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CAM LOCK FOR CHUCK JAWS

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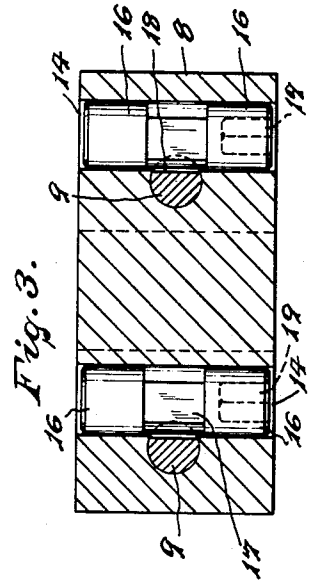


Fig. 3.

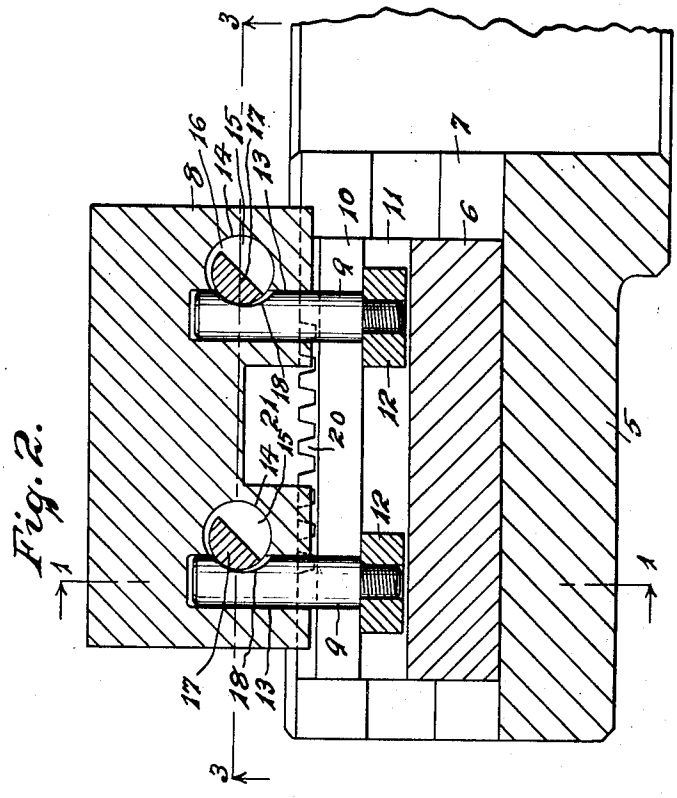


Fig. 2.

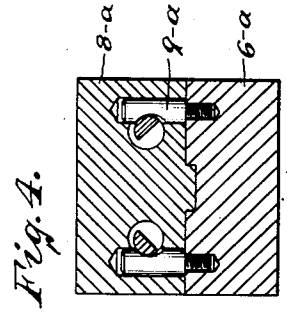


Fig. 4.

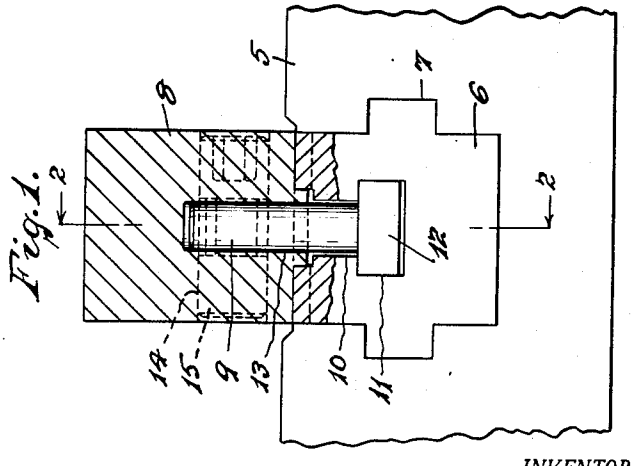


Fig. 1.

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CAM LOCK FOR CHUCK JAWS

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5 Claims. (Cl. 279—123)

1

This invention relates to a cam lock for chuck jaws and more particularly to a device for detachably securing and locking the top jaws to the master jaws of chucks and the like.

It is an object of this invention to provide novel and efficient locking means for adjustably and detachably securing the top jaws to the master jaws of chucks such as commonly used for chucking work pieces in turning machines.

It is a further object of this invention to provide such locking means which may be easily and quickly operated for detaching or attaching a top jaw to the master jaw of a chuck.

A still further object is to provide such locking means which will be durable, easy to use and inexpensive to produce, and which may be interchanged between different master jaws and top jaws for quickly securing and locking the top jaws in different positions upon the master jaws of a chuck.

Further objects and advantages of this invention will be more clearly understood from the following description and from the accompanying drawings in which:

Fig. 1 is a sectional end view, on line 1—1 of Fig. 2 showing a portion of a chuck embodying my invention.

Fig. 2 is a sectional side view on line 2—2 of Fig. 1.

Fig. 3 is a sectional bottom view, on line 3—3 of Fig. 2, with the camming members shown in elevation.

Fig. 4 is a sectional side view showing a modified form of my invention.

In the embodiment of my invention which is illustrated in the drawings, the numeral 5 denotes the body of the conventional chuck in which there are commonly used a plurality of master jaws that are slidably mounted upon the said body and operated by suitable means (not shown) for moving said jaws toward each other to chuck a work piece.

