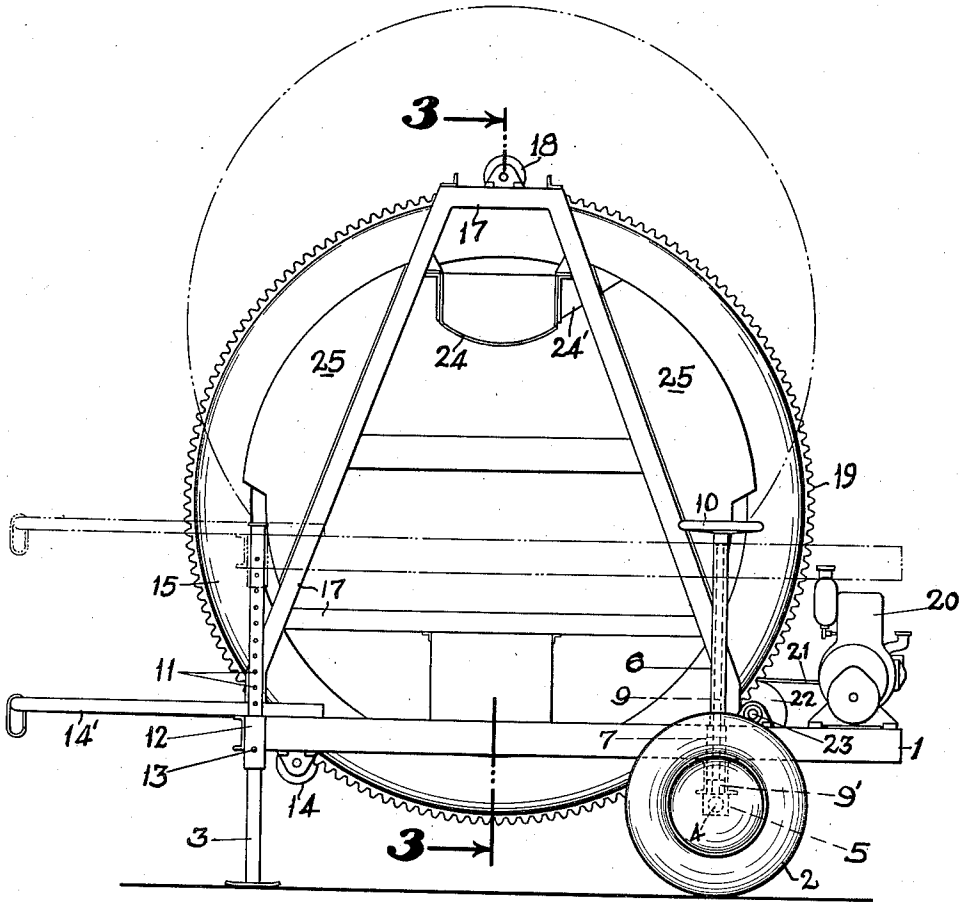
Dec. 31, 1940. G. W. CRONK 2,227,067

CONCRETE HANDLING APPARATUS

Filed May 6, 1940 2 Sheets-Sheet 1

Fig. 1.



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Filed May 6, 1940 2 Sheets-Sheet 2

Fig. 3.

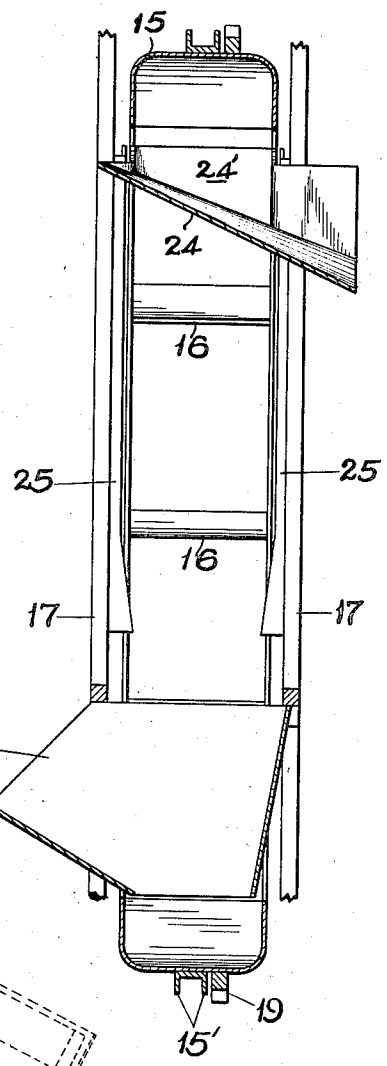
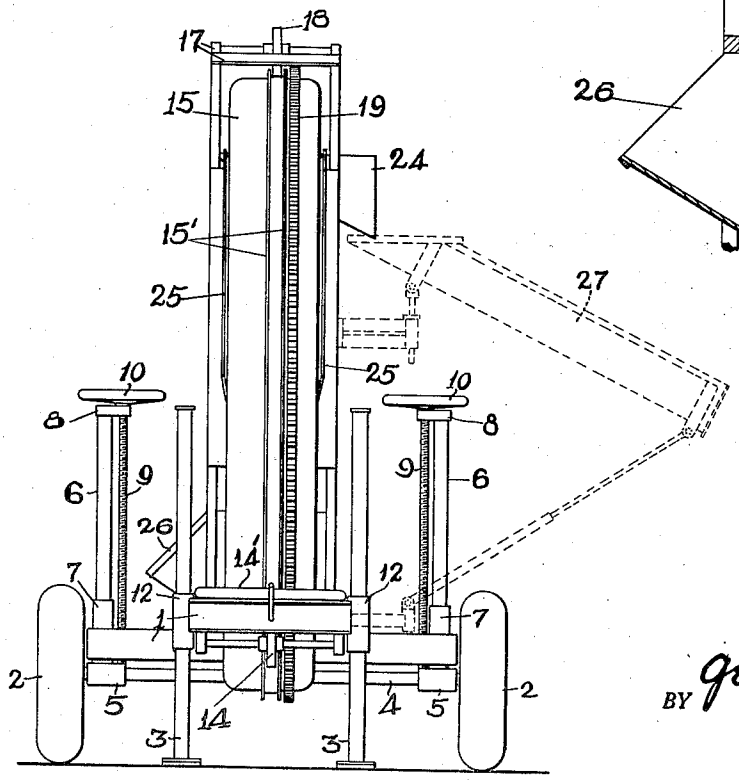


