

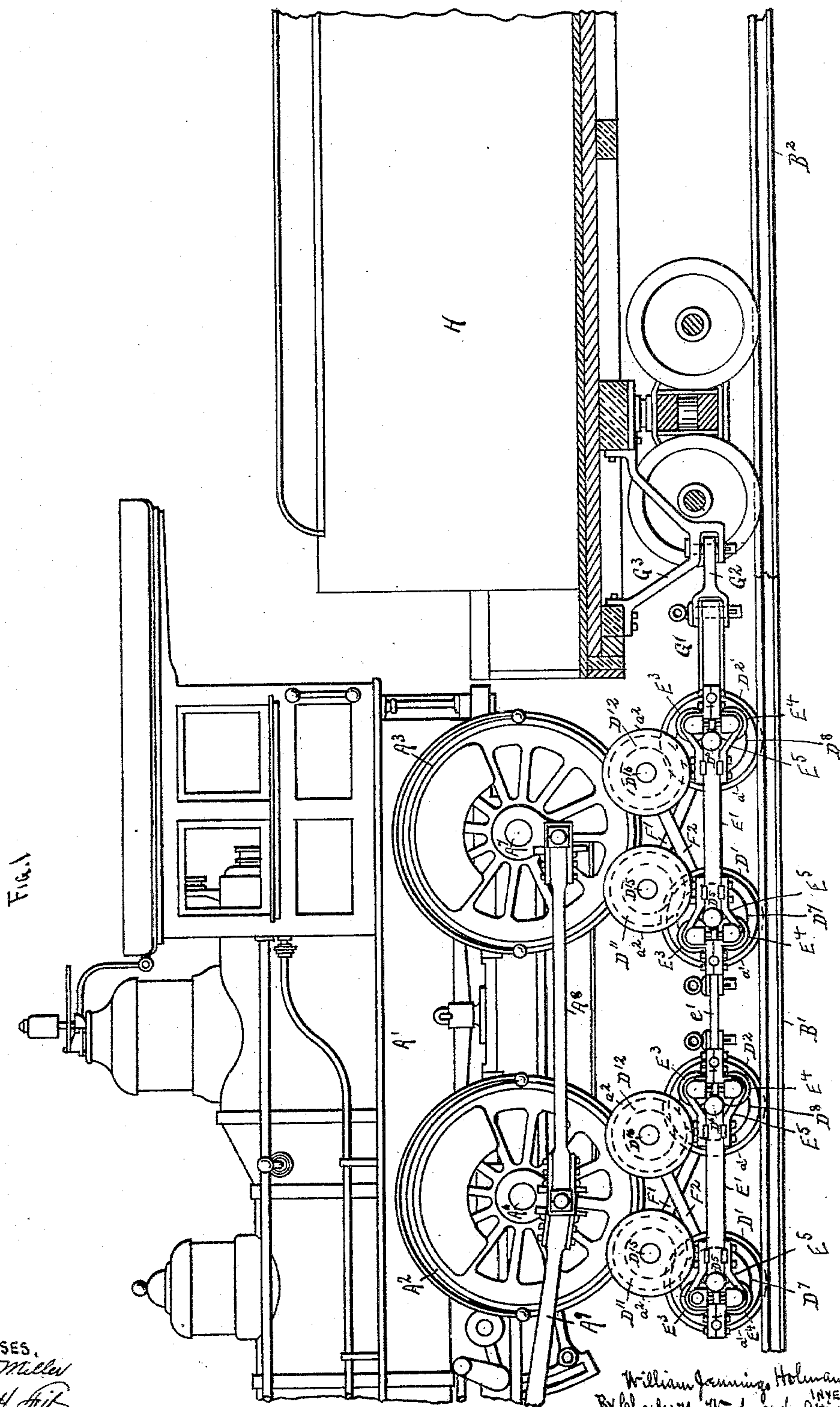
(No Model.)

6 Sheets—Sheet 1.

W. J. HOLMAN.
LOCOMOTIVE SPEEDING TRUCK.

No. 597,557.

Patented Jan. 18, 1898.



WITNESSES.
C. F. Miller
John H. Fitz

William Jennings Holman
INVENTOR.
By Charles N. Woodward, Atty.

