March 31, 1931. E. L. RIGDON ET AL 1,798,433

SHAKER SCREEN

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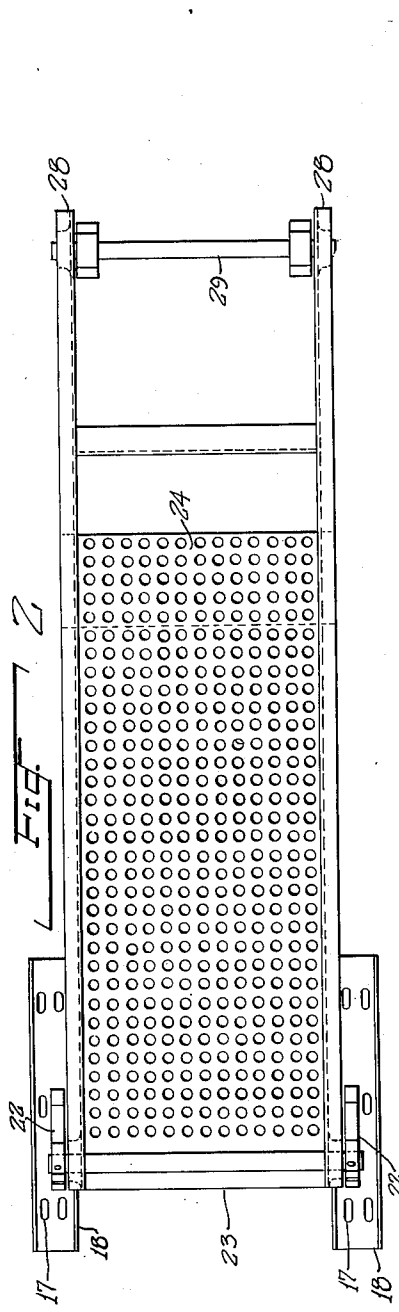


