

No. 812,868.

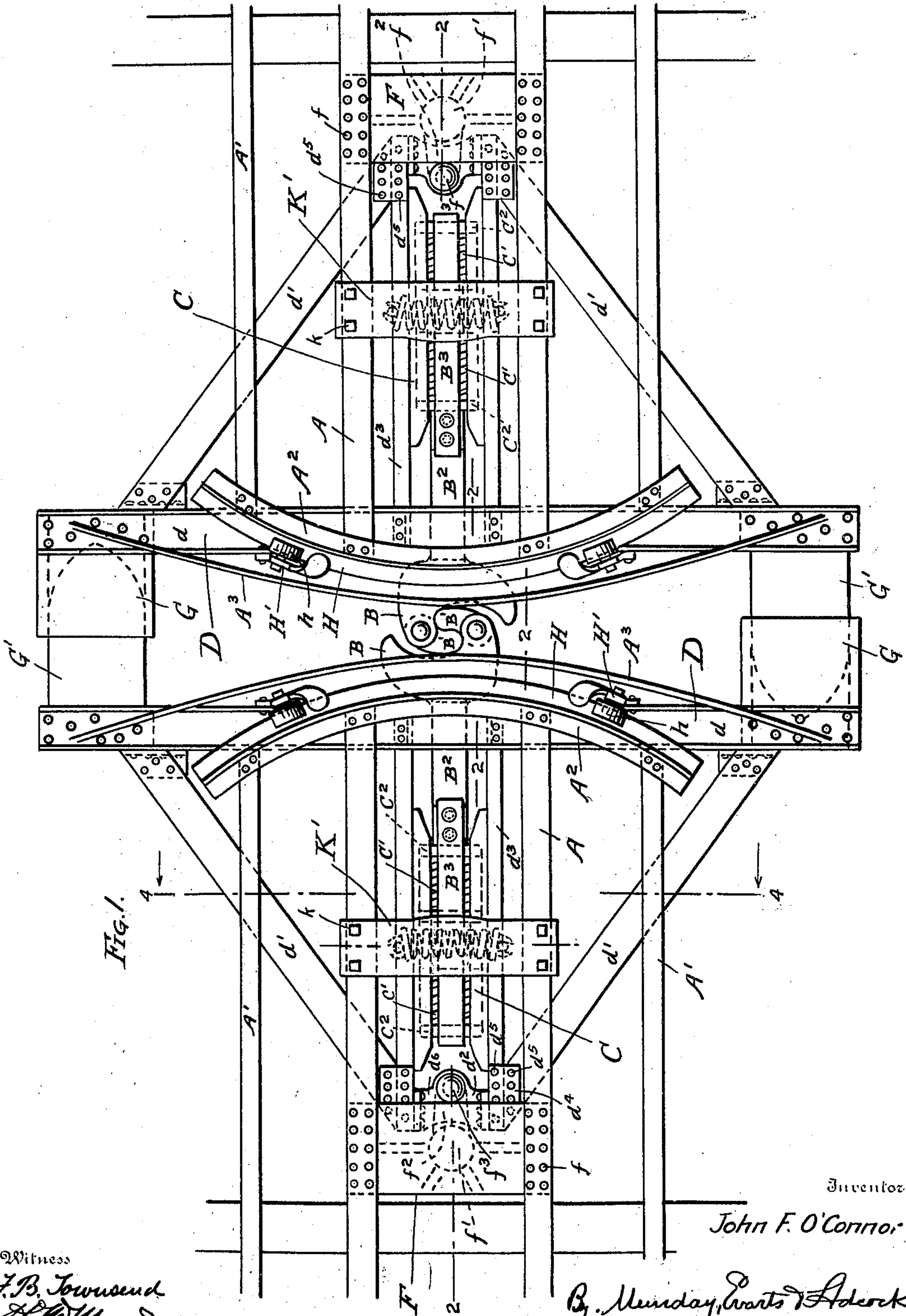
PATENTED FEB. 20, 1906.

J. F. O'CONNOR.

DRAFT APPLIANCE FOR RAILWAY CARS.

APPLICATION FILED OCT. 28, 1905.

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.

