Sept. 3, 1929. W. SELTNER 1,726,630

ACTUATING MECHANISM FOR VIBRATORY APPARATUS

Filed July 7, 1924

Fig. 1

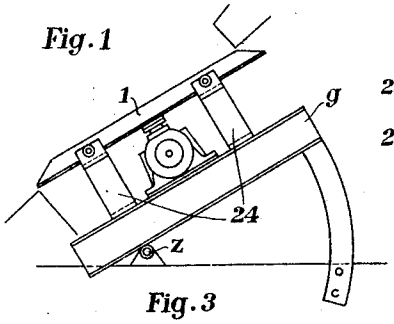


Fig. 2

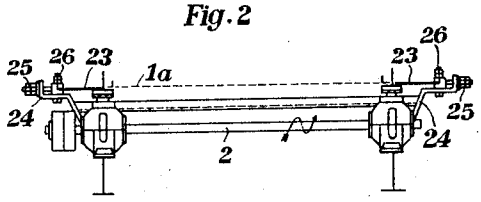


Fig. 3

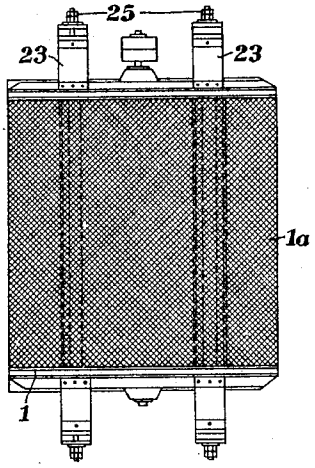


Fig. 4

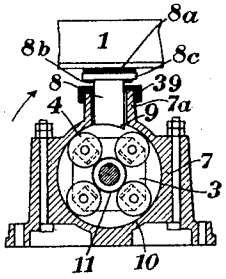


Fig. 5

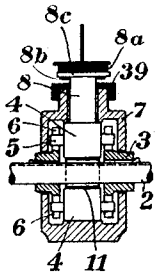


Fig. 6

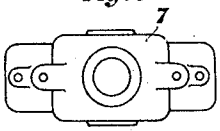


Fig. 10

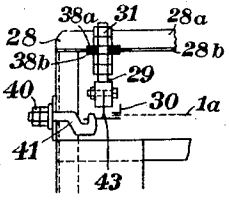


Fig. 7

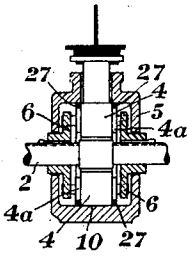


Fig. 8

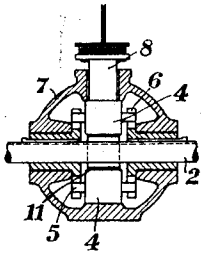
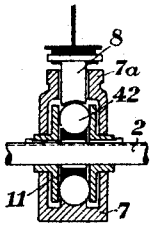


Fig. 9



W. Seltner
INVENTOR

By: Marks & Clerk
Attys.

Patented Sept. 3, 1929. 1,726,630

UNITED STATES PATENT OFFICE.

WILHELM SELTNER, OF SCHLAN, CZECHOSLOVAKIA.

ACTUATING MECHANISM FOR VIBRATORY APPARATUS.

Application filed July 7, 1924, Serial No. 724,691, and in Czechoslovakia July 14, 1923.

This invention relates to actuating mechanisms for apparatus to which vibratory motion is required to be imparted, such as for instance apparatus for classifying and separating materials in ore dressing.

The main object of the invention is to provide an improved driving mechanism for apparatus of the kind under consideration, in which the driving power for setting the apparatus into vibratory motion is reduced to a minimum, and wherein the wear of the moving parts of said mechanism and the cost of its repair and maintenance are reduced accordingly.

Another object of the invention is to provide improved means by which the vibratory motion of the classifying member can be readily regulated under conditions which allow the amplitude of the vibrations to be controlled within certain limits.

The nature and scope of my invention is briefly outlined in the appended claims and will be more fully understood from the following specification taken together with the accompanying drawing in which

Figure 1 is a diagrammatic side elevation of a classifying apparatus having a vibrating screen;

Figure 2 is a front view of said apparatus;

Figure 3 is a plan view;

Figure 4–6 illustrate respectively in cross section, sectional and in plan view the principal structural details of the driving mechanism according to this invention;

Figures 7–9 illustrate several modifications of the driving mechanism;

Figure 10 shows a preferred method of fixing the screen to the apparatus.

Referring to the apparatus illustrated in Figures 1, 2 and 3, *g* is a frame which can be adjusted in any desired inclined position by being turned around the pivot Z. 24 are supports provided with leaf springs 23 which carry the screen 1^a. 25 are fixing screws by means of which the screen is strongly stretched. After the screen has been stretched out, the springs are secured to the frame by means of screws 26.

