

J. B. ETTINGER, DEC'D.
G. A. ETTINGER, ADMINISTRATRIX.
MECHANISM FOR CLAMPING MEMBERS ON SPINDLES.
APPLICATION FILED NOV. 5, 1921.

1,434,433.

Patented Nov. 7, 1922.

Fig. 1

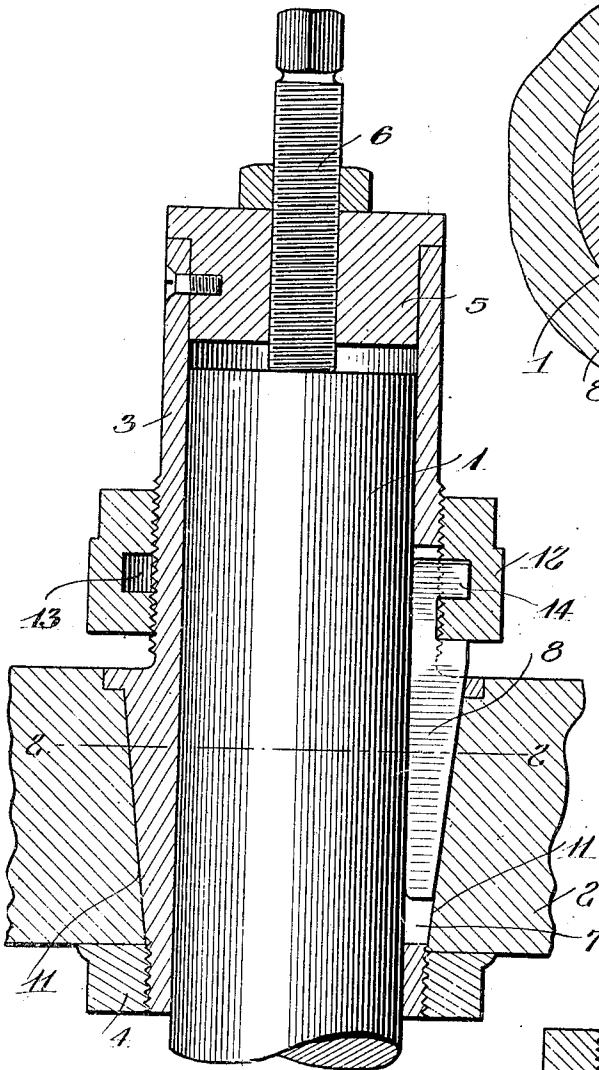


Fig. 2

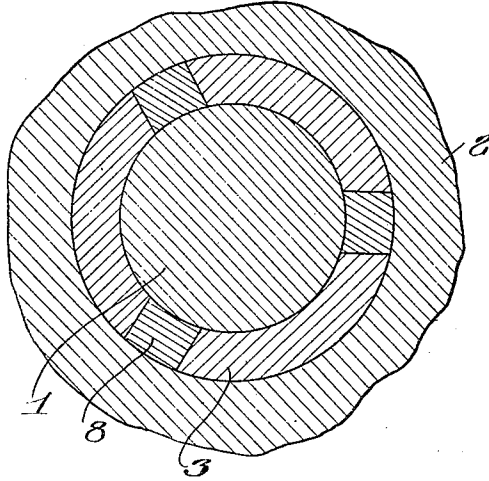


Fig. 3

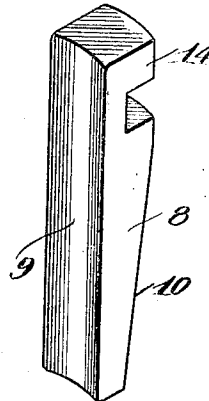
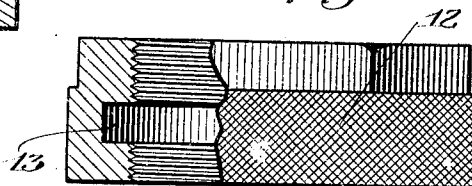


Fig. 4



INVENTOR.
Grace A. Ettinger, administratrix of the
estate of Joel B. Ettinger; deceased
BY *Harold E. Stenbraten*
her ATTORNEY

UNITED STATES PATENT OFFICE.

JOEL B. ETTINGER, DECEASED, LATE OF PORTLAND, OREGON, BY GRACE ANDERSON
ETTINGER, ADMINISTRATRIX, OF PORTLAND, OREGON.

MECHANISM FOR CLAMPING MEMBERS ON SPINDLES.

Original application filed June 1, 1921. Serial No. 474,191. Divided and this application filed November 5, 1921. Serial No. 513,156.

