Sept. 18, 1928. 1,685,018

J. O. BOWMASTER

SCREENING MACHINE

Filed Nov. 24, 1926 2 Sheets-Sheet 1

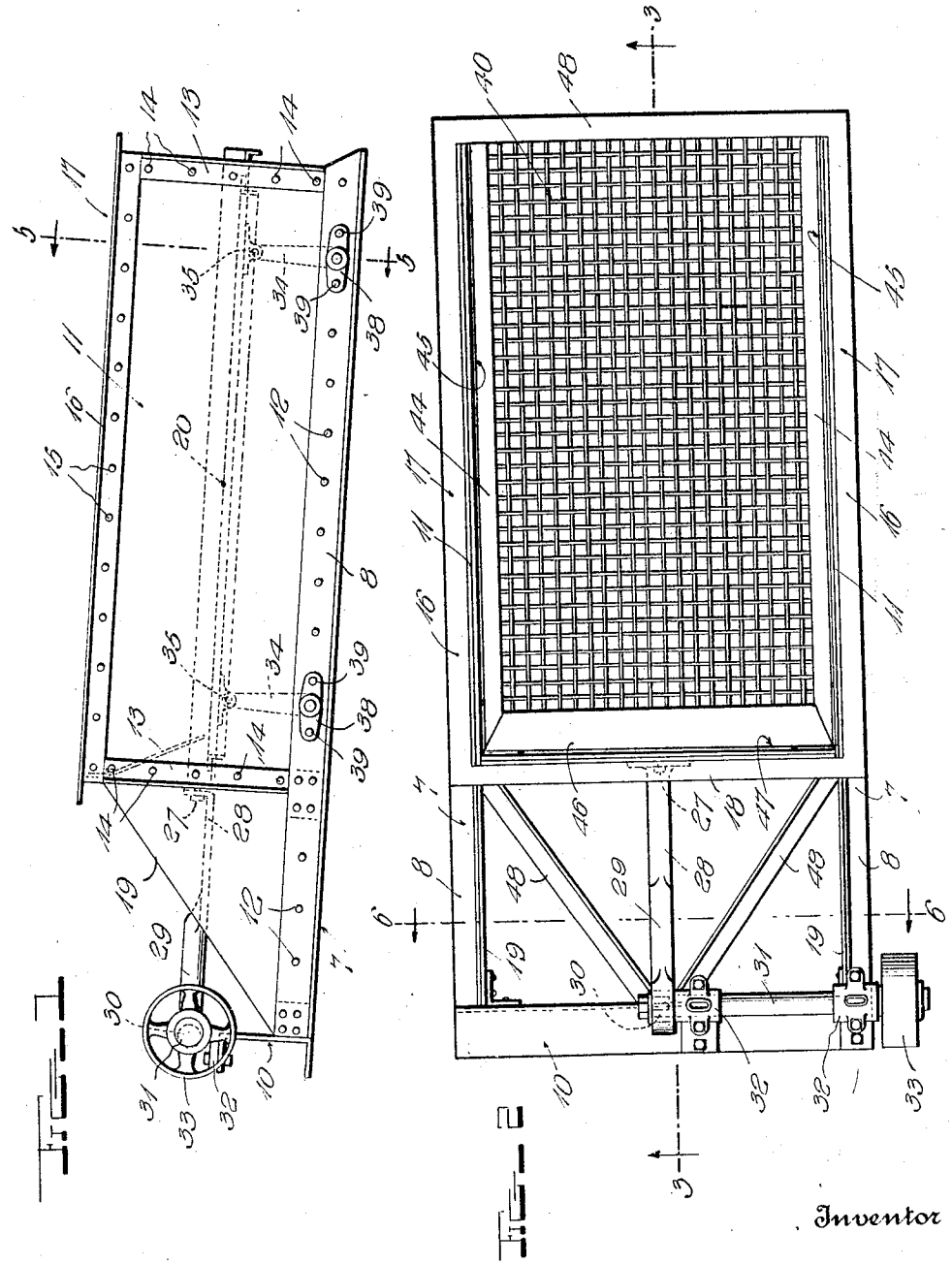

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FIG. 3

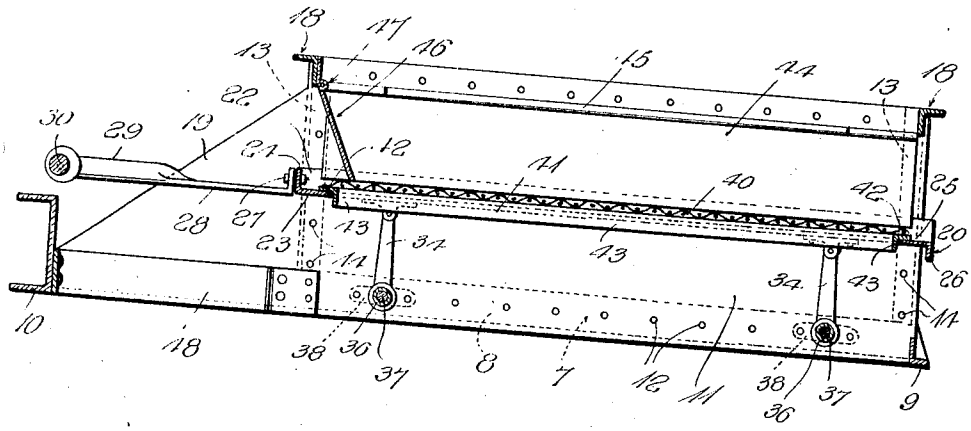


FIG. 4

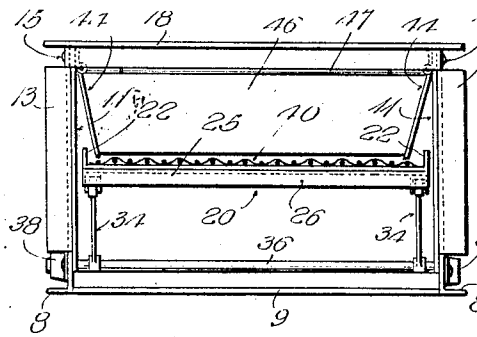


FIG. 6

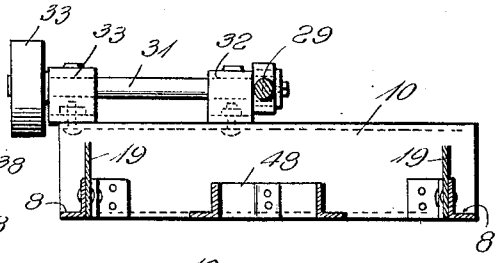
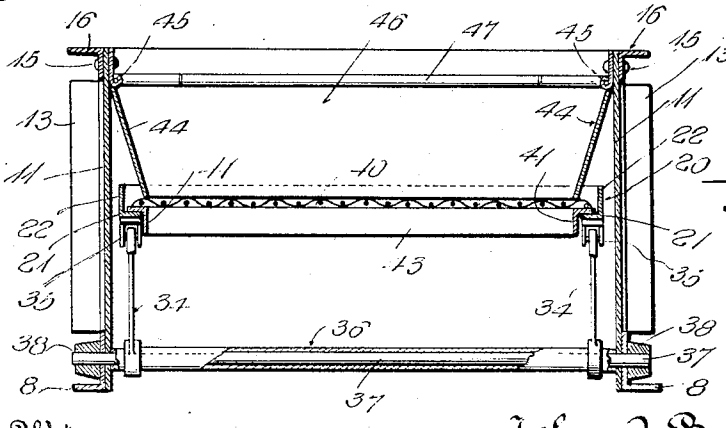


FIG. 5



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UNITED STATES PATENT OFFICE.

JOHN OSCAR BOWMASTER, OF ORBISONIA, PENNSYLVANIA.

SCREENING MACHINE.

Application filed November 24, 1926. Serial No. 150,479.

The invention relates to improvements in machines for screening numerous kinds of aggregate and the present disclosure has reference more particularly to those of the type in which the screen is vibrated by means of an eccentric and pitman.

It is one object of the invention to provide a screening machine of the class set forth which will be rather simple and inexpensive, may be easily and advantageously manufactured, and will be highly efficient and durable.

Another object is to provide a machine in which provision is made for quickly and easily removing a worn or injured screen and substituting another, it being understood that such a substitution may also be made whenever advisable, according to the character of material to be screened.

With the foregoing in view, the invention resides in the novel subject matter hereinafter described and claimed, the description being supplemented by the accompanying drawings.

Figures 1 and 2 are respectively a side elevation and a top plan view of a screening machine constructed in accordance with my invention.

