J. T. ZIKA.

TENON MACHINE GAGE.

APPLICATION FILED FEB. 17, 1912.

1,043,285. Patented Nov. 5, 1912.

2 SHEETS—SHEET 1.

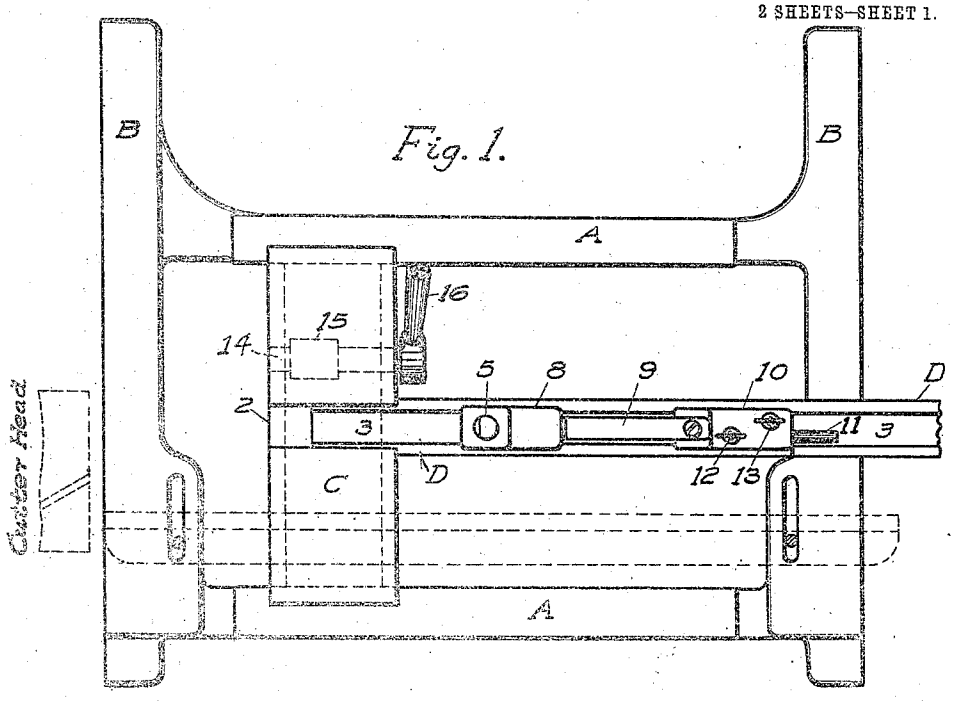

Fig. 1.

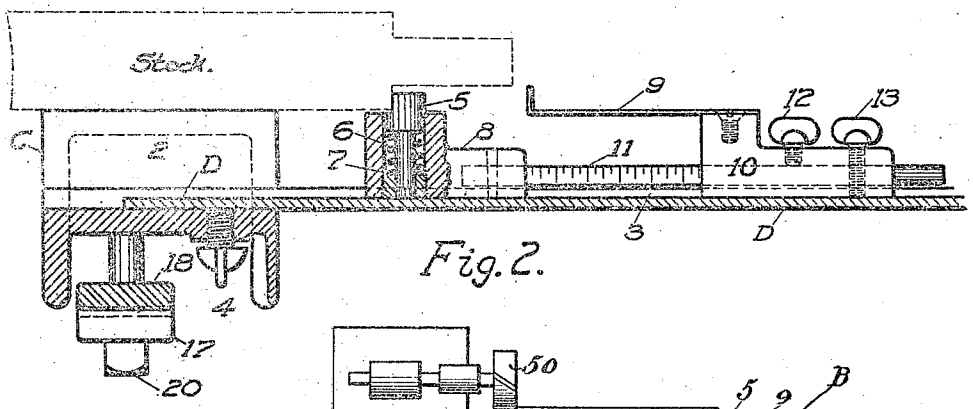

Fig. 2.

