

E. K. VAN CUREN.
MACHINE FOR PULVERIZING AND SMOOTHING SAND.
APPLICATION FILED JULY 17, 1912.

1,059,688.

Patented Apr. 22, 1913.

2 SHEETS—SHEET 1.

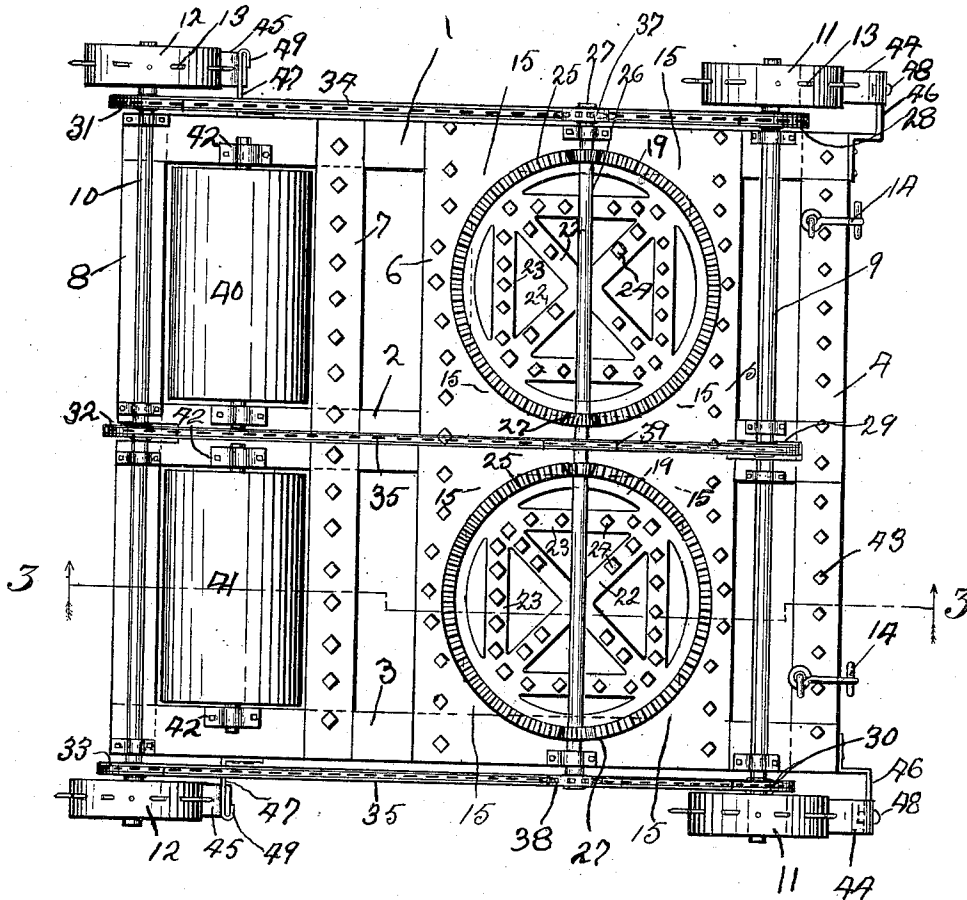


Fig. 1.

Witnesses

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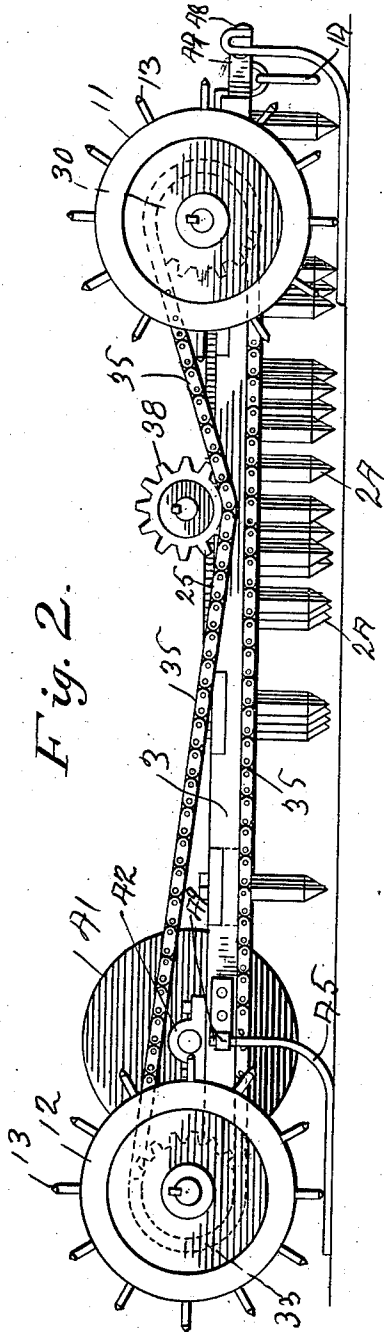


