

No. 763,896.

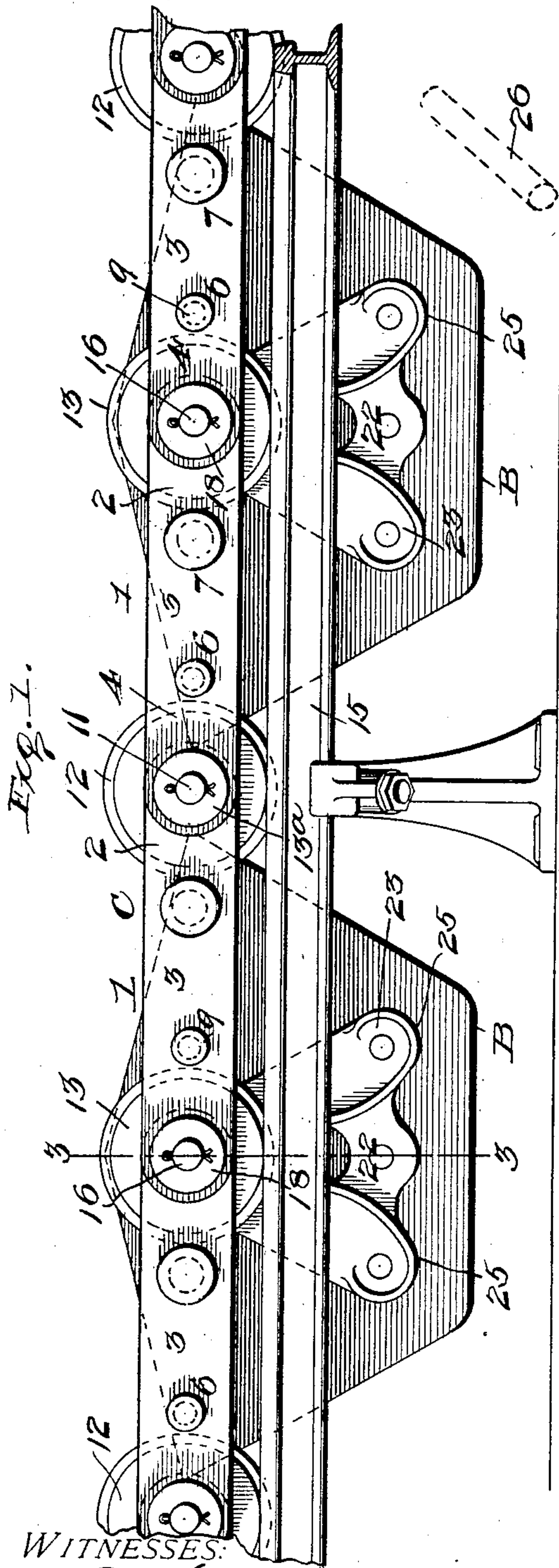
PATENTED JUNE 28, 1904.

J. C. HOSHOR.  
CONVEYER.

APPLICATION FILED FEB. 9, 1904.

