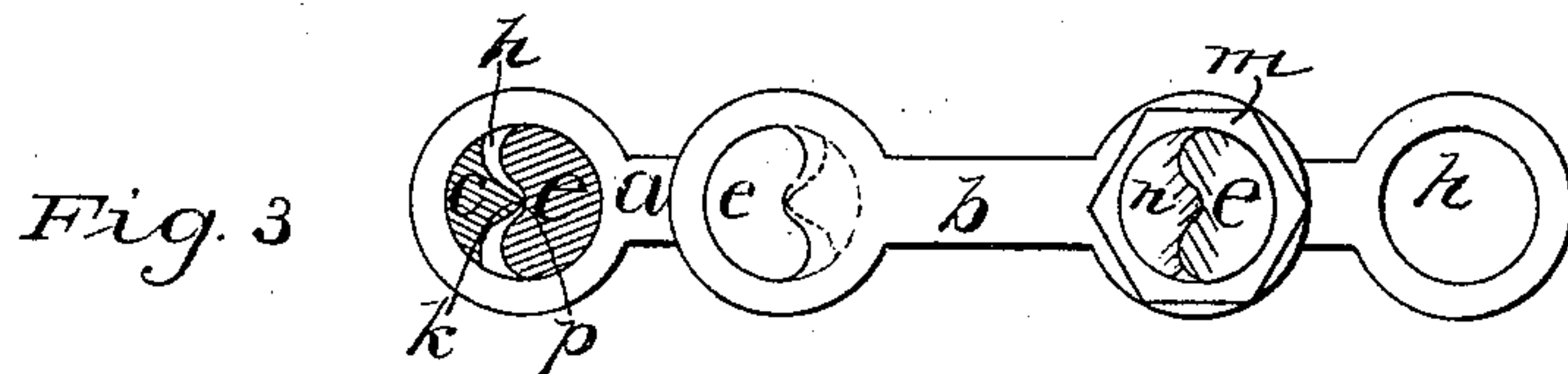
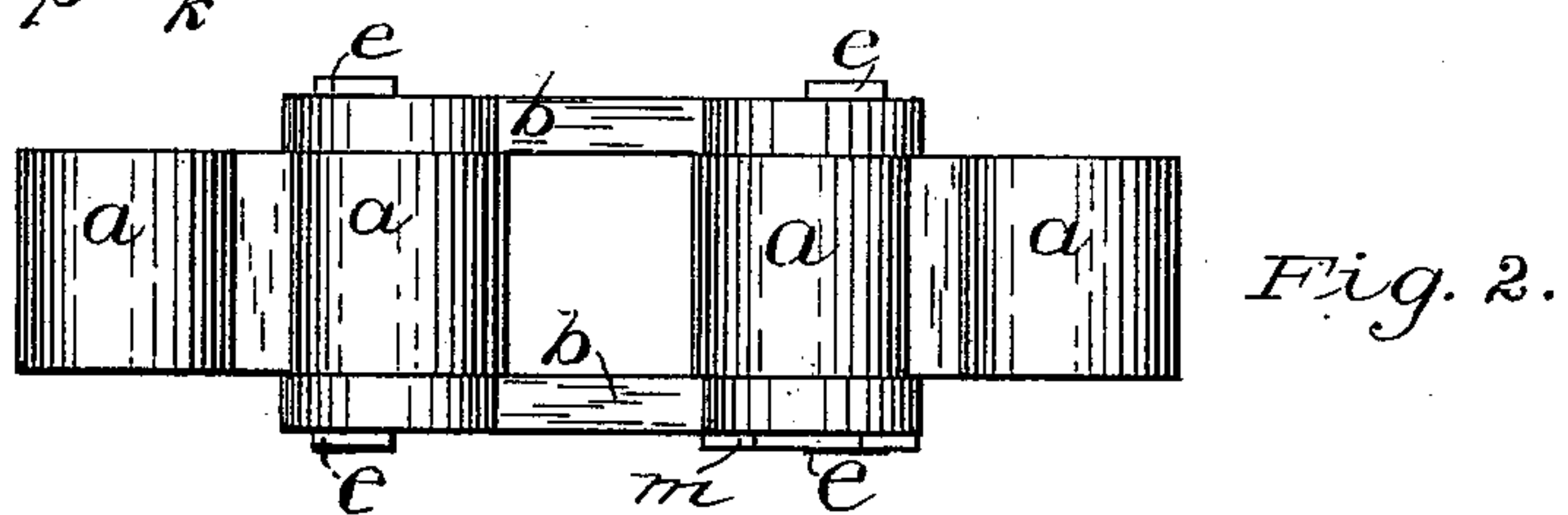
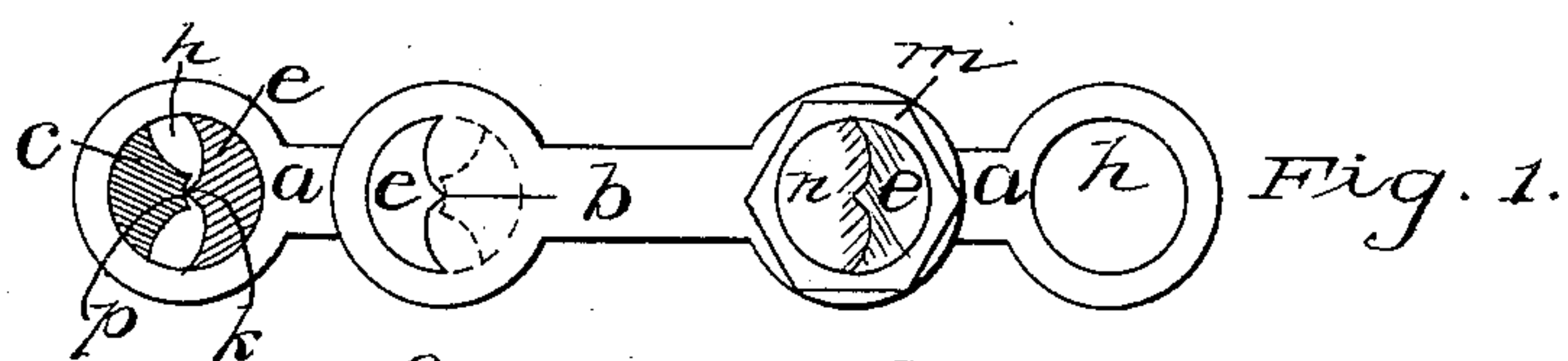


