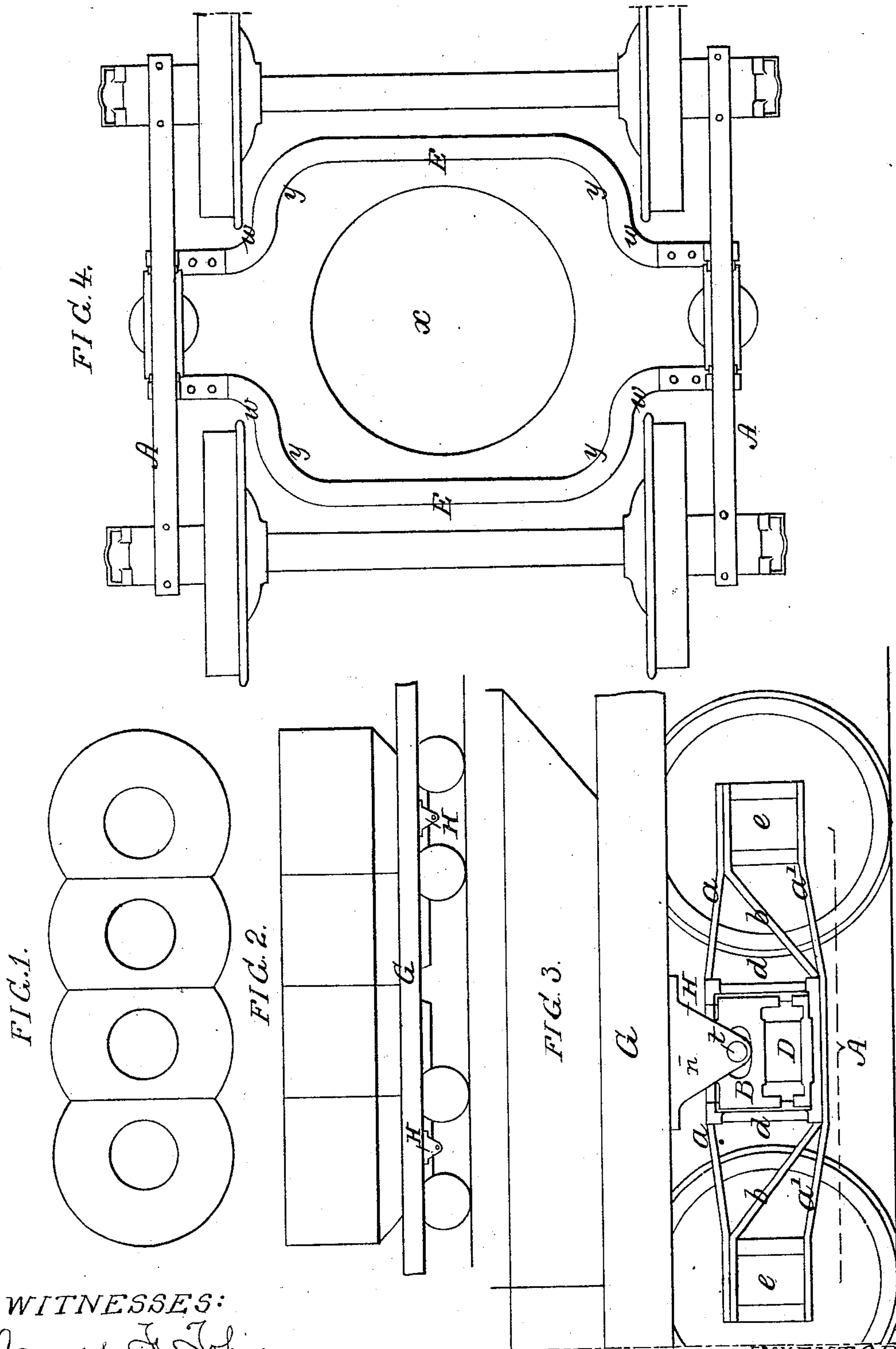


J. A. MILLHOLLAND.

COAL CAR.

No. 282,751.

Patented Aug. 7, 1883.



WITNESSES:
James J. Tobin
Harry L. Ashenfelter

INVENTOR:
James A. Millholland
by his attorneys
Horton and Sons

(No Model.)

