

(No Model.)

M. T. SINGLETON.
COMBINED SCREEN AND CONVEYER.

No. 467,838.

Patented Jan. 26, 1892.

Fig. 1.

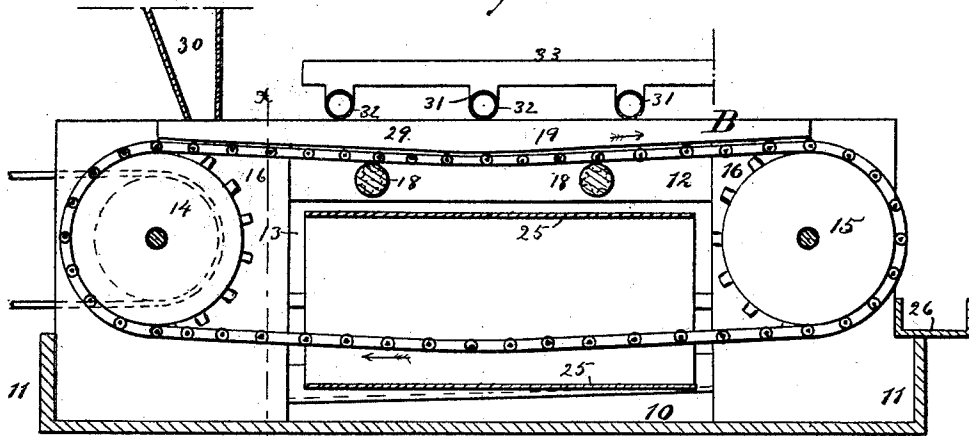


Fig. 2.

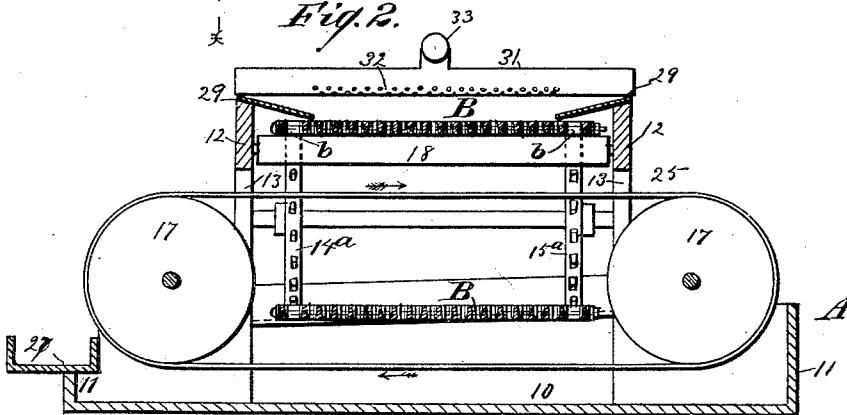


Fig. 3.

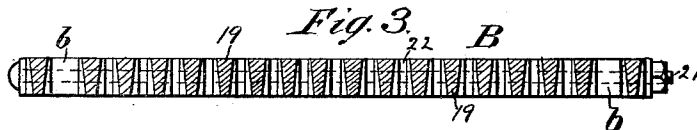


Fig. 4.

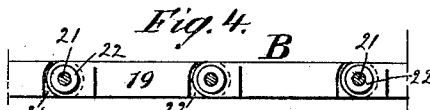
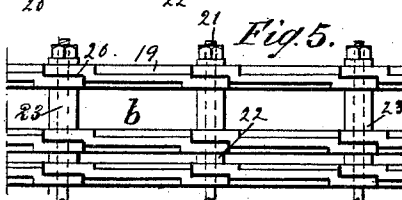


Fig. 5.



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MICAJAH T. SINGLETON, OF ARCADIA, FLORIDA.

COMBINED SCREEN AND CONVEYER.

SPECIFICATION forming part of Letters Patent No. 467,838, dated January 26, 1892.

Application filed March 7, 1891. Serial No. 384,502. (No model.)

To all whom it may concern:

Be it known that I, MICAJAH T. SINGLETON, of Arcadia, in the county of De Soto and State of Florida, have invented a new and Improved Combined Screen and Conveyer, of which the following is a full, clear, and exact description.

My invention relates to a combined screen and conveyer, and has for its object to provide an apparatus designed for cleaning sand, gravel, and like material, adapted to wash, screen, and convey the material, and to perform all three operations at one and the same time.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a longitudinal section of the device. Fig. 2 is a transverse section taken, practically, on the line *xx* of Fig. 1. Fig. 3 is a transverse section through the screen. Fig. 4 is a partial longitudinal section of the screen, and Fig. 5 is a partial plan view of the same.

