

F. GIBFORD & L. C. McCORMICK.

CAR-COUPLING.

No. 190,305.

Patented May 1, 1877.

Fig 1

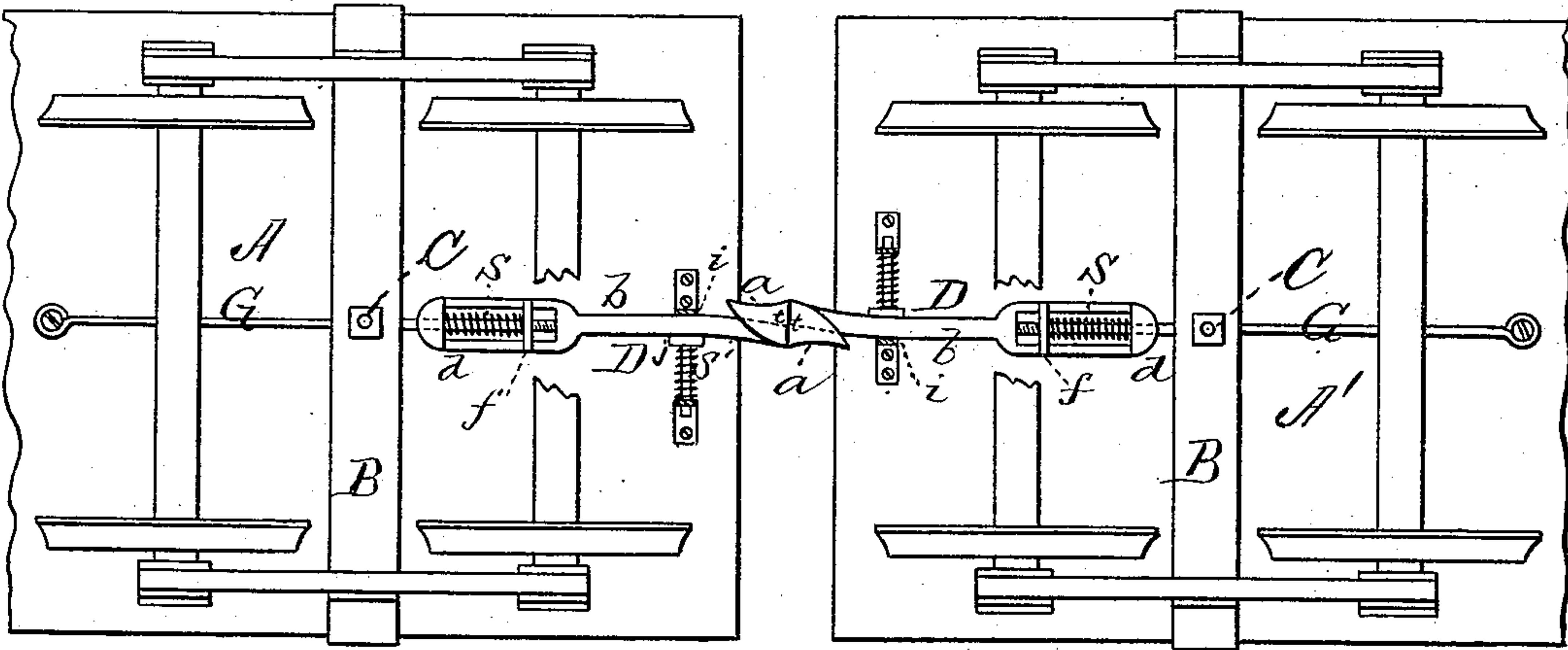


Fig 2

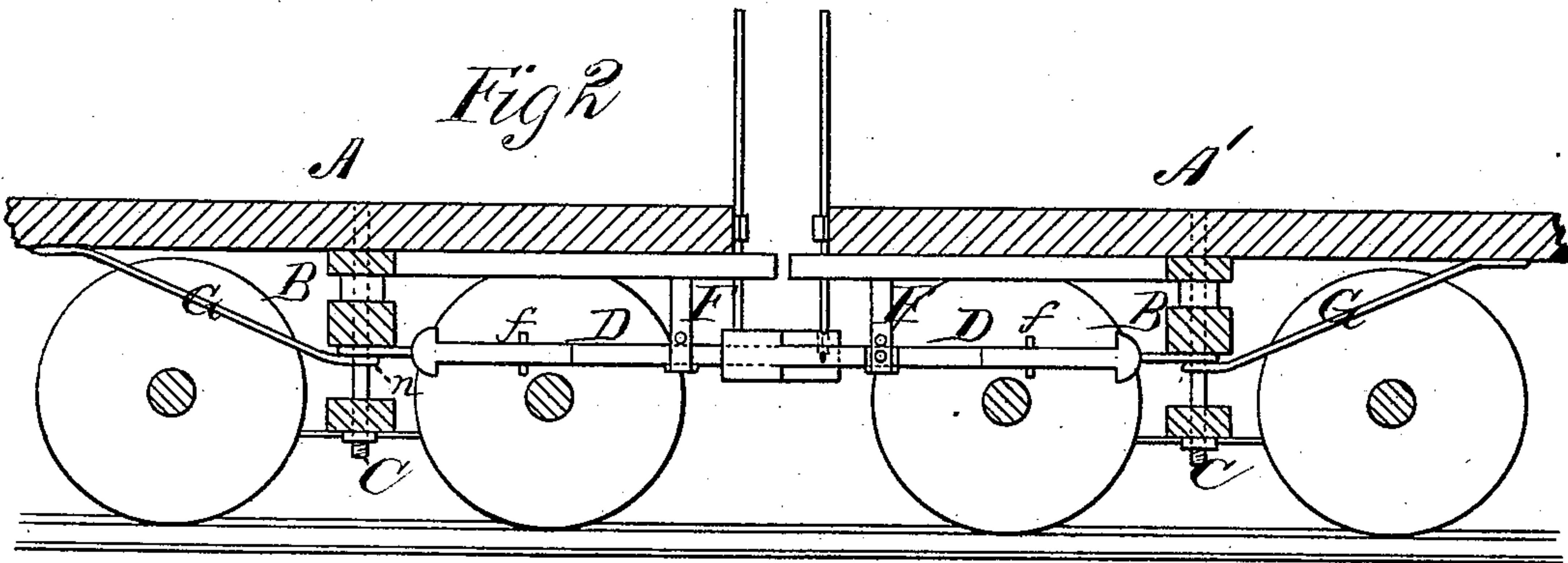


