B. STANKOVICH.

SIEVE SHAKER.

APPLICATION FILED DEC. 3, 1921.

1,422,230.

Patented July 11, 1922.

2 SHEETS—SHEET 1.

Fig. 1

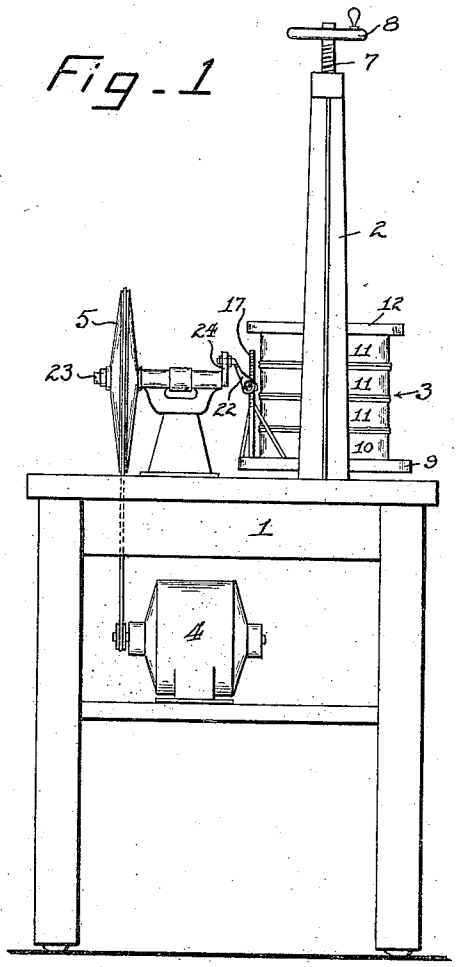


Fig. 2

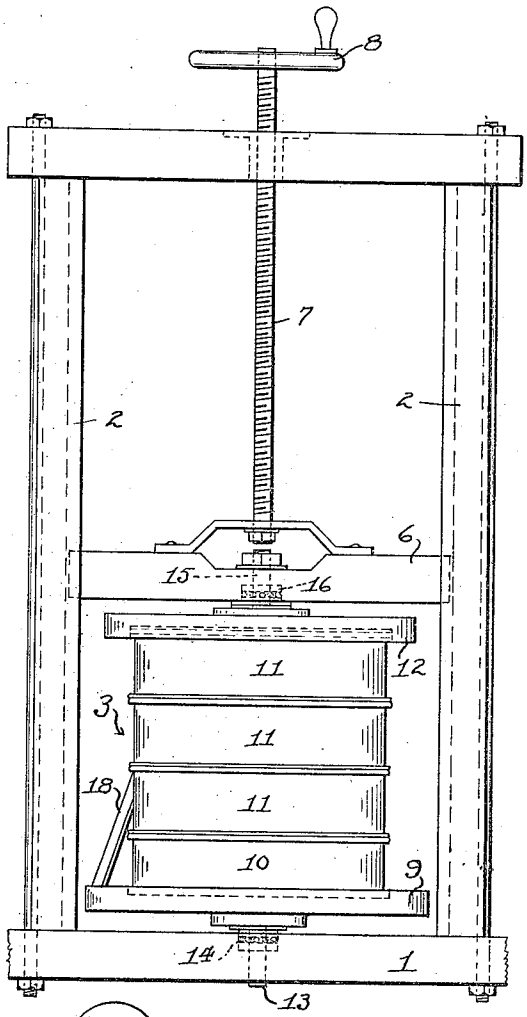
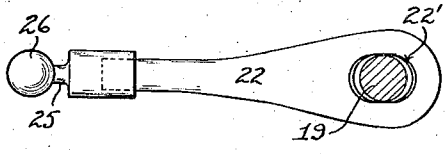


Fig. 6



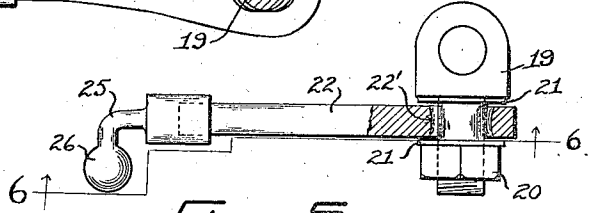


Fig. 5

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2 SHEETS—SHEET 2.

