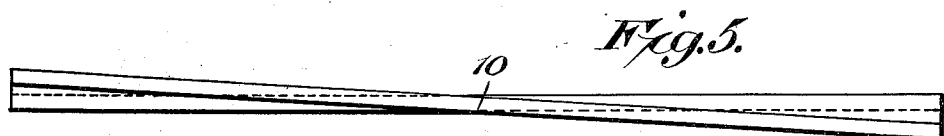
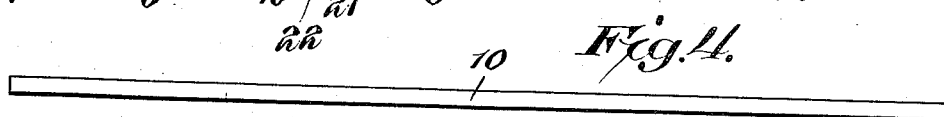
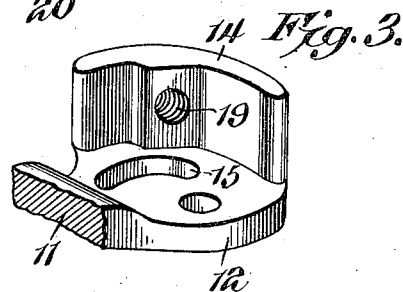
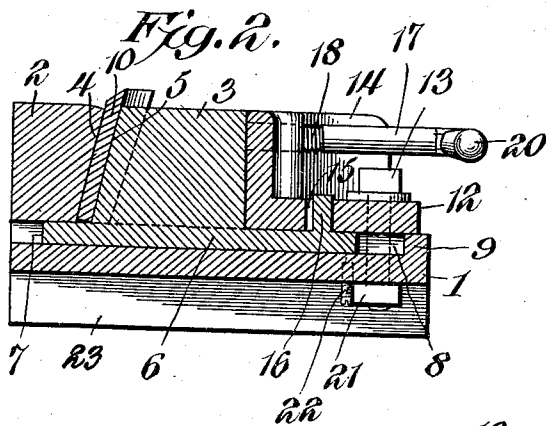
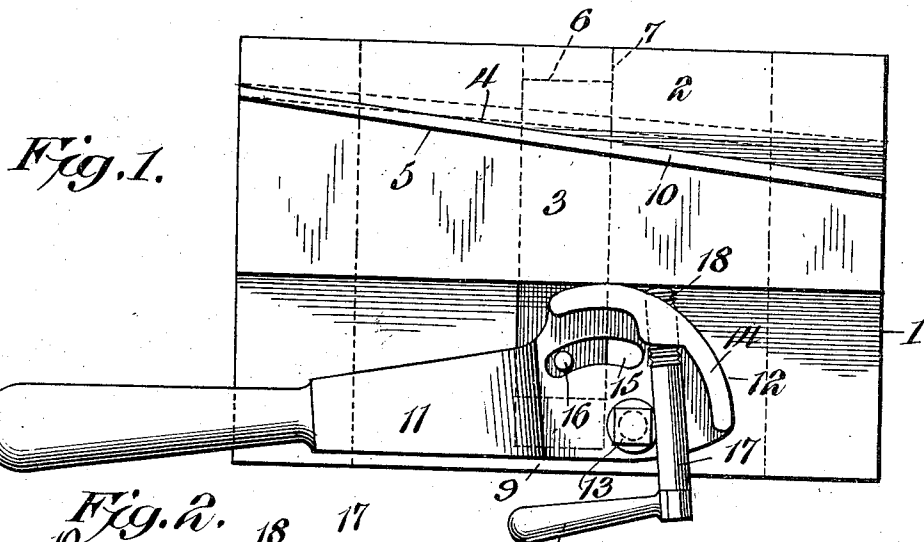


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 F. F. STRYKER, ADMINISTRATOR.
 DEVICE FOR SPIRALLY TWISTING BLADES FOR CUTTER HEADS.
 APPLICATION FILED MAR. 31, 1910.