Fig 3

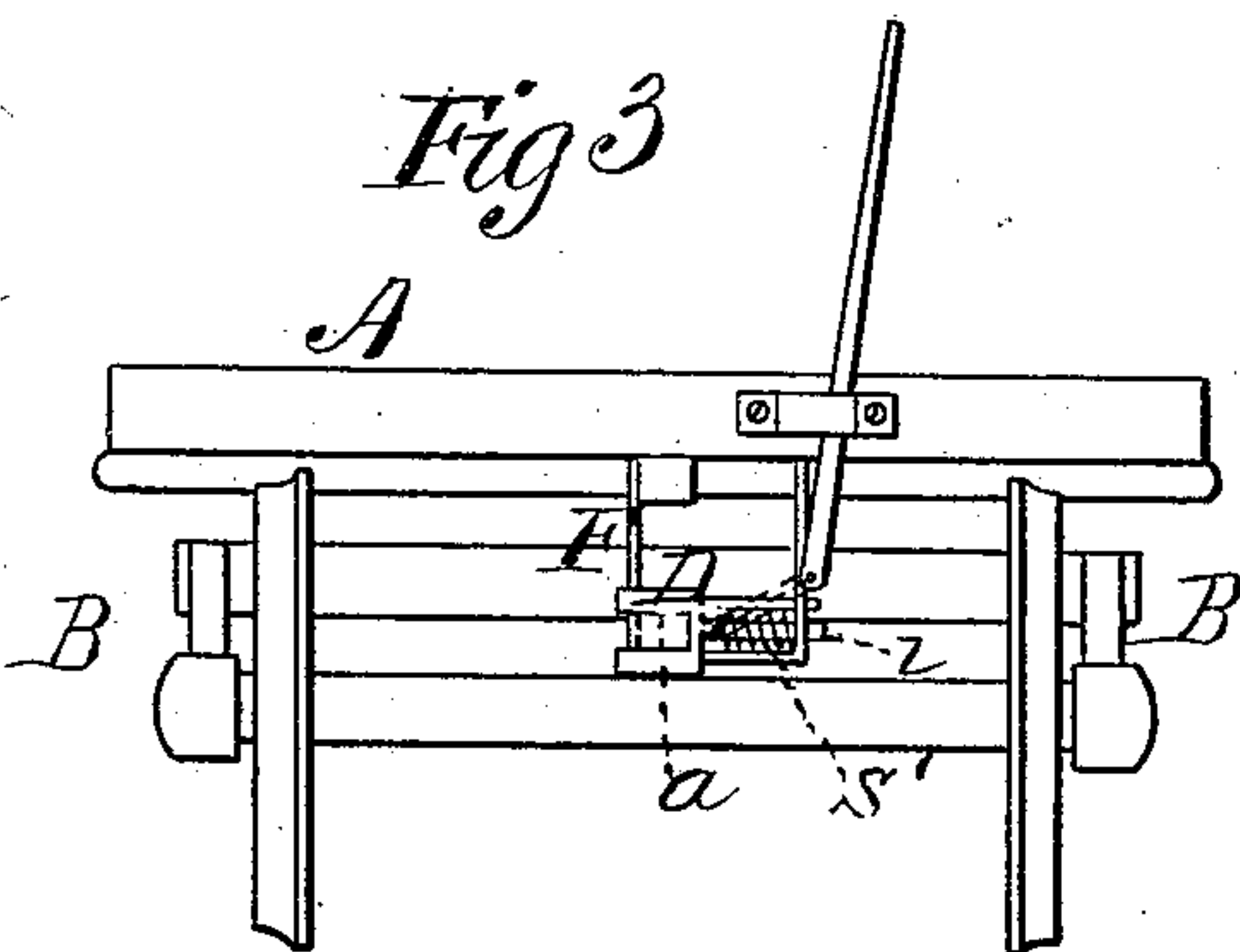
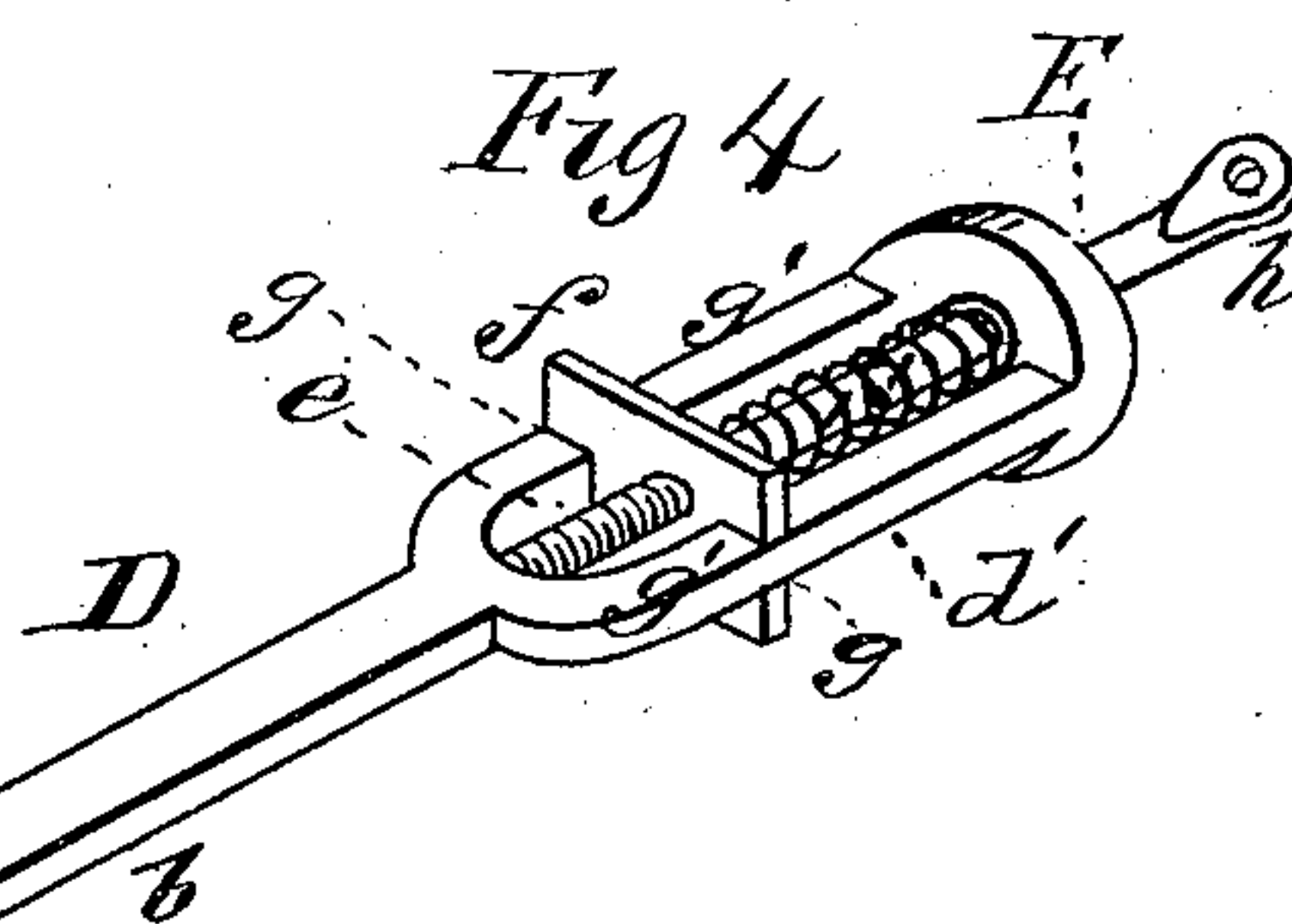