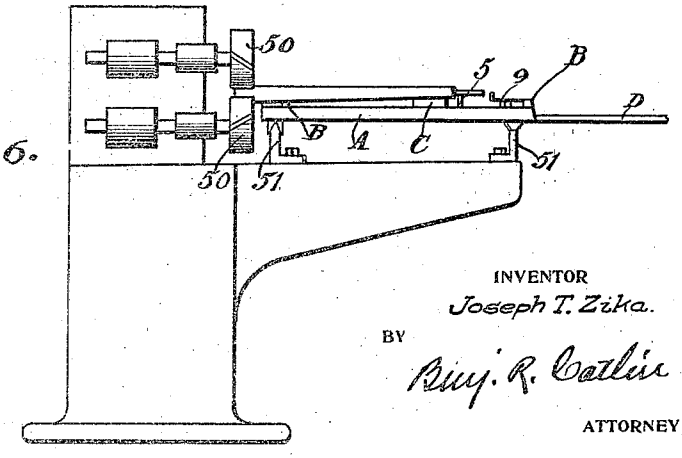

Fig. 6.

WITNESSES

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2 SHEETS—SHEET 2

Fig. 3.

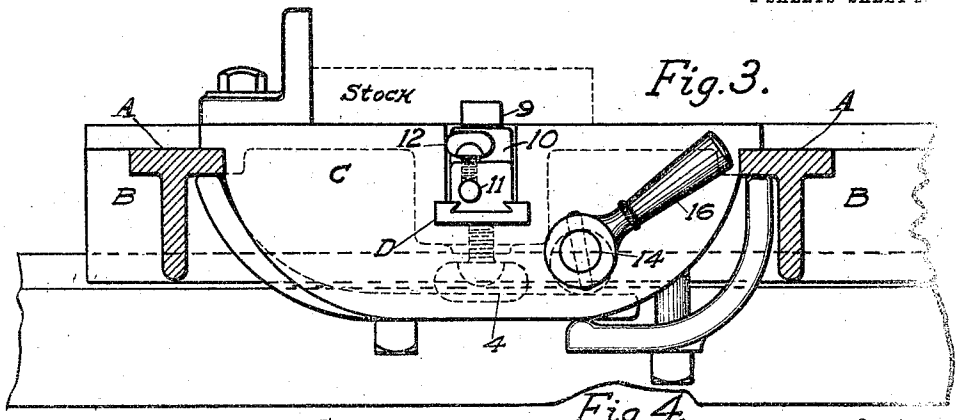


Fig. 4.

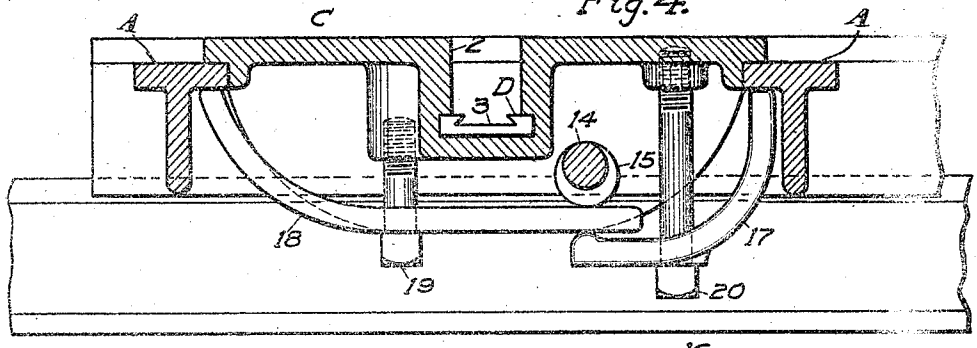
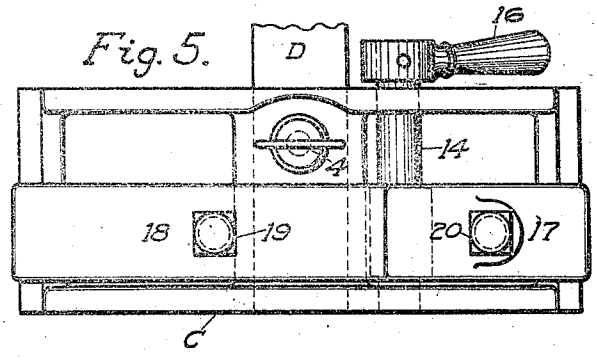


Fig. 5.



WITNESSES

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TENON-MACHINE GAGE.

1,043,285. Specification of Letters Patent. Patented Nov. 5, 1912.

Application filed February 17, 1912. Serial No. 678,353.

To all whom it may concern:

Be it known that I, JOSEPH T. ZIKA, a citizen of the United States, residing in Cleveland, in the county of Cuyahoga, State of Ohio, have invented a new and useful Improvement in Tenon-Machine Gages, of which the following is a specification.

