

J. SIMPSON.  
Drive-Chain.

No. 224,737.

Patented Feb. 17, 1880.

Fig. 1.

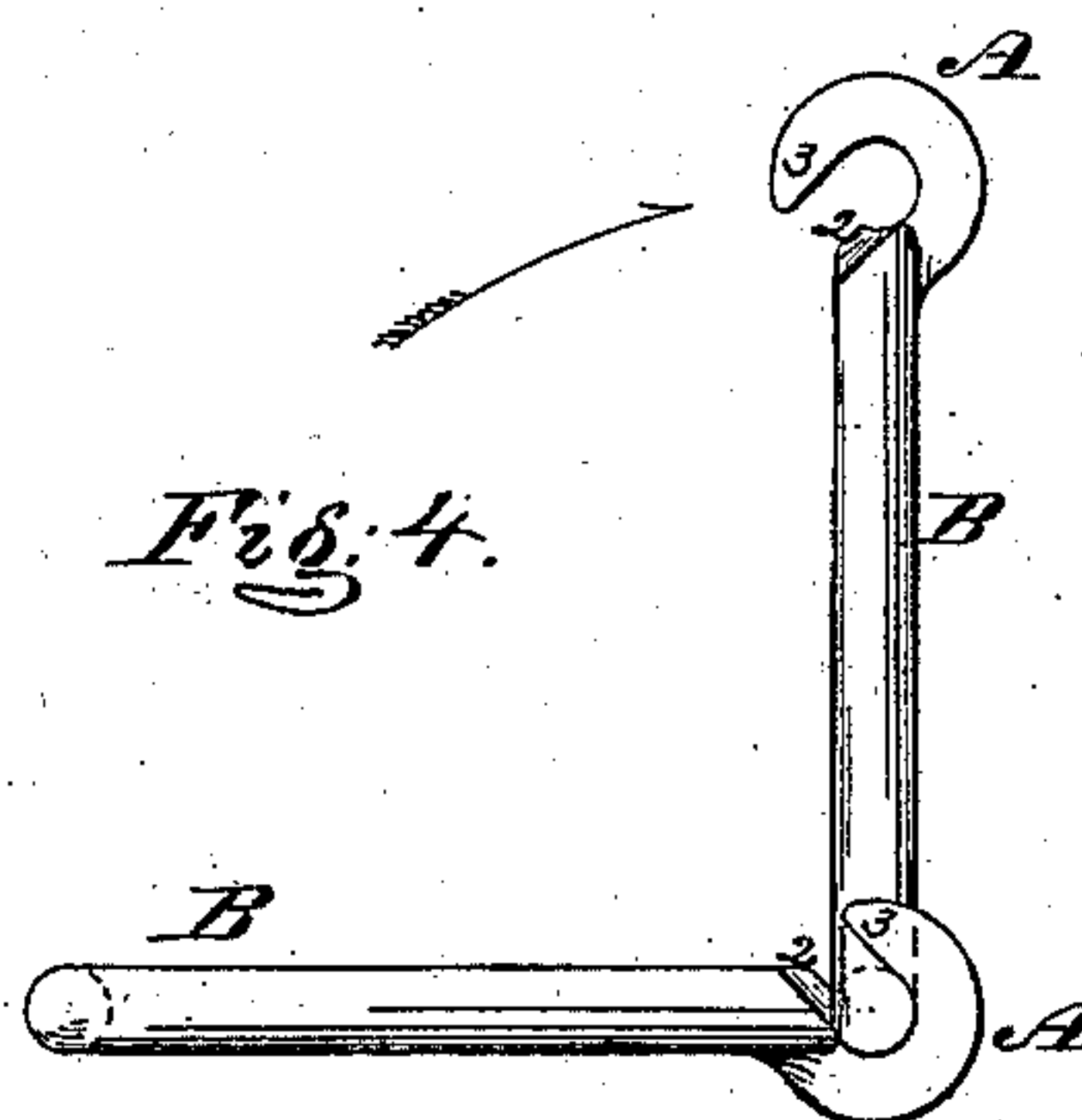
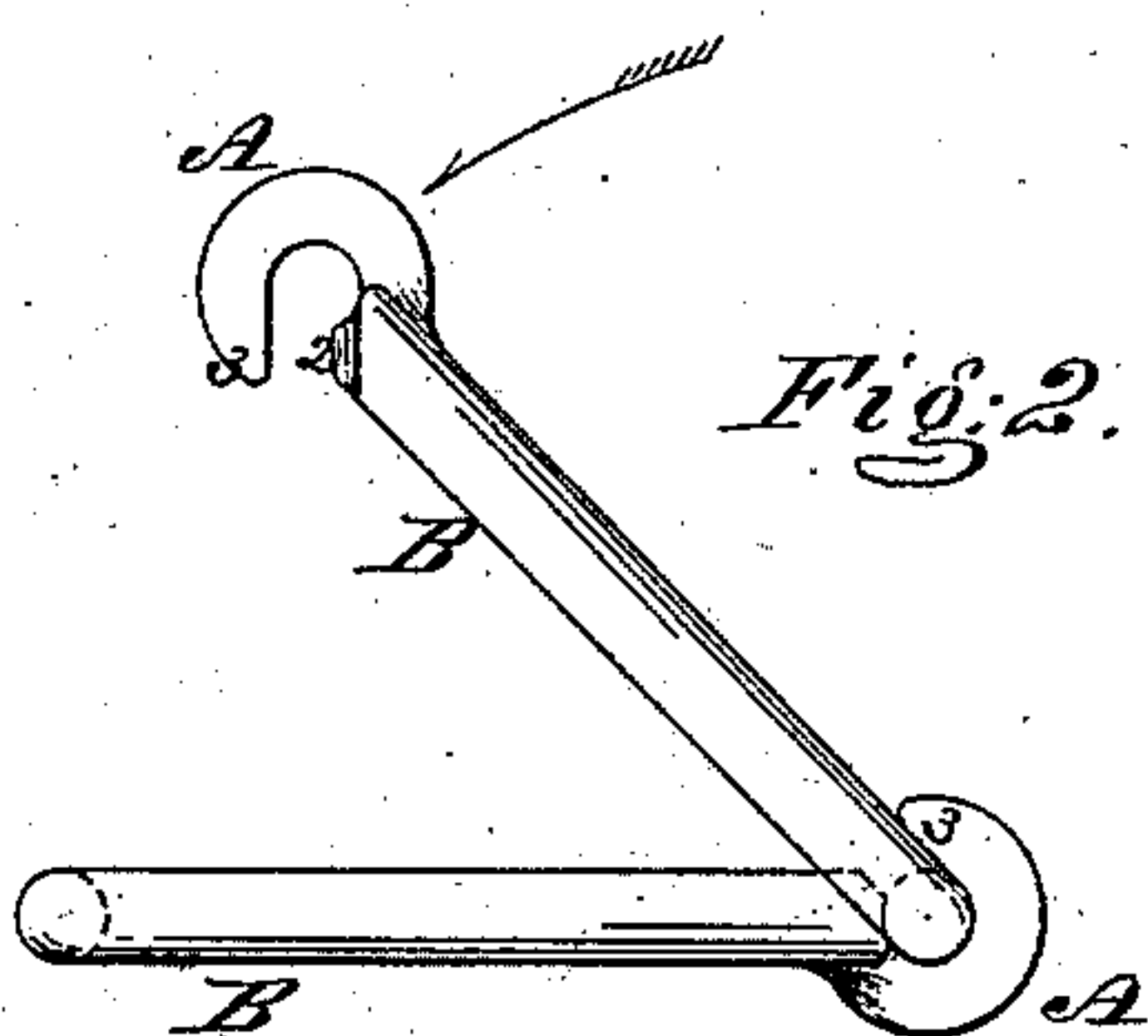