Fig. 3

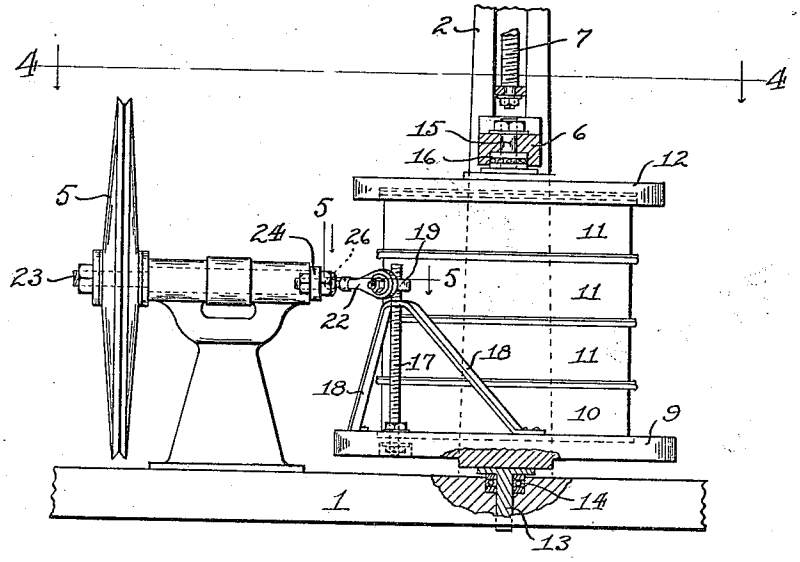
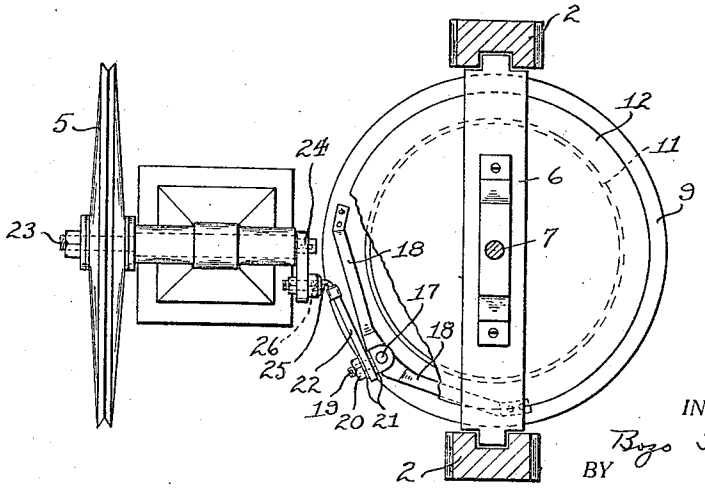


Fig. 4



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UNITED STATES PATENT OFFICE.

BOZO STANKOVICH, OF SAN FRANCISCO, CALIFORNIA.

SIEVE SHAKER.

1,422,230. Specification of Letters Patent. Patented July 11, 1922.

Application filed December 3, 1921. Serial No. 519,604.

To all whom it may concern:

Be it known that I, BOZO STANKOVICH, a citizen of the United States, residing at the city and county of San Francisco, and State of California, have invented certain new and useful Improvements in Sieve Shakers, of which the following is a specification.

My invention relates to that class of separating devices in which a tier or column of sieves of successively increasing fineness has imparted to it a shaking motion, whereby the material fed to the uppermost sieve is separated throughout the series of sieves according to the size of its particles. Although such sieve-shakers may be used for the separation, for any purpose, of various broken, comminuted, granular, or pulverulent substances, these devices are often used for testing the fineness of cement. Specifications for construction work call for a certain proportionate fineness of cement as determined by its capacity to pass through a definite screen. Whether the material furnished is or is not up to the specification requirement is tested by passing it through the column of sieves, the final member of which is the screen called for, and then determining the proportion so finally passing, by weighing the portions left behind in the other sieves. Experience in the use of such devices has led to improvements along the line of the nature and character of the shake imparted to the sieve column, and the mechanical connections for producing it. In these particulars especially, my invention consists and its object is to obtain a maximum shake efficiency consistent with a minimum wear and tear on the relatively delicate sieve or screen members.

Referring to the accompanying drawings—

Fig. 1 is an elevation of my sieve-shaker, assembled.

Fig. 2 is a front elevation, enlarged, of the sieve-column and frame.

Fig. 3 is an elevation, partly broken, of the sieve-shaker.

Fig. 4 is a top plan, partly in section and broken, of the same, taken on the line 4—4 of Fig. 3.

Fig. 5 is a detail view showing the free-playing connection of the link with the arm of the screw-standard.

Fig. 6 is an elevation of the same on the line 6—6 of Fig. 5.

