

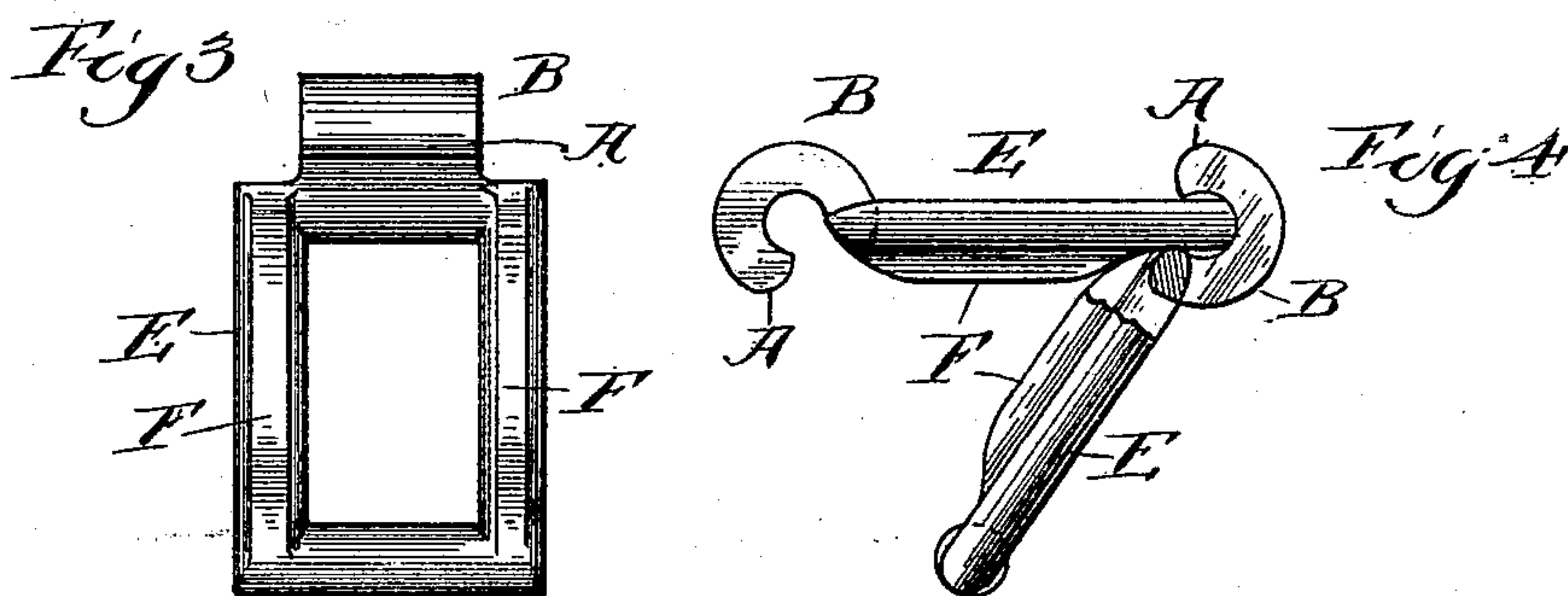
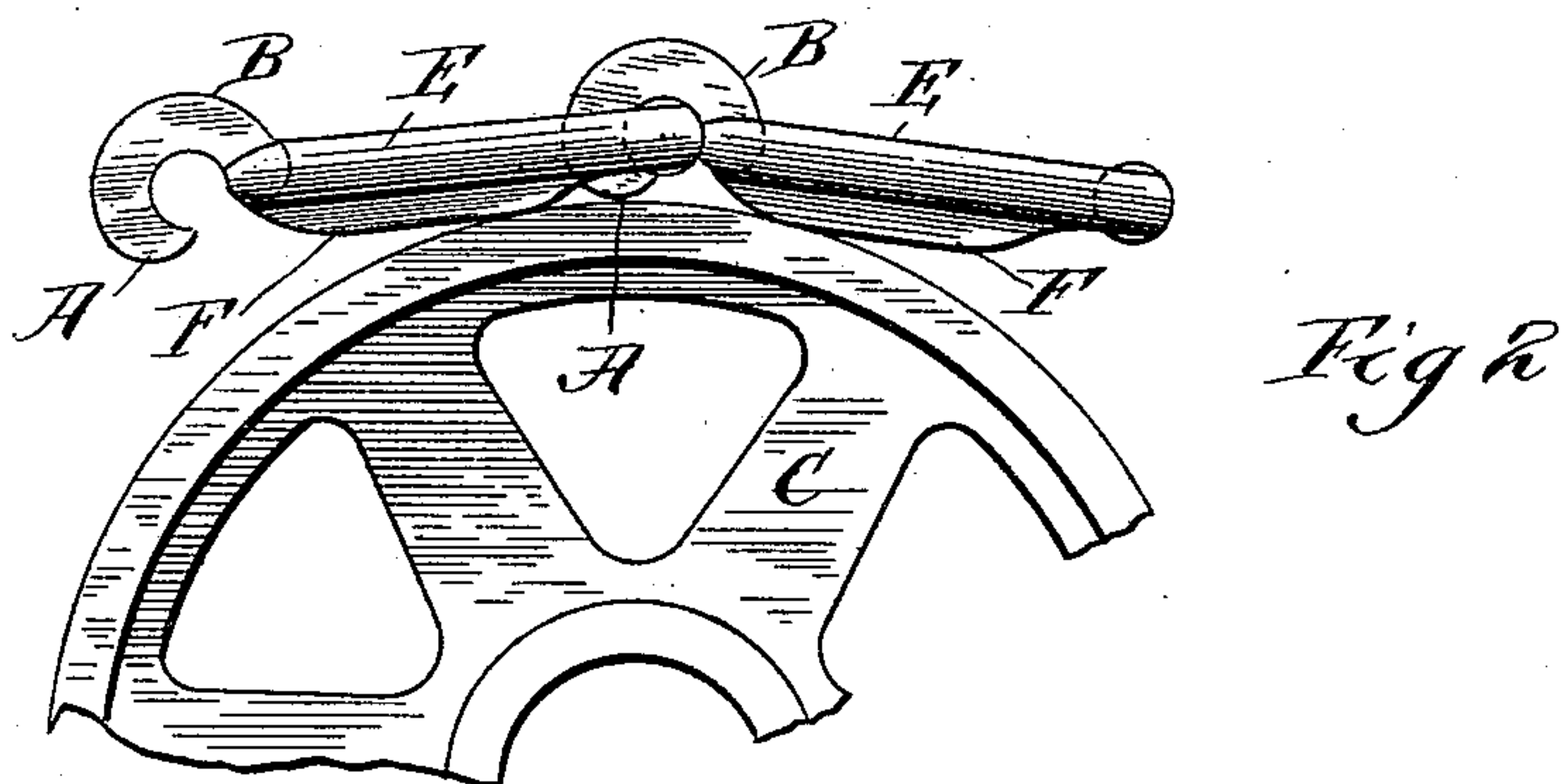
