

No. 769,971.

PATENTED SEPT. 13, 1904.

C. E. WHITNEY.
DRIVE CHAIN.

APPLICATION FILED MAR. 5, 1904.

NO MODEL.

Fig. 1.

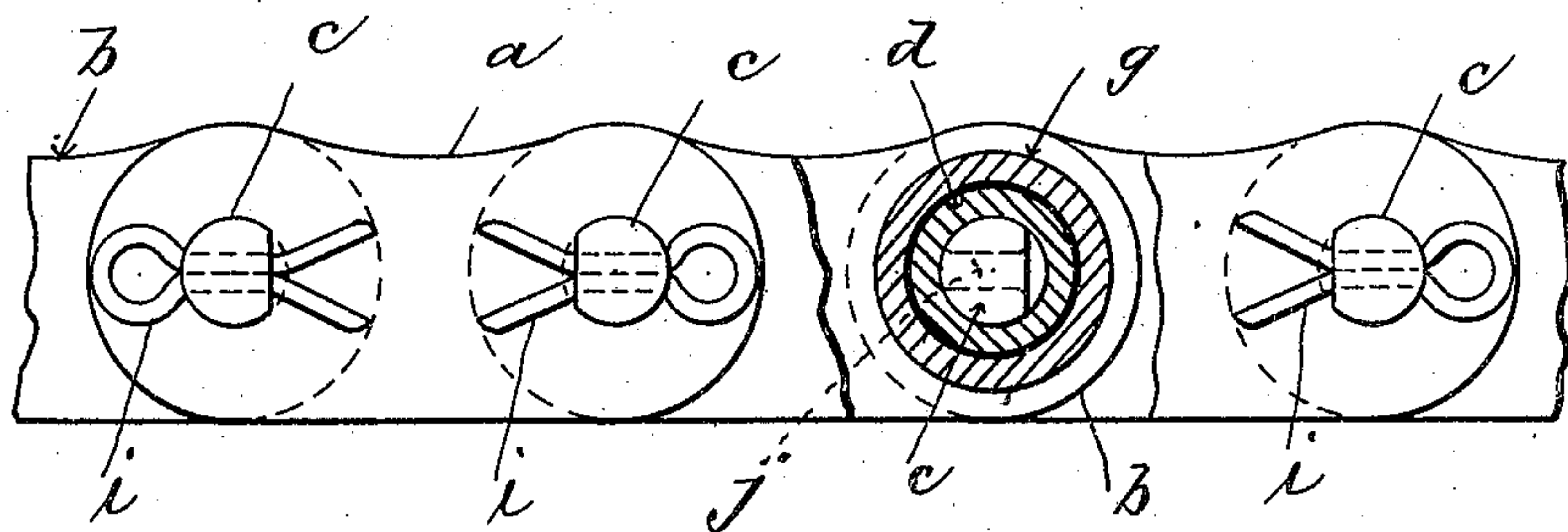


Fig. 2.

