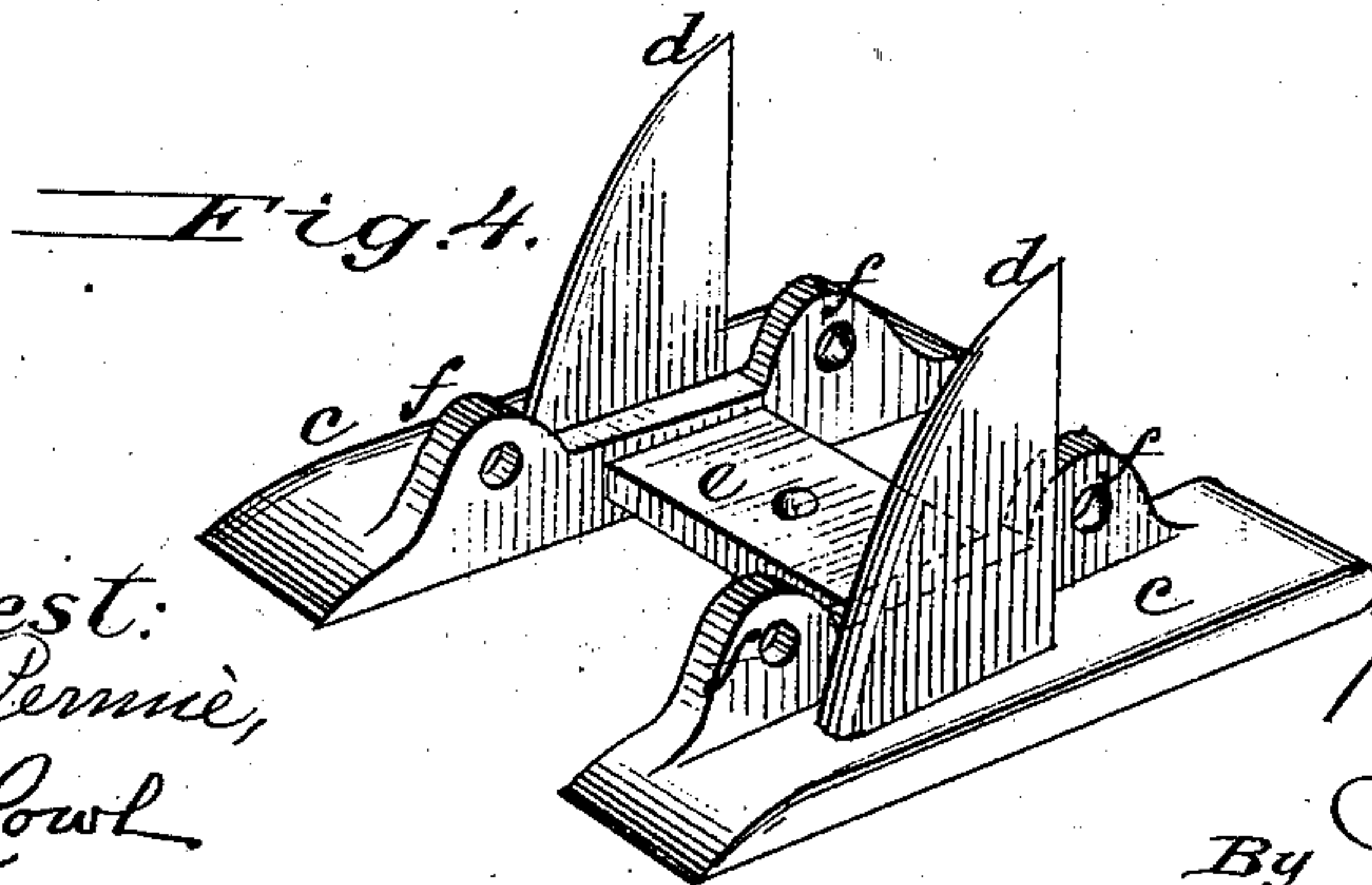