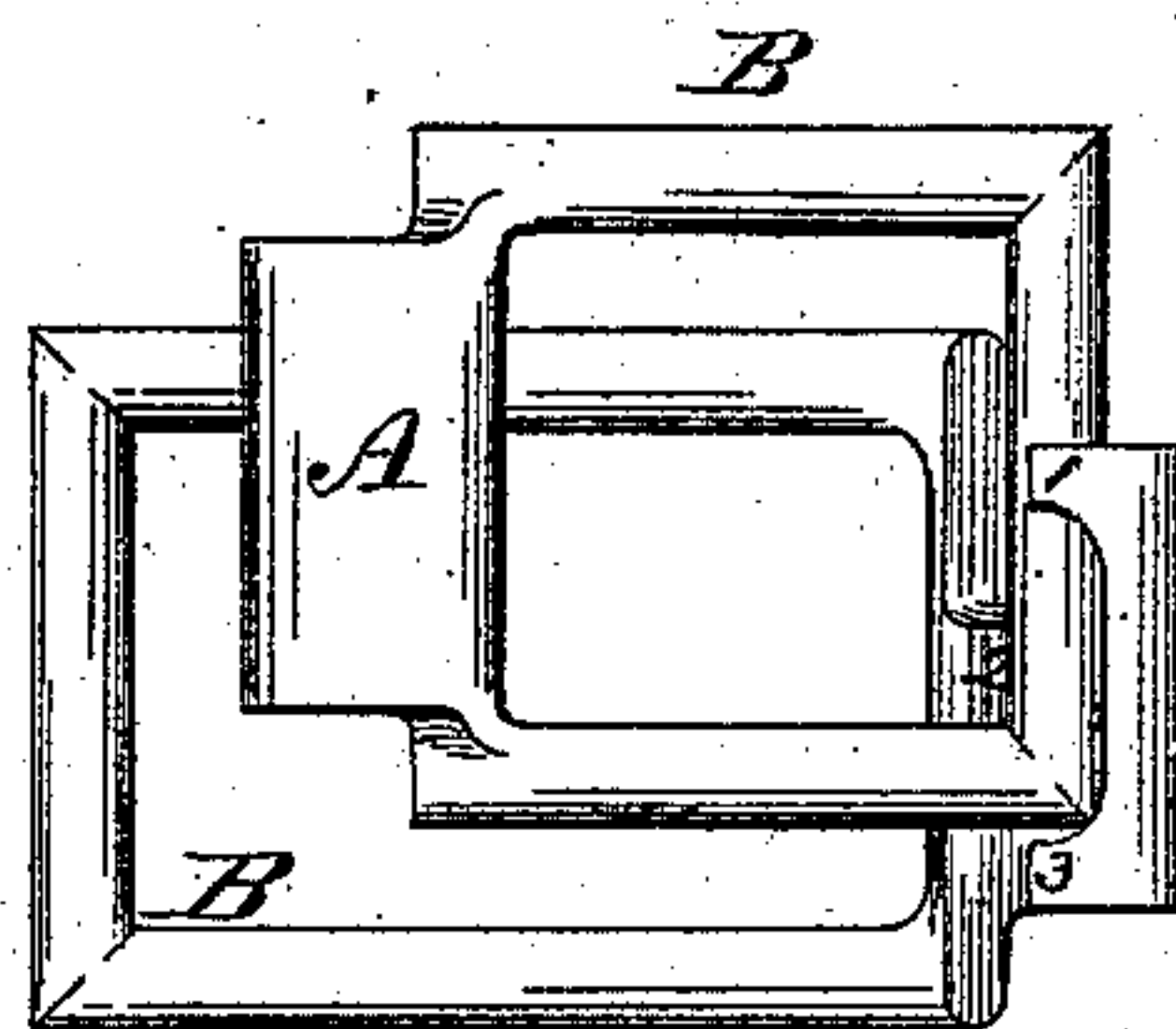
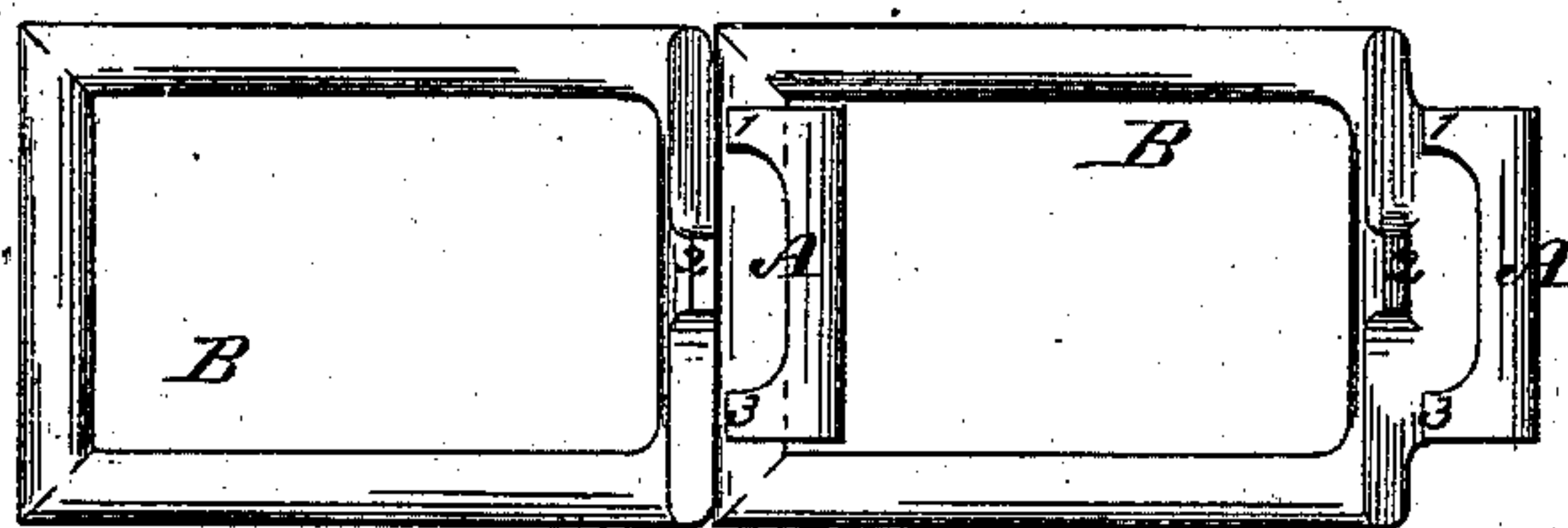