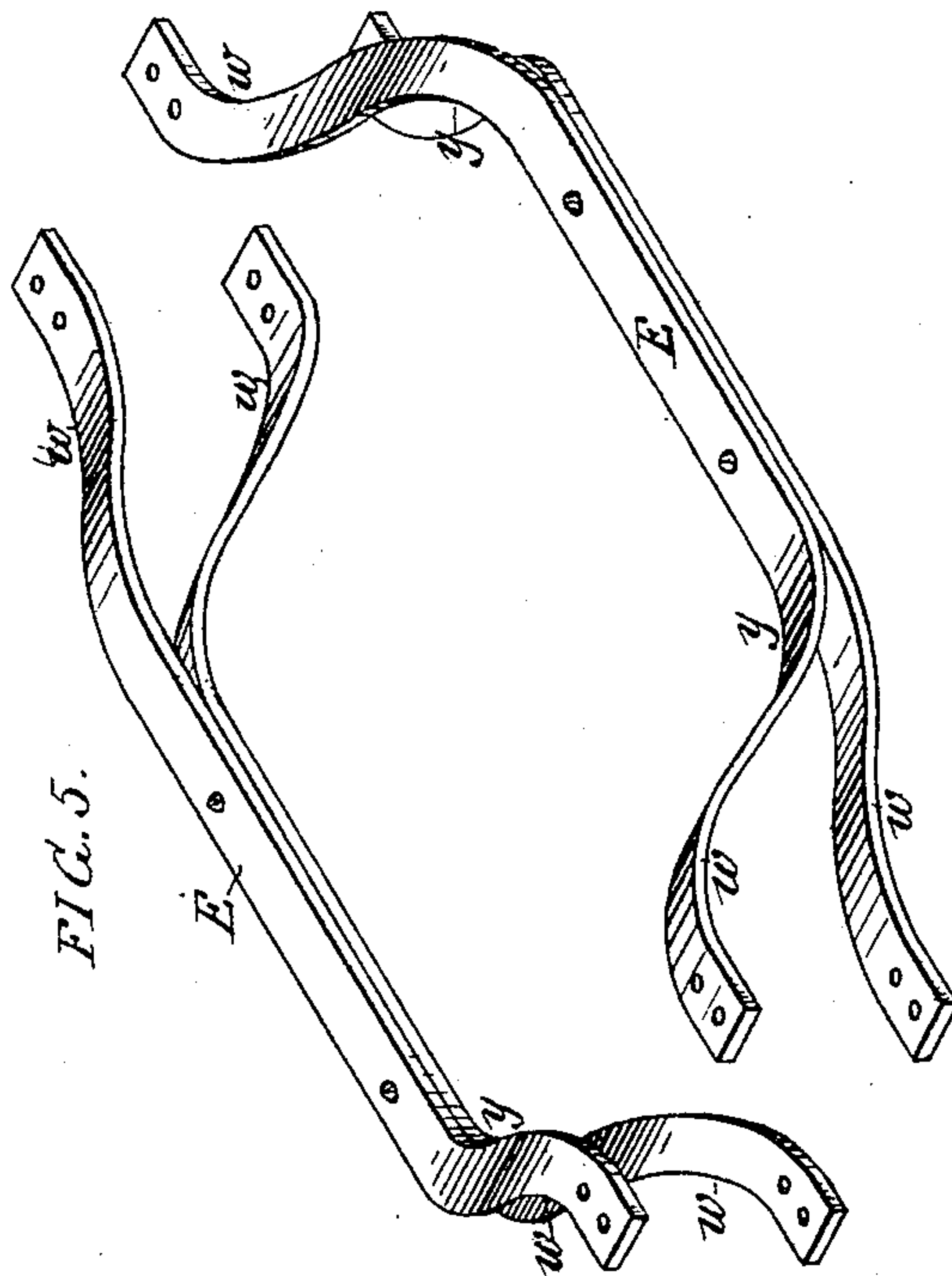
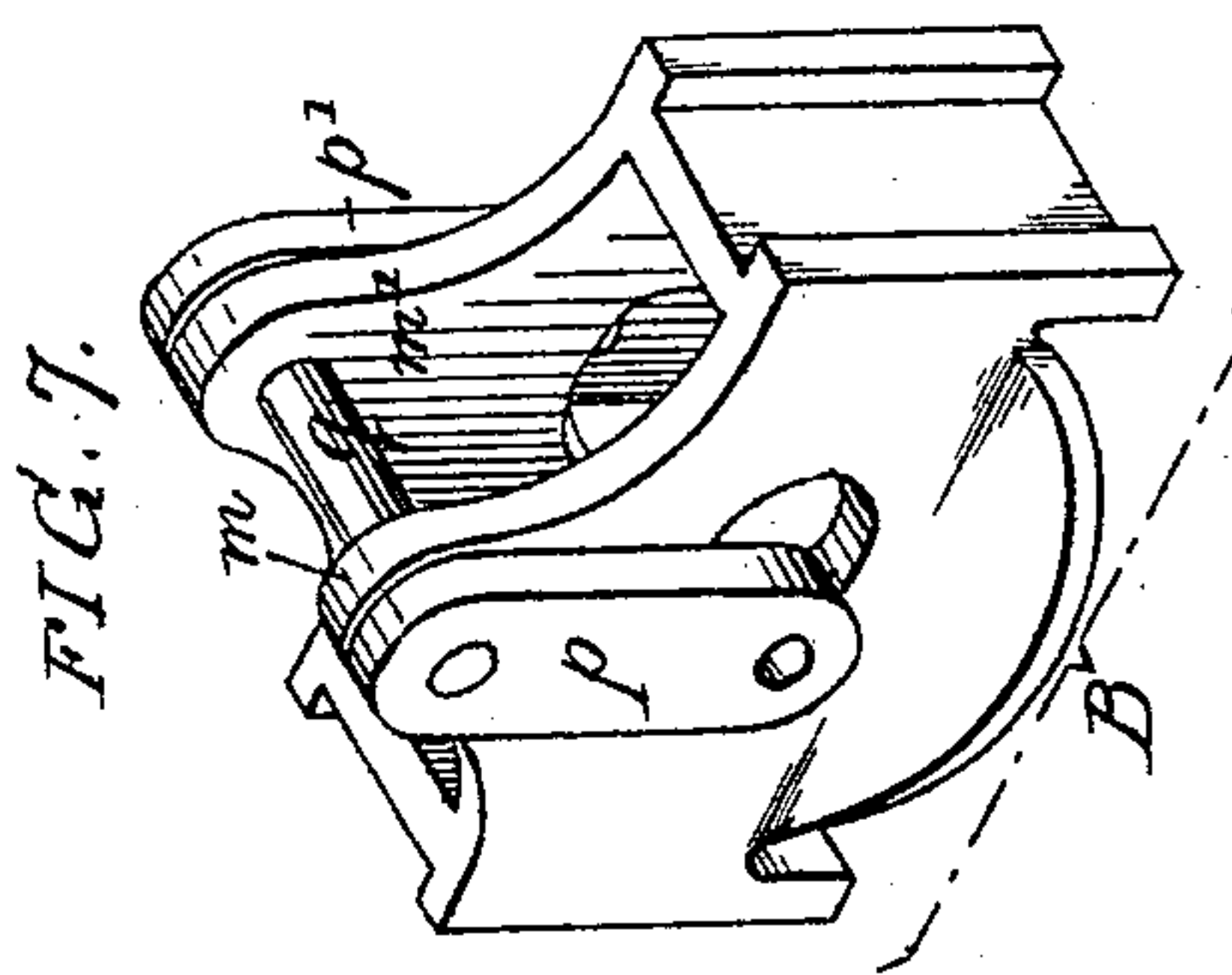
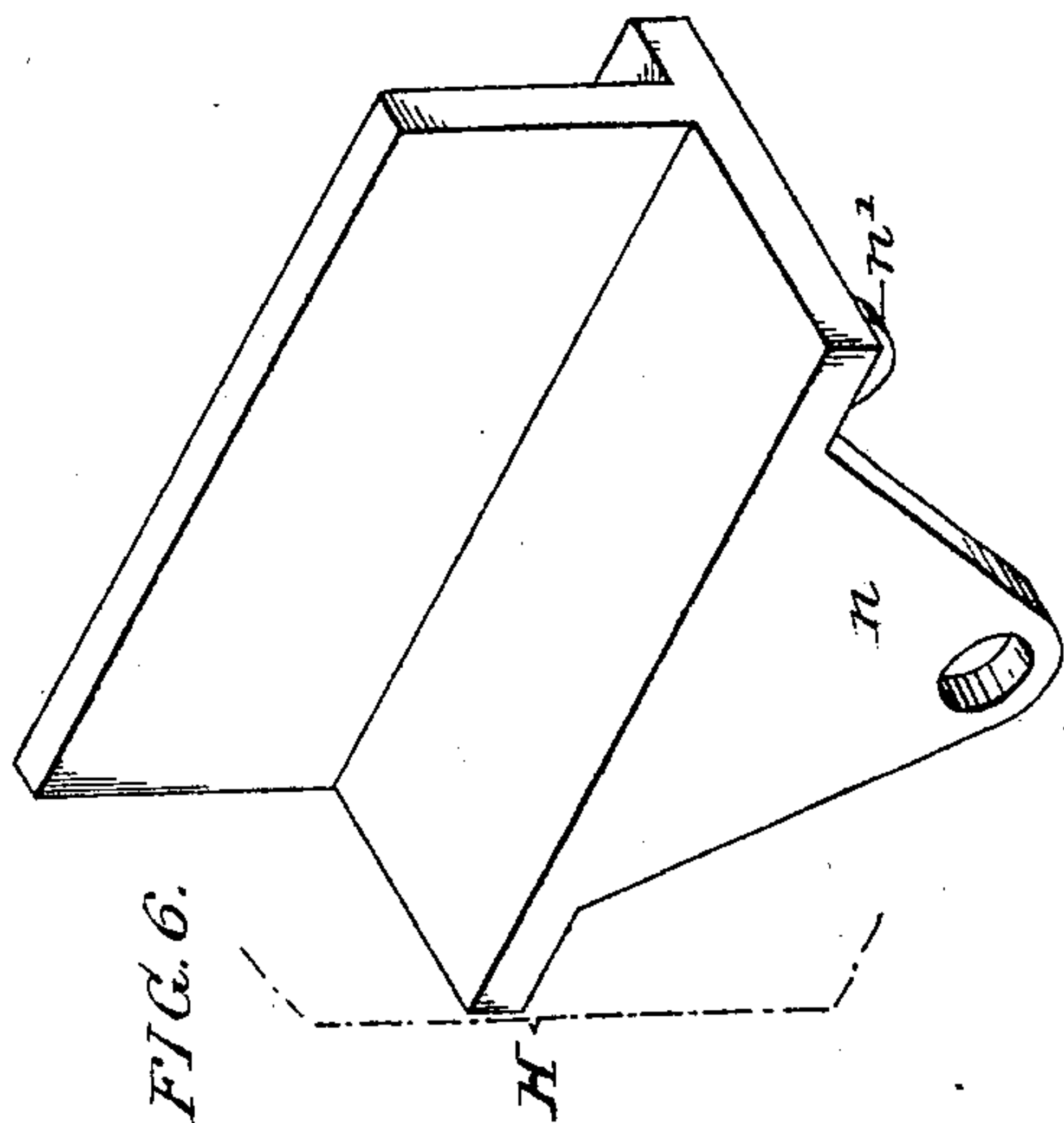
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UNITED STATES PATENT OFFICE.

