March 16, 1926. 1,577,310

H. M. SUTTON ET AL

MOUNTING FOR SHAKER SCREENS OR THE LIKE

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Fig. 1.

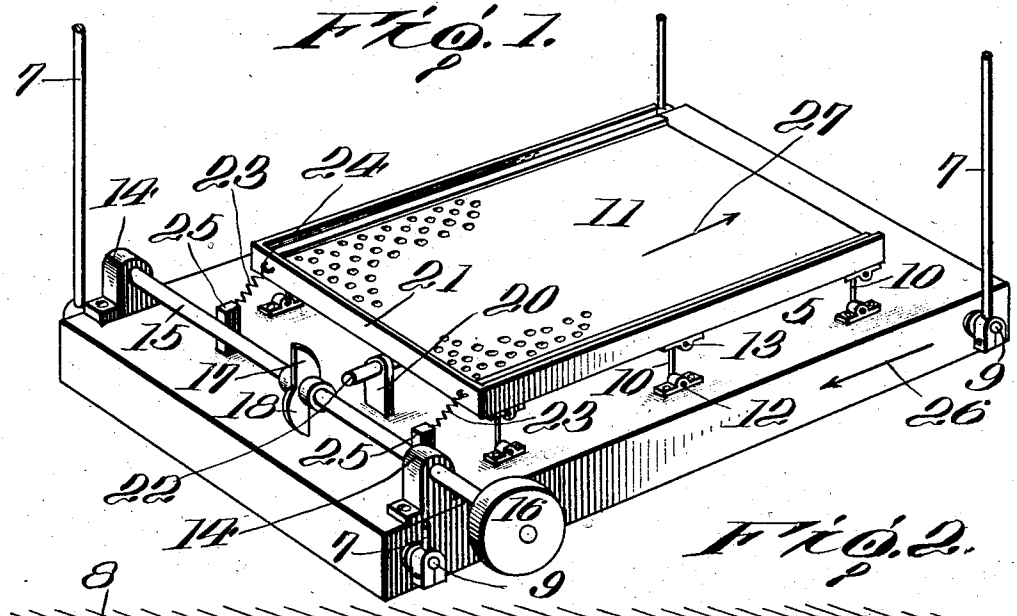
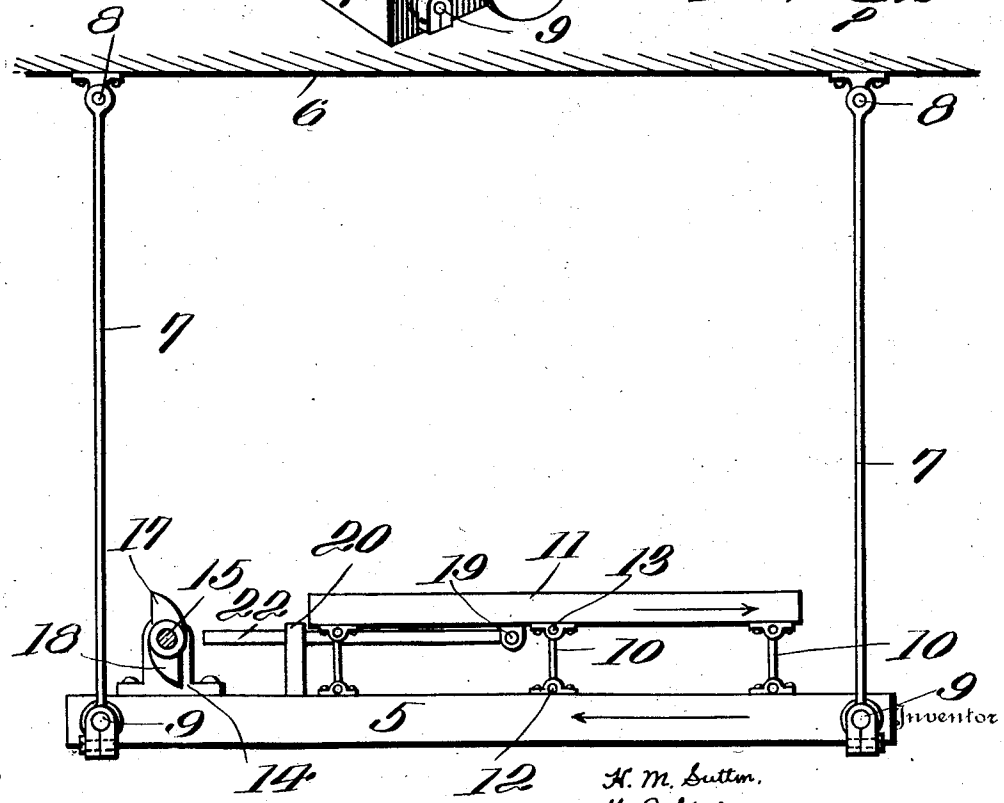


Fig. 2.



