Jan. 30, 1923.

1,443,773.

H. L. WADSWORTH.

SAND CUTTING MACHINE.

FILED NOV. 12, 1919.

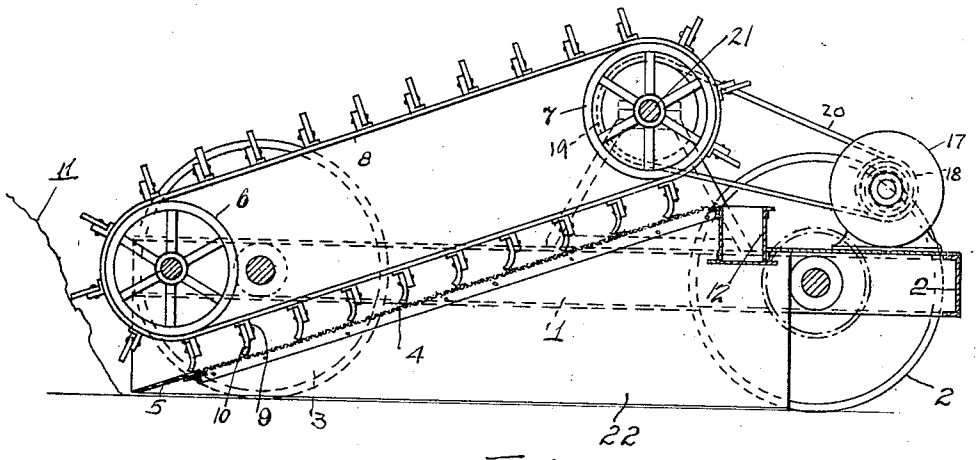


FIG. 1

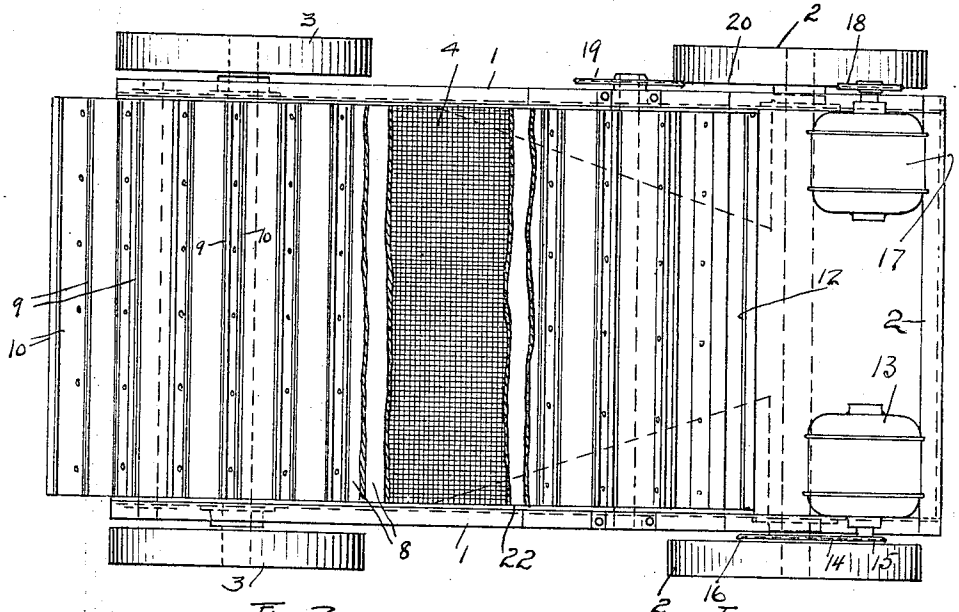


FIG. 2

INVENTOR
Howard L. Wadsworth.
By Dey, Oberlin & Dey
ATTORNEYS.

Patented Jan. 30, 1923. 1,443,773

UNITED STATES PATENT OFFICE.

HOWARD L. WADSWORTH, OF CLEVELAND, OHIO.

SAND-CUTTING MACHINE.

Application filed November 12, 1919. Serial No. 337,478.

To all whom it may concern:

Be it known that I, HOWARD L. WADSWORTH, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Sand-Cutting Machines, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

The present improvements, relating, as indicated, to sand cutting machines, are more particularly directed to an improved machine for cutting, and at the same time screening sand from sand heaps into which the used molding sand is piled in foundries.

In this art it has been customary either to have the used sand shoveled over and over by laborers, or, in the larger foundries, to employ a sand cutting machine, usually consisting of a large horizontally disposed cylinder with spiral blades for lifting and throwing the sand from side to side, in this way cutting and blending it.

The disadvantage of both of the above methods is that while they serve to cut the sand and disintegrate it they do not screen it, and therefore small metal articles are left in the sand with disastrous results when the sand is again used. To avoid this in most foundries the sand is screened at least once a week, but this is done by hand and entails a considerable expense. The present machine is designed to both cut and screen the sand at the same time, and the machine as constructed is extremely simple and relatively inexpensive. To the accomplishment of the foregoing and related ends, said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawing and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawing:—

Fig. 1 is a side elevation of my machine; and Fig. 2 is a plan view of the same.