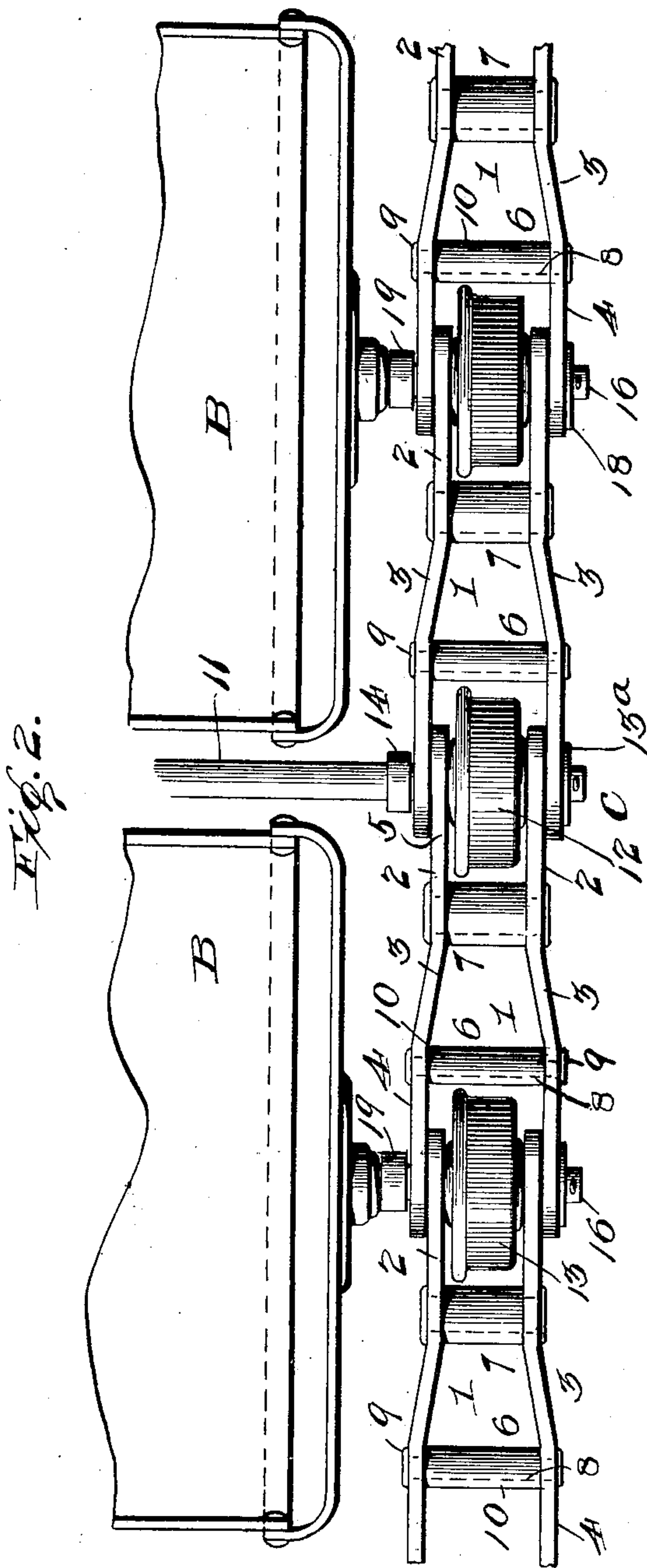
NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:

D. Webster, Jr.



INVENTOR

Joseph C. Hostor

 $B_Y$ 

By *S. J. Schaefer*  
Attorney

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2 SHEETS—SHEET 2.

