

O. B. FINN.
 ELEVATOR BUCKET CHAIN.
 APPLICATION FILED JUNE 26, 1912.

1,098,564.

Patented June 2, 1914.

2 SHEETS—SHEET 1.

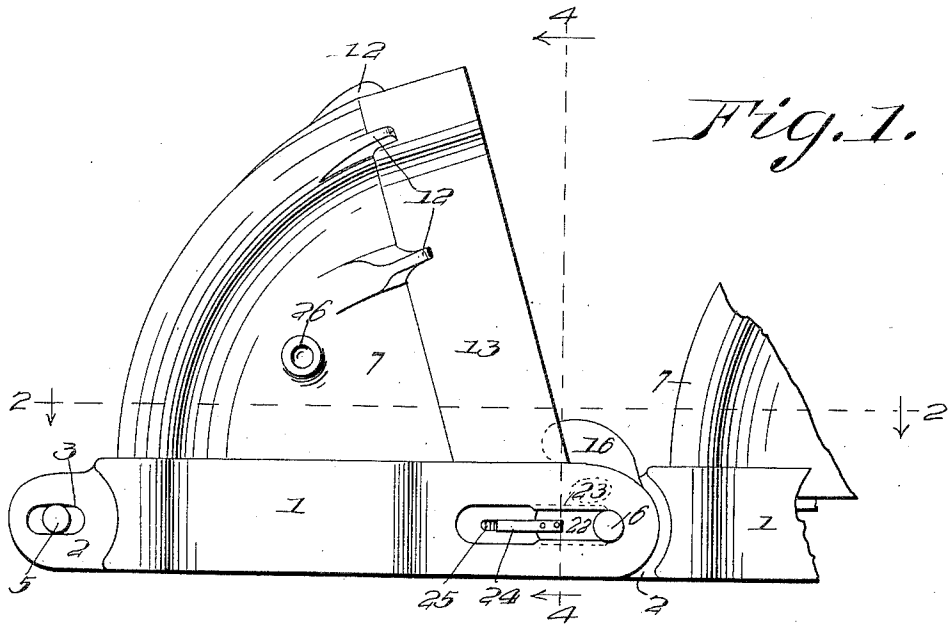


Fig. 1.

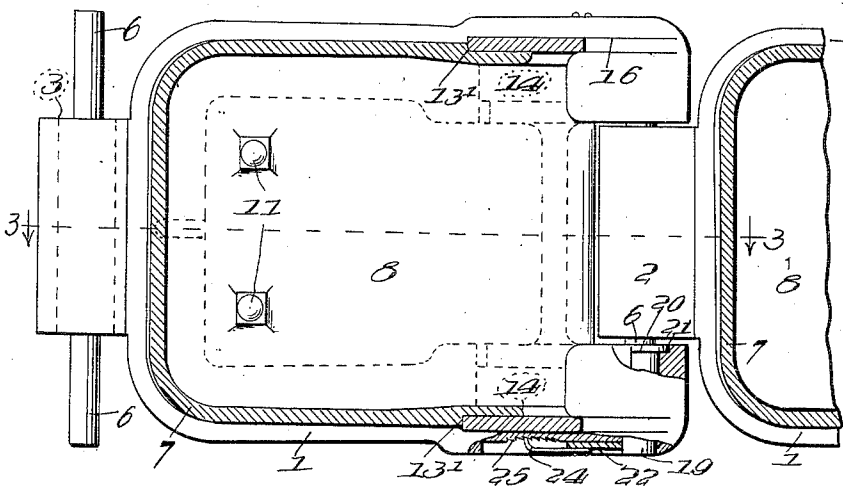
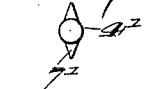
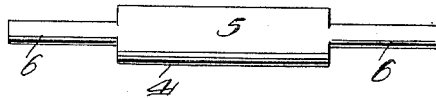


Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.



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2 SHEETS—SHEET 2.

