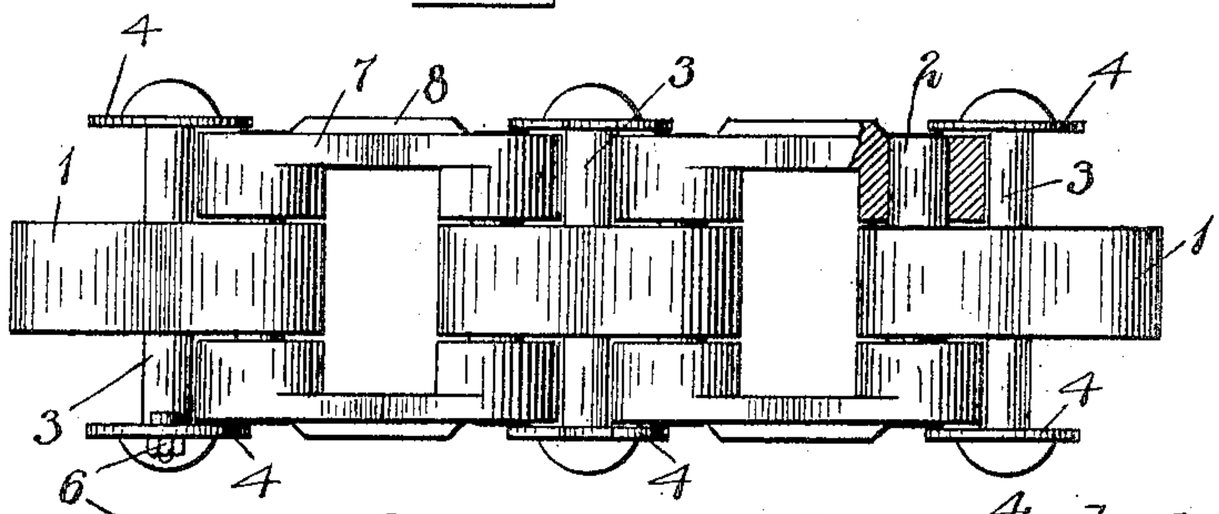
No. 813,229. PATENTED FEB. 20, 1906.

A. D. MORRIS.

DETACHABLE LINK CHAIN.

APPLICATION FILED NOV. 19, 1904.

Fig. 1.



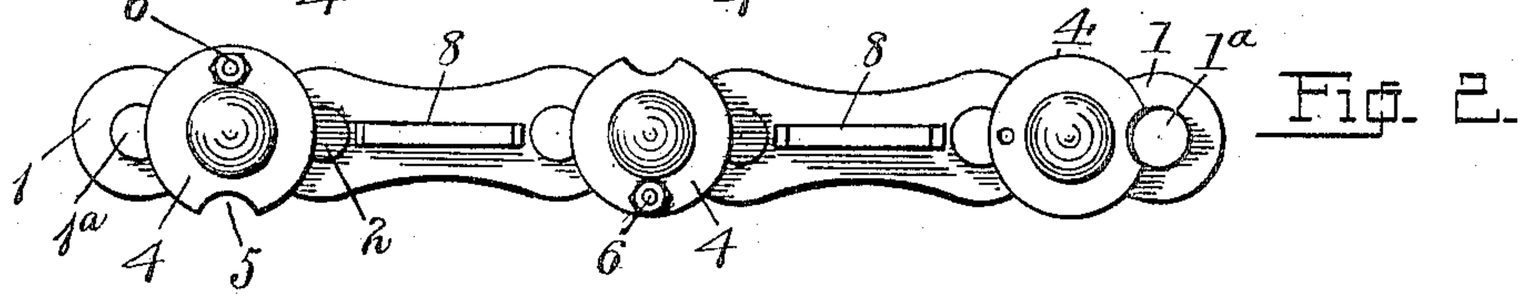




Fig. 2.

Fig. 3.

