

F. M. WELCH.
REVOLVING SCREEN.
APPLICATION FILED SEPT. 4, 1912.

1,066,558.

Patented July 8, 1913.

2 SHEETS-SHEET 1.

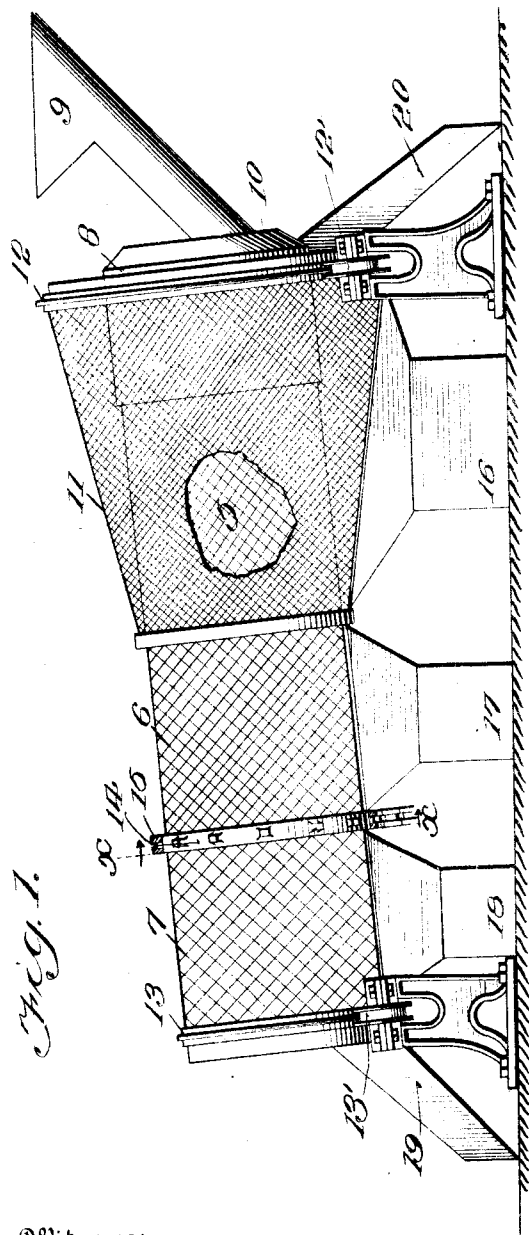


Fig. 1.

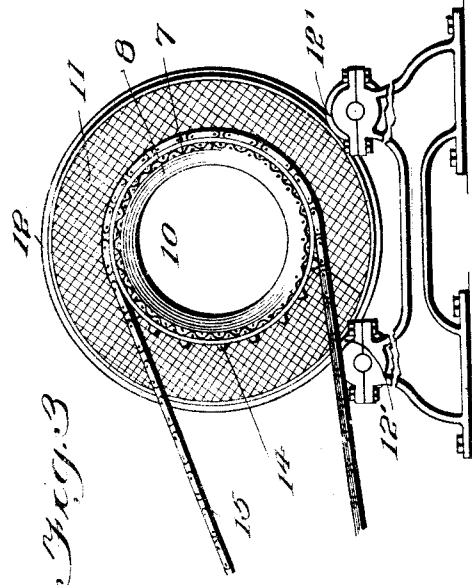


Fig. 3.

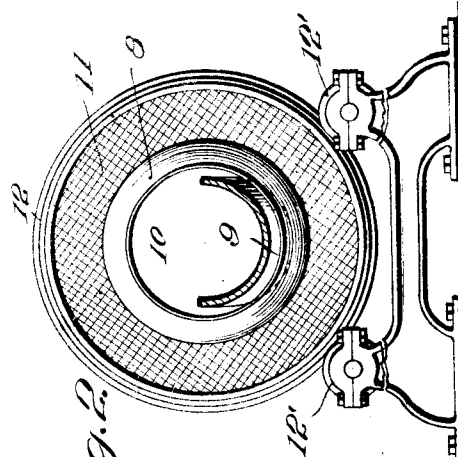


Fig. 2.