Fig. 5.

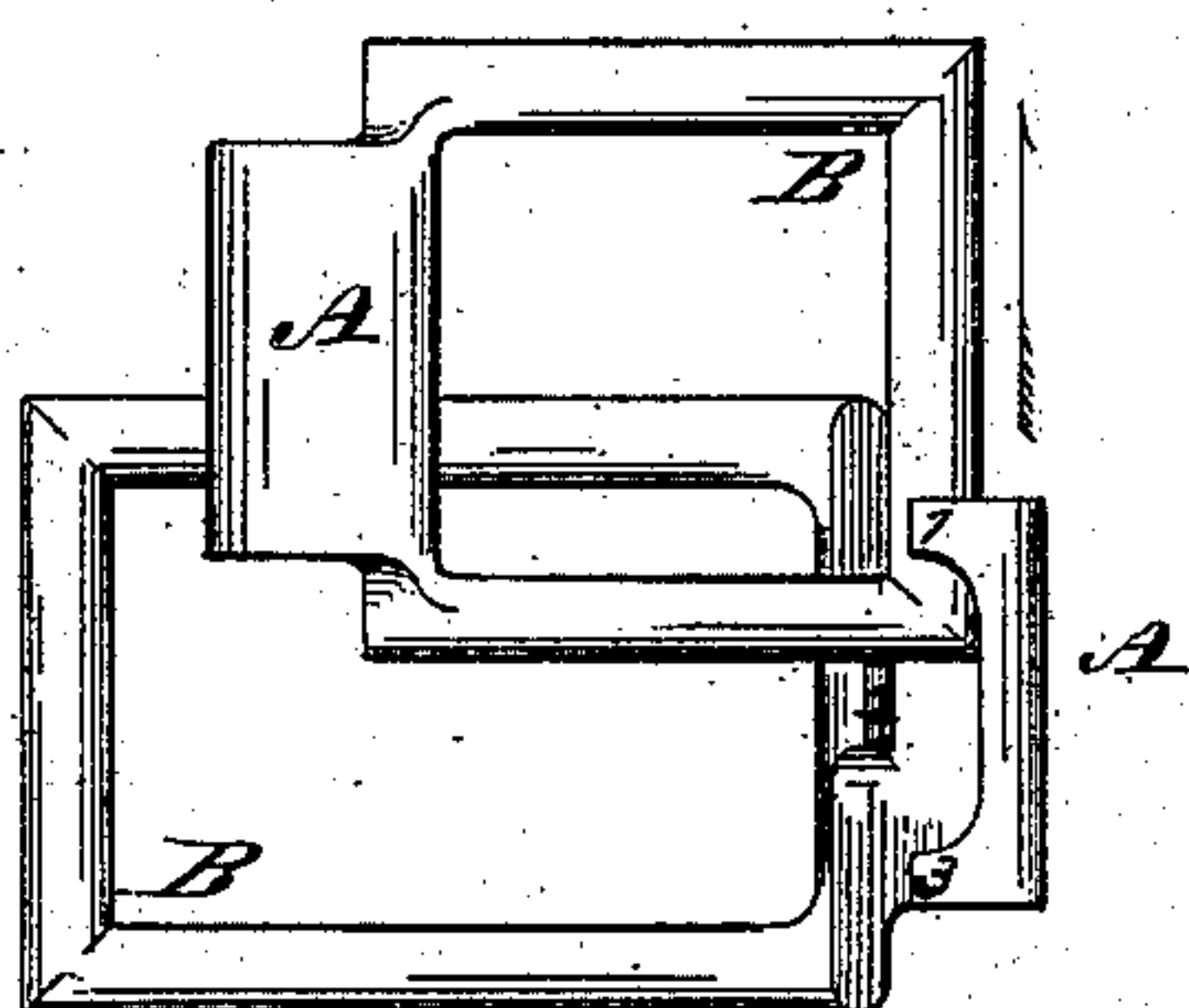
