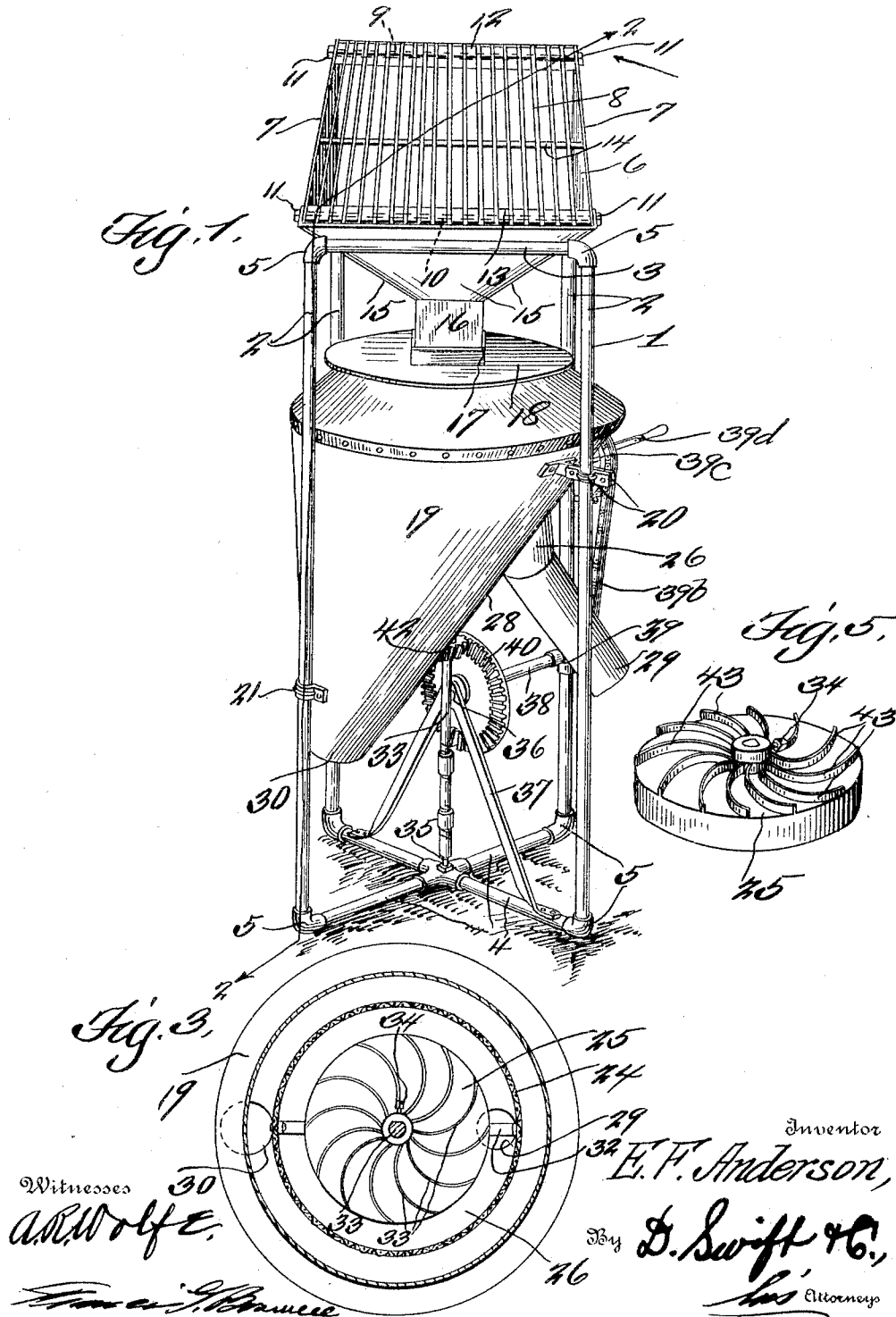


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CENTRIFUGAL SAND SCREENING AND SEPARATING MACHINE.
APPLICATION FILED FEB. 16, 1914.

1,108,542.

Patented Aug. 25, 1914.

