

No. 749,829.

PATENTED JAN. 19, 1904.

E. S. WOODS.
DRAFT RIGGING FOR CAR COUPLINGS.

APPLICATION FILED NOV. 10, 1902.

NO MODEL.

Fig 1

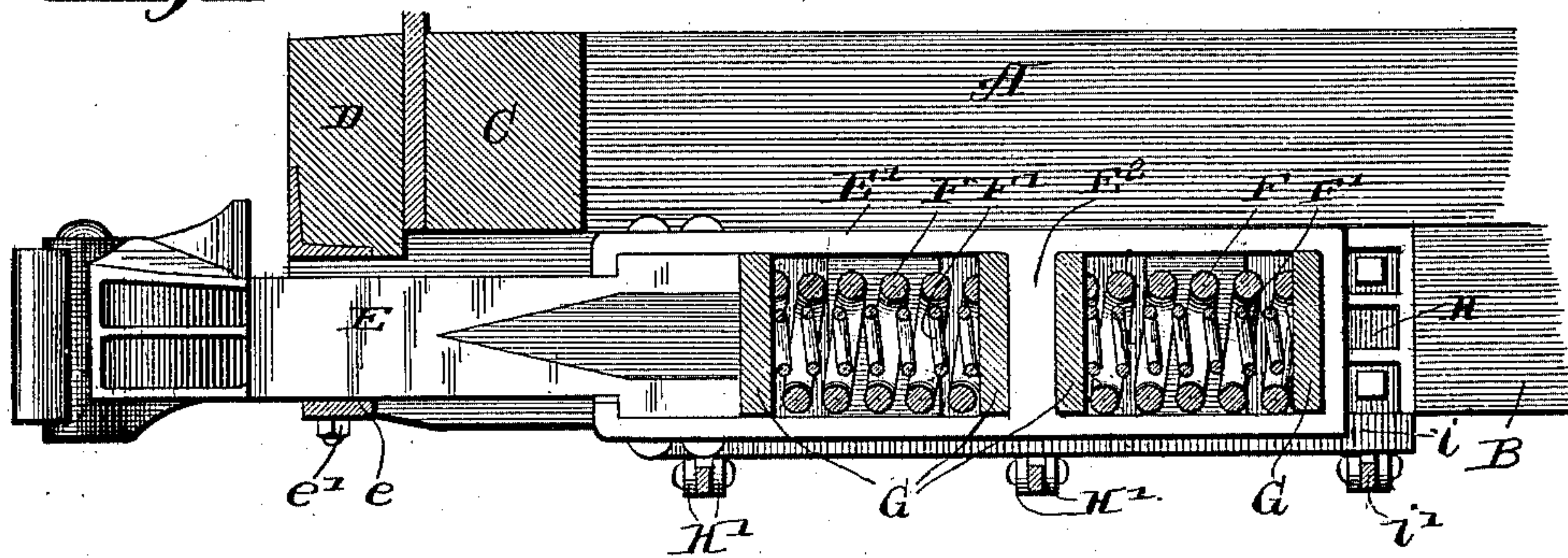


Fig 2

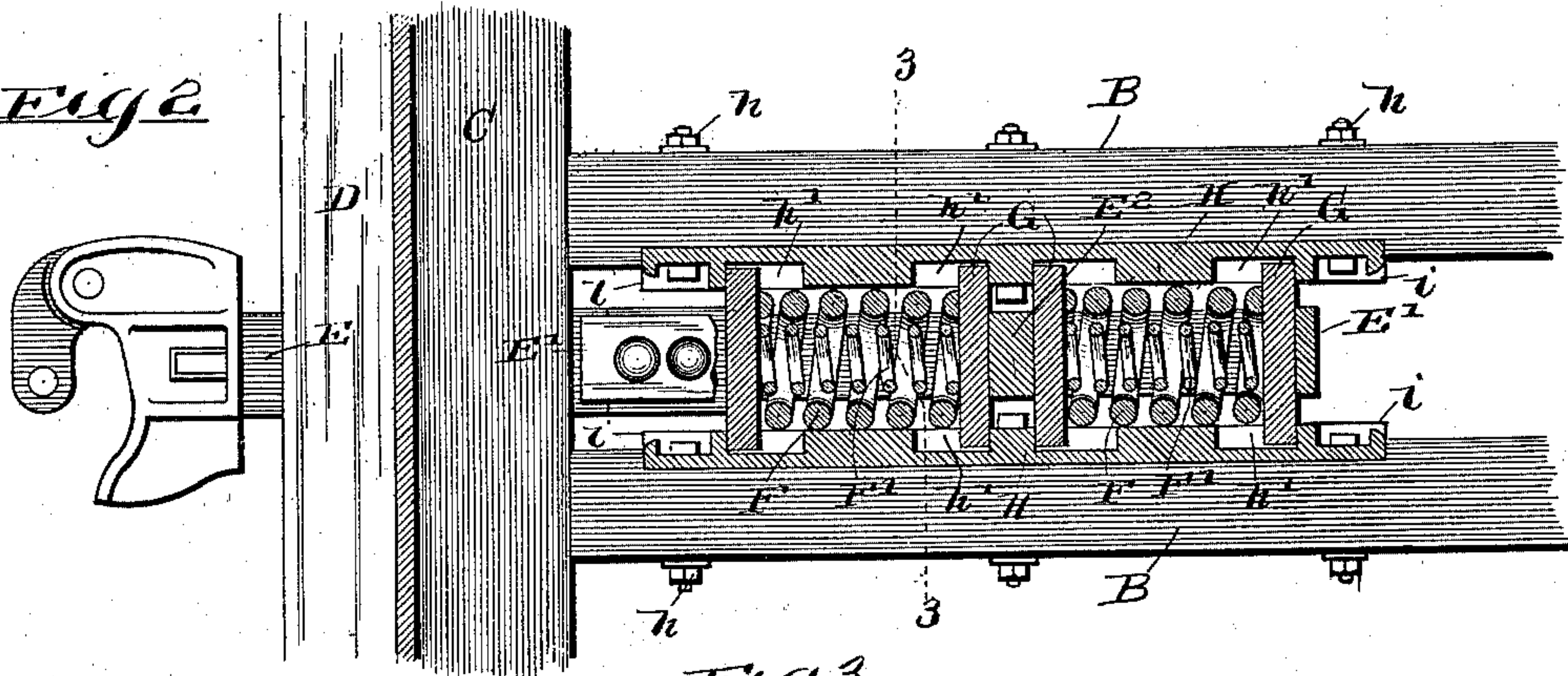