Fig. 2.



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UNITED STATES PATENT OFFICE

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CONCRETE HANDLING APPARATUS

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Application May 6, 1940, Serial No. 333,511

5 Claims. (Cl. 198—43)

This invention relates to improvements in concrete handling apparatus, and more particularly to improved means for conveying concrete material discharged from the rear end of a mixing drum to an elevated point where it may be carried by a chute to inaccessible or remote points.

The primary object of my invention is to provide portable apparatus for intercepting and conveying the discharged contents of a concrete mixer to an elevated point from whence they may be conveniently chuted to normally inaccessible or distant points.

A further object of my invention is to provide improved apparatus of the kind characterized, having improved mechanism for vertically adjusting the position of the material elevating and discharge means, whereby the point of final discharge may be varied to permit the convenient disposal of the material in accordance with changing requirements.

A still further object of my invention is to provide improved apparatus of the kind characterized, embodying a construction capable of being satisfactorily operated in association with truck mixers of various makes, irrespective of whether the discharge openings vary one from another in height or size.

Other and further objects of my invention will be pointed out hereinafter or will be indicated in the appended claims or will be obvious to one skilled in the art upon an understanding of the present disclosure. For the purpose of this application I have elected to show herein certain forms and details of concrete handling apparatus representative of my invention; it is to be understood, however, that the embodiments of my invention herein shown and described is for the purpose of illustration only, and that therefore it is not to be regarded as exhaustive of the variations of the invention, nor is it to be given an interpretation such as might have the effect of limiting the claims, short of the true and most comprehensive scope of the invention in the art.

In the accompanying drawings:

Fig. 1 is a rear view of a concrete handling machine embodying my invention;

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

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 1.

Referring to the drawings, the numeral 1 indicates a vertically adjustable carrying frame which is supported at one side by a pair of wheels 2, 2, and at its opposite side by upright posts or legs 3, 3. The wheels 2, 2 are rotatably mounted on the opposite ends of an axle 4. Supported on the axle 4 at points adjacent the wheels 2 are two non-rotatable members 5, 5 which have upright standards 6, 6 rigidly secured thereto. Slidably fitting on the standards are sleeves 7, 7 which are secured to and are carried by the frame 1. The upper ends of the standards 6, 6 are provided with inwardly protruding projections 8, 8 through which elongated screws 9, 9 are preferably threaded. The screws 9, 9 are also threaded through nuts 9' which are rigidly secured to and are carried by the frame 1. The lower ends of the screws 9, 9 bear against the non-rotatable members 5, 5 supported on the axle 4. When the screws 9, 9 are suitably rotated in a certain direction by their operating wheels 10, 10 the frame 1 and all that it carries is elevated, and when the rotation is in the opposite direction the frame is lowered.

The legs 3, 3 supporting the opposite side of the frame 1 are provided with a series of suitably spaced openings 11 adapted to receive locking pins. Slidably fitting on the legs 3, 3 are sleeves 12, 12, each of which has a hole 13 therein for also receiving a locking pin. After the vertical adjustment of that side of the frame having a towing bar 14' thereon, to approximately correspond to the height of the opposite side of the frame when the latter has been adjusted in elevation by the screws 9, 9, suitable locking pins may be inserted through the registering holes 13 and 11 of the sleeves 12 and the legs 3, respectively.

