No. 851,701. PATENTED APR. 30, 1907.

E. H. SPEAR.

CONVEYER.

APPLICATION FILED FEB. 8, 1907.

2 SHEETS—SHEET 1.

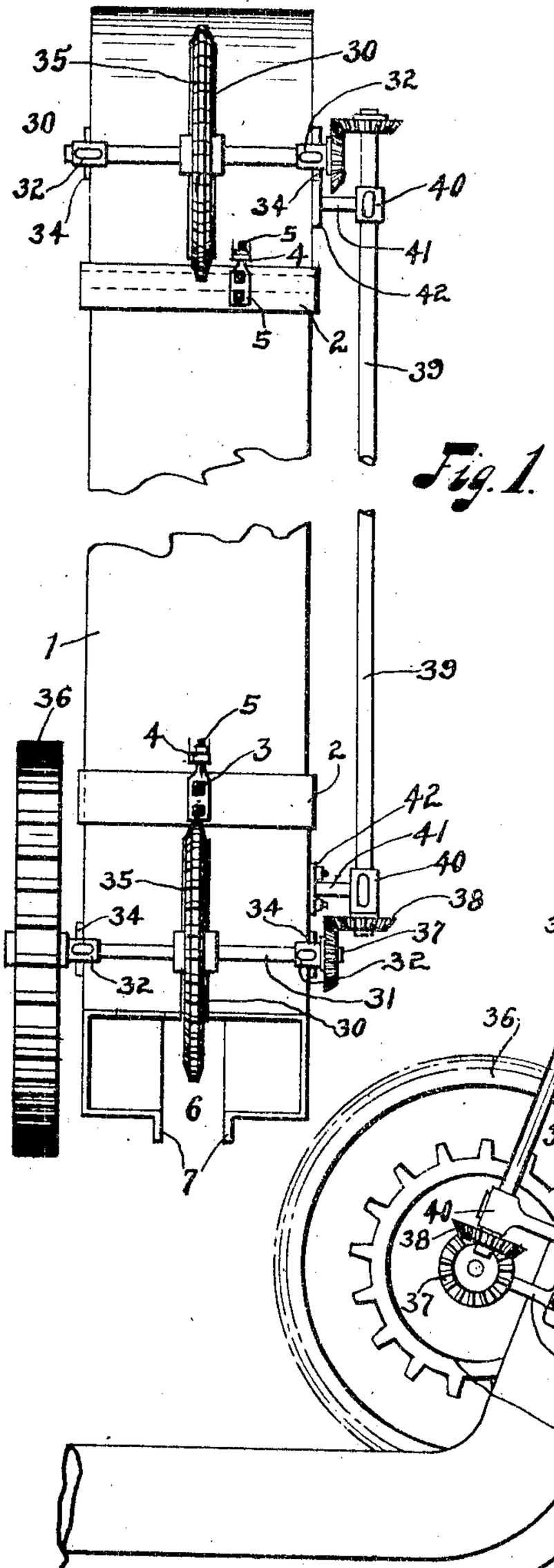

Fig. 1.