Figure 3 is a longitudinal sectional view on the plane of line 3—3 of Fig. 2.

Figure 4 is an elevation of the discharge end of the screen.

Figure 5 is a transverse sectional view on line 5—5 of Fig. 1.

Figure 6 is a detail transverse section on line 6—6 of Fig. 2.

In the drawings above briefly described which illustrate the preferred form of construction, 7 designates a rectangular base frame which comprises two parallel side bars 8 preferably formed from angle metal, one end bar 9 formed of similar material, disposed at the discharge end of the machine, and a relatively heavy end bar 10 disposed at the opposite end of the machine and preferably formed of channel metal.

Two parallel, horizontally elongated, vertically positioned, side plates 11 extend longitudinally of the side bars 8 and have their lower edges riveted or otherwise secured thereto as indicated at 12. These plates are preferably stiffened at suitable intervals by vertical bars 13 of angle metal, secured thereto by rivets or the like 14. The upper edges of the plates 11 are secured by rivets 15 or other desired means, to the parallel side bars 16 of a top frame 17, which frame is preferably formed from angle metal as shown. The frame 17 includes the two side bars 16 and two end bars 18, one of the latter being disposed over the end bar 9 while the other is inwardly spaced from the end bar 10, leaving one end portion of the frame 7 projecting beyond the frame 17, this projecting end portion of frame 7 being effectively braced with respect to the remaining portion of the general frame structure, by the narrowed ends 19 of the side plates 11.

