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FOLDABLE CONVEYER.

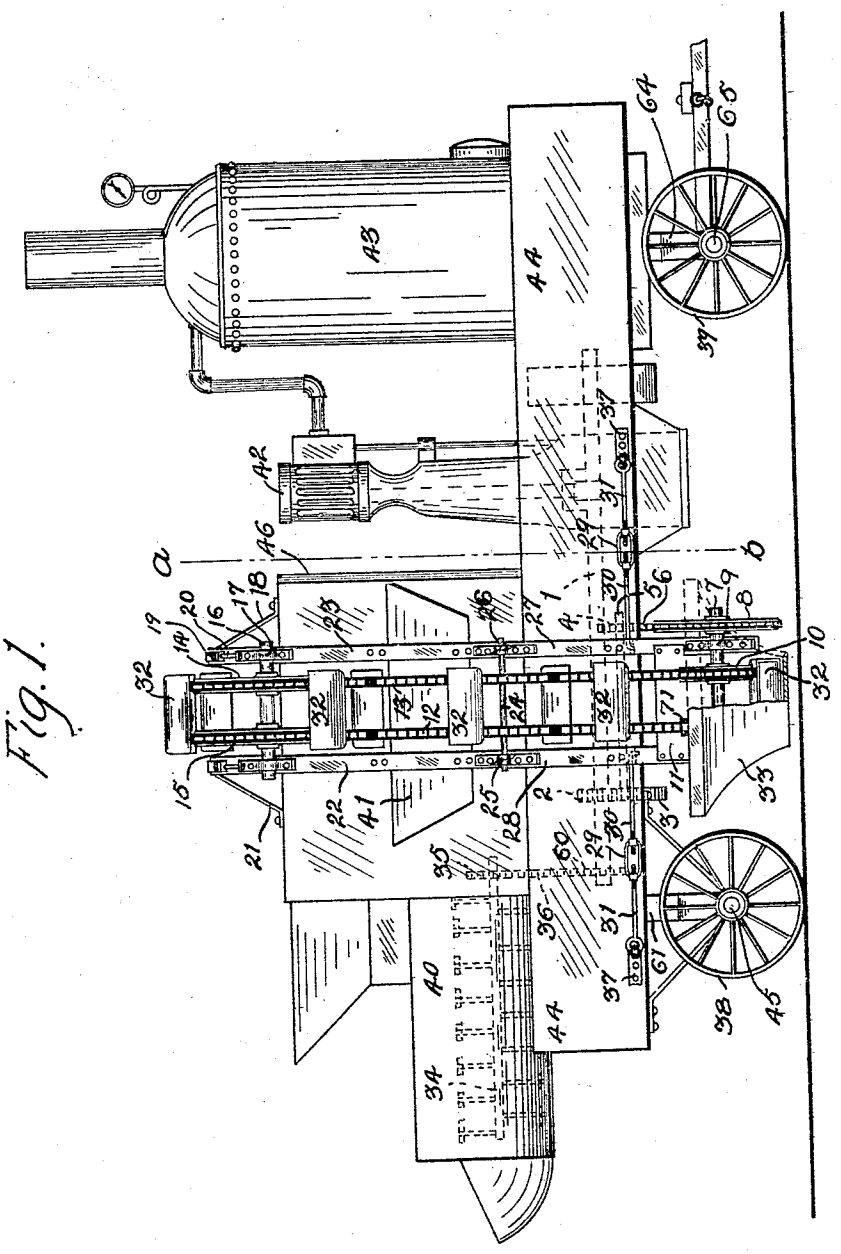
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908,609.

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3 SHEETS—SHEET 1.

Fig. 1.



