

(No Model.)

H. KNOWLTON.

CHAIN GEARING.

No. 327,446.

Patented Sept. 29, 1885.

Fig. 1

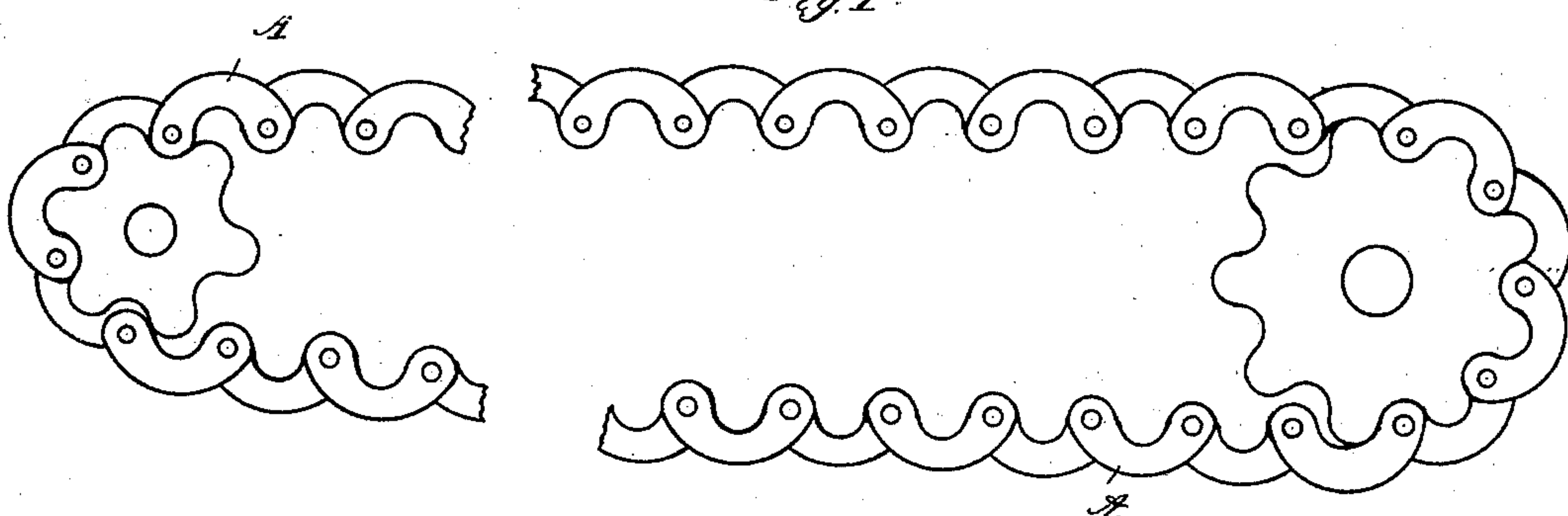


Fig. 2

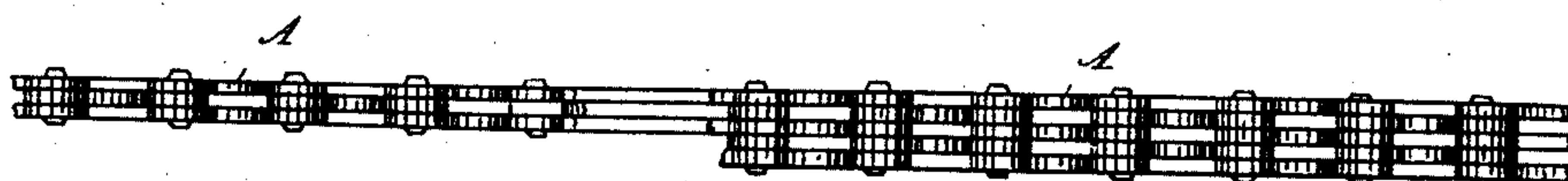
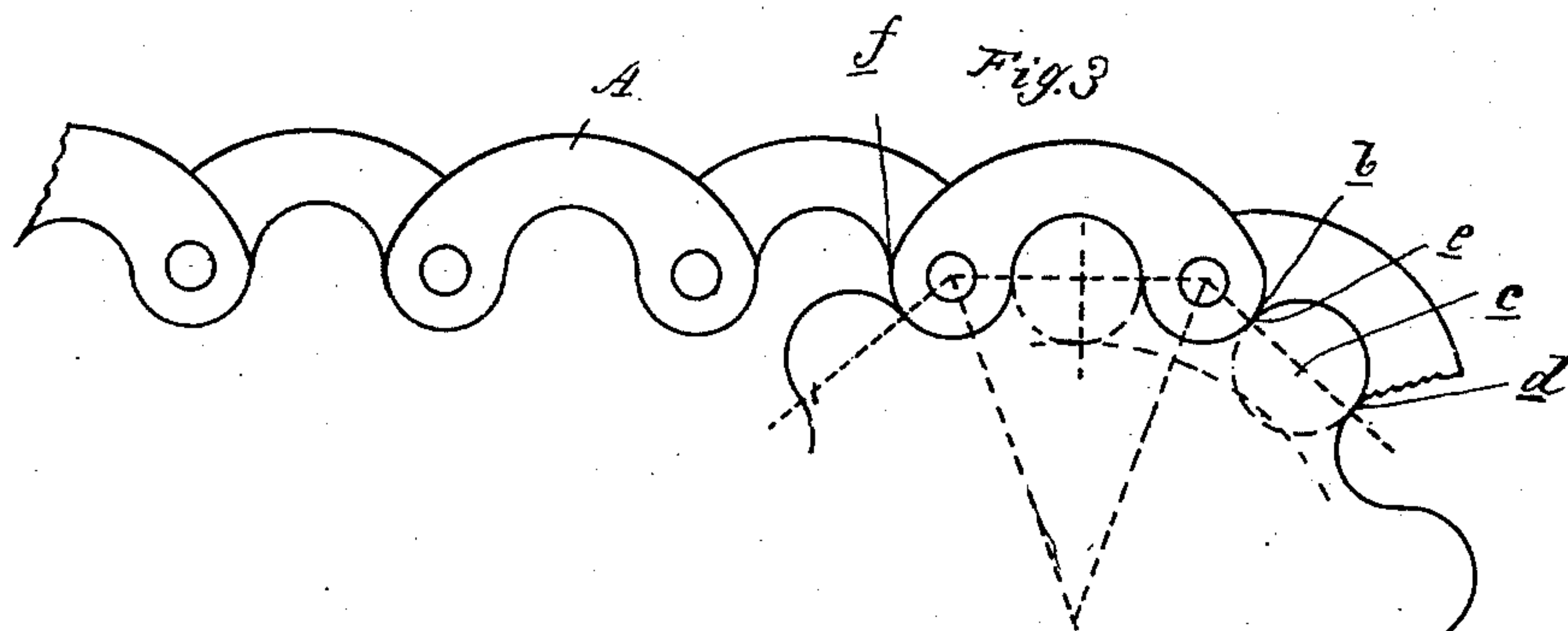