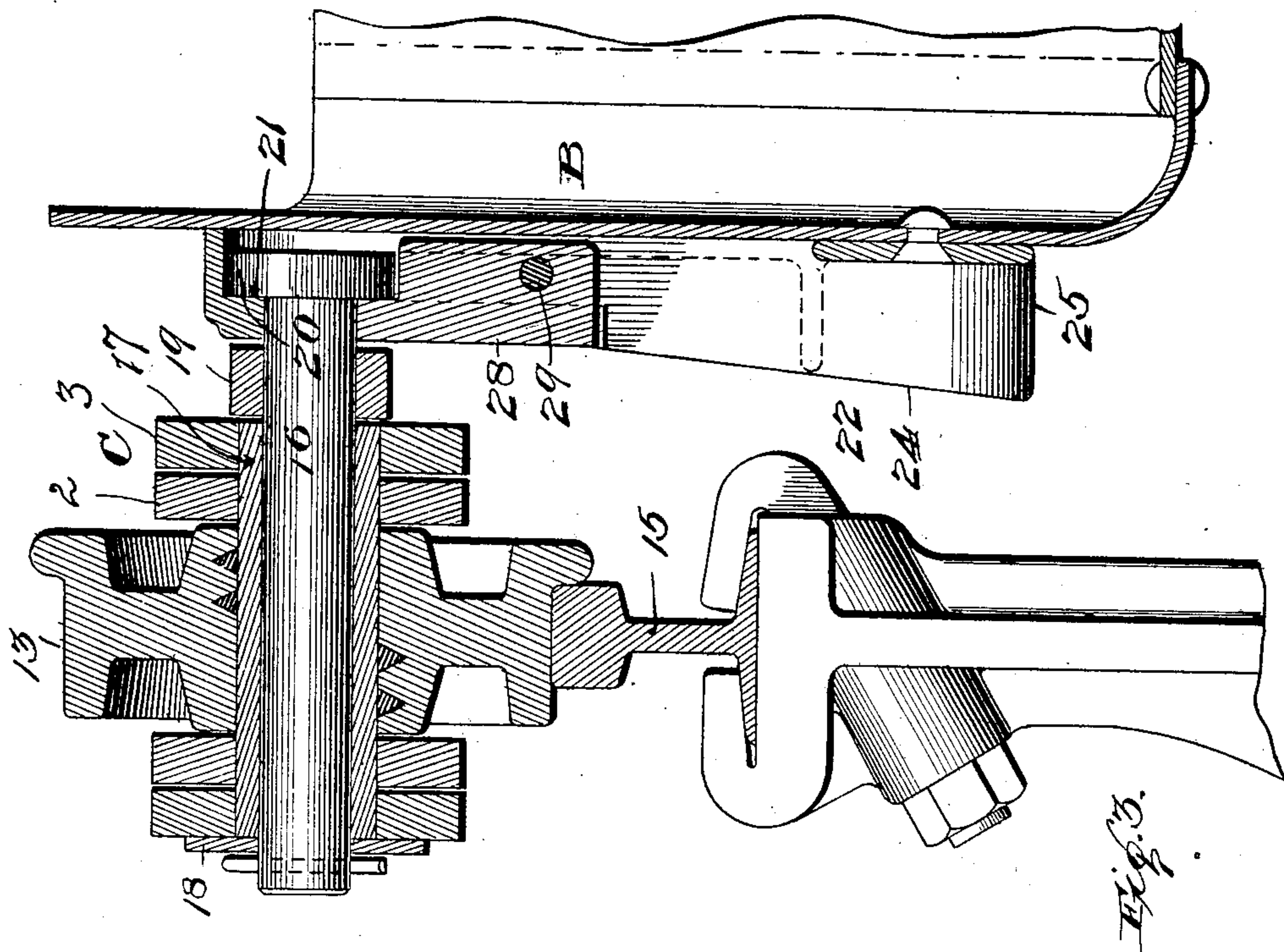


Fig. 3.