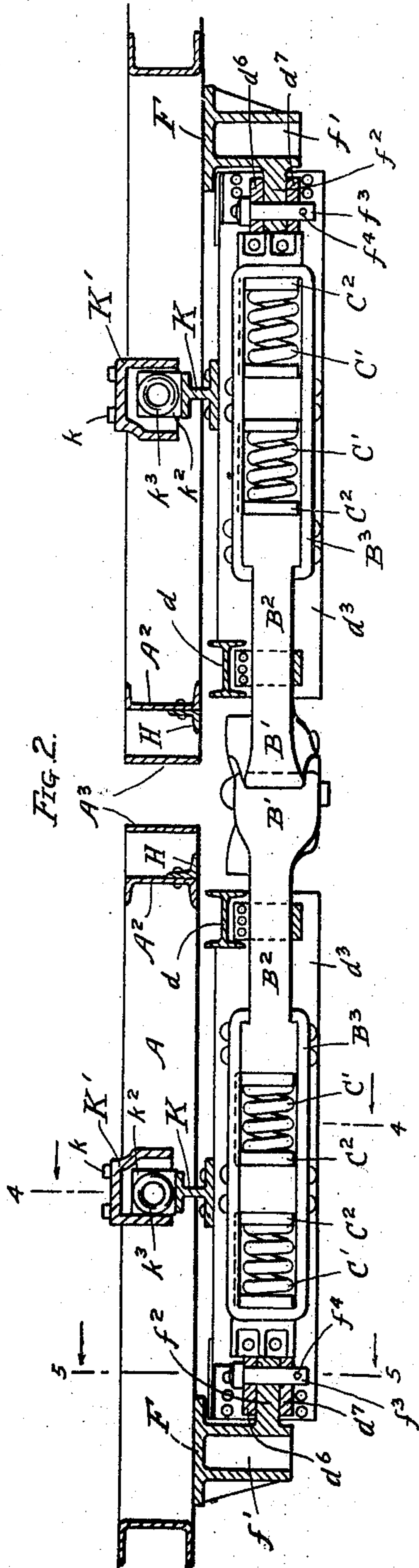


FIG. 2.

FIG. 3.

