

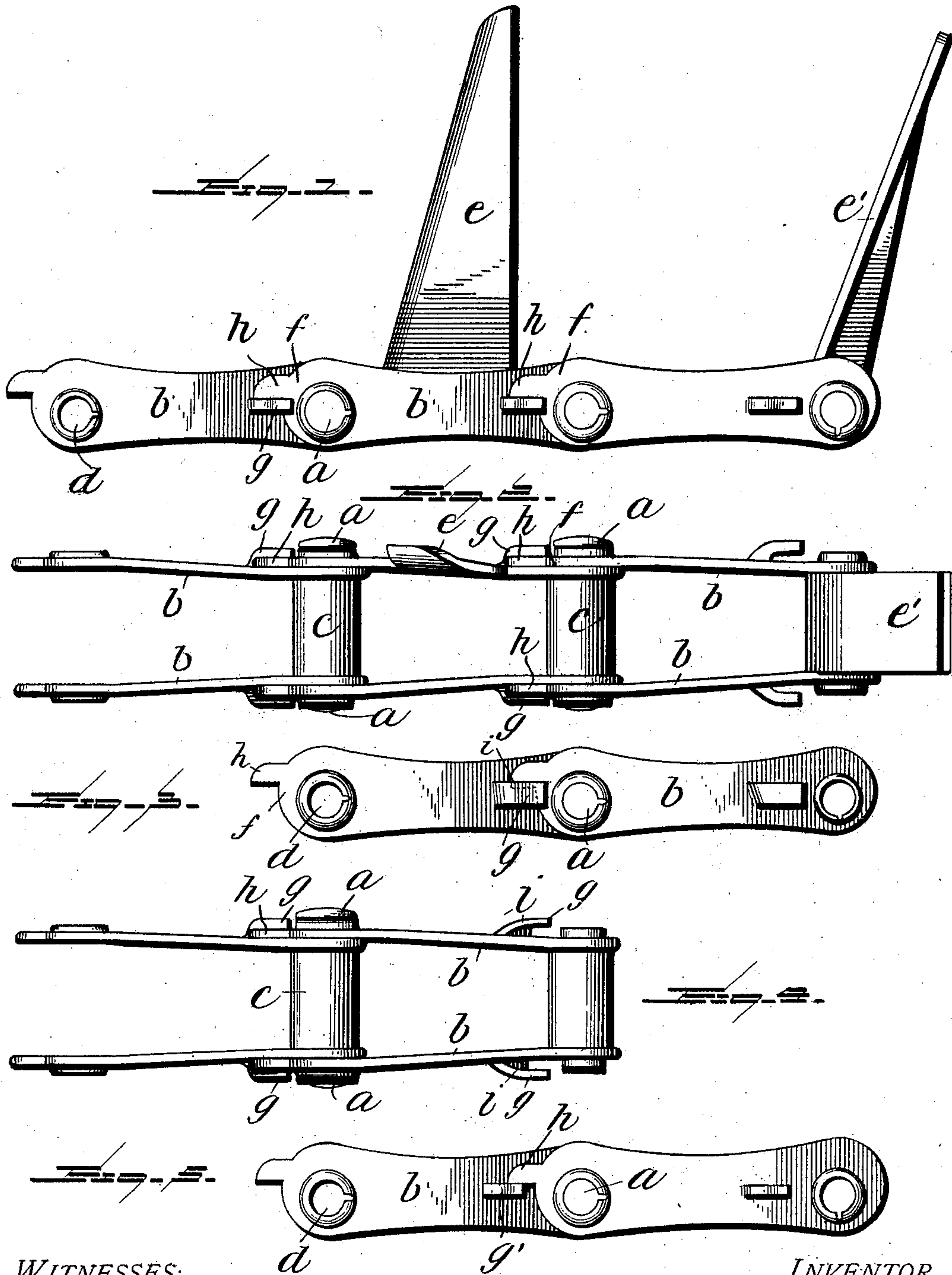
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C. W. LEVALLEY.  
CHAIN.

APPLICATION FILED NOV. 5, 1902.

NO MODEL.



WITNESSES:

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## UNITED STATES PATENT OFFICE.

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## CHAIN.

SPECIFICATION forming part of Letters Patent No. 745,361, dated December 1, 1903.

Application filed November 5, 1902. Serial No. 130,175. (No model.)

*To all whom it may concern:*

Be it known that I, CHRISTOPHER W. LEVALLEY, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Chains, of which the following is a specification.