Rotatably supported, as by rollers 14 carried on the frame 1, is a ring shaped conveyor casing 15 having a plurality of spaced material lifting blades or vanes 16 positioned therein. The blades are suitably shaped so as to retain the maximum amount of concrete material thereon while they are traveling upwardly to an elevated discharge point. Supported on the frame 1 is a superstructure or framework 17, having a roller 18 mounted on the top thereof which engages with the periphery of the casing 15. The rollers 14 and 18 are normally positioned between spaced peripheral flanges 15' provided on the casing, thereby providing suitable means for maintaining the proper alignment and stability thereof during its operation. Secured to the periphery of the casing is a ring shaped gear 19 which meshes with a suitable pinion (not shown). The pinion is supported on the frame 1, and its rotation is effected by means of an engine 20 which is con-

nected by a belt 21, a pulley 22 and a shaft 23 to the said pinion.

Extending into the central opening of the ring shaped conveyor casing 15 is a material gathering chute 24 which is supported by the framework 17 in a stationary position near the upper side of said casing. The chute 24 is located directly beneath the inner edges of the blades 16 and in a position whereby it may receive the concrete material discharged by gravity from the said blades as they successively reach their maximum height during their circular movement. The chute 24 is provided with an apron or side extension 24' which serves to intercept some of the material which commences to fall from the blades as they are gradually tilted downwardly during the rotation of the casing 15. Supported by the framework 17 are side plates 25 which serve to intercept and convey back into the casing any of the concrete material not falling directly into the chute 24 or its side extension 24' during the rotation of the casing. The side plates 25 are adapted to prevent the outward splashing or spilling of the concrete material during the operation of the apparatus, and their constructions may assume any suitable shapes capable of performing the aforesaid functions.

Extending into the central opening of the casing 15 near the lower side thereof is a feed hopper or intake chute 26 which is suitably supported by the framework 17. The feed hopper is preferably shaped so as to discharge the concrete material received by it directly into the lower portion of the conveyor casing 15. When the conveyor casing is rotated in a counter clockwise direction by the engine 20, the concrete material discharged therein is carried by the blades 16 to an elevated point where it falls by gravity into the gathering chute 24. The concrete material is ordinarily delivered by the chute 24 to an elongated trough-like chute 27 which serves to convey it to a predetermined location.

My improved concrete handling apparatus is customarily used with truck mixers of the kind employed in conveying concrete material from a central loading plant to locations where construction operations are in progress. It frequently happens that because of the inaccessibility of the particular location where the concrete material is to be used, it is not possible for a truck mixer to discharge its contents at the required point. It is also desirable at times to have the concrete material conveyed to a higher point than the discharge opening of the truck mixer. In such cases my improved concrete handling apparatus may be conveniently positioned to first receive the discharged contents of a truck mixer and then operated to convey the material to an elevated position where it may be readily chuted to the particular location where it is to be used.

The dotted lines in Fig. 1 show the position of the casing and the frame when they are in elevated positions.

Having described my invention, what I claim is:

1. In concrete handling apparatus, a supporting frame, wheels upon which the frame is mounted, a rotatable ring shaped conveyor casing mounting on the frame and positioned to rotate in a substantially vertical plane and having a series of material elevating blades therein, hopper means supported on the frame and positioned to discharge material into the casing, a chute supported on the frame and positioned near the upper side of the casing for receiving the material discharged by the blades and means for simultaneously adjusting the vertical position of the casing, the hopper means and the chute.

2. In concrete handling apparatus, a portable frame, a ring shaped casing rotatably carried by the frame and positioned to rotate in a substantially vertical plane, a series of spaced blades secured to and distributed around the interior of the casing for successively conveying batches of concrete material delivered to the casing to an elevated point of discharge as the casing is rotated, means mounted on the frame and extending into the central opening of the casing for delivering concrete material thereto, chute means mounted on the frame and extending into the central opening of the casing and positioned near its upper side for receiving the material discharged from the blades.

3. In concrete handling apparatus, a ring shaped conveyor casing normally mounted for rotation in a substantially vertical plane, a series of material elevating blades distributable interiorly around the casing, the said blades as the casing is rotated being adapted to successively convey separate batches of material deposited in the lower side of the casing to an elevated position and then discharge the said batches, separate means extending into the central opening in the casing for receiving the material discharged by the blades, and means for adjusting the vertical position of the casing.

4. In concrete handling apparatus, a portable supporting structure, a vertically adjustable frame mounted on the supporting structure, a ring shaped conveyor casing rotatably carried by the frame and normally positioned to rotate in a substantially vertical plane, a series of material elevating blades secured to and distributed around the interior of the casing, the said blades as the casing is rotated being adapted to successively convey separate batches of material deposited in the lower side of the casing to an elevated point and then discharge the said batches, separate means extending into the central opening in the casing for receiving the material discharged by the blades, and means carried on the frame for rotating the casing.

5. In concrete handling apparatus, a portable supporting structure, a vertically adjustable frame mounted on the supporting structure, a ring shaped conveyor casing rotatably carried by the frame and normally positioned to rotate in a substantially vertical plane, a series of material elevating blades secured to and distributed around the interior of the casing, the said blades as the casing is rotated being adapted to successively convey separate batches of material deposited in the lower side of the casing to an elevated position and then discharge the said batches, means extending into the central opening of the casing and positioned near the lower side thereof for delivering material thereto, separate means extending into the central opening of the casing for receiving the material discharged by the blades, and means carried on the frame for rotating the casing.

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