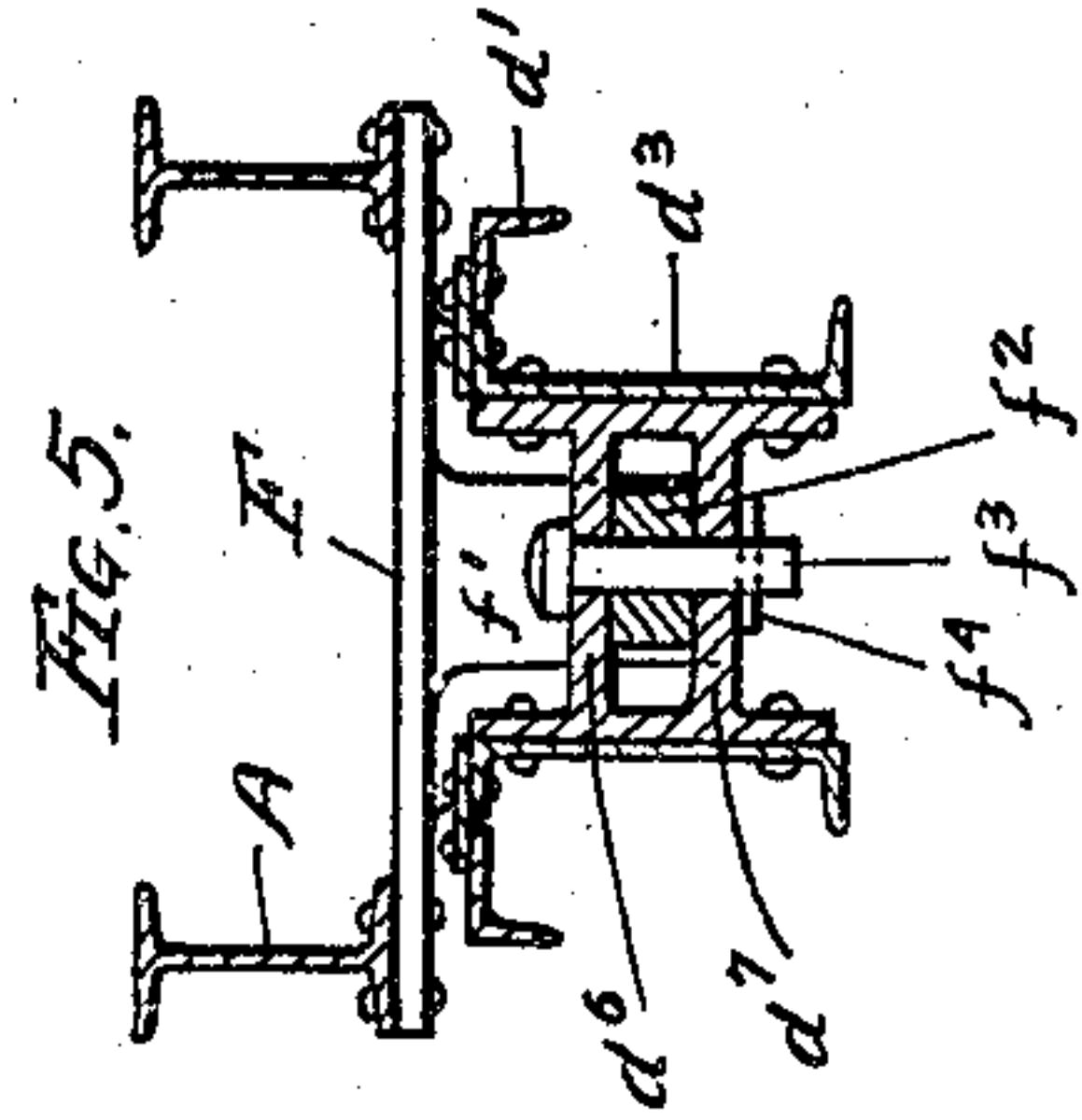
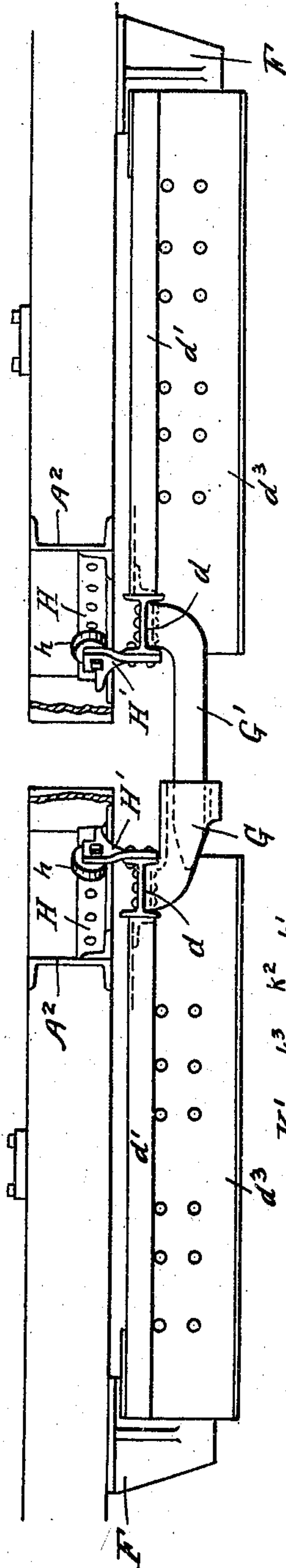


FIG. 5.