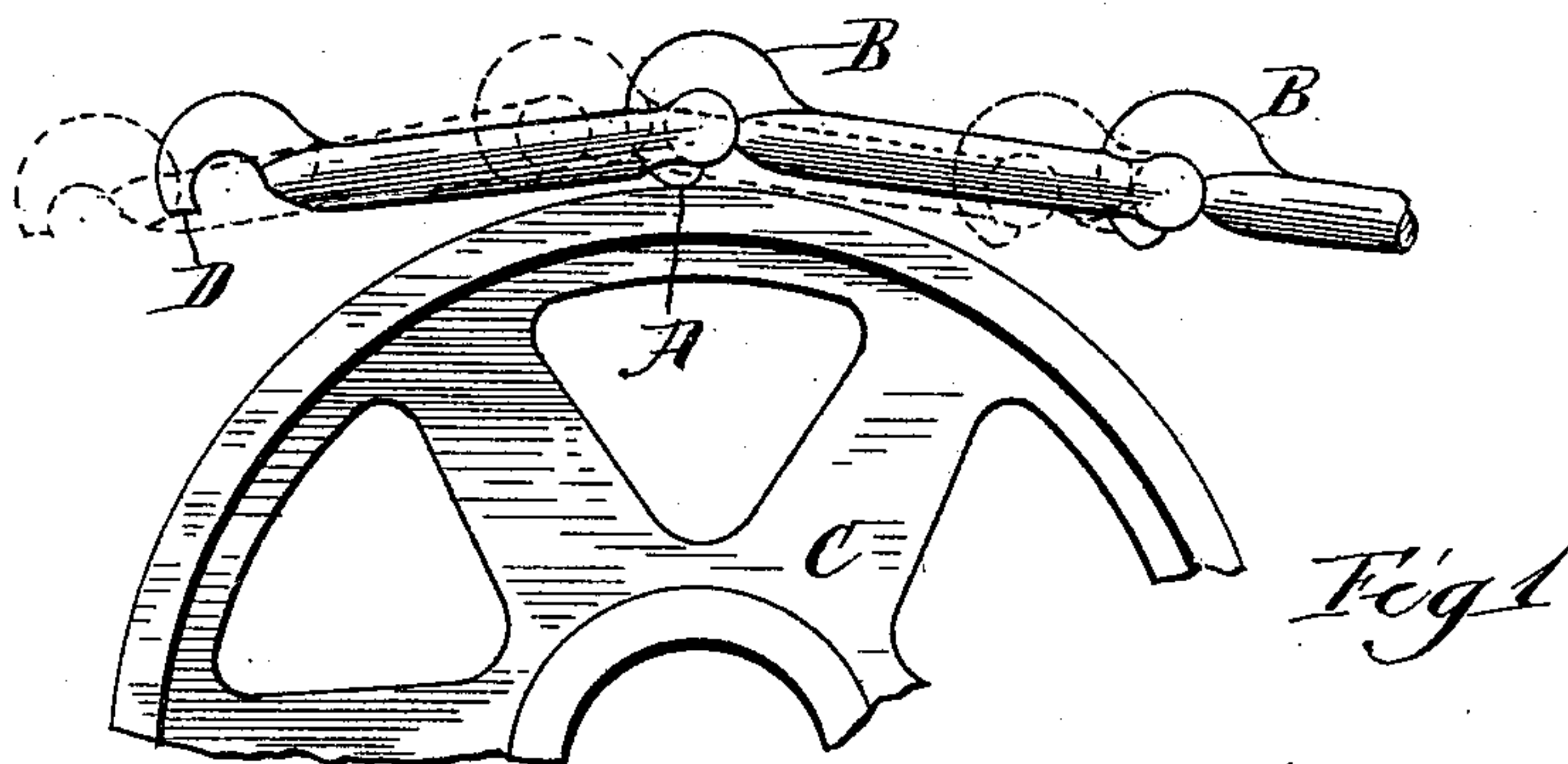
No. 635,789.