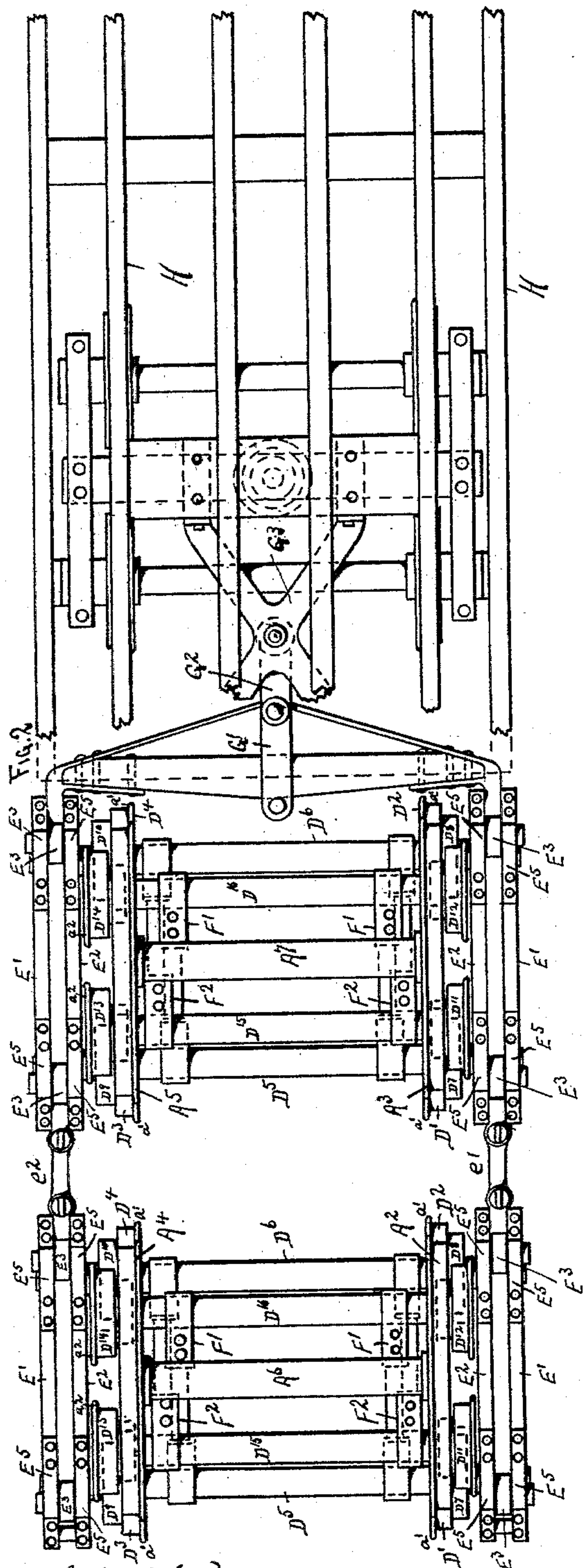
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