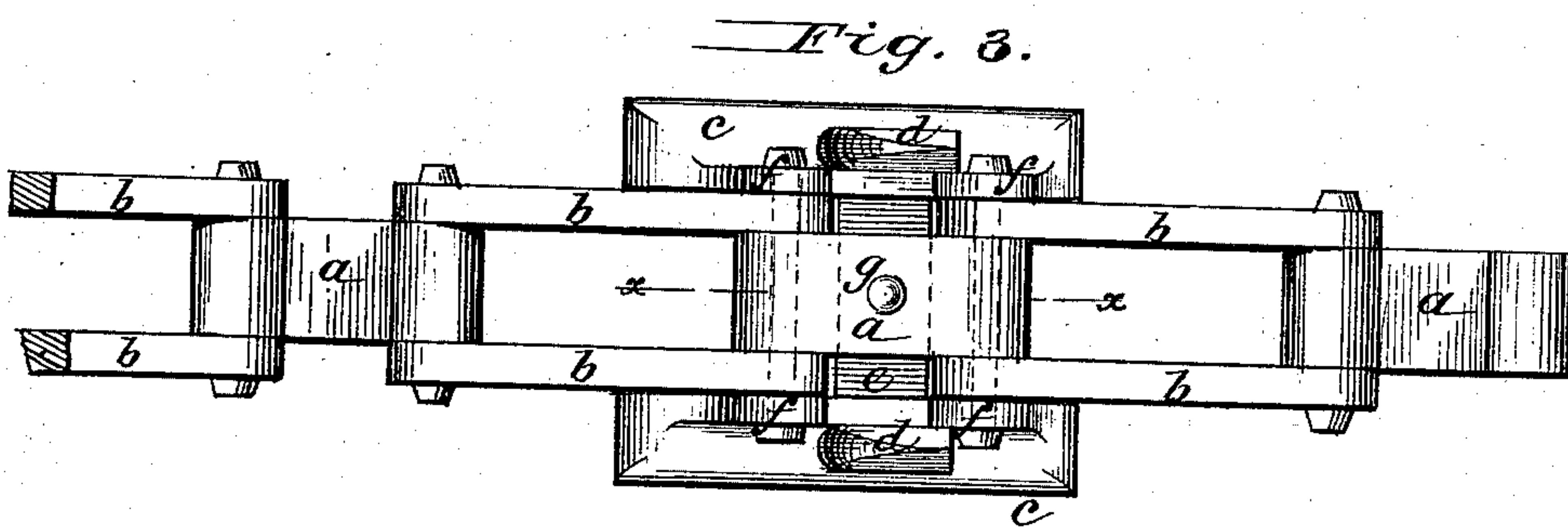
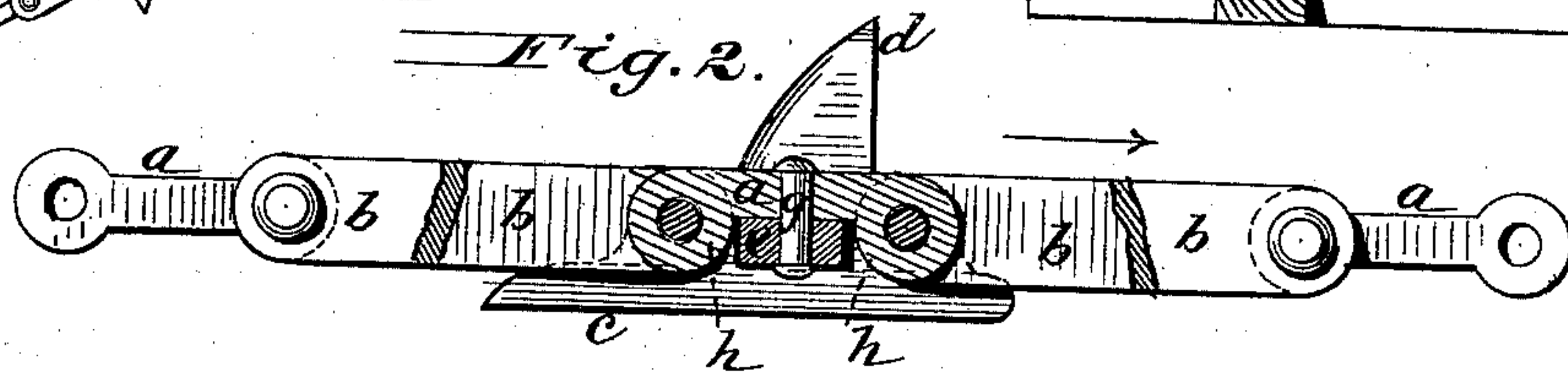
