J. S. BLOOM AND A. C. FENNER.

CEMENT MIXER.

APPLICATION FILED MAR. 1, 1916.

1,332,880.

Patented Mar. 9, 1920.

3 SHEETS—SHEET 1.

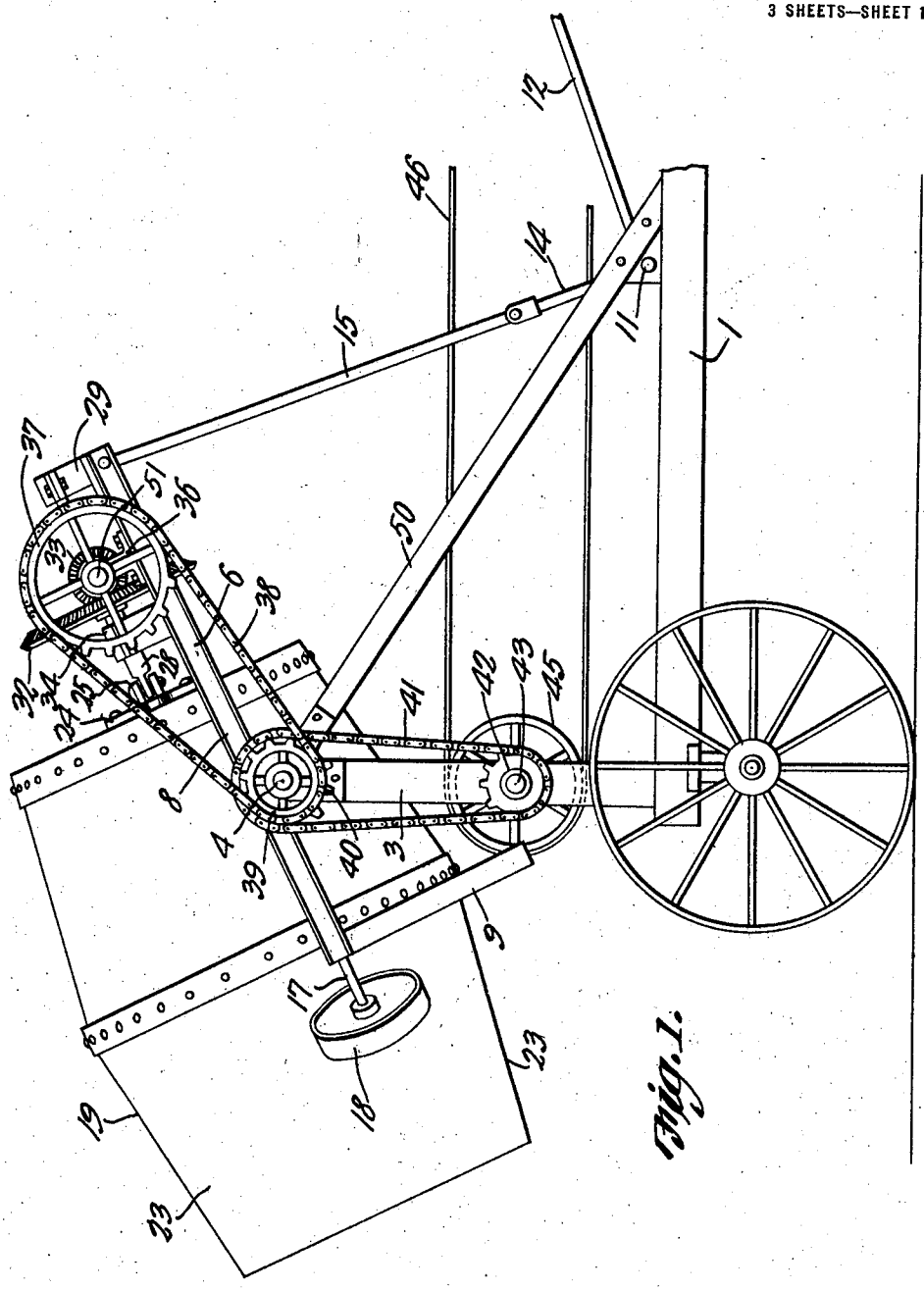


Fig. 1.

Witnesses

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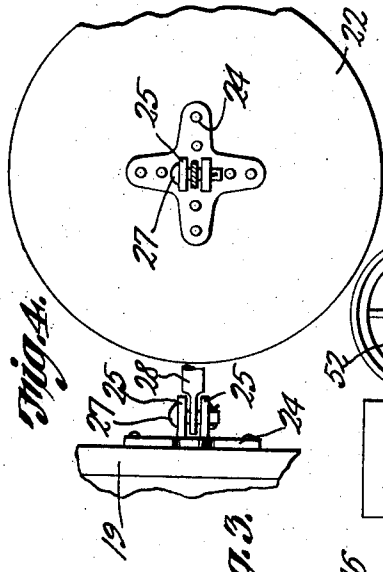


Fig. 4.

