

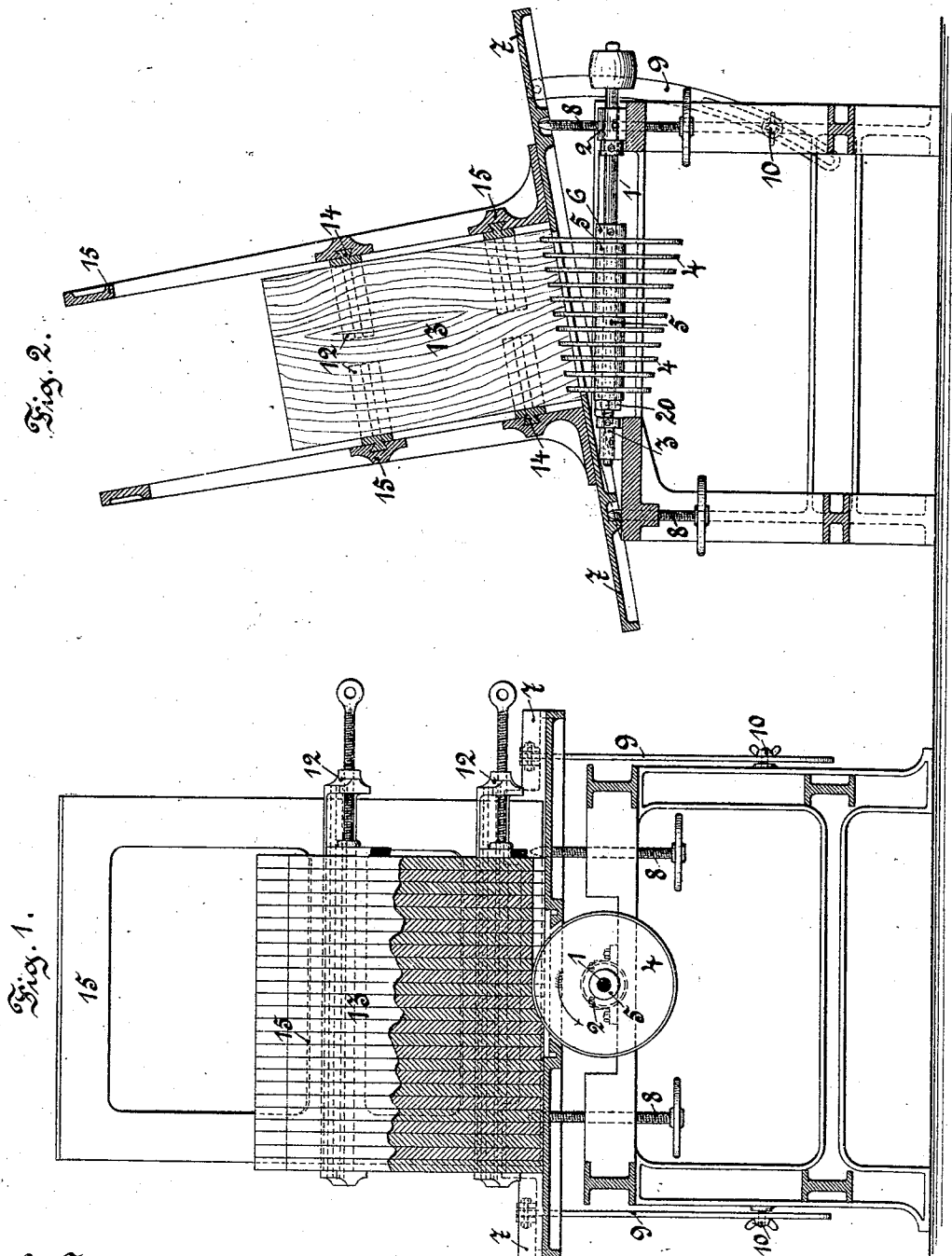
(No Model.)

2 Sheets—Sheet 1.

H. FARCHMIN.
DOVETAILING MACHINE.

No. 517,336.

Patented Mar. 27, 1894.



Witnesses:

Wm. Hoff
Hugh Sumner

Inventor:

Herman Farchmin
By his attorney *Wm. C. Bulter*

H. FARCHMIN.
DOVETAILING MACHINE.

No. 517,336.

