No. 868,724. PATENTED OCT. 22, 1907.

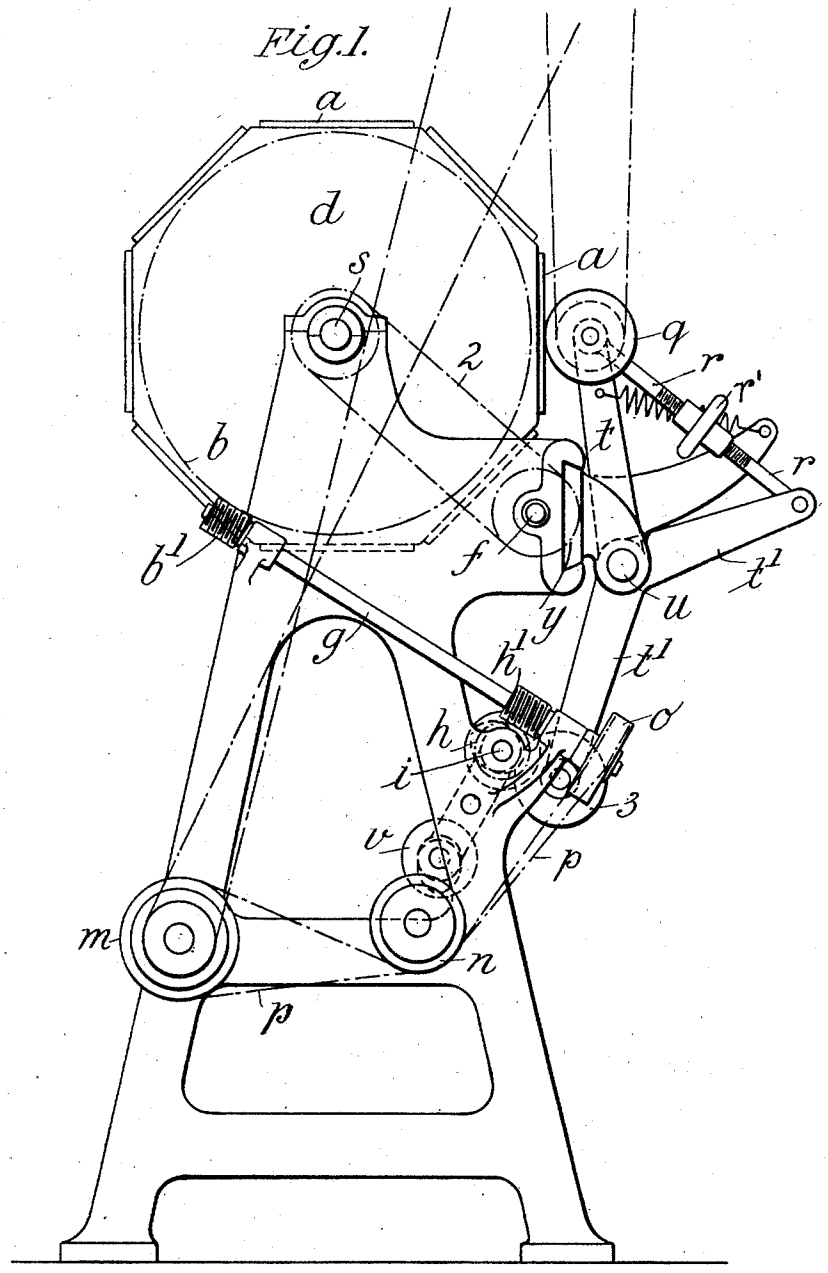
W. THAU.

MACHINE FOR SHAPING THE BACKS AND BELLIES OF VIOLINS.

APPLICATION FILED AUG. 31, 1905.

3 SHEETS—SHEET 1.

Fig. 1.