Referring to the mechanism for producing the vibration impacts as illustrated in Figures 4, 5 and 6, 2 is the driving shaft to which are keyed drivers 3, the fork-like projections 6 of which receive the axles 5 of the rollers 4. These driving parts are housed in a preferably completely closed casing 7 into which projects a stamper 8 which engages the frame 1 of the screen 1^a and is provided with a suitably inclined surface 9. It is preferable to have the frame 1 of the screen freely suspended above the stamper 8, which will act as a hammer, that is to say, not to fix it onto the stamper, and to provide the striking surfaces with soft linings 8^a and 8^b. Means are provided for adjusting the stroke of the stamper, said means comprising a screw cap 39 threaded on the casing 7.

When the shaft 2 is rotated in the direction of the arrow shown in Figure 4, the rollers 4 will be rotated and travel in a circular path rolling on the inner wall 10 of the casing 7. The rollers 4 by striking against the inclined surface 9 of the stamper 8 will displace the latter and consequently impart to the screen 1^a, during each revolution of the driving shaft 2, a number of successive vibrations the number of which will correspond to the number of the rollers 4. The oil with which the casing 7 is preferably filled, is agitated by the rollers 4, whereby the respective moving parts are automatically and efficiently lubricated.

In the centre of the driving apparatus the rollers 4 are supported by a sleeve 11 surrounding the driving shaft 2 with ample play, so that the vibration impacts are not transferred to the driving shaft 2. It will thus be seen that all the movements of the driving elements within the casing 7 are of a rolling character.

The rollers 4 may be arranged so as to be capable of being radially displaced within the drivers 3, e. g. by means of journals 5 on the rollers 4 which are slidably guided within the forked portions 6 of the drivers.

As mentioned above the stroke of the stamper 8 may be adjusted according to requirements by means of the screw cap 39, so that the amplitude of the vibratory movements of the screen 1^a is varied.

According to this invention further means are provided for differentiating the vibratory movement of the screen 1^a. As seen in Figure 10 said means comprise a pair of resilient discs 38^a and 38^b made of for instance india rubber or like material, which are held in position on the flange 28^b of the frame 28 by screw bolts 29, the latter being attached to the T-beam 43 of the frame 30 of the screen 1^a.

The stretching of the screen 1^a is effected by means of hooks 41 and screws 40, attached to the frame 28. The vibratory movement of the screen 1^a can be differentiated by means of resilient discs of buffers 38^a and 38^b, which can be compressed within certain limits by means of the screws 31. In this way the resilient character of the suspension of the screen 1^a can be varied which affects the amplitude of the vibrations.

Various changes may be made in the construction of the apparatus hereinbefore described and in the cooperation of its respective component parts without substantially deviating from the spirit and the leading ideas of the invention.

As in Figure 7 showing by way of example a modified embodiment of the invention, guide rings 27 may be provided instead of a sleeve 11 for supporting the rollers 4 in their rotary motion within the casing 7, the rollers in this case being provided with reduced portions 4^a intermediate the rollers 4 proper and their journals 5.

Instead of rollers, balls 42 may be conveniently used for imparting the vibrating impulses to the stamper 8, as indicated in Figure 9.

I therefore do not wish to be limited to any particular structural details of my apparatus shown in the drawings by way of example.

What I claim is:—

1. Actuating mechanism for the purpose set forth, comprising in combination a rotary driving shaft, a stamper adapted to receive successive impacts, a plurality of rolling elements arranged around said driving shaft for imparting successive impacts to said stamper, driving members on the driving shaft for operatively connecting said rolling elements to said driving shaft, said driving members having guiding means within which the rolling elements are capable of sliding so as to be capable of radial displacement therein and a casing surrounding said rolling members and having an inner wall capable of limiting the radial movement of the rolling elements.

2. Actuating mechanism for the purpose set forth, comprising in combination a rotary driving shaft, a stamper adapted to receive successive impacts, a plurality of rolling elements arranged around said driving shaft for imparting successive impacts to said stamper, journals provided on said rolling elements and driving members on the driving shaft for operatively connecting said rolling elements to said driving shaft, said driving members having guiding means within which said journals are capable of sliding in the radial direction while revolving with the driving shaft, and a casing surrounding said rolling elements and capable of limiting the radial motion of the rolling elements.

3. Actuating mechanism as claimed in claim 1, and having a sleeve for supporting the rolling elements, said sleeve surrounding the driving shaft with ample play, and being capable of preventing vibration impacts from being transferred to the driving shaft, as set forth.

4. Actuating mechanism as claimed in claim 1 and having guide rings for supporting the rolling elements attached to the casing for guiding the rolling elements round the casing.

5. Actuating mechanism as claimed in claim 1 and having a screw cap attached to the casing for adjusting the stroke of the stamper.

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

WILHELM SELTNER.