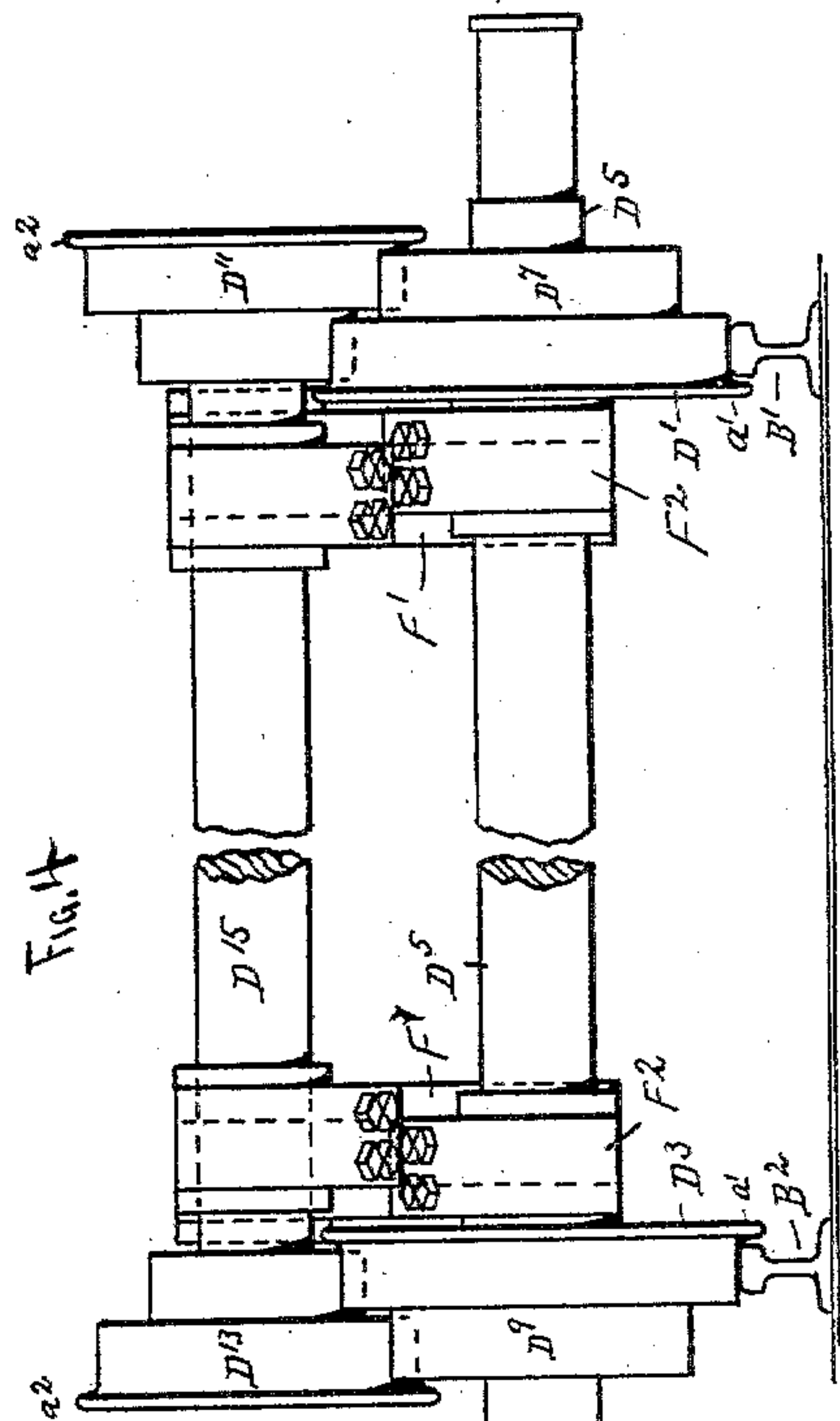
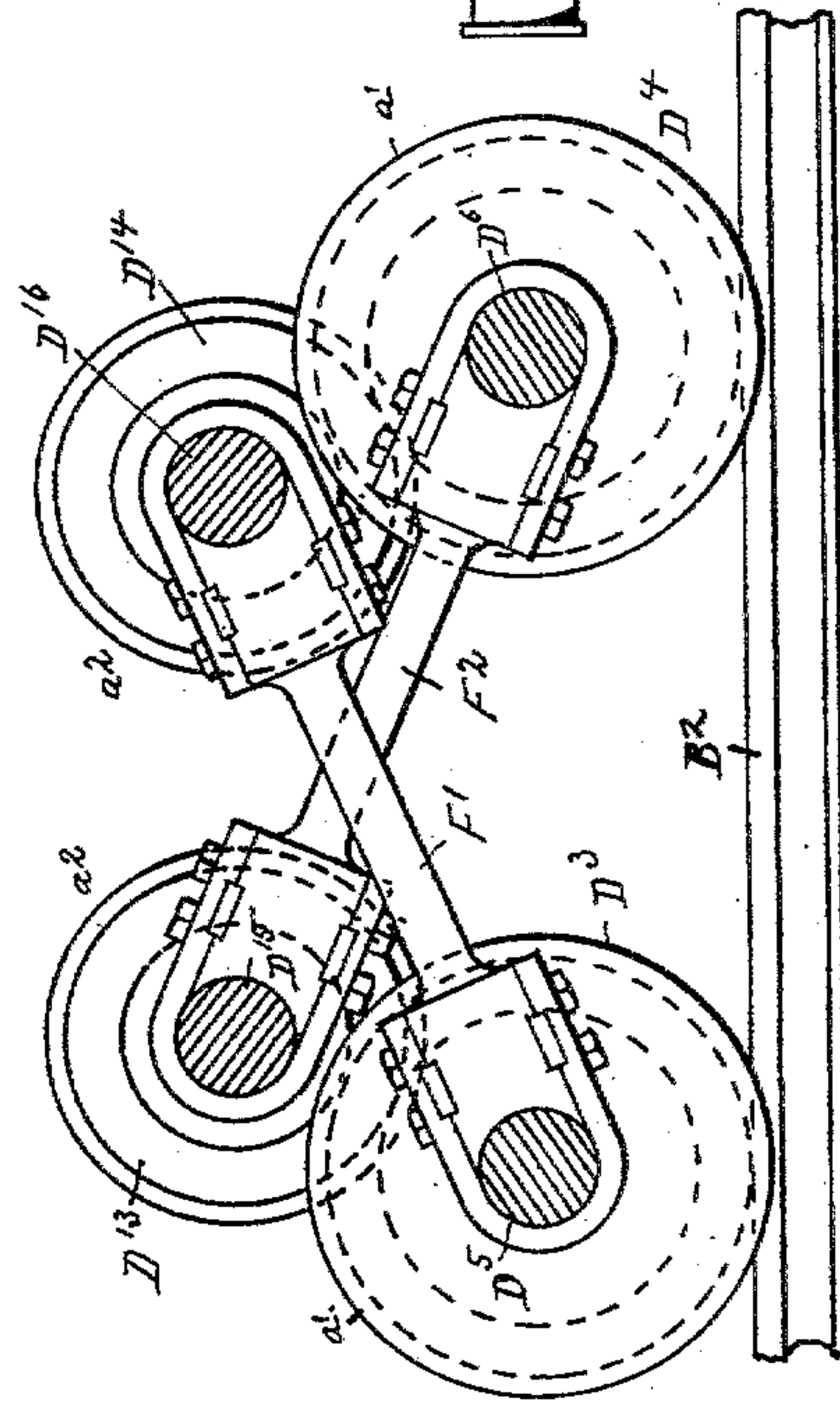