(No Model.)

E. F. MORSE.  
DRIVING CHAIN.

No. 583,150.

Patented May 25, 1897.



WITNESSES:  
*Holland C. Gregg.*  
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INVENTOR:  
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# UNITED STATES PATENT OFFICE.

EVERETT F. MORSE, OF TRUMANSBURG, NEW YORK.

## DRIVING-CHAIN.

SPECIFICATION forming part of Letters Patent No. 583,150, dated May 25, 1897.

Application filed May 10, 1893. Serial No. 473,658. (No model.)

*To all whom it may concern:*

Be it known that I, EVERETT F. MORSE, a citizen of the United States, residing at Trumansburg, in the county of Tompkins and State of New York, have invented certain new and useful Improvements in Drive-Chains, of which the following is a specification.

My invention relates more particularly to the joints of the chains, and has for its object to provide a frictionless joint and means for uncoupling a chain provided with my improved joint. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a chain provided with my improved joint. Fig. 2 is a plan view of the same. Fig. 3 is a side elevation of a chain with modified form of my improved joint.

Referring to the drawings, *a a* are central links, and *b b* the side links, arranged as usual and having the usual opening between them to receive the teeth of the sprocket-wheels. The central links are provided with two cylindrical apertures, one near each end, as shown. Through each of these holes extends a two-part pintle consisting of two segmental circular rocking pins *c* and *e*, which have a rocking or rolling engagement with one another and constitute what may be called a "rocking bearing." While one of these pins, *c*, is no longer than the width of the central link and is confined therein against longitudinal displacement by the side links, the other pin, *e*, projects from each side of the central link through apertures fitting the ends of pins *e* and provided in the ends of the side links.

Referring to Figs. 1 and 2, *c* is the seat-pin, the principal feature of which is the bearing-surface *p*, facing the pressure of the joint and preferably of a concave or inwardly-curving form, being deepest in the middle, which should preferably coincide with the axis of aperture *h*. From this bearing-surface the sides of the pin diverge until they meet the opposite curved base, which is made to fit the curvature of aperture *h*, so as to form a more extended rocking or rolling surface for engagement with the seat-pin, which might be

found necessary in using rocking pins of extreme hardness.

