Feb. 14, 1928.

1,659,211

V. E. MINICH ET AL

MACHINE FOR CUTTING AND SIFTING SAND

Filed July 15, 1922

3 Sheets-Sheet 1

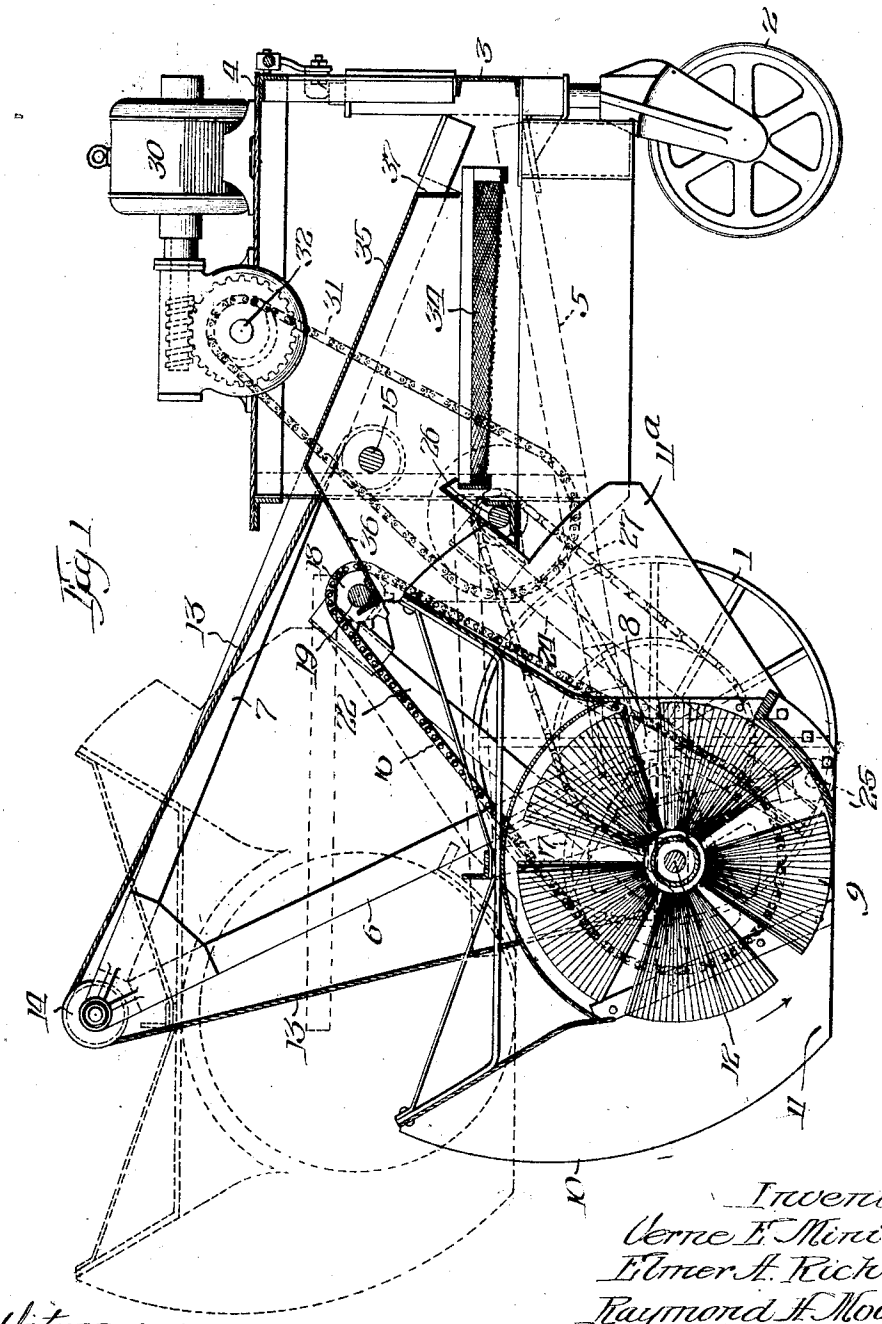


Fig. 1

Witness:

