

(No Model.)

2 Sheets—Sheet 1.

E. C. WILL.
SAND SCREEN AND MIXING MACHINE.

No. 549,176.

Patented Nov. 5, 1895.

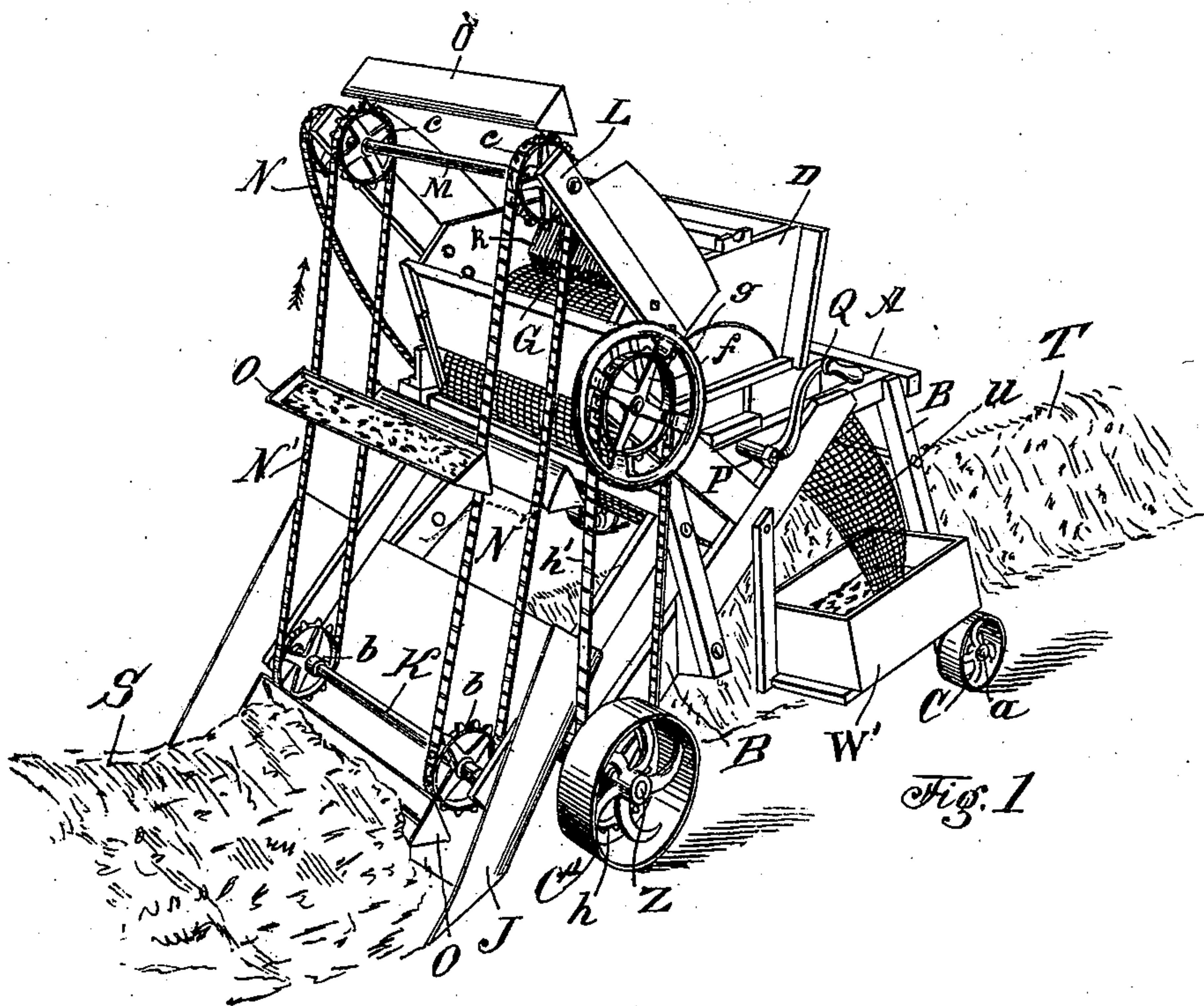


Fig. 1

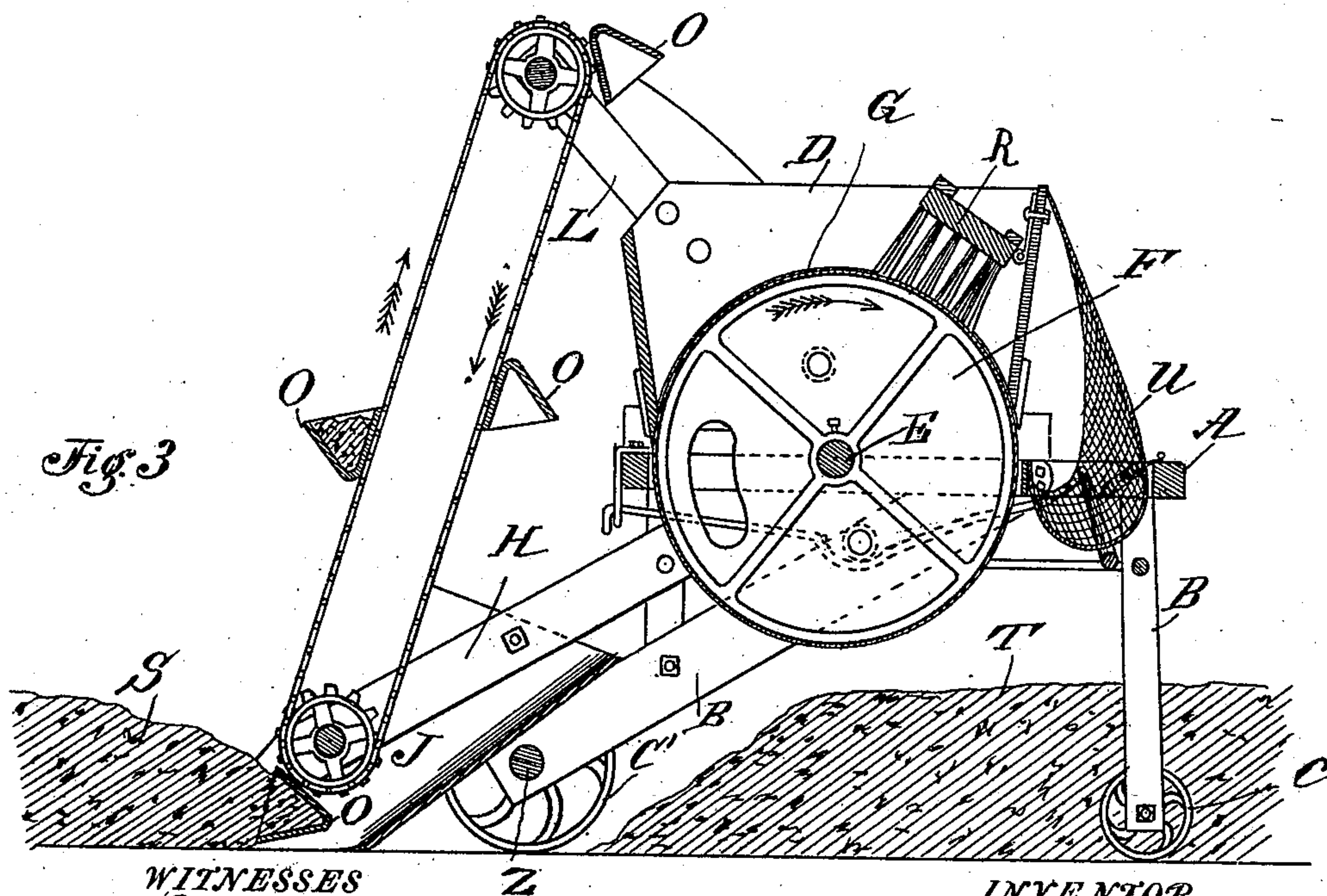