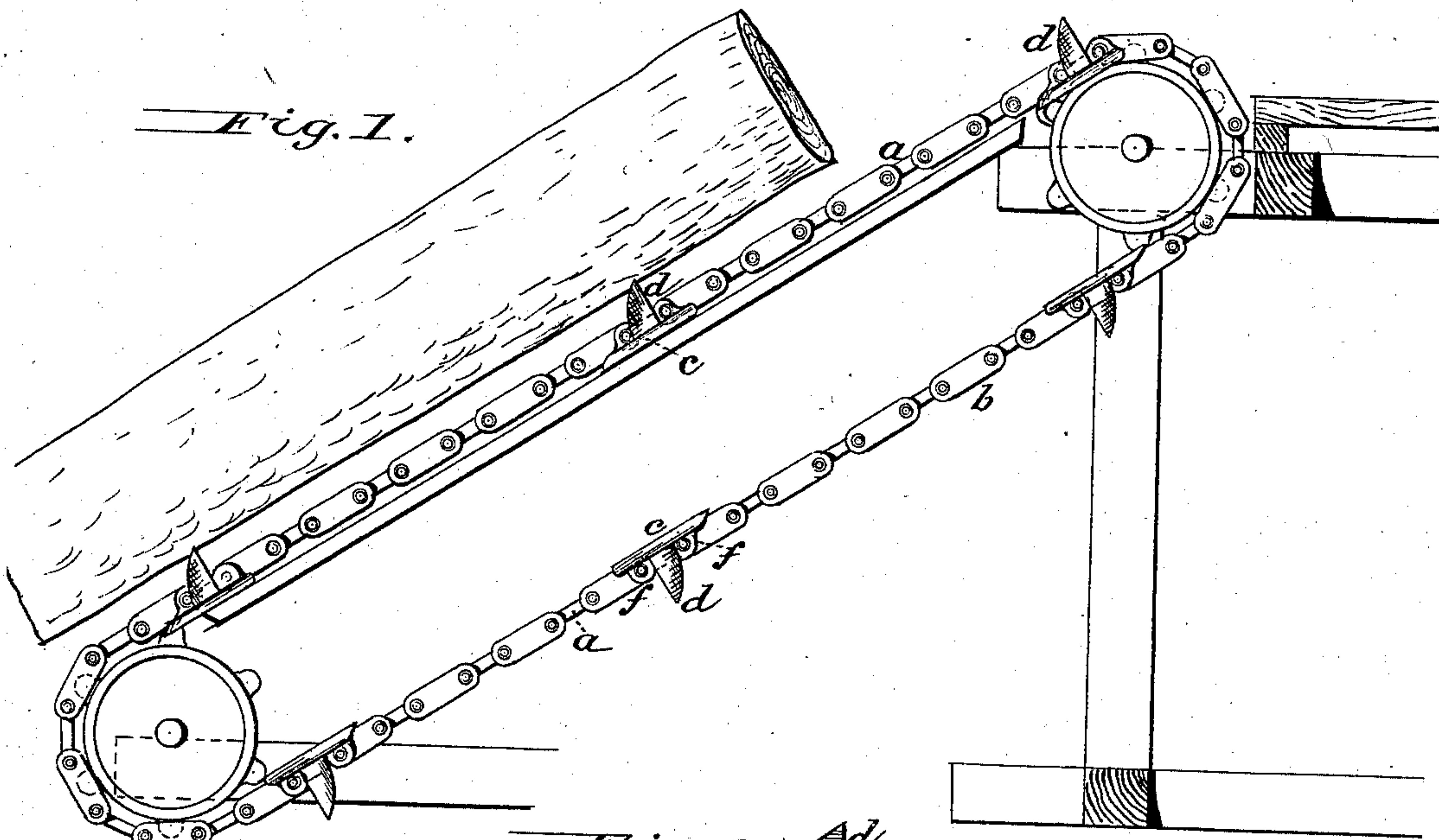