In the illustration of the drawings, there is shown only a portion of the chuck head and a single master jaw with its associated top jaw. The numeral 6 denotes the master jaw, which is usually slidably mounted in a key slot 7 for radial sliding movement in said body, and the numeral 8 denotes a top jaw which is detachable and locked upon the master jaw by the improved locking means embodying my present invention.

The said locking means preferably includes a pair of upright posts 9—9 which extend into a key slot 10 having an undercut portion 11. Each of the said posts 9 has secured to it a base 12

2

that is slidably contained within the undercut portion 11 and the said posts project above the top of the master jaw as shown.

The top jaw 8 has holes 13—13, to receive the posts 9—9, and transverse holes 14—14 which intersect the holes 13—13 and preferably extend through the top jaw. Cam members 15—15 are rotatably contained within the holes 14—14 and each of said cam members is preferably constructed to provide bearing portions 16—16 and an intermediate cam portion 17 which is cross-sectionally eccentric to the axis of the respective cam members 15—15 and adapted to engage the upper wall portions of notches 18—18 in the sides of the said posts.

The said cam members are each provided with suitable means, such as a socket 19, to receive a suitable wrench for rotating the cam members.

In order to adjustably position the top jaw 8 with respect to the master jaw, there is preferably provided in the top jaw a series of teeth 20 on the master jaw which are adapted to mesh with cooperating teeth on the top jaw and adjustably secure the top jaw against longitudinal movement thereon.

In the use of the present invention, when it is desired to attach a top jaw to a master jaw, the posts 9—9 are moved longitudinally in the slots 10 to their required positions with respect to the top jaw. The said top jaw is then placed over ends of the posts 9—9 and upon the master jaw until the teeth 20 mesh with the respective teeth on the top jaw to locate the top jaw in its desired position relatively to the master jaw. The cam members 15—15 are then rotated clockwise, to the position shown in Fig. 2, and the cam portions 17—17 will engage the walls of the notches 18—18 and draw the top jaw securely into engagement with the master jaw and lock it thereto.

When it is desired to detach the top jaw from the master jaw, the cam members are merely rotated in the opposite direction until the cam portions clear the posts and the top jaw may then be readily lifted off the master jaw. If desired, the cam members may be interchanged between different top jaws or they may be rotatably anchored to their respective top jaw to be more convenient.

As shown in Fig. 4, my invention may be adapted to American standard jaws of the tongue and groove type. In this form, the top jaw 8-*a*, is not adjustable relatively to the master jaw 6-*a*

and the posts 9–*a* are threaded directly to the master jaw as shown.

I claim:

1. A device for adjustably securing and locking a top jaw against a master jaw; the said device comprising a post slidable within a slot in the master jaw and anchored thereto, the said post projecting above the top of the master jaw, the top jaw having a vertical opening therein adapted to slidably receive said post, a transverse opening intersecting the said vertical opening, and a rotatable cam member within said transverse opening having a cam portion engageable with the post.

2. A device for adjustably securing and locking a top jaw upon a master jaw; the said device comprising a base slidable in a key slot in the master jaw, a post extending upwardly from said base and projecting above the top of the master jaw, the top jaw having a vertical hole to slidably receive the post and a transverse hole intersecting the vertical hole, the said post having a notch therein, and a cam member rotatable in said transverse recess and engageable with the wall of said notch for forcing the top jaw against the master jaw.

3. A device for securing and locking a top jaw to a master jaw of a chuck; the said device comprising a pair of separate base members slidably anchored in a key slot in the master jaw, a post projecting upwardly from each of said base members and extending above the top of the master jaw, the said top jaw having spaced vertical openings therein adapted to slidably receive the projecting portions of said posts and transverse openings intersecting the vertical openings therein, each of the posts having a notch adjacent to the said transverse openings, and rotatable cam members in each of said transverse openings having cam portions engageable with the walls of the notches in the posts for forcing the top jaw into engagement with the master jaw.

4. In a chuck, the combination of a master jaw, a pair of spaced posts slidably anchored to the master jaw and projecting above the top thereof, a top jaw having a pair of openings therein to slidably receive the projecting portions of the posts and transverse openings intersecting the first-mentioned openings, each of said posts having a notch adjacent to the transverse opening, means slidably connecting the top jaw with the master jaw to permit relative longitudinal movement between said jaws, and cam members rotatably contained in each of the said transverse openings for engaging said posts and forcing the top jaw into engagement with the master jaw; the said cam members each comprising an elongated member having spaced annular end portions rotatable in the transverse openings and an intermediate cam portion eccentric to the axis of the cam member and engageable with the wall of the notch in the respective post for camming the top jaw against the master jaw.

5. In a chuck, the combination of a master jaw having a longitudinal slot therein with an undercut portion, a base member slidable in said undercut portion, a post secured to said member and extending upwardly through the slot and projecting above the top of the master jaw, a top jaw having a vertical opening therein adapted to slidably receive the post, means for longitudinally adjustably positioning the top jaw upon the master jaw, the said post having a notch in the side thereof, the top jaw having a transverse opening intersecting the vertical opening therein, a cam member rotatable in said transverse openings, an eccentric portion on said cam member engageable with the wall of the notch in the post for drawing the top jaw against the master jaw, and means on said cam member for receiving a separate member to rotate it.

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