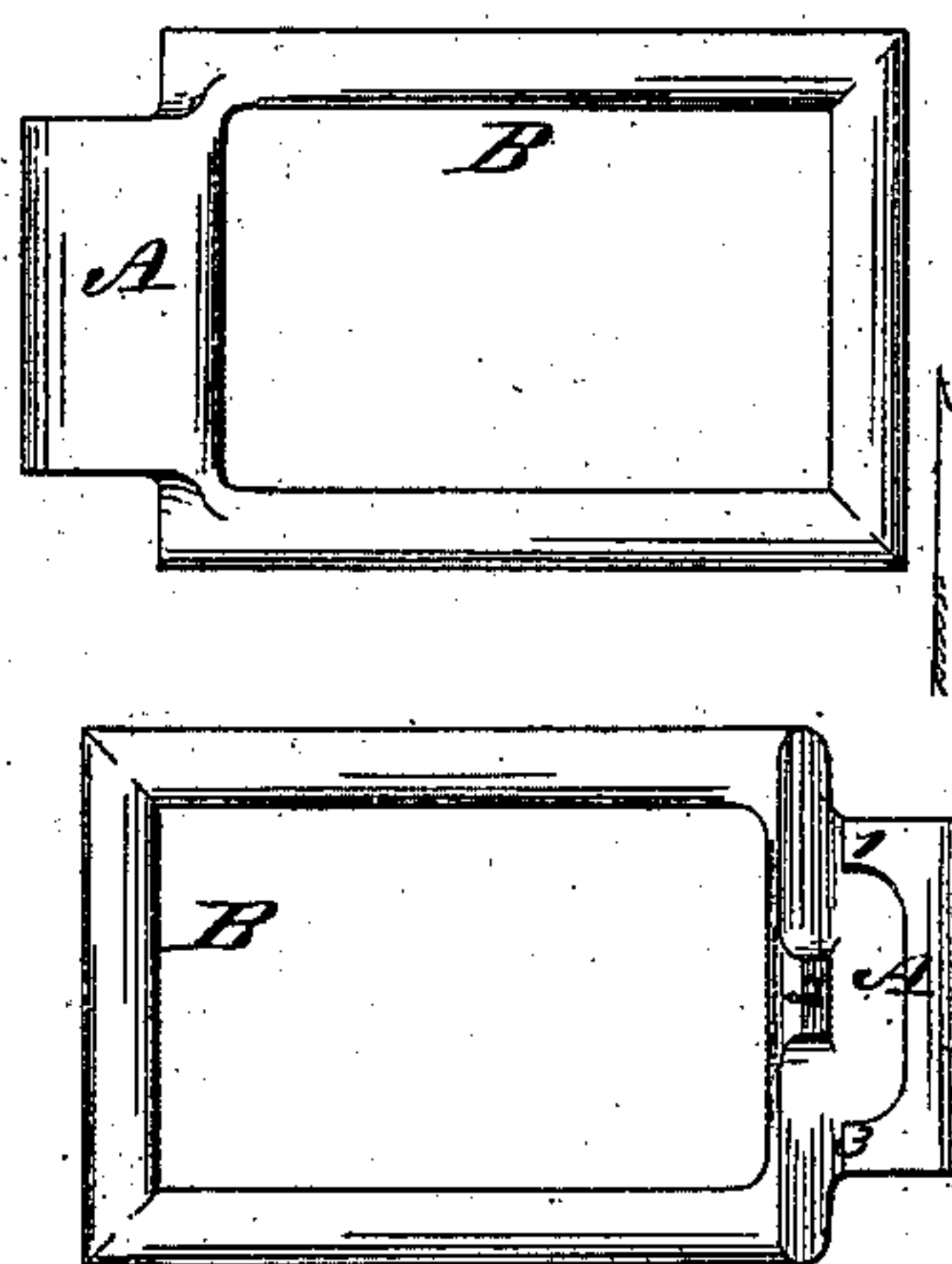


