

UNITED STATES PATENT OFFICE.

MICHAEL J. STARK, OF BUFFALO, NEW YORK.

FASTENING FOR INTERSECTING WIRES OF CAGES.

SPECIFICATION forming part of Letters Patent No. 238,617, dated March 8, 1881.

Application filed October 28, 1880. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL J. STARK, of Buffalo, in the county of Erie and State of New York, have invented certain new and
5 useful Improvements on a Fastening for the Intersecting Wires of Cages, &c.; and I do hereby declare that the following description of my said invention, taken in connection with the accompanying sheet of drawings, forms a full,
10 clear, and exact specification, which will enable others skilled in the art to which it appertains to make and use the same.

This invention has general reference to the manufacture of wire articles, such as bird and
15 other cages, traps, &c.; and it consists, essentially, in the peculiar method of fastening the intersecting wires in a manner substantially as hereinafter first fully set forth and described, and then pointed out in the claim.

20 In the drawings already referred to, Figure 1 is a front elevation of a wire frame constructed in accordance with my invention, the lower band of which is shown in section. Fig. 2 is a sectional elevation of one of the
25 lower bands. Fig. 3 is a sectional elevation of the dies used for perforating said horizontal bands. Fig. 4 is a plan of the same. Fig. 5 is a sectional plan of the dies for fastening the vertical wires to the perforated horizontal
30 bands. Fig. 6 is a sectional elevation of a band and filling-wire, illustrating a modification of my invention. Fig. 7 is a sectional plan of the dies for fastening the filling-wires, and Fig. 8 is a perspective view of the same.

35 Like parts are designated by corresponding letters of reference in all the figures.

The object of my present invention is the production of a fastening for the intersecting wires of metal fabrics that shall require no
40 solder or similar means for uniting the parts, and particularly for fastening the horizontal bands to the filling-wires of bird and other cages. To accomplish this result I produce a flat metallic band, A, by passing round wire
45 between suitable rollers under pressure, whereby the transverse section of said band is elongated. This band I then provide with perforations B, Fig. 2, and around said perforations, on either one or both sides of said band, with
50 circular or other protuberances C. I then put

the filling-wires D into said perforations, and finally subject the protuberances to pressure or compression, whereby they are mashed down and tightly pressed against said filling-wires, to hold the same in position. 55

In carrying out this method of fastening I prefer to punch the bands A by means of a punch and die, F G, Fig. 3, in such manner that in perforating the band said protuberances C are also formed on the side opposite
60 to that from which the punch enters the metal. This I accomplish by forming in the die recesses H, having the outline or contour of the protuberance to be produced, so that the punch F, having a shape corresponding to that of the
65 die, first pushes the metal band into said recess or countersink, and after filling the same punches the superfluous metal away. I have decided upon this plan as the simplest and
70 cheapest to carry that part of my invention into effect. It may, however, be accomplished in various other manners—such as, for instance, rolling the band and producing the protuberances C in the rolling process, and
75 then punching or drilling the band to produce the perforations B. This and other methods have, however, the disadvantage of being too costly and otherwise objectionable.