Fig 4



WITNESSES

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FRANK GIBFORD AND LEWIS C. McCORMICK, OF NEWTON, IOWA.

IMPROVEMENT IN CAR-COUPPLINGS.

Specification forming part of Letters Patent No. **190,305**, dated May 1, 1877; application filed March 3, 1877.

To all whom it may concern:

Be it known that we, FRANK GIBFORD and LEWIS C. McCORMICK, of Newton, in the county of Jasper and State of Iowa, have invented a new and valuable Improvement in Car-Couplings; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a bottom view of a pair of cars, showing our improved coupler. Fig. 2 is a longitudinal central section, with side view of the couplers. Fig. 3 is an end view of a car, showing a front view of the coupler, and Fig. 4 is a detail perspective view of one of the couplings.

Our invention relates to improvements in car-couplings, wherein the coupling is effected automatically through the medium of laterally-movable barbed heads; and it consists in a barbed head having its curved face longitudinally grooved from point to heel, the said groove being designed to receive the shank of the draw-bar of the next car, whereby a very intimate and reliable interlocking of the heads is obtained. It also consists in securing the coupling-bar to the truck, or to the king-bolt, securing the car thereto at a fixed distance above the ground, whereby we obtain a low draft, and can couple cars of different heights. It also consists in an oblong slot formed in the laterally-enlarged rear end of the coupling-bar, into which is passed from behind a threaded bolt, secured at its rear end to the king-bolt or truck, and at its front end engaged with a non-rotating nut moving freely in the end of the slot aforesaid, upon which bolt is applied a strong spring between the nut and rear end of the slot. It also consists in certain other minor details of construction, as hereinafter shown and described.