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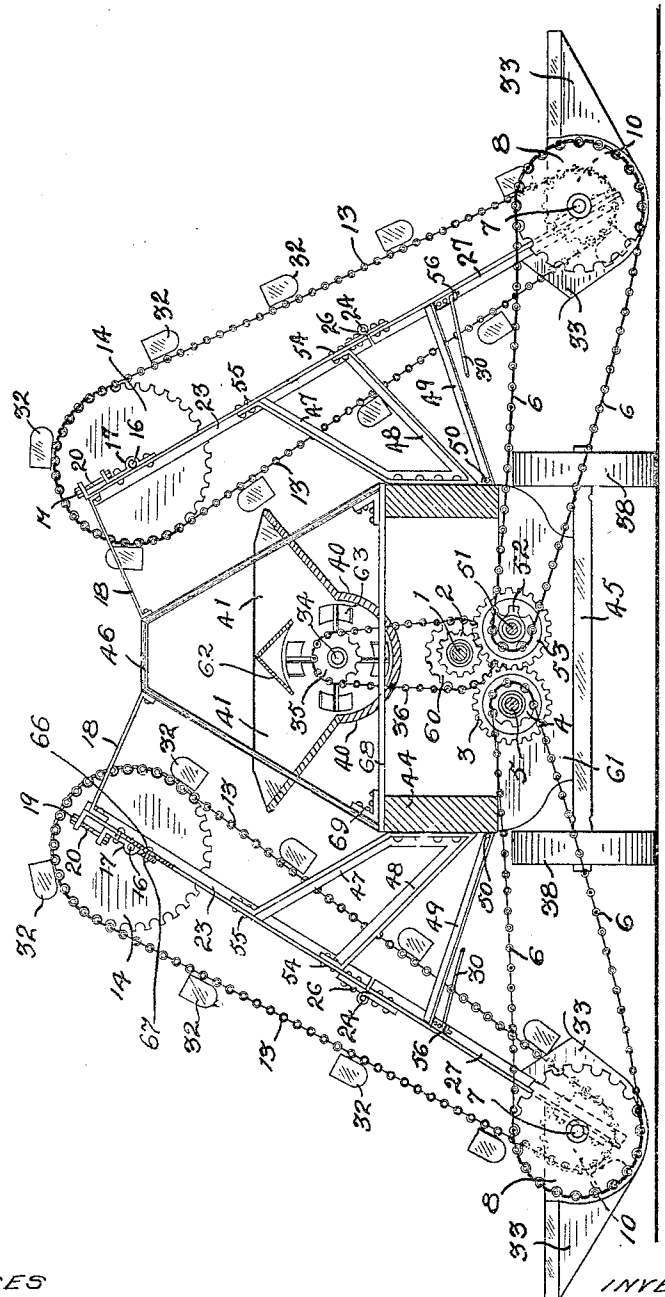
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3 SHEETS—SHEET 2.

Fig. 2.



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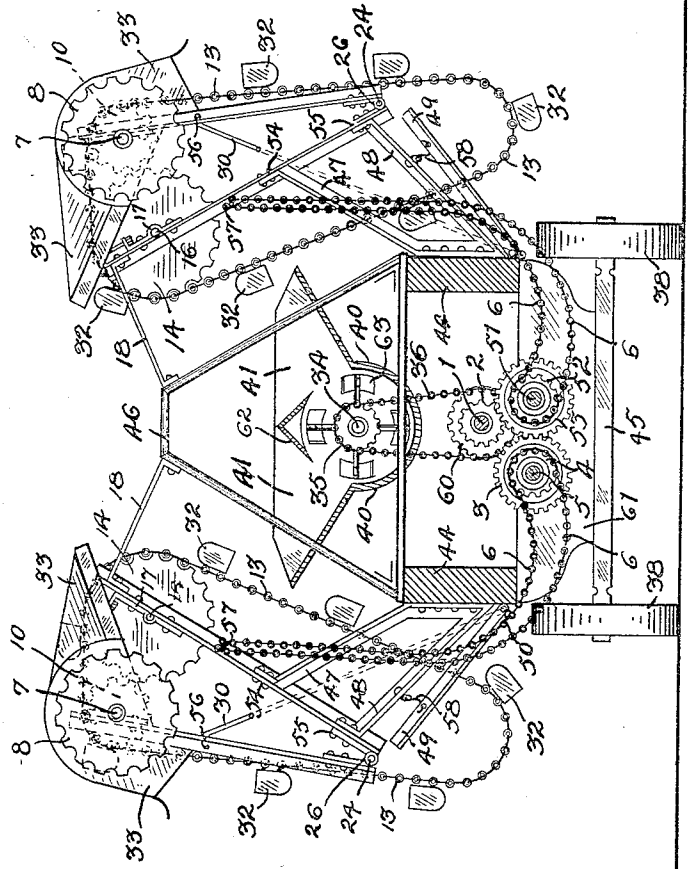
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3 SHEETS—SHEET 3.