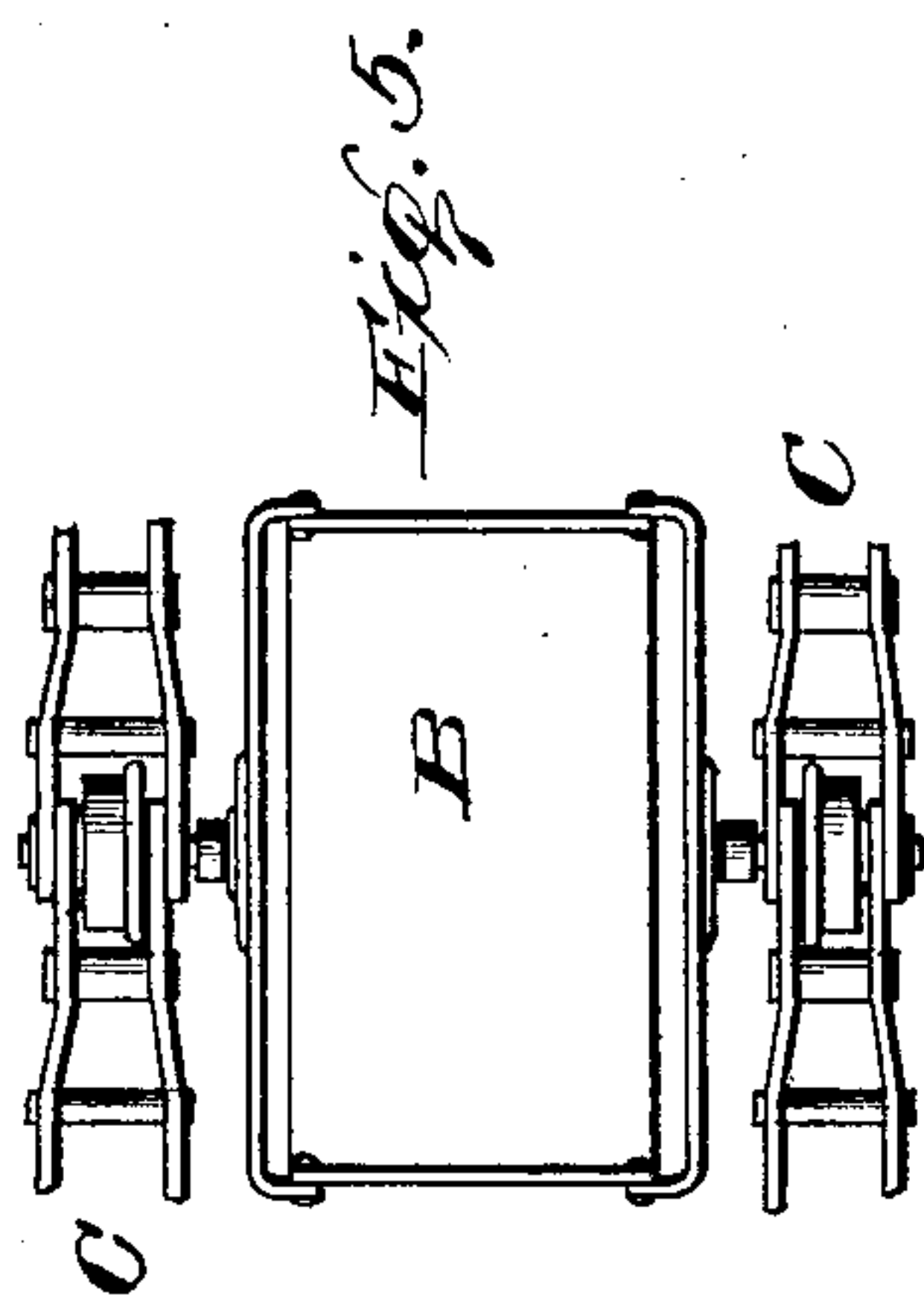


Fig. 5.