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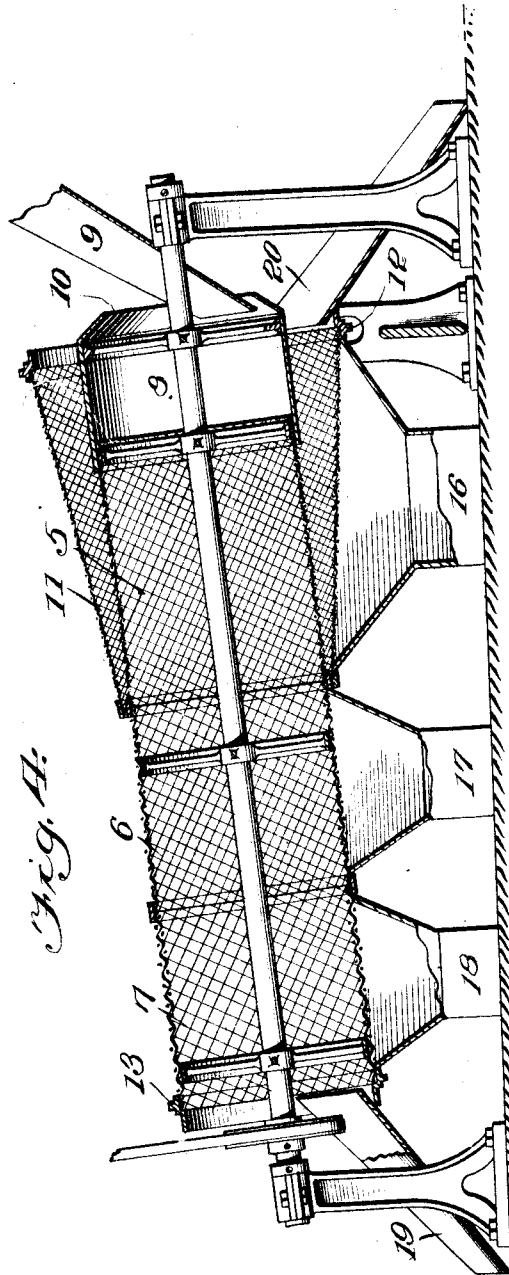
Witnesses
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T. A. Blair

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Attorney

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UNITED STATES PATENT OFFICE.

FRANK M. WELCH, OF TIFFIN, OHIO, ASSIGNOR TO THE WEBSTER M'FG. COMPANY,
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REVOLVING SCREEN.

1,066,558.

Specification of Letters Patent.

Patented July 8, 1913.

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To all whom it may concern:

Be it known that I, FRANK M. WELCH, a citizen of the United States, residing at Tiffin, in the county of Seneca and State of Ohio, have invented certain new and useful Improvements in Revolving Screens, of which the following is a specification.

My invention relates to certain improvements in revolving screens, particularly adapted to separate sand, gravel, crushed stone, coal, and other similar material, and the object of my invention is to provide a screen of this character which will be highly efficient, compact, economical in the power required to operate the same, and cheap to construct.

A further object of my invention is to provide a screen with which the material being treated can be separated and graded as to fineness, the number of separations of which can be varied as desired.

With these and other objects in view my invention consists in certain constructions, combinations and arrangements of parts, the preferred form of which will be first described in connection with the accompanying drawings, and then the invention particularly pointed out in the appended claims.

Referring to the drawings wherein the same part is designated by the same reference numeral wherever it occurs, Figure 1 is a side elevation of the revolving screen showing the preferred embodiment of my invention; Fig. 2 is an end view of the receiving end of the screen; Fig. 3 is a section taken on line X—X of Fig. 1, and Fig. 4 is a longitudinal section of a modification of my invention in which the screen is mounted on a longitudinal shaft.

The revolving screen is shown as composed of a section 5; a section 6 and a section 7, connected together end to end, the section 5 being of the finest mesh, the section 6 being of intermediate mesh, and the section 7 having the coarsest mesh. This cylindrical screen is mounted in an inclined position, so that the material which cannot pass through the screen openings will, as the screen is revolved, pass from the section 5 to the section 7. I have shown the upper end of the section 5 as provided with a material receiving section 8, to which material is fed by means of the hopper 9

extending into the central opening 10 of the receiving section 8.

