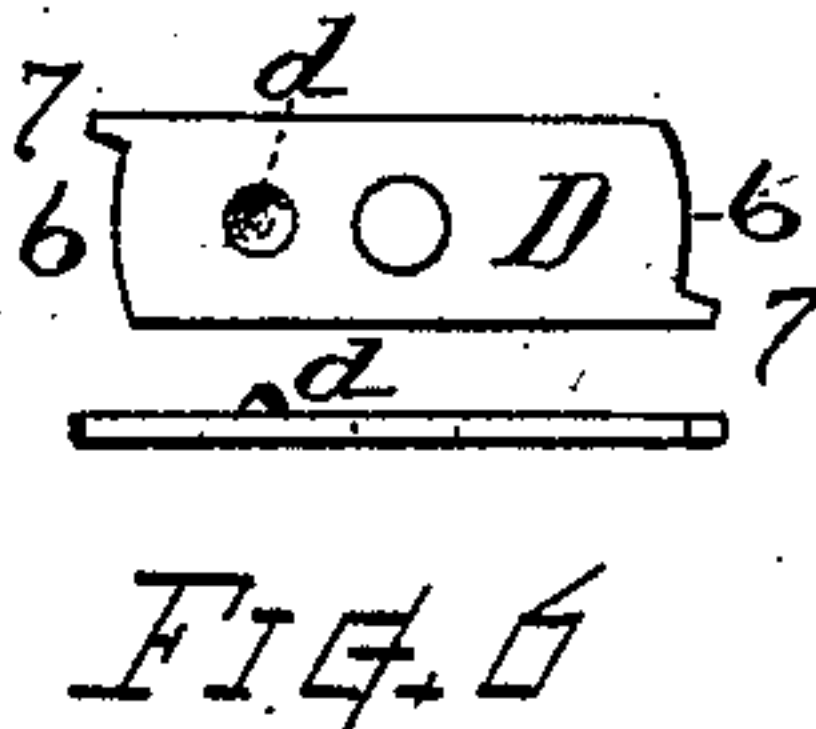
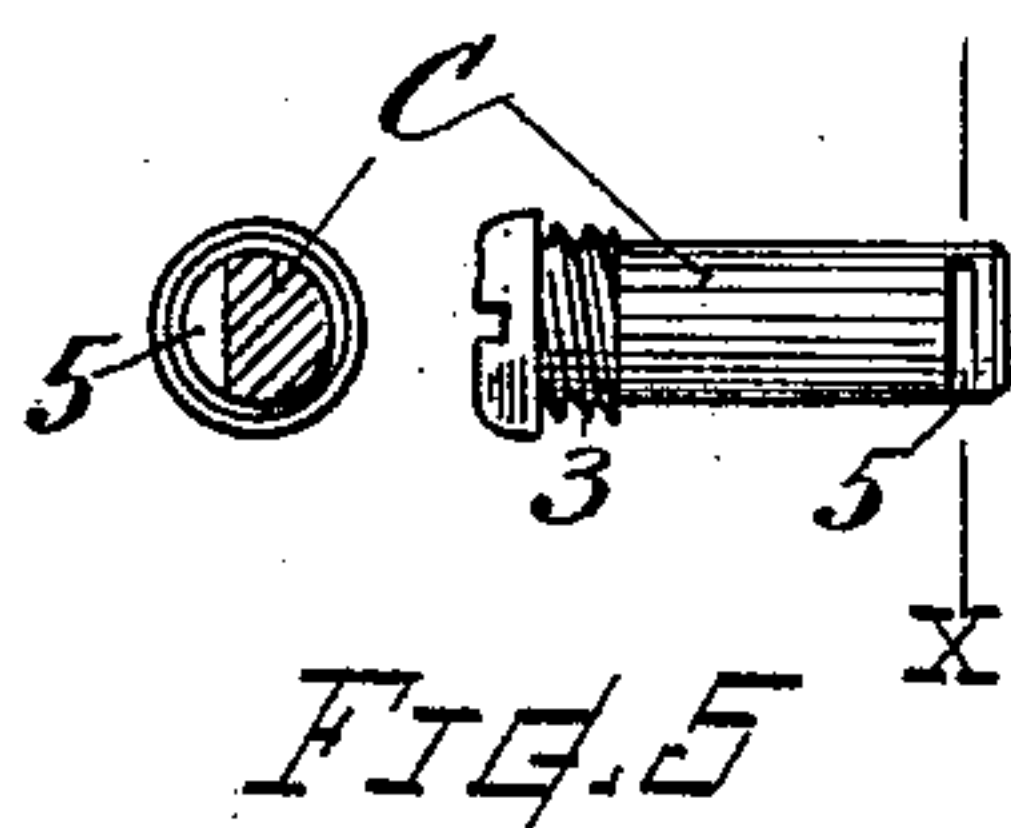
