

(No Model.)

J. W. ALEXANDER.

CAR COUPLING.

No. 272,399.

Patented Feb. 20, 1883.

Fig 1.

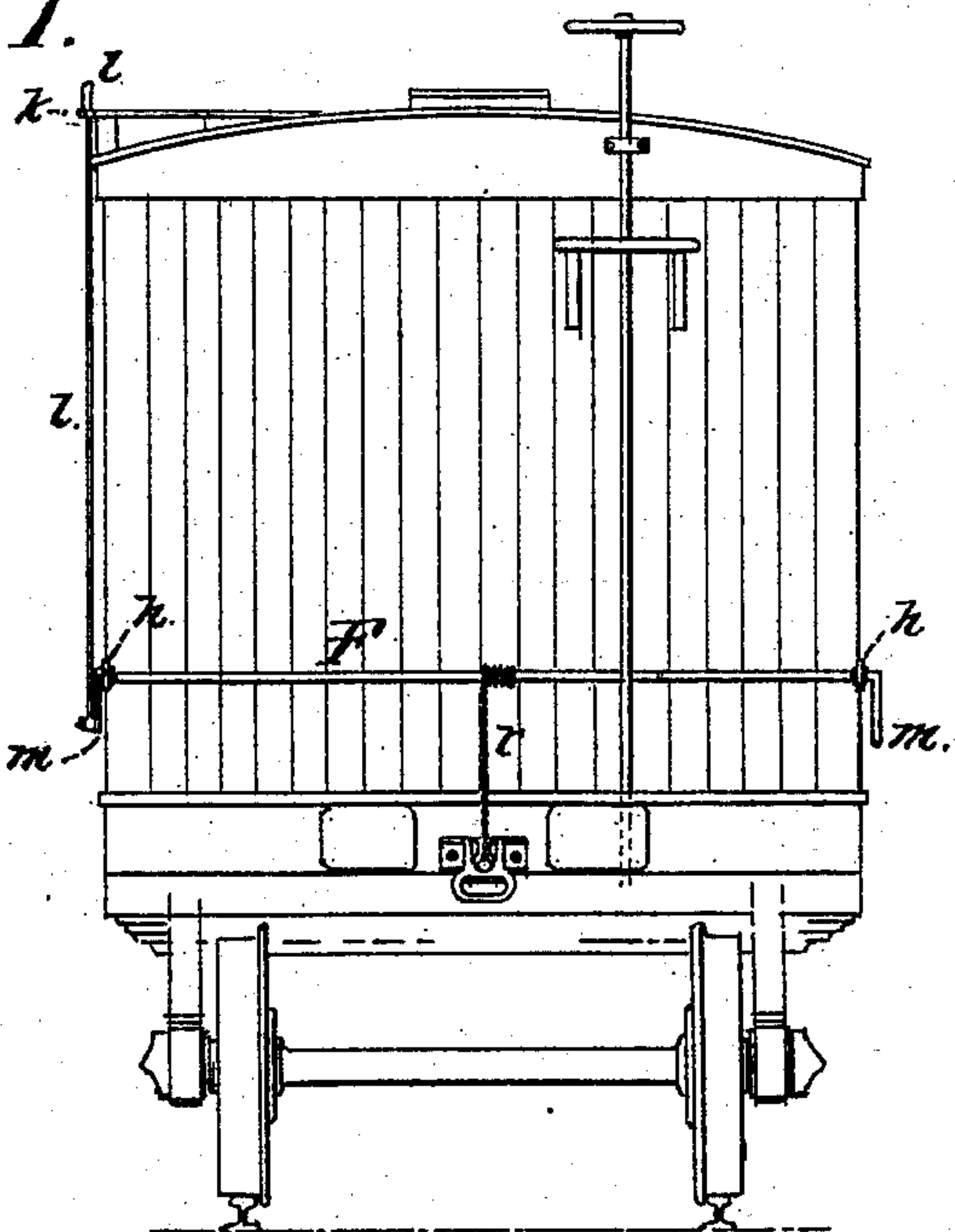
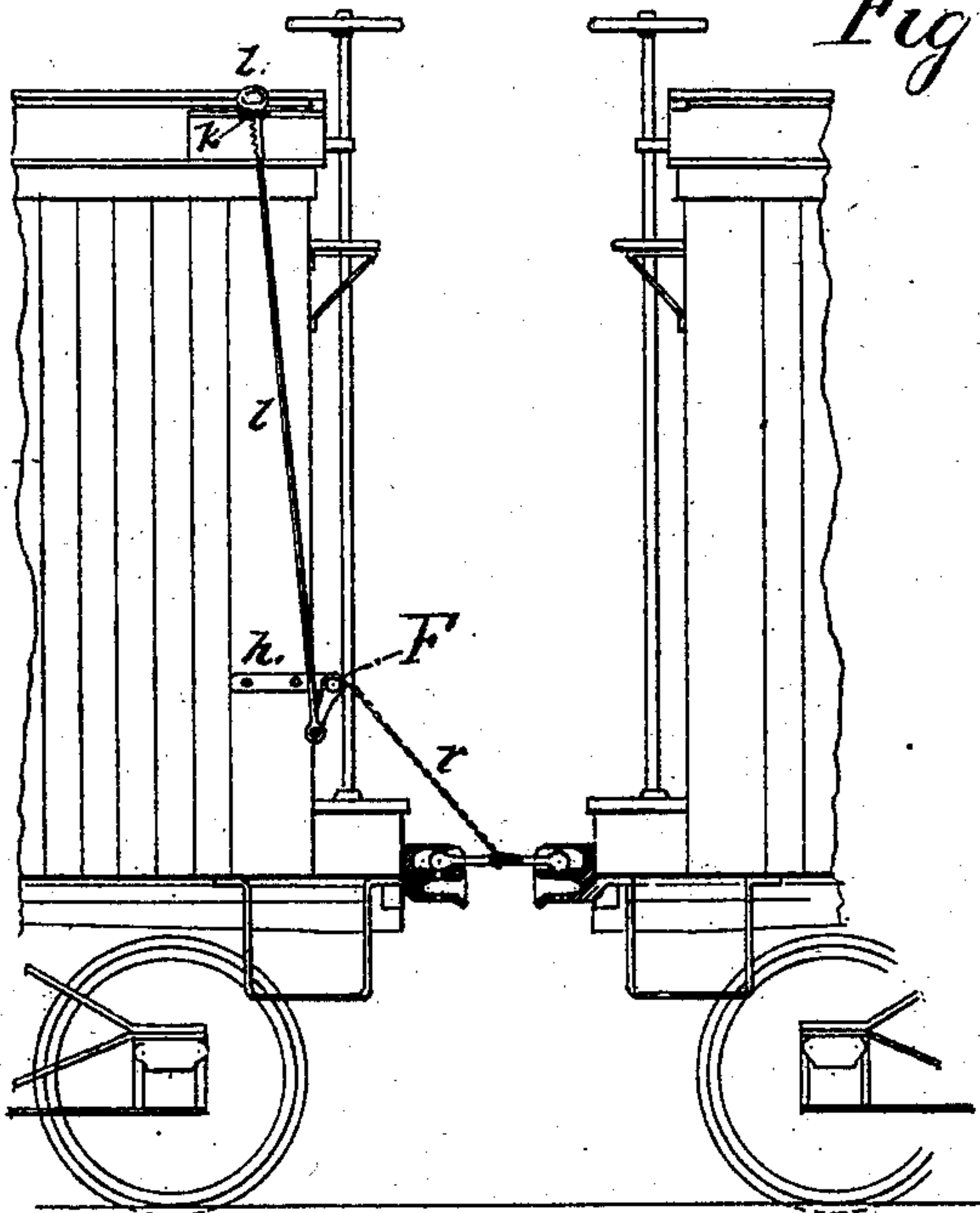


Fig 2.