Fig. 3.



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FOLDABLE CONVEYER.

No. 908,609. Specification of Letters Patent. Patented Jan. 5, 1909.

Application filed March 31, 1908. Serial No. 424,419.

To all whom it may concern:

Be it known that I, CHARLES A. RADCLIFF, a citizen of the United States of America, and a resident of Waterloo, Blackhawk county, Iowa, have invented certain new and useful Improvements in Foldable Conveyers, of which the following is a specification.

My invention relates to improvements in foldable conveyers, and the object of my improvement is to provide for a concrete-mixer, a chain-bearing bucket-conveyer on each side thereof adapted to regularly deliver to said mixer predetermined proportions of the proper ingredients for concrete for continuous mixing, said conveying mechanism being so supported on the mixer truck and so hinged in its frame work, as to be foldable toward said mixer when it is desired to transport the combined machine from one place to another without interference with other objects in transit. This object I have accomplished by the mechanism which is hereinafter fully described and claimed, and which is illustrated in the accompanying drawings, in which:

Figure 1 is a side elevation of my foldable conveyer as operatively connected to a concrete-mixer mounted on a truck having carrying-wheels. Fig. 2 is a cross-section of such truck and mixer taken on the line *a*—*b* of Fig. 1, showing the two conveyers on either side of the truck in a front elevation, and in operative position and relation. Fig. 3 is another cross-section taken on the same line *a*—*b* of said truck, but showing a front elevation of said conveyers in their folded condition, as they would appear when ready for transportation.

Similar numbers refer to similar parts throughout the several views.

I have shown in the several views, a wheeled truck, a concrete-mixer supported thereon, and a source of power, the details of which I do not claim specifically, but are shown for purposes of illustration in their relation to my improved foldable conveyers which are shown as mounted in operative relation thereto. The truck is formed of the front- and rear-carrying wheels 39 and 38, respectively, rotatably mounted on the ends of the front- and rear-axles 65 and 45 respectively. Bolsters 64 and 61 respectively on said axles support the parallel side-beams 44, also the superincumbent mechanism of the engine, mixer and conveyers. The power used may be of any desired kind, but as shown, the crank-shaft 1 is driven by the pitman of a steam-engine 42 supplied with steam from a vertical boiler 43.

The power-shaft 1, which is located in a medial position longitudinally in bearings supported by the said bolsters, is adapted to communicate motion to both the mixer and to the conveyers on either side thereof, as is hereinafter described. The mixing-mechanism may be of any desirable type, that shown being merely for purposes of illustration, but whatever mixer is used should be adapted for continuous mixing. As depicted in the drawings, I have shown a longitudinal mixing-trough 40 supported on said truck, each side of such trough having an open hopper 41 in communication therewith, such hoppers being separated in the medial longitudinal line by a division-contrivance 62, having outwardly- and downwardly-sloping sides.

To a longitudinal rotatable shaft 34 in said trough are secured a plurality of radial arms carrying mixing-vanes 63 located in due order and succession therealong. These vanes are so inclined toward the axis of said shaft, as to force along the contents of said trough toward its delivery-end, as well as efficiently mix together such contents to a proper consistency for concrete. Said shaft 34 is driven by means of a driven-sprocket wheel 35 thereon, the latter carrying a sprocket-chain 36 driven by a driving-sprocket wheel 60 secured to the power-shaft 1.