The machine consists of a rectangular framework 1 mounted upon driving traction wheels 2 and undriven wheels 3. Mounted in an inclined position between the side rails of the frame 1 is a screen 4, which is provided at its lower end with a steel scoop or lifting plate 5, leading from about the level of the floor to the beginning of the screen surface. Mounted above, and parallel with the screen 4, is a conveying mechanism consisting of drums 6 and 7, over which passes an endless chain 8, which also extends across the entire width of the frame of the machine and across the surface of the machine. This endless belt 8 is provided with a series of rectangularly shaped and spaced projecting blades 9 of steel or of similar hard material, which are arranged to pass parallel to the surface of the screen upon the operation of the conveyor, but to be spaced therefrom by a distance of about an inch, which is sufficient to allow for the ordinary metal articles which are found in the sand to prevent injury to the screen, which would be the result if the steel blades were closely adjacent to the screen surface. Attached to the rear faces of the blades 9 are flexible blades or brushes 10, which may be of either stiff or yieldable wire, or of some such material as rubber. These blades 10 are arranged to contact the surface of the screen and work the sand through the meshes thereof so that all of the sand is worked through the screen before reaching the upper end of the same, while the metal articles are brushed up the screen by the flexible blades and are then discharged into the chamber 12. The action of the conveyor will be readily understood from the foregoing description and from the drawing, as the blades 9 and 10 cut into a pile of sand and deliver successive slices or portions of the sand on to the screen surface. The machine is driven from a motor 13 mounted upon the rear end of the frame and connected by a chain 14 and sprockets 15 and 16 to the shaft of the driving wheels 2. The conveying mechanism is similarly driven from a second motor 17, connected through sprockets 18 and 19 and a chain 20 to the shaft 21 of the conveyor drum 7.

Side plates 22, 22, are secured to and depend from the side or longitudinal members of the frame 1 and extend nearly to the floor upon which the machine operates, and serve to maintain the screened sand in a pile between the plates as the machine is moved forward and leave the sand in a neat pile as the machine moves beyond the screened sand.

The motors 13 and 17 are of the variable

speed type, and the motor 13 of the reversible type whereby the movement of the machine may be reversed to carry it forward or backward. So also the speed of the motors may be adjusted to effect the proper operation of the cutting and conveying belt relatively to the movement of the machine.

I therefore particularly point out and distinctly claim as my invention:—

1. In a machine of the character described, the combination of a frame movable over the ground against a pile of sand to be worked, an inclined screen mounted in said frame and having its lower end adjacent the forward end of said frame, and blades adapted to cut successive slices from such pile of sand and force the same through said screen.

2. In a machine of the character described, the combination of a frame movable over the ground against a pile of sand to be worked, an inclined screen mounted in said frame and having its lower end adjacent the forward end of said frame, and a series of sandcutting blades adapted to successively cut slices from such pile of sand and force the same through such screen.

3. In a machine of the character described, the combination of a frame movable over the ground against a pile of sand to be worked, an inclined screen mounted in said frame and having its lower end adjacent the forward end of said frame, a series of sand cutting elements adapted to successively cut slices from such pile of sand, and a second series of relatively flexible elements movable with said first named series and arranged to brush cut slices of sand over the surface of said screen.

4. In a machine of the character described, the combination of a frame movable over the ground against a pile of sand to be worked, an inclined screen mounted in said frame and having its lower end adjacent the forward end of said frame, and a conveying mechanism arranged to move parallel to said screen, said mechanism including a series of outwardly extending transversely elongated sand cutting blades, said blades being arranged to move closely adjacent to the surface of said screen.

5. In a machine of the character described, the combination of a frame movable over the ground against a pile of sand to be worked, an inclined screen mounted in said frame and having its lower end adjacent the forward end of said frame, and an endless belt conveying mechanism disposed parallel with said screen, said mechanism projecting forwardly above the forward lower end of said screen and having a series of outwardly extending transversely elongated blades adapted to cut successive slices from such pile of sand and move the same onto said screen.

6. In a machine of the character described, the combination of a frame movable over the ground against a pile of sand to be worked, an inclined screen mounted in said frame and having its lower end adjacent the forward end of said frame, and an endless belt conveying mechanism disposed parallel with said screen, said mechanism projecting forwardly above the forward lower end of said screen and having a series of outwardly extending blades adapted to cut successive slices from such pile of sand and move the same onto said screen, and said belt having also a series of relatively flexible blades located adjacent to said first named blades and adapted to brush the sand cut by said first named blades over the surface of said screen.

Signed by me this 5th day of November, 1919.

HOWARD L. WADSWORTH.