My improvements relate to chains employed for power-transmitting purposes; and it has for its object to produce a chain or a chain belt of this character which shall be rigid in one direction substantially transverse to the axes of articulation of the separate links, so that when the chain is running in a horizontal direction it shall not sag.

In the accompanying drawings I have illustrated three forms of my improvement.

Referring to such drawings, Figure 1 is a side elevation of a short section of chain provided with my improvements. Fig. 2 is a top plan view of the same. Fig. 3 is a side view of a short portion of a chain embodying another form of my improvements. Fig. 4 is a top plan view of the construction illustrated in Fig. 3. Fig. 5 is a side view of a section of chain embodying a third form of my improvements.

I have illustrated my invention in connection with a sprocket or drive chain, separate links of which are united by detachable or separable pintles or cross-bars *a*. Each link represented in the drawings consists of two side bars *b b* and a connecting cross-bar *c* of preferably tubular form. The free ends of the side bars *b* are perforated, as represented at *d*, and these perforations are adapted to register with the apertures through the end bars when the links are arranged in position to be coupled or united by the pintles *a*, which pass through the aforesaid registering apertures.

The links of the chain may be provided with projections *e e'*, which are used for conveying purposes. These projections are shown merely to illustrate the fact that my invention may be applied to chains of different constructions, and they may be entirely omitted or other projections used in their stead. Likewise the form of chain, so far as its link construction is concerned, may be different from that shown without changing the nature of my invention.

*f f* represent flanges formed at the free ends of the side bars *b*, and *g g* represent keepers or lugs projecting outward from the side bars near their rear ends. When the parts of the chain are in working position, the flanges *f* lie behind or inside of the keepers, between them and the side bars, the keepers or lugs thus serving to prevent any lateral spreading or separation of the free ends of the side bars.

*h* designates a projection at the end of one of the side bars arranged to bear upon the upper face of one of the lugs *g* when the chain is stretched out with the links substantially in line with each other. The engagement of the projections *g* and *h*, carried, respectively, by the adjacent links, operates to prevent the links from sagging or flexing in a downward direction.

In Figs. 3 and 4 there is represented a form of my invention which for some purposes I prefer. As is here represented, the stop *g* with which the projection *h* engages is provided with a flange *i*, arranged to form a sort of pocket or recess in which the projection *h* rests when in engagement with the stop.

As has been already pointed out, the lugs *g* perform a double function—first, in combination with the flanges *f* as keepers to prevent a spreading of the free ends of the side bars, and, second, in combination with the projections *h* as one of the elements of a rule-joint construction at each articulation of the chain.

In Fig. 5 I have represented another form of my invention in which the lugs *h* operate only as members of the rule-joint. This form of the invention differs from that shown in Figs. 1 and 2 only in that the free ends of the side bars are not arranged to pass behind or inside of the lugs *g'*, which therefore do not act as keepers.

The invention which I have described is particularly adapted for use in connection with a drive-chain the links of which are of substantially U shape, as in this case the projection *h*, which engages with the stop or lug *g* on the side bar, may be practically a continuation of the free end of the side bar beyond the pintle. Such projection will then be situated substantially in the plane of the side bar and will be arranged between the



joints, uniting the side bars with adjacent links.

Having described my invention, what I claim, and desire to secure by Letters Patent, 5 is—

1. In a chain, the combination of the side bars perforated for the passage of connecting pintles, the free ends of the side bars extending beyond the perforations for the pin- 10 tles, keepers carried by the side bars and arranged to be engaged by the free ends of the side bars to prevent the latter from spreading, and projections carried by the free ends of the side bars of the links arranged to en- 15 gage with the upper sides of the said keepers to hold the links rigidly in line with each other, substantially as set forth.

2. In a chain the combination of the side bars, pivot-joints by which the side bars are 20 united, the side bars having free ends that extend beyond the pivot-joints, keepers carried by the side bars and arranged between the pivot-joints in position to be engaged by

the free ends of the side bars and to prevent such ends of the side bars from spreading, 25 and projections carried by the free ends of the side bars arranged to engage with the keepers to hold the side bars rigidly in line with each other, the said keepers and pro- 30 jections that engage therewith being arranged substantially in the same horizontal planes as the side bars, substantially as set forth.

3. In a chain, the combination of the side bars of the links, means for uniting the links, 35 laterally-extending lugs carried by the side bars, flanges forming pockets or recesses adjacent to the lugs and projections carried by the ends of the side bars arranged to be seated in the said pockets or recesses when the links 40 are in line with each other, substantially as set forth.

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Witnesses:

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