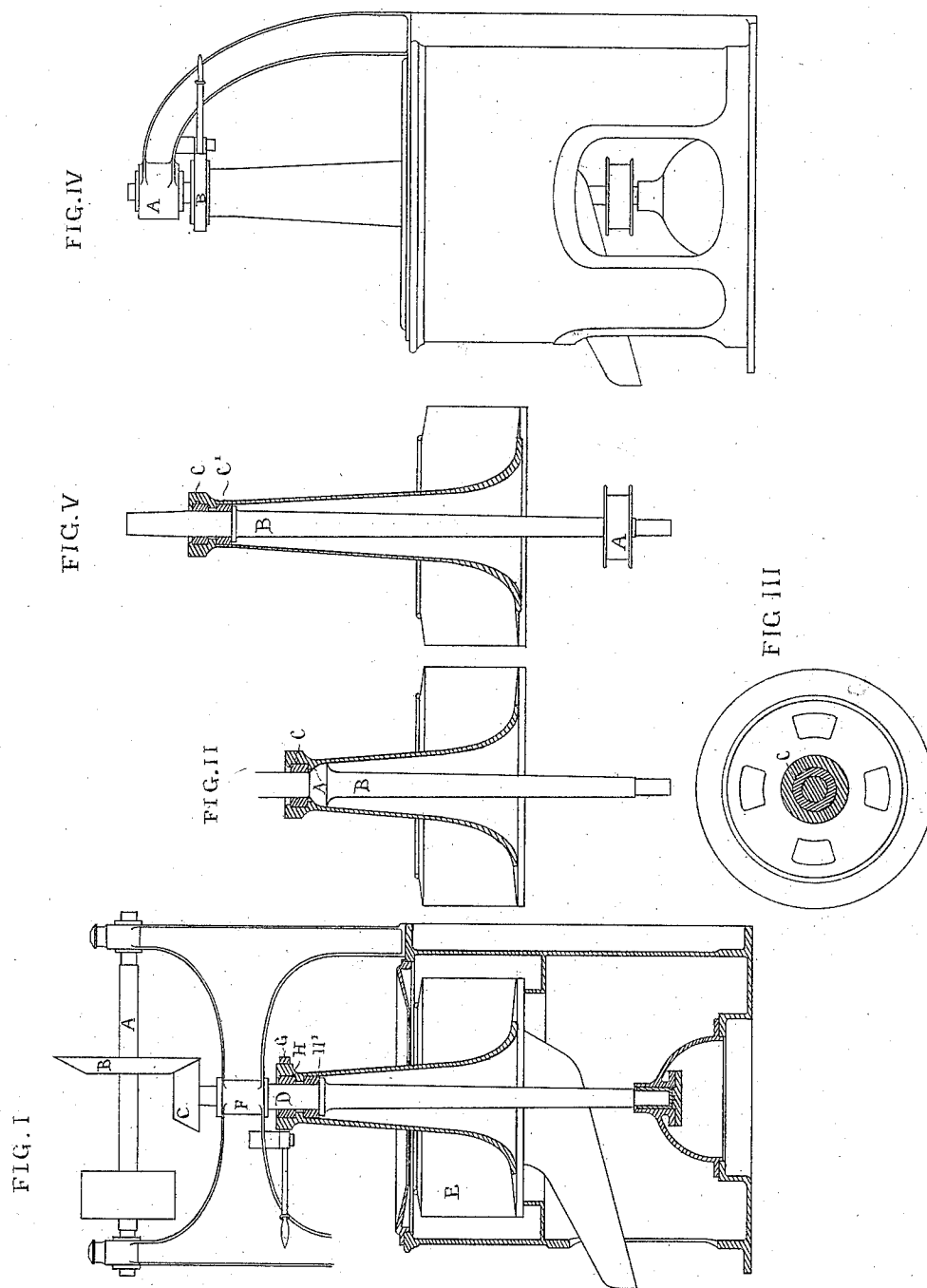


(No Model.)

G. FLETCHER.
CENTRIFUGAL MACHINE.

No. 335,690.

Patented Feb. 9, 1886.



Witnesses
W. T. Norton.
Carrie M. Sweett.

Inventor
George Fletcher
By John J. Halsted, for
his Attys

UNITED STATES PATENT OFFICE.

GEORGE FLETCHER, OF LITCHURCH, COUNTY OF DERBY, ENGLAND.

CENTRIFUGAL MACHINE.

SPECIFICATION forming part of Letters Patent No. 335,690, dated February 9, 1886.

Application filed May 26, 1885. Serial No. 166,724. (No model.) Patented in England February 4, 1885, No. 1,541; in France April 28, 1885, No. 168,543, and in Belgium May 4, 1885, No. 68,749.