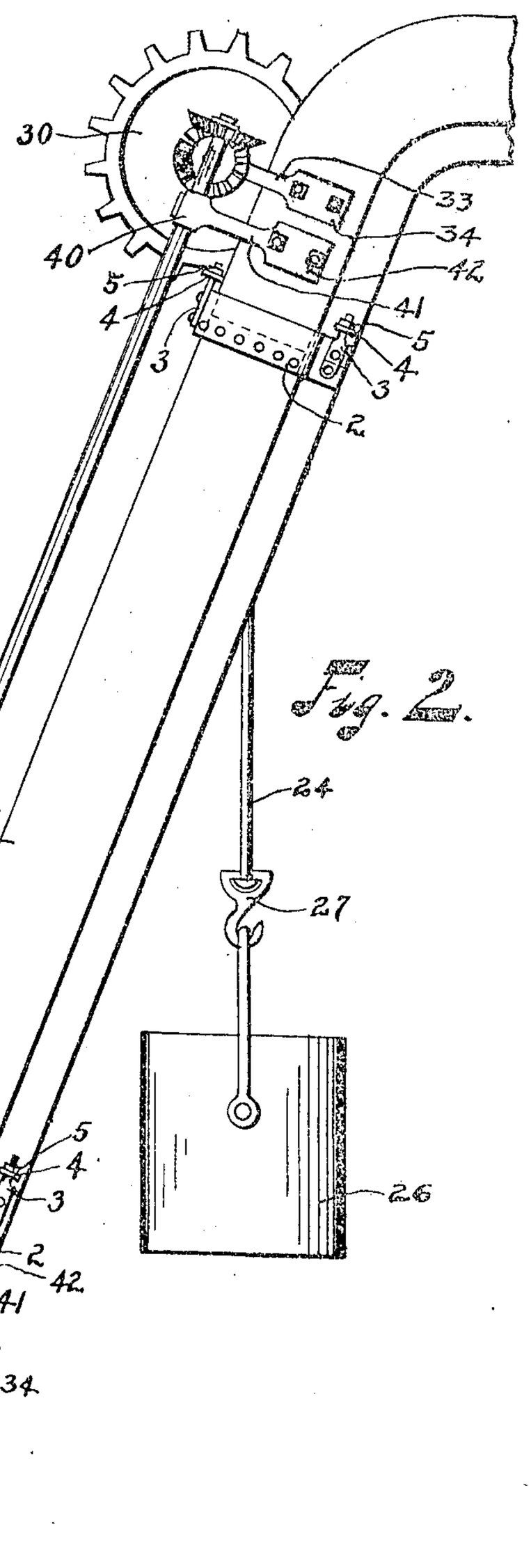

Fig. 2.

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Inventor:

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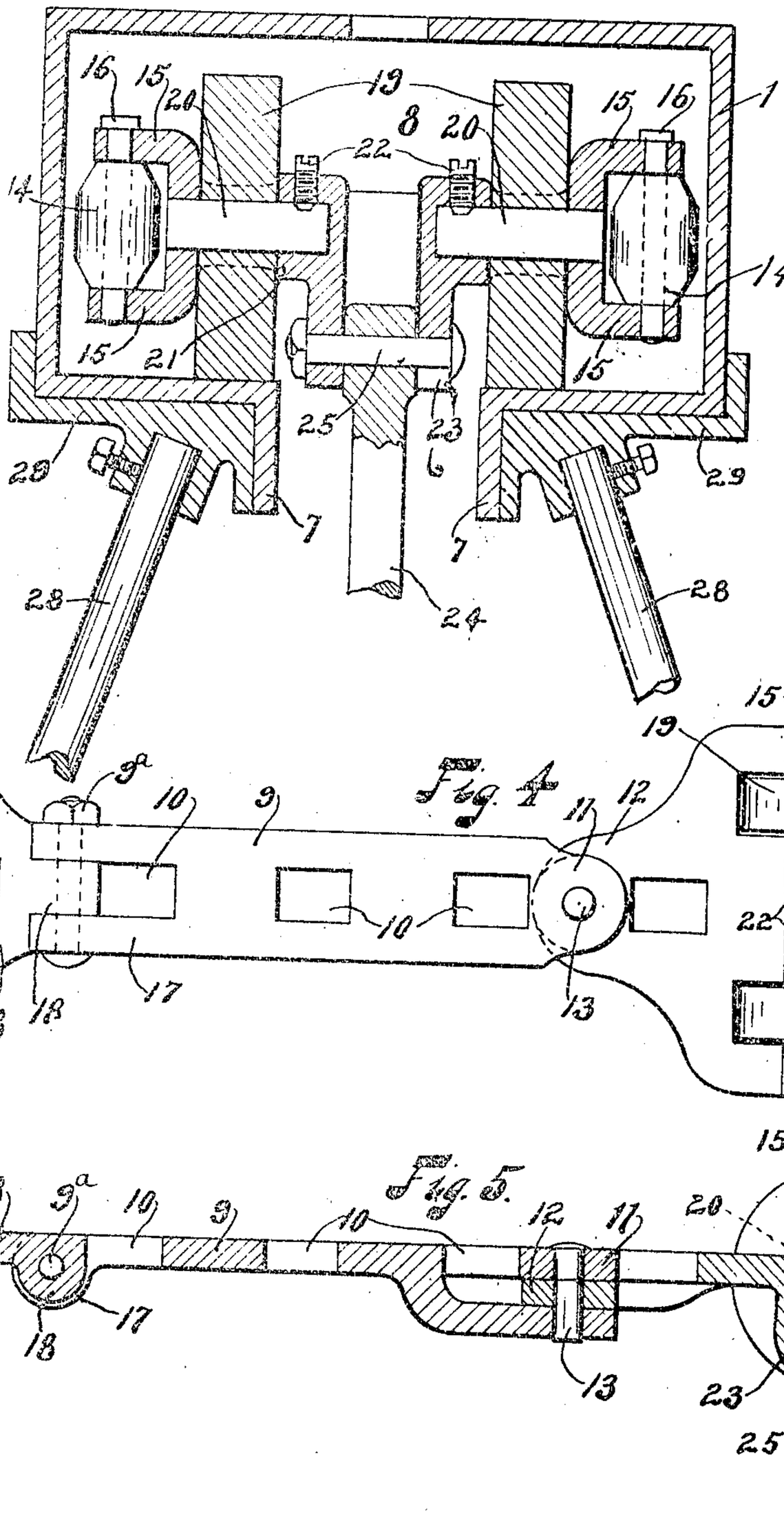

Fig. 3.