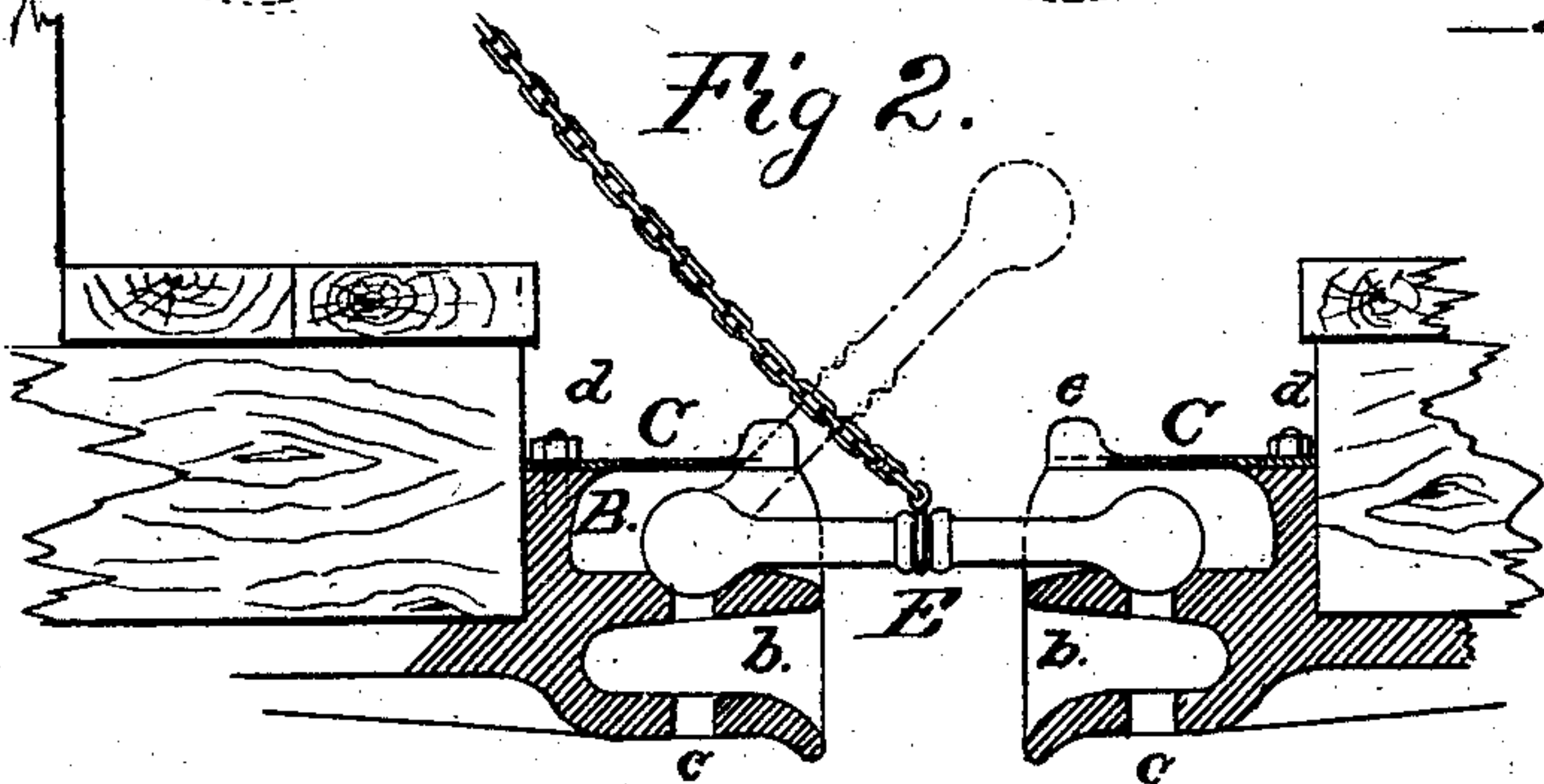


Fig 4.