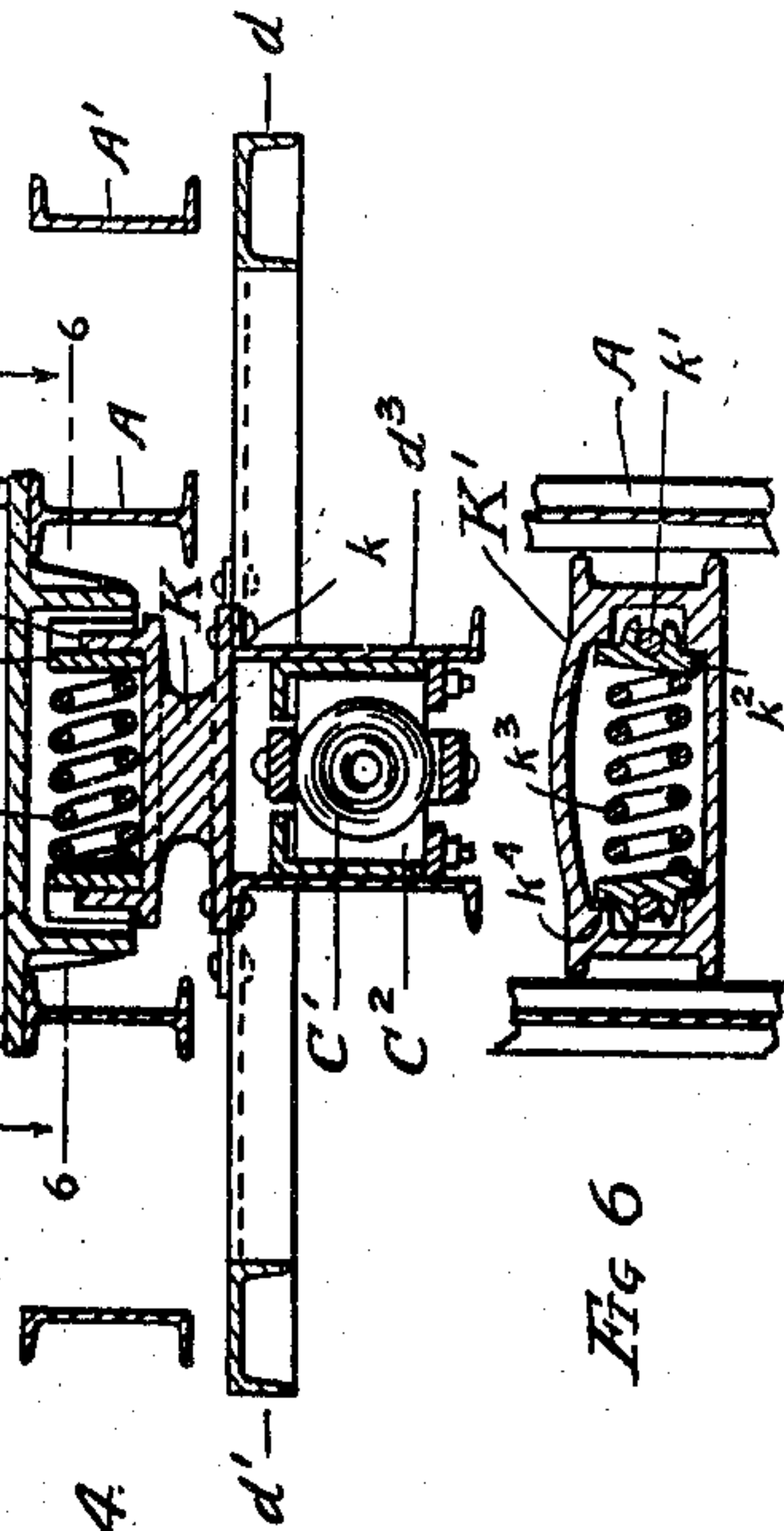


FIG. 4.

FIG. 6.

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FIG. 8.