Inventors
Verne E. Minich
Elmer A. Rick Jr.
Raymond H. Moore,

By A. Miller Benfield Atty

Feb. 14, 1928. 1,659,211

V. E. MINICH ET AL

MACHINE FOR CUTTING AND SIFTING SAND

Filed July 15, 1922 3 Sheets-Sheet 2

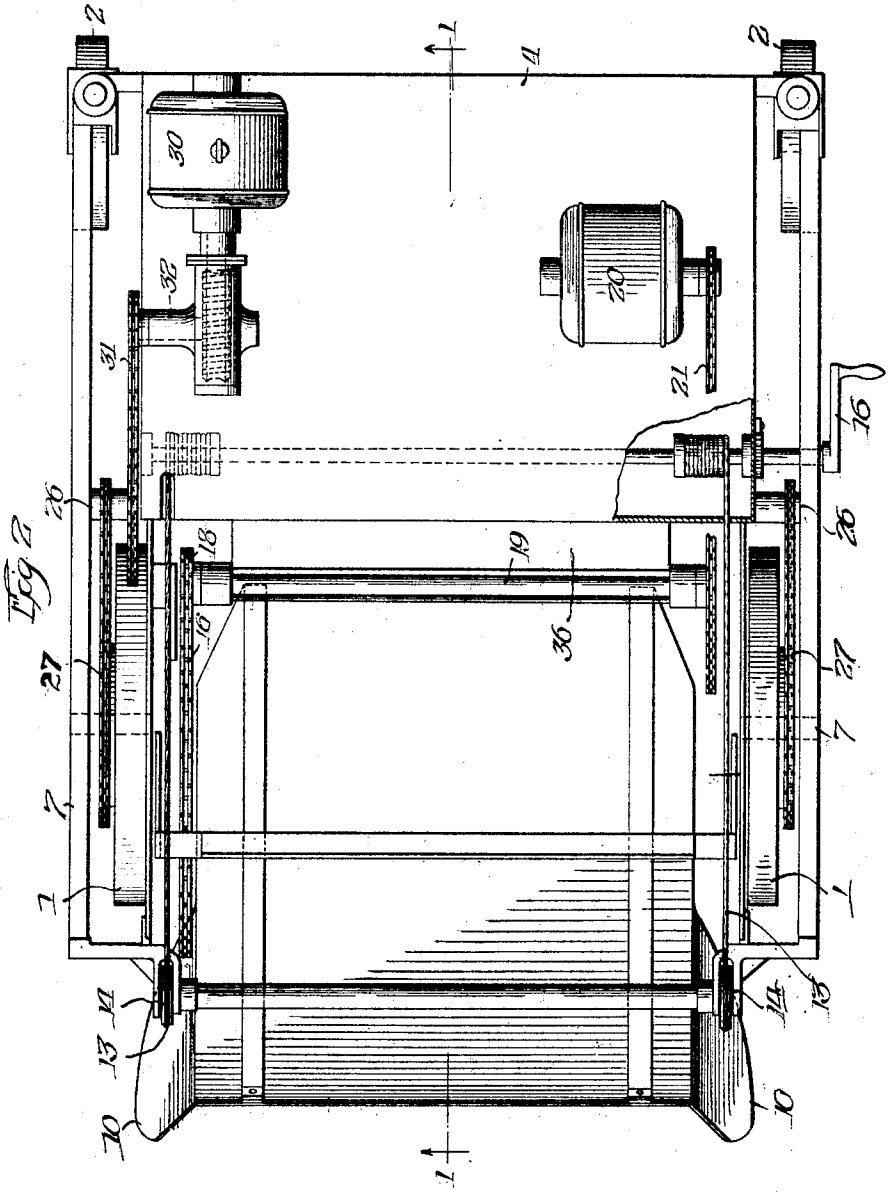


Fig 2

Witness:
Fred C. Dorsey

Inventors:
Verne E. Minich
Elmer A. Rick Jr
Raymond H. Moore
By A. Miller Belfield Atty.