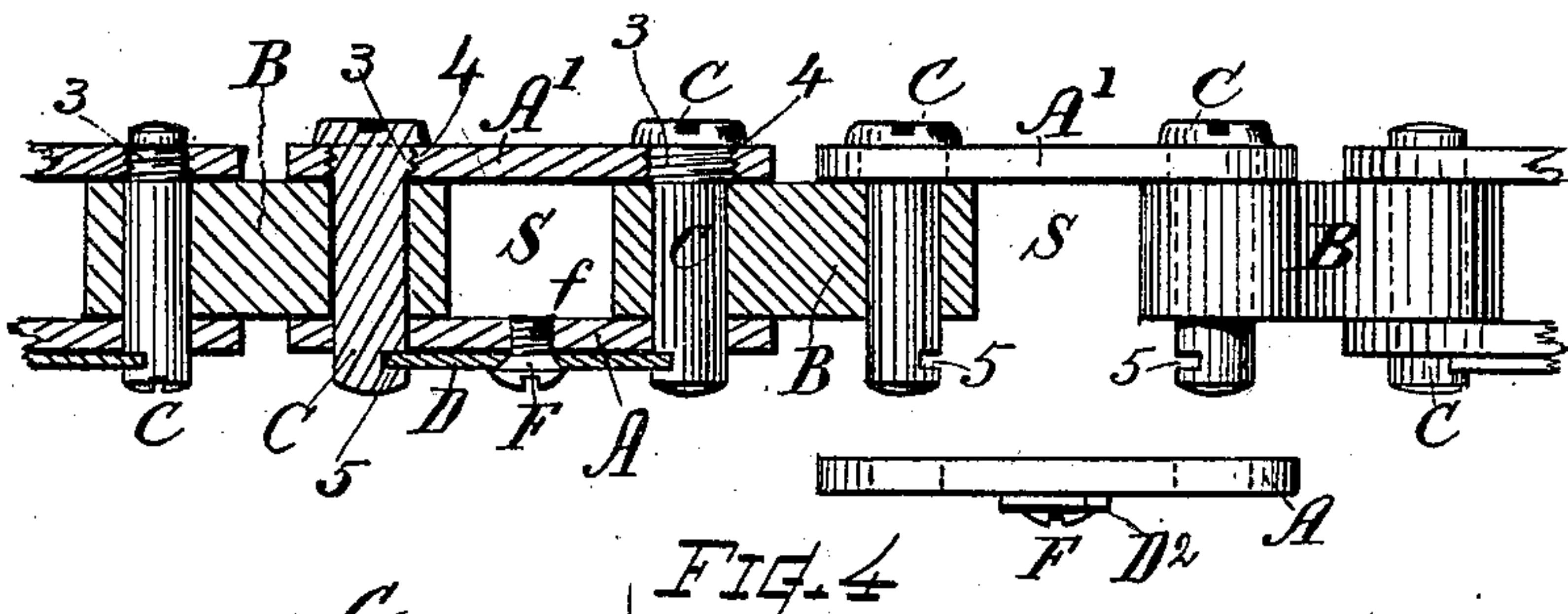
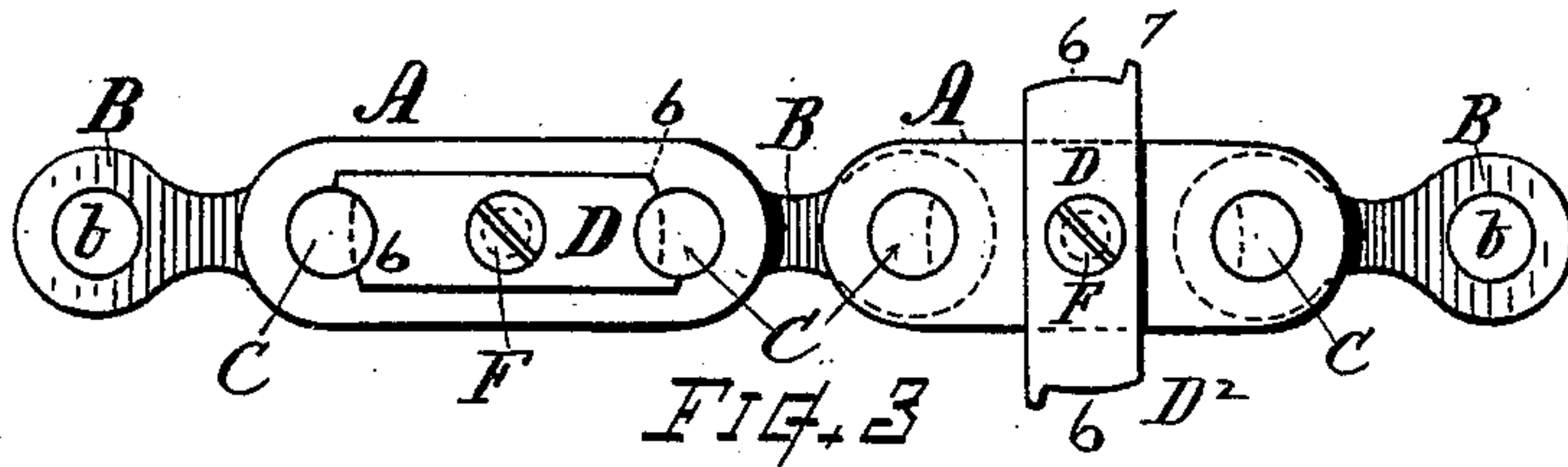
