July 28, 1931. R. S. IGLEHART 1,816,222

LOCKING DEVICE

Filed Oct. 24, 1929

FIG 1

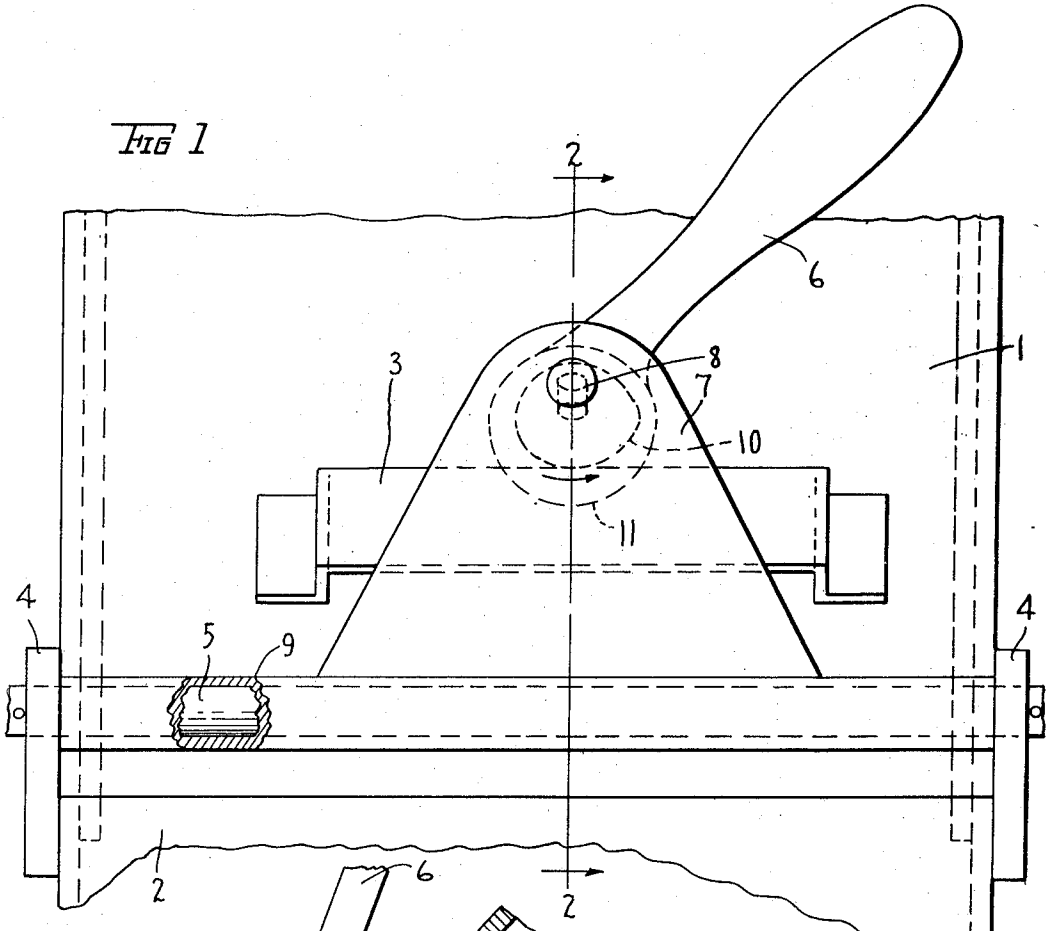
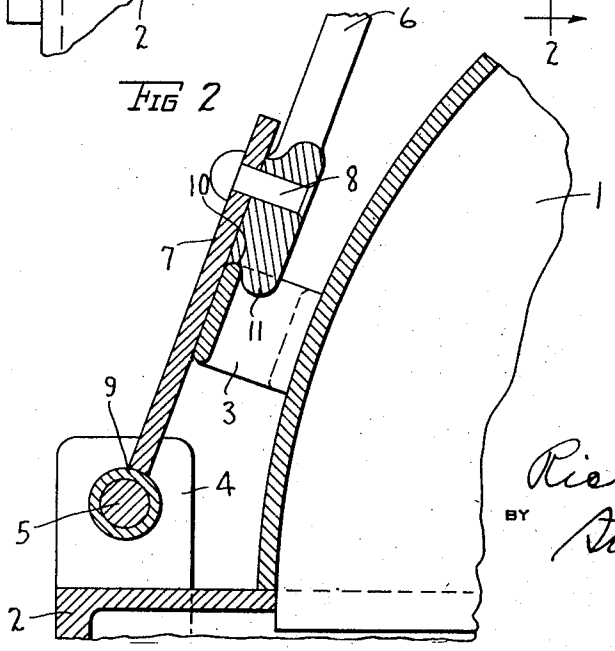


FIG 2



INVENTOR

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Patented July 28, 1931 1,816,222

UNITED STATES PATENT OFFICE

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LOCKING DEVICE

Application filed October 24, 1929. Serial No. 402,253.