R. E. GLEASON.  
Log-Carrying or Bull-Chain.

No. 223,904.

Patented Jan. 27, 1880.



Attest:  
W. D. Permie,  
D. P. Fowl.

Inventor.  
Robert E. Gleason  
By Johnson and Johnson  
Atty's.



# UNITED STATES PATENT OFFICE.

ROBERT E. GLEASON, OF MUSKEGON, MICHIGAN, ASSIGNOR OF ONE-HALF  
OF HIS RIGHT TO THOMAS MILLER, OF SAME PLACE.

## LOG-CARRYING OR BULL CHAIN.

SPECIFICATION forming part of Letters Patent No. 223,904, dated January 27, 1880.

Application filed June 17, 1879.

*To all whom it may concern:*

Be it known that I, ROBERT E. GLEASON, of Muskegon, in the county of Muskegon and State of Michigan, have invented certain new and useful Improvements in Log-Carrying or Bull Chains, of which the following is a specification.

What is known as a "bull" or "jack" chain is used as a saw-mill appliance by which logs or timber are hauled from the water or "boom" upon the log-deck or into the mill, where they are kept ready to be rolled upon the saw-mill carriage. Such chain is used with what is known as a "slip," which extends in an inclined position down into the water, and over which the floating log is moved, so that, the chain being set in motion, its projecting dogs will seize the log, piercing it sufficiently for the purpose, and draw it up the slip, thereby saving much time in handling the logs, and preventing injury to them by driving in dogs.

I have improved the construction of such chain in particulars giving important advantages over those now in use, and especially in providing such chain with a shoe of novel construction, consisting of two side runners, a middle cross-bar, and the log-piercing teeth in a single casting, and uniting such single casting, by its middle cross-bar, to the solid link of the chain, thereby rendering the runners and solid link as a single device, so that there can be no separate independent twisting action of one side runner in relation to the other, or in relation to the solid link, or in relation to the log-piercing teeth, and at the same time obtain a firm running bearing connection for the chain and support for the log upon the slide or slip, keeping the log steady and secure upon the chain, preventing side-rocking and liability to roll off, avoiding the twisting and the breaking of the link-rivets, and preventing the tipping back of the dogs and the release of the log as it is drawn up. This latter function is quite effective in the shoe device in my patent of August 20, 1878; but the construction of such device and its connection with the chain are not so effective and advantageous in important particulars as my present improvement.

The side links are connected to the fixed

solid link by pivot-bolts, and, for the purpose of supporting the ends of such connecting-bolts and bracing them more firmly against the racking strains upon the chain, the side runners are provided with lugs or projections, through which the bolt ends pass, so that these shoe-lugs form re-enforcing supports for the shoe-connecting link-bolts, to counteract the increased strain and wear upon the bolts at such connections.

In the accompanying drawings, Figure 1 represents a side view of so much of my improved log-drawing chain as shows its adaptation for use; Fig. 2, a side sectional view of an enlarged section thereof; Fig. 3, a top view of the same; and Fig. 4, the connected dogged or toothed side shoes, forming a single device.