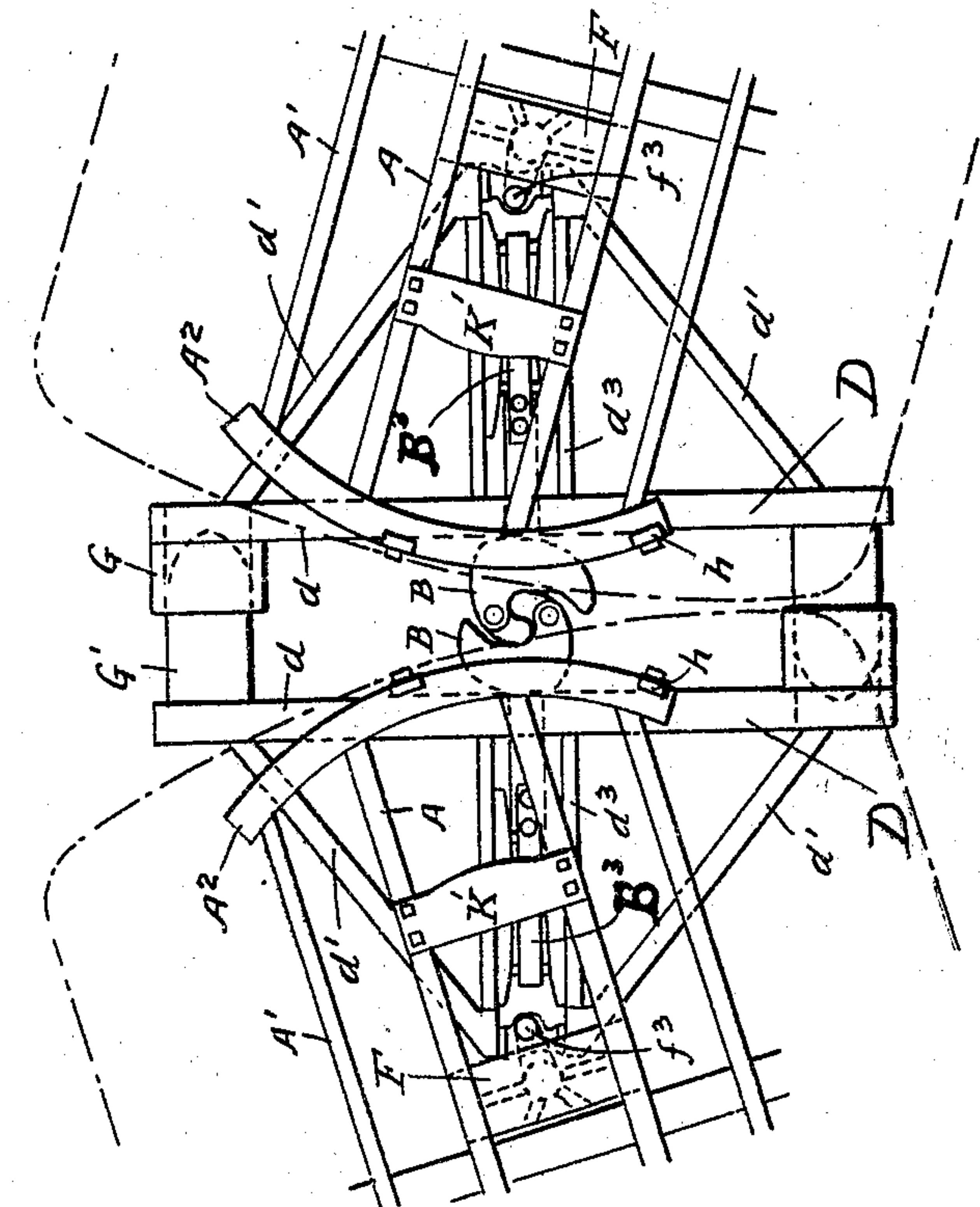
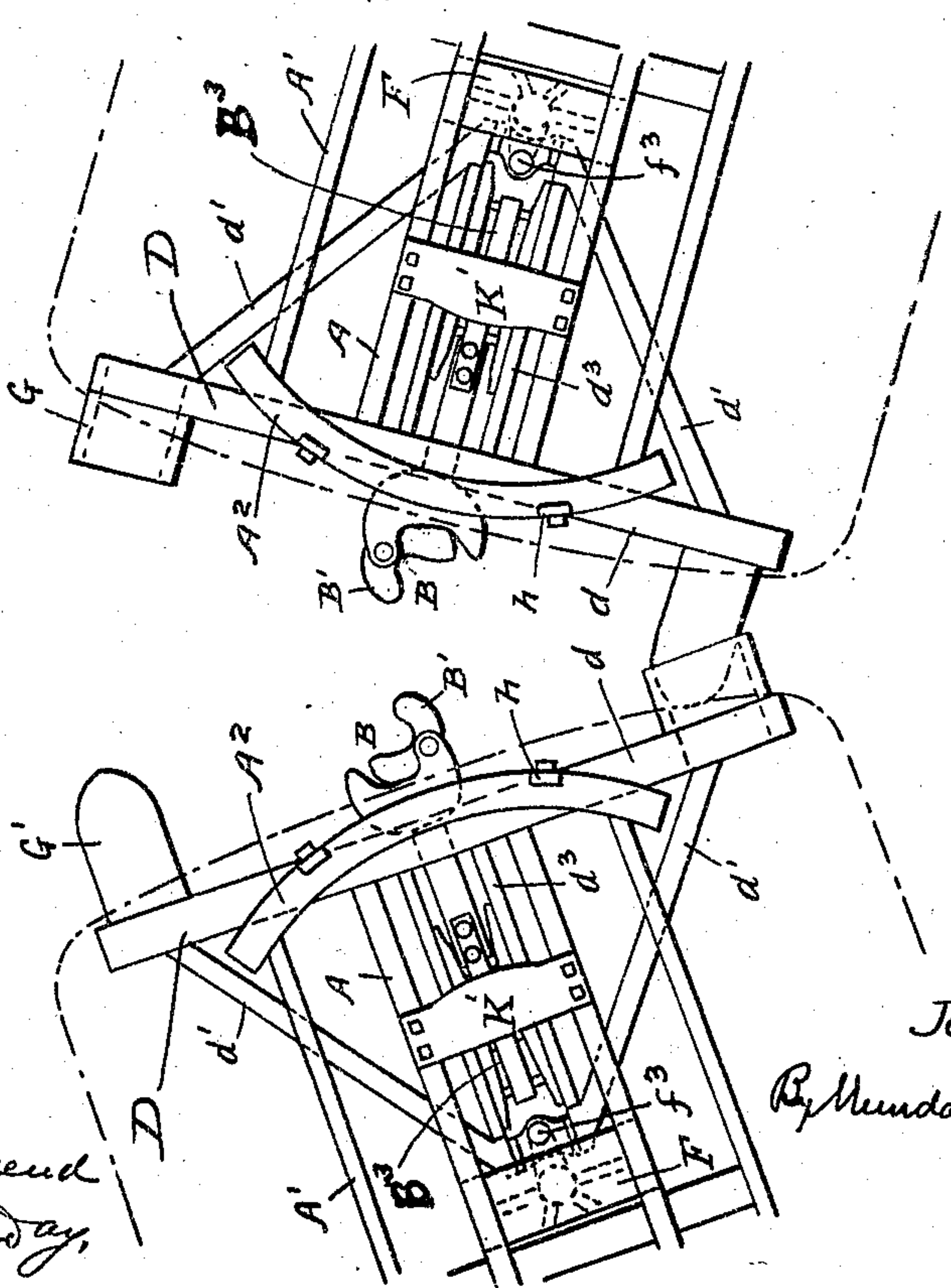