Fig. 3



William Jennings Holman, INVENTOR.
By Charles H. Woodward, Atty.

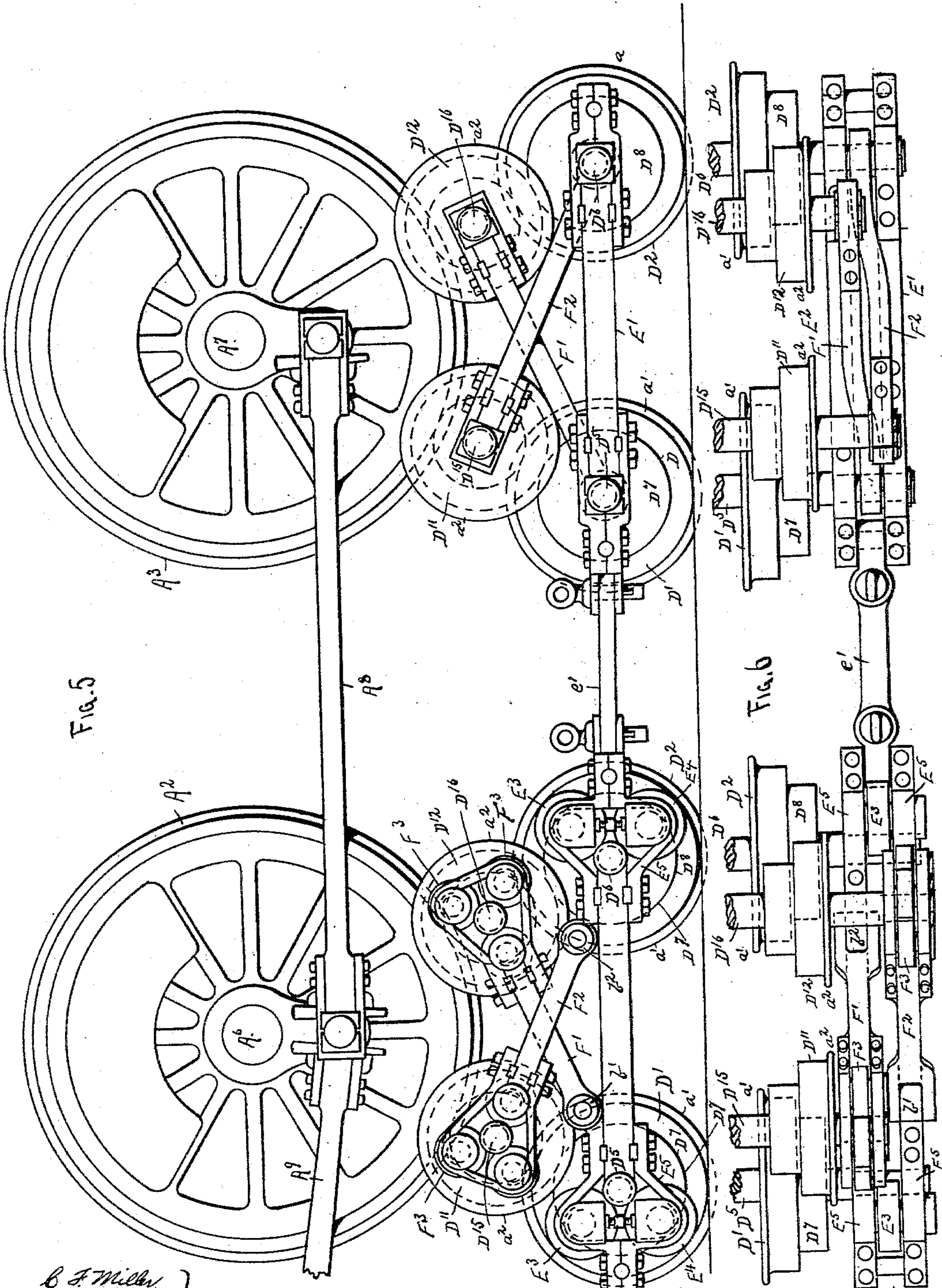
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