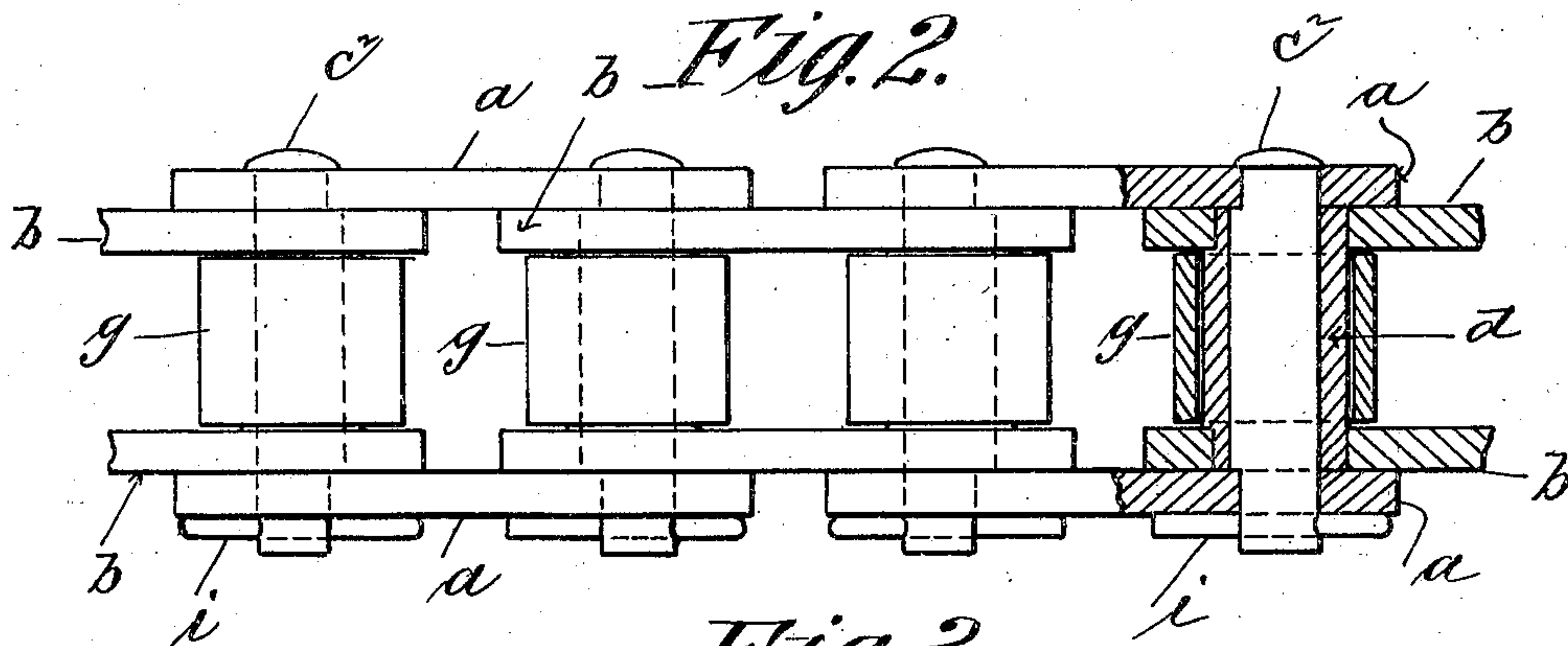


Fig. 3.