To all whom it may concern:

Be it known that I, GEORGE FLETCHER, a subject of the Queen of Great Britain, residing at Litchurch, in the county of Derby, England, have invented new and useful Improvements in Centrifugal Machines, of which the following is a specification.

This invention relates to that class of centrifugal machines which have the basket carried or suspended by elastic bearings, for the purpose of counteracting the jar and vibration caused by the eccentric motion of the basket when the material with which it is loaded is unequally distributed.

Hitherto machines of this class have been made with the vertical center spindle which carries the basket so supported by the elastic bearings that in nearly all cases the action of the driving-belt upon this spindle has tended to force the basket out of the axis of revolution, and thus to materially increase the vibration of the machine.

This invention relates to a new and improved arrangement in which the aforesaid vertical center spindle, which carries and revolves with the basket and has the driven pulley or wheel fixed thereon, is rigid, and is supported at the upper end by a coned metal bearing and carried at the bottom end by a footstep block or bearing. The center piece of the basket consists of a hollow shaft or sleeve fixed upon the above center spindle by means of one or more rings or tubes of elastic material, or by means of elastic rings or tube and coiled springs combined, or by means of coiled or any other springs alone, or by means of the ball and hemispherical bearing, or by means of the ball and hemispherical bearing combined with one or more of the before-mentioned elastic rings, tubes, or springs. These elastic bearings or springs, or their equivalents, allow the basket to revolve in the axis of equilibrium, so that when unequally loaded the jar and vibration of a fixed basket is avoided, and at the same time the springs have a tendency to bring the axis of revolution concentric with that of the fixed center spindle. This has the effect of tending to level or equally distribute the contents of the basket, so that after some few revolutions the basket will tend to obtain and

revolve evenly in an axis concentric with that of the center spindle.

This invention has the further advantage of allowing the machine to be driven as may be required, by gearing either overhead or underneath—that is to say, the driven pulley or wheel fixed upon the vertical center spindle may be placed either above or under the basket.

Figure 1 of the drawings represents a vertical section of a top-driven centrifugal machine having the basket carried by elastic rings off the vertical center spindle, as hereinafter described. A is the counter-shaft of the machine, having the friction pulley or wheel B keyed or otherwise secured thereon, the said pulley or wheel B driving the pulley or wheel C, which is keyed or otherwise secured on the vertical center spindle, D, carrying the basket E. F is a boss carrying the coned bearing for the vertical center spindle, and G is the brake acting upon the upper end of the center part of the basket. These rings, by reason of their elasticity, allow the axis to revolve in the axis of equilibrium, thereby tending to avoid jarring and vibration from the unequal loading of the basket; but as they also tend to cause the basket to revolve in an axis concentric with that of the center spindle, it is evident that they tend to level the contents of the basket and to decrease the vibration. These rings or tubes H H' may be made of india-rubber or any other suitable elastic material, or coiled springs may be employed, or ball or hemispherical bearings, or combinations of the same.

Fig. 2 is a vertical sectional view showing a basket carried or suspended by a hemispherical bearing, A, off the center spindle, B. C is an elastic ring or tube. For this ring may be substituted a coiled spring or any combination of the same, or the hemispherical bearing alone may be used.

Fig. 3 is a plan of Fig. 2.

Fig. 4 represents a side elevation of a bottom or under driven centrifugal machine. A is the boss carrying the coned bearing for the spindle, and B is the brake.

Fig. 5 is a vertical section of the basket for an under-driven machine. A is the driven pulley or wheel, keyed or otherwise secured on

the center spindle, B. C C' are elastic rings. For these rings may be substituted a coiled spring, or any combination of springs hereinbefore referred to; or the hemispherical bearing alone may be used.

Having now particularly described and ascertained the nature of the said invention and in what manner the same is to be performed, I declare that what I claim is—

10 1. The combination, with an internal spindle supported at top and bottom in fixed bearings, of a basket hung or suspended thereon and provided with elastic bearings or springs at the point or points of suspension, substantially as shown and described.

15 2. In combination with the spindle having unyielding bearings, the basket E, having the

hollow shaft or sleeve, as set forth, fixed to such shaft by a yielding or elastic connection, as set forth.

3. The described method of carrying or supporting the suspended basket off the non-yielding spindle, consisting in hanging it thereon by elastic or yielding bearings, all as set forth.

GEORGE FLETCHER.

Witnesses:

JNO. MOODY,
Solicitor and Notary Public, Derby, England.

J. W. ROWBOTHAM,
15 *Newland Street, Derby, England, Clerk to Messrs. Moody & Coolley, Solicitors and Notaries Public.*