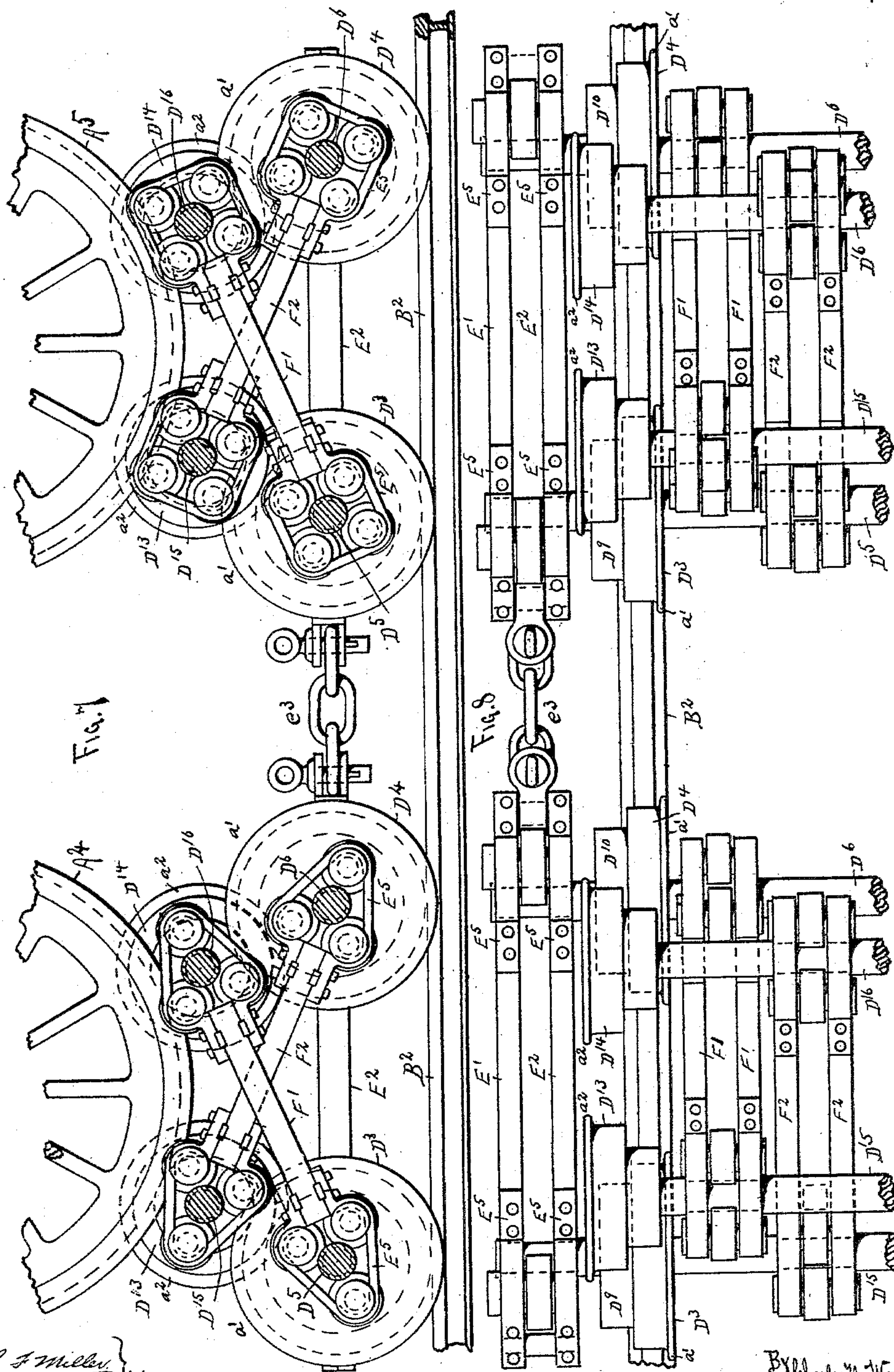
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B. F. Miller,
John H. Pitt, WITNESSES.