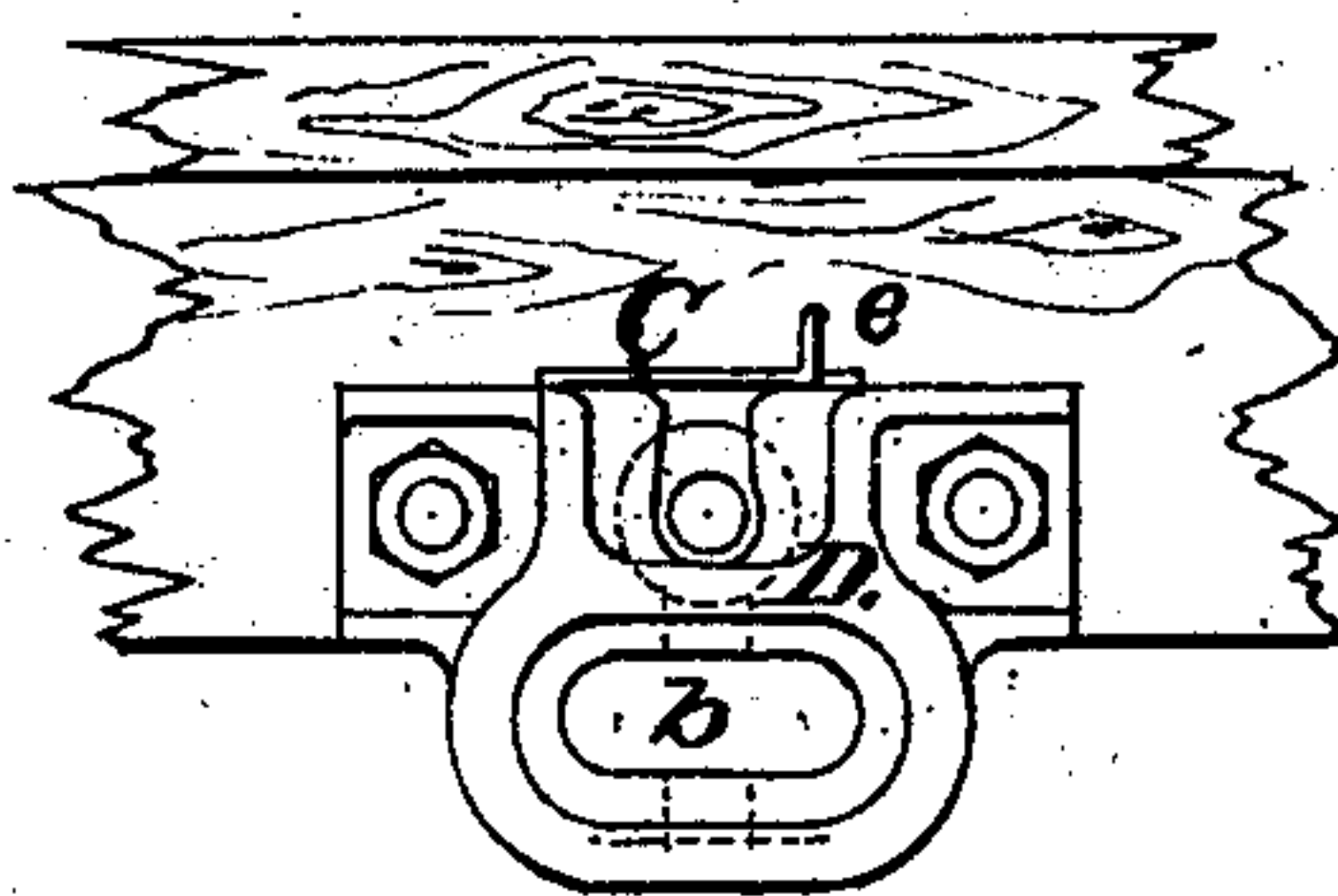


Fig 3.