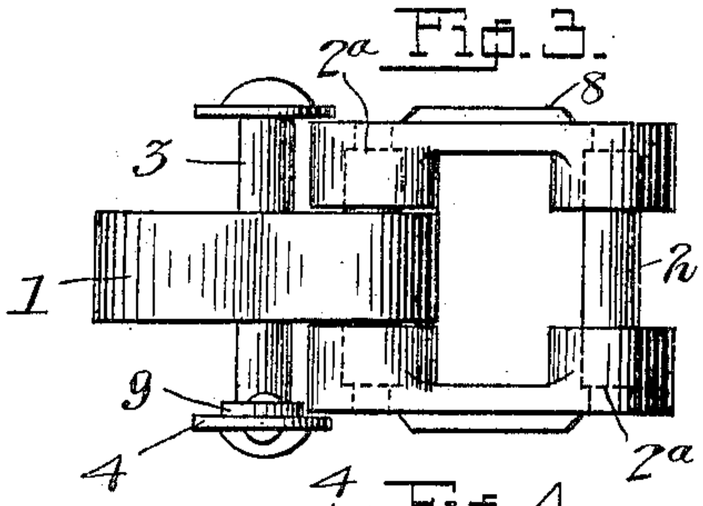
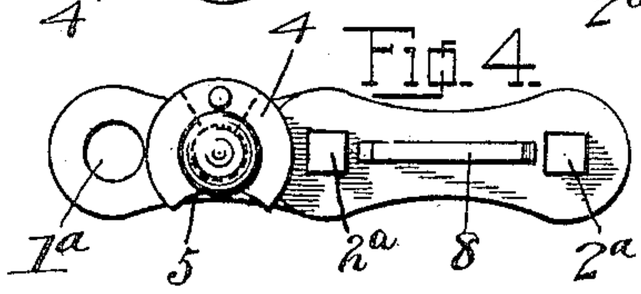



Fig. 4.




Witnesses
Wm. P. Hammond.
E. L. Smith

Archibald D. Morris. Inventor
By his Attorneys Knight Bros.

# UNITED STATES PATENT OFFICE.

ARCHIBALD D. MORRIS, OF NEW YORK, N. Y.

## DETACHABLE-LINK CHAIN.

No. 813,229. Specification of Letters Patent. Patented Feb. 20, 1906.

Application filed November 19, 1904. Serial No. 233,435.

*To all whom it may concern:*

Be it known that I, ARCHIBALD D. MORRIS, a citizen of the United States, residing at New York, in the county of New York, State of New York, have invented certain new and useful Improvements in Detachable-Link Chains, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

My invention relates to detachable-link chains commonly used for power-transmission, driving, conveying, and analogous purposes, and more particularly to certain improvements upon the detachable-link chain fully set forth and described in United States Letters Patent No. 762,335, granted to me June 14, 1904.

Referring to the drawings, Figure 1 is a plan view illustrating one form of my improved detachable-link chain. Fig. 2 is a side elevation thereof. Fig. 3 is a plan view illustrating a modification of my improved detachable-link chain. Fig. 4 is a side elevation thereof.

My improved construction of chain is made up of a plurality of journal link members, some of the link members being so positioned with relation to the remaining link members as to lie interjacently to them and all being detachably connected one to another in a manner hereinafter fully explained.

Referring to Figs. 1 and 2, the interior link members are formed with body portions 1, having borings or journal-openings $1^a$ adjacent to the ends thereof for the reception of spindles 2, which form a journal-axis for the exterior link members. Through the center of the interior link members retaining-pins 3 are rotatably mounted. On the extremities of these retaining-pins disks 4 are rigidly connected by means of riveting the ends of said pins. These disks are of such a size as to normally overlap a portion of the end surface of the pins 2. These disks afford a limited bearing-surface for the sides of the exterior link members and also retain the spindles and exterior link members in operative position. The disks have circular cut-out portions 5 to permit, when the same are brought into register or alinement with the borings of the exterior link members, the withdrawal of the spindles 2, so that the members can be separated. Bolts 6 are rigidly connected to these disks for the purpose of locking the same against rotative movement, thus preventing the disassembling of the separate link members. The exterior link members 7 are formed with borings or journal-openings adjacent to their ends, the same conforming to the borings of the interior link members, and are adapted to be rotatably connected thereto and retained by means of the spindles 2 and retaining-pins 3. The exterior link members are formed with reinforcing-strips 8 to give requisite strength and rigidity to said members.