Fig. 3.

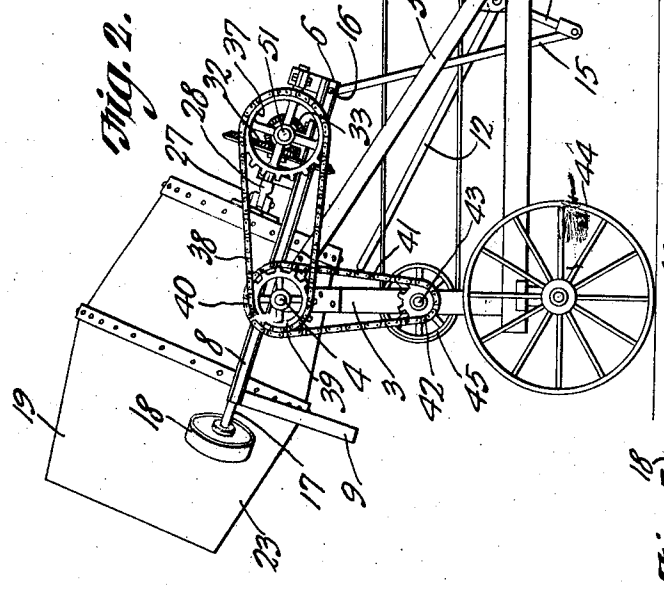


Fig. 2.

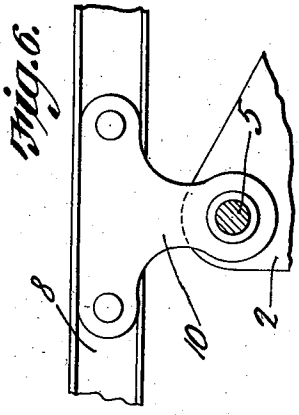


Fig. 6.

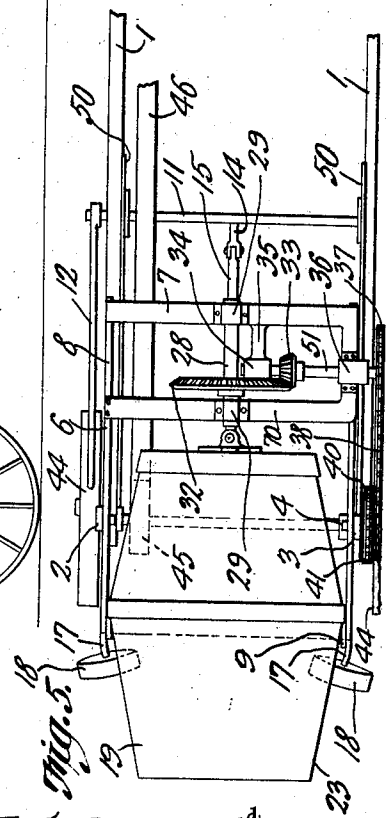


Fig. 5.