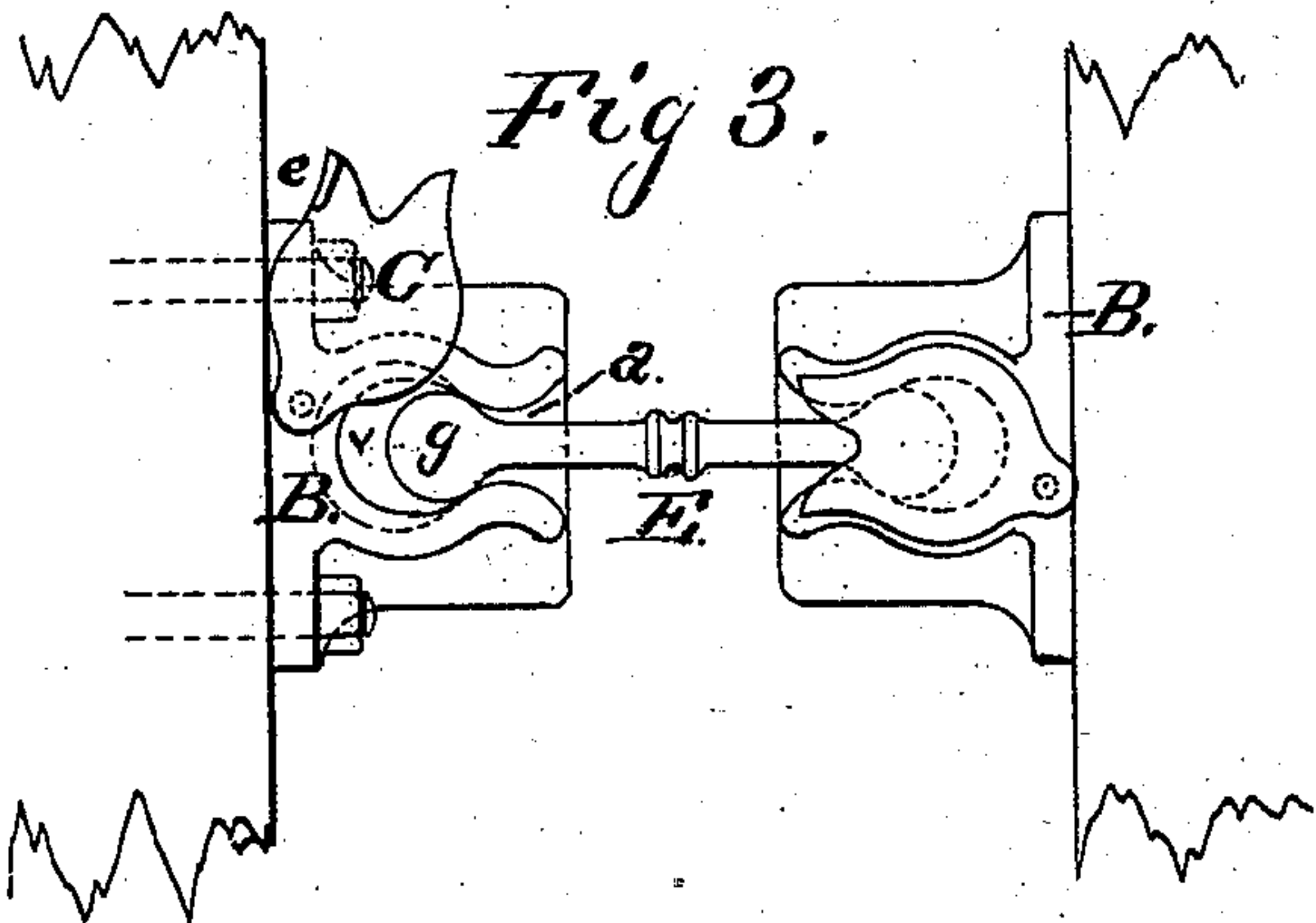
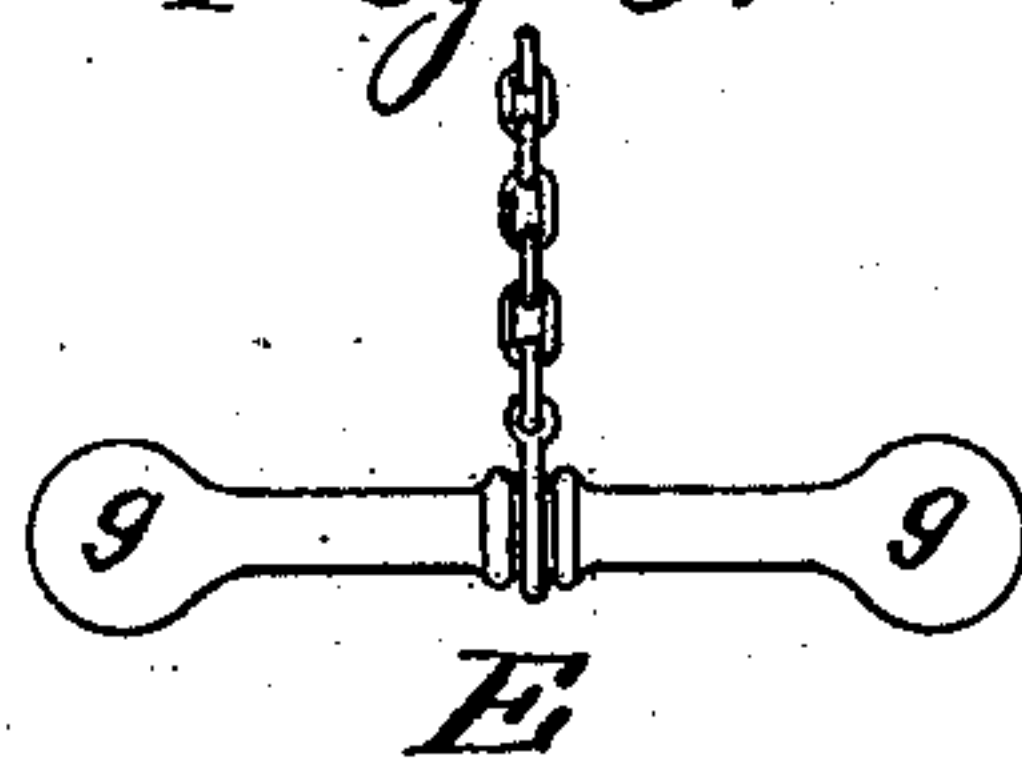


