(No Model.)

H. B. DIERDORFF.

DRIVE CHAIN.

No. 430,631. Patented June 24, 1890.

Fig. 1.

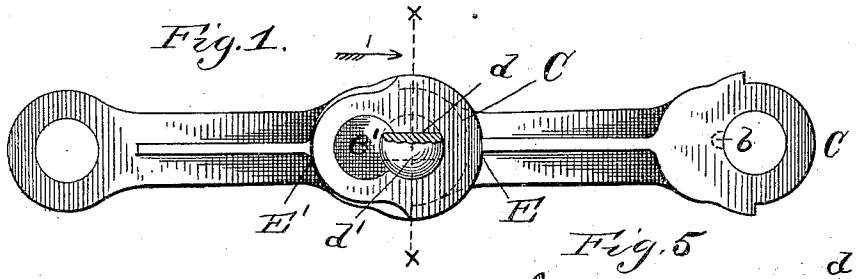


Fig. 5

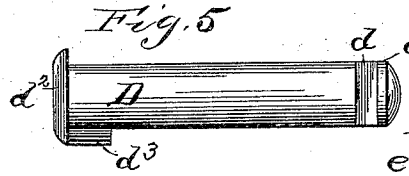


Fig. 7.

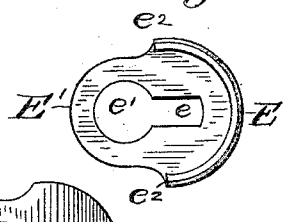


Fig. 2.

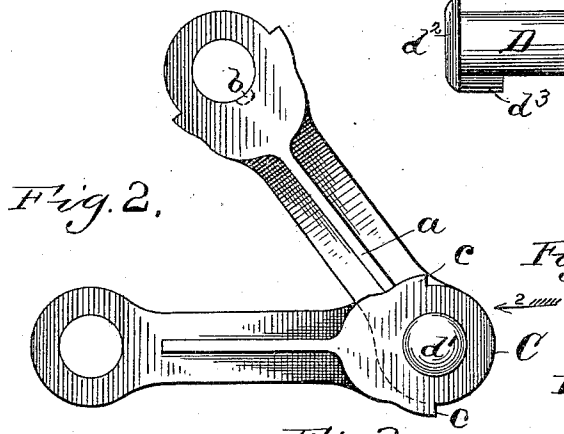


Fig. 6.

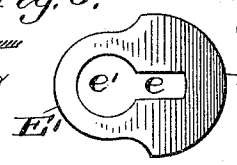


Fig. 3.

Fig. 8

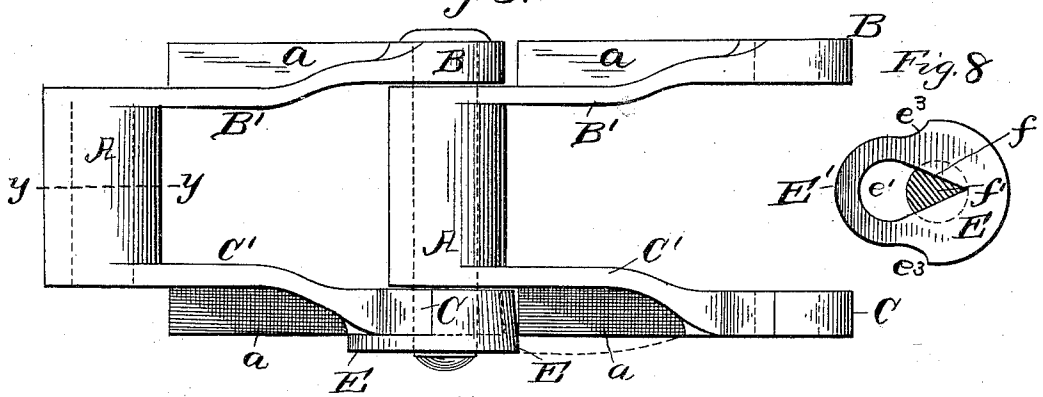
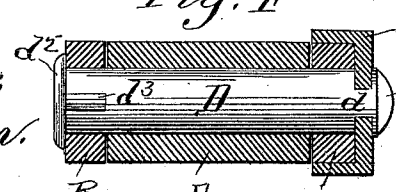


Fig. 4



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HENRY B. DIERDORFF, OF COLUMBUS, OHIO, ASSIGNOR TO JOSEPH A. JEFFREY, OF SAME PLACE.