To all whom it may concern:

Be it known that JOEL B. ETTINGER, deceased, late a citizen of the United States of America, and resident of Portland, in the county of Multnomah and State of Oregon, did invent certain new and useful Improvements in Mechanism for Clamping Members on Spindles, of which the following is a specification.

The invention relates to a mechanism for clamping a member on a spindle, and is applicable more particularly to securing, in fixed relationship upon a spindle, a cutter-head such as employed in woodworking machinery, as for shaping moldings, grooving and the like, and it has for its object to afford a practical, efficient, and readily adjusted arrangement of parts for securing a cutter-head or other unit upon a spindle or similar rotary support.

More particularly, the purpose of the invention is to afford a construction that will enable quickly and accurately centering a member or cutter-head upon a spindle and clamping it tightly on such support.

This application is a division of original application filed June 1, 1921, Serial No. 474,191, and other objects and advantages will appear fully from the following detailed description when read in conjunction with the accompanying drawing, the novel features being pointed out in the claims at the end of the description.

In the drawing:

Figure 1 is a vertical sectional view, taken centrally through a cutter-head and its supporting spindle, with parts in elevation;

Figure 2 is a horizontal sectional view on line 2—2 of Figure 1;

Figure 3 is a perspective view of one of the clamping keys, and

Figure 4 is a sectional view partially in elevation of the actuator for the clamping keys.

The invention is applicable to the mounting of different types of cutter-heads, hubs, or other equivalent members, upon a supporting spindle, wherever it is essential to bring about an accurate positioning and a rigid attaching of the member to be supported, by parts that are quickly adjustable. This is accomplished in a general way by utilizing a plurality of independent, re-

movable clamping devices, such as keys, arranged between the supporting spindle 55 and the cutter-head or other member to be supported, and held in proper relationship by a positioning means which serves to guide the clamping devices to final clamping position. The clamping keys have an adjustable movement longitudinally of the spindle, and laterally of the positioning means as they are actuated to clamping position, thus insuring the correct centering of the member on the spindle.

As a convenient illustrative embodiment, there is shown a supporting spindle 1, and a cutter-head or other member to be supported, designated at 2, while 3 is the positioning means, here shown in the form of a sleeve, the lower portion of which extends between the spindle 1 and head 2. The sleeve 3 carries a nut 4 at its lower end, upon which rests the head 2, while 5 is a cylindrical end piece or plug attached to the upper end of the sleeve, and carrying an adjustable post 6 arranged to engage the upper end of the supporting spindle 1.

The sleeve 3 is provided with a plurality of slots 7 cut entirely therethrough, and adapted to receive the clamping devices or keys 8. Each clamping key includes a longitudinally straight surface 9, and a longitudinally inclined surface 10 for engagement with a correspondingly inclined surface 11, the surfaces 9 and 10 being curved transversely to conform to the adjacent surfaces of the spindle and cutter-head.

Thus when the clamping keys are moved lengthwise into the head, they bring about an accurate centering of the head, as the position of the head on the spindle depends entirely upon the thickness and accuracy of the clamping keys, while the positioning sleeve serves only to maintain the clamping keys in their proper longitudinal relation on the spindle. Various means may be utilized for effecting the necessary movement of the clamping keys, and a preferred way of accomplishing this is by means of an actuator, in the form of a ring 12, threaded on the positioning sleeve 3, and provided with an interiorly arranged annular recess 13. Each clamping key is provided with a lateral extension or lug 14 at its upper end, which projects into the

annular recess 13, so that as the actuator 12 is turned in one direction or the other, it carries with it the several clamping keys.

As the clamping keys are operated inwardly of the cutter-head and longitudinally of the spindle, they are guided by the positioning sleeve 3 and produce a wedging action between the cutter-head and spindle, by reason of the inclined surfaces on the keys and head, and this action continues until a tight fit is obtained. The mechanism enables a cutter-head to be mounted rapidly in fixed relation on a spindle, also permitting its removal just as quickly, while at the same time insuring centering a cutter-head with maximum accuracy relatively to a spindle.

While the invention is herein set forth with reference to a certain structure, it may be modified in different ways without departing from the underlying novel features, and the application is intended to cover any modified forms or arrangements that may come within the intended scope of the invention and of the following claims.