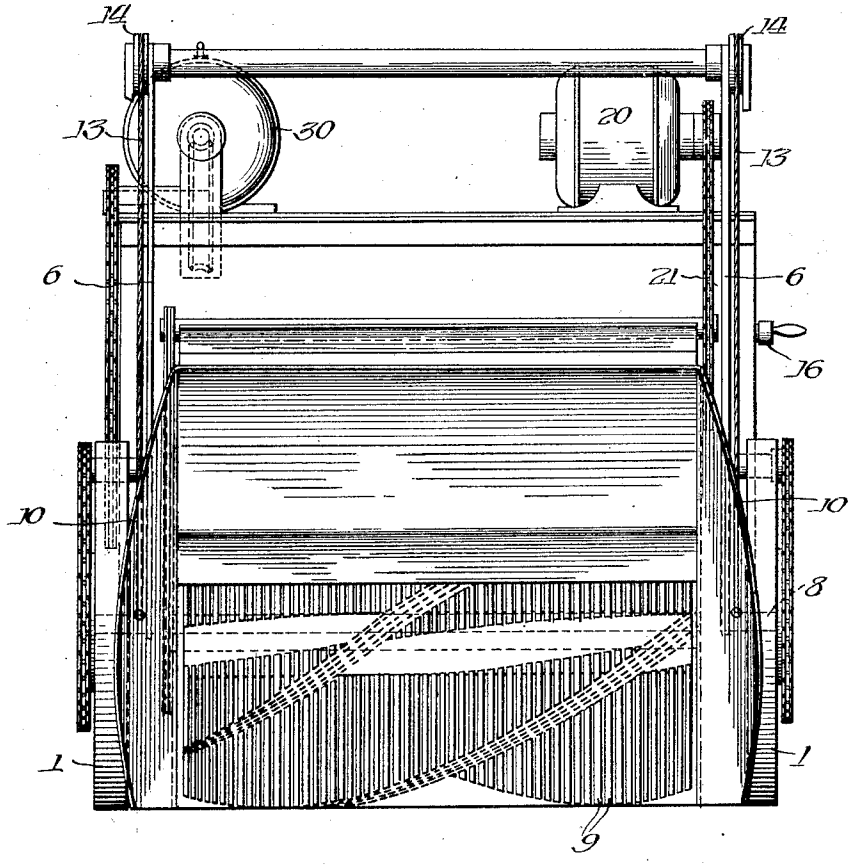
Feb. 14, 1928. 1,659,211

V. E. MINICH ET AL.

MACHINE FOR CUTTING AND SIFTING SAND

Filed July 15, 1922 3 Sheets-Sheet 3

Fig. 3.



Witness:
Fred C. Dorsey

Inventors:
Verne E. Minich
Elmer A. Rick Jr.
Raymond H. Moore
By A. Miller Belfield Atty

Patented Feb. 14, 1928. 1,659,211

UNITED STATES PATENT OFFICE.

VERNE E. MINICH, OF NEW YORK, N. Y., AND ELMER A. RICH, JR., AND RAYMOND H. MOORE, OF CHICAGO, ILLINOIS, ASSIGNORS TO THE AMERICAN FOUNDRY EQUIPMENT COMPANY, OF NEW YORK, N. Y., A CORPORATION OF OHIO.

MACHINE FOR CUTTING AND SIFTING SAND.

Application filed July 15, 1922. Serial No. 575,397.

Our invention relates to machines for treating sand or the like, particularly to machines for treating used molding sand in foundries to prepare it for further use.

One of the objects of the invention is to provide a simple and practical machine of the class specified.

Another object of the invention is to secure effectiveness in carrying on the various operations of the machine.

Another object of the invention is to secure a thorough and effective sifting of the sand, to free it from various kinds of foreign matter, as for example nails, small pieces of metallic casting and so on.

In the accompanying drawings—

Fig. 1 is a longitudinal section taken on line 1—1 of Fig. 2 of a machine of the class specified combining our present invention;

Fig. 2 is a plan view of the same; and

Fig. 3 is a view looking at the front end of the machine.

Referring to the drawings, we show a machine having large road wheels 1 and small road wheels 2, the same supporting a body frame having a cross member 3, a supporting casing 4 and frame members 5, 6 and 7. The latter members 5, 6 and 7 form sort of a body frame arrangement and are supported by the axle 8 on which the wheels 1—1 are mounted.