FIG. 7.



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# UNITED STATES PATENT OFFICE.

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## DRAFT APPLIANCE FOR RAILWAY-CARS.

No. 812,868.

Specification of Letters Patent.

Patented Feb. 20, 1906.

Application filed October 28, 1905. Serial No. 284,789.

*To all whom it may concern:*

Be it known that I, JOHN F. O'CONNOR, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Draft Appliances for Railway-Cars, of which the following is a specification.

My invention relates to draft and coupling gear for railway-cars.

In the railway draft and coupling gear or appliances heretofore in use in railway-cars it is practically impossible to couple cars together on a curved or sharply-curved track even if the knuckles of both couplers are open and still more difficult when one of the knuckles is closed, and this frequently causes great annoyance and inconvenience.

The object of my invention is to provide a simple, efficient, strong, and durable draft and coupling gear for railway-cars by means of which this difficulty may be overcome and the cars readily coupled together on a curved track, however short the radius, and whereby also the movement of the cars may be steadied when the train is passing around short curves and the security and stability of the train as a whole materially increased.

My invention consists in the means I employ to practically accomplish this object or result—that is to say, it consists, in connection with the car-framework, of a supplemental draft and coupler gear frame pivotally connected to the car-frame and upon which pivoted supplemental frame the car-coupler and draft-rigging proper are mounted and cooperating socket and plunger devices on the supplemental frame, by means of which the supplemental draft-gear and coupler carrying frames of two contiguous cars are turned into parallelism or alinement with each other as the couplers of the two cars come together, thus causing the couplers to readily couple or interengage the same as if the cars to be coupled were upon a straight track instead of upon a curved track.

My invention also consists in the novel construction of parts and devices and in the novel combinations of parts and devices herein shown and described.

In the accompanying drawings, forming a part of this specification, Figure 1 is a plan view of a draft and coupler gear embodying my invention, showing the contiguous ends of two cars coupled together. Fig. 2 is a cen-

tral vertical longitudinal section on line 2 2 of Fig. 1. Fig. 3 is a detail side elevation. Fig. 4 is a vertical cross-section on the broken line 4 4 of Fig. 2. Fig. 5 is a vertical cross-section on line 5 5 of Fig. 2. Fig. 6 is a detail horizontal section on line 6 6 of Fig. 4; and Figs. 7 and 8 are plan views showing the parts in different positions to illustrate the operation, the angle of the approaching cars to each other being exaggerated to make the principle and mode of operation more clear.