Fig. 4.

Fig. 5.

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UNITED STATES PATENT OFFICE.

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CONVEYER.

No. 851,701. Specification of Letters Patent. Patented April 30, 1907.

Application filed February 8, 1907. Serial No. 356,320.

To all whom it may concern:

Be it known that I, ELMER H. SPEAR, a citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented certain new and useful Improvements in Conveyers, of which the following is a specification.

My invention relates to improvements in conveyers and is especially designed for use in conveying concrete in buckets for use in the construction of concrete structures.

The invention relates more particularly to an endless carrier-chain adapted to travel within an endless steel chain-guide-box, said chain being made up of a series of carrying-links connected by means of a series of intermediate connecting-links and the chain being adapted to be moved by means of sprocket-wheels connected to suitable gearing, preferably secured to said chain-guide-box at its upwardly-inclined portions. The carrier-chain is provided at suitable intervals with depending bucket-carrier-arms pivotally-secured to carrier-links and extending through a longitudinal opening of the guide-box. Buckets are secured to the carrier-arms and the guide-box may be extended horizontally to carry the buckets wherever desired while the building or other structure is in the course of erection. A suitable horizontal portion is suitably supported above the ground near the concrete-mixer where the buckets may be filled as desired.

The primary object of the invention is to provide a generally-improved conveyer of this class which will be exceedingly simple in construction, cheap of manufacture, and efficient in use.

With these and other ends in view, the invention consists in the novel construction, arrangement and combination of parts, hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims.

Referring to the accompanying drawings, forming a part of this specification, Figure 1 is a rear view of an inclined upwardly-extending portion of the chain-guide-box with improved chain-driving mechanism. Fig. 2, a side view of the same. Fig. 3, a cross-sectional view of the chain-guide-box and one of the carrying-links of the endless carrier-chain. Fig. 4, a top plan view of a carrier-link and connecting-link of the improved carrier-chain. Fig. 5, a longitudinal sectional view of the same.

Similar characters of reference designate like parts throughout all the figures of the drawings.

The improved conveyer comprises a chain-guide-box 1, preferably of rectangular form in cross section, and made up of suitable sections connected at their contiguous ends by means of flanges or bands 2, formed or secured to one end and taking over or overlapping the adjacent end of a section and said flanges or bands 2, being provided with bolt arms 3, taking into brackets 4, and provided with nuts 5. The several sections are provided with a longitudinal slot-opening or recess 6, midway between the sides thereof, and depending-flanges 7, for the purpose of adding strength to the guide-box along the marginal edges of said longitudinal recess.

The conveyer-chain is made up of a series of carrying-links 8, connected by means of a series of intermediate connecting-links 9, and each of said links is provided with a series of sprocket-teeth-openings 10, adapted to be engaged and driven along the guide-box by means of sprocket-drive-wheels to be hereinafter described.

The conveyer-chain is adapted to make lateral or horizontal turns in the guide-box by means of a horizontal pivotal-connection consisting of lugs 11, formed at one end of the connecting-links 9, and taking over a lug 12, of the carrying-links 8, and secured together by means of pivot-pins 13. As a means of reducing friction in making lateral turns in the guide-box anti-friction rollers 14, are mounted within and carried by lugs 15, formed at the sides of the carrying-links 8, and are secured within said lugs 15, by means of pivot-pins 16. The rollers 14, are adapted to engage with the sides of the guide-box to reduce friction in making lateral or horizontal turns, as well as in keeping the chain in proper position within the guide-box.

The conveyer-chain is also provided with vertical pivotal-connections consisting of lugs 17, formed at the end of the connecting-links 9, opposite the lugs 11, and taking over a lug 18, formed at one end of the carrying-

links 8. A horizontal pivot-pin 9ª passes through suitable openings of the lugs 17, and lug 18.

The carrying-links 8, are each provided with a pair of friction-wheels 19, mounted on axle-pins 20, carried within openings formed in bearings 21. The axle-pins 20, are secured in position by means of screw-bolts 22. It will be observed that the friction-wheels tread upon that portion of the guide-box which is adjacent to the longitudinal slot-opening or recess 6. Hanger-lugs 23, are formed intermediate the friction-wheels 19, and depend from the central portion of the carrying-links 8, and, preferably, every fifth carrying-link carries depending bucket-carrier-arms 24, pivotally-secured to the lugs 23, by means of a pivot-bolt 25. The carrier-arms extend through the slot-opening 6, so that they always maintain a substantially vertical position with the bucket 26, depending from a swivel-hook 27.