Fig. 3



Attest:
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Inventor:
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by his Atty
Thos. J. Sprague

UNITED STATES PATENT OFFICE.

HENRY KNOWLTON, OF WEST BAY CITY, MICHIGAN, ASSIGNOR OF ONE-HALF TO FERDINAND JOHNSON, OF SAME PLACE.

CHAIN-GEARING.

SPECIFICATION forming part of Letters Patent No. 327,446, dated September 29, 1885.

Application filed March 18, 1885. (No model.)

To all whom it may concern:

Be it known that I, HENRY KNOWLTON, of West Bay City, in the county of Bay and State of Michigan, have invented new and useful
5 Improvements in Chain-Gearing; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

10 The invention relates to a new and useful improvement in chain-gearing; and the invention consists in the peculiar construction of a curved-link chain, in combination with cog-wheels adapted to operate in connection there-
15 with, all as hereinafter described.

In the drawings which accompany this specification, Figure 1 is plan of my improved curved-link chain-gear. Fig. 2 is an edge
20 view of the chain. Fig. 3 is a diagram illustrating the construction of link and gear-wheel.

A are the curved links of which the chain is composed. These links are pivotally connected by pins in the usual alternating series of one and two, or two and three, or three and
25 four, &c., as the required strength of the chain demands. All the links are formed alike and are interchangeable, and consist preferably of steel-plate stamped out in the form required, or forged by the use of dies, so as to
30 get them all alike. All the links are curved, as shown, so that the chain forms upon its inner side a flexible rack, the teeth of which form half of a circle, and are connected together by interdental spaces of half a circle
35 formed with the same radius. The convex side of each link from *f* to *e* is formed with a circle of suitable radius to give the link the necessary strength.

40 The cog-wheels are constructed in the following manner: Connect the pivotal points of

a link, as in Fig. 3, (the points *a a*,) and construct over this line, as one of the sides, a regular polygon of such a number of sides as required to obtain a cog-wheel of suitable size. The corners of this polygon mark the centers
45 for the interdental spaces between the cogs, and by dividing each side into four parts, as shown in Fig. 3 by the divisions *b c d*, the center of the half-circular cogs, their radius, and the junction with the interdental spaces are
50 found, and the cog-wheel may be easily described.

The advantage of such a chain is that all the wear in operation is uniformly distributed, especially by using cog-wheels with an odd
55 number of cogs, so that the same cogs do not always engage with the same series of links. Another advantage is that the pivotal pins of the links, which are especially liable to wear while the drive-chains are bent around cog-
60 wheels or sprocket-wheels under a heavy strain, do not wear at all, or very little, with this form of chain-gear, as the pins are relieved from their strain by the interlocking of the chain and gear-wheel cogs.
65

What I claim as my invention is—

In a chain-gear, the combination of a chain formed of a series of like-curved links with half-circular ends connected by half-circular
70 bends of the same radius between the ends, and pivoted together to form a flexible rack, with a cog-wheel having half-circular cogs and half-circular indentations between the cogs of like radius and corresponding to the
75 curved links of the chain, substantially as described.

HENRY KNOWLTON.

Witnesses:

H. S. SPRAGUE,
E. J. SCULLY.