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Fig. 3.

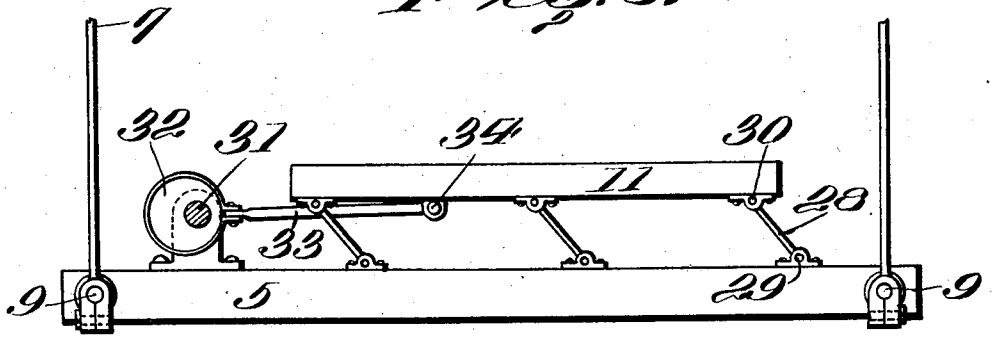
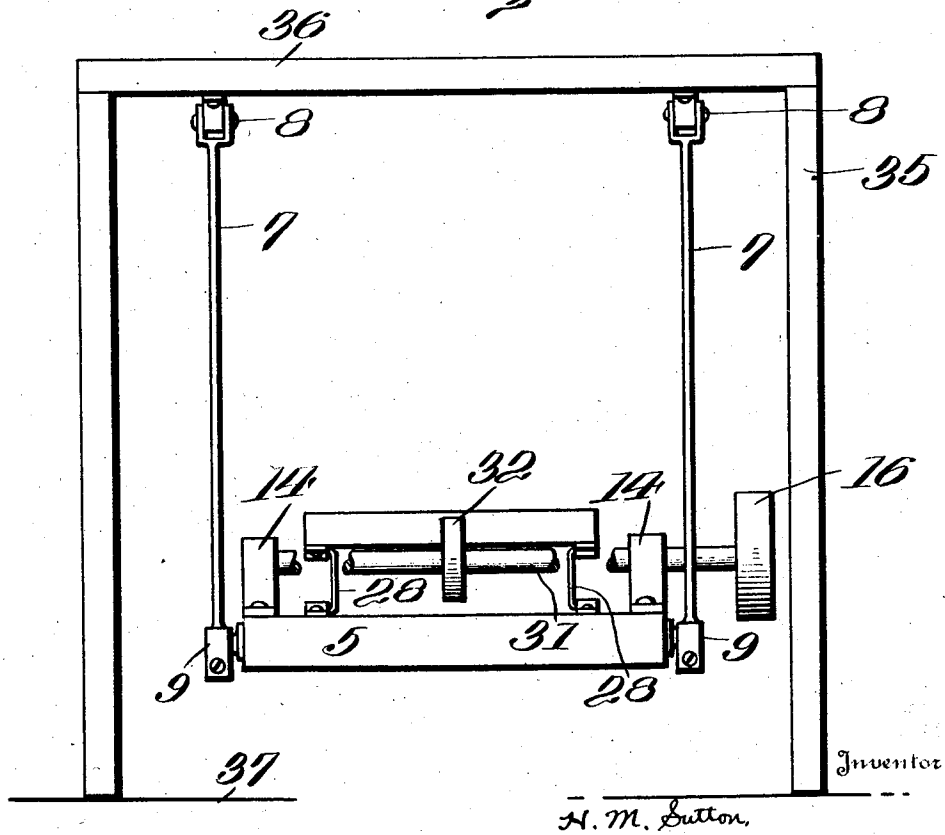


Fig. 4.



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UNITED STATES PATENT OFFICE.

HENRY MOORE SUTTON, WALTER LIVINGSTON STEELE, AND EDWIN GOODWIN STEELE, OF DALLAS, TEXAS.

MOUNTING FOR SHAKER SCREENS OR THE LIKE.

Application filed December 3, 1923. Serial No. 678,345.