Fig. 6.



Witnesses.

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# UNITED STATES PATENT OFFICE.

JOHN SIMPSON, OF CLEVELAND, OHIO, ASSIGNOR TO EWART MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS.

## DRIVE-CHAIN.

SPECIFICATION forming part of Letters Patent No. 224,737, dated February 17, 1880.

Application filed November 21, 1879.

*To all whom it may concern :*

Be it known that I, JOHN SIMPSON, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful

5 Improvements in Drive-Chains; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

10 My invention relates to that kind of drive-chain or chain-belt which is composed of open flat links adapted to run on sprocket-wheels, and each formed or provided at one end with a hook-like socket, which may be, at pleasure, engaged with and disengaged from the

15 other plain bar end of the link adjacent to said hook-like socket, the links, while being thus capable of ready engagement and disengagement by design, not being liable to casual disengagement during the use of the chain.

20 In chains of this general character it is desirable to have the hook-like portions of the links of such form that, while they may be easily cast and economically made, they shall present a shape possessing the requisite strength and capacity for wear, without unnecessary stock; and it is also desirable to have the end

25 portions adapted to engage with said hook-like portions of about the same shape and size as the side bars, while at the same time a comparatively intricate manipulation or relative movement of the parts (one not likely to occur accidentally) shall be necessary to effect the disengagement of the links of the chain.