My invention relates to the work table of a tenoning machine and to the stop gages which are necessarily used therewith in order to determine the length of the stock being worked and also the length of the tenon on the same; and it consists in an improved construction of these gages by which they can be adjusted almost instantaneously for different lengths of stock and tenons, as fully described herein.

In the accompanying drawings, Figure 1 shows a plan view of a tenon machine table with my improvements attached. Fig. 2 is a sectional side elevation of a portion of the same: Fig. 3 is a cross section showing the adjustable bridge bar in elevation: Fig. 4 is a longitudinal section of the bridge bar, and Fig. 5 is an inverted plan view of the same. Fig. 6 is a partial elevation of a tenoning machine with the improvement attached.

A. B., Figs. 1, 3 and 4, represent the work table of an ordinary tenon machine having side bars B, which rest upon the ways or guides 51 which support the table on the machine frame.

C is the adjustable bridge bar for supporting one end of the work and is fitted to move between the longitudinal side bars A of the work table and to be clamped thereto in whatever position required. The tops of parts B and C are in the same plane.

D is a gage strip which is fitted into a T slot at the bottom of the recess 2 in the bridge bar as more clearly shown in Fig. 4: this strip is of any desired length to accommodate the stock to be worked, and in its upper face there is provided a longitudinal dovetailed groove 3, into which the stop blocks 8 and 10 used to determine the length of the work, are clamped: this gage strip is clamped into the bridge bar C by a set screw 4, Figs. 2, 3 and 5.

5 is a retreating stop which is forced upward by the spring 6, Fig. 2, which rests on a shoulder 7 formed in the sliding block 8.

9 is a flat spring secured to the sliding block 10 and bent upward at right angles sufficiently to form an end stop for the work and is used to gage the work before the tenon is cut; this also retreats when long stock is laid on it. Blocks 8 and 10 are fitted to move freely in the dovetail groove 3 in the gage strip D. When long work is tenoned the bridge C is pushed out to the extreme end of the work table, thus extending the gage strip to a like distance.

The above description relates to the usual and well known construction of tenon machine work tables for hand feed and my invention consists of improvements thereon.

Formerly the stop blocks 8 and 10 were both clamped into the slot in the strip D by set screws like 13, Fig. 2, and therefore independent of each other; consequently, when setting the stops for a change in length of stock, both must be set separately consuming considerable time. I, therefore provide a connecting bar 11, Figs. 2 and 3, which is securely attached to the gage-block 8, and is fitted to slide freely on or through the block 10. A set screw 12 or any suitable clamping device is used to connect or disconnect the two blocks 8 and 10 as may be required. The connector 11 is preferably graduated to inches and fractions so as to indicate exactly the distance between the working face of the stop 5 and the upturned end of stop 9, and consequently the length of the tenon plus an amount necessary for trimming from the rough end of the stock with the cut-off saw.

It will be seen that the stops 5 and 9 can be readily set to accommodate any length of tenon and the adjustment secured by the screw 12; then the duplex end stop thus formed can be instantly set for any length of stock within the capacity of the gage strip D, by means of the clamp screw 13, and when any change in length of tenon is necessary, the graduations on bar 11 render the change almost instantaneous, without resort to a rule or scale.

It will be understood that stop 9 is a rough stop which is used in or during the formation of a first tenon on a piece of stock, and is so set as to allow a slight saw cut on the end of such first tenon to make it square and of required length. In Figs. 2 and 6 the stock has had a first tenon made and its outer end cut off (as indicated by the space between the end of the tenon and the upturned end of the stop 9) and a tenon is being made at the opposite end of the stock

by heads 50, stop 5 being used as the absolute gage. By putting the original uncut piece of stock against stop 9 and cutting a first tenon, and sawing off the extreme end, reversing the stock putting the first tenon shoulder against stop 5, it is possible to duplicate the pieces and have them exactly the same length between the shoulders.

Another improvement is embodied in the bridge bar C. Formerly this bar has been clamped to the rails A of the work table by means of a binding screw at each end, and frequently the clamping would be forgotten in "setting up" the machine for its work, with the result that imperfect work was done and much time consumed in the adjustment. I have devised an instantaneous clamp which securely binds the bridge bar and is so arranged that it cannot be left unclamped when work is placed on the table.