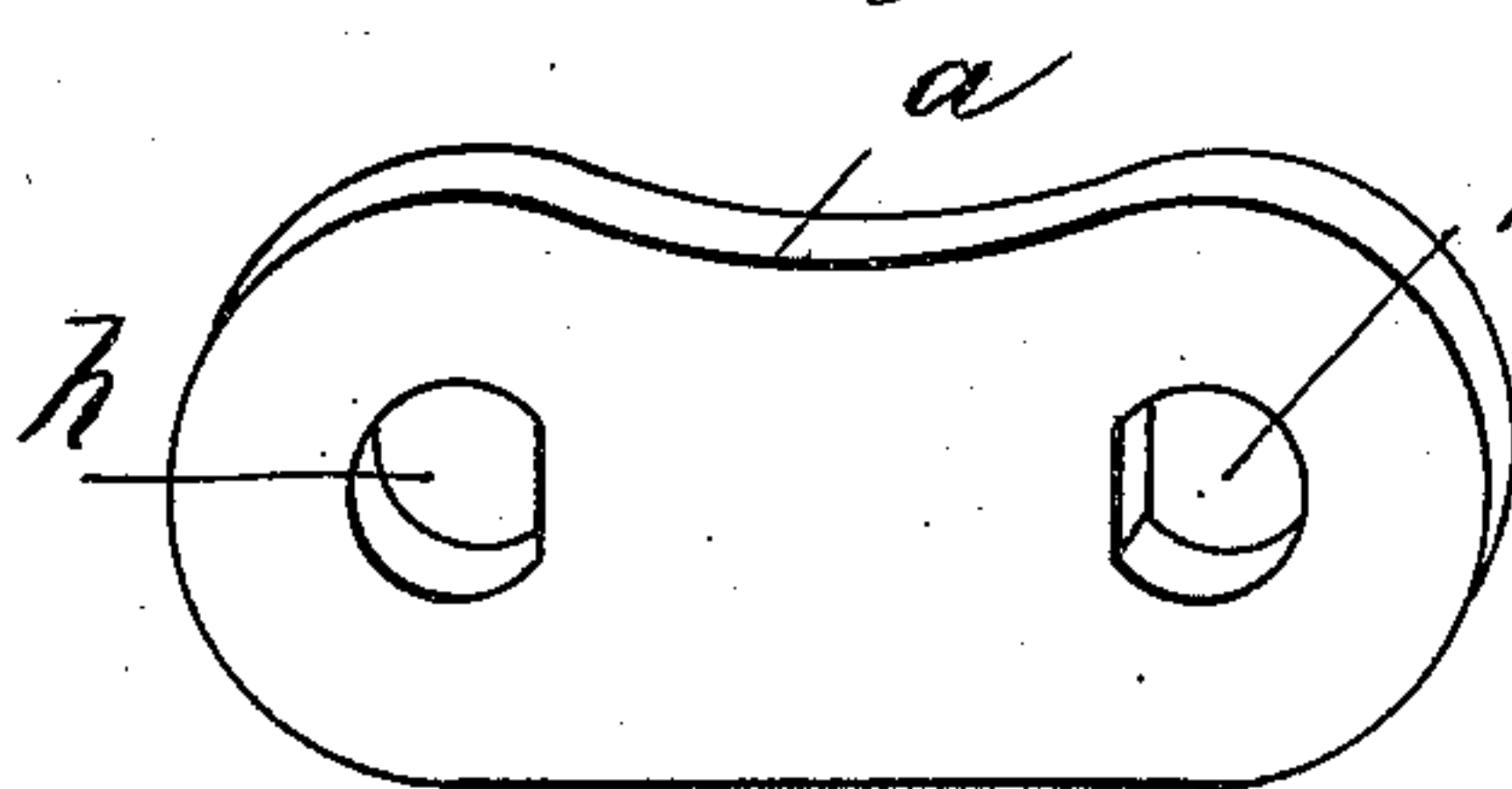


Fig. 5.