11 designates a frusto conical section of screen which surrounds the section 5, with the larger end of the section surrounding the upper or receiving portion of the section 5 and the smaller end of the section 11 secured around the lower end of the section 5. The angle between the section 5 and the section 11 is such that the lower portion of the section 11 inclines in the opposite direction from the incline of section 5. I have also shown the larger end of the section 11 as provided with an outwardly extending flange 12 adapted to run on flanged supporting wheels 12', with the lower end of the section 7 provided with a similar flange 13 adapted to run upon flanged wheels 13'. I have also shown a sprocket wheel 14 surrounding the joint between the sections 6 and 7, to which power may be applied by means of the sprocket chain 15, and the screen revolved. I have also shown receiving hoppers 16, 17 and 18, mounted beneath the screen hopper 16 to catch material passing through the conical section 11; the hopper 17 to catch the material passing through the section 6 and the hopper 18 to catch the material passing through the section 7, the material which is so coarse as not to pass through any of the screen sections being delivered to a chute 19 extending into the lower end of the screen section 17, and the material sufficiently fine to pass through the section 5 but not fine enough to pass through the conical section 11 is delivered to the spout 20 extending into the space between the section 5 and the section 11 at the upper end of the screen.

The material receiving section 8, as will be noted, extends a substantial distance within the frusto conical section 11, thereby serving to conduct the material toward the rear of the first section 5 to which it is connected with the result that such material as passes through the mesh of said section 5 is deposited well up toward the upwardly inclined end of said frusto conical screen 11, and is thereby caused to travel down such incline and over a greater area of the perforated surface of such screen 11, than would be the case were such material deposited closer to the outer end of said section 5.

In the operation power is applied by means of the driving chain 15, and the material to be separated is fed into the screen through the hopper 9. After the material 5 passes from the receiving section 8 it enters the screen section 5, which, it will be remembered, is of finer mesh than the sections 6 and 7, but not as fine as the conical section 11. Consequently the fine portion of the material to be separated will drop 10 through the openings in the screen 5 and onto the conical section 11. That portion of the material which is too coarse to pass through the screen 11 will be delivered to the chute 20 while the material sufficiently fine to pass through the screen 11 will be delivered to the receiving hopper 16. After the material in section 5 has been separated from all of its fine particles the material remaining enters the section 6, which is a coarser screen than the section 5, and consequently all the material while too large to pass through the section 5 but small enough to pass through the mesh of the section 6 25 will be delivered to the receiving hopper 17. The material which is too coarse to pass through the mesh of the section 6 will then pass down into the screen section 7. Here it will be again separated, the finer portion being delivered into the hopper 18 and that portion which is too coarse for the mesh of any of the screens passing out into the chute 19.

The foregoing construction is used where 35 five separations are desired. Additional separations can be effected by adding screen sections to the end of the section 7, and fewer separations can be effected by removing merely section 7, or both sections 6 and 7. In the latter case, the material will be separated into three grades.

I realize that considerable variation is

possible in the details of construction and arrangement of parts without departing 45 from the spirit of my invention, and I therefore do not intend to limit myself to the specific form shown and described.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. In an apparatus of the character described, the combination with an inclined cylindrical screen having an imperforate section attached to its feed-end and extending a relatively substantial distance therefrom, of a frusto-conical screen section surrounding the feed-end of said cylindrical screen and the imperforate section attached thereto, the said frusto-conical section having its contracted end extending toward the discharge end of said cylindrical section, the imperforate section of said cylindrical screen extending well within said conical section, for the purpose set forth.

2. In an apparatus of the character described, the combination with an inclined cylindrical screen, of an imperforate section within which the feed-end of said cylindrical screen is attached, the said imperforate section surrounding the feed-end of said cylindrical screen, and extending a relatively substantial distance therefrom, and a conical screen section surrounding the feed-end of said cylindrical section and the imperforate extension secured thereto, the imperforate section of said cylindrical screen extending well within said conical section, for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK M. WELCH.

Witnesses:

CHRIST MILLER,
EUGENIA K. ADAMS.