The chain is endless, and mounted upon and driven by suitable rag-wheels, arranged in the usual manner, in connection with the slide or platform up and over which the logs are drawn from the water or other place upon the log-deck, in position for use upon the saw-carriage. The chain for this purpose consists of a series of solid single-bar links, *a*, and pairs of double or side links, *b b*, united together by strong rivet-bolts in the usual or any approved manner. I do not use what is known as the "bunk" or "saddle" for carrying the log-piercing teeth or dog; but instead thereof I provide longitudinal shoes or runners *c*, placed preferably at the opposite sides of and united solidly with the solid center link at suitable intervals in the chain, for riding upon the chain-slide and supporting the teeth or dogs *d*, adapted to penetrate and draw up the log. These side shoes or runners are united solidly by a cross-bar, *e*, and project in advance and in the rear of said cross-bar, for the purpose of giving a long and comparatively wide shoe support and bearing upon the slide, to give steadiness to the moving log, prevent the twisting and breaking of the link-connecting pivot-bolts, and for the more important purpose of preventing all independent or twisting action of the runners with respect to each other and to the dogs under the drawing action of the chain, and releasing the dog-holds upon the log, as is often the case in the dog appliances now in use.



These side shoes are also provided with side lugs or projections, *ff*, for the purpose of forming re-enforcing supports for the ends of the link-connecting bolts; and in such connection I unite the solid center link to the cross-bar of the dog-supporting shoes by a strong rivet-bolt, *g*, which is partially relieved of strain by having the eyed ends of said center link form shoulders *h*, which embrace the opposite sides of the said cross-bar *e*, as in Fig. 2, so that I do not make a solid link, saddle, and teeth in a single piece of metal; nor do I use what is technically called a "right-angled saddle" integral with the solid center link.

It is obvious that the side shoes or runners can have more than one tooth or dog—that is, a tooth at or near each end, besides the one between the ends of the side links—and that the shoes can be cast upon the sides of the double links, and that the shoe can be used by direct connection with the side links, and without the solid center link at this point; but I prefer the plan shown in the drawings as being the best. If desired, the side shoes or runners may be cast integral with the solid center link.

The improvements which I have made in the log-drawing device not only render it more durable than the bunk or saddle and hinged shoes now in use, but render it more effective and reliable in operation, and the side shoes or runners, in addition to their functions stated, serve also the important advantage of preventing all lateral rocking of the dogs and the danger of displacing the log therefrom by side rolling or independent action of hinged shoes twisting with the chain and twisting upon the shoe-connecting link-bolt.

It will be seen that the shoe, as such, is an entirety, and that the chain is not only connected thereto by a solid center link, but by the side links, the latter connections being at points on opposite sides of the cross-bar of the runners, and at which points the rivet-bolts pass through the solid center link, the side links, and the re-enforcing lugs of the side shoes or runners, giving a very strong and

durable chain-and-shoe connection and a more firm and steady movement of the chain upon its way, and necessarily a more steady hold of the log. These advantages are very important in such a device, and they are not possible with shoes having separate hinged connections at one end only and with the solid center link only.

I claim—

1. A saw-mill log-drawing chain consisting of the side links, *b b*, and the solid center links, *a*, in combination with a separate side-shoe attachment provided with the right-angled extensions *ff*, in line with the outer sides of the said links *b b*, and having perforations to receive the projecting ends of the chain-rivets, whereby to re-enforce the chain-connection with the separate shoe attachment, substantially as herein set forth.

2. In a saw-mill log-drawing chain, the solid center link, *a*, having the shoulders *h h*, in combination with the cross-bar *e*, to which said link is riveted, the shoes, and the dogs, substantially as herein set forth.

3. The side shoes or runners united by the integral cross-bar *e*, the solid center chain-link, *a*, riveted to said cross-bar, the links *b b*, connected to said center link and to the said shoes at points on opposite sides of the cross-bar by the rivet-bolts passing through the center link, the side links, and the shoe-lugs *f*, whereby the chain is connected to the shoes by the center and side links at different points, as described.

4. In a log-carrying chain, the shoe or runner having the cross-bar *e*, the teeth *d*, and the lugs or projections *ff* thereon in a single solid piece of metal, in combination with the chain, the center and side links whereof are connected to said shoe, substantially in the manner and for the purpose herein set forth.

In testimony whereof I have hereunto set my hand.

ROBERT E. GLEASON.

Witnesses:

WESLY HURD,  
HARVEY L. ROOD, Jr.