In the form of chain in Figs. 3 and 4 the circular cut-out portions 5 of the disks are enlarged, so as to conform to the contour of the periphery of either extremity of the exterior link members for the purpose of allowing said exterior link members to be withdrawn from their journal-axes, thus insuring the ready assembling or disassembling of the chain. Owing to these enlarged cut-out portions 5, it is necessary to rivet or otherwise rigidly connect a cam-plate 9 to disk 4, which will prevent the disks from rotating far enough to allow the accidental dislodgment of the exterior link members from their journal-bearings. The ends of the spindles 2 used in this modified form terminate in square studs $2^a$, adapted to snugly fit in the square bores of the exterior link members. The spindles 2 being keyed in the square bores of the exterior link members will of course limit the interior link members to an oscillatory movement, thereby limiting the friction on the spindles 2 to those portions which form the journal-axes for said interior link members. In this modified form it is not necessary to make the disks as large as above described in relation to Figs. 1 and 2, because the exterior link members themselves perform the function of keeping the journal-pins in position by reason of their being formed and keyed as above described.

The operation of assembling and disassembling the link members of the chain is as follows: Referring to Figs. 1 and 2, a retaining-spindle 3 is inserted through the center boring or journal-opening of an interior link member 1. The exterior link members are then so placed in relation to said interior link members as to have the borings or journal-openings $1^a$ in both members in alinement or register with one another. Disks are mounted upon the extremities of said retaining-spindle and held rigidly in position by riveting the same thereto. Then the disks are revolved, so as to bring the cut-out portions 5 in register with the borings or jour-

nal-openings 1a, thus allowing the insertion of the spindles 2. The disks are then rotated a short distance and the bolts 6 inserted. This will prevent the disks from rotating far enough to allow the withdrawal of the spindles. In the form of chain as illustrated in Figs. 3 and 4 the spindles 2 are first inserted in the boring or journal-openings 1a and the disks so positioned as to allow the exterior link members to pass and seat themselves upon the ends of the spindles 2. The disks are then revolved and the cam-plates 9 rigidly attached by means of bolts or rivets, the purpose of these cam-plates being to prevent the rotation of the disks, and thus insure against accidental dislodgment of the link members.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a detachable-link chain, the combination of the interior link members with the exterior link members, pins connecting said exterior and interior members, and rotatable retaining-pins formed with flanges overlapping the exterior link members, said flanges normally retaining the members in operative relation.

2. In a detachable-ling chain the combination of the interior link members with the exterior link members, said members being detachably connected one to another, and retaining-pins journaled within said interior link members, said retaining-pins controlling the assembling and disassembling of the chain.

3. In a detachable-link chain the combination of the interior link members with the exterior link members, said members detachably connected one to another, and retaining-pins journaled within said interior link members, said retaining-pins being formed with flanges normally overlapping said exterior link members for holding the link members in proper operative relation.

4. In a detachable-link chain the combination of the interior link members with the exterior link members said members being detachably connected one to another, pins journaled centrally within said interior link members having disks rigidly connected thereto, and locking-dogs connected to said disks for preventing the disassembling of the link members.

5. In a detachable-link chain, the combination of the exterior link members with the interior link members, and means for detachably connecting said members together, said means comprising retaining-pins journaled centrally within the interior link members, said retaining-pins having overlapping ends having portions thereof cut away to conform to the periphery of the extremities of the exterior link members, said retaining-pins connecting the members and normally holding them in operative relation.

6. In a detachable-link chain, the combination of the exterior link members with the interior link members, said members being detachably connected one to another, retaining-pins journaled centrally within said interior link members, said pins having disks partially cut away and which normally overlap said exterior link members, and dogs detachably connected to said disks for preventing the disassembling of the link members

7. In a detachable-link chain the combination of the exterior link members with the interior link members, means for detachably connecting said exterior and interior link members, said means comprising spindles rotatably mounted within the extremities of the interior link members and being keyed in the exterior link members, and pins rotatably mounted centrally within the said interior link members, having disks partially cut away for connecting and normally holding the members in operative relation.

8. In a detachable-link chain, a plurality of link members, some of said link members being interjacent of the other of said link members, and retaining means comprising disks, connected to the interjacent members for connecting the members and for controlling the assembling and disassembling of the link members.

9. In a detachable-link chain, the combination of a plurality of link members, some of said link members being interjacent of the other of said link members, pins connected to said interjacent members, said pins having connected at their extremities disks partially cut away, said disks normally holding the members in operative relation and controlling the disassembling of the said link members.

10. In a detachable-link chain the combination of the exterior link members, interior link members having eyes or openings adjacent to their ends, pins engaging both members for connecting them, and adjustable retaining means comprising disks, connected to the interior link members for controlling the assembling and disassembling of the link members.

ARCHIBALD D. MORRIS.

Witnesses:
W. P. Hammond,
P. F. Sonnek.