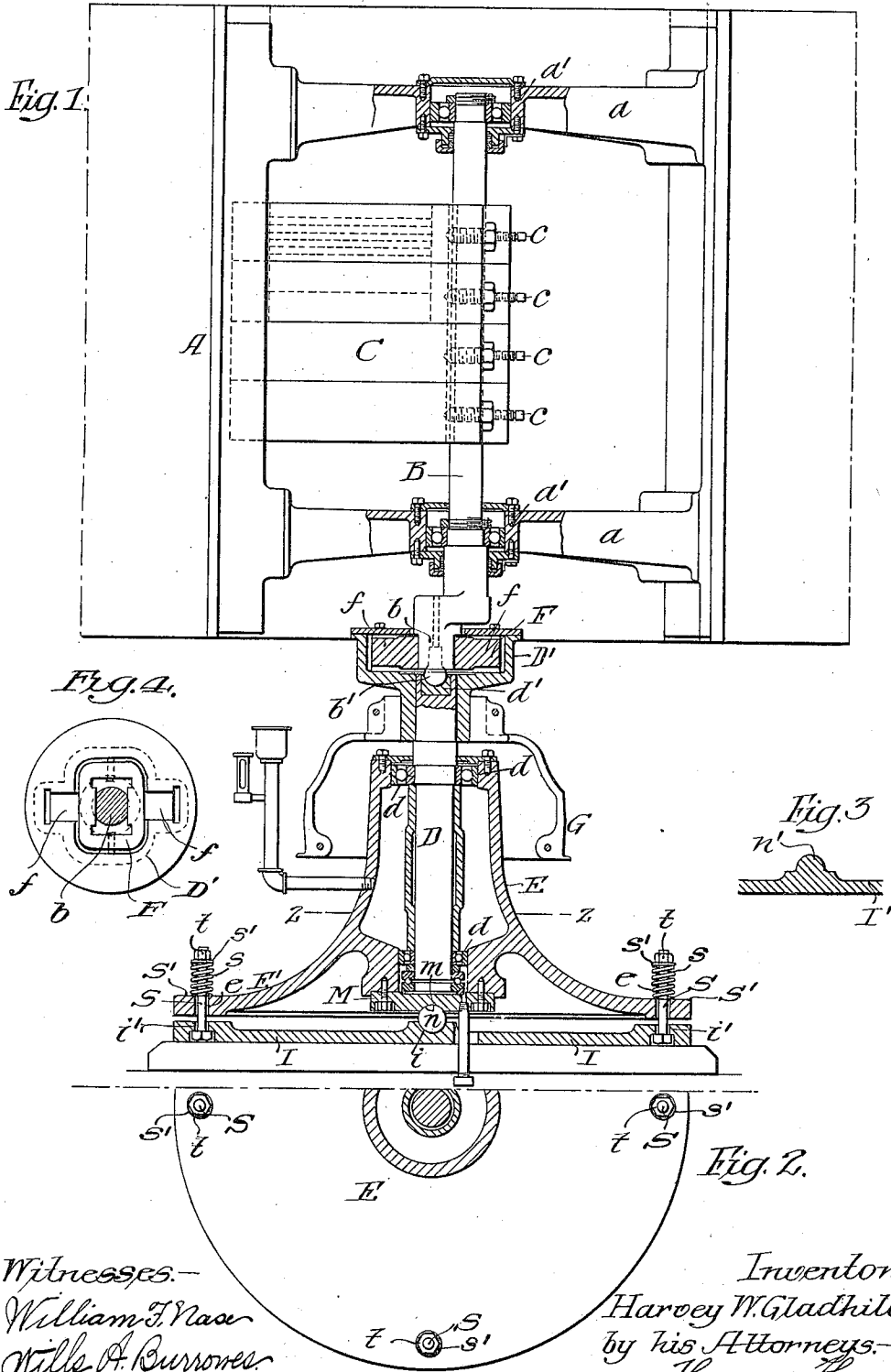


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BALANCING DEVICE FOR SIFTERS.
APPLICATION FILED JAN. 6, 1912.

1,045,694.

Patented Nov. 26, 1912.



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UNITED STATES PATENT OFFICE.

HARVEY W. GLADHILL, OF CHAMBERSBURG, PENNSYLVANIA.

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1,045,694.

Specification of Letters Patent.

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Application filed January 6, 1912. Serial No. 669,800.

To all whom it may concern:

Be it known that I, HARVEY W. GLADHILL, a citizen of the United States, residing in Chambersburg, county of Franklin, State of Pennsylvania, have invented certain Improvements in Balancing Devices for Sifters, of which the following is a specification.

My invention relates to certain improvements in sifters in which the sifter casing is suspended, and the driving mechanism is flexibly connected to the means for giving the casing the desired motion.