FIG. 2

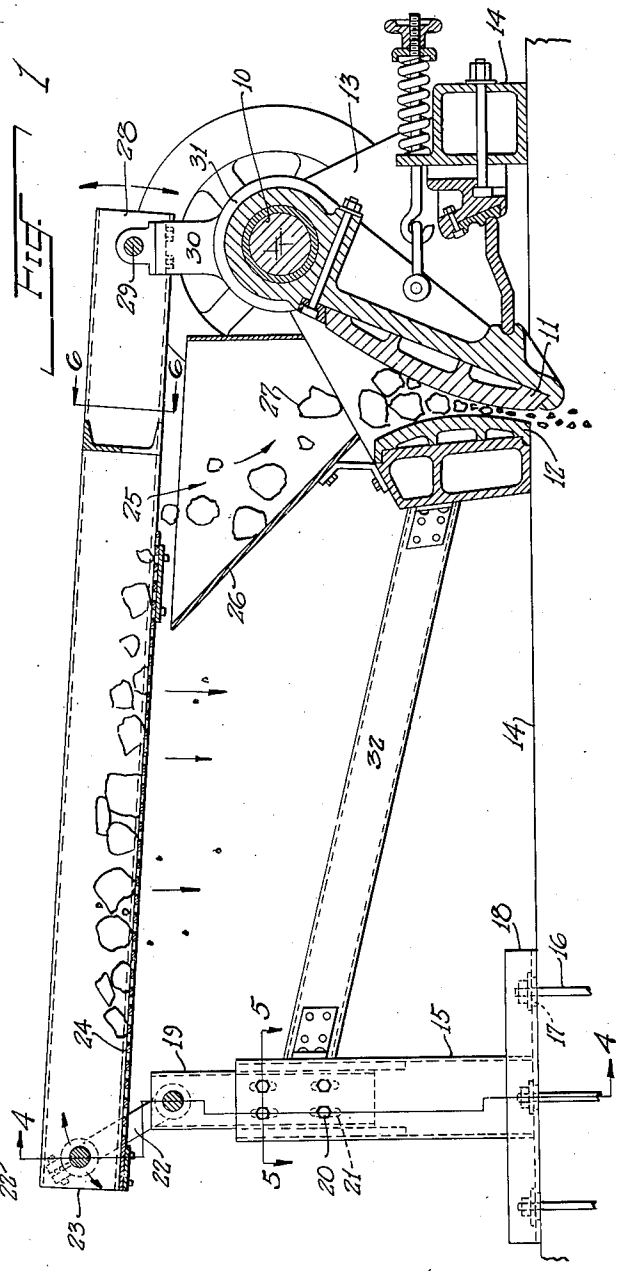


FIG. 1

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FIG. 6

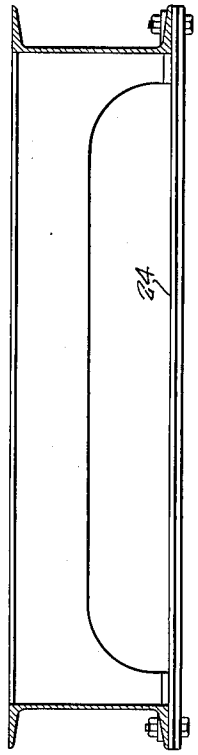


FIG. 4

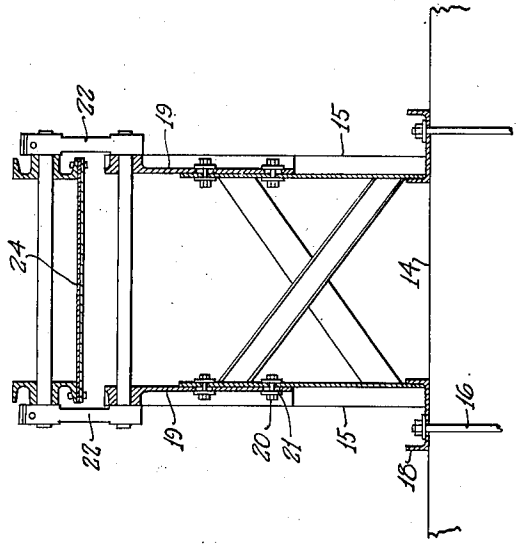


FIG. 5

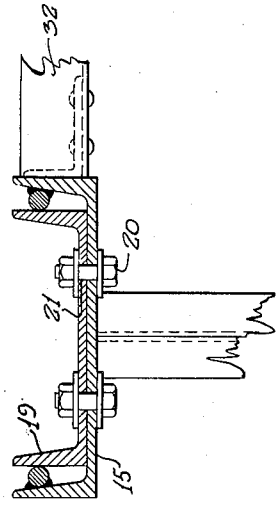
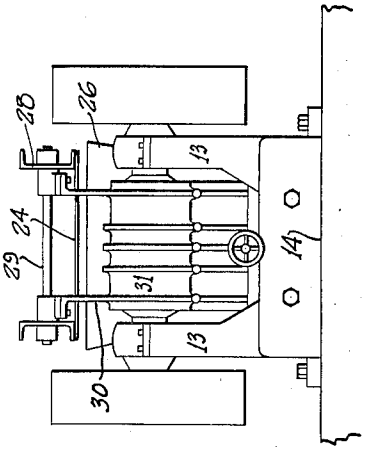


FIG. 3



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UNITED STATES PATENT OFFICE

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SHAKER SCREEN

Application filed May 28, 1929. Serial No. 366,602.

This invention relates generally to segregating machinery, and particularly to shaker screens.

The main object of this invention is to provide an exceedingly simple and efficient form of shaker screen rock crushers.

The second object is to so combine the screen with the crusher mechanism as to eliminate independent driving means, as well as to eliminate parts, weight, first cost and maintenance.

The third object is to utilize certain moving parts of the crusher to support one end of the screen and to provide an operating means therefor.

The fourth object is to utilize the fact that the operating speed of the crusher is sufficiently close to the best operating speed for the screen to permit a direct connection between these elements.

These, and other objects, will become more apparent from the specification following as illustrated in the accompanying drawings, in which:

Figure 1 is a longitudinal section through the machine.

Figure 2 is a plan of the screen section.