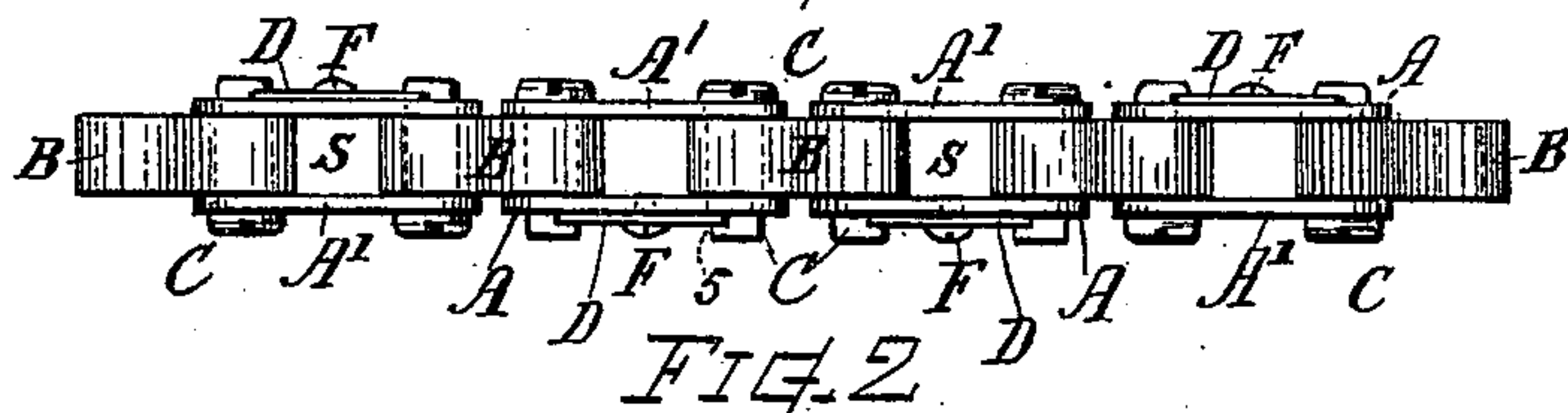
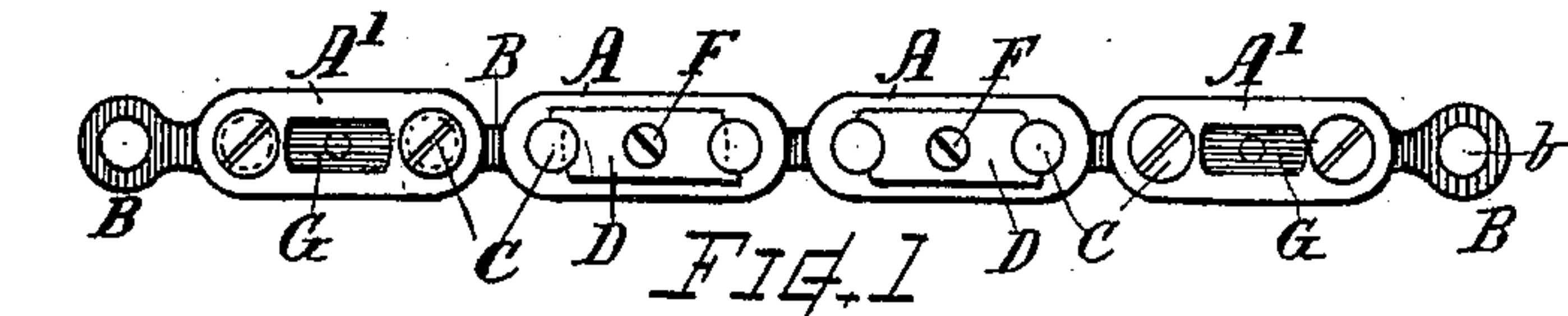