14, Figs. 3, 4 and 5, is a cam shaft having bearings on the bar C, and placed transversely thereto, on which is secured the cam or eccentric 15. A handle 16 is attached to the projecting end of the cam shaft for convenience in operating.

17 and 18 are clamping levers constructed to bear at one end against the under side of the table rails A, as shown in Figs. 3 and 4, and to be held in clamping position by set bolts 19 and 20 which are threaded into a convenient part of the bridge bar C. The lever 18 is made long enough to reach past the center of the shaft 14 and to bear against the cam 15. Lever 17 is shorter and bears against the under surface of the lever 18 nearly opposite the cam 15. The set bolts 19 and 20 can be located near the centers longitudinally of the levers 17 and 18 and their heads thus form fulcrums, and at the same time they may be adjusted to equalize the clamping pressure on the outer ends of the levers and keep their inner ends in contact with the cam 15.

It is not strictly necessary in the above device that two clamping levers be used, as it would be possible in many cases to clamp the bridge bar at one end only and secure the desired results, which consist chiefly in the speed and convenience of the clamping operation.

It will be seen by the above description, that the bar C can be instantaneously clamped at any position on the table rails by pushing the lever 16 over so that the cam 15 forces the lever or levers 17, 18, into clamping contact with rails A, and it can be as instantaneously released by pulling handle 16 backward. Adjusting the bridge bar C carries with it the gage strip D, and this in turn carries the adjustable stop gages above described, all of which are so quickly manipulated that the element of time scarcely enters into it: considering that in many shops such changes occur, perhaps fifty times in the course of a day's work, the saving in the time of the operator is evident. Furthermore, the position of the handle 16 is such that it projects considerably above the work face of the table when the clamp levers are loosened, and thereby the operator is forced to clamp the bridge before placing the work on the table.

It is not essential to my invention that the exact construction of clamping levers, fulcrums and actuating cam, shown herein, be followed in the carrying out of my device, but the drawings and description contain one embodiment of it: other equivalent constructions giving similar results are no doubt possible; but

What I claim as my invention and desire to secure by Letters Patent is:

1. In a work table for a tenoning machine, an adjustable bridge bar, an adjustable end stop gage attached to said bar, a clamping cam or eccentric mounted on said bar, a clamping member or members operating in conjunction with the cam to bind the bridge bar to the table, and an operating handle attached to said cam, for the purposes set forth.

2. In a work table for tenoning machines, an adjustable bridge bar, an adjustable end stop gage attached to said bar, clamping members constructed to bind said bar to th table rails at both ends, an actuating means arranged to act on both clamping members at one movement and a handle for operating said actuating means, for the purposes set forth.

3. In a work table for tenoning machines, an adjustable bridge bar, an adjustable end stop gage attached to said bar, a cam shaft mounted transversely on said bar, clamping levers bearing on the cam directly or indirectly, an operating handle on said shaft, whereby both ends of the bridge bar are clamped and unclamped simultaneously.

4. In a work table for a tenoning machine, an adjustable bridge bar, a cam shaft mounted transversely thereon, a clamping member or members adapted to bind the bridge bar to the table by means of the cam, a gage strip attached to the bridge bar, stop gages on said strip, whereby quick adjustment of the stops is obtained through their entire range.

5. In a work table for a tenoning machine, a pair of end stops adjustable longitudinally on said table, and means for clamping the stops in adjusted position, and a rod secured rigidly to one stop block and adjustably to the other for the purposes set forth.

6. In a work table for a tenon machine, a pair of end stops comprising blocks adjustable on said table, a rod or connector secured rigidly to one stop block and adjust-

ably to the other, there being graduations on said rod, whereby the distance between said stops may be indicated for the purposes set forth.

7. In a work table for a tenoning machine, a gage strip adjustably attached to said table, duplex end stops constructed to be connected to or disconnected from each other, and both adjustable along said gage strip for the purposes set forth.

8. In a work table for a tenoning machine, an adjustable bridge bar, a longitudinal gage strip attached thereto, end stops adjustable on said gage strip, said end stops being adapted to be connected to, or disconnected from each other for the purposes set forth.

9. In a work table for a tenoning machine, the combination of an adjustable bridge bar, a clamping cam and clamping members mounted thereon, a longitudinal gage strip attached thereto, duplex end stop gages adjustable longitudinally on said gage strip, and adapted to be connected to or disconnected from each other, all acting conjointly for the purposes set forth.

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Witnesses:
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