William Jennings Holman, INVENTOR.
By Charles N. Woodward, atty.

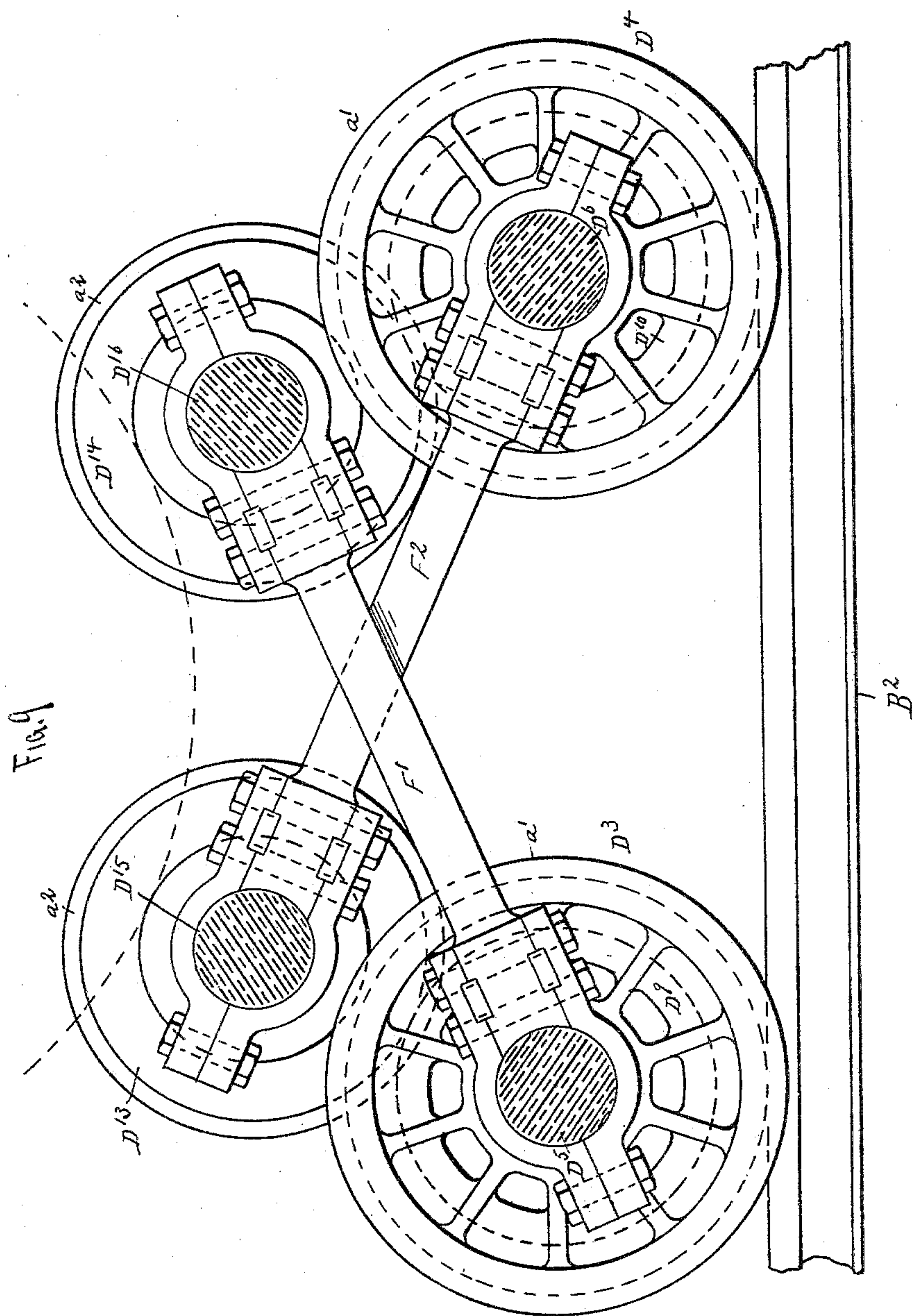
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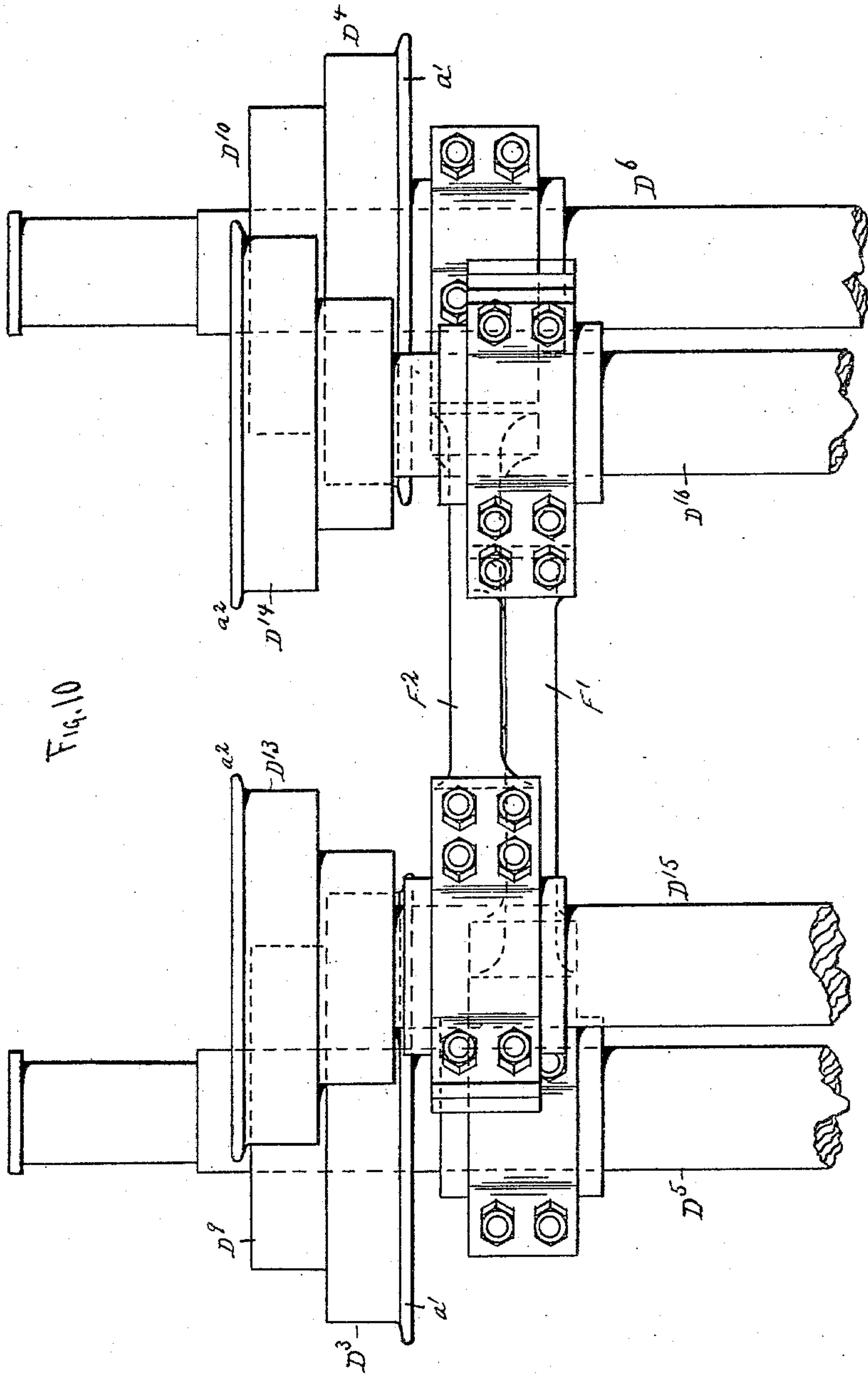
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WITNESSES

C. F. Miller.

John H. Fitz

William Jennings Holman, INVENTOR.
By Charles N. Woodward Att'y.