A sand treating device, preferably in the form of a rotary cutter or sweeper 9, is arranged substantially between the large wheels 1—1 and is so constructed that it will operate to cut or brush sand when rotated and the machine moved in one direction and to cut or pile sand when the machine is moved in the other direction. The rotary member 9 is hung in a housing 10 having side walls 11—11 provided with bearings supporting the rotary shaft 12 carrying the rotary member 9. The housing 12 is supported by flexible connectors 13—13, attached to the side walls 11 and extending up over pulleys 14 at the junction formed by the upper ends of the members 6—6 and 7—7. Said connectors 13—13 extend to a windlass 15 which may be operated by handle 16 so as to raise and lower the rotary cutting member 9 to any desired position. The cutting member 9 is driven by a sprocket chain 16 traveling on a sprocket 17 on the cutting member and also on a sprocket 18 on a rotary shaft 19. The latter is driven by a motor 20 through driving sprocket connection 21 extending between the motor shaft and the shaft 19. The cutting member 9 in its vertical adjustment swings about the driving shaft 19 because of frame bars 22—22 having bearings in alinement with shafts 19 and 12, so that shaft 12 swings about shaft 19 in raising and lowering the cutting member 9 with its housing 10. The housing 10 is held in substantially horizontal position when the member 9 is raised and lowered by means of frame bars 24—24 pivotally connected at 25 with the housing 10 and also having bearings in alinement with cross-shaft 26 so that the latter serves as a pivotal member for the bars 24—24. The shaft 26 is the driving shaft for the driving wheels 1—1 of the machine, the connection being through sprocket chain 27 traveling over sprockets on shafts 8 and 26. Shaft 26 is driven by motor 30 by means of sprocket chain 31 and drive-shaft 32 having a worm and gear connection with motor 30. Thus the machine may be moved along the ground by motor 30 and the rotary member 9 operated by the other motor 20. The motor 30 is variable speed and reversible and motor 20 is reversible.

A screen 34 is mounted in the machine in position to receive foreign articles, such as nails, screws, parts of the castings and the like from the rotary member 9 when the latter is rotated in the direction indicated by arrow in Fig. 1. By such an arrangement these foreign articles will be thrown up and onto the screen 34 and so caught and held, and at proper times they are removed from said screen 34. Possibly some sand may go onto the screen 34 with said articles. On the other hand, the sand not being as heavy as said foreign articles the big bulk of the sand will fly upwardly between the extensions 11^a, 11^a of the housing 11 and below the screen 34, and so may be piled and ridged, or otherwise treated as desired by the rotary member 9. A baffle plate 35 is mounted above the screen 34, being preferably provided with an inclined end 36 to properly direct the foreign articles into or upon screen 34, and also with another inclined end 37 to stop said articles and cause

them to fall down upon screen 34. In this way foreign articles will be separated from the big bulk of sand, and any small amount of sand that may go with them will be sifted by screen 34. The substantial portions of the separation of sand and foreign articles, however, is brought about by the action of the rotary member 9, throwing the foreign articles upwardly in one path and the sand less upwardly in another path, and so a screen device for effecting substantially this entire separation is avoided. Furthermore the sand will be thoroughly sifted and cleaned and may be treated as desired.

By varying the speed of motor 20 and thereby the speed of the brush or sweeper or otherwise varying speed of latter, the amount of sand or fine material thrown onto the screen may be varied, increasing as the speed is increased.

It will be understood that changes and modifications may be made without departing from the spirit of the invention.

What we claim is:

1. The combination of means for acting upon the sand and moving the fine material in a lower path and lifting the foreign articles to a higher path, and a screen in position to intercept the foreign articles.

2. The combination of means for acting upon the sand and moving the fine material in a lower path and lifting the foreign articles to a higher path, a screen in position to intercept the foreign articles, and means for adjusting said sand treating means at will.

3. The combination of means for acting upon the sand and moving the fine material in a lower path and lifting the foreign articles to a higher path, a screen in position to intercept the foreign articles, means for adjusting said sand treating means at will, a housing for said sand treating means, and means permitting the vertical adjusting of said housing but retaining the same in substantially horizontal position.