Fig 5.



Witnesses:

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UNITED STATES PATENT OFFICE.

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CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 272,399, dated February 20, 1883.

Application filed December 13, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. ALEXANDER, a citizen of the United States, residing in the city, county, and State of New York, have invented a new, useful, and Improved Method of Car-Coupling, a description of which is herein so fully, clearly, and concisely presented as to enable any one, by reference to the following specification and annexed drawings, to construct and properly manipulate the same.

The novelty of this my invention consists in original and peculiar arrangement, construction, and combination of the several elementary parts for car-coupling, and has for its purpose a fourfold object, to wit: first, to provide a method whereby the constant danger to life by hand-coupling is avoided; second, to furnish an effective and rapid means of coupling from the top or either side of the car, wherever the operator may chance to be; third, to avoid the frequent delays and accidents from breakage of the coupling-pin by substitution for the usual pin and link of a simple agency of greater tensile strength; and, fourth, to provide an extra means of coupling, should occasion demand, by combining in the same draw-head with the present novel method facilities for the usual pin-and-link coupling.

Figure 1 is a front and side elevation, showing mechanism for coupling, as also a face view of the draw-head. Fig. 2 is a longitudinal central vertical view in section of the draw-heads when coupled. Fig. 3 is a plan or top view of the draw-heads with catch E turned aside, while Fig. 4 is an end view of the draw-head and Fig. 5 a view of the draw-bar.