Fig 3

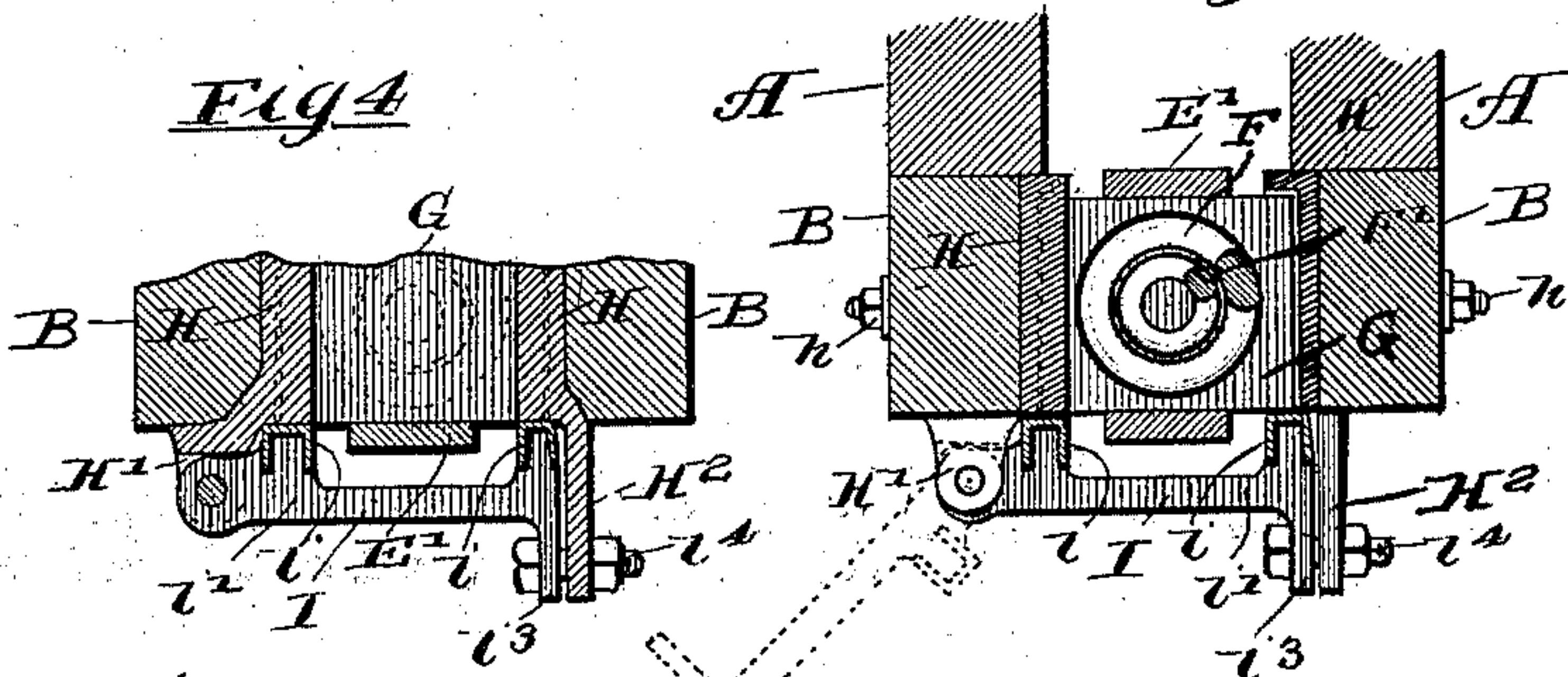
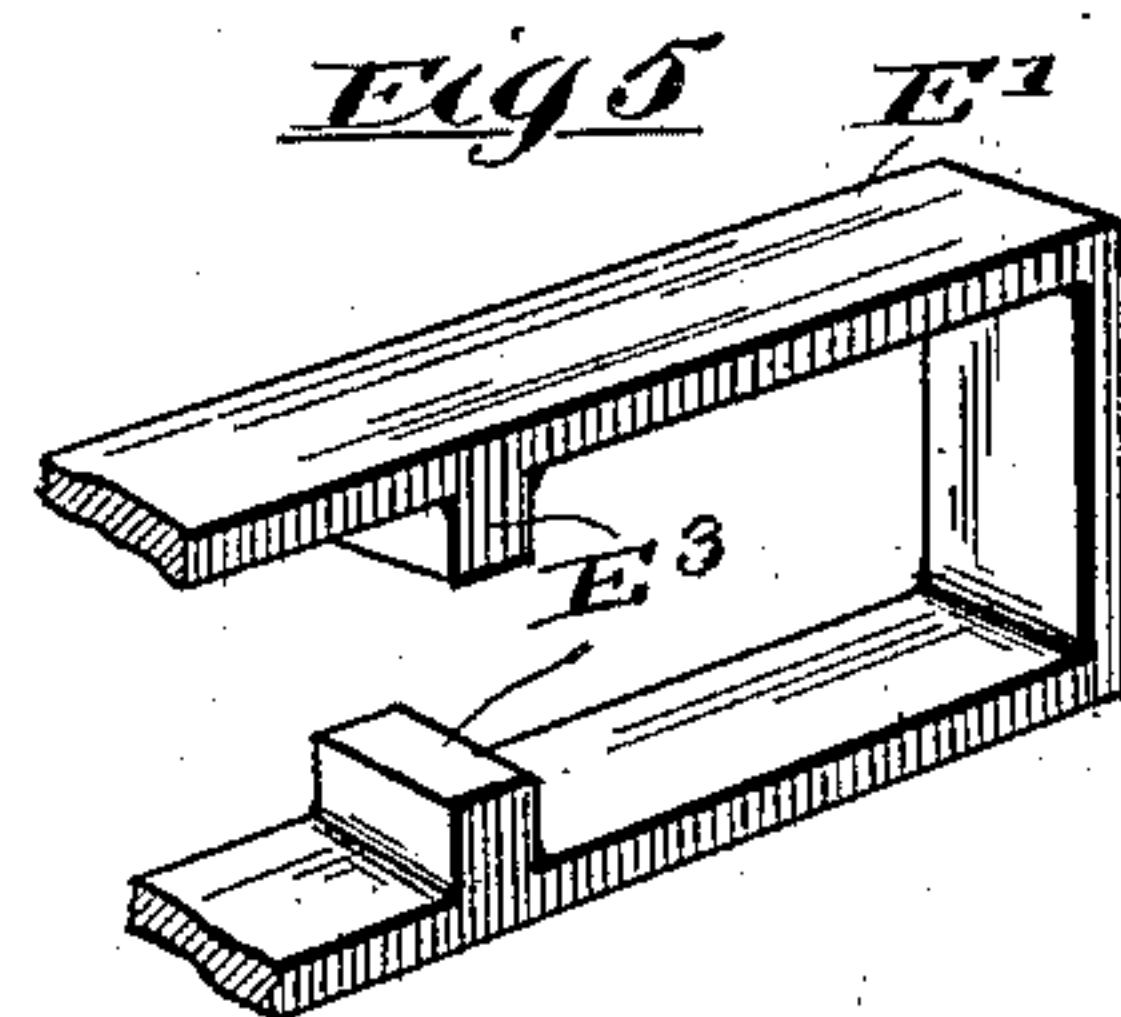