The base A of the machine consists, preferably, of a floor 10, provided with marginal flanges 11. Longitudinally of the base, at each side of the center, a wall 12 is erected, of any suitable or approved material, the said walls being provided at or near their central portions with openings 13, ordinarily rectangular in general contour, which openings are in transverse alignment. Near the ends of the side walls drums 14 and 15 are journaled, the trunnions of the drums being preferably given bearings in the walls or in boxes attached to the latter. The drums are smooth throughout the major portion of their length, or only slightly roughened, and near the extremities of the drums the peripheral surfaces are provided with a series of sprocket-teeth 16. The walls at their ends are usually not connected above the upper surfaces of the end flanges of the base, and in the flanged portions of the base, outside of each wall 12, drums 17 are journaled, the said drums be-

ing opposite the openings and made to revolve partially in them, as is best shown in Fig. 2.

An endless belt B is carried by the drums 14 and 15, the said belt being a link belt and of peculiar construction, as the belt is adapted to serve in the dual capacity of a conveyer and a screen. The upper portion of the belt is prevented from sagging by employing any desired number of rollers 18, which rollers are also journaled in the walls 12 of the structure. Instead of drums being employed to carry the link belt, as shown in Fig. 1, sprocket-wheels 14^a and 15^a may be substituted, as illustrated in Fig. 2; but the drums are preferred, since they afford a better support for the belt.

The belt B is constructed of a series of pivotally-connected links 19, wedge-shaped or tapering in cross-section between their ends, and the extremities of the links are provided with recesses 20 in opposite faces, as is best shown in Fig. 5, and by thus recessing the extremities of the links and passing the pivot-bolts 21 through apertures in the recessed surfaces the connected links of each horizontally-arranged series are flush at each side. The series of links are separated, preferably, through the medium of washers 22, placed upon the pivot-bolts 21, which are ordinarily provided at their extremities with suitable lock-nuts.

When the belt is adapted to pass over drums, quite a wide space *b* is provided between the outer longitudinal series and the next inner or opposed series, as is also best shown in Fig. 5. This space is ordinarily created by placing upon the pivot-bolts between the two outer series of links sleeves 23 of proper length. The spaces *b* between the sleeves 23 are adapted for the reception of the sprockets 16 upon the drum. Thus when the drums are revolved, which is ordinarily accomplished through the medium of an attached pulley and a belt running over the same, the link belt is forced to revolve also.

A plain endless conveyer-belt 25 is supported by the drums 17, and the conveyer-belt passes through the opening 13 in the walls 12 above and below the lower portion of the link belt. A trough 26 or the equivalent thereof is located convenient to one of the drums

carrying the link belt, the said trough being adapted to receive material from the belt not capable of passing between the links thereof down upon the transverse belt 25, and the material received by this latter belt is conducted to a trough 27 or its equivalent, as shown in Fig. 2, from whence the material is conveyed to any desired point.

Guard-plates 29 are secured to the upper face of each wall 12, which plates are downwardly inclined over the large spaces *b*, intervening the links of the conveyer-belt B, in order that the material which is thrown directly upon the belt, or is delivered thereto through the medium of a hopper 30, will not pass over the side edges of the link belt or escape through the said spaces *b*.

A series of transverse pipes 31 is located upon the upper faces of the walls 12, which pipes have a series of apertures 32 produced in their lower faces, and all of the pipes 31 are connected with a supply-pipe 33, which crosses the delivery-pipes 31 at an angle thereto. The delivery-pipes 31 are adapted to distribute water upon the material carried by the link belt. The water may, however, be distributed through the medium of a perforated trough.

It will be observed that the belt B serves, as heretofore stated, in the dual capacity of a conveyer and a screen, and that the effective screening area is increased by the rate of speed at which the screen travels; also, that the thoroughness of the work depends only upon the length of the screen and the amount of fresh water supplied thereto.

When the device is employed in screening dry material, the material is delivered to the screen at one end, and the rollers 18 are provided with fluted or corrugated peripheral

surfaces, as shown in dotted lines in Fig. 1, so as to impart a vertical intermittent motion to the screen. The screen may not only be placed horizontally, as illustrated in the drawings, but for purposes of screening only it may be straight and stationary, and so inclined that the material will simply slide over it.

The entire apparatus is adapted to be boxed in to prevent waste, and the flaps or sheets 29 arranged at the sides of the belt prevent leakage at those points.

The screen is universal in its application, and besides being used as before described it may be placed upon a cylindrical frame and used as a revolving screen.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A separator comprising the frame A, the endless screen mounted thereon, the guards 29, extending inward from the upper edge of the frame over the side edges of the screen, and the transverse imperforate carrier-belt, the upper run of which extends between the upper and lower runs of the endless screen, substantially as set forth.

2. The endless screen B, formed of series of longitudinally-aligned wedge-shaped links 19, rabbeted and overlapped at their adjacent ends, rods extending through the said ends and connecting the links of the several series, and tubular washers on the rods spacing the series of links apart, the outer series of links being spaced by wider links 23, for the purpose set forth.

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Witnesses:

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