Witnesses

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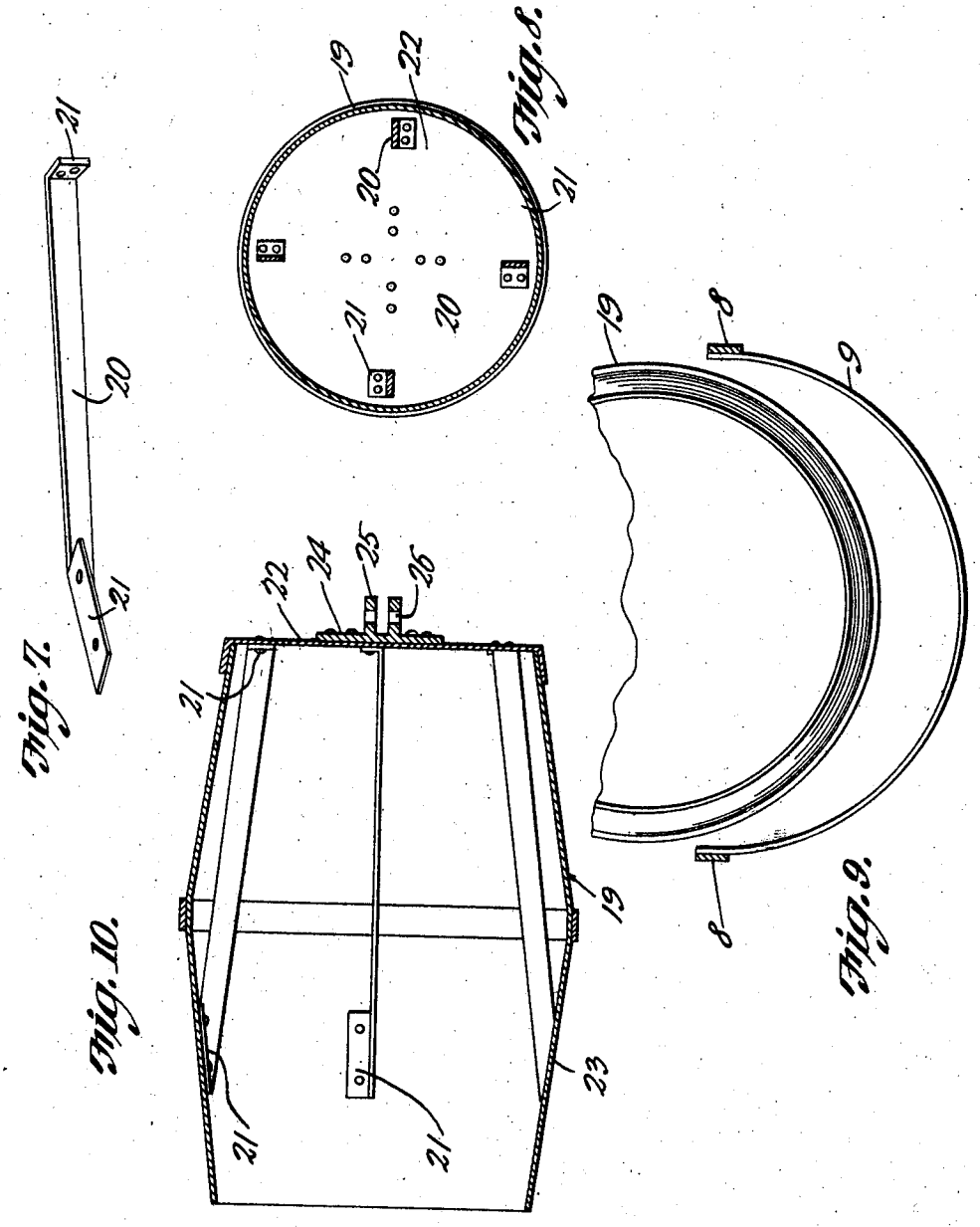
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3 SHEETS—SHEET 3.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN S. BLOOM AND ALBERT C. FENNER, OF INDEPENDENCE, IOWA; SAID FENNER ASSIGNOR TO SAID BLOOM.

CEMENT-MIXER.

1,332,880. Specification of Letters Patent. Patented Mar. 9, 1920.

Application filed March 1, 1916. Serial No. 81,454.

To all whom it may concern:

Be it known that we, JOHN S. BLOOM and ALBERT C. FENNER, citizens of the United States, residing at Independence, in the county of Buchanan and State of Iowa, have invented a new and useful Cement-Mixer, of which the following is a specification.

The device forming the subject matter of this application is a cement mixer, and the invention aims to provide novel means for supporting the drum for rotation, and to improve the construction of the drum.

With the above and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawing;

Figure 1 shows the invention in side elevation, the drum being in dumping position, and parts being broken away;

Fig. 2 shows the invention in side elevation, the drum being in the position which it will assume during the mixing of the cement;

Fig. 3 is a fragmental elevation of the drum, the view showing a means whereby one of the driving shafts is operatively connected with the drum;

Fig. 4 is an end elevation of the drum, the driving shaft appearing in section;

Fig. 5 is a fragmental top plan showing the forward end of the machine;

Fig. 6 is a fragmental vertical section showing one of the elements whereby the tilting frame is supported for vertical swinging movement;

Fig. 7 is a perspective view delineating one of the mixing blades in the interior of the drum;

Fig. 8 is a cross section of the drum;

Fig. 9 is a fragmental cross section showing the drum in operative relation to a portion of the supporting frame;

Fig. 10 is a longitudinal section of the drum.

In carrying out the present invention there is provided a supporting structure which may be of any desired sort, the supporting structure in the present instance being delineated as comprising a frame 1 mounted on ground wheels 44. It is not mandatory that the frame 1 be mounted on the wheels 44, it being necessary, merely, that a suitable support of some sort for the working portions of the device be provided. Fixed to and upstanding from the frame 1 adjacent the forward end thereof are posts 2 and 3, sustained by braces 50. Mounted in the post 3 is a shaft 4, the post 2 carrying a stud 5, as clearly shown in Fig. 6.

The invention comprises an auxiliary frame denoted generally by the numeral 6, and adapted to be tilted vertically. The frame 6 includes an end bar 7, an intermediate bar 70, and side bars 8, the side bars 8 being connected adjacent their forward ends by means of a depending, loop-shaped brace 9, constituting a part of the auxiliary frame. Fixed to and depending from the side bars 8 of the auxiliary frame 6 are hangers 10, one of which is mounted to rock on the stud 5 carried by the post 2, the other of which is mounted to rock on the inner end of the shaft 4 which is carried by the post 3.

