No. 764,298. PATENTED JULY 5, 1904.

F. LEY.

PITCH CHAIN.

APPLICATION FILED FEB. 24, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

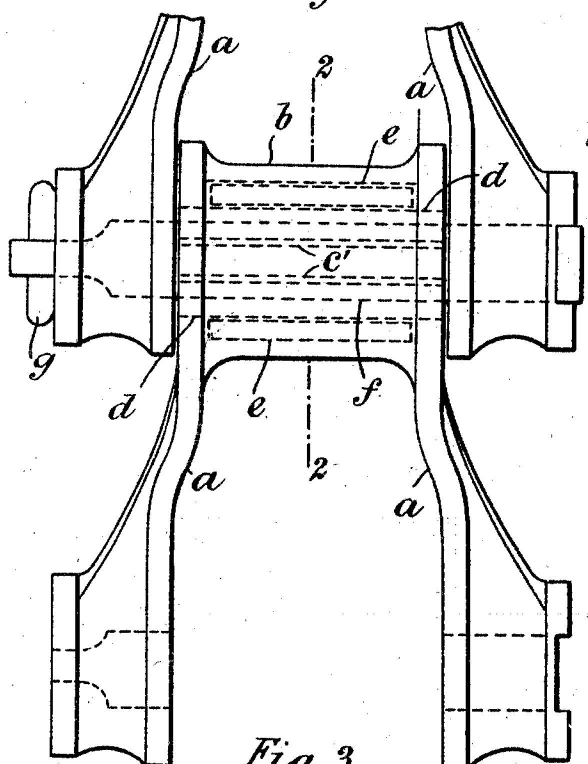


Fig. 2.

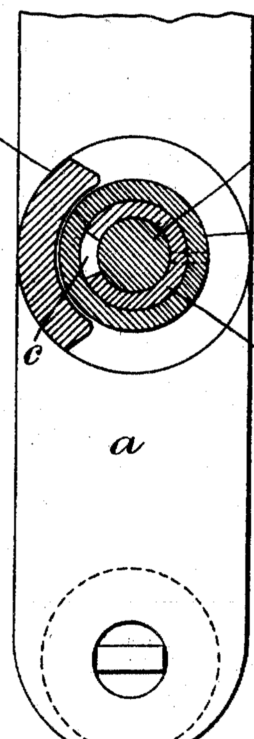


Fig. 3.

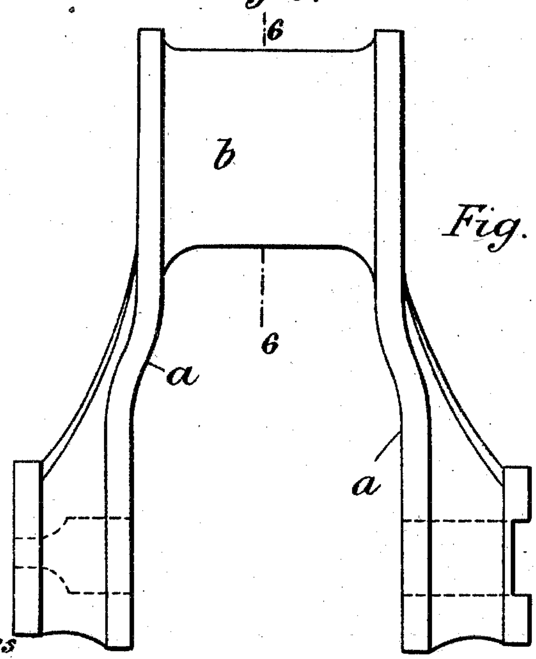
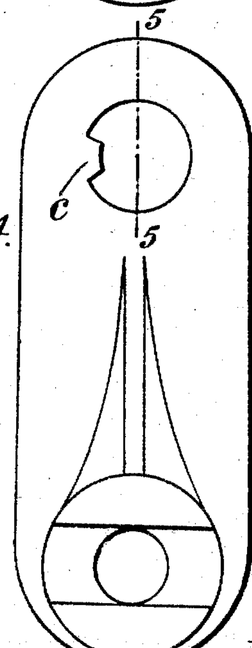


Fig. 4.