4. The combination of means for acting upon the sand and moving the fine material in a lower path and lifting the foreign articles to a higher path, a screen in position to intercept the foreign articles, means for adjusting said sand treating means at will, a housing for said sand treating means, and means permitting the vertical adjusting of said housing but retaining the same in substantially horizontal position, said sand treating means being carried by said housing.

5. The combination of means for acting upon the sand and moving the fine material in a lower path and lifting the foreign articles to a higher path, a screen in position to intercept the foreign articles, means for adjusting said sand treating means at will, a housing for said sand treating means, and means permitting the vertical adjusting of said housing but retaining the same in substantially horizontal position, said sand treating means being carried by said housing, the means for vertically adjusting the sand treating means comprising flexible connectors operated by reels.

6. The combination of means for acting upon the sand and moving the fine material in a lower path and lifting the foreign articles to a higher path, a screen in position to intercept the foreign articles, means for adjusting said treating means at will, a housing for said sand treating means, means permitting the vertical adjusting of said housing but retaining the same in substantially horizontal position, said sand treating means being carried by said housing, the means for vertically adjusting the sand treating means comprising flexible connectors operated by reels, and independent motors for driving the sand treating device and moving the vehicle.

7. A machine of the class specified comprising a self propelled vehicle, a rotary sand treating device arranged to treat for foundry purposes sand on the surface on which the machine travels, and to project material through the air as a result of such operation, and a device for further treating sand arranged in position to receive material projected through the air by said sand treating device.

8. A machine of the class specified comprising a self propelled vehicle, a rotary sand cutting device arranged to treat sand on the surface on which the machine travels for foundry purposes, and also arranged to project material through the air as a result of such treatment, and screening means located to receive the material projected through the air by said sand cutting device.

9. A machine of the class specified comprising a self propelled vehicle, a rotary sand treating device for treating sand on the surface on which the machine travels for foundry purposes, and also arranged to project material through the air as a result of said treating operation, a device for further treating sand located in position to receive material projected as aforesaid through the air and means for directing the projected material to said second mentioned treating device.

10. A machine of the class specified comprising a self propelled vehicle, a rotary sand cutting device for cutting sand on the surface on which the machine travels, said cutting device being adapted to throw material through the air as a result of such sand cutting operation, screening means in position to receive material so thrown through the air, and a chute for directing the thrown material to the screening means.

11. A sand treating machine comprising

a chassis mounted upon wheels for movement over a foundry floor, a rotary cutting member mounted on said chassis and operatively positioned with respect to material on said floor, means for causing rotation of said member whereby fine particles may be thrown thereby in one path and coarse particles in a different path, and means for intercepting only the coarse particles.

12. A sand treating machine comprising a chassis mounted upon wheels for movement over a foundry floor, a rotary cutting member mounted on said chassis and operatively positioned with respect to material on said floor and means for causing rotation of said member whereby fine particles may be thrown thereby in one path and coarse particles in a different path, said particles being thrown a substantial distance whereby their paths are sufficiently separated to permit selective interception thereof.

13. A sand treating machine comprising a chassis mounted upon wheels for movement over a foundry floor, a rotary cutting member mounted on said chassis and operatively positioned with respect to material on said floor, means for causing rotation of said member whereby fine particles may be thrown thereby in one path and coarse particles in a different path, and a screen arranged in the line of movement of said coarse particles only for intercepting the same.

14. A sand treating machine comprising a chassis mounted upon wheels for movement over a foundry floor, a rotary cutting member mounted on said chassis and operatively positioned with respect to material on said floor, means for causing rotation of said member whereby fine particles may be thrown thereby in one path and coarse particles in a different path, a screen arranged in the line of movement of said coarse particles only for intercepting the same and means for vertically adjusting said cutting member for varying its operative position with respect to said floor.

15. A sand treating machine comprising a chassis mounted for independent movement over a foundry floor, a rotary sand cutting device mounted upon said chassis and positioned to engage material on said floor, means for causing rotation of said device for causing the same to operate on and impel said material and screening means mounted upon said chassis in position to receive a portion only of the material impelled by said cutting device.

In witness whereof, we hereunto subscribe our names this 6th and 10th days of July, A. D., 1922.

VERNE E. MINICH.
ELMER A. RICH, JR.
RAYMOND H. MOORE.