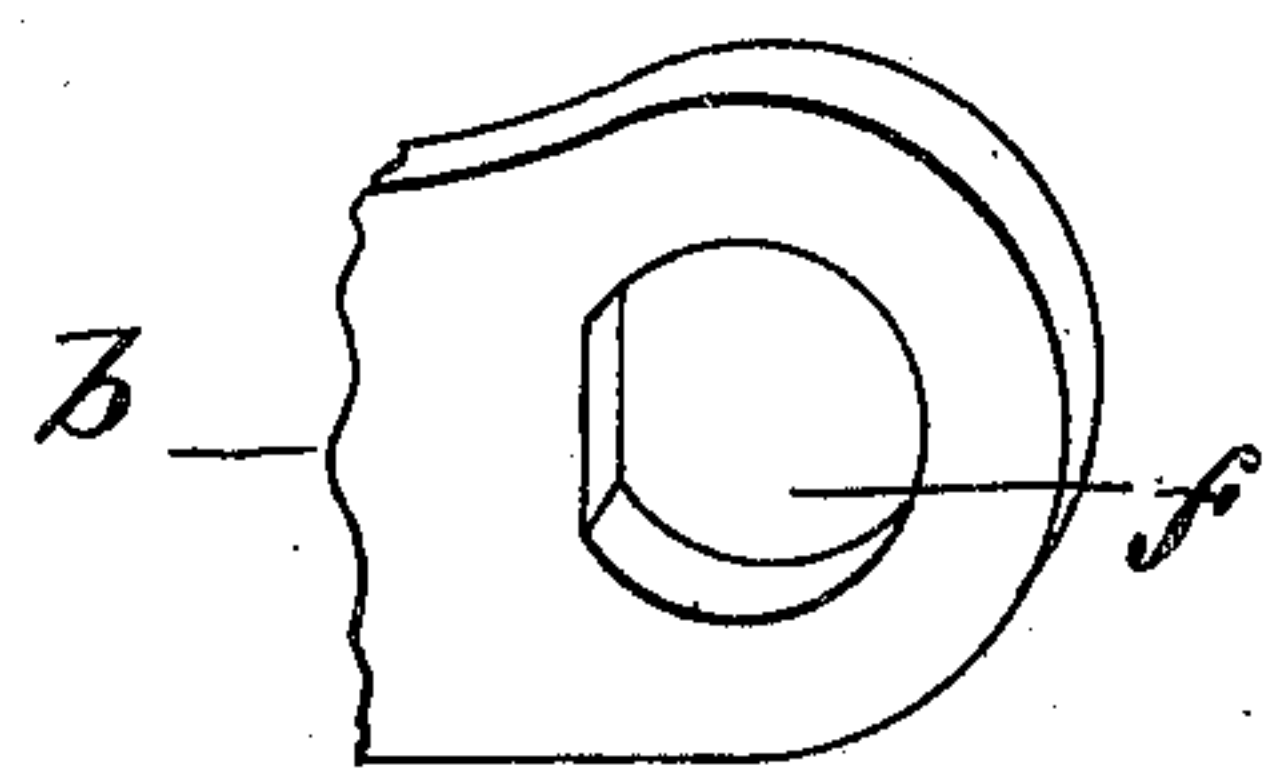


Fig. 6.