JAMES A. MILLHOLLAND, OF CUMBERLAND, MARYLAND.

COAL-CAR.

SPECIFICATION forming part of Letters Patent No. 282,751, dated August 7, 1883.

Application filed April 16, 1883. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. MILLHOLLAND, a citizen of the United States, and a resident of Cumberland, Alleghany county, Maryland, have invented certain Improvements in Coal-Cars, of which the following is a specification.

My invention relates to certain improvements, fully described hereinafter, in that class of coal-cars the sheet-iron bodies of which are separated into different compartments; and the main object of my invention is to increase the capacity of cars of this class, at the same time obtaining an extended wheel-base and adapting the car for being drawn at a higher rate of speed than an ordinary car of this class.

In the accompanying drawings, Figures 1 and 2 are diagrams illustrating, by outline, plan, and elevation, a coal-car made according to my invention; Fig. 3, a side view of one of the trucks, drawn to a larger scale; Fig. 4, a plan view of the truck; Fig. 5, a perspective view of the transverse braces for connecting the opposite side frames of the truck together; and Figs. 6 and 7 perspective views, drawn to a still larger scale, and showing a feature of my invention.

I should explain, in the first place, that an ordinary coal-car of the class to which my invention relates, generally known as a "hopper coal-car," consists of three compartments, technically termed "pots," made of sheet-iron and of the form shown in Fig. 1, in which, however, there are four compartments instead of three, the usual number. An ordinary coal-car of this class has no swiveling trucks and no rigid truck-frames, the axles having an endwise movement, intended for the purpose of permitting the wheels to accommodate themselves to curves of the track, an arrangement which does not permit the car to be run at high speeds; or an extension of wheel-base for the purpose of lengthening the car, and thereby increasing its capacity; hence modern cars of this class for increase of capacity have been extended in height, and this resulted in dangerous top-heaviness.