Fig 5



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UNITED STATES PATENT OFFICE.

EDWIN S. WOODS, OF CHICAGO, ILLINOIS.

DRAFT-RIGGING FOR CAR-COUPPLINGS.

SPECIFICATION forming part of Letters Patent No. 749,829, dated January 19, 1904.

Application filed November 10, 1902. Serial No. 130,696. (No model.)

To all whom it may concern:

Be it known that I, EDWIN S. WOODS, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Draft-Rigging for Car-Couplers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in draft-rigging for car-couplers, and refers more specifically to means for facilitating the assemblage of the draft-rigging in the car and its removal therefrom.

The invention consists in the matters hereinafter set forth, and more particularly pointed out in the appended claims.

In the drawings, Figure 1 is a view, partly in longitudinal vertical section and partly in side elevation, of a draft-rigging embodying my invention. Fig. 2 is a view, partly in plan and partly in horizontal section, of the draft-rigging. Fig. 3 is transverse vertical section taken on line 3 3 of Fig. 2. Fig. 4 is a transverse fragmentary view of one of the cheek or draft plates and the swinging door or frame by which the rigging is held in place. Fig. 5 is a fragmentary view illustrating a modified construction of the yoke.

As shown in the drawings, A A designate the longitudinal floor-frame sills of a car, and B B the draft-sills, which are attached to the under side of the floor-sills by means of bolts in the usual manner.

C designates the transverse end sill of the car-floor frame, and D the buffer-sill.

E designates a draw-bar located centrally between the draft-sills B and supported at its outer end by a stirrup *e*, which is bolted to the buffer-sill by means of bolts *e'*.

E' designates a draw-bar yoke, which extends rearwardly from the draw-bar and is attached to the rear end of the draw-bar by means of bolts, and the forward ends of the members of said yoke are turned toward each other to engage with forwardly-facing shoulders on the rear end of the draw-bar.

F F' designate outer and inner spiral buffer-springs which are arranged in tandem and are located between the upper and lower members of the yoke and bear at their ends against follower-plates G G, the springs F' being located within the springs F. Said follower-plates extend transversely through the yoke and engage shoulders on the inner faces of cheek or draft plate H, which are attached to the inner or adjacent faces of the draft-sills by means of bolts *h* or in any other suitable manner. Said shoulders are herein shown as located at the forward and rear sides of notches *h'*, which are formed in the solid cheek or draft plates. The said notches are closed at their upper ends, but are open at their lower ends, as clearly shown in Fig. 3. Preferably the draft-plates are set into recesses in the inner faces of the draft-sills, thereby forming shoulders on said draft-sills against which the ends of the draft-plates bear to resist the endwise pressure brought upon said plates in the pulling and buffing action of the rigging, and thereby limit the shearing action of the plates on the fastening-bolts.