1,004,801.

Patented Oct. 3, 1911.



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UNITED STATES PATENT OFFICE.

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DEVICE FOR SPIRALLY TWISTING BLADES FOR CUTTER-HEADS.

1,004,801.

Specification of Letters Patent.

Patented Oct. 3, 1911.

Application filed March 31, 1910. Serial No. 552,719.

To all whom it may concern:

Be it known that I, CALVIN D. MARSH, a citizen of the United States, residing at Williamsport, in the county of Lycoming and State of Pennsylvania, have invented a new and useful Device for Spirally Twisting Blades for Cutter-Heads, of which the following is a specification.

The invention relates to a device for spirally twisting blades for cutter heads.

The object of the present invention is to provide a simple, inexpensive and efficient device, designed to give a twist and impart a spiral form to thin blades of high speed steel, and capable of enabling pressure to be rapidly applied to the blades at one or more points, whereby heavy jaws containing a relatively large amount of metal may be employed and pressure applied to the thin blades before the latter are cooled by the jaws.

With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawing, and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawing:—Figure 1 is a plan view of a blade twisting device, constructed in accordance with this invention. Fig. 2 is a transverse sectional view of the same. Fig. 3 is a detail perspective view of the head of the cam lever. Fig. 4 is an edge view of a blade, showing the same before it is operated on by the device. Fig. 5 is a similar view, showing a spirally twisted blade after the same has been operated on by the device.

Like numerals of reference designate corresponding parts in all the figures of the drawing.

In the embodiment of the invention illustrated in the accompanying drawing, 1 designates a horizontal base carrying a stationary jaw 2 and supporting a movable jaw 3. The stationary jaw 2, which may be formed integral with the base or fixed to the same by any suitable means, is arranged longitudinally of the device at the back of the base, which extends in advance of the stationary jaw to receive the movable jaw 3. The front engaging face 4 of the stationary jaw is spirally arranged and the inner or rear face 5 of the movable jaw is spirally disposed and conforms to the configuration of the engaging face 4 of the rear jaw.

The movable jaw is slidable on the upper face of base, being moved forwardly and rearwardly by the means hereinafter described, and it is provided at the bottom with a transversely disposed slide 6, arranged in a transverse guide-way of the base. The guide-way, which is formed in the base, consists of a rear opening 7 and a front groove 8. The rear opening 7 extends beneath the rear jaw, and the front groove 8, forms a continuation of the rear opening and extends in advance of the stationary jaw, but preferably terminating short of the front edge of the base to form a front wall 9. The transverse slide 6, which is located below the planes of the jaws, is preferably formed integral with the movable jaw, but it may be rigidly connected therewith by any suitable means. A straight flat blade 10 of thin high speed steel, or other suitable material, is introduced between the jaws in a heated condition, and owing to the relatively large amount of metal contained in the jaws, it is necessary that pressure be rapidly applied to the blade before the same is cooled through contact with the shaping jaws. This is effected by means of a cam lever 11, provided at one end with a head 12, eccentrically pivoted to the upper face of the base by a vertical bolt 13, and adapted to swing horizontally to actuate the movable