The principal feature of the knife-edge pin *e*, Fig. 1, is the knife-edge *k*, which bears against the middle of the bearing-surface *p*. The sides of this pin also diverge from the knife-edge until they meet the opposite curved base, which is made to approximately fit the curvature of aperture *h*, although this fitting in this or the seat-pin is not essential. The open space between the sides of pins *c* and *e* is adjusted in amount to permit the desired angular motion of the joint being effected by one pin rocking on the other. Both pins are made of steel and hardened, so the knife-edge *k* and base *p* may better endure the pressure of the joint.

While in Fig. 1 the bearing-surface *p* is provided on the shorter pin, in Fig. 3 a modified form is shown having the knife-edge *k* provided on the shorter pin, and although they are thus interchangeable, the longer pin being subjected to transverse strain, it is best to choose for it the bearing-surface, as with it the longer pin can be given a stronger cross-section, as shown in Fig. 3.

The concave or trough form of the bearing-surface *p* tends to retain the knife-edge in its central or true position. This would also be the case even if the edge were rounded.

The angular motion of any two adjoining links relatively to each other is oscillatory, turning one way as the links meet the sprocket-wheels and the opposite way as they leave the wheels. In providing for this motion the longer pin *e*, which is restrained to turn with the side links *b b*, rocks on the shorter pin *c*, which turns with the central links *a*, in which it may obviously be retained in a fixed position, if desired.

It is desirable to have one place in the chain where it can easily be taken apart. For this purpose one of the longer pins has a threaded nut that can be unscrewed and the pin removed, thus parting the chain. On account of the pin *e* being of an irregular cross-section adapted to my joint, a supplemental metallic piece *n*, having a shape suitable to complete the circular form of pin *e*, is fitted to the latter just outside of the side



link *b*. A thread is cut on both the end of pin *e* and piece *n* and the nut screwed on while piece *n* is in position shown.

What I claim as new, and desire to secure by Letters Patent, is—

1. A chain having a rocker-bearing between the members composed of two hardened pins rocking on one another one of which is fastened in the side links while the other is located in the middle link and held against longitudinal displacement by the side links, substantially as and for the purpose set forth.

2. In a drive-chain, a pintle consisting of two parts one rigidly fixed to and completing one member of the chain and the other a hardened pin mounted in an opening in the cooperating member, said two parts of the pintle sustaining between them the strain upon the chain while providing at the surface between them a bearing for the rocking or rolling of the one part upon the other.

3. In a drive-chain, the combination with the side links and a bearing seat-pin connecting them and passing through an opening in the middle link, of a hardened bearing-pin mounted in said opening to rock or roll upon said seat-pin and sustain the strain of the chain.

4. In a drive-chain, a pintle consisting of two parts one rigidly fixed to and completing one member of the chain and the other mounted in the cooperating member, said two parts of the pintle being hardened and constituting segmental rocking pins one having a bearing edge and the other a bearing-surface therefor and sustaining between them the strain upon the chain while providing at the bearing edge the pivotal center for the oscillation of said united members.

5. In a drive-chain consisting of side links, central links and two-part pintles, the combination with the side links of one member of the chain, of one part of the pintle connecting said links at either end and having a

hardened bearing-surface along its axis, and the other part of the pintle provided with a hardened bearing edge cooperating with said bearing-surface and mounted in the end of the central link, substantially as shown and described.

6. The combination with the side and central links of a drive-chain, of a seat-pin and rocking pin arranged side by side within a suitable aperture in the central links and adapted to rock on each other, said seat-pin being provided with a concave bearing-surface facing the force of the joint and on which the rocking pin rocks, one of said pins being longer than the other and having its ends extending through the side links and rigidly connected thereto.

7. In a driving-chain, the combination with a segmental circular joint-pin extending through the side and central links of said chain, of a complementary piece arranged against the end of the irregular side of said joint-pin and having a curved side substantially completing the circle of the curved side of the joint-pin, threads being provided on the supplemental piece and end of the joint-pin on which a nut is screwed, substantially as described.

8. In a drive-chain, a link provided with an aperture and having two hardened-steel pins inserted therein side by side, and adapted to rock or roll one upon the other and sustaining on their abutting rocking surfaces the strain of the chain.

9. In a drive-chain, the combination with the side links, of a hardened seat-pin secured therein at its ends and passing through an aperture in the middle link and having a seat or bearing-surface formed in one side thereof to receive a cooperating member inserted in the aperture in the middle link.

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Witnesses:

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