Referring first to Fig. 1, the numeral 1 is a stand upon which is supported the frame standards 2 which carry the sieve column indicated as a whole by 3. A motor 4 carried by the stand 1, drives a pulley 5, which through the connections presently described imparts the necessary movement to the sieve column.

Referring now to the remaining figures of the drawing, it will be seen that the standards 2 carry a cross-head 6, adapted for vertical adjustment by means of a screw 7 and hand wheel 8.

The sieve column comprises a base plate 9, a pan 10 fitted therein, a plurality of sieves 11, and a cover plate 12. The sieves, as usual, have a screening surface, unnecessary herein to show, increasing in fineness from the uppermost sieve to the lowermost. There may be any number of these sieves, the adjustable cross head providing for the required variation in number. Three are here shown for the sake of illustration. The base plate 9 is provided with a pivot 13 fitted in a bearing 14, preferably of the ball type, in the base member of the general frame. The cover plate 12 is likewise provided with a pivot 15, fitted in a bearing 16 in the cross-head 6. Thus the sieve-column is mounted for oscillation on its vertical axis. Secured to the base-plate 9 and rising exteriorly to the sieves is a screw-standard 17, further supported by braces 18, Fig. 3. Upon the screw-standard is threaded an arm 19, upon the free end of which is fitted by a nut 20 and washers 21, a link 22.

The shaft 23 of the pulley 5 carries a crank 24. The link 22 and the crank 24 are connected by a goose-neck member 25 through a universal or ball-joint 26.

By reference to Figs. 5 and 6, it will be seen that the connection between the link 22 and the arm 19 of the screw-standard 17 is a relatively loose or free-playing one, due to an enlarged hole 22′ in the link head by which it is fitted on the arm, and to a comparatively loose lateral binding of the link on the arm, by the nut 20 and washers 21. This hole 22′, in its best form, is oblong in the longitudinal line of the link, as seen in Fig. 6, the length of the major axis of said hole being predetermined by the amount of jar it is found best to impart to the sieve-column.

It will now be seen that the unidirectional rotation of the crank 24 imparts an oscillatory motion to the sieve column about the

vertical axis of said column, the departure of the link 22 to either side of a true tangent being permitted by the free-playing connection of said link with the arm 19. But particularly it will be noted that, due to the oblong hole 22′ in the link head, there is at each reversal of movement of the link, a decided and positive jar imparted to the sieve-column, which is the effect sought by my invention and which is highly beneficial to the separation of the material being treated, without undue wear and tear on the screens. This effect on the screens is, moreover, increased, but without severe jarring, by the free mounting of the link head on the arm 19, between the spaced abutments formed by the washers 21, which latter are controlled by the nut 20. In the movement of the link 22 to either side, the opposite faces of the free playing link-head coming in contact with the abutments or washers on each side impart an additional jar to the screens, the force of which is in part softened by the yielding of the washers, and is also subject to nice adjustment and control by the nut 20. The adjustment of the arm 19 on the screw standard 17 provides for the accurate assemblage of the connections.

I claim:—

1. A sieve-shaker comprising a sieve-column mounted for oscillation about its vertical axis; an arm associated with and adapted to oscillate said column, said arm having spaced abutments; a driving shaft; and a link connected at one end with said crank and having in its other end an enlarged hole freely fitting over said arm for longitudinal play, said link having also lateral play between and against the abutments of the arm.

2. A sieve-shaker comprising a sieve-column mounted for oscillation about its axis; an arm associated with and adapted to oscillate said column, said arm having spaced abutments relatively adjustable; a driving shaft; a crank on said shaft; and a link connected at one end with the crank, and having at its other end an enlarged hole by which it is loosely fitted upon the arm for longitudinal play, said link having also lateral play between and against the abutments of the arm.

3. A sieve-shaker comprising a sieve-column mounted for oscillation about its axis; an arm associated with and adapted to oscillate said column; a driving shaft; a crank on said shaft; and a link connected at one end with the crank, and having at its other end an oblong hole the major axis of which is longitudinal of the link, said hole fitting freely over the arm of the sieve-column, washers on the arm between and against which the link has lateral play; and a nut on the end of the arm to control the lateral play of the link.

4. A sieve-shaker comprising a sieve-column mounted for oscillation about its vertical axis; a standard secured to the exterior of said column; an arm adjustably carried upon said standard; a driving shaft having a crank; and a link connected at one end with the crank, and at its other end loosely connected with the arm for longitudinal and lateral play, adapting it to oscillate said column and to jar it upon reversing at the limits of its movement.

In testimony whereof I have signed my name to this specification.

BOZO STANKOVICH.