Fig. 3

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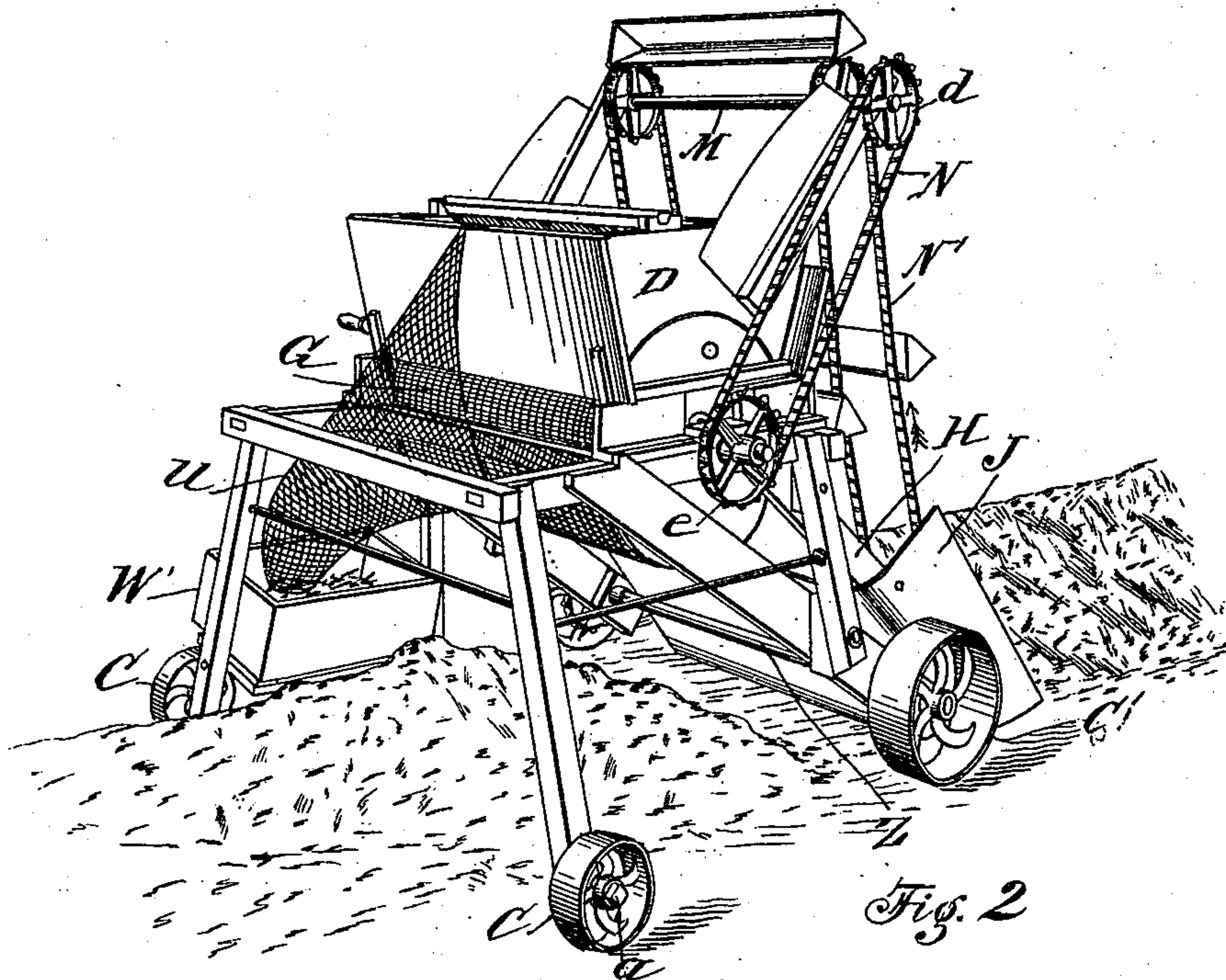