Disposed transversely of the frame 1 and mounted to rock thereon is a shaft 11, provided at one end with an actuating lever 12, and equipped intermediate its ends with a crank arm 14, to which is pivoted the rear end of a link 15, the forward end of the link 15 being pivoted as shown at 16 to the end bar 7 of the auxiliary frame 6.

Projecting forwardly from the front ends of the side bars 8 of the auxiliary frame 6 are shafts 17, supporting for rotation, wheels 18. The invention comprises a drum 19 which tapers toward its ends, the forward, tapered end of the drum being denoted by the numeral 23, and the numeral 22 indicating the rear end wall of the drum. The forward, tapered end 23 of the drum 19 rests for rotation on the wheels 18 which are carried by the auxiliary frame 6. Disposed within the drum 19 and extended longitudinally thereof are mixing blades 20, spaced from the side walls of the drum, and provided with feet 21, secured, respectively, to the rear end wall 22 of the drum and to the interior of the forward, tapered end 23 of the drum.

Attached to the exterior surface of the end wall 22 of the drum 19 is a plate 24 provided with spaced ears 25 having openings 26 adapted to receive a cross pin 27,

mounted in the forward end of a shaft 28, journaled for rotation in bearings 29 mounted on the bars 70 and 7 of the tilting frame 6. Secured to the shaft 28 is a beveled gear wheel 32, meshing into a beveled pinion 33 secured to a shaft 51 journaled in a bearing 34 formed at the forward end of an arm 35 projecting from the end bar 7 of the auxiliary frame, and journaled for rotation in a bearing 36 carried by one of the side bars 8 of the auxiliary frame. Secured to the end of the shaft 51 is a sprocket wheel 37, about which is trained a sprocket chain 38, engaged around a sprocket wheel 39, on the shaft 4, the sprocket wheel 39 being connected to a sprocket wheel 40, to move therewith. Around the sprocket wheel 40 is trained a sprocket chain 41, engaged with a sprocket wheel 42 secured to one end of a shaft 43 journaled in the posts 2 and 3 and extended transversely of the machine. Secured to the shaft 43 is a pulley 45 about which is trained a belt 46 engaged around a pulley 52 carried by the shaft 47 of an engine 48 supported on the frame 1.

In practical operation, rotation is imparted to the drum 19 from the engine 48 by a gear train comprising the pulley 52, the belt 46, the pulley 45, the shaft 43, the sprocket wheel 42, the sprocket chain 41, the sprocket wheel 40, the sprocket wheel 39, the sprocket chain 38, the sprocket wheel 37, the shaft 51, the beveled pinion 33, the beveled gear wheel 32, the shaft 28, and the connection 24—25—27. When the drum 19 is rotated, the same is upheld by the wheels 18 and by the shaft 28, a three point support for the drum thus being afforded.

The auxiliary frame 6 and consequently the drum 19 may be tilted to discharge the load in the drum, by means of the lever 12, the same imparting rocking movement of the shaft 11, the crank arm 14 of which will actuate the link 15, the link 15 serving to tilt the frame 6. It is to be observed that the fulcrum for the frame 6, represented by the shaft 4, and the stud 5 is axially coincident with the center of rotation of the sprocket wheels 39 and 40. Consequently, the auxiliary frame 6 may be tilted at any time, without interrupting the operation of the driving train whereby the drum 19 is rotated. Owing to the fact that the auxiliary frame 6 does not extend above the drum 19, the drum may be swung upwardly and downwardly on the joint pin 27, to agitate the contents of the drum, and cement which may adhere to the inside of the drum will be loosened if the drum is struck forcibly against the wheels 18.

When the drum is rotated in the manner hereinbefore set forth, the blades 20 within the drum will effect a thorough agitation of the contents of the drum.

Having thus described the invention, what is claimed is:—

In a device of the class described, a main frame; an auxiliary frame mounted intermediate its ends on the main frame to tilt vertically, the auxiliary frame comprising spaced arms; a drum disposed between the arms; wheels carried by the forward ends of the arms and engaging the forward end of the drum below the axis of the drum; a shaft journaled in the rear end of the auxiliary frame; and a pivotal connection between the shaft and the rear end of the drum—the auxiliary frame being open above the drum, whereby the drum may be raised and lowered on the pivotal connection, into and out of contact with the wheels, and independently of the tilting movement of the auxiliary frame, thereby to loosen material adhering to the inside of the drum.

In testimony that we claim the foregoing as our own, we have hereto affixed our signatures in the presence of two witnesses.

JOHN S. BLOOM.
ALBERT C. FENNER.

Witnesses:
EGBERT E. COLE,
CECIL C. CREW.