WITNESSES.
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Samuel Percival

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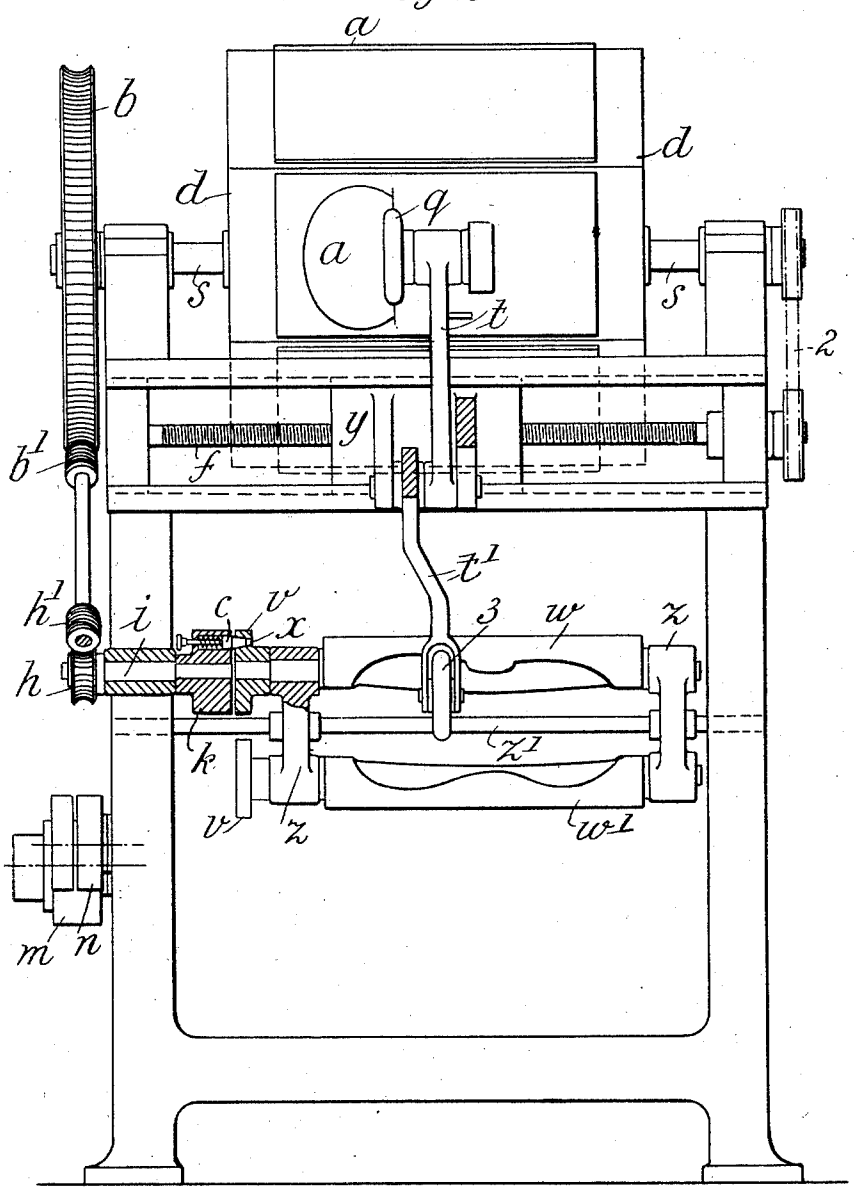
3 SHEETS—SHEET 2.

Fig. 2.



WITNESSES

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3 SHEETS—SHEET 3.

Fig. 3.

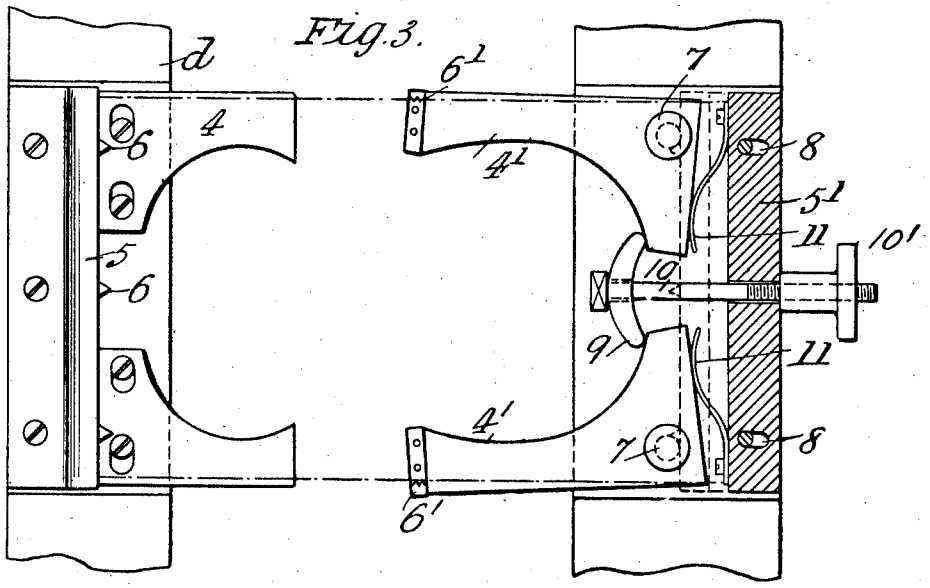


Fig. 4.

