No. 734,417. PATENTED JULY 21, 1903.

J. H. HUBBELL.

BALANCING DEVICE FOR REVOLVING BODIES.

APPLICATION FILED MAY 19, 1903.

NO MODEL.

Fig. 1.

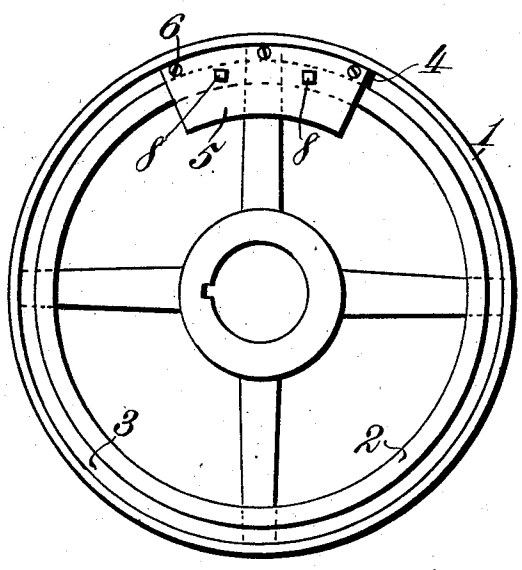


Fig. 2.

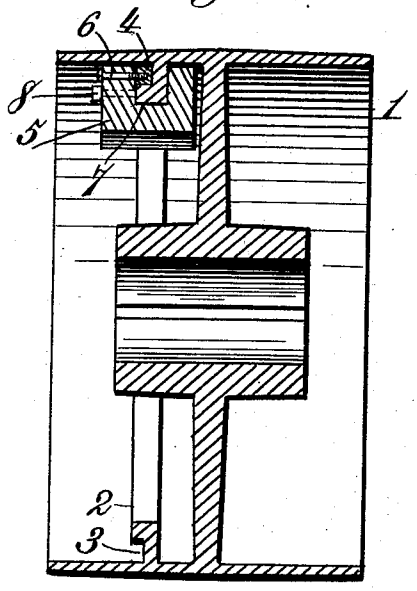


Fig. 3.

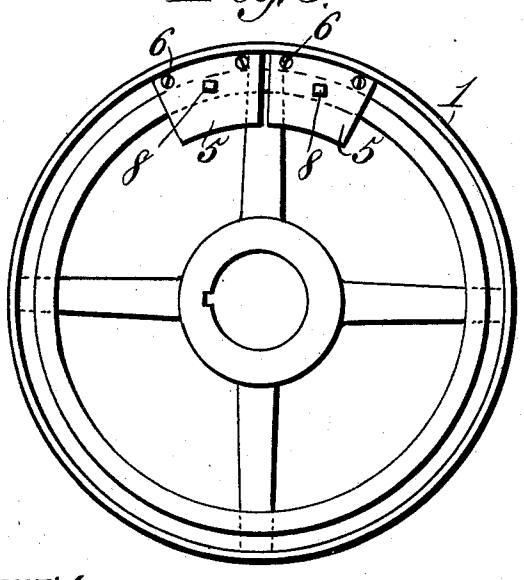
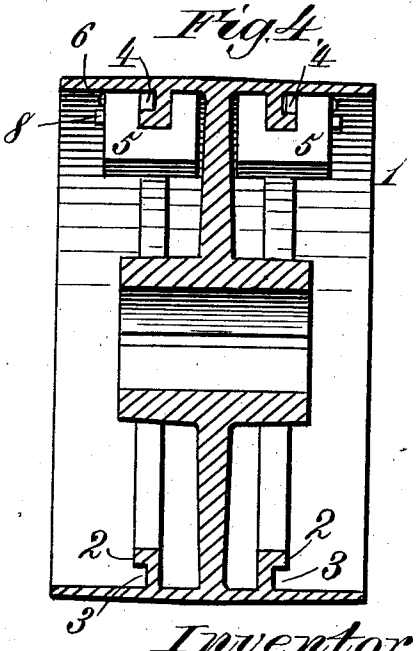


Fig. 4.



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No. 734,417. Patented July 21, 1903.

UNITED STATES PATENT OFFICE.

JOSEPH H. HUBBELL, OF DAYTON, OHIO, ASSIGNOR TO BUCKEYE IRON AND BRASS WORKS, OF DAYTON, OHIO, A CORPORATION OF OHIO.

BALANCING DEVICE FOR REVOLVING BODIES.

SPECIFICATION forming part of Letters Patent No. 734,417, dated July 21, 1903.

Application filed May 19, 1903. Serial No. 157,866. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH H. HUBBELL, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented new and useful Improvements in Balancing Devices for Revolving Bodies, of which the following is a specification.

This invention relates to balancing devices for revolving bodies.

The object of the invention is in a ready, simple, cheap, thoroughly efficient, accurate, and practical manner to effect balancing of a revolving body—such as a pulley, cylinder, disk, fly-wheel, or the like—thereby to counteract any tendency to vibration with attendant danger of racking the machine-frame with which such element is associated and to prevent uneven wear of the bearings supporting the element; furthermore, to obviate expensive fittings and finishings in adapting the device for use, thus relieving it of the objectionable features usually attending the employment of such attachments.

With the above and other objects in view, as will appear as the nature of the invention is better understood, the invention consists in the novel construction and combination of parts of a balancing device for revolving bodies, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which like characters of reference indicate corresponding parts, there are illustrated three forms of embodiment of the invention, each capable of carrying the same into practical operation, it being understood that the elements therein exhibited may be varied or changed as to shape, proportion, and exact manner of assemblage without departing from the spirit thereof.

In the drawings, Figure 1 is a view in side elevation of a band wheel or pulley equipped with the balancing device of this invention. Fig. 2 is a view in vertical transverse section. Fig. 3 is a view in side elevation, showing a slightly-modified form of application of the device to a revolving body. Fig. 4 is a view in vertical transverse section through a revolving body, showing a further modification of the invention.

The attachment constituting the present invention is shown as combined with a band wheel or pulley, this being merely for convenience of illustration and as exhibiting one mode of application of the invention; but it is to be understood that the same device may be employed in connection with a revolving cylinder, disk, fly-wheel, or any other revolving body that it is desired to have run true and without vibration and still be within the scope of the invention, and for this reason it is to be understood, distinctly, that the invention is not to be limited to the precise construction shown.

Referring to the drawings, and to Figs. 1 and 2 thereof, 1 designates a band wheel or pulley on the inner side of the rim of which is arranged a track or guide 2. As herein shown, the track is formed integral with the rim, and from a standpoint of cheapness and simplicity of construction it will generally be preferred thus to combine it with the rim; but, if preferred, the guide may be made as a separate element and be secured to the rim. The outer face of the track or guide is recessed at 3 to present a circumferential channel, in which is adapted to fit a segmental bar 4, to be secured to the balancing-weight 5 and to constitute the clamping or locking element for holding it on the track. In this instance the bar is secured to the weight by a plurality of screws 6, (shown in Fig. 1,) as three in number, but this number may be increased or diminished and still be within the scope of the invention. The balancing-weight 5 is preferably segmental in shape, although it may be of any other contour, and is provided in its upper face with a channel 7 to straddle the track or guide 2. The said weight is held rigidly clamped in its adjusted position by jam-bolts 8, the inner ends of which bear against the outer face of the track-flange, as clearly shown in Fig. 2. To position the balancing-weight upon the track, the segmental bar is first seated within the channel of the track, the weight is then brought to position

straddling the track and the bar, and the screws 6 are then seated in the bar. The jam-bolts may then be tentatively tightened until the proper adjustment of the weight has been secured, whereupon they are then firmly forced against the flange of the track. To make the coaction between the track and the bolts more positive in character, the inner ends of the latter may be pointed, thus to bite into the flange.

As shown in Figs. 1 and 2, but a single weight is employed, and under ordinary conditions this will be found all that is necessary; but the emergency might arise where two or more weights might be essential to effect proper balancing, and in such event the form of embodiment of invention shown in Fig. 3 would be employed, wherein two weights are utilized. It will be obvious that two or more weights may be employed, and as this will readily be understood illustration thereof is deemed unnecessary, as the term "plurality" hereinafter employed will be generic to two or more. The means for assembling the weights shown in Fig. 3 with the track is the same as that employed in connection with the form of embodiment of the invention shown in Figs. 1 and 2, and therefore needs no detailed description. In the arrangement shown in Fig. 3 the weights are carried by a single track; but in some instances it may be desired, as in the case of a long cylinder or a wide band-wheel, to dispose the weights on each side of the center thereof, and under such conditions two tracks will be employed for receiving the weights, as clearly shown in Fig. 4.

In carrying the invention into effect when the track is cast integral with the body to be balanced or where two tracks are employed in the act of turning up the hub and the face of the rim the track or tracks may be dressed if found necessary or desirable. As the weight requires no nice fitting, it may be cast and be readily positioned on the track.

In some classes of machinery, such as rapidly-revolving cutting-machines employing a plurality of knives, these have to be removed for the purpose of sharpening. In replacing them the balance of the cylinder or the head carrying them will be destroyed, resulting in the revolving body having a vibratory movement. By the employment of the novel and simple form of balancing device herein shown this objectionable feature will be readily and absolutely obviated, and owing to the range of adjustment of the balancing weight or weights—that is, around the entire inner diameter of the rim—accurate adjustment of the revolving body may always be secured, no matter at what point it may be out of true.

Having thus described the invention, what is claimed is—

1. A revolving body provided internally with a continuous track or guide having a lateral recess, a weight straddling the track, a clamping element mounted in the recess, means for attaching the element to the weight, and locking means carried by the weight and coacting with the track.

2. A revolving body provided internally with an integral circumferential track or guide having a lateral recess, a weight adapted to straddle the track, a clamping element mounted in the recess, means for connecting the element to the weight, and means carried by the weight for locking it at any desired adjustment upon the track.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOSEPH H. HUBBELL.

Witnesses:
JOHN L. H. FRANK,
SAMUEL FRAZIER.