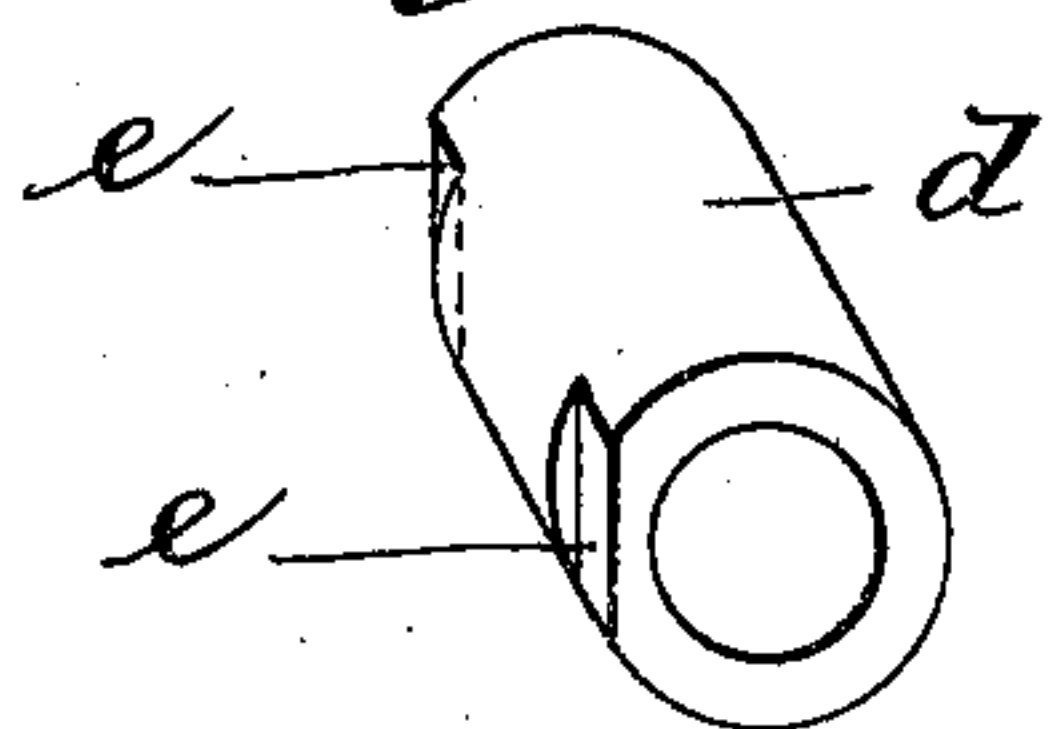
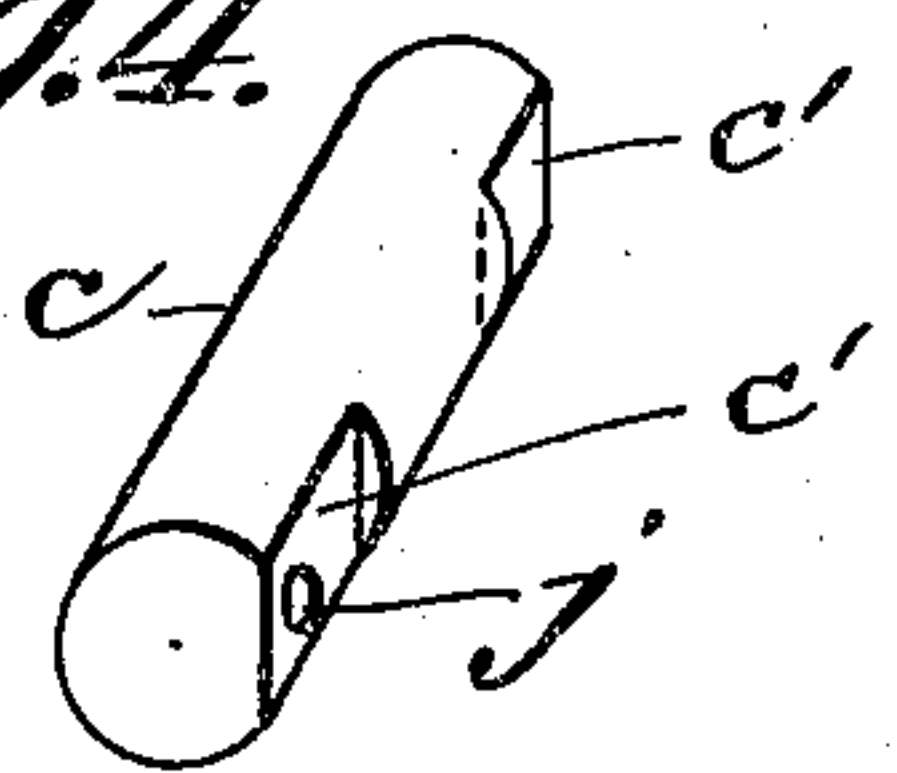


Fig. 4.



Witnesses:
J. H. Gayfield
W. S. Crozier

Inventor:
Clarence E. Whitney
by *Chapman & Co.*
Attorneys.

UNITED STATES PATENT OFFICE.

CLARENCE E. WHITNEY, OF HARTFORD, CONNECTICUT.

DRIVE-CHAIN.

SPECIFICATION forming part of Letters Patent No. 769,971, dated September 13, 1904.

Application filed March 5, 1904. Serial No. 196,640½. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE E. WHITNEY, a citizen of the United States of America, residing at Hartford, in the county of Hartford and State of Connecticut, have invented new and useful Improvements in Drive-Chains, of which the following is a specification.

This invention relates to drive-chains, and it has special reference to chains to drive automobiles, which owing to the high speed of the vehicles and unevenness of the roads are subjected to unusually severe service requirements and must be specially constructed to meet them successfully and in a practical manner. For example, the chain must be or should be separable at any point throughout its length. The pins which secure the links together should be non-rotatable to insure durability. The pins should be hardened and provided with bearing-rolls to provide an easy-running chain.