Movably mounted between the plates 11, is a screen-carrying frame 20, said frame comprising two side bars 21 having upstanding flanges 22, one end bar 23 having an upstanding flange 24, and another end bar 25, the latter being free of upstanding flanges but preferably having a downwardly projecting flange 26. The bar 23 is disposed toward the end bar 10 of the base frame 7 and is secured by a bolt 27 or other desired means to the flexible end 28 of a pitman rod 29, this pitman rod being connected with an eccentric 30 on the inner end of a drive shaft 31, the latter being rotatably mounted in appropriate bearings 32 carried by the bar 10. This shaft 31 may be driven in any desired manner and for illustrative purposes, a pulley 33 has been shown upon its outer end.

Rocker arms 34 are preferably employed to movably support the frame 20, the upper ends of these rocker arms being pivotally connected at 35 with the side bars 21, while the lower ends of said rocker arms are preferably secured to a sleeve 36 which extends transversely between and abuts the lower portions of the side plates 11. A rigid shaft 37 passes through each sleeve 36 and through openings in the plates 11 and side bars 8, and the ends of this shaft are provided in any suitable manner with projecting ears or the like 38 which are secured thereto and are fastened to the bars 8 or other stationary parts of the general frame structure, in any suitable manner, as by rivets 39.

A screen 40 of any desired construction may be employed, said screen having side bars 41 and end bars 42 which lie upon the corresponding side and end bars of the screen-carrying frame 20, all of said side and end bars 41 and 42, being provided with downwardly projecting flanges 43 which engage the inner edges of said side and ends

bar of the frame 20. If desired, the side and end bars of frame 20 may be detachably secured to the corresponding bars of the screen 40, but in other instances, it may not be necessary to secure these bars together, as the flanges 43, abutting the side and end bars of the frame 20, serve to hold the screen 40 in proper relation with its carrying frame.

Two longitudinally disposed, aggregate-guiding plates 44, decline inwardly from the upper edge portions of the side plates 11 and are hinged to the latter for upward swinging, as indicated at 45, and a transverse, aggregate-guiding plate 46 declines inwardly from one end bar 18 of the top frame 17, being hingedly connected therewith as indicated at 47. When the plates 44 and 46 are in the operative positions shown in the drawings, they are disposed at the inner sides of the upstanding flanges 22 and 24 of the frame 20, so that all material thrown into the screening machine, is by these plates properly guided onto the screen. Any material working out under the edges of these plates 44 and 46, is, by means of the flanges 22 and 24, held against falling from the frame 20, so that it must work to the discharge end of the latter, the bar 25 at this end being free of upstanding flanges or other projecting means, so that free discharge of all material which does not pass through the screen 40 may take place.

Whenever, it is necessary to substitute one screen for another, the plates 44 and 46 may be upwardly swung, giving access to the screen 40 so that it may readily be removed from its carrying frame 20, permitting another screen to be quickly and easily substituted.

While the operation of the machine will undoubtedly be clear, it may be briefly explained that rotation of the shaft 31, causes the eccentric 30 and pitman rod 29 to longitudinally vibrate the screen 40 and its carrying frame 20, insuring effective separation of materials. As the throw of the eccentric 30 is slight, yielding of the pitman rod 29, at its resilient portion 28 will permit the necessary vertical movement of said rod, without the necessity of employing any pivotal connections.

The most essential characteristics of the machine have been herein described, but it will be understood that changes may be made within the scope of the invention as claimed. Moreover, mechanical details such as braces 48, may be made use of at any desired points.

I claim:

1. A screening machine comprising a rectangular base frame, a pair of parallel vertically disposed side plates extending longitudinally of and secured at their lower edges to the side bars of said base frame, a rectangular top frame having its side bars secured to the upper edges of said side plates, said bottom frame being of greater length than the top frame and at one end projecting beyond the latter, longitudinally disposed aggregate-guiding plates connected with the upper portions of said side plates and declining inwardly, a similarly declined transversely disposed aggregate-guiding plate connected with the end bar of the top frame nearest said projecting end of the base frame, a screen movably mounted between said side plates under said aggregate guiding plates, and vibrating means for said frame including a shaft mounted on said projecting end of the base frame.

2. In a screening machine, a frame structure, a screen-carrying frame movably mounted therein, a screen removably supported by said screen-carrying frame, and aggregate-guiding plates carried by said frame structure and extending down substantially to the screen, said plates being permanently hinged at their upper edges to said frame structure above the screen for individual pivotal movement upward from the screen to give access to said screen for the purpose of removing the latter and substituting another.

In testimony whereof I have hereunto affixed my signature.

JOHN OSCAR BOWMASTER.