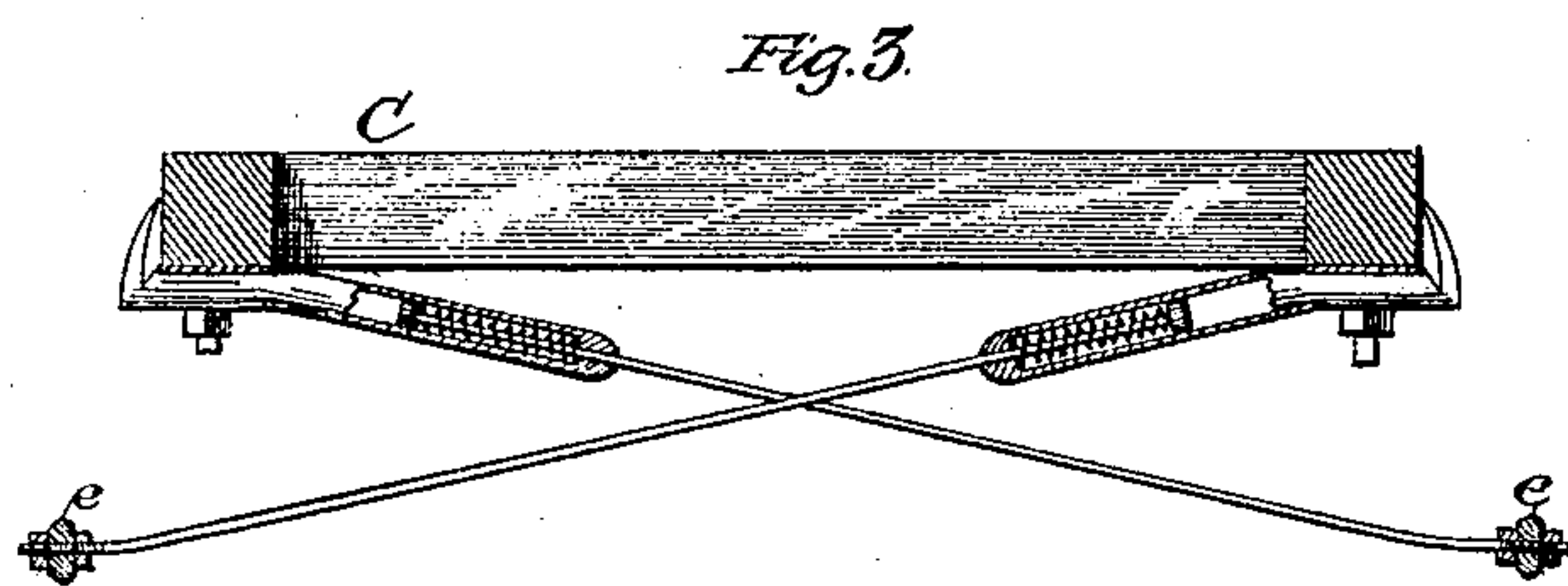
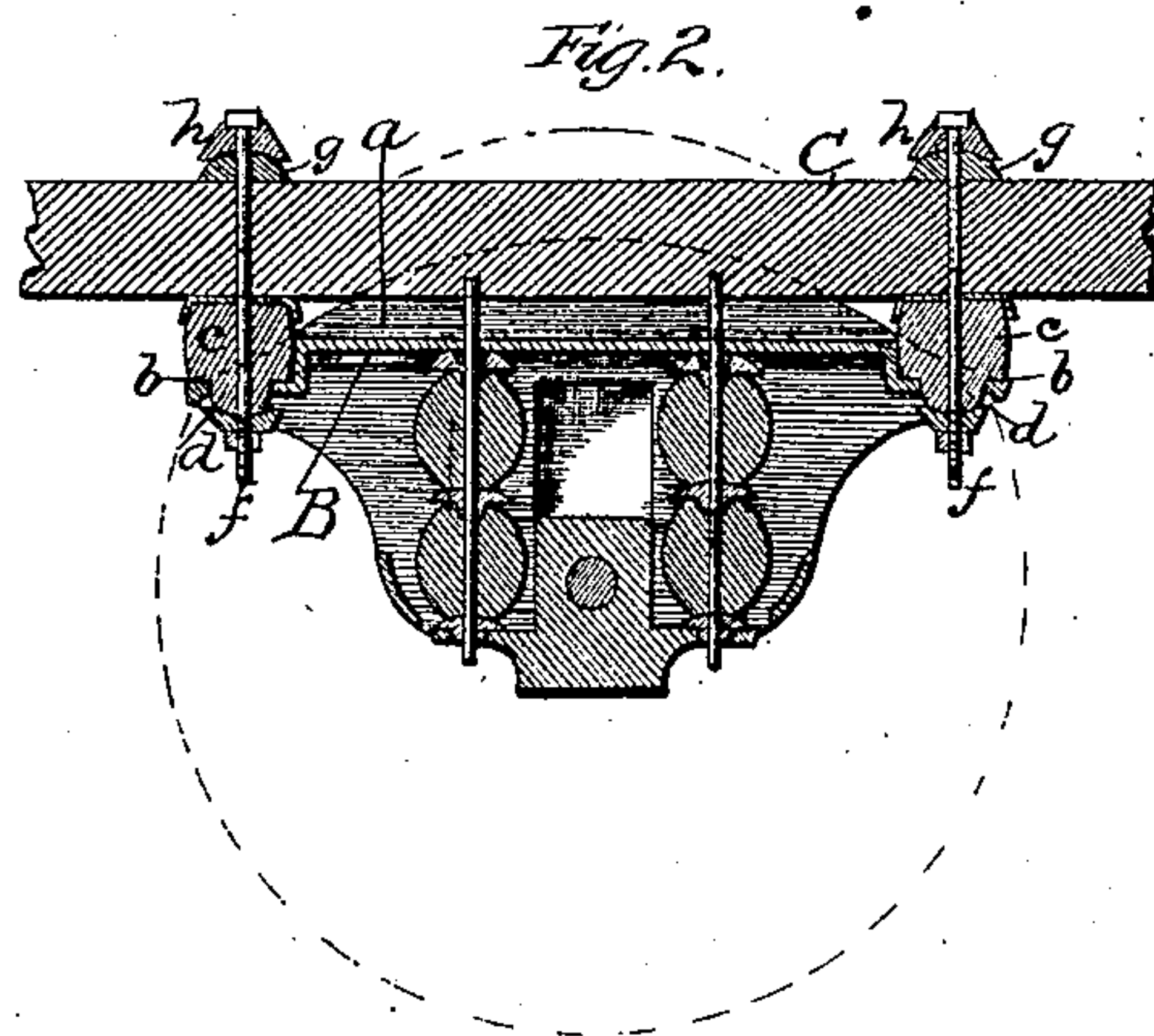
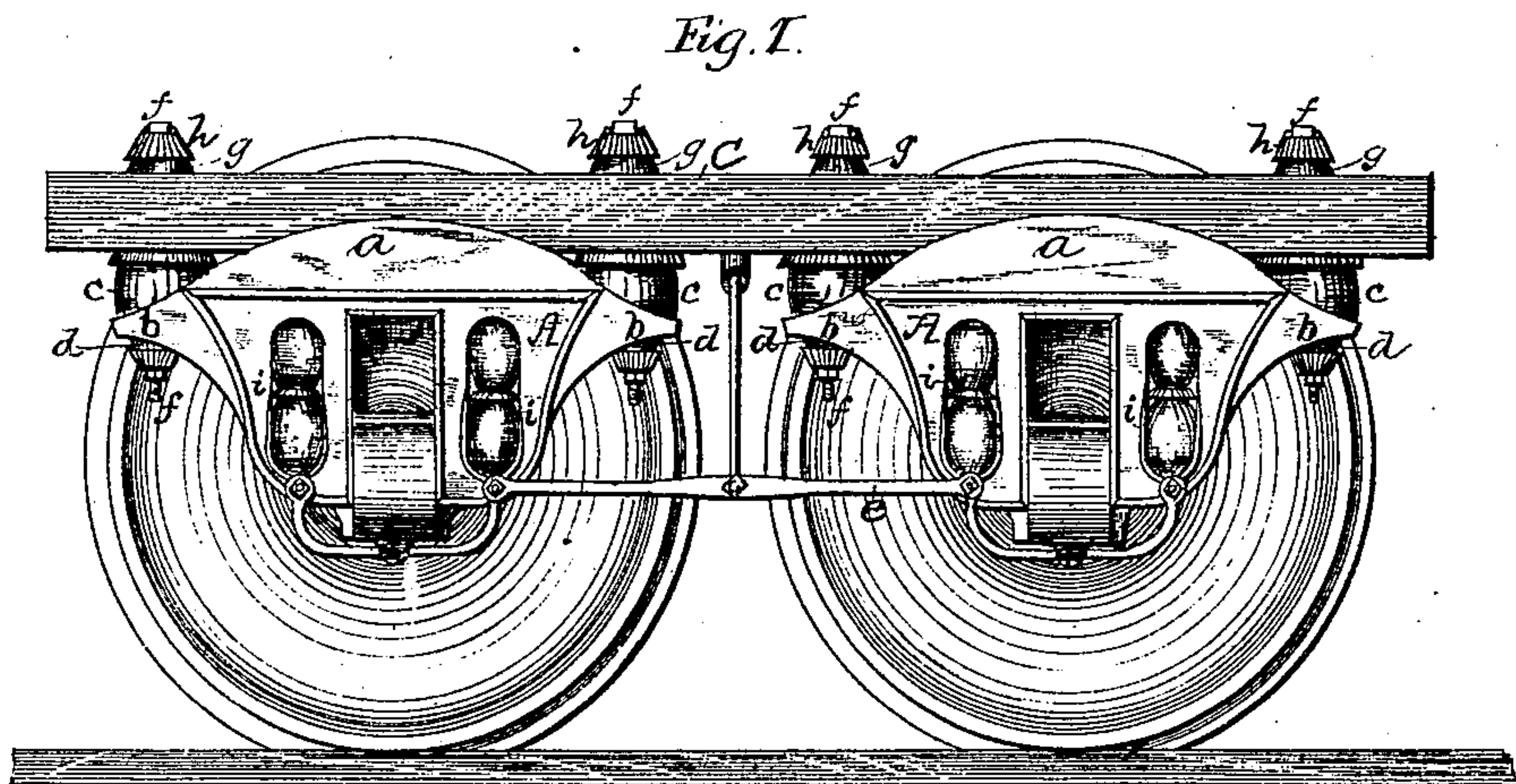
In pressing the protuberances down so as to embrace the filling-wires, I prefer to use two
80 pairs of dies—one pair, J J', being provided with a countersink smaller in diameter and depth than the protuberances C, and the others, K K', perfectly flat, or nearly so. These dies I operate in such manner that when they
85 are farthest apart they allow of the passage of the filling-wires between them, which wires will then lie loosely in a groove in said dies, and so that when they are then closed they will embrace said filling-wires (one of them at
90 a time) without binding, and allow of their being slid along toward each other. By so doing one of the said jaws or dies will come in contact with the protuberance C, and, resistance being offered by the opposite pair of
95 dies and the band, said protuberance will be forced back, and thereby caused to tightly clinch the wire D.

Instead of the protuberances C on the band, I may provide the filling-wires with loose col- 100

J. STEPHENSON.
Running Gear for Street Cars.

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