This invention relates to locking devices, it more particularly relating to a locking device for the movable casing member of a grinding mill, especially a grinding mill of the hammer type in which vibration is at times severe.

The object of the invention is to provide a locking device which will be quick acting, durable, inexpensive and effective for securely locking the parts; also to provide a locking device in which the effect of vibration when in locking position is to cause the locking device to more securely maintain the parts in locked position.

In the accompanying drawings:

Fig. 1 is a front elevation of my improved locking device.

Fig. 2 is a vertical section on the line 2—2 of Fig. 1.

Referring to the drawings, 1 represents a portion of the upper movable casing member of a grinding mill, and 2 represents the lower stationary portion of the casing to which the upper member 1 is hinged by means not shown in the present case. There is secured to the upper casing member a handle 3 by means of which the upper casing may be lifted, this handle being formed of a flat strap of metal, the intermediate portion of which is spaced away from the wall of the casing by suitably bending the ends of the strap as shown. The lower casing member has ears 4 which carry a rod 5 which furnishes the support for the locking device to be described.

A weighted lever 6 is pivotally mounted upon a flat plate-like arm 7 by means of a rivet 8, this arm 7 being secured to a tubular member 9 which is rotatably mounted on the rod 5 between the ears 4. The outer end of the lever 6 is formed with sufficient metal to give it considerable weight and its inner end is formed with an integral cam 10 so disposed that the lever, when in locking position, will stand at an angle to the effective high part of the cam, or in other words, will stand at an angle to a perpendicular line. One side of this cam is bounded by the arm 7 and the other side by a curved rib 11 formed integrally with the lever to provide a recess to receive the upper edge of the handle 3. This curved rib is of a gradually increasing height, its greatest height being opposite the effective high point of the cam and such as to extend well below the upper edge of the handle 3 while its lesser height is such as to clear the upper edge of the handle 3 when the lever 6 is rotated.

From the drawings it will be seen that with the casing member 1 in position on the casing member 2 the upper edge of the handle 3 will lie in a recess formed by the plate 7 and rib 11 in the path of the cam. By turning the cam lever to the right as viewed in Fig. 1, the cam will be caused to impinge the upper edge of the handle and thereby firmly lock the parts together. Inasmuch as the height of the cam increases in the direction of the arrow in Fig. 1, and as the weighted lever 6 when in locking position leans in the direction to which it is moved to lock the parts, vibrations of the mill will tend to tighten the cam on the edge of the handle 3 so as to maintain a firm locking of the parts under all conditions of use.

To unlock the device the lever is rotated to the left sufficiently to cause the circular rib to clear the upper edge of the handle 3, after which the entire locking device may be swung about the rod 5 away from the case 1 whereupon the case may be lifted.

Having thus described my invention, I claim:

1. A locking device for a pair of members consisting of a plate hinged to one member, a cam lever pivotally connected with said plate, a cam on said lever near its pivoted point, a rib carried by said cam lever adjacent the inner side of said plate, said rib and said plate forming a recess when said lever is in locking position, a strap-like element carried by the other member adapted to be received in said recess when said cam lever is turned to locking position, said rib being adapted to clear said strap-like element when said cam lever is turned to unlocking position.

2. In a locking device for two members, a weighted pivoted cam lever hinged to one member, a cam carried by said lever, a rib adjacent the effective high part of the cam, a

strap-like element on the other member with which said cam and rib cooperate, the effective high part of said cam being so located that said lever will assume a leaning position when said cam is in engagement with said strap-like element, with the cam increasing in height in proportion to the lean of the lever.

3. In a fastening device for securing a movable casing to a stationary casing member, an arm hinged to the stationary member, a lever pivoted to the free end of said arm, a handle secured to said movable casing member constructed of a flat strap having its intermediate portion spaced away from the casing, a cam formed on said lever adjacent the pivotal connection thereof, and a rib formed on said cam, said rib and said cam cooperating with said handle to lock the parts together.

4. A locking device for two members consisting of a cam lever, a support for said lever hinged to one member, said lever being pivoted on said support, a cam formed on said lever about the pivotal point thereof, a rib on said cam, and a strap-like element fastened to the other member, said lever support and rib being positioned to closely embrace said element when said lever is in locking position.

5. In a locking device for two members consisting of a cam lever, a support for said lever hinged to one member, said lever being pivoted on said support, a cam formed on said lever about the pivotal point thereof, a projecting flange on said cam, a strap-like element fastened to the other member with the edge of which said cam engages, said lever support and flange being positioned to closely embrace the sides of said element when said lever is in locking position.

In testimony whereof, I have hereunto set my hand this 22d day of October, 1929.

RICHARD S. IGLEHART.