My improved conveying-mechanism consists of a chain-and-bucket conveyer located respectively one on each side of the said mixer, and each supported on a suitable combination of fixed and foldable framework from the said truck. The fixed parts of such frame-works consist of parallel upwardly and inwardly sloped angle-bars 22 and 23, spaced apart, on each side, supported by brackets 47 and 48 secured thereto by rivets 54 and 55 respectively, such brackets being secured to the outsides of the side-beams 44. The upper ends of the bars 22 and 23 are supported by brackets 18 extending from the upper corners of the arched supports 46, the lower ends of the latter being connected by angle-plates 69 to the transverse plates 68 and the latter secured to and supported on the upper edges of the side-beams 44.

The foldable parts of the conveyer-framework consist, on each side, of parallel upwardly and inwardly sloped angle-bars 27 and 28, spaced apart, with their upper ends connected respectively with the lower ends of the said fixed angle-bars 23 and 22 by means of hinges 24 and 25 fastened by rivets 26. The hinges are adapted to permit the bars 27 and 28 to fold upward over the bars 23 and 22 respectively.

The numeral 49 designates a swinging bracket on each side, whose inner end is pivoted to the side-beam at 50, and whose outer free end is adapted when swung downward and outward, to engage the bars of the foldable part of said frame-work to hold them spaced apart from said side-beam and in line with the fixed bars hinged thereto when in operative position. The bars 49 may be suspended from the bars 48 by short chains 58.

The numeral 9 designates a fixed bearing, one of which is secured to each of the lower ends of the movable bars 27 and 28, and serves to support the ends of the shaft 7 to which, on each side of the machine, is secured a pair of sprocket-wheels 10 and 71 adapted to drive the conveyer-chains 13 and 12 respectively. At the upper ends of the fixed bars 23 and 22, are adjustable bearings 17. These bearings have rivets or bolts 67 which are passed through longitudinally slotted openings 66 in the said bars for sliding adjustment thereover. Both the upper ends of said bearing-plates and of the said bars are bent outwardly at right angles, and such outwardly-directed ends are connected by means of the bolts 20 and nuts 19 for adjustment to regulate the position of each shaft 16 to keep the conveyer-chains taut. The ends of the shaft 16 on each side are carried in said bearings 17, and such shaft has secured thereon a pair of idler sprocket-wheels 14 and 15 respectively, which carry the upper ends of the conveyer sprocket-chains 13 and 12 respectively.

The numeral 32 designates a plurality of buckets which are secured removably to the outer sides of the chains 12 and 13 on each side of the machine as shown, and are adapted to be carried through a reservoir 33 which is supported on a hanger 11 carried by the lower ends of the pivoted bars 27 and 28. A reservoir 33 on one side of the machine may be kept filled with one ingredient while the reservoir on the other side of said machine is also kept filled with the other ingredient of the cement or concrete to be mixed in the trough 40. The buckets 32 carry up portions of the respective materials and dump same into the hopper 41 on the same side continuously, so that the conveyers on both sides of the mixer work together to keep up a continuous supply of such materials. The respective proportions of materials used are varied as desired, by varying the number of such buckets on the two conveyer-mechanisms.

On the forward end of each shaft 7 is secured a large sprocket-wheel 8 which is driven by means of a sprocket-chain 6. Each chain 6 is driven respectively on the right- and left-hand sides of the machine, by sprocket-wheels 52 and 4, secured respectively to parallel shafts 51 and 5. The wheel 2 on the power-shaft 1 intermeshes with and drives the wheel 53 on the shaft 51, while the wheel 53 intermeshes with another gear-wheel 3 on the shaft 5, to drive the chain 6 on that side. Each conveyer mechanism is constructed so that its lower depending parts are foldable upward to retract same upon the truck and up and away from the street, to render the whole machine more compact, of less transverse width, to facilitate transportation from place to place, and obviate collision with objects met in the way. The pivoted bars 49 are elevated and hooked up by means of the chains and hooks 58 to the lower fixed bars 48. The drive-chains 6 are then removed from the sprocket-wheels 8, and their loose ends suspended from hooks 57 on the fixed bars 23. The hinged bars 27 and 28 at each side are then folded upward to the positions shown in Fig. 3, carrying with them upward the sprocket-wheels 8, as well as the other sprocket-wheels on the shafts 7.