The four follower-plates G are arranged one at the closed rear end of the yoke, one bearing against the rear end of the draw-bar at the forward end of the yoke, and two arranged centrally of the yoke. The two central follower-plates are separated by a connecting piece or bar E², which is integral with and extends from the upper to the lower member of the yoke. Said connecting-piece E² therefore serves as an abutment or shoulder which transmits the buffing movement of the yoke to the rear springs through one of the central follower-plates and transmits the pulling movement of said yoke to the forward springs through the other follower-plate. If desired, the cross piece or bar E² may be replaced by short inwardly-extending integral lugs E³. (Shown in Fig. 5.) The connecting-bar E² is preferred, however, as it serves, in addition to its function as abutments or shoulders, as a brace for strengthening the yoke as a whole. Said central follower-plates act also in connection with the shouldered draft or cheek plates as abutments for the springs in

the pulling and buffing operation of the rigging.

The yoke E' and the cross piece or bar E^2 is composed of a single integral piece, being preferably made of cast-steel. Heretofore it has been a common practice to make draw-bar yokes for draft-riggings of wrought metal, each yoke being made of a single strip or bar of metal bent to form at one end a closed loop, the other end of the yoke being attached to the rear end of the draw-bar. When used in connection with tandem buffer-springs, it has been proposed to rivet or otherwise attach to the members of the yoke, near the center thereof, inwardly-directed lugs or a separable cross-piece, against which the centrally-located follower-plates bear and through which the buffing and pulling movement of the yoke is transmitted to the springs. Yokes made in this manner are weakened at the angles between the rear or closed ends and the upper and lower or parallel members thereof. This is due to the fact that in bending the strap or bar from which said closed yoke is made the metal at the points mentioned is necessarily thinner than at other parts of the yoke. The metal at these parts of the yoke is furthermore stretched or strained during the bending operation, thereby effecting such a change in the structure of the metal as to weaken the same. The weakening of the yoke at the parts mentioned is made doubly serious by reason of the fact that the stress upon these parts of the yoke is a shearing stress and not an endwise stress, as in the parallel parts of the yoke members. In practice it has been found that a large percentage of the breakage of draft-riggings occur at the closed end of the yoke for the reasons above given. By making the yokes of cast metal I am enabled to avoid this weakness, and the yoke may be strengthened to any degree desired by thickening the metal at the angles of the side and end members thereof, thereby greatly lessening the liability of breakage heretofore experienced.

The presence of the cross piece or bar E^2 affords not only abutments for the central follower-plates, but constitutes also a brace which stiffens the yoke as a whole. The integral connection of said cross piece or bar with the yoke members is of considerable advantage over a construction wherein a cross-piece or inwardly-directed lugs are riveted to the yoke members, as the said integral structure is much stronger and not liable to be sheared off under heavy strains, as are bolts or rivets of the construction first mentioned.

Referring now to the means for holding the draft-rigging in place and constructed to facilitate the assemblage and removal of said rigging, said parts are made as follows:

I designates a swinging frame or door, which is hinged at one side thereof to lugs H' , formed on the lower margin of one of the draft-plates

and turned laterally under the adjacent draft-sill, as shown in Fig. 4. Said door when closed occupies a horizontal position and is adapted to be locked to lugs H^2 on the lower margin of the other draft-plate. Said door consists of two parallel side members or ribs i , which when the door is closed fit against the lower margins of the cheek or draft plates H and also against the lower margins of the follower-plates G , at the ends thereof, the open lower ends of the notches h' of said draft plates permitting the follower-plates to rest directly upon said side members of the door. Said side members or ribs are connected together by transverse members i'' , which are formed integral with said side members.

The lugs H^2 , to which the free side of the door is locked, are provided in line with the transverse members of the door with depending apertured parts, and the cross-bars i'' of the door are provided at their ends adjacent to the lugs with downturned apertured parts i^3 , which fit flat against said depending parts of the lugs, and said parts are secured together by bolts i^4 , extending through the apertures thereof, as clearly shown in Fig. 3.