2 SHEETS—SHEET 1.



Witnesses
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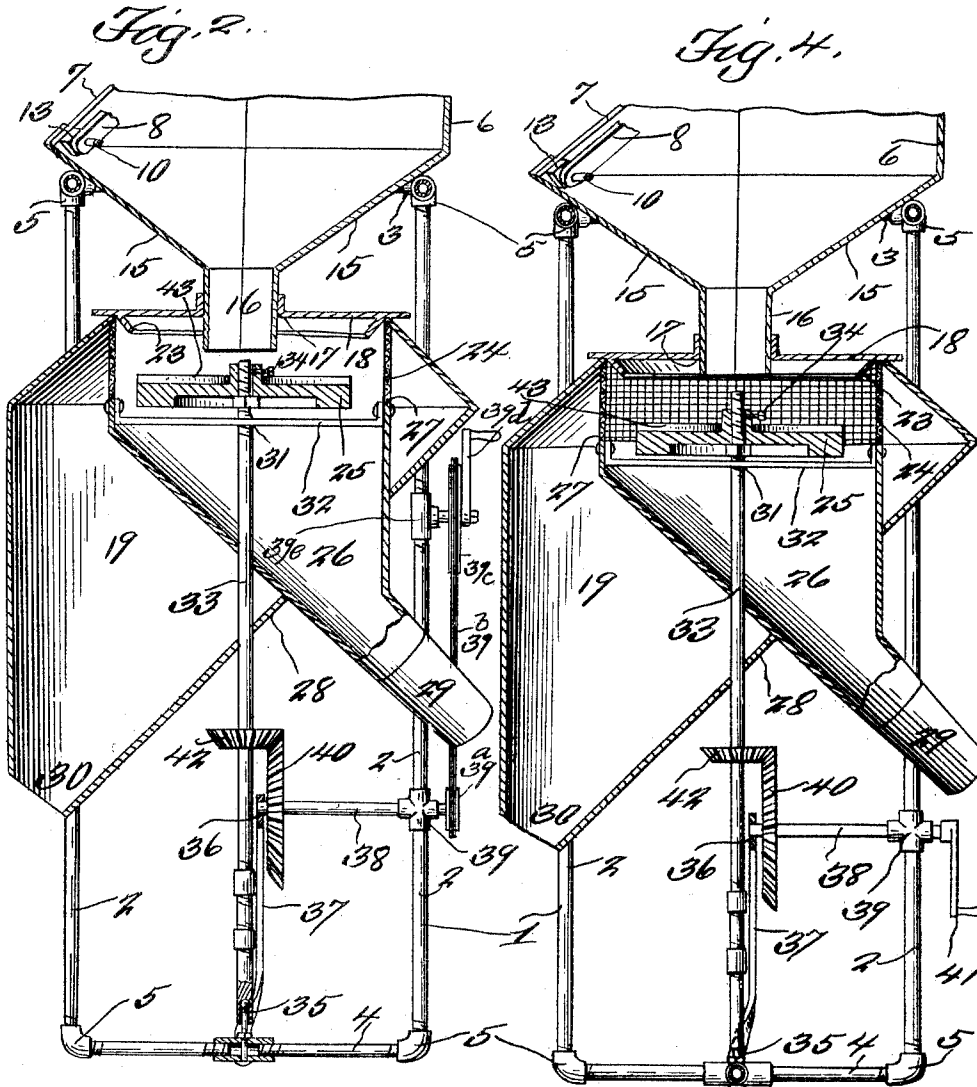
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UNITED STATES PATENT OFFICE.

ELBERT FINLEY ANDERSON, OF URBANA, ILLINOIS.

CENTRIFUGAL SAND SCREENING AND SEPARATING MACHINE.

1,108,542.

Specification of Letters Patent.

Patented Aug. 25, 1914.

Application filed February 16, 1914. Serial No. 818,971.

To all whom it may concern:

Be it known that I, ELBERT FINLEY ANDERSON, a citizen of the United States, residing at Urbana, in the county of Champaign and State of Illinois, have invented a new and useful Centrifugal Sand Screening and Separating Machine; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a new and useful improved centrifugal sand screening or separating machine, and an object of the invention is the provision of such a machine having a spinning table, on which any grade of sand or the like falls or deposits from a hopper, and as the spinning table revolves, the sand is swirled by centrifugal force against screening means, the finer particles passing through the screen, and emptying through an outlet, while the larger particles fall through another hopper. In this way the sand is separated or screened from the gravel. The hopper is provided with a series of rods to separate the stones and the like.

In practical fields the details of construction may be subjected to alterations, falling within the scope of what is claimed.

The invention comprises further features and combination of parts, as hereinafter set forth, shown in the drawings and claimed.

In the drawings:—Figure 1 is a view in perspective of the improved sand screening or separating machine. Fig. 2 is a vertical sectional view. Fig. 3 is a transverse sectional view. Fig. 4 is a view similar to Fig. 2 showing the screening means and the casing with the outlet spouts lowered, whereby the material from the hopper may fall with greater force upon the spinning table. Fig. 5 is a detail view of the spinning table.