DRIVE-CHAIN.

SPECIFICATION forming part of Letters Patent No. 430,631, dated June 24, 1890.

Application filed March 8, 1889. Serial No. 302,478. (No model.)

To all whom it may concern:

Be it known that I, HENRY B. DIERDORFF, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Drive-Chains, of which the following is a specification, reference being had therein to the accompanying drawings.

Figure 1 is an edge view of a chain containing my invention with the links straightened out into working position. Fig. 2 is an edge view of two links in position for coupling or uncoupling, with the pintle-lock removed. Fig. 3 is a plan view. Fig. 4 is a transverse section on line *x x*, Fig. 1, looking in the direction of the arrow 1, the pintle being in full lines. Fig. 5 is a view of the pintle. Fig. 6 is a detached front view of the pintle-lock. Fig. 7 is a reverse view of Fig. 6. Fig. 8 is a detached view of a modified form of the pintle-stop.

Prior to my invention Patent No. 376,325 showed a keeper rigidly attached to the side bars which carry them and immovable relatively thereto, such keepers being provided with elongated slots conforming in size and shape to the heads of the pintles which are thrust through them, the adjacent portions of the pintles being of such size that when the pintles are turned around about a quarter of a revolution the locking-plates on their ends will be turned crosswise of the keepers, and thus prevent the pintles from being withdrawn. Patent No. 378,173 shows a pintle provided with a flange or lip projecting laterally therefrom and immovable relatively thereto, the adjacent side bar being recessed to receive the flange or lip. In my invention I propose to secure the pintle against endwise withdrawal by means of locks which are separate and apart from both pintles and side bars, and which are movable relatively to both the pintle and the side bar, as will be hereinafter fully explained and pointed out.

A is the tubular end bar; B B′ C C′, the side bars of a U-shaped link of substantially a well-known form, except that the end C of one of the side bars is provided with shoulders or stops, preferably as indicated at *c c*, for a purpose to be explained. The extreme outer end of this side bar is by preference circular, being described upon an arc of which the center of the pintle-seat is the center. The pintle D is circular throughout its entire length, except that it is flattened upon both sides, as at *d*, Figs. 1, 4, and 5, leaving enlargements, flanges, lips, or shoulders *d′*. As indicated, this pintle has also a spline at the opposite end just inside the head d^2. The side bar B B′ is notched, as indicated in dotted lines at *b*, Figs. 1 and 2, to receive the spline d^3.

E E′ is a pintle-lock provided with a key-hole-shaped opening *e e′*, of which the portion *e* is adapted to receive and fit somewhat closely the flattened portion *d* of the pintle, the portion *e′* of the opening being of such size that it can be passed freely over the flanged end *d′* of the pintle.

e^2 is a flange projecting inward from the part E of the lock and overlapping the end C of the side bar, which it fits.

e^3 e^3 are shoulders on the pintle-lock adapted to engage with the stops *c c* on the side bar and limit the movement of the lock. The outer face of the part E and its flange e^2 are concentric to the center of the pintle.