(No Model)

H. M. CALDWELL.
SPROCKET CHAIN FOR BICYCLES.

No. 583,167.

Patented May 25, 1897.



Witnesses.

J. H. Barton
Charles S. Bacon

Inventor.

Homer M. Caldwell
By Chas. H. Burleigh
Attorney.

UNITED STATES PATENT OFFICE.

HOMER M. CALDWELL, OF WORCESTER, MASSACHUSETTS.

SPROCKET-CHAIN FOR BICYCLES.

SPECIFICATION forming part of Letters Patent No. 583,167, dated May 25, 1897.

Application filed June 12, 1896. Serial No. 595,238. (No model.)

To all whom it may concern:

Be it known that I, HOMER M. CALDWELL, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Sprocket-Chains for Bicycles, &c., of which the following, together with the accompanying drawings, is a specification sufficiently full, clear, and exact to enable persons skilled in the art to which this invention appertains to make and use the same.

My invention is more especially designed for the construction of bicycle-chains, the object being to provide a link or chain of links that can be readily assembled on the wheel or conveniently taken apart and put together by the rider at any time or when out on the road, by the aid of a screw-driver or point of a knife-blade, to facilitate repairs or to serve as a parting-link in the connection and disconnection of endless chains of the character specified, as more fully hereinafter explained. This object I attain by a chain or chain-links the parts of which are constructed and arranged in the peculiar manner shown in the drawings, wherein—

Figure 1 is a side view of a sprocket-chain embodying my invention. Fig. 2 is a top view of the same. Fig. 3 is a side view, on somewhat larger scale, showing one lock-bar closed and another released. Fig. 4 is a sectional view showing details of construction. Fig. 5 shows a side and section of the pivot, and Fig. 6 shows the side and edge of a lock-bar.

Referring to parts, A and A' indicate the side-link plates, B the blocks or intermediate links, and C the pivot-pins that connect said links with each other and form hinging-joints to accommodate the flexure of the chain.