By reason of the fact that the notches h' of the draft or cheek plates which are occupied by the ends of the follower-plates are open at their lower ends said follower-plates rest directly upon the ribs or side members i of the door or frame, and when said door is swung downwardly, therefore, as shown in dotted lines in Fig. 3, the follower-plates are permitted to pass freely downwardly through the notches h' , so that the entire draft-rigging, with the exception of the draft-plates, may be removed downwardly from the space between the draft-plates. When the draft-rigging is to be removed, the stirrup e is detached and the door I is swung downwardly, after which all of the parts of the draft-rigging, with the exception of the cheek or draft plates, are in an assembled position moved downwardly from the space between the draft-plates. In replacing the rigging the springs and follower-plates are assembled in the yoke before they are inserted into the space between the draft-plates and locked therein by the door I . It will be seen, therefore, that the removal and assemblage of the follower-plates, yokes, and buffer-springs may be effected without removing the cheek or draft plate.

The door being hinged at one side thereof and constructed to swing laterally downwardly enables the door to be swung clear of the removable parts, so as to permit the ready removal of the removable parts of the draft-rigging. It has been heretofore proposed to hinge a supporting door or frame of the general character set forth at one end thereof to the draft-plates or draft-sills and permit it to swing downwardly in a plane parallel with its length. This construction is defective,

inasmuch as the length of the door is such that it strikes the axle of the car-truck before it is lowered sufficiently to permit the ready removal of the parts. In the present construction, however, the width of the door is such as to permit it to swing downwardly to fully open the space between said draft-plates without being obstructed by the axle or any other part of the truck. Means are shown for locking the door in an open position, with all parts thereof vertically out of the way of the removal of the draft-rigging, as shown in dotted lines in Fig. 3. This is effected by making the hinge-lugs of the door slightly eccentric, as shown in Figs. 3 and 4, so that when the door is swung to the position shown in Fig. 3 the eccentric position of the door-lugs are pinched against the corresponding parts of the lugs H', and sufficient friction is developed to hold the door slightly beyond the position to what it would be carried by gravity. The door is locked open by swinging the same open with some force, and when the door is to be swung downward a slight force is required to disengage the frictional surfaces of the parts from each other. If desired, the lugs to which the door is hinged may be set laterally outwardly such distance that the door when swung to the limit carried by gravity will be out of the way of the free removal of the draft-rigging. Moreover, other means may be employed for holding the door in the position shown in dotted lines in Fig. 3.

It will of course be understood that so far as the use and construction of the swinging door or frame I is concerned the yoke employed may be of any preferred character and, furthermore, that the details of the yoke, as well as those of the door, may be varied without departing from the spirit of my invention. The term "yoke" is not, therefore, limited to the particular form herein illustrated.

So far as the central abutments of the yoke are concerned the integrality of the bar E² or the legs E³ (the latter shown in Fig. 5) may be effected by casting said parts on the yoke members or welding the same thereon.

I claim as my invention—

1. The combination with a draft-bar, its yoke and spring devices, of a draft-box having its bottom hinged at one side and detachably securable at the other.

2. The combination with draft-sills, shouldered draft-plates affixed thereto, a draw-bar, a draw-bar yoke, buffer-springs and follower-plates against which said springs bear and engaging at their ends the shoulders of the draft-plates, of a laterally-swinging frame or door, one side margin of which is hinged to swing laterally toward and from the draft-rigging and provided at its other side margin with parts of a locking device for holding the same in its uppermost position.

3. The combination with draft-sills, shouldered draft-plates affixed thereto, a draw-bar, a draw-bar yoke, buffer-springs and follower-plates against which said springs bear and engaging at their ends the shoulders of the draft-plates, of a laterally-swinging frame or door, one side margin of which is hinged to one of said draft-plates and adapted to be detachably locked at its other margin to the other draft-plate, said frame or door being provided with longitudinal ribs adapted, when the door is swung upwardly, to engage the lower margins of the draft and follower plates.

4. In a draft-rigging for car-couplers, the combination with the draft-rigging proper consisting of the draw-bar, and yoke, the buffer-springs, the follower-plates and the shouldered cheek or draft plates engaged by the ends of the follower-plates, of a door or frame acting when closed to hold said parts in position and when swung downwardly permitting free removal of the draft-rigging, and means for locking the door open and out of the way of the free removal of the draft-rigging.

In testimony that I claim the foregoing as my invention I affix my signature, in presence of two witnesses, this 6th day of October, A. D. 1902.

EDWIN S. WOODS.

Witnesses:

WILLIAM L. HALL,
GEORGE R. WILKINS.