Claims:

1. Mechanism for clamping a cutter-head on a spindle, comprising positioning means adapted to be arranged between the spindle and cutter-head, and a plurality of separable clamping devices cooperating with said positioning means and having surfaces conforming to and engageable with the adjacent surfaces of the spindle and the cutter-head.
2. Mechanism for clamping a cutter-head on a spindle, comprising positioning means adapted to be arranged between the spindle and cutter-head, and a plurality of separable clamping devices removably cooperating with the positioning means and having surfaces conforming to and engageable with the adjacent surfaces of the spindle and the cutter-head.
3. Mechanism for clamping a cutter-head on a spindle, comprising positioning means adapted to be arranged between the spindle and cutter-head, and a plurality of separable clamping devices adjustable longitudinally of the spindle within said positioning means and having surfaces conforming to and engageable with the spindle and the cutter-head.
4. Mechanism for clamping a cutter-head on a spindle, comprising a positioning sleeve adapted to be interposed between the spindle and cutter-head, and clamping devices guided by the sleeve and adjustable longitudinally of the spindle for clamping said parts together, said clamping devices having surfaces conforming to the cutter-head and spindle.
5. Mechanism for clamping a cutter-head on a spindle, comprising a positioning sleeve adapted to be interposed between the spindle and the cutter-head, clamping de-

vices guided by said sleeve and adapted to be adjusted longitudinally of the spindle for clamping said parts together, said clamping devices having surfaces conforming to the cutter head and spindle and an actuator adjustable on the sleeve and cooperating with said clamping devices for moving them to and from clamping relationship.

6. Mechanism for clamping a cutter-head on a spindle, comprising positioning means adapted to be arranged between the spindle and cutter-head, a plurality of clamping devices removably cooperating with the positioning means, said clamping devices having surfaces conforming to the cutter-head and spindle, and an actuator connected with said clamping devices and operable to adjust them simultaneously.

7. Mechanism for clamping a cutter-head on a spindle, comprising positioning means adapted to be arranged between the spindle and cutter-head, a plurality of clamping devices, removably cooperating with the positioning means, each clamping device comprising a key having a straight surface conforming to and arranged for engagement with the spindle and an inclined surface conforming to and arranged for engagement with a corresponding surface on the cutter-head, and an actuator connected with said clamping devices and operable to adjust them simultaneously.

8. Mechanism for clamping a cutter-head on a spindle, comprising positioning means adapted to be interposed between the spindle and cutter-head, and a plurality of clamping devices guided by the positioning means and adjustable longitudinally of the spindle, each clamping device consisting of a key having a straight surface conforming to and engaging the spindle and an inclined surface conforming to and engaging a corresponding surface on the cutter-head.

9. Mechanism for clamping a cutter-head on a spindle, comprising a positioning sleeve adapted to be arranged between the spindle and cutter-head, the sleeve having a plurality of openings therein, and clamping devices adjustable in said openings, and having surfaces conforming to and engageable with the adjacent surfaces of the spindle and the cutter-head.

10. Mechanism for clamping a cutter-head on a spindle, comprising a positioning sleeve adapted to be arranged between the spindle and cutter-head, the sleeve having a plurality of openings therein, and clamping devices adjustable in said openings, each of said clamping devices having a straight surface conforming to and engageable with the spindle and an inclined surface conforming to and engageable with the cutter-head.

11. Mechanism for clamping a cutter-head on a spindle, comprising a positioning sleeve adapted to be arranged between the spindle

and cutter head, the sleeve having a plurality of openings therein, a plurality of clamping devices adjustable in said openings and acting to clamp said cutter-head on the spindle, said clamping devices having surfaces conforming to and engageable with the adjacent surfaces of the spindle and cutter-head, and an actuator adjustable on the positioning sleeve and cooperating with said clamping devices to adjust them simultaneously.

12. Mechanism for clamping a cutter-head on a spindle, comprising a positioning sleeve adapted to be arranged between the spindle and cutter-head, the sleeve having a plurality of openings therein, clamping devices movable in said openings, said clamping devices having surfaces conforming to and engageable with the adjacent surfaces of the spindle and cutter-head, and an actuator threaded on said positioning sleeve and having an interiorly arranged annular slot, each of the clamping devices having a lateral extension cooperating with said slot whereby adjustment of the actuator serves to move the clamping devices simultaneously.

13. Mechanism for clamping a cutter-head on a spindle, comprising a positioning sleeve adapted to be arranged between the spindle and cutter-head, the sleeve having a plurality of openings therein, clamping devices movable in said openings, said clamping devices having surfaces conforming to and engageable with the adjacent surfaces of the spindle and cutter-head, and an actuator threaded on said positioning sleeve and having an interiorly arranged annular slot, the clamping devices having lateral extensions cooperating with said slot whereby adjustment of the actuator serves to move the clamping devices simultaneously, each clamping device comprising a removable key having a straight surface for engagement with the spindle and an inclined surface for engagement with a corresponding surface on the member to be clamped.

In witness whereof, I have hereunto signed my name.

GRACE ANDERSON ETTINGER,
Administratrix of the estate of Joel B. Ettinger, deceased.