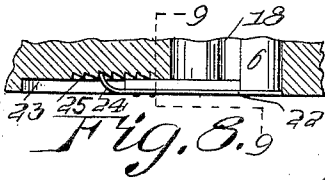


Fig. 8.9

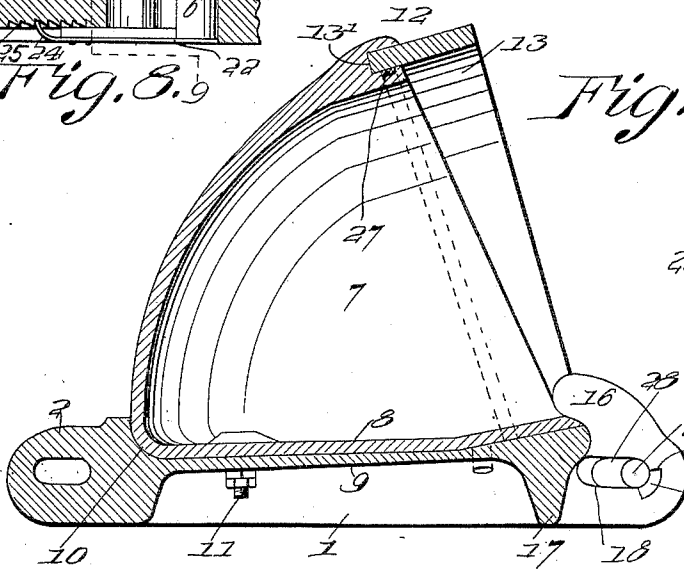


Fig. 3.

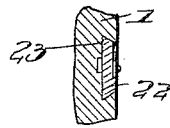


Fig. 9.

Fig. 10.

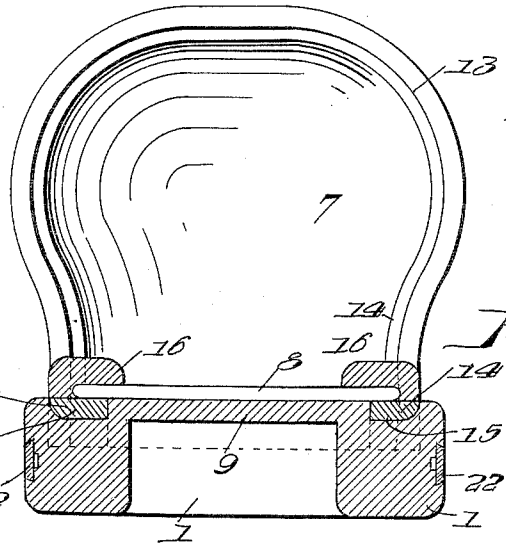


Fig. 4.

Fig. 11.



Fig. 12.



Fig. 13.

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UNITED STATES PATENT OFFICE.

OLIVER B. FINN, OF COLORADO SPRINGS, COLORADO.

ELEVATOR-BUCKET CHAIN.

1,098,564.

Specification of Letters Patent.

Patented June 2, 1914.

Original application filed May 9, 1911, Serial No. 626,084. Divided and this application filed June 26, 1912. Serial No. 706,081.

To all whom it may concern:

Be it known that I, OLIVER B. FINN, a citizen of the United States, residing at Colorado Springs, in the county of El Paso and State of Colorado, have invented new and useful Improvements in Elevator-Bucket Chains, of which the following is a specification.

This application is a division and a continuation of one filed by me May 9, 1911, Serial No. 626,084.

This invention relates to certain new and useful improvements in elevator bucket chains and the object thereof is to provide an improved and novel chain used in connection with elevator buckets in which a maximum of strength is obtained and in which the connecting pins of adjacent links are automatically locked in position and supplied with lubricant.

Further and other objects will later appear and of themselves be manifested.

In the drawings: Figure 1 is a side elevation; Fig. 2 is a section on the line 2—2 of Fig. 1; Fig. 3 is a section on the line 3—3 of Fig. 2; Fig. 4 is a section on the line 4—4 of Fig. 1; Fig. 5 is an end elevation of the connecting pin, Fig. 6 is a side elevation of the connecting pin, Fig. 7 is an end elevation of a modified form of the connecting pin, Fig. 8 is a detail sectional view of the packing engaging plate, Fig. 9 is a section on the line 9—9 of Fig. 8; Fig. 10 is an end elevation of the pin spacing block; Fig. 11 is a side elevation of the pin spacing block partly in section; Fig. 12 is an end elevation of the bushing; and Fig. 13 is a side elevation of the bushing.

1 designates the link which is of U-shape and which has an integral extension 2 at its rear end formed with a longitudinal oval-shaped opening 3. Pin 4 has a body 5 which is of the same shape as opening 3 and is received in the latter, the pin 4, having reduced ends 6 of circular cross section which extend beyond the ends of extension 2. Extension 2 of a front bucket is received between the arms of the U-shaped link 1 at the free open end of said link as depicted in Fig. 2.

7 denotes the hood, the bottom 8 of which seats on the plate 9, formed integral with the link 1, the link being hollowed out to form a seat for the hood at the bottom, rear end and sides thereof, as seen in Fig. 3, in which

a shoulder 10, acts as a brace for the rear end of the hood. Bolts 11, extend through the link plate 9 and the hood bottom 8, to secure said parts. The front end of the hood is formed with cast fingers 12 which engage the outer face of the lip 13, the latter seating in the cut-out or off-set shouldered portion 13' of the hood at the free end of the latter, the fingers clamping the lip to the hood and acting as stops or abutments which hold the lip in position.