In the drawings, A A represent the center sills, A' A' the intermediate sills, and A<sup>2</sup> the front or end sills of the car-frameworks of two contiguous cars, and A<sup>3</sup> the curved front plate thereof. B B are the couplers, each having the customary hinged knuckle B', the draw-bar B<sup>2</sup>, and draw-bar strap or yoke B<sup>3</sup>. C C represent the side plates or stop-castings of the draft-rigging, C' C' the cushioning devices of the draft-rigging, the same being preferably tandem-arranged springs, and C<sup>2</sup> C<sup>2</sup> the followers. All these parts may be of any ordinary or suitable construction and require no detailed description, as the same are familiar to those skilled in the art.

D is the supplemental pivotal or swinging draft-gear and coupler frame, upon which the draft-rigging and coupler proper are mounted and by which the same are carried and which is pivotally connected or hinged at its rear end to the main frame of the car, so that the supplemental frame may swing from side to side as the cars pass around a curve. The supplemental draft-gear and coupler carrying frame D is preferably of triangular or A-shaped form and preferably comprises a front bar *d*, two angle-bars *d'*, a pivot or hinge block *d*<sup>2</sup>, and a pair of parallel longitudinal bars *d*<sup>3</sup> *d*<sup>3</sup>, to which the side plates or stop-castings C<sup>2</sup> of the draft-rigging are directly secured, all these bars *d* *d'* *d*<sup>3</sup> and block *d*<sup>2</sup> being firmly and rigidly riveted and secured by suitable connecting-plates *d*<sup>4</sup> and rivets *d*<sup>5</sup>. The pivot or hinge block *d*<sup>2</sup> of the supplemental swinging frame D is pivotally connected to the main frame of the car by a connecting block or member F, which is firmly secured by rivets *f* to the center sills A of the car-frame and which is provided with a depending arm *f'* and pivot-lug *f*<sup>2</sup>, which fits between the upper and lower webs *d*<sup>6</sup> *d*<sup>7</sup> of the pivot-block *d*<sup>2</sup> of the supplemental frame and to which webs said lug *f*<sup>2</sup> is pivot-



ally connected by a pivot-pin  $f^3$ , secured in place by a cotter  $f^4$ . The front bar  $d$  of the supplemental swinging frame D is preferably about seven feet in length or some two feet shorter than the end sill or the whole width of the car, and it is provided on one side with a socket G and on the opposite side with a plunger G', which engage the cooperating socket and plunger on the swinging frame of the adjacent car. The end of each of the plungers is pointed and rounded, preferably about as indicated in the drawings, and thus adapted to enter the mouth of the socket, which is correspondingly shaped, when the cars approach each other on a curve, as illustrated, for example, in Fig. 7, the cooperating and interengaging socket and plungers on the supplemental swinging frames of the two adjacent cars thus causing such supplemental frames as the cars approach each other to turn into alinement or parallelism with each other, as indicated in Fig. 8, thus bringing the draw-bars and couplers and draft-rigging of the two adjacent cars into an approximately straight line with each other, the same as if the cars to be coupled were on a straight track instead of on a curved track. The wide mouth of the socket G and broad rounded point of the plunger G' adapts the same to interengage each other however sharp may be the curve of the track or the angle at which the adjacent cars stand to each other, as will be readily understood from Fig. 7, and the further approaching movement of the cars by the leverage of the interengaging socket and plunger of the two hinged frames D D of the two approaching cars thus causes the hinged frames D D to be turned on their pivots until their front bars  $d$   $d$  are parallel with each other, and the two draw-bars carried by these hinged frames D D are brought into approximate alinement with each other, so that the couplers will properly engage whether one or both of the knuckles are open.

To properly support the front end or portion of the supplemental coupler and draw-bar carrying frame D D, the main frame A is provided with a curved track H, near the front end thereof, and the supplemental frame D with one or more—preferably two—hangers H', having wheels or rollers  $h$ , which travel upon the curved track H. As in my invention all necessary lateral or swinging movement of the draw-bar and coupler is provided for by the supplemental swinging frame D, upon which the same is mounted, it is unnecessary that any provision be made for giving the draw-bar and coupler a lateral or swinging movement in respect to the side plates or stop-castings C of the draft-rigging, and I therefore prefer that the inner edges of the side plates or stop-castings should be straight and fit reasonably closely the draw-bar strap. To center or maintain the sup-

plemental coupler and draw-bar carrying swinging frame D in its normal position, I provide the same with a centering device K, rigidly secured to said supplemental frame by rivets  $k$  and having shoulders  $k'$  engaged by followers  $k^2$  of the centering-spring  $k^3$ , the spring and followers being supported in a suitable casing K', secured to the center sills A of the car and furnished with stops  $k^4$  for the followers to abut against.