Fig. 2.

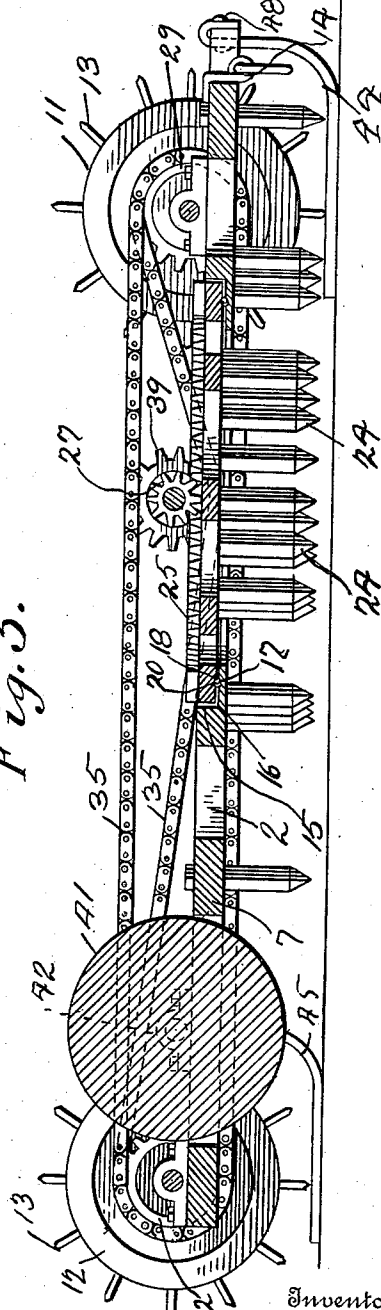


Fig. 3.

Witnesses

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UNITED STATES PATENT OFFICE.

ELZA K. VAN CUREN, OF BAIRDSTOWN, CALIFORNIA, ASSIGNOR TO MARY S. VAN CUREN, OF SANTA MONICA, CALIFORNIA.

MACHINE FOR PULVERIZING AND SMOOTHING SAND.

1,059,688.

Specification of Letters Patent.

Patented Apr. 22, 1913.

Application filed July 17, 1912. Serial No. 709,980.

To all whom it may concern:

Be it known that I, ELZA K. VAN CUREN, a citizen of the United States, residing at Bairdstown, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Machines for Pulverizing and Smoothing Sand, of which the following is a specification.

My invention relates to machines for pulverizing and smoothing sand, and has for its object the provision of a machine consisting of a frame mounted on suitable spiked wheels and having rotary frames mounted thereon provided with teeth projecting downwardly therefrom to break up the sand and freely journaled rollers arranged therebehind for rolling the broken-up sand. The frame is also provided with a number of rigidly mounted teeth for the purpose of breaking up the sand.

My invention will be described in detail hereinafter and illustrated in the accompanying drawings, in which,

Figure 1 is a top plan view of my improved machine; Fig. 2, a side view in elevation; and Fig. 3, a longitudinal sectional view on the plane indicated by the line 3—3 of Fig. 1.

In the drawings similar reference characters will be used to designate corresponding parts throughout the several views.

My improved sand pulverizing and smoothing machine is mounted on a frame comprising the longitudinal bars 1, 2 and 3, connected by means of cross beams 4, 5, 6, 7 and 8. Journaled adjacent to the two ends of the beams 1, 2 and 3 are shafts 9 and 10 having wheels 11 and 12 secured thereto, respectively, the wheels 11 and 12 being provided with radial spikes 13.

14 indicates draft members secured to the beam 4 through which may be secured any desirable form of draft appliance.