Referring more particularly to the drawings, 1 designates a frame constructed of tubular rods 2 disposed vertically and the upper and lower horizontally disposed rods 3 and 4, which are joined together by the unions 5. Supported upon the upper rods of the frame is a hopper 6, which is rectangular in plan view and constructed of sheet metal or other suitable material. Two of the sides of the hopper, as will be observed, are provided with inclined edges 7,

and disposed parallel with said edges is a series of rods or bars 8, through which at the ends of said bars, rods 9 and 10 extend. These rods 9 and 10 also pass through the sides of the hopper and secured in place by the nuts 11. Upon the rods 9 and 10 are members 12 and 13, for holding the bars or rods 8 equally spaced apart. A rod 14, which is mounted in the sides of the hopper also extends through bars or rods 8 to support their central portions. The sand, gravel and stones combined are thrown upon the rods 8, the gravel and sand passing through and falling upon the inclined portion 15 of the bottom of the hopper, while the stones and the like are screened therefrom by the rods 8, which, as before stated, are disposed upon an inclination, so as to cause the stones and the like to be carried to one side of the machine. The inclined portion 15 of the bottom of the hopper merge into an outlet spout 16, which telescopes through a flanged opening 17 of the cover or closure 18 of the casing 19. This casing is adjustably clamped to the vertical rods 2 by means of the clamps 20 and 21, so that the casing 19 may be raised and lowered relative to the outlet spout 16. The clamp 20 is mounted upon an arm, as shown in Fig. 1, which arm is in turn connected in any suitable manner to the said casing. The cover or closure 18 is constructed with an annularly disposed flange 23 extending within the cylindrical screen 24, which surrounds the spinning table 25 and spaced apart therefrom. This flange 23 holds the cover or closure 18 in place.

Extending within the main casing 19 is a supplemental casing 26, the upper periphery 27 of which corresponds in diameter to the diameter of the cylindrical screen 24 and secured thereto, in any suitable manner. The supplemental casing 26 extends through the inclined wall 28 of the casing 19 and terminates in an outlet spout 29, while the main casing terminates in an outlet spout 30. Mounted in bearings of the casings and in a bearing 31 of a transverse bar 32 is a vertical shaft 33, on which the spinning table 25 is adjustably mounted by means of the thumb screw 34. The lower end of the shaft 33 is mounted on a thrust bearing 35 of the lower bars or rods or tubes 4 of the frame. Mounted in a bearing 36 of a bracket 37, which rises from the tubes 4, is a shaft 38, which is also mounted in a bear-

ing 39 of one of the vertical rods 2. This shaft 38 has a beveled gear 40 at one end, and a crank 41 at the other. The beveled gear 40 meshes with a beveled pinion 42 of the vertical shaft 33, and by turning the crank 41 motion may be imparted to the shaft 38 which in turn rotates the shaft 33 through the meshing of the gears 40 and 42. As the shaft 33 is revolved or rotated, the spinning table is likewise rotated. The upper face of the spinning table is constructed with a series of curved flanges or ribs 43, extending from the center of the table to the periphery. As the combination sand and gravel is deposited upon the upper face of the spinning table from the spout 16 of the hopper, the same is swirled by the centrifugal force and the curved flanges against cylindrical wall of screening 24, the finer particles of sand passing through the screen into the casing 19 from whence it leaves through the outlet spout 30, while the gravel passes through the casing 26 through the outlet 29. By lowering the casing and the spinning table, the distance between the outlet hopper 16 and the spinning table will be increased, thereby increasing the fall of the sand and gravel upon the spinning table. In other words, the force of gravity of the sand and gravel is increased.

From the foregoing it will be observed that an improved machine for separating stones, gravel, and sand has been provided.

In Figs. 1 and 2 the shaft 38 has a sprocket 39^a in lieu of the crank 41. Passing about

the sprocket 39^a is a sprocket chain 39^b, which also passes about the sprocket wheel 39^c having a crank 39^d. The sprocket wheel 39^c is carried by a stub shaft mounted in a bearing 39^e of one of the vertical rods. By manipulating the crank 39^d motion may be transmitted to the shaft 33. Otherwise the structure shown in Figs. 1 and 2 is identical with the structure shown in the other figures.

The invention having been set forth, what is claimed as new and useful is:—

In a machine for separating sand and gravel, a frame, main and supplemental casings having screening means therebetween and being adjustably mounted in said frame, a hopper having an outlet spout connected to the main casing, a vertical shaft mounted in bearings of the frame and the casings, a revoluble member on the vertical shaft provided with curved flanges extending from the center of the revoluble member to its periphery, said flanges through the medium of the centrifugal force of the revoluble member acting to swirl the sand and gravel against the screening means, and a crank mechanism having connections with the vertical shaft for rotating the same.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ELBERT FINLEY ANDERSON.

Witnesses:

JOHN BRADBURY,

HERBERT D. ANDERSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."