Fig. 2

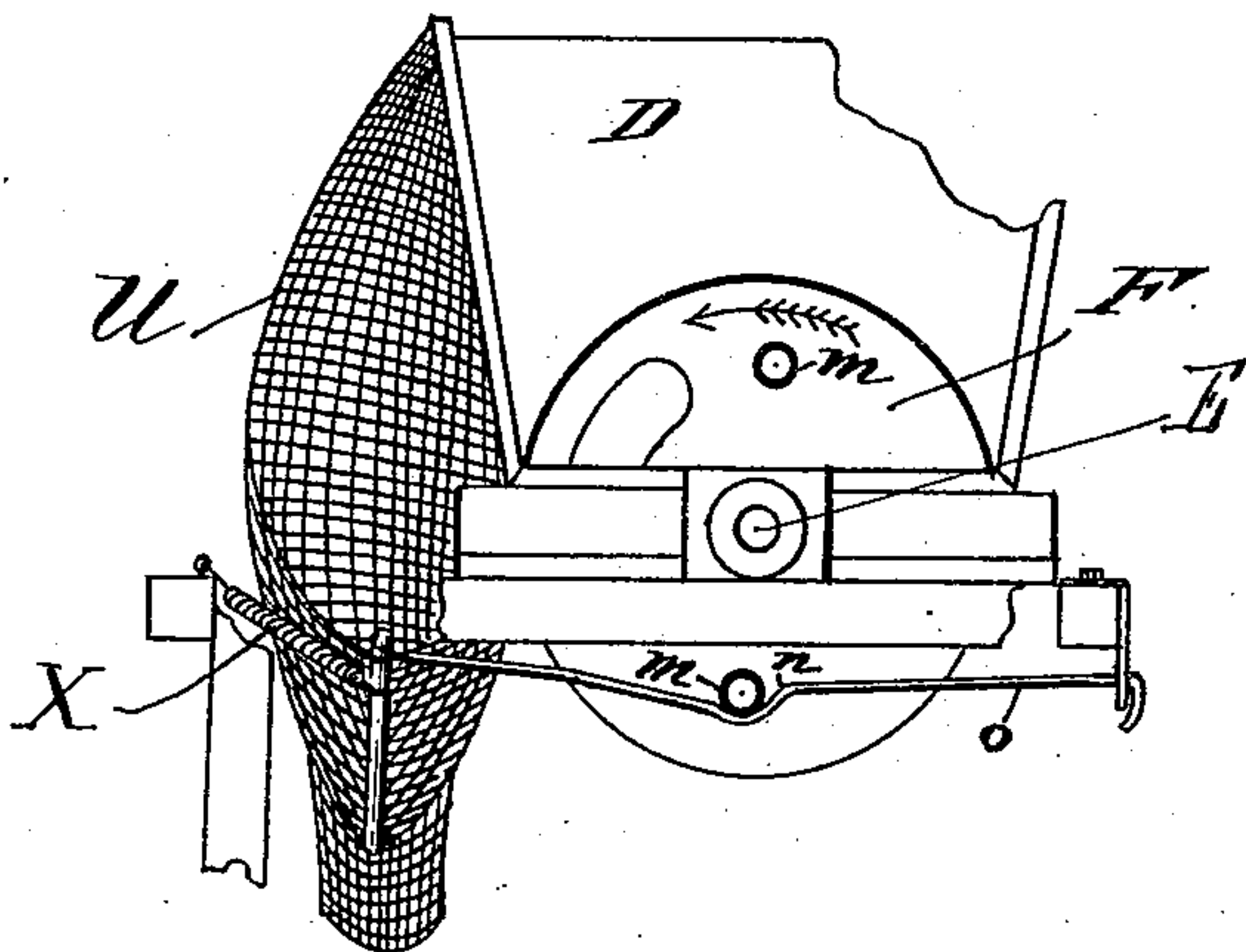


Fig. 4

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UNITED STATES PATENT OFFICE.

EDWIN C. WILL, OF MASSILLON, OHIO.

SAND SCREEN AND MIXING MACHINE.

SPECIFICATION forming part of Letters Patent No. 549,176, dated November 5, 1895.

Application filed January 14, 1895. Serial No. 534,840. (No model.)

To all whom it may concern:

Be it known that I, EDWIN C. WILL, a citizen of the United States, and a resident of Massillon, county of Stark, State of Ohio, have invented a new and useful Improvement in Sand Screen and Mixing Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

My invention relates to improvements in sand sifting and mixing machines, the object of which is to provide a machine to be moved over a foundry-floor, to elevate and sift the molding-sand, to separate therefrom particles of iron and nails that have been used in the mold, and to mix new sand with the old.

With these objects in view my invention consists of certain features of construction and combination of parts, as will be herein-after described and claimed.

Figure 1 of the accompanying drawings is a perspective view from the left front of a sand-sifter illustrating my invention. Fig. 2 is a similar view from right rear. Fig. 3 is a transverse section through centrally from front to rear. Fig. 4 is a section of a fragment of the machine, showing the mechanism by which the screen-conductor is vibrated.

A denotes the frame, and B the supporting-legs, at the lower end of which are provided carrying-wheels C C', the former supported on spindles *a* and the latter on a cross-shaft Z.

D denotes the hopper. The frame and hopper may be made as shown, or may be otherwise constructed, if preferred.

On the frame A is journaled shaft E, on which are mounted cast-metal heads F, to which is secured wire-cloth that forms the screen G, as shown in Figs. 1 and 2. The hopper D is supported on the frame A and extends above the screen G to form a receptacle for the sand to be screened or sifted.