Patented Oct. 31, 1899.

J. MACPHAIL.  
CHAIN.

(Application filed Sept. 26, 1898.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

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## CHAIN.

SPECIFICATION forming part of Letters Patent No. 635,789, dated October 31, 1899.

Application filed September 26, 1898. Serial No. 691,864. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES MACPHAIL, a citizen of the United States, residing at Blue Island, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Chains, of which the following is a specification.

My invention relates to an improved construction for links for sprocket and similar chains; and it consists in making the body of the link of such a shape as will prevent the constant whipping of the chain upon the chain-tightener and also the wearing off of the nose of the hook of the links.

Referring to the drawings, in which the same letters of reference are used to designate identical parts in all the views, Figure 1 is an elevation of a portion of the chain-tightener and two or three links of a chain coöperating therewith as ordinarily constructed. Fig. 2 is a similar view showing the links of the chain constructed in accordance with my improvements. Fig. 3 is a plan view of the outer side of one of the links; and Fig. 4 is a side elevation of two of the links as constructed in accordance with my improvement, showing how they are detached.

In almost all machinery in which sprocket-chains or similar driving-chains are employed some form of a chain-tightener is necessary to tighten the chain, and it must necessarily be applied to the outside of the chain. As will be seen from the ordinary construction of the chain, (shown in full lines in Fig. 1,) the nose A of the hook B comes directly in contact with the friction-roller C, and this causes considerable wear upon this nose in case the ordinary friction-roller tightening device is used and still greater wear in case a rigid or non-rotating frictional device is employed. This soon results in wearing off the nose, as seen in the foremost link in Fig. 1 at D. By referring to Fig. 4, which illustrates the method of assembling the links of my improved chain, as well as of any ordinary chain, it will be seen that when the nose becomes worn down, as illustrated at D, Fig. 1, the chain can become detached very easily, as the nose is worn off until the hook forms only substantially a semicircle instead of considerable over a semicircle, as when the hooks

are new. This wear consequently results in rapidly wearing out the chain. Another objection to this form of construction arises from the fact that at the time the nose of the hook is in contact with the friction-wheel of the chain-tightener the body of the link is at some distance therefrom, but as soon as it is advanced a little bit the body of the chain is swung down into contact with the friction-wheel, thus producing a continual whipping motion of the chain, which tends to wear out the bearings of the link, and any wear of these bearings increases the trouble pointed out in connection with the wearing off of the nose, as well as being very disagreeable on account of the noise produced. My invention is designed to remedy both of these evils and consists of forming on the outer portions of the sides E of the link the swelled portions F. As seen in Fig. 2, these swelled portions only come in contact with the friction-wheel, and the nose just clears the friction-wheel, thus avoiding the wear incident to the use of an ordinary chain. Of course it will be understood that I might make the swell of the portion F just sufficient to have the nose A come in contact with the friction-wheel, in which case the wear would be practically unnoticeable, and in order to produce any serious wear the swelled portions F would also have to be worn off. By further reference to Fig. 2 it will be seen that this construction also avoids the whipping of the chain and the consequent wear and annoyance resulting from that.

While I have shown my invention as embodied in the form which I at present consider best adapted for the purposes in hand, it will be understood that I do not limit myself to the exact shape shown and described, but only to such a construction as may be necessitated by the terms of the following claims.

I claim—

1. In a detachable-link chain, a link having one end formed with a bearing-hook, and the opposite end with a cylindrical bearing coöperating with the hook of the adjacent link, and its outer side formed with swelled curved portions projecting into the plane of the nose of the hook to protect it from con-

tact with a chain-tightener or similar article, substantially as and for the purpose described.

2. In a detachable-link chain, a link having one end formed with a bearing-hook, and the opposite end with a cylindrical bearing coöperating with the hook of the adjacent link, and its side E formed with the raised

portions or flanges F F on their outer sides, projecting into the plane of the nose of the bearing-hook to protect it from contact with the chain-tightener, or similar article.

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