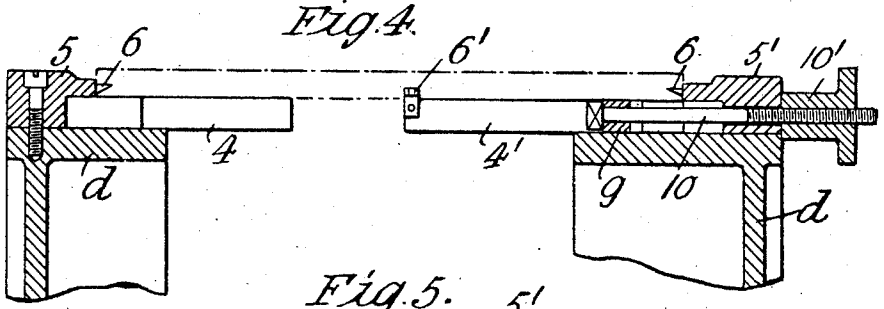
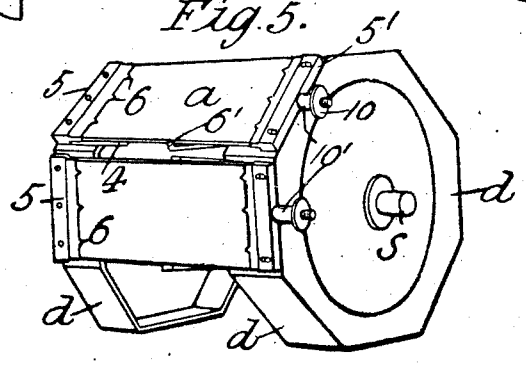


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM THAU, OF KLINGENTHAL, GERMANY.

MACHINE FOR SHAPING THE BACKS AND BELLIES OF VIOLINS.

No. 868,724. Specification of Letters Patent. Patented Oct. 22, 1907.

Application filed August 31, 1905. Serial No. 276,535.

To all whom it may concern:

Be it known that WILLIAM THAU, a subject of the Emperor of Germany, residing at 40b Unterklingenthalerstrasse, Klingenthal, Saxony, Germany, has invented certain new and useful Improvements in Machines for Shaping the Backs and Bellies of Violins and the Like; and he does hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a machine for shaping the backs and bellies of violins and other pieces of work, in which a large number of pieces of work are fixed on a rotary drum and successively carried past shaping devices, which while the drum is rotating are moved parallel to the axis of the drum, the arm carrying the shaping tool being brought near to or put farther from the piece of work by means of a pattern-piece which runs through below the arm. In shaping machines of this kind in which the pattern-piece is carried by a frame, and an oscillating or reciprocating motion imparted thereto, the slightest wearing away of the actuating devices injuriously affects the uniformity of the shaping work, as with increasing wear the stationary periods which occur with each change of movement of the pattern become longer and longer and the tool is lowered later on to the piece of work which has been uniformly moved on meanwhile. If the pieces of work are only worked on one side, this retardation is not of such very great importance, but in the case of violin backs it has the serious disadvantage that the back working surface is moved laterally in relation to the front surface, the backs thus having an unsymmetrical form in cross-section. This invention obviates this by making the pattern-piece of cylindrical form and so seating it that it has no circular motion. It is of course necessary that the pattern-piece should rotate at the same speed as the drum. A specially constructed tension device is also provided so that the pieces of work shall have a firm hold on the circumference of the drum, whereby any objectionable deflection or bending is prevented.

In the drawing,—Figure 1 is a side elevation; Fig. 2 a front elevation of the machine; Fig. 3 a plan of the device for ho ding the pieces of work; Fig. 4 a longitudinal section of Fig. 3; and Fig. 5 a pictorial representation of the drum.

The pieces of work a are fixed on a drum d, the shaft s of which is rotatively seated in the frame of the machine. On that end of the shaft s which extends beyond the bearing, a screw-wheel b (Fig. 2) is mounted which engages with a screw b' seated on the shaft g. On the lower end of the shaft g another screw h' is fixed which by means of the screw-wheel h actuates the shaft i, which carries on the inside of the machine-frame a clutch disk k (Fig. 2).

The shaft g is driven by means of a belt p (Fig. 1) which runs from the main driving pulley m over the guide-rollers n to the pulley o.

The cylindrically shaped pattern-pieces w w' are rotatively seated in a holder z which moves around the shaft z'. On the end which is extended beyond the bearing, each of the shafts carrying the pattern-pieces w w' also carries a disk v formed with an opening x, and into which a tappet c carried by the clutch disk k seated on the shaft i falls, whereby the pattern-piece mounted on the shaft with which said tappet is engaged is coupled with the shaft i.