To all whom it may concern:

Be it known that we, HENRY M. SUTTON, WALTER L. STEELE, and EDWIN G. STEELE, citizens of the United States, residing at Dallas, in the county of Dallas and State of Texas, have invented certain new and useful Improvements in Mountings for Shaker Screens or the like, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to improvements in mountings for shaker screens or the like and pertains more particularly to a mounting so constructed that a reciprocating motion can be imparted to a shaker screen, a concentrating table or the like without imparting vibration or jar to the building in which the device is placed.

Heretofore there has been great trouble due to the fact that the mills in which reciprocating conveyers, concentrating tables, shaker screens or the like are mounted, recive a continued jar or vibration through the operation of the tables due to the fact that the mechanism which imparts the horizontal movement is anchored to or otherwise attached to the mill building. Inasmuch as these tables are often very heavy and consequently require heavy or large mechanism for imparting the horizontal movement the vibration or jar set up in the building is quite large and makes the building very unpleasant and unsafe to work in and has at times even caused the collapse of the building or falling of the roof.

The object of our invention is to provide a mounting for a concentrating table or the like, wherein the parts are so arranged that the horizontal reciprocation is imparted to the table without jar or vibration.

A further object of our invention is to provide a mounting of the character described which is cheap and simple of manufacture and highly efficient in operation.

Other further objects, improved results and novel features of construction of our invention will appear in the following description and accompanying drawings.

Figure 1 is a perspective view of our improved mounting, the table being carried upon vertical supports.

Figure 2 is a side view of the construction shown in Figure 1.

Figure 3 is a side view of a table mounted in accordance with our invention the table having inclined supports.

Figure 4 is an end view of the table mounting shown in Figure 3.

Although we have shown and described specific forms in which our invention may be embodied we wish it to be understood that departures can be made from these constructions without departing from the spirit of our invention.

In carrying out our invention wherein the table is supported upon vertical supports we provide a heavy base or platform 5 which may be constructed of wood or metal as desired. This base is pivotally supported from a ceiling or suitable frame 6. Through the medium of the supporting rods 7 which have pivotal connection as at 8 with the ceiling and pivotal connection 9 with the base 5. This manner of supporting the base allows the same to swing freely in an approximately horizontal plane.

Mounted upon the base 5 through the series of vertical supports 10 is a screen or table 11. The vertical supports have pivotal connection 12 with the base 5 and pivotal connection 13 with the table 11. The form of table 11 is immaterial to the invention it being readily understood that this could be a shoot, trough, screen, concentrating table, or conveyer as desired.

Mounted preferably upon one end of the base 5 and rotatably supported within the bearings 14 is a shaft 15 carrying a pulley 16 which is adapted to be driven through the medium of a belt or motor for imparting rotation to the afore-mentioned shaft 15. Suitably attached to the shaft 15 are two arms 17 and 18 which compose what we have termed a kicker.

Pivotally connected to the table 11 as at 19 and extending rearwardly through a supporting bearing 20 to a point beyond the end 21 of the table is a horizontal rod 22. The rear end of this rod is adapted to alternately be struck by the rotating arm 17 and 18 carried upon the shaft 15. As the rod 22 is struck by one of the arms it is pushed forward carrying with it the table 11 which rocks in an approximately horizontal plane upon its vertical supports 11. After the arm has passed beyond its engagement with the rod 22 the table 11 is brought rapidly back to its original position through the ac-

tion of the springs 23 which have one end attached to the end 22 of the table as at 24 and the other end attached to the base or suitable uprights 25.

It is essential that the base 5 of our invention be much heavier than the table 11.

With this condition present it will be seen that as the shaft 15 rotates its arm 17 strikes the rod 22 and carries the table forward and that the springs 23 bring the table back to its original position to be struck by the arm 18 of the kicker and the table repeats the forward and back movement again. As the base is much heavier than the table it will be seen that although there will be a slight movement of the base in the direction indicated by the arrow 26 there will be a decidedly greater movement of the table 11 in the direction indicated by the arrow 27. It is inevitable that the table 11 move a greater distance than the table 5 due to the fact that the force exerted through the arms 17 and 18 will find outlet through the smaller resistance which is of course the lighter table 11.

As the shaft 15 will be rotating at a rapid speed the movement imparted to the table 11 will be a rapid movement forward and the springs 23 will cause a rapid movement backward. The result of this is that any material on the table 11 will travel forward and due to its inertia the table 11 as it comes back rapidly will practically slide out from beneath the material before the same loses the inertia of its forward movement. From this it will be seen that in operation the material on the table will have a tendency to move in the direction indicated by the arrow 27.

It will also be seen that a slight movement is given to the base 5 and a greater movement to the table 11 but due to the fact that the base 5 is pivotally supported in respect to the mill or building in which it is installed, there will be no vibration or jar set up in the building. Any vibration or jar is taken up in the base 5 due to the difference in weight of the base and the table 11.