The object of my invention is to provide means for balancing the sifter, and this object I attain by mounting the base of the driving mechanism on a sub-base on which it may have a slight rocking motion, as fully described hereinafter, reference being had to the accompanying drawing, in which:—

Figure 1, is a vertical sectional view of a sifter illustrating the driving mechanism in section; Fig. 2, is a sectional plan view on the line 2—2, Fig. 1; Fig. 3, is a sectional view of a modification; and Fig. 4, is a sectional plan view on the line 4—4, Fig. 1.

The driving mechanism for the sifter illustrated in the accompanying drawing is fully set forth and claimed in an application for patent filed by me on the first day of March, 1910, under Serial No. 546,609, and, therefore, I lay no claim to the particular construction of this driving mechanism; the present invention relating particularly to the balancing feature at the base of the machine.

A is the sifter casing having arms *a*, *a*, in which are the bearings *a'* for the crank shaft B. The crank of the shaft is elongated and is mounted in both bearings. Secured to the crank of the shaft between the bearings are adjustable weights C attached to the shaft by screws *c*. The lower end *b* of the shaft is in line with the driving shaft D, which is adapted to bearings *d*, *d* in the standard E.

On the end of the shaft B is a ball *b'* adapted to a socket *d'* in the end of the shaft D, and secured to the upper end of the driving shaft D is a casing D' in which is mounted the connecting collar F having arms *f*, and the collar is slotted at right angles to these arms to accommodate the lower end *b* of the shaft, so that while the crank shaft must turn with the driving shaft, it is free to assume a position at an

angle to the driving shaft without affecting the driven or the driving mechanism, as it will be understood that the standard E is located on the floor and in most instances the casing is suspended from the ceiling.

It is very difficult to aline the floor and the ceiling of a building or to prevent the vibration of one independently of the other, but by making the connection between the driving shaft and the crank shaft in the manner set forth, the parts run smoothly and without the usual jar where one is out of balance with the other. This is fully set forth and claimed in the above mentioned application.

I is a sub-base mounted under the base E' of the standard E, and adapted to a socket *i* at the center of this sub-base is a ball *n* which enters a socket *m* in a plate M secured to the underside of the standard E. This ball is in direct line with the center of the driving shaft D. Near the periphery of the base is a series of holes *i'* through which bolts S extend, and these bolts also extend through openings *e* in the base E' of the standard E, and on these bolts are springs *s* confined between the upper surface S' of the standard and a washer *s'* and a nut *t* on the bolts. The springs tend to keep the standard in an upright position in respect to the sub-base, but if the standard has a tendency to assume a position other than a vertical position, then the springs on the side opposite to the pull will yield to assume the position momentarily and return the standard to its normal position immediately it is free. Thus the machine will be prevented from imparting a vibratory motion to the building in which it is mounted. The sub-base can either have a socket to receive the ball, as illustrated in Fig. 1, or the ball, as shown at *n'*, Fig. 3, can form part of the sub-base I.

On rotating the crank shaft B by the main driving shaft D it will make the driving shaft take an angular position out of axial position with the crank shaft; the weights C will maintain it in that position until the machine has attained its normal speed, at which time, if the balance of the parts is perfect, it will be returned to its normal position by the springs *s*, and held there by the tension of said springs. In the present instance, a driving pulley G is mounted on the shaft D or on an extension of the casing D' on the shaft, and by placing more tension

on the springs *s*, on the side of the base directly opposite from the direction in which the driving belt pulls, the influence of the belt is counteracted. If it is desired to use the machine with a rigid base, all that is necessary is to place split washers around the bolts *S* between the sub-base and the base *E'*, and on screwing down the nuts *t* all flexibility of the springs *s* is taken up.

I claim:—

1. The combination in driving mechanism for sifters, of a fixed sub-base; a standard pivotally mounted on the sub-base; springs tending to retain the standard in a vertical position; a vertical driving shaft mounted on the standard; a suspended sifter casing; bearings thereon; a crank shaft adapted to the bearings; the end of the crank shaft resting on the driving shaft and flexibly connected thereto.

2. The combination of a sub-base having a socket; a standard having a central socket alining with the socket in the sub-base; a ball mounted in the said sockets and supporting the standard, said standard having a base; a yielding connection between the sub-base and the base of the standard; and a driving shaft mounted in the standard.

3. The combination of a sub-base; a standard having a base and mounted above the sub-base; a ball and socket joint between the

two parts; each base having a series of openings near its periphery; bolts extending through the openings; springs mounted on the bolts above the base of the standard; nuts on the bolts; and a driving shaft mounted in the standard.

4. The combination of a fixed sub-base; a standard having a base extending over the sub-base; a ball mounted in the sub-base and centrally supporting the standard; a series of springs carried by the sub-base and resting on the base of the standard so as to yieldingly connect the standard to the sub-base; a vertical driving shaft on the standard; a casing; bearings thereon; a vertically arranged crank shaft adapted to the bearings; and means for supporting the casing independently of the driving shaft; with a ball and socket connection between the crank shaft and the driving shaft so as to hold the end of the crank shaft in proper alinement with the driving shaft; and flexible driving means, whereby rotary motion of the driving shaft is imparted to the crank shaft.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

HARVEY W. GLADHILL.

Witnesses:

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