Forwardly and downwardly from the supporting-frame A are projected arms, as H, in which is supported a scoop J and a cross-shaft K, on which are mounted sprocket-wheels *b*, and from the hopper D are projected forwardly and up arms, as L, in which is journaled shaft M, on which is mounted between the arms sprocket-wheels *c* to correspond with the wheels *b* on shaft K. On the outer

right-hand end of the shaft M is mounted a sprocket-wheel *d* to correspond with a similar wheel *e*, mounted on the screen-shaft E. (See Fig. 2.) A suitable chain, as N, is placed about the wheels *d* and *e*, and similar chains N' are placed about the wheels *b* and *c*, to which the elevator-buckets O are secured. The scoop J, carried by arms H, is held in position directly under the lower part of the elevator, where the buckets O receive the sand. On the arm P is provided a spindle, on which is placed a sprocket-wheel *f* and hand-wheel *g*, that may be cast integral therewith or supported on a sleeve, and on shaft Z is mounted a sprocket-wheel *h* to correspond with the wheel *f*, which are connected by chain *h'*.

When the machine is operated by hand, an actuating-crank, as Q, is secured on the shaft E, as shown in Fig. 1, and when operated by power a driving-pulley may be placed on the shaft in place of the crank.

A steel-wire brush R is placed in the hopper D, as shown in Figs. 1 and 3, to extend across the hopper, the ends of the wires of the brush to engage the outer surface of the screen G.

In operation, the sand "heap" S may be replenished and "cut over" in the usual way. The machine is then placed at the end of the heap and moved forward by the operator grasping the hand-wheel *g* with the left hand and turning it forward to bring the scoop and buckets into the sand, the right hand to turn the crank, the screen will be rotated and motion will be transmitted through the wheels *e d* and chain N to the wheels *c* and chain N' to wheels *b*, by which mechanism the chain N' and buckets O will be rotated about the shafts K and M in the direction indicated by the arrows to carry the sand from the heap S up to and discharge it into the hopper on the top side of the screen G. The machine is constantly pressed forward against the sand by the power transmitted from the hand-wheel *g* to the wheel C' by the wheels *f h* and chain *h'* to rotate shaft Z and wheels C'. The rotary movement of the screen will carry the sand over and against the brush, by which it will be swept through the meshes of the screen into the inside, where it will become thoroughly mixed and from which it will fall to

and form a thoroughly mixed and screened heap T. Particles of iron and nails will be carried through under the brush and deposited in a vibratable screen and spout U, which is of the same mesh as the screen G, through which sand that may have passed under the brush will fall to the heap T, while the iron and nails will be conducted to the receptacle W'. To vibrate the screen U, pins, as *m*, are provided in the head F, that engage a shoulder *n* in rod *o*, that is supported on the screen and the front end of the frame A. The pins serve to move the rod and the screen forward, and when released will be drawn back by the energy of the spring X, one end of which is secured to the frame and the other to the screen, as shown in Fig. 4.

Having thus fully described the nature and object of my invention, what I claim is—

1. The combination in a sand sifting machine, of a supporting frame and hopper, a rotatable cylinder screen, a vibratable screen, and conductor, a brush to sweep the outer surface of the cylinder screen, a flight of elevator buckets, supporting and propelling wheels, a hand wheel and a chain connection with the propelling wheels, whereby said wheels may be turned to move the machine over the ground or floor, substantially as described and for the purpose set forth.

2. In a sand sifting machine, the combination of a supporting frame and hopper, of a rotatable cylinder screen provided with pins, *m*, fixed to a head of the cylinder, a vibratory screen and conductor, adapted to receive particles from the outside of said cylinder screen and convey them therefrom to a suitable receptacle, a horizontal rod, formed with a shoulder, *n*, and provided with a retracting spring, said rod being loosely connected with the frame, so as to have movement endwise, and also connected with said vibratory screen and conductor, substantially as described and shown.

3. The combination, in a sand sifting machine, of a supporting frame and hopper, a sifting screen, an elevator provided with buckets and mounted at the front of the machine, a scoop, J, carried by arms extending downward and forward so as to hold said scoop in position under the lower end of the elevator where the buckets receive the sand, substantially as set forth and described.

In testimony whereof I have hereunto set my hand this 9th day of January, A. D. 1895.

EDWIN C. WILL.

Witnesses:

JAMES PEACOCK,
W. K. ATWATER.