The chain-guide-box is formed with a horizontal portion supported at a suitable distance above the ground adjacent to the mixer or other source of supply by means of brace-legs 28 (see Fig. 3) having their upper ends secured to brace-brackets 29, secured to the under sides of the guide-box and on each side of the depending-flanges 7. The buckets 26, are filled at this point, and are conveyed upwardly along an inclined upwardly-extending portion of the guide-box to another horizontal portion of the same extending over and about that portion of the structure where the building material is desired, and is supported by means of brace-legs and brackets similar to the brace-legs 28, and brackets 29.

The conveyer-chain is moved by means of sprocket-drive-wheels 30, carried by horizontal drive-shafts 31, mounted in suitable bearings 32, at the upper ends of bracket-arms 33, provided with bracket-plates 34, secured to the sides of the guide-box. The wheels 30, pass through longitudinal slots 35, and the sprocket-teeth take into the sprocket-teeth-openings 10, of the conveyer-chain. One of the drive-shafts 31, is provided with a main gear-wheel 36, communicating with any suitable and convenient source of power such as a hoist-engine or the like, and the other end of said shaft is provided with a bevel-gear-wheel 37, meshing with a second bevel-gear-wheel 38, secured to the end of a shaft 39, mounted, preferably, along the side of the inclined upwardly-extending portion of the guide-box, in bearings 40, of brackets 41, provided at the lower ends with bracket-plates 42, secured to one of the sides of the guide-box.

From the foregoing description, taken in connection with the accompanying drawings, the operation and advantages of my invention will be readily understood.

Having thus described my invention, without having attempted to set forth all the forms in which it may be made, or all the modes of its use, I declare that what I claim and desire to secure by Letters Patent, is,—

1. A conveyer, comprising a chain-guide-box provided with a longitudinal flanged slot-opening, and a conveyer-chain comprising vertically and horizontally-pivoted links mounted therein and provided with pivotally-mounted bucket-carrier-arms depending through said slot-opening.

2. A conveyer, comprising a chain-guide-box provided with a longitudinal flanged slot-opening, a conveyer-chain mounted therein and comprising vertically and horizontally-pivoted carrying-links and intermediate connecting-links, bucket-carrier-arms pivotally-secured to some of said carrying-links and depending through said slot-opening, and driving-mechanism for imparting motion to said conveyer-chain.

3. A conveyer, comprising a chain-guide-box provided with a longitudinal slot-opening and depending-flanges at the sides of said slot-opening, a conveyer-chain mounted therein and comprising friction-wheel carrying-links and intermediate connecting-links provided with vertical and horizontal pivotal-connections, bucket-carrier-arms pivotally-secured to some of said carrying-links and depending through said slot-opening, and driving-mechanism for imparting motion to said conveyer-chain.

4. A conveyer, comprising a guide-box provided with a slot-opening and depending-flanges, a conveyer-chain comprising friction-wheel carrying-links and connecting-links provided with vertical and horizontal pivotal-connections, bucket-carrier-arms pivotally-secured and depending through said slot-opening, sprocket-drive-wheels engaging said conveyer-chain, and gearing for driving said sprocket-drive-wheels.

5. A conveyer-chain, comprising friction-wheel carrying-links provided with laterally-extending anti-friction rollers, and connecting-links with vertical and horizontal pivotal-connections.

6. In a conveyer-chain, a carrying-link comprising laterally-extending lugs, anti-friction rollers mounted in said lugs, bearings at the rear of said lugs, axle-pins mounted therein and carrying friction-wheels, hanger-lugs formed intermediate said friction-wheels and depending from the central portion of said carrying-link, and a bucket-carrier-arm pivotally-secured to said hanger-lugs.

7. In a conveyer-chain, a carrying-link

provided with anti-friction rollers at its sides, sprocket-teeth-openings extending along its length, a friction-wheel on each side of said sprocket-teeth-openings, and a vertical pivot-lug at one end and a horizontal pivot-lug at the other.

8. In a conveyer-chain, a connecting-link provided with sprocket-teeth-openings arranged throughout its length, a pair of vertical pivot-lugs at one end, and a pair of horizontal pivot-lugs at the other.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ELMER H. SPEAR.

Witnesses:
O. C. BILLMAN.
IRA E. STUMP.