Witnesses
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James Dodd.

Inventor
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By his Attorneys,
Baldwin Davidson & Wight.

No. 764,298. PATENTED JULY 5, 1904.

F. LEY.

PITCH CHAIN.

APPLICATION FILED FEB. 24, 1903.

NO MODEL. 2 SHEETS—SHEET 2.

Fig. 5

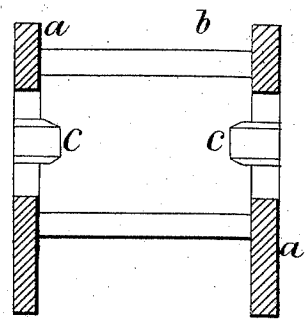


Fig. 6.

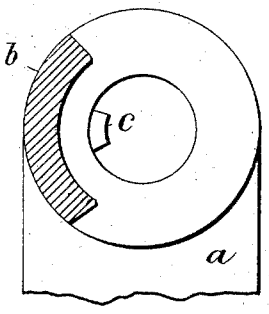


Fig. 14.

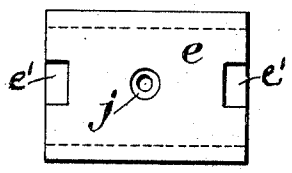


Fig. 7.

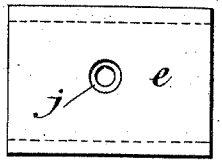


Fig. 8.

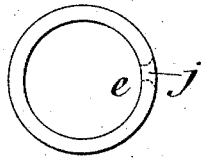


Fig. 15.

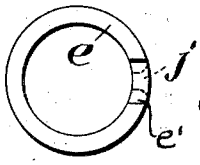


Fig. 9.

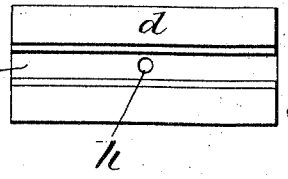


Fig. 10.

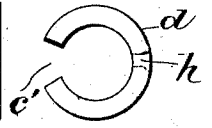


Fig. 11.

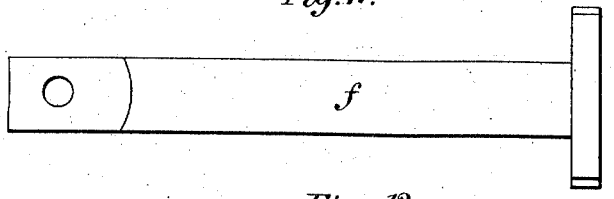


Fig. 13.

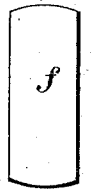
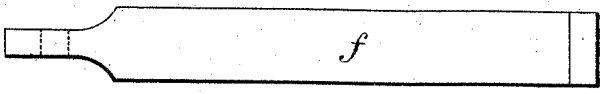


Fig. 12.



Witnesses.

A. M. Parkins.

F. A. Macdonald.

Inventor

Francis Ley,

By his Attorneys,

Baldwin Hardson Wright

No. 764,298. Patented July 5, 1904.

UNITED STATES PATENT OFFICE.

FRANCIS LEY, OF EPPERSTONE MANOR, COUNTY OF NOTTINGHAM, ENGLAND.

PITCH-CHAIN.

SPECIFICATION forming part of Letters Patent No. 764,298, dated July 5, 1904.

Application filed February 24, 1903. Serial No. 144,728. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS LEY, engineer, a subject of the King of Great Britain, residing at Epperstone Manor, county of Nottingham, England, have invented certain new and useful Improvements in Pitch-Chains, of which the following is a specification.

This invention relates to pitch-chains of the known class in which the side bars or side members of each link are made in one piece with and are connected together at one end by a cross-piece segmental in section; and the object of my invention is to provide links of this class with removable parts which may be easily renewed when injuriously worn and which will be subjected to a minimum amount of wear.