The numeral 56 designates a perforated catch, and one of these catches is affixed to each of the hinged bars 27 and 28, adapted to receive the hook on the outer end of a rod 30, the inner end of which is threaded and connected by a turn-buckle 29 with the threaded outer end of another rod 31 whose inner end is linked to an eye on a plate 37 secured to the side-beam 44, as shown in Fig. 1. The hooked rods 30 hold the bars 27 and 28 in place in either their up or down positions, as indicated in Figs. 2 and 3.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is:

1. In combination, a mixing trough, a source of power, means in said mixing trough driven by said source of power adapted to mix and deliver its contents, said mixing-trough being mounted on a wheeled truck, a fixed framework secured on each side of said truck, independently, and having idler-wheels rotatably mounted therein, a movable framework below and hinged to the lower part of each of said fixed frameworks, each of said movable frameworks being adapted to fold upwardly against the fixed framework to which it is hinged, sprocket-wheels rotatably mounted in each of said movable frameworks, sprocket-chains about said sprocket-wheels and idlers, such chains carrying buckets adapted to

carry and deliver materials to said mixing-trough, and means for rotating said sprocket-wheels in a desired direction.

2. In combination, a mixing-trough, a source of power, means in said mixing-trough driven by said source of power adapted to mix and deliver its contents, said mixing-trough being mounted on a wheeled truck, fixed frameworks, one bracketed from each side of said truck, idler-wheels rotatably mounted in each of said fixed frameworks, a movable framework below and hinged to the lower part of each of said fixed frameworks, each of said movable frameworks being adapted to fold upwardly and inwardly toward the fixed framework to which it is hinged, sprocket-wheels rotatably mounted in each of said movable frameworks, sprocket-chains about said sprocket-wheels and idlers, the said chains carrying removable buckets adapted to carry and deliver materials to said mixing-trough, means for rotating said sprocket-wheels in a desired direction, and fastening means adapted to secure said movable frameworks in either their lowermost or their upwardly retracted positions.

3. In combination, a mixing trough, a source of power, means in said mixing trough driven by said source of power adapted to mix and deliver its contents, said mixing trough being mounted on a wheeled truck, a fixed framework secured on each side of said truck, independently, and having idler-wheels rotatably mounted therein, a movable framework below and hinged to the lower part of each of said fixed frameworks, each of said movable frameworks being adapted to fold upwardly against the fixed framework to which it is hinged, sprocket-wheels rotatably mounted in each of said movable frameworks, sprocket-chains about said sprocket-wheels and idlers, such chains carrying buckets adapted to carry and deliver materials to said mixing-trough, means for rotating said sprocket-wheels in a desired direction, and reservoirs secured to the said movable frameworks, each adapted to supply the said buckets moving therethrough with a continuous supply of one of the ingredients of the material to be mixed.

4. In combination, a receptacle, a transportable base on which said receptacle is mounted, a framework fixedly secured to said base, idler-wheels rotatably mounted on each side of said framework, a framework movably connected and supported on each side of said base, each of said movable frameworks being foldable inwardly, sprocket-wheels rotatably mounted in each of said movable frameworks, sprocket-chains operatively connected with the idlers and sprocket-wheels on each side, conveying-means carried by said chains adapted to carry and deliver materials to said receptacle, and means for actuating said sprocket-wheels and chains in a desired direction.

Signed at Waterloo, Iowa, this 12th day of March, 1908.

CHARLES A. RADCLIFF.

Witnesses:
O. D. YOUNG,
G. C. KENNEDY.