From an examination of the drawings it will be readily understood that when two links are placed at an angle to each other, substantially as indicated in Fig. 2, with the pintle in its seats, the flattened locking part *d* will project beyond the plane of the outer face of the adjacent end C of the side bar, (see Fig. 4,) and that when the parts are in this position the pintle-lock can be slipped over the flanges *d′* and then moved inward until the locking part D of the pintle is seated in the portion *e* of the opening in the pintle-lock, with the shoulders e^3 in contact with or in close proximity to the stops *c c* of the side bar. Then by straightening the links out the flange or web *a* will swing around the outer face of the part E and flange e^2 of the pintle-lock, so that this lock cannot move backward. When the links are thus in working position, the pintle cannot turn round in its seats in the end bars by reason of the engagement of the flattened locking part *d* with the part of the pintle-lock in which the portion *e* of the opening is

situated, the shoulders e^3 engaging with the stops c, preventing the pintle-lock from rotating. Therefore the articulation is formed by the tubular end bar A and the central part of the pintle. Of course the pintle-lock cannot move outward, because of the engagement therewith of the web a of the adjacent link.

As shown in full lines, the pintle-lock proper—that is to say, the flat plate E E′—lies outside the plane of the outer edges of the webs a a, with the ends of these webs engaging with the inward-projecting flanges e^2, which arrangement I prefer because of the increased wearing-surface thereby provided, although the function and practical operation of the parts would be substantially the same in case the flange e^2 were omitted and the web widened out, as indicated in dotted line, Fig. 3, so as to overlap the adjacent part of the pintle-lock. I prefer to make this flange e^2 of practically uniform thickness throughout in order to obtain a satisfactory distribution of metal at the end C of the side bar with a circular outer face of the flange, but do not wish to be limited to such precise construction. So, also, I prefer to employ the flange e^2 to engage with the shoulders c c on the side bar; but it is evident that the side bars might be expanded outward into ears or lugs projecting into the plane of the part E E′ to engage with the shoulders e^3; but to avoid as far as possible irregularities in outline, and especially angular projections, I prefer the construction shown.

In Fig. 8 I have shown a modification in which the part f of the opening in the pintle-lock is V-shaped to receive a correspondingly-shaped section f' of the pintle, the positions of the overlapping flanges at the end of the pintle being indicated in dotted lines. One objection to this form of the pintle and pintle-lock is this: The V-shaped or wedging form practically prevents any frictional contact between the sides of the pintle and the adjacent edges of the pintle-lock, whereas with the parallel sides shown in the other figures the parts e of the opening are of such size that its bounding walls or edges fit tightly the sides of the reduced portion d of the pintle and prevent outward movement of the pintle-lock under ordinary circumstances, so that the stop a might be dispensed with without danger of accidental displacement of parts during use under ordinary circumstances. Hence I do not wish to be limited to the use of any devices specially for the purpose of serving as positive stops to retain the pintle-lock in working position. I have shown a spline d^3 at the opposite end of the pintle; yet it is apparent that it may be dispensed with.

While I have shown the best mode now known to me for carrying out my invention, I do not wish to be limited to the precise details of construction herein shown or described, because many modifications thereof will readily suggest themselves to any one skilled in the art of chain-making without going outside of or departing from the spirit of my improvement. For instance, the tubular end bar might be divided on the line y y, Fig. 3, to facilitate the application of an anti-friction roller.

What I claim is—

1. In a chain, the combination, with adjacent links and a pintle which connects the links, of a movable pintle-lock and stops carried by the chain-link to prevent rotation of the pintle-lock, substantially as set forth.

2. In a chain, the combination, with adjacent links and a pintle which connects the links, of a sliding pintle-lock having a curved surface and a projection on one of the links which engages with the curved surface of the pintle-lock, substantially as set forth.

3. In a chain, the combination, with adjacent links and a pintle which connects the links, of a movable pintle-lock provided with a flange projecting inward adjacent to the end of one of the side bars and a stop carried by an adjacent link and adapted to engage with the flange, substantially as set forth.

4. In a chain, the combination, with adjacent links and a pintle which connects the links, of the sliding pintle-lock E E′, provided with the curved portion, and the stop a, carried by an adjacent link, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY B. DIERDORFF.

Witnesses:

ROBERT BELL,

HARRY B. ARNOLD.