In order to increase the capacity of the compartment-car, I make the body much longer than usual, and separate it into four compartments, as shown in the diagrams Figs. 1 and

2, the body and frame of the car being supported on two four-wheeled trucks, one placed beneath each end compartment, and constructed in the peculiar manner which I will now proceed to describe, reference being had to Figs. 3, 4, 5, 6, and 7.

Each of the opposite side frames, A A, of each truck is composed in the present instance of the upper and lower longitudinal bars, *a a'*, the diagonal braces *b b* and vertical guides *d d* for a sliding block, B, which rests on a spring, D, carried by the frame between the two guides. The axle-boxes *e e* are secured one to each frame, near each end of the same. The opposite frames are connected together by the cross-braces E E', each of which is bent at *w w* and *y y*, so as to clear the usual flanged wheels and permit the free discharge of the contents of the compartment above the truck through the outlet *x*, which is furnished with the usual hinged door. Each cross-brace is preferably made of two bars united at the middle, as shown in Fig. 5, and diverging from the point where they are united in opposite directions to the frames A A', to which they are secured in any suitable manner.

It is not essential to my invention that the precise mode described of constructing the truck should be adhered to; but whatever may be the character of the structure as regards minor details it is necessary that the opposite side frames should be connected together so as to form a rigid truck, and that the connecting-braces should be bent or cranked so as to clear the wheels, and the central opening, *x*, for the discharge of coal in the compartment above the truck, for by this arrangement I am enabled to use a car with a long body on two trucks placed at a suitable distance apart.

As the coal has to be discharged through each truck, a central pivot-bearing is out of the question; hence I have adopted the devices, which I will now proceed to describe, for permitting the car-trucks to swivel to the limited extent necessary, independently of the car-body, when the car is traversing curves in the track.

As seen in Fig. 2, the car-body is secured to a frame, G, the latter, with the body, being suspended by links to the sliding blocks of the trucks. Hangers H are secured to the frame

of the car, two hangers to each longitudinal sill, so that there are two opposite hangers for each truck, one hanger directly above each sliding block, the hanger with the links being
 5 best observed in the enlarged perspective views, Figs. 6 and 7. Projections $m m'$ on the block fit loosely between the cheek-pieces $n n'$ of the hanger, and a pin, q , passes through the projections of the block, and carries two links,
 10 $p p'$, through the lower end of which, as well as through the cheek-pieces $n n'$ of the hanger and through the block, passes a pin, t , the opening in the block being elongated to permit the free vibration of the links on the pin q . The
 15 car body and frame being thus suspended to the sliding blocks of the trucks by the links $p p'$, the said trucks are at liberty to move laterally independently of the body and frame when the car is traversing curves—in other words, the
 20 trucks are substantially swiveled. When a truck thus moves independently of the car-body, there will of course be a slight torsion of the links and a slight turning of the blocks B in the hangers; but in making these parts
 25 sufficient freedom and looseness are allowed to permit this slight turning.

A coal-car may be made according to my invention in which a body is separated into five compartments; but a car containing twenty-
 30 five tons, and having a body separated into four compartments, with a truck directly beneath each compartment, as described above, is the best, as there is the desired extension of wheel-base, while the body of the car can be
 35 made to hold twenty-five tons of coal, the center of gravity of the load being maintained in a safe relation to the truck. The present coal-car, with its three compartments, will not carry more than fifteen tons, and not this without

carrying the load to such a height as to make 40 the car top-heavy.

I claim as my invention—

1. The combination, in a coal-car, of a body separated into four or five compartments, each of which has a discharge-opening, with two 45 trucks, one situated beneath each end compartment, each truck having a rigid frame loosely connected to the frame of the car, so as to turn independently of the same, and constructed to permit the free discharge of the coal 50 from the discharge-opening, all substantially as set forth.

2. A car-truck in which the opposite side frames, $A A$, carrying the axle-boxes, and outside the wheels, are combined with and con- 55 nected together by cranked transverse braces $E E$, substantially as set forth.

3. The combination of a car-truck composed of opposite side frames and cranked connecting-braces, with a car-body, one compartment 60 of which, having a central outlet, is situated directly above the truck, substantially as set forth.

4. The combination of two trucks, each having opposite side frames connected together 65 by cranked transverse braces, and provided with sliding blocks B and springs D , with a car body and frame and links whereby the said body and frame are suspended to the sliding block, substantially as specified. 70

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES A. MILLHOLLAND.

Witnesses:

HARRY DRURY,
 HENRY HOWSON, Jr.