The side links consist of comparatively thin flat plates cut from flat wire or sheet metal and perforated near their ends for the reception of the pivot-pins, said links being of such length as will afford the required spaces S for the entrance of the sprocket-wheel teeth between the ends of the successive blocks B in the usual manner. The blocks or intermediate links B are of well-known suitable form, provided with openings *b*, extending laterally through their heads, that movably fit upon the straight cylindrical shaft of the pivot-pins.

The pivot-pins C are best formed as shown, each having a screw-threaded neck 3, that fits a threaded opening 4 in the side link A', and a straight cylindrical shaft that passes through the opening *b* in the block B and side link A and provided near its end with a lateral groove or nick 5, the inner edge of which is flush with the outer surface of the link A when the parts are assembled. Upon the exterior of the link A, I arrange a swinging lock-bar D, centrally pivoted thereto by a binding-screw F and having its respective ends 6 fitted to enter the recesses or grooves 5 of the respective pivot-pins, thereby locking the side link A to the pivot-studs C, which are in turn confined in the side link A' by their screw-threads, the intermediate blocks B being retained between the two side links, as shown.

The link A, to which the lock-bar D is attached, is made solid about the threaded opening *f* for supporting the binding-screw F, which passes through said link, as indicated in Fig. 4. Said screw may, if desired, be slightly upset at its point to prevent its complete withdrawal from the link, but permitting sufficient movement of the screw to release the lock-bar and allow the same to swing thereon.

The link A' may be made either solid or with an opening G through its central portion, as indicated on Fig. 1. For bicycle-chains or where in practice lightness in weight is of importance the latter or open-center style is preferred.

When assembling the parts, the pivot-pins are first inserted or screwed into the side link A'. The blocks B are then slipped onto the pivots. Then the link-plates A, having the lock-bar D thereon turned to lateral position, as at D², Figs. 3 and 4, is placed upon the projecting ends of the pivots, and the lock-bar is then swung around parallel with the link, so that its opposite ends 6 enter the notches 5 in the ends of the respective studs. The binding-screw F is then turned down, binding the lock-bar firmly in position against the side of the link-plate A.

The lock-bars D are best made from thin sheet metal, flat wire, or spring-stock of suitable dimension, the ends of the lock-bar being shaped as shown at 6, Fig. 6, or of such other shape as will swing into engagement

with the side nicks in the pivot-pins and either with or without the projecting lugs 7.

In some instances a single section of chain, such as herein described, comprising the plate 5 A', laterally-grooved pivots C, and removable side link A, with the lock-bar D and binding-screw F, may be employed as a parting-link for bicycle-chains, which are otherwise put together with pivots riveted in or rigidly set 10 into their links, and such use I desire to include within the scope of my invention.

With the chain or links constructed and combined as described the chain can be readily removed from or replaced upon the 15 sprocket-wheel by simply loosening the screw F and swinging up the lock-bar, which can be done with a small screw-driver, the point of a jackknife-blade, or other convenient instrument such as a cyclist may carry, when 20 the link-plate can be slipped off, as shown in Fig. 6. The chain, if broken, can be quickly repaired by inserting a new side link, block, or pivot-pin, as the case may require, and the chain then replaced on the sprocket with the 25 required tension thereon, or without shifting

the adjustment of the sprocket-wheels to allow of the chain being put on. This feature is of importance in bicycle-work.

What I claim as of my invention, and desire to secure by Letters Patent, is— 30

In a sprocket-chain, the combination, of the blocks or intermediate links having pivot-holes therethrough, the side links disposed in pairs, those at one side having screw-threaded openings, and those at the other 35 side having plain openings for removably receiving the pivots, the pivot-pins each fitted with a screw-threaded neck, a cylindrical body portion and a transverse groove or recess across the side of its projecting end, the 40 lock-bar arranged upon the outer side of the removable side link and adapted to engage the recesses in said pivot-pins, and the binding-screw securing said lock-bar to the side-link plate, substantially as set forth. 45

Witness my hand this 8th day of June, 1896.

HOMER M. CALDWELL.

Witnesses:

CHAS. H. BURLEIGH,
WM. H. GATES.