The shaping device q is supported by the arm t, which is connected so as to move with the lever t' that runs to the pattern piece w, by means of an adjusting spindle r which is divided and furnished with a right and left screw-thread connected by a turn buckle r'. The arm t and the lever t' are connected with the sliding piece y by means of the pivot shaft u.

The sliding piece or slide y which is movable in the longitudinal direction of the drum is actuated in the longitudinal direction by the screw-spindle f which is connected with the drum shaft s by the belt gear 2 in such a manner that while the drum is rotating the slide y moves slowly from one end of the drum to the other and in consequence of this the tool q comes in contact with the whole surface of the pieces of work a. The lower end of the lever t' carries a roller 3, which lies against the pattern piece w, which is coupled at the time with the shaft i.

The pattern piece w is adapted to the external surface of the back of the violin, while the pattern-piece w' corresponds in form to the internal surface. As already stated, the pattern-pieces w w' and the drum d are driven at equal speed, so that, during the time that a piece of work a is passed beneath the shaper q the pattern piece which is then in engagement with the roller 3 makes a complete revolution.

The device illustrated in Figs. 3 to 5 may be used with advantage to hold the work on the drum d. On the circumference of the drum d plates 4 4′ are fixed on which the pieces of work are laid. The supports 5 5′ which project at both ends of the drum d beyond the plates 4 4′ are formed with points 6 on their inner edges for holding the inserted pieces of work. Similar points 6′ are formed on the inner arms or extensions of the plates 4 which are pivoted on the bolts 7 and in form resemble bent levers. These points are intended to take hold of the piece of work from the side. The support 5 is firmly connected with the drum d, while the support 5′ moves inwards limited by slots 8. From the inside, against the extensions of the plates 4′ which lie parallel to the support 5′, runs a transverse piece 9 which can be adjusted as desired by means of the screw rod 10, which is inserted loosely through the support 5′ and is provided at its outer end

with a nut 10′. The springs 11 have a constant tendency to force the supports 5′ outwards and the plates to turn on their pivots, so that the tongs formed by the arms or extensions running vertically to the support 5′ open. When this device for holding the piece of work is in use the piece of work is laid on the plates 4 4′ and the nut 10′ screwed up; the result of which is that the screw rod 10, the transverse piece 9, and the support 5′, are moved in relation to each other and at the same time the plates 4′ are swung around their pivots 7 in such a manner that the piece of work is not only firmly and immovably held between the supports 5 5′ but also between the points 6′. The plates 4 may be movably arranged similarly as the support 5′ and the plates 4′.

I claim as my invention:—

1. The combination of a supporting frame, a drum rotatably mounted thereon and having its shaft extended at opposite ends thereof and provided respectively with a worm-wheel and pulley, a short shaft mounted on said frame and having a worm-wheel at its outer end and provided with a clutch disk, a worm mounted to engage both of said worm wheels, a screw spindle mounted adjacent said drum and having a pulley at one end, a belt connecting the pulleys on said driving shaft and screw spindle, a slide mounted to travel on said screw spindle, a work shaper carried by said slide, a rotatable pattern piece arranged adjacent said short shaft and provided with a disk having a recess, a tappet carried by said clutch disk and adapted to engage said recessed disk and a lever connected with said shaper and having a roller bearing on the pattern piece.

2. A drum having a work-holder thereon comprising a fixed support disposed at one end of the drum, a longitudinally movable support at its other end, said supports having engaging spurs, spaced plates pivoted adjacent to said movable support, and having spurs at their free ends.

3. A drum having a work-holder thereon comprising a fixed support disposed at one end of the drum, a longitudinally movable support at the other end of said drum, said supports having engaging spurs, spaced plates pivoted adjacent to said movable support and having spurs at their free ends, and springs disposed between said plates and movable support to hold their free ends extended, and means for moving said plates to cause their free ends to engage the sides of the work to be held.

4. A drum having a work-holder thereon comprising a fixed support disposed at one end of the drum, a longitudinally movable support at its other end, said supports having spurs, spaced plates pivoted adjacent to said movable support, springs disposed between said plates and movable support, a screw rod extending through said movable support and having a member engaging said plates, and a nut on said screw rod for drawing the parts together to lock the work on all sides.

In testimony whereof he has affixed his signature, in presence of two witnesses.

WILLIAM THAU.

Witnesses:
BERNHARD DIETRICH,
WM. H. H. SPIELMEYER.