Each of the draw-heads B, made fast to its respective car in the usual place and manner, is provided with a beveled-edged opening at the top, extending downward to a distance nearly to its center, as shown in Fig. 3. The rear and anterior walls of the excavation or pocket *v* are spherical in outline, while those of its two sides are perpendicular. The cavity thus formed has a longitudinal extension considerably greater than in the opposite direction; but it is of sufficient width to easily receive the globe-shaped head of the draw-bar E as it falls within, where the cavity's greater length permits its natural movement backward and forward in the line of motion of

the cars. From the buffer or face end D of the draw-heads, Fig. 4, and extending likewise from the top downward to the depth of the cavity *v*, and opening into the same, is a passage, *a*, having an elongated or funnel-shaped mouth for the free and lateral play of the draw-bar E when the cars are coupled and in motion. The lower half of the face end D of each draw-head is also mortised or contains a socket, *b*, with a pin-hole, *c*, from above, Fig. 2, passing through the space so made and out at the bottom of the draw-head, whereby provision is made for coupling with pin and link. We have then in the draw-head, as herein described, two distinct and possible methods of coupling, in which temporary resort may be had to the familiar way of coupling by pin and link should the other and novel mode, as herein devised, through accident or in any contingency, fail.

Upon the top of the draw-head belonging to the car, to which is attached the media for operating the draw-bar E, is placed a rest or catch, C, of thin metal, fashioned as shown in Fig. 3, and secured by the pivot or screw *d* in sufficient contact with the draw-head to firmly retain its place thereon, and at the same time permit of its being turned aside by the projecting thumb-piece *e* whenever, from any cause, it is desired to dislodge or remove the head of the draw-bar from its bed beneath. By this device the draw-bar, when raised and not in use, is always held in place at a certain angle and in a given direction, in readiness at the next coupling, in falling, by its own momentum, to drop its elevated spherical end into the receptacle provided in the opposite draw-head.

The coupling-rod and its globe-like extremities, which together constitute the draw-bar E, Fig. 5, are made of iron or steel, in one casting. The diameter of these spheres or balls relative to the proportions of the pocket provided in each of the draw-heads for their reception, as above described, is a little less the width and a little more than half the length of the pocket. When the coupling is effected by means of this agency and the train is put in motion the balls are forced into immediate contact with the front walls of their receptacles, where they are caught and rigidly held. It is thus evident that the power applied to

overcome the resisting inertia of the train must be sustained by the draw-bar E throughout its entire length, and that hence a far greater strain may be borne than in the ordinary pin-and-link coupling, where it is exerted at a single point only, transversely and not lengthwise.

The mechanism for operating the coupling or draw bar E in this invention consists of a shaft, F, extending, Fig. 1, across the front end of the car in a horizontal direction and supported in suitable bearings by the ear-pieces *h*, which are securely fastened to the sides of the car. At each end of the shaft F is provided a crank, *m*, for ready use in coupling from either side of the car. Connected with the crank for operating from the top of the car is the lever *l*, held in place by its guide *k*, affixed to the top or other part of the car.

The chain *r*, which, at its lower end, is attached to the draw-bar E at a point equidistant from its extremities, Fig. 1, and at its other end is fastened to the shaft F at a point likewise midway between its bearings *h*, serves to raise or lower the draw-bar E, and is of such length only as, when unwound from its shaft F by the act of coupling, permits the ball of the draw-bar to reach its pocket.

When a coupling is to be made the operator finds the crank *m* held at the angle shown in Fig. 1, which position, being one within easy reach, it is made to assume by limiting the

chain to such a length that it is drawn taut as soon as the draw-bar E, in uncoupling, comes in contact with its catch C. Nothing further then is required when the buffers of the opposing draw-heads meet than simply to lift or throw up the crank *m* with a sufficient impulse to pass its center of gravity beyond the line of perpendicular, when by its own momentum, increased by the downward weight of the draw-bar, it instantly falls, causing the chain to unwind from the revolving shaft F, and thus depositing the ball of the draw-bar E in its bed.

It is also evident that by reversing this movement the cars are as quickly and safely uncoupled, while at the same time the several parts regain their relative places, in readiness for future use.

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

The combination, with a car, A, of the draw-head B, having the construction and functions as herein shown, the sphere-headed draw-bar E, the pivoted catch C, with thumb-piece *e*, chain *r*, shaft F, with bearings in riveted ear-pieces *h*, crank *m*, and lever *l*, with guide *k*, all substantially as and for the purposes herein described.

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Witnesses:

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