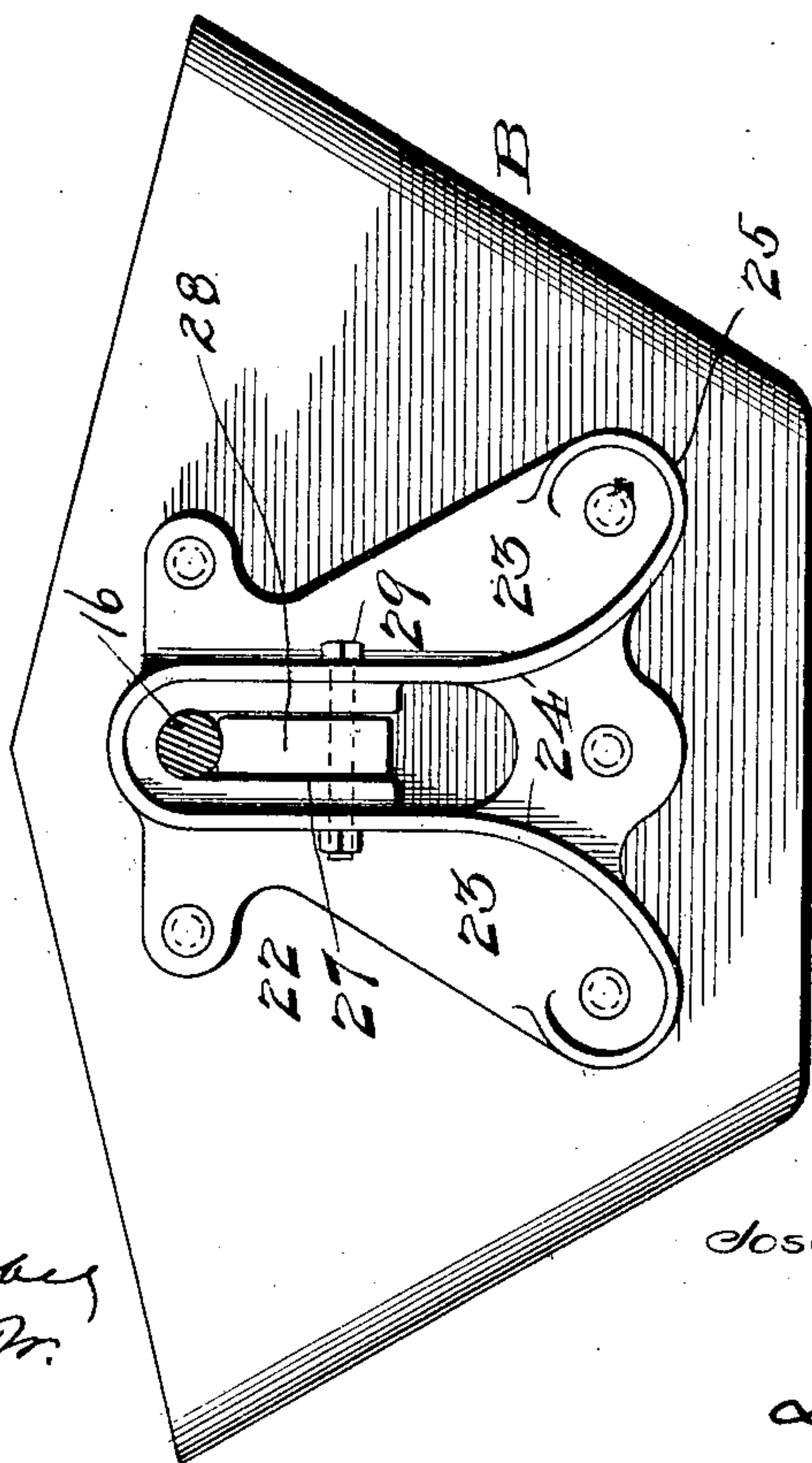


Fig. 4.

WITNESSES:  
J. L. Mochel  
D. Webster, Jr.

INVENTOR  
Joseph C. Hoshor

BY  
J. J. Haupt  
Attorney



# UNITED STATES PATENT OFFICE.

JOSEPH CARPER HOSHOR, OF PATERSON, NEW JERSEY.

## CONVEYER.

SPECIFICATION forming part of Letters Patent No. 763,896, dated June 28, 1904.

Application filed February 9, 1904. Serial No. 192,836. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH CARPER HOSHOR, a citizen of the United States, residing at Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Conveyers, of which the following is a specification.

This invention relates to conveyers of the type designed for coal, stone, and other heavy substances, and has special reference to certain practical improvements in conveyer-chains possessing special utility in the construction of conveyers of the gravity bucket type.

To this end the invention has in view the provision of a conveyer-chain specially adapted to buckets pivotally suspended between opposite parallel chains in such a manner that the materials or substances in the buckets may be conveyed through horizontal, vertical, or inclined planes, while at the same time being easily and readily tipped for dumping purposes at any desired point. Heretofore conveyer-chains employed for this purpose have been constructed of links consisting of a pair of inner and outer straight link-plates overlapping and pivotally connected with the contiguous ends of adjoining plates of the adjacent links, and in this type of chains it has also been customary to connect the overlapping link-plates at the points where the travelers or rollers are located in the chains. Also another type of conveyer-chain heretofore employed comprised links or link-plates of an offset type, whereby the major width of all of the links is the same throughout, while at the same time the inset portions due to the offset permits the link-plates to be pivotally coupled together in overlapping relation in the same manner as the other type of conveyer above referred to and exemplified by the illustration in my former patent, No. 677,031. The offset type of link-plates is shown in my former patent, No. 677,742, and the present invention is intended to improve the structural features of the offset-link formation, whereby the same may be rendered of exceptional strength to entirely obviate buckling under ordinary or extraordinary strains, while at the same time

providing means whereby the buckets may be pivotally hung in position between the opposite chains, so as to always maintain the horizontal when passing through horizontal, vertical, or inclined planes.

Another object of the invention is to more effectively reinforce the pivoted sides of the buckets and to improve the journal or pivotal connection between such sides and the conveyer-chains.

With these and many other objects in view, which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts, which will be hereinafter more fully described, illustrated, and claimed.

The essential features of the invention involved—first, in the structural features of the offset links and, second, the pivotal hanging and reinforcing of the buckets—are susceptible to some change without departing from the scope of the invention; but a preferred embodiment of the same is shown in the accompanying drawings, in which—

Figure 1 is an enlarged elevation of a section of bucket conveyer embodying the improvements contemplated by the present invention. Fig. 2 is an enlarged plan view of a section of chain and the adjacent portions of the conveyer-buckets carried thereby. Fig. 3 is an enlarged sectional view on the line 3 3 of Fig. 1, showing the pivotal hanging of the bucket from the conveyer-chain. Fig. 4 is an enlarged elevation of a bucket, showing the attachment of the side-supporting bracket thereto, said bracket constituting a brace or reinforcement for the bucket side and also a hanger for pivotal engagement with a journal or pivot stud of the conveyer-chain. Fig. 5 is a diagrammatic plan view of a section of a complete bucket conveyer embodying the present invention.