UNITED STATES PATENT OFFICE.

WILLIAM JENNINGS HOLMAN, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR TO
THE HOLMAN LOCOMOTIVE SPEEDING TRUCK COMPANY, OF IOWA.

LOCOMOTIVE SPEEDING-TRUCK.

SPECIFICATION forming part of Letters Patent No. 597,557, dated January 18, 1898.

Application filed May 7, 1897. Serial No. 635,587. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM JENNINGS HOLMAN, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have made certain new and useful Improvements in Locomotive Speeding-Trucks, of which the following is a specification.

This invention relates to trucks designed to be placed beneath the driving-wheels of locomotives to enable the speed upon the rails to be greatly increased without correspondingly increasing the piston speed of the locomotive; and the invention consists in the construction, combination, and arrangement of parts, as hereinafter shown and described, and specifically pointed out in the claims.

In this invention are comprised two pairs of traction-wheels, coupled by their axles, having inside flanges and outwardly-extended traction-hubs and running upon the rails by their larger treads, and two other pairs of traction-wheels having outside flanges and supported upon the extended hubs of the lower or rail wheels and with inwardly-extending traction-hubs supporting the treads of the main driving-wheels of the locomotive, the center lines of the axles of the upper tiers of wheels being preferably substantially in line between the center line of the main axles of the locomotive driving-wheels and the center line of the axles of the track-wheels and with the axles of the upper tiers of wheels coupled by diagonal coupling-rods to the axles or connecting mechanism of the track-wheels.

This invention further consists in coupling the train of cars to be drawn by the locomotive directly to the coupling mechanism of the speeding-trucks and relieving the locomotive from all work except that of actuating the friction-gearing of the speeding-trucks, whereby the tractive force is greatly increased and the strains equalized and the friction more evenly distributed.

In the drawings illustrating my invention, Figure 1 is a side elevation of a pair of the speeding-trucks with a portion of a locomotive mounted thereon and a portion of a tender, the latter being in longitudinal section. Fig. 2 is a plan view of the speeding-trucks and the framework of the tender with

the main driving-wheels of the locomotive in position upon the trucks. Fig. 3 is an enlarged sectional side elevation, and Fig. 4 is an enlarged end elevation, of one of the speeding-trucks detached, illustrating one method of constructing the diagonal coupling-rods. Fig. 5 is an enlarged side elevation of a pair of the speeding-trucks with a pair of locomotive-drivers in place thereon; and Fig. 6 is an enlarged plan view of the speeding-trucks as shown in Fig. 5, illustrating a modification in the manner of constructing the axle-connecting rods. Figs. 7 and 8 are views similar to Figs. 5 and 6, illustrating still other modifications in the construction of the connecting-rods. Fig. 9 is an enlarged side view, and Fig. 10 is an enlarged plan view, of one of the speeding-trucks, showing still another modification in the construction of the diagonal connecting-rods.

One of the speeding-trucks will be employed under each pair of driving-wheels, and in the drawings I have shown an ordinary two-coupled locomotive; but it will of course be understood that when used under three or more coupled or "mogul" locomotives as many of the speeding-trucks will be employed as there are pairs of coupled driving-wheels.

In the drawings, by which the operation of my invention is illustrated, A' represents the boiler and upper works of a locomotive, A² A³ A⁴ A⁵ the main driving-wheels, A⁶ A⁷ the main axles, A⁸ one of the parallel rods, and A⁹ one of the connecting-rods, all these parts being of the usual construction, as in the operation of my invention no change is required in the construction of the locomotive.

As the two speeding-trucks shown are precisely alike, like letters of reference are used to indicate corresponding parts in both the trucks.

B' B² represent the rails upon which the two pairs of wheels D' D² D³ D⁴, composing the track-wheels of the truck, are adapted to run, being connected by axles D⁵ D⁶ and with inside flanges a', as shown. The axles D⁵ D⁶ are coupled, as shown, by side rods to retain them in their proper relative positions. These coupling-rods will preferably be arranged in pairs E¹ E² and provided with antifriction-rollers E³ E⁴, secured in place by straps E⁵, as shown in Figs. 1, 2, 5, 6, and 7, or with

ordinary strap connections, as shown at the right of Figs. 5 and 6, or in any other suitable manner, as circumstances may determine.