Secured in the corners formed by the beams 1, 2 and 3 and the cross beams 5 and 6, are angular blocks 15, having their upper sides channeled and the said beams 1, 2, 3, 5 and 6 are also channeled to form bearings 16, said bearings being provided with raceways 17 in which are mounted antifriction bearing members 18.

19 indicates annular frames mounted in the channel 16 and provided with annular grooves 20 that seat upon the anti-friction bearing members 18, said frames being rev-

olubly mounted within said channels. The annular frames 19 are provided with diagonal bars 22 and cross bars 23 connecting the outer extremities of said diagonal bars 22 and forming rectangular frames within said annular frames 19. Secured to the bars 22 and 23 are downwardly projecting teeth 24 for the purpose hereinafter described. The upper surfaces of the annular frames 19 are provided with gear faces 25, and 26 indicates a shaft journaled on the beams 1 and 3 and having pinions 27 secured thereto and meshing with the gear faces 25 aforesaid. The shafts 9 and 10 have secured thereto sprocket wheels 28, 29, 30, 31, 32 and 33, and 34, 35 and 36 indicate sprocket chains geared to sprocket wheels 28 and 31, 29 and 32, and 30 and 33, respectively. Secured to the shaft 26 are sprocket wheels 37 and 38 that engage the upper sides of the upper portions of the chains 34 and 36, while secured to the middle of said shaft 26 is another sprocket wheel 39 that engages the under side of the upper length of the chain 35. It will be understood from this construction, that a forward movement of the frame on the wheels 11 and 12 will cause a rotation of the shafts 9 and 10, and said rotation of the shafts will impart a revoluble movement of the annular frames 19 through the chains 34, 35 and 36, the sprocket wheels 37, 38 and 39, the shaft 26, and the pinions 27 meshing with the gear faces 25 on said frames.

40 and 41 indicate rollers journaled on bearings 42 secured to beams 1, 2 and 3, said rollers being mounted between said beams 1, 2 and 3 and cross beams 7 and 8 at the rear of the machine.

In addition to the teeth 24, the cross beams 4, 5, 6 and 7 are also provided with rows of teeth designated 43 that operate in conjunction with said teeth 24 to pulverize the sand over which the machine is drawn.

To provide for transportation of the machine, when not in operation, I have provided skids consisting of shoes 44 and 45 that are removably secured to brackets 46 and 47 mounted on the beams 1 and 3 in advance of the wheels 11 and 12, the shoes 44 being secured to the brackets 46 by means of bolts 48, while the brackets 47 are provided with hook members 49 that releasably engage the shoes 45.

In operation, it will be understood that

after the shoes 44 and 45 are removed from the brackets 46 and 47, the device is in condition for operation, and by drawing the machine over the sand bed, the sand will
5 be broken up by the teeth 43 secured to the frame and the teeth 24 secured to the revoluble frames 19. After the sand has been agitated by said teeth, the rollers 40 and 41 by pressing downwardly on the agitated
10 sand will smooth it.

Having thus described my invention, what I claim is:—

1. In a machine of the class described, a frame comprising longitudinal beams and
15 cross beams, shafts journaled adjacent to the terminals of said longitudinal beams, supporting wheels secured to said shafts, sprocket chains geared to said shafts, annular frames revolubly mounted on the first
20 mentioned frame, said annular frames being geared to said sprocket chains, agitator teeth secured to some of said cross beams and projecting downwardly therefrom, and agitator
25 teeth secured to said revoluble frames and projecting downwardly therefrom.

2. In a machine of the class described, a frame comprising longitudinal beams and cross beams, shafts journaled adjacent to the terminals of said longitudinal beams, supporting wheels secured to said shafts, sprocket chains geared to said shafts, annular frames journaled on the first mentioned frame, a shaft journaled in the longitudinal beams and arranged centrally above
35 said annular frames, said shaft being geared to said annular frames and to the sprocket chains aforesaid, agitator teeth secured to some of said cross beams and projecting downwardly therefrom, agitator teeth secured to said annular frames and projecting
40 downwardly therefrom, and rollers journaled adjacent to the rear terminals of said longitudinal beams.

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

ELZA K. VAN CUREN.

Witnesses:

GEORGE CLEMENS,
ERNEST B. GREGORY.

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