Like reference-numerals designate corresponding parts in the several figures of the drawings.

In carrying out the present invention no change is contemplated in the general relation of the pair of opposite parallel endless chains C and the gravity conveyer-buckets B, carried



by such chains and pivotally suspended between the same for being carried through horizontal, vertical, or inclined planes, while at the same time being free for tipping to effect the dump of the bucket contents at any desired point. Hence for illustrative purposes there is diagrammatically shown in Fig. 5 of the drawings the usual relation of the opposite chains and the series of buckets pivotally suspended from between the same; but one of the distinctive features of the present invention resides in the structural formation of each of the opposite chains C.

Referring particularly to the construction of the chains, each of the same is composed of a continuous series of pivotally-connected links 1 of the offset type disclosed in my former patent, No. 677,742. Each complete offset link consists of a pair of inner and outer link-plates 2 2, arranged in proper spaced relation and provided at a point intermediate their opposite extremities with offsetting deflections or bends 3, which form offset parallel link portions 4 at one end of the link and the inset parallel link portions 5 at the other end of the link, whereby the contiguous or adjacent links may be arranged with their ends in overlapping relation and at the same time all of the links will have their offset portions 4 in longitudinal alinement, thus effecting much greater strength for conveyer purposes than possible through the employment of alternating links of different widths as found in chains of the type shown in my former patents, No. 675,156 and No. 677,031.

In order to utilize links of the offset type, the same must be strongly braced and reinforced against longitudinal and cross strains which would tend to buckle the links. Instead of the inner and outer reinforcing-bosses and the single-link separator shown in my former patent, No. 677,742, the present invention contemplates as a distinctive improvement thereover the employment of a pair of rigid link-separators 6 and 7, respectively, for each offset link. These rigid link-separators are arranged between the opposite link-plates 2 2, respectively, at opposite sides of the transverse plane of the offset deflections or bends 3 of the link-plates and are disposed at the point where these offset deflections run into the parallel link portions 4 and 5, respectively. These rigid link-separators 6 and 7 may be of any suitable construction; but preferably each of said separators consists of a connecting-stud 8, extending transversely across the link and riveted or otherwise rigidly secured at its ends, as at 9, to the link-plates, and a spacing-sleeve 10, placed upon the stud 9 and abutting at its ends directly against the inner sides of the opposite link-plates 2 2. By thus placing the rigid link-separators 6 and 7 within each link the same hold the link-plates in a perfectly secure and rigid position, while at the same time absolutely preventing any

buckling under strains that may be passing through the conveyer-chains, inasmuch as it is impossible for the links to expand or contract under heavy strains. Furthermore, the construction provides a coupling connection between the opposite link-plates whereby the strains through the chains are equal or uniform in both plates of each link.

Alternating with the conveyer-buckets B are the transverse connector-shafts 11, extending across the interval from chain to chain and lying between the edges of adjacent buckets. Each of the transverse chain-connector shafts 11 assist in holding the opposite chains C in proper spaced relation and also constitute the pivot-pins for the ends of the links between which are arranged the intermediate traveler wheels or rollers 12, alternating with the corresponding traveling wheels or rollers 13, carried by the journals or pins constituting the pivotal supports for the buckets.

Each transverse chain connector-shaft 11 has its opposite ends arranged to extend through suitable perforations provided in the overlapping ends of the link-plates designed to receive the same, and upon the portions of the shaft between the said plates the intermediate travelers 12 are loosely journaled. At its outer extremities each shaft 11 has fitted thereto a retaining-collar or equivalent device 13<sup>a</sup>, and in a correspondingly-opposite position at the inner sides of the chains each shaft has fitted thereon a guard-collar 14, which prevents the inward pressure of the chains against the sides of the buckets. This construction serves to hold the chain travelers to a proper working position upon the track-rails 15.

The overlapping ends of the links, alternating with the intermediate travelers 12 and the carrier-shafts 11 therefor, are pivotally coupled together primarily through the medium of the journal-studs 16. Each journal-stud 16 is loosely received in a bearing-sleeve 17, upon which the traveler 13 is mounted, and the ends of which sleeve are suitably fitted in openings in the overlapping ends of the link-plates. The said journal-stud 16 is properly retained in position through the medium of a retaining device 18 at its outer end and a retaining or guard collar 19, mounted upon the inner portion thereof at the inner side of the chain. Said collar 19 serves to positively prevent the bucket crowding against the chain.

