No. 782,807. PATENTED FEB. 14, 1905.

C. ERICKSON.

DUMPING CAR OR WAGON.

APPLICATION FILED OCT. 13, 1902.

5 SHEETS—SHEET 1.

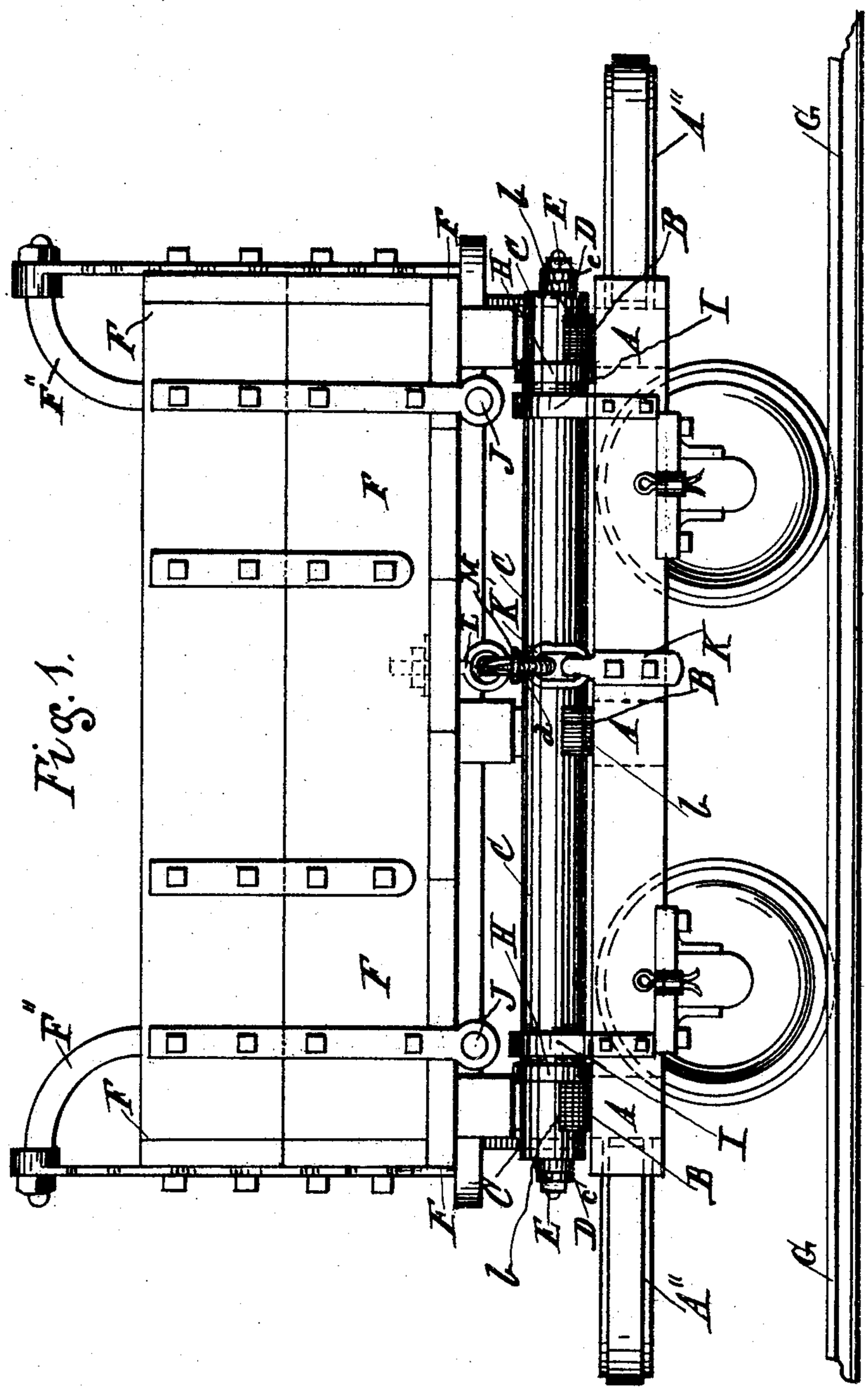

Fig. 1.

Witnesses.

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5 SHEETS—SHEET 2.