Fig. 3. Patented Mar. 27, 1894.

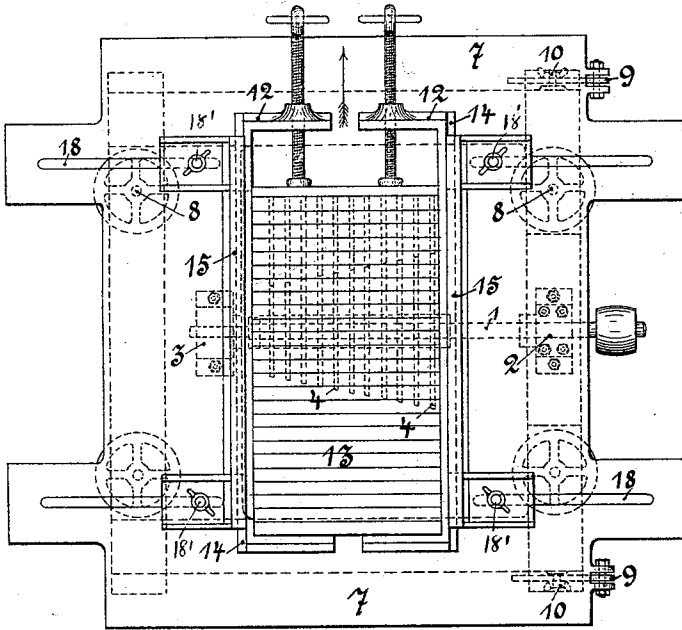


Fig. 11.

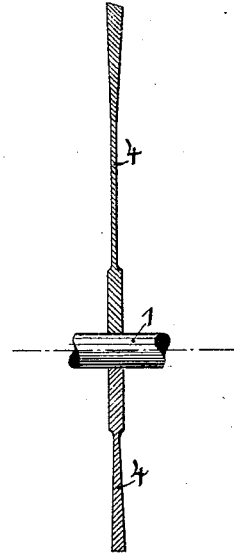


Fig. 4.

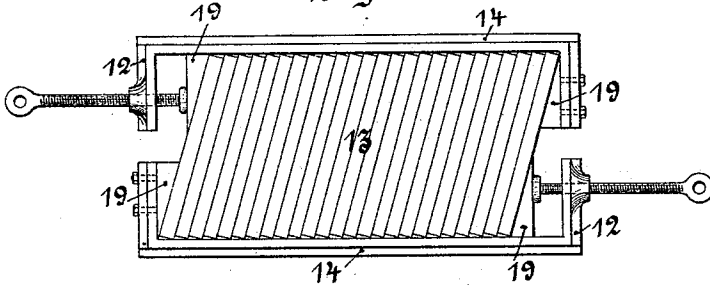


Fig. 5.

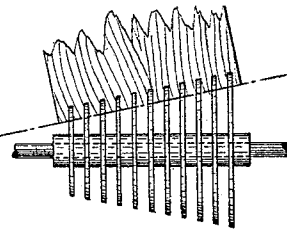


Fig. 6.

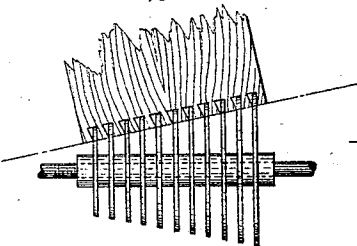


Fig. 7.

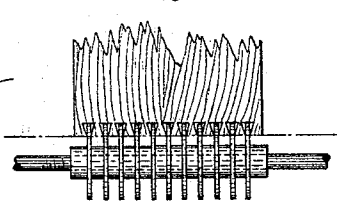


Fig. 8.

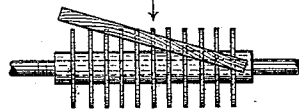
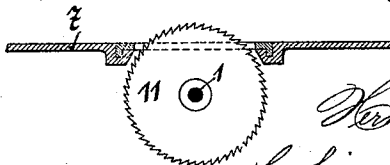


Fig. 9.



Fig. 10.



Witnesses:

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UNITED STATES PATENT OFFICE.

HERMAN FARCHMIN, OF GERA, GERMANY.