In the annexed drawings, A A' designate two railway-cars mounted upon the usual trucks B, and connected therewith by means of king-bolts C. D represents the draw-bars, having each an enlarged angular head, *a*, and a reduced, preferably, rectangular shank, *b*. The curved front faces of these heads are pro-

vided each with a longitudinal groove, *c*, extending from point to heel of the said head, for a purpose hereinafter explained. At its rear end the shank *b* of the coupling is provided with an enlargement, *d'*, at right angles to the plane of the head, and an oblong slot, *e*, is formed therein, in which a non-rotating nut, *f*, is placed. This nut moves freely from end to end of the slot, and is prevented from rotating relative thereto by means of notches *g* in its edges, into which the side bars *g'* bounding the slot are received. E represents a strong metallic bar, which passes from the rear through the end of enlargement *d'* and is screwed into nut *f*. This bolt has an eye, *h*, in its rear end, through which the king-bolt aforesaid passes, and by means of which the draw-bar is secured to the truck, and it carries a suitable coiled spring, S, which is compressed between nut *f* and the heel of engagement *d'* when the train is started. The draw-bar is thus allowed to have due horizontal play on the king-bolt as a pivot, and the car-body is prevented from being racked by sudden jars. The shank of the draw-bar passes through a horizontal slot, *i*, in the lower end of a metallic stirrup, F, depending from the car-body, and is prevented from upward displacement thereby. In this slot is arranged a notched nut, *j*, of the same construction as nut *f*, above described, into which is passed a metallic pin, *l*, carrying a helical spring, S'. This spring holds the draw-bar in proper position for coupling.

When the cars are brought together in coupling, the curved faces *r* of the heads *a* will come in contact, the draw-bars yield laterally through the compression of springs S', and the said heads pass each other and then interlock by the entire length of their plane shoulders *t*, as shown in Fig. 1, through the recoil of springs S'. In this interlocked position the shank of each draw-bar will be received in the groove *c* in the head *a* of the other, thereby preventing the springing upward or downward of the cars from disengaging the heads *a* from each other, and causing the said heads to obtain a broad bearing or holding surface the one upon the other. Should any car jump the track it will become uncoupled automatically from the other.

As above set forth, the draw-bar will be secured either to the king-bolt or to the truck, but in no case to the car-body, and will be in high or low cars at the same height from the ground, so that we overcome the difficulty of coupling cars of different heights very effectually, and at the same time obtain a low draft. In order to prevent the strain of the draft from bending the king-bolts, we employ a strong metallic brace, G, secured at one end to the car-body in rear of the front truck, and connected with the said bolt by means of an eye, *n*.

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

1. The draw-bars D, having enlarged locking-heads *a*, provided each with a longitudinal central groove, *c*, in front, adapted to receive the shank *b* of the other between its flanges *r*, and having the plane rear shoulders *t*, each adapted to bear on the other across the shank, combined, substantially as specified.

2. The combination, with a car-body, its truck and king-bolt, of the bar E, having an eye, *h*, adapted to receive said bolt C, the draw-bar D, having enlargement *d'*, provided with oblong slot *e*, the non-rotating slide-nut *f*, and spring S, substantially as specified.

3. The combination, with a horizontally-vibrating draw-bar, D, of the stirrup F, having slot *i*, carrying a non-rotating slide-nut, *j*, the rod *l*, and spring S', substantially as specified.

4. The combination, with a car-body, its truck and king-bolt, of the draw-bar attached directly to said bolt, and a brace secured at one end to said bolt, and at the other to the car-body, substantially as specified.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

FRANK GIBFORD.

LEWIS C. McCORMICK.

Witnesses:

J. C. COOK,

A. EASTMAN.