From the above it will be seen that tightening of the bolts 11, will act to draw the lip against its securing fingers 12, and any pressure exerted on the lip in working will cause the same action. The lip ends are turned inwardly at right angles as at 14 (Fig. 4) and engage in seats 15 provided therefor in the link sides. The bottom 8 of the hood at the front end thereof seats on the right angular ends 14 of the lip, and said front end of the hood bottom is held in place by lugs 16 formed on the link ends, which lugs are of hook-shape to engage over the front end of the hood bottom. A cross bar 17, connects the link sides at the free ends of the latter to strengthen the link. Ends 6, of pin 4 of a front link are received in the elongated openings 18, in the free ends of the links of a rear link and as the wear of the pins in the openings is in a direction toward the free ends of the links, bushings 19 are provided of segmental form having a flange 20 at their inner ends, which flanges seat in cut-out portions 21 on the inner sides of the links, as seen in Figs. 2 and 3. Waste cotton saturated with a lubricant may be placed in the openings 18, and held therein by means of plates 22 sliding in a dove-tail guide 23 formed in the outer sides of the links, the plates having spring pawls 24 attached thereto, which engage with ratchet teeth 25, formed on the links, whereby the plates are held against movement. The front ends of the plates 22, are curved to conform to the shape of the pins 6, as seen in Fig. 1.

26 designates sockets formed in bosses on opposite sides of the hood to allow of the use of tongs in handling the hoods with derricks.

27 designates packing which may be placed between the hood and lip, if desired. In Fig. 7 a modified form of pin 4' is shown, in which the body 7' is of diamond shape. The connecting pin of the present

invention by reason of the formation thereof in which the wearing surfaces or parts are at the end of the pin, presents the advantage of maintaining the central part of the pin in an unchanged condition, that is to say the middle part is held rigidly in the link extension 2, and the reduced ends 6 by virtue of being comparatively short, are correspondingly strengthened. Furthermore, the invention provides means for automatically locking the pin in place, and the pin may be reversed so as to present both of its sides to wear, thus imparting longer life to the pin, and at the same time reducing the slack in the chain to a minimum. Further the middle portions of the pin can be rough cast, and the hole in the link extension 2 can be rough cored, saving a great amount of machine finishing work as compared with pins which have their wearing portions in the middle. The angular formation in the central part of the pin as shown in the modification in Fig. 7 effects a saving in metal.

The pin is automatically locked in position, since after the same has been inserted through the holes 3 and 18, the forward link is moved to the right in Fig. 1 to bring the pin ends against the outer end walls formed by the openings 18, at which time it will be seen that the ends of the middle part 5 of the pin will lie opposite the outer end of the link sides, thereby acting as abutments which prevent any lateral movement of the pin.

Metal spacing blocks 28, may be used, and same are provided with tapped apertures 29, by means of which a threaded rod may be engaged therewith to permit removal of the blocks. The blocks are placed to the rear of the pin ends 6, as shown in Fig. 3, and when used serve to provide means in addition to the cotton waste to limit the rearward movement of the ends 6, of the connecting pin, so as to prevent disengagement of the pin body 5 from the openings 18.

What is claimed is:

1. An elevator chain, including a link having a portion formed with an elongated opening of oval shape in cross section, a pin having a central portion conformably filling

said opening and having reduced annular ends of equal diameter throughout which extend beyond the central portion of the pin, combined with a second U-shaped link having an elongated opening formed in the free end of each side thereof, all of said aforementioned elongated openings extending in the same plane, said last named link openings receiving the ends of said pin, and the ends of the links on the inner faces of latter acting as abutments to prevent lateral movement of the pin, when the pin is moved through the link openings whereby the ends of the pin are brought to engage with the outermost wall formed by said elongated openings of the links.

2. An elevator chain including a link having a portion formed with a longitudinal opening of substantially oval shape, a pin having a central part conformably fitted in the opening and having reduced ends extending beyond the central part, combined with a second link formed with longitudinal openings in its free end to receive said reduced ends of the pin, said pin being movable transversely through said longitudinal openings and having its reduced ends for engagement with the outermost end walls formed by the longitudinal openings in which position the ends of the central part of the pin will engage the free ends of the second link and prevent transverse movement of the pin relative to the links.

3. In combination with a link having openings in its free ends, a second link, a pin at the rear of the second link the ends of which are received in said first named link openings, said first named link being formed with guide-ways adjacent said openings thereof, a plate fitted in the guide-ways, said first named link being formed with ratchet teeth, and spring pawls carried by the plates for engagement with said ratchet teeth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

OLIVER B. FINN.

Witnesses:

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HENRY N. SHELLENBERGER.