Practice has demonstrated that owing to the conditions under which the drive-chains of automobiles run it has been found difficult to provide means whereby the links may be separated without slackening the chain and yet be easily manipulated regardless of the accumulations of dust and grit which adhere to the oily surface of the parts; and the object of the present invention is to provide a chain which shall possess to as great a degree as possible all of the above-enumerated requirements and shall include means whereby the easy separation and rejoining of the links at any point on the chain may be effected even though the parts thereof are crusted with dirt.

In the accompanying drawings, which fully illustrate the present invention, Figure 1 is a side elevation, partly in section, of a chain embodying my improved construction. Fig. 2 is a plan view, partly in section, of the same. Fig. 3 is a perspective view of one of the outside links. Fig. 4 is a perspective view of one of the pins. Fig. 5 is a perspective view of one end of a side link. Fig. 6 is a perspective view of one of the bushings fitted over the pins of the chain.

Referring to the drawings, *a* indicates the outer links of the chain, to which the side links *b* are united by the pins *c*.

d indicates a bushing having at each end thereof a flattened surface *e*, the width of which will correspond to the thickness of one of the side links. This bushing is shown in perspective in Fig. 6, and a perforation *f* is made in each end of the side links *b*, adapted to receive the ends of the bushing *d*, whereby two of these side links may be united in parallelism by two of these bushings—as shown clearly, for example, in the sectional portion of Fig. 2—the bushing having a driving fit in the perforations in the links. On each bushing a roll *g* is placed, whereby the frictional contact between the chain and the teeth of the sprocket-wheel may be reduced. The side links *b* are therefore non-rotatably secured to the ends of the bushing. The pins *c* pass through these bushings, which are freely rotatable on said pins, the ends of the latter extending beyond the ends of the bushing far enough to receive the outer links *a*, (one of which is shown in Fig. 3,) and each is provided with perforations *h* near each end thereof which are axially in line with the bushing *d*. Those portions of the pins *c* which extend beyond the side links *b* and receive the outer links *a* are also flattened, as at *c'* in Fig. 4, whereby these outer links when in position on the ends of these pins will be non-rotatable relative to the latter; but as the pins are freely rotatable within the bushing *d* the chain has the same flexibility as though the links were movable, the one on the ends of the bushing and the others on the ends of the pins; but by means of the construction described herein the bearing-surfaces are transferred from the thin links to the broader surfaces of the pin and bushing, whereby much greater durability is attained. When the parts are assembled, the links *a* serve to join together the side links in pairs in the manner shown. The pins *c* are headed over, as at *c''*, on one side of the chain, as shown, whereby the links *a* on that side are removably secured on the pins; but on the opposite side cotter-pins *i* are passed through the ends of the pins *c* in a direction parallel with the line of movement of the chain, as shown, suitable holes, as *j*, Fig. 4, being drilled through the pins for this purpose. The rolls *g* are made somewhat shorter than the dis-

tance between the side links *b* to the end that they may always turn freely on the bushing. Thus a chain is provided which is separable at any point thereon without slackening, and the
5 fastening devices—viz., the cotter-pins—prevent the separation of any of the component parts of the chain when the latter is removed from the sprockets.

Having thus described my invention, what
10 I claim, and desire to secure by Letters Patent of the United States, is—

A drive-chain comprising pairs of links having holes of irregular contour through their opposite ends; bushings to unite said links,
15 the ends of said bushings fitting tightly in said irregular holes flush with the sides of the links, constituting with the latter a rectangular chain element of rigidly-united parts; round

pins to extend through and beyond said bushing, rotatable in the latter, the ends of said
20 pins extending from the bushing outward being flattened on the same side; other links to fit over the flattened ends of the pins to constitute another rectangular chain element, one
25 of each pair of the last-named links being immovably secured on the pins at one end thereof, the other link being removably secured on the opposite end, and cotter-pins to extend
30 through one end of said round pins at right angles to the flattened side thereof to secure said removable links in position.

CLARENCE E. WHITNEY.

Witnesses:

WM. H. CHAPIN,
K. I. CLEMONS.