My invention has relation to improvements in cutting the double tongue on a board, or two tongues in the face of a board, for matching grooves in instances where the stuff to be matched is made from a single board having the grooves made in opposite edges and the tongues cut in the middle of the board from both faces of the stuff, eventuating in dividing the board longitudinally, and forming two matched pieces of flooring or similar stock. As the art existed prior to my invention the tongues were cut in the middle by a single groove in opposite faces of the board, which grooves deepened sharply in the center from both directions, the board being parted on the line of the sharply-deepened part. This method, when the cut is heavy or when the capacity of the cutter is crowded, often tears up the edges, splinters the stuff, and spoils one or the other of the boards. The tendency of the stuff is to bear in the direction of the grain, and thus crowd to the right or left as it is carried through the planer, and matcher that edge of the board toward the split being torn and disfigured.

It is the purpose and object of my invention to overcome these resultants of the old method of double-tonguing the stuff, and I do this by first cutting parallel grooves in the face of the stuff, leaving a ridge or core between them, then cutting the ridge or core out by a cutter shorter than the distance between the outer walls of parallel grooves, as will be hereinafter more fully stated.

Accompanying this specification are illustrations intended to show the steps of the process in which my invention consists, and showing the cuts as heretofore made.

In the drawings, Figure 1 shows a transverse section of a board double-tongued by the common method, the second cut being shown in dotted lines. Fig. 2 is a transverse section of a board with first cut as I make it. Fig. 3 is a similar view of the second cut;

Fig. 4, the third cut; Fig. 5, the fourth cut, completing the tongues; and Fig. 6 is a diagram of an arrangement of the cutters effecting these several steps.

In Fig. 1 the first cut is designated by the numeral 1, and the second cut is shown by the dotted lines, as at 2, these steps completing the tongues and dividing the board, and are often attended with the resultant imperfections I have heretofore stated.

The primary successive steps by which I achieve the objects of my improvements are as follows: I first cut in the face of the board two parallel grooves, 3, the outer walls of which form the shoulders of the tongues or edges of the boards, and between these grooves is left standing a core, 4, the face of which I prefer to cut down below the face of the board, say to one-eighth of an inch. The parallel grooves are cut down to the base of the tongue, so that when the core is taken out the tongue is formed on that side. I then from below cut two other parallel grooves, 5, leaving a central core, 6, stand, as in the upper cut, the parallel grooves in opposite sides being in alignment. The board then has the appearance of that shown in Fig. 3 of the drawings. These cuts may be made with bits on the surface-headers arranged to overlap, and provided with points for cutting them; and the surface of the core is cut below the surface of the board by the bits being formed to cut deeper at that point. I then, preferably from above, arrange a cutter-head to cut out the core 4, which brings the cut to the condition seen in Fig. 4, and I then from below, with a head carrying cutters suited therefor, cut out the core 6, thus completing the tongues of the board and cutting it into two matched pieces.

It will be observed that the board is not divided until it reaches the last step in the process, being held by the core. The cutters which remove the cores from the stuff are made narrow enough to not touch the outer edges of the parallel grooves, so that the edges shall not be torn, as in the old operation. The cores may be cut out by cutters arranged in the cutter-heads and adjusted to follow the line of the cut, and as a guide a pressure-bar formed with a projection to travel in the grooves may be arranged across the stuff.

In Fig. 6 I have shown in a diagram one ar-



rangement of the feed-rollers and cutter-heads  
 by which my process may be accomplished.  
 In this figure 7 indicates the power; 8, an idler,  
 and 9 a belt connecting the power to the idler.  
 5 The numerals 10 designate the feed-rollers; 11,  
 the driver-wheel; 12, an idler, and 13 a tight-  
 ener. A is the board in the machine, and in  
 position to cut the upper and lower grooves,  
 respectively, are the heads 14 15, and to cut  
 10 the cores out, heads 16 and 17, the belt 9 being  
 arranged to rotate the several cutter-heads.  
 The cutters in this arrangement, or substan-  
 tially so, may be located and grouped in any  
 machine, the main object being to so group  
 15 the cutters that grooves may be cut out in ad-  
 vance of the core.

The improvement in the art of double tongu-  
 ing boards which I have above described is  
 advantageous, because it is a continuous pro-  
 20 cess, the sequence of steps following each other  
 to completion, as the board is passed but once  
 through the machine. The alignment of the  
 opposite grooves is insured, while the danger  
 of splitting the board in turning it to again  
 25 pass it through the machine is avoided. By  
 cutting the opposite grooves before the cores  
 or ridges formed thereby are cut out the edges  
 of the board adjacent to the tongues are formed  
 when the board is stiff and rigid, and hence  
 30 there is less danger of making rough or splin-  
 tered work than by the old plan of running  
 the stuff through the machine twice.

I am aware a machine for making wooden  
 boxes has long since been made wherein par-  
 35 allel kerfs are cut by circular saws and the  
 part between the kerfs then removed by a ro-  
 tary cutter. I make no claim to such a ma-

chine or method, as it will be perceived that  
 the board must be turned and the process of  
 cutting repeated, which is the common way of 40  
 double-tonguing, and eventuates in objection-  
 able and defective work, which it is the object  
 and end of my method to remove.

What I claim is—

1. The improvement in the art of double- 45  
 tonguing a board during a single passage  
 through the tonguing-machine, which consists  
 in cutting parallel grooves in both faces of the  
 board, the lower cutting thereof following in  
 sequence the upper cut thereof, and then cut- 50  
 ting out the cores left standing between said  
 grooves consecutively from above and below  
 with cutters shorter than the distance between  
 the outer walls of opposite grooves, substan-  
 tially as described. 55

2. The improvement in the art of double-  
 tonguing a board, which consists in cutting par-  
 allel grooves in the one face of the board, then  
 cutting parallel grooves in the opposite face  
 of the board in alignment with the first-made 60  
 grooves, then cutting the core or ridge out  
 between one set of grooves, and then cutting  
 the other core or ridge out, such sequence of  
 cuts following each other as the board passes  
 continuously through the machine, substan- 65  
 tially as described.

In witness whereof I have hereunto set my  
 hand in the presence of two attesting wit-  
 nesses.

SAMUEL J. SHIMER.

Attest:

GEO. S. SHIMER,  
 JOHN A. BECK.