While my invention is specially intended and adapted for use upon passenger-cars, it may, however, nevertheless be used upon other cars, if desired.

I claim—

1. In a railway-car coupling and draft appliance, the combination with the main frame of the car, of a supplemental swinging frame pivotally connected at its rear end to said main frame, a coupler and draft-rigging mechanism mounted upon and carried by said supplemental swinging frame and a socket and plunger at the opposite sides of the swinging frame adapted to engage the cooperating plunger and socket of the swinging frame of the adjacent car to turn the two swinging frames into parallelism and the couplers and draw-bars into alinement with each other as the cars approach, substantially as specified.

2. In a railway-car coupling and draft appliance, the combination with the main frame of the car, of a supplemental swinging frame pivotally connected at its rear end to said main frame, a coupler and draft-rigging mechanism mounted upon and carried by said supplemental swinging frame, a curved track and hangers for supporting the front end of said supplemental swinging frame, and a socket and plunger at the opposite sides of the swinging frame adapted to engage the cooperating plunger and socket of the swinging frame of the adjacent car to turn the two swinging frames into parallelism and the couplers and draw-bars into alinement with each other as the cars approach, substantially as specified.

3. In a railway-car coupling and draft appliance, the combination with the main frame of the car, of a supplemental swinging frame pivotally connected at its rear end to said main frame, a coupler and draft-rigging mechanism mounted upon and carried by said supplemental swinging frame, means for centering said supplemental swinging frame with the main frame, and a socket and plunger at the opposite sides of the swinging frame adapted to engage the cooperating plunger and socket of the swinging frame of the adjacent car to turn the two swinging frames into parallelism and the couplers and draw-bars into alinement with each other as the cars approach, substantially as specified.

4. In a railway-car coupling and draft appliance, the combination with the main frame



of the car, of a supplemental swinging frame pivotally connected at its rear end to said main frame, a coupler draft-rigging mechanism mounted upon and carried by said supplemental swinging frame, a curved track and hangers for supporting the front end of said supplemental swinging frame, and means for centering said supplemental swinging frame with the main frame, and a socket and plunger at the opposite sides of the swinging frame adapted to engage the cooperating plunger and socket of the swinging frame of the adjacent car to turn the two swinging frames into parallelism and the couplers and draw-bars into alinement with each other as the cars approach, substantially as specified.

5. The combination with a car-frame, of a supplemental draw-bar and draft-rigging carrying frame pivotally connected to the main frame, and a coupler draw-bar and cushioning device mounted upon and carried by said supplemental frame, said supplemental frame having socket and plunger devices adapted to engage similar devices on the adjacent car to turn said supplemental frame on its pivot so as to bring the draw-bar carried thereby into alinement with the draw-bar of the adjacent car, substantially as specified.

6. The combination with a car-frame, of a supplemental draw-bar and draft-rigging carrying frame pivotally connected to the main frame, and a coupler draw-bar and cushioning device mounted upon and carried by said supplemental frame, and means for centering said supplemental frame with the car-frame, said supplemental frame having socket and plunger devices adapted to engage similar devices on the adjacent car to turn said supplemental frame on its pivot so as to bring

the draw-bar carried thereby into alinement with the draw-bar of the adjacent car, substantially as specified.

7. The combination with the car-frame, of a supplemental triangular frame pivotally connected to the main frame and provided with parallel bars, side plates or stop-castings secured to said parallel bars, followers, a cushioning device and a draw-bar mounted upon and carried by said supplemental frame, substantially as specified.

8. The combination with the car-frame, of a supplemental triangular frame pivotally connected to the main frame and provided with parallel bars, side plates or stop-castings secured to said parallel bars, followers, a cushioning device, a draw-bar mounted upon and carried by said supplemental frame, and a centering device for said supplemental frame, substantially as specified.

9. The combination with the car-frame, of a supplemental triangular frame pivotally connected to the main frame and provided with parallel bars, side plates or stop-castings secured to said parallel bars, followers, a cushioning device, a draw-bar mounted upon and carried by said supplemental frame, a centering device for said supplemental frame, and means for turning said supplemental frame on its pivot to bring the draw-bar carried thereby into alinement with the draw-bar of the adjacent car as the cars approach each other for coupling on a curve, substantially as specified.

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Witnesses:

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