jaw and to force the same into engagement with the blade. The outer end of the lever is shaped into a handle or grip, and the head, which is provided with an upwardly extended eccentrically curved flange 14 for applying pressure to the blade, has an eccentrically arranged slot 15, receiving a pin or projection 16 of the slide, and adapted to permit the lever to actuate the sliding jaw in the outward movement thereof. The slot 15 is of a width greater than the projection 16, so that the latter is not subjected to the strain incident to applying pressure to the movable jaw. As soon as the movable jaw engages the blade, the eccentrically arranged face formed by the curved flange 14, engages the outer or front side face of the movable jaw, which is forced inwardly or rearwardly until the blade is tightly compressed between the two spiral engaging faces of the stationary and movable jaws. The cam lever may be instantly operated to clamp the blade between the jaws, and after this preliminary pressure is applied to the blade through the cam lever, increased pressure is exerted by means of a horizontal screw 17, arranged approximately at right angles to the lever and having a threaded portion 18, operating through a threaded opening 19 in the curved flange 14 of the head of the cam lever. The curved flange is preferably enlarged at the opening 19, and the screw, which is provided at its outer end with an operating handle 20, is located at a point near the center of the curved flange and in advance of the inner or rear portion, which in practice engages the movable jaw when the lever is at the limit of its inward or clamping movement, as illustrated in Fig. 1 of the drawings. The screw may then be operated to apply increased pressure to the jaws at a different point from that engaged by the head of the cam lever. By this construction pressure may be applied to the blade with sufficient rapidity to insure a proper shaping of the blade before the same is cooled through contact with the clamping jaws. When the blade 10, which is twisted by the jaws, is removed from the device, it retains the twisted or spiral form, as shown at 11 in Fig. 5 of the drawing. The frictional engagement of the screw 17 with the movable jaw will prevent movement of the lever during the operation of the screw.

The pivot of the cam lever may be mounted in various ways. In the accompanying drawing the pivot bolt 13 is provided at the lower end with a nut 21, which may be locked against rotation by one or more fastening devices 22. The nut is located at the lower face of the base, which is provided with integral supporting portions or feet 23, adapted to elevate the base and support the bolt and its nut above the surface upon which the device is placed. While the de-

vice in the drawing is, for convenience of illustration, constructed for operating on a comparatively short blade, it is designed to be made in various sizes for shaping blades for the different cutter heads employed in wood-working machines.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A device for imparting a spiral twist to straight blades including stationary and movable jaws having opposite corresponding spirally disposed blade-engaging faces, means located at the outer side of the movable jaw for applying a preliminary pressure to the jaws, and separate means for applying increased pressure to the jaws at a different point along the exterior of the movable jaw.

2. A device for imparting a spiral twist to straight blades including stationary and movable jaws having opposite corresponding spirally disposed blade-engaging faces, means located at the outer side of the movable jaw for applying a preliminary pressure to the jaws, and separate means carried by the said means for applying increased pressure to the jaws at a different point along the exterior of the movable jaw.

3. A device for imparting a spiral twist to straight blades including two jaws or members having opposite spirally disposed blade-engaging faces, a cam lever for applying preliminary pressure to the jaws or members, and a screw carried by the cam lever and arranged to apply increased pressure to the jaws at a different point from the cam lever.

4. A device for imparting a spiral twist to straight blades including two jaws or members having opposite spirally disposed blade-engaging faces, a cam lever having a curved eccentrically arranged engaging flange and adapted to apply preliminary pressure to the jaws or members, and a screw mounted in a threaded opening of the flange and having an inner engaging end and provided at the outer end with operating means, said screw being arranged to apply pressure at a different point from the lever.

5. A device for imparting a spiral twist to straight blades including a base having a guide-way, a stationary jaw carried by the base, a movable jaw mounted on the base and having a slide operating in the guide-way, said jaws having opposite spirally disposed blade-engaging faces, a cam lever pivoted to the base and connected with the slide and having an eccentrically arranged flange for engaging the movable jaw, and a screw carried by the cam lever and arranged to engage the movable jaw.

6. A device for imparting a spiral twist to straight blades including a base having a transverse guide-way and provided with a

stationary jaw having a spirally disposed blade engaging face, a movable jaw having a transversely disposed slide operating in the guide-way and provided with a projection, a cam lever eccentrically pivoted to the base and having an eccentric slot receiving the slide, said cam lever being also provided with an eccentrically arranged flange for engaging the movable jaw, and a screw pierc-

ing the said flange and arranged to engage the jaw at a different point from the lever. 10

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

CALVIN D. MARSH.

Witnesses:

J. H. ARNOLD,

P. E. STRYKER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."