Figure 3 is a front elevation of the crusher.

Figure 4 is a vertical section taken along the line 4—4 in Figure 1.

Figure 5 is an enlarged section taken along the line 5—5 in Figure 1.

Fig. 6 is a vertical section taken along the line 6—6 in Fig. 1.

Similar numbers of reference refer to similar parts throughout the several views.

Referring in detail to the drawings, there is shown a type of crusher in which the eccentric shaft 10 is mounted above the crusher jaws 11 and 12, which is a commonly used form of crusher, although it will be understood that this invention applies equally well where these conditions are reversed, namely where the eccentric shaft is lowermost.

The shaft 10 is mounted on the usual side frames 13, which frames are mounted on a base 14 at one end of which is mounted a movable support for the shaker screen consisting of a pair of upright standards 15 whose lower ends are adjustably secured to the base 14 by means of the bolts 16 which pass through the slots 17 in the horizontal feet 18 of the standards 15, permitting the adjustment of the standards 15 toward or away from the crusher. Each of the standards 15 serves as a guide for a vertical slide 19. Each standard 15 can be clamped to its respective slide 19 by means of the bolts 20 passing through the slots 21.

To each slide 19 is hinged the lower end of a screen supporting arm 22, the upper end of each arm having a hinged connection to the receiving end 23 of the shaker screen 24, whose lower end 25 discharges into a hopper 26 through which the rock 27 finds its way through the crusher jaws 11 and 12. The end 28 of the screen 24 is supported on the shaker rod 29 which is carried by the lugs 30 formed on the eccentric straps 31. It is desirable to provide a brace 32 between the standards 15 and the side frames 13.

By this construction it can be seen that the slope of the screen 24 and the vertical motion imparted to the end 23 can be controlled sufficiently by adjusting the position of the standards 15 and the height of the slides 19. In other words, if it is desired to increase the amount of vertical motion of the screen at the end 23 for the purpose of preventing the lodgment of pieces of rock in the screen openings, it is only necessary to move the standards 15 toward the crusher, the position of the arms 22 shown in the drawings being approximately the correct position for ordinary purposes.

No attempt has been made to describe in detail the crusher mechanism, as this is well understood, but it can be seen from the foregoing that each rotation of the shaft 10 will impart a corresponding but magnified motion at the shaker rod 29, which, in turn, imparts same to the screen 24.

As previously stated, it is well known that crushers and screens have been used in association with each other, it being common practice to provide a separate drive for the screen which is mounted on its end supports independent of the crusher; we therefore do not claim such devices broadly, but we do intend to cover all such forms and modifica-

tions thereof as fall fairly within the appended claims.

We claim:

1. The combination of a crusher having an eccentric for operating same and a shaker screen having one end thereof mounted on the eccentric of said crusher at the receiving end of said crusher.

2. The combination of a crusher having an eccentric operating mechanism, a shaker screen above said crusher having a floating support for one end thereof, and having a hinged support for the opposite end thereof attached to said eccentric mechanism whereby the operation of said eccentric mechanism will impart a shaking motion to said screen for the purpose of keeping small pieces of rock from passing through said crusher.

3. A shaker screen having its discharge end attached to the eccentric of a crusher and having a floating support end, its receiving end consisting of a pair of standards provided with longitudinal and vertical adjustments, hinged arms connecting said standards to said screen, and adjustable brace means between the upper portion of said standards and said crusher.

4. The combination of a base, a crusher mounted at one end of said base, a pair of standards mounted at the opposite end of said base, said standards having means for adjusting the relation between the upper ends thereof to said base and to said crusher, a hinged arm attached to the upper end of each standard, and a shaker screen supported at one end by said hinged arms and at the other end by the eccentric mechanism of said crusher.

5. The combination of a base, a crusher mounted on one end of said base, an intake hopper connected with said crusher, a shaker screen discharging into said hopper, said shaker screen having an adjustable floating support for the intake end thereof whereby the inclination of said screen and vertical movement thereof may be controlled, and a support for the lower end of said screen providing an eccentric motion thereto, said supports consisting of an extension on the eccentric straps of said crusher.

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