In my Patent No. 494,962, of April 4, 1893, I have shown a chain of this general description; but in that patent the part which is subjected to the most surface wear is stationary. According to my present invention I have modified the chain shown in my prior patent in such way that the parts subjected to the most surface wear are made movable or rotatable.

In constructing a chain in accordance with my present invention each link is made to consist of side members provided with openings within which are lugs which engage a tubular bushing extending from one side member to the other and which is locked to the link. A roller is mounted on the bushing and is free to turn thereon, and each link has a segmental cross-piece partly encircling the roller and pins pass through the bushings and the links to connect adjacent links.

In the drawings, Figure 1 is a front view of part of a chain made in accordance with this invention. Fig. 2 shows a section on the line 2 2 of Fig. 1. Fig. 3 is a front view, and Fig. 4 a side view, of one of the links. Fig. 5 is a local section on the line 5 5 of Fig. 4. Fig. 6 is a local section on the line 6 6 of Fig. 3. Figs. 7 and 8 are front and end views of the roller. Figs. 9 and 10 are front and end views of the sleeve or bushing. Figs. 11, 12, and 13 show the pin. Figs. 14 and 15 are front and end views of a roller in which notches are formed in its opposite ends.

a represents the side bars or side members of the link, which are made in one piece with and are connected together by the cross-piece *b* of segmental section. The members *a* have openings in them of smaller radius than the inside of the cross-piece, and projecting radially inward from the circumference of each of these holes is a lug or feather *c*, which may, if desired, as shown in Fig. 5, be prolonged sidewise, so as to project a short distance from the inner faces of the side bars. This projecting portion is tapered, so as to assist in guiding into place the sleeve or bushing *d*, which passes through the openings in the side bars. This sleeve is split or slitted at *c'*, as shown in Figs. 2, 9, and 10, to receive the lugs or feathers *c* and forms a spindle for the roller *e*, which fits between the side bars *a* inside the cross-piece *b*. The links are connected together by pins *f* passing through the sleeves or bushings *d* and secured by keys *g*.

I have stated that lugs *c* may be prolonged sidewise, as shown in Fig. 5. When this is done, the roller *e* should be notched or recessed at its ends, as indicated at *e'* in Figs. 14 and 15; so that it may slip into place. After once in place the roller, which is tubular, may of course revolve around the lugs. When the lugs *c* are not prolonged sidewise, the roller *e* need not be notched.

h and *j* are oiling-holes in the sleeve or bushing *d* and roller *e*.

I claim as my invention—

1. The combination of a chain-link having side members provided with openings, a lug projecting into one of the openings, a tubular bushing extending from one side member to the other and engaging said lug so that it will be locked to the link, and a roller mounted on the bushing, said link having a segmental cross-piece partly encircling the roller, substantially as described.

2. The combination of a chain-link having side members provided with openings, a lug projecting from each side member into the opening, a tubular bushing extending from

one side member to the other and interlocking with the lugs, and a roller mounted on the bushing between the two side members, said link having a segmental cross-piece extending from one side member to the other and made integral with said members, substantially as described.

3. The combination of a chain-link having side members provided with openings, a lug projecting into each opening and forming a key, a tubular bushing slitted throughout its entire length and arranged to enter the openings in the side members of the link and to interlock with the lugs, and a roller mounted on the bushing between the side members, said link having a segmental integral cross-piece partly surrounding the roller, substantially as described.

4. The combination of two side members having openings through them near their ends, a cross-piece of segmental section connecting the side members and being concentric with, but of greater internal radius than the openings, a lug projecting radially inward from the circumference of one of the openings, a tubular bushing passing through the openings and interlocking with the lug, a roller mounted on the bushing between the side members; and a pin passing through the openings and the sleeve.

5. The combination of two side members having openings through them near their ends, a cross-piece of segmental section connecting the side members and which is concentric with, but of greater internal radius than the openings, lugs projecting radially inward from the circumference of the openings and sidewise from the inner faces of the side members, a tubular bushing passing through the openings and slitted to receive the lugs, a roller mounted on the bushing between the side members, and a pin passing through the openings and the bushing.

FRANCIS LEY.

Witnesses:
WINIFRED FISHER,
ALICE KIRKLAND.