Figures 3 and 4 of the drawings show a construction which is really a modified form of the invention already described and shown in Figures 1 and 2 of the drawings.

In these two figures of the drawings we have the same pivotally mounted supports 7 for the heavy base 5. There is the table 11 which in this instance is supported by the series of rearwardly inclined supports 28 which are pivotally mounted upon the base 5 as at 29 and pivotally connected to the table 11 as at 30.

In this form of the invention we have shown a slightly different device from that shown in the first two figures of the drawings for imparting the horizontal motion to the table. The head motion in this instance comprises a shaft 31 carried in the same bearings 14 upon the base 5. The shaft is provided with the pulley 16 for imparting rotation and the shaft is further provided with an eccentric 32 to which is connected the rod 33 which is pivotally connected to the bottom of the table 11 as at 34.

It will be readily seen that as the shaft 31 is rotated the table 11 will be given a horizontal reciprocation due to the eccentric 32 and its tie rod 34 to the table. In this form of the invention the table is carried both forward and back by the eccentric 32, no springs being utilized in the construction.

Due to supporting the table 11 upon the inclined supports 28 a slightly different motion is imparted to the table. This different motion is sometimes desirable in certain instances such as when the table 11 is a concentrating table for the separating of coal or the like.

It will be readily understood that in the form of invention shown in Figures 3 and 4 of the drawings that the broad idea is the same as that involved in the previously described construction and that all jar and vibration is taken from the building or mill in which the device is placed and is taken care of by the difference in weight of the base 5 and table 11.

Attention is directed to the fact that in the modified form the device is supported upon a frame comprising uprights 35 joined by the cross rods 36, the whole frame being supported upon the floor or ground 37.

From the foregoing description the value of our invention will be readily realized for the reason that a mounting of our improved form relieves from a mill or building the heretofore very objectionable vibration or jolt common to most mills. It will also be seen that in reality our base 5 is a very efficient shock absorber.

Having thus described our invention, what we claim and desire to secure by Letters Patent is:—

1. A mechanism of the character described comprising a base mounted to reciprocate, and a screen much lighter than the base mounted thereon to reciprocate in the same direction as the base, reciprocating mechanism mounted on said base and connected to the screen for reciprocating it in the same direction as the base, whereby the reciprocating movement of the screen is absorbed in the base.

2. In a mechanism of the character described comprising a support, a relatively heavy base mounted on the support to reciprocate, and a much lighter reciprocating device mounted on the base to reciprocate in the same direction as the base, and means carried by the base connected with the re-

ciprocating device, for the purpose described.

3. In a mechanism of the character described, comprising a support, a heavy base mounted on said support to freely reciprocate, a relatively lighter device mounted on the support to reciprocate in the same direction as the base, and means mounted on the base connected with the lighter reciprocating device for reciprocating the same, whereby the shock of reciprocation is absorbed by the base.

4. A mechanism of the character described, comprising a heavy base, a support to which the base is attached to reciprocate horizontally, a much lighter device for the said base mounted thereon to reciprocate in the same direction as the base, and means mounted on the said base connected with the lighter device for reciprocating the same whereby the shock of reciprocation is absorbed in the base and not conveyed to the support.

5. A device of the character described, comprising a support, a relatively heavy device mounted on the support to reciprocate longitudinally, a much lighter device mounted on the base to reciprocate in the same direction as the base and means supported on the base connected with the lighter device for reciprocating it, whereby the reciprocation of the lighter device is not conveyed to the said support.

6. A device of the character described comprising a support, hangers movably suspended from the said support to reciprocate horizontally, a heavy base connected with the lower ends of the hangers, a lighter device mounted on the base to reciprocate in the same direction as the base, and means also mounted on the base and connected with the lighter device for reciprocating it, for the purpose described.

7. A device of the character described comprising an elevated support, hangers having their upper ends depending from said support, a heavy base connected with the lower ends of the hangers, the hangers being horizontally flexible, a lighter device mounted on the base and flexibly connected with it to move in the same direction as the base, and means mounted on the base for moving the lighter device in the same direction as the base, for the purpose described.

8. A device of the character described, comprising a heavy base supported to horizontally reciprocate, a much lighter sieve mounted on the base to reciprocate in the same direction as the base, and means also mounted on the base connected with the sieve for reciprocating it, the parts adapted to operate, for the purpose described.

In testimony whereof we hereunto affix our signatures.

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WALTER LIVINGSTON STEELE.
EDWIN GOODWIN STEELE.