35 The improved construction of link which I have devised embraces, I believe, in an eminent degree these qualities of structure; and the invention involved consists in the formation of the hook-like coupling device or portion with the link-retaining projections projecting from opposite sides of the socket toward each other, and in such manner that, to effect the extrication from the socket-like device of the coupled bar of an adjacent link, said bar

40 must be moved within said socket with alternating endwise and rotative motions, as will be hereinafter more fully explained.

To enable those skilled in the art to make and use my improved detachable-link drive-chain, I will procede to describe its construc-

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tion and operation, referring by letters to the accompanying drawings, in which I have fully illustrated the construction and operation of my said invention.

In the several figures I have shown only two duplicate links of a chain, which will serve perfectly to exhibit the nature of my invention, since by a mere duplication of such links, as shown, a chain of any length may be produced, and since the mere change from a series of duplicate links to a series of alternate plain links and connecting or coupling links (or sections) involves but a double use of the invention illustrated, both forms of chain alluded to being common in the art.

At Figure 1 will be seen, in top or face view, two coupled links of a chain made according to my invention, and in the other five views will be seen the same links drawn in various positions, and so as to illustrate not only the form and structure of each, but also the mode of uncoupling or disengaging them.

By reference to the several figures it will be seen that in the structure of my improved detachable chain the hook-like coupling-socket or portion A, which, in the case illustrated, is formed on or applied to one end of each open link B, is formed at its open side with three (more or less) projections or clasping-points, 1 2 3, which project toward each other and at such distances apart as to permit the passage between them of a side bar of a link, in a manner to be presently explained, the space between each projection and that part of the socket opposite to it in the direction of the length of the chain being such also as to permit the passage freely through such space of a side bar of a link.

An explanation, now, of the manipulation of the parts for the purpose of disengaging the two links, shown coupled at Fig. 1, will suffice to make clear the whole construction and operation of my improved chain.

To disengage the links (seen at Fig. 1) I first turn them toward each other (or one toward the other) upon their pivotal axes of engagement into the relative position seen at Fig. 2, then slide one laterally, so as to bring them into the relative positions seen at Fig. 3; then turn them, or one of them, on the

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hinge-line into the position illustrated at Fig. 4; then slide one on the other laterally, in the same direction in which the sliding movement was made to get them into the position seen at Fig. 3, and, as far as possible, with the links turned to the angle with each other shown at Fig. 4. I then turn the links on the hinge-line in an opposite direction to that in which they were turned to bring them to the position seen at Fig. 4, and until the parts come into the relation seen at Fig. 5. Now, by a final lateral or other movement, the links may be entirely separated, as shown at Fig. 6.

By an observation of the lower link at Fig. 6, where an unobstructed view of the mouth, so to speak, or the open side of the coupling-socket, occurs, it will be seen that the partially-tubular socket, with its alternate projections 1 2 3, constitutes a holder for the end bar of the other link, in which, while free to rotate, it is prevented from moving endwise, except when the link is manipulated in the peculiar manner shown and described, to permit the side bar to pass certain of the projections 1 2 3; and it will be seen, also, that in designedly extricating the end bar from the said socket-like holder in the manner explained, the links are turned or doubled toward each other in one direction only, which is an advantage where, as often occurs, it would not be con-

venient or practicable in uncoupling to turn the links back and forth in opposite directions from the line or working position of the chain. Of course, where the breadth of the links or chain would render it desirable or possible, the structure of the socket-like coupling device may be varied, so as to present four or more alternate projections for rendering the necessary movements in uncoupling more intricate (by duplication) in lieu of the three marked 1 2 3.

Having now so fully explained the nature of my said invention and the construction and operation of my improved chain as to enable any skilled manufacturer to make and any one to use the latter, what I claim therein as new is—

The socket-like coupling device having a series of projections, 1 2 3, substantially as shown and described, and adapted to permit the engagement with and disengagement from it of the plain end bar of a link by alternate endwise and rotative movements only, as set forth.

In witness whereof I have hereunto set my hand and seal this 14th day of November, 1879.

JOHN SIMPSON. [L. S.]

In presence of—

HENRY GOLDSMITH,  
W. G. GRIFFITH.