The lower or track wheels $D^1 D^2 D^3 D^4$ are each provided with outwardly-extended hubs $D^7 D^8 D^9 D^{10}$, having traction-surfaces and upon which the traction-surfaces of two pairs of upper wheels $D^{11} D^{12} D^{13} D^{14}$ rest, each pair of the upper wheels being coupled by its own axle $D^{15} D^{16}$ and having outside flanges a^2 , so that they will not run off from the lower wheels. The center lines of the axles $D^{15} D^{16}$ will come inside the center lines of the axles $D^5 D^6$ and will preferably be in line between the center lines of the axles $D^5 D^6$ and the center line of the main axles $A^4 A^5$ of the locomotive-drivers, so that all the strains will come directly through the centers of all the wheels and their axles. The axles $D^{15} D^{16}$ are coupled by diagonal coupling-rods $F^1 F^2$ either to the axles $D^5 D^6$, as shown in all the figures of the drawings, or to the side rods or couplings of the lower or track wheels, as shown at $b^1 b^2$ at the left of Figs. 5 and 6. The diagonal coupling-rods $F^1 F^2$ will preferably be provided with antifriction-rollers F^3 where they embrace the axles, so as to reduce the friction to a minimum and largely relieve the coupling-rods from the severe strains to which they would be otherwise subjected.

I have shown the antifriction-rollers arranged in various ways in the different figures of the drawings, and have also shown the diagonal connecting-rods arranged both outside and inside the friction-gearing, as I do not wish to be limited to any specific method of arranging them.

The two sets of speeding-trucks are coupled by their side rods by swiveled coupling-rods $e^1 e^2$, as shown in Figs. 1, 2, 5, and 6, or chains e^3 , strained to a tension, may be employed, as in Figs. 7 and 8, the end sought being to provide a coupling which, while holding the trucks at the same distance apart, will yet leave sufficient lateral flexibility to allow for the change of position in running around curves or over uneven sections of the tracks.

The train to be drawn by the locomotive will be connected to the speeding-trucks, thus leaving the locomotive free to actuate the friction-gearing by which the necessary motion is imparted.

The coupling is shown made to the side rods of the rear speeding-truck by a coupling-beam G^1 , as shown in Figs. 1 and 2, and from thence by a coupling-bar G^2 to a bracket or hanger G^3 , attached to the frame of the tender H, and from thence the remainder of the train will be coupled in the ordinary manner. By this arrangement the coupling is made at the lowest possible point or to the "initial" lever of the series running through the axial lines of the friction-gears to the drive-wheels of the locomotive, thereby greatly increasing the tractive force and equalizing the strains throughout all the wheels composing the trucks. The locomotive having no hori-

zontal strains as when employed in the ordinary manner, the pressure is downward only, and this downward pressure being equally distributed upon all the various wheels composing the speeding-trucks the wear is thereby equalized and the strains uniformly distributed.

Having thus described my invention, what I claim as new is—

1. In a locomotive speeding-truck, two pairs of flanged track-wheels upon axles and running upon the rails and having extended hubs, reversely-flanged intermediate wheels upon axles and running by their treads upon the extended hubs of said track-wheels and with extended hubs running in contact with the treads of the locomotive-drivers, diagonal rods connecting the axle of one pair of said flanged track-wheels with the axle of the opposite pair of the intermediate flanged bearing-wheels, and diagonal rods connecting the axle of the other pair of said flanged track-wheels with the axle of the other opposite pair of intermediate flanged bearing-wheels, whereby the intermediate wheels are supported in position by said diagonal connecting-rods, substantially as set forth.

2. In a locomotive speeding-truck, two pairs of flanged track-wheels running upon the rails and having extended hubs and coupled by their axles, reversely-flanged intermediate wheels upon axles and running by their treads upon the extended hubs of said track-wheels and with extended hubs running in contact with the treads of the locomotive-drivers, diagonal rods connecting the axle of one pair of said flanged track-wheels with the axle of the opposite pair of said intermediate flanged bearing-wheels, and diagonal rods connecting the axle of the other pair of said flanged track-wheels with the axle of the other opposite pair of said intermediate flanged bearing-wheels, and antifriction-rollers carried by said diagonal rods and adapted to carry the end thrust, and support said connecting-rods and flanged wheels, substantially as shown and described.

3. In a locomotive speeding-truck, two pairs of flanged track-wheels running upon the rails and having extended hubs and coupled by their axles, reversely-flanged intermediate wheels upon axles, and running by their treads upon the extended hubs of said track-wheels, and with extended hubs running in contact with the treads of the locomotive-drivers, and with the center lines of the axles of said intermediate wheels in line with the center line of the axles of said locomotive-drivers and of the axles of said track-wheel, diagonal rods connecting the axles of one pair of said flanged track-wheels with the axle of the opposite pair of said intermediate flanged bearing-wheels, and diagonal rods connecting the axles of the other pair of said flanged track-wheels with the axle of the other opposite pair of intermediate flanged bearing-wheels, whereby the intermediate wheels are supported in position

by said diagonal connecting-rods, and with the strains all coming in line through the axles, substantially as shown and described.

4. In a locomotive speeding-truck, flanged
5 track-wheels running upon the rails and having extended hubs, reversely-flanged wheels running upon the extended hubs of said track-wheels and having extended hubs running in contact with the treads of the locomotive-
10 drivers, coupling-rods connecting the axles of said wheels, and means whereby said speeding-truck may be coupled to the train to be

moved by said locomotive and the locomotive thereby relieved from all work except that of actuating the wheels composing the speeding-
truck, and the strains equalized and uniformly distributed, substantially as set forth. 15

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WILLIAM JENNINGS HOLMAN.

In presence of—

C. N. WOODWARD,
LEWIS D. MANN.