The inner extremity of each journal-stud 16 is formed with a shouldered pivot-head 20, loosely and adjustably interlocked within the flanged bearing-recess 21, formed within the upper end portion of the side-supporting bracket 22, rigidly fastened to the adjacent side of the bucket-body. There is one of these side-supporting brackets fastened upon each of the opposite sides of each bucket to provide for pivotally hanging the bucket from



the diametrically opposite journal-stud 16, so a detail description of one will suffice for the other.

Each of the side-supporting brackets 22 consists of a single frame or casting riveted or otherwise rigidly secured to the bucket side and formed with the opposite downwardly-divergent bracing-webs 23, which extend well toward the bottom corners of the bucket and serve to greatly stiffen and brace the sides thereof, and in addition to their downward divergence the said opposite bracing-webs 23 are formed with the offstanding reinforcing-ribs 24 of flaring width and rounded at the lower ends of the webs to produce the dumping-cams 25. These dumping-cams are designed to be engaged by the tipping lever or device 26, adapted to be thrown to an interfering position at the dump-point to provide for tipping over the buckets, substantially as contemplated by my former patent, No. 675,156. In the present invention, however, the reinforcing-rib 24 is continued to the top of the bracket or frame 22, and within the upper portion of the latter is formed a receiving-slot 27, within which is detachably mounted the bearing-block 28. This bearing-block is held in position by a bolt or equivalent fastening 29 and rests beneath the journal-stud 16 at the outer side of its pivot-head 20, thus making a secure pivotal mounting for the bucket, while at the same time permitting of the ready detachment thereof through the removal of the block 28.

From the foregoing it is thought that the construction, action, and many advantages of the herein-described improvements in conveyers will be readily apparent without further description.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. A conveyer-chain composed of offset links, each having link-separators respectively at opposite sides of the offsetting portions.

2. A conveyer-chain composed of offset links each consisting of a pair of link-plates having offsetting deflections intermediate their ends, and a rigid transverse link-separator arranged at each side of the plane of said offsetting deflections.

3. A conveyer-chain composed of pivotally-connected links each consisting of a pair of link-plates having offsetting deflections intermediate their ends, a pair of rigid link-separators connecting the link-plates respectively at opposite sides of the offsetting deflections thereof, each of said link-separators consist-

ing of a journal-stud rigidly united at its ends to the links, and a spacing-sleeve arranged on the stud and interposed between the plates.

4. In a bucket conveyer, the combination with the buckets, of the offset conveying-chains composed of a plurality of offset links having their contiguous ends overlapping, rigid link-separators connecting the plates of each link respectively at opposite sides of the plane of the offsetting portions thereof, journal-studs pivotally supporting each bucket at opposite sides and pivotally connecting the links opposite the buckets, traveler-wheels supported on said journal-studs, transverse chain-connector shafts alternating with the buckets and having their extremities pivotally connecting alternate ends of the links, and intermediate travelers arranged on said ends of the connector-shafts.

5. In a bucket conveyer, the combination of conveyer-chains having journal-studs projecting from the inner sides thereof and a series of buckets arranged between the chains, each bucket being provided upon opposite sides thereof with a side-supporting bracket rigidly united to the bucket side and provided with a bearing-recess loosely and pivotally interlocked with the inner end of the adjacent journal-stud, and a retaining guard-collar interposed between said interlocked pivotal connection and the adjacent inner side of the conveyer-chain.

6. In a bucket conveyer, the combination of the conveyer-chains having journal-studs projecting inwardly therefrom and provided at their inner ends with shouldered pivot-heads, the series of buckets arranged between the chains and each provided upon opposite sides thereof with a side-supporting bracket, each side-supporting bracket having opposite downwardly-divergent bracing-webs provided with reinforcing-ribs formed into dumping-cams and also having within the upper end thereof a flanged bearing-recess and a receiving-slot leading off from said recess, said flanged bearing-recess having a pivotal interlocked engagement with the shouldered pivot-head of the adjacent stud, and a bearing-block adjustably fitted in said receiving-slot beneath the stud at the outer side of its head.

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

JOSEPH CARPER HOSHOR.

Witnesses:

G. L. YOUNG,  
HOWARD ROSS.