DOVETAILING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 517,336, dated March 27, 1894.

Application filed June 19, 1893. Serial No. 478,150. (No model.)

To all whom it may concern:

Be it known that I, HERMAN FARCHMIN, a subject of the Prince of Reuss Jungerer Linie, residing at Gera, in the Principality of Reuss Jungerer Linie, Germany, have invented certain new and useful Improvements in Dovetailing-Machines, of which the following is a full, clear, and exact description.

My invention has relation to dovetailing machines, and it has for its object to provide such a machine which will be simple and durable in construction and efficient and economical in operation, and the invention consists in the novel construction, arrangement and combination of parts as hereinafter fully described, illustrated in the accompanying drawings and pointed out in the appended claims.

In said drawings:—Figure 1 is a front elevation, partly in section of my improved machine. Fig. 2 is a side view partly in section. Fig. 3 is a plan view; Fig. 4 a plan view of the clamping device. Figs. 5, to 9, are detail views illustrating the manner of producing the dovetails by means of the different sets of cutters. Fig. 10 is a sectional view of the table, shaft and saw. Fig. 11 is a like view showing the cutters of different construction as combined with the shaft.

I would state that in my improved machine, which is adapted to produce dovetails in a series of boards at the same time, which boards are employed for manufacturing chests and boxes with dovetailed edges, two sets of cutting tools are employed, the tools of one set being all of the same diameter, while those of the other set have a successively increasing diameter. The first set is employed when the plate is worked parallel to the shaft and incisions of equal depth are to be made, which enter the board parallel to its axis but obliquely to its broad surface or face, and take away what has been left between two of the oblique cuts. The second set serves for making grooves perpendicular to the face of the board but oblique to its axis. In this case the table is obliquely adjusted and the tools of different size make it possible to get incisions of equal depth. There is a third form of incision though it would be of no use in the com-

mon dovetail joints, viz. incisions which enter the board obliquely to both its axis and its face. These incisions may also be made by this machine, as it would be only necessary to adjust the table obliquely and conduct the boards obliquely across the cutting tools.

In order that my invention may be more clearly understood, I will now describe the same in detail having reference to the accompanying drawings.

1 is the tool-shaft which is carried in bearings 2 and 3; the journal carried by bearing 3 is less in diameter than the other part of the shaft so that the latter can easily be removed toward the right hand in Fig. 2. The cutting tools or saws 4 are arranged side by side on the shaft 1 each tool being separated from the others by collars 5; at one end the tools are held in place by an adjusting collar 6 and they are adjusted with the intermediate collars 5 on the shaft by a nut 20 screwed on the shaft. In this manner the tools of unequal diameter can be easily removed and the tools of equal diameter substituted. Care should be taken that in arranging thicker or thinner intermediate collars 5 the right distance between the shaping tools is always kept. It might be more convenient to arrange the sets of tools at predetermined distances on a sleeve which would be put on the shaft 1 so that only the sleeves need be removed when a new set of tools is required. The set of shaping tools of unequal diameter is of course only suitable for a certain oblique position of the plate or board, but this will commonly be sufficient; in the other case it is of course necessary to have two sets of tools. The cutting surfaces of the tools of unequal diameters must, corresponding with the oblique position of the board, be at an angle with the shaft (see Fig. 11) which shows above the shaft one of the shaping tools 4 of a set of unequal diameter and below it one of the shaping tools 4 of a set of equal diameter. The table 7 is provided at its under side with recesses which are entered by screws or screw-rods 8 in such a manner that the table can not only be raised and lowered but also adjusted obliquely to the shaft 1. By

the first adjustment the depth of the cut is regulated; the second adjustment serves for regulating the obliqueness of the cut according to Figs. 5 and 6. Slotted quadrants 9 which are jointed to the table 7 and wing-nutted screws 10 serve to fix the table in the required position. The tools pass through openings in the table which when desired may be composed of a series of bars or a grid so that narrow slits for the shaping disks are formed.

At this point it may be mentioned that the machine can also be employed as a circular saw, in which case the opening in the table is covered in such a manner that only a narrow slit for the saw-blade 11 is left (Fig. 10).

The boards are put into a frame and guided in the following manner:—12 are long screw-clamps into which several boards 13 to be cut are put. Two pairs of such screw clamps are employed in such a manner that each clamp is situated opposite the other in the same plane. The back of each clamp is provided with a planed rib 14 which is preferably of a dovetailed cross section (see Fig. 2). By means of these ribs the clamps are guided in grooves in the supports 15, which can be reciprocated on the table 7 and can be adjusted by screws or bolts 18' and tightening nuts, said bolts being guided in slits 18. The boards 13 can be put into the clamps rectangularly or obliquely to the back of the clamps 12. It is necessary to put them obliquely into the clamps when the boards are to be conducted obliquely across the tools (Figs. 8 and 9). In this case wedge-shaped pieces 19 are employed one of which is arranged in one corner of the clamps 12 while the other is operated by the set-screw.

The mode of operation of the machine is as follows: A number of boards are screwed together by means of the screw-clamps 12, the table 7 is obliquely adjusted and a set of tools 4 of unequal size is put on the shaft 1. The boards are then, in the manner shown in Figs. 5 and 6, moved twice across the tools, first one end of the boards and then the other. By thus operating the cuts shown in Fig. 6 are obtained. Then the tools of unequal size are removed and those of equal size substituted, and the table 7 is put straight. The boards are then first guided in a straight line across the tools so that the latter take away the material which has been left between the two cuts when broad incisions are made. Then the boards which are to be joined are obliquely put into the clamps in the manner shown in Fig. 4 and twice guided across the tools as shown in Figs. 8 and 9. Thus are obtained dovetails which exactly fit each other.

What I claim, and desire to secure by Letters Patent, is—

1. The combination with a supporting frame, of a horizontally-arranged cutter shaft journaled in said frame, a series of cutters

adjustably and removably mounted upon said shaft and projecting above the upper face of the frame, vertically-arranged screws working in the frame at opposite sides of the cutters, a table supported upon the upper ends of the screws and adapted to be adjusted thereby to different positions as described, uprights carried by said table and having grooves extending longitudinally of the table and parallel to the cutters, a clamping device provided with ribs engaging within the grooves and adapted to be moved therein, a quadrant having its upper end jointed to the table and provided with a curved slot at its opposite end, and screw-bolt carried by the frame passing through said slot and provided with a tightening nut for securing the table in its adjusted positions, as and for the purpose specified.

2. The combination with a supporting frame, of a horizontally-arranged cutter shaft journaled in said frame, a series of cutters adjustably and removably mounted upon said shaft and projecting above the upper face of the frame, vertically-arranged screws working in the frame at opposite sides of the cutters, a table supported upon the upper ends of the screws and adapted to be adjusted thereby to different positions as described, a quadrant having its upper end jointed to the table and provided with a curved slot at its opposite end, a screw bolt carried by the frame and passing through the said slot and provided with a tightening nut for securing the table in its adjusted positions uprights carried by said table and having grooves extending longitudinally of the table and parallel to the cutters, and a clamping device comprising the oppositely arranged separate rectangular sections 12, screw rods working within the ends of said sections and adapted to clamp the boards to be cut within the sections, ribs formed on the outer face of the sections and extending longitudinally thereof, said ribs engaging within the grooves in the uprights, for the purpose specified.

3. The combination with a supporting frame, of a horizontally-arranged cutter shaft, journaled in said frame, a series of cutters adjustably and removably mounted upon said shaft and projecting above the upper face of the frame, vertically-arranged screws working in the frame at opposite sides of the cutters, a table supported upon the upper ends of the screws and adapted to be adjusted thereby to different positions as described, a quadrant having its upper end jointed to the table and provided with a curved slot at its opposite end, a screw-bolt carried by the frame and passing through the slot and provided with a tightening nut for securing the table in its adjusted positions, uprights carried by said table and having grooves extending longitudinally of the table and parallel to the cutters, slots in the table transversely thereof, adjusting bolts working in

said slots and having tightening nuts and adapted to adjust the uprights transversely of the table and at right angles to the cutters, and a clamping device provided with
5 ribs engaging within the grooves of the uprights and adapted to be moved therein, as and for the purpose specified.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

HERMAN FARCHMIN.

Witnesses:

FR. OSCAR RÜDIGER,
KARL HUHNS.