B. MÜLLER.

CENTRIFUGAL MACHINE BUFFER DEVICE.

APPLICATION FILED AUG. 16, 1907.

928,996. Patented July 27, 1909.

Fig. 1.

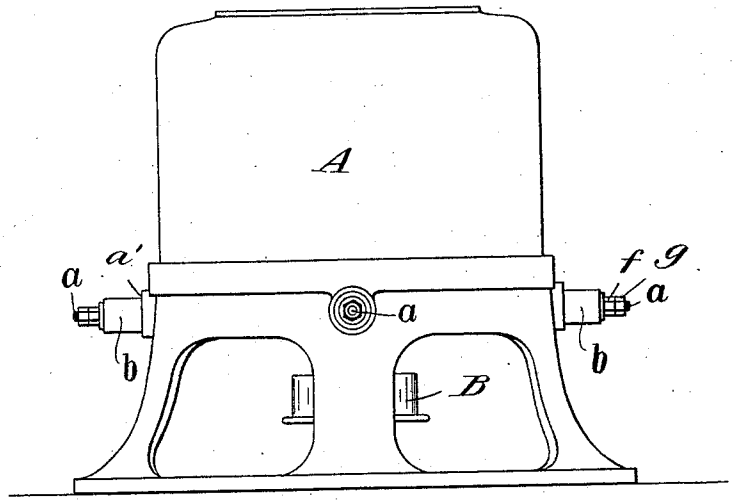


Fig. 2.

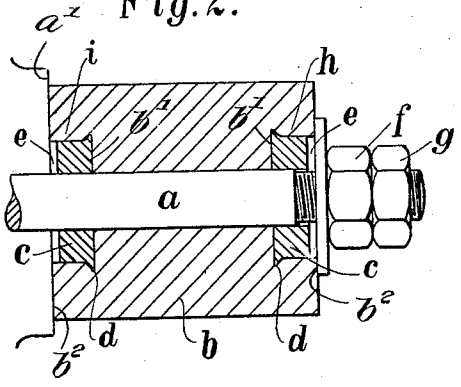
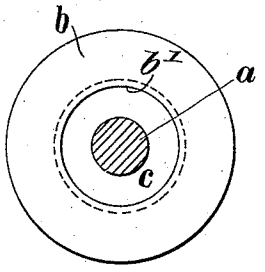


Fig. 3.



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UNITED STATES PATENT OFFICE.

BRUNO MÜLLER, OF WITTGENSDORF, NEAR CHEMNITZ, GERMANY.

CENTRIFUGAL-MACHINE BUFFER DEVICE.

No. 928,996. Specification of Letters Patent. Patented July 27, 1909.

Application filed August 16, 1907. Serial No. 388,858.

To all whom it may concern:

Be it known that I, BRUNO MÜLLER, a subject of the German Emperor, residing at Wittgensdorf, near Chemnitz, in the Kingdom of Saxony and Empire of Germany, have invented certain new and useful Improvements in Centrifugal-Machine Buffer Devices, of which the following is a specification.

This invention relates to improvements in buffer devices for centrifugal machines of that class wherein a vertical shaft is employed and wherein the shaft is held in a vertical position by tie-rods connected by buffers with the machine.

One of the principal objects of the invention is the provision of an improved yielding buffer device designed and constructed in such a manner as to equally distribute the strain imposed upon the yielding portion of the buffer and to generally hold the same in concentric relation with respect to the tie-rods on which it is disposed so that the bore through which the rod projects will not be worn eccentrically as the result of an unequal imposition of strain at different points.

The invention will be more fully described in connection with the accompanying drawings and will be more particularly pointed out and ascertained in and by the appended claim.

In the drawings:—Figure 1 is a side elevation of a centrifugal machine showing my improved buffer device as applied thereto. Fig. 2 is a longitudinal vertical section of one of the buffers. Fig. 3 is an end elevation of one of the buffers with the rod in section.

Like characters of reference designate similar parts throughout the different figures of the drawing.

A conventional form of centrifugal machine is indicated at A and may be provided with a vertically disposed shaft (not shown) adapted to be driven from a pulley B. The vertical shaft is held in a substantially vertical position by a plurality of tie-rods *a* which may be connected with the shaft in any desirable manner and which extend radially outwardly through the machine as indicated in Fig. 1. At that point of the frame where the rods *a* extend through buffer abutments *a'* are formed. The rods *a* also have buffer abutments which are adjustable on said rod and which may comprise washers held in place by nuts *f* and *g* the latter being the usual lock nut.

Buffers of yielding material, such for instance as rubber, are indicated at *b* and said buffers are disposed upon the rods *a* between the stationary abutments *a'* and the adjustable rod abutment so as to yieldingly hold the rods in a normal position and permit them to move inwardly or outwardly a slight distance. The buffers *b* are forced to receive the rods *a* and the bores in the buffers *b* are preferably concentrically disposed therein. The buffers *b* are recessed in their end portions as indicated at *b'* and said recesses are centrally disposed and concentric with respect to the bores of the buffer. It will thus be seen that the ends of the buffer present engaging portions b^2 to the buffer abutment radially outwardly from the recesses *b'*. Bushings *c* are loosely disposed on the rod *a* and are anchored in the recesses *b'*. Preferably said bushings *c* are provided with an annular rim or flange *d* which projects into the body of the buffer *b* and serves to hold the bushings *c* within the recesses and against the inner walls thereof. Preferably said bushings *c* are reduced in thickness with respect to the depth of the recesses *b'* so as to leave spaces *e* between said bushings and their corresponding abutments, as clearly shown in Fig. 2.

It will be seen that the bushings *c* can have no movement other than a movement parallel with the axis of the rod *a* and inasmuch as the bushings engage the buffer *b* at points inwardly with respect to the engagement of the abutment it will be impossible for the bores of the buffer *b* to wear eccentrically with respect to the periphery of the buffer. In other words the bushings *c* will hold the buffer in concentric relation with respect to the rods *a*. It will also be noted that when the nuts *f* and *g* are turned up so as to take up the play or spaces *e* and place the buffer under tension to a sufficient extent to effect engagement between the bushings *c* and their corresponding abutments, that the said buffer will be initially under compression and therefore should there be any difference of density or other defect in the rubber such as would tend to cause one part to yield more than another part the preliminary or additional tension would neutralize such defect and would cause a distribution of

strain, imposed on the bushing *c*, throughout a correspondingly diametrical area surrounding the rod *a*. This construction further prevents the bores of the buffer *b* from wearing eccentrically.

I claim:—

A buffer device for centrifugal machines comprising in combination with an abutment, a tie rod projecting therethrough, a yielding buffer loosely disposed on said tie rod and composed of a homogeneous mass, said buffer being provided with recesses in its ends, bushings loosely disposed on said rod and fitting in said recesses, each of said bushings being of less width than the depth of its respective recess, said bushings having peripherally projecting flanges exceeding the diameter of said recesses and projecting into the walls thereof to hold the bushings against the bases of said recesses and provide open spaces between the outer faces of said bushings and the end faces of said buffer and maintain said buffer in concentric relation with said tie rod, and means disposed on said tie rod to place the buffer under normal tension and effect engagement of said means with one of said bushings and also engage the other of said bushings with said abutment, substantially as described.

In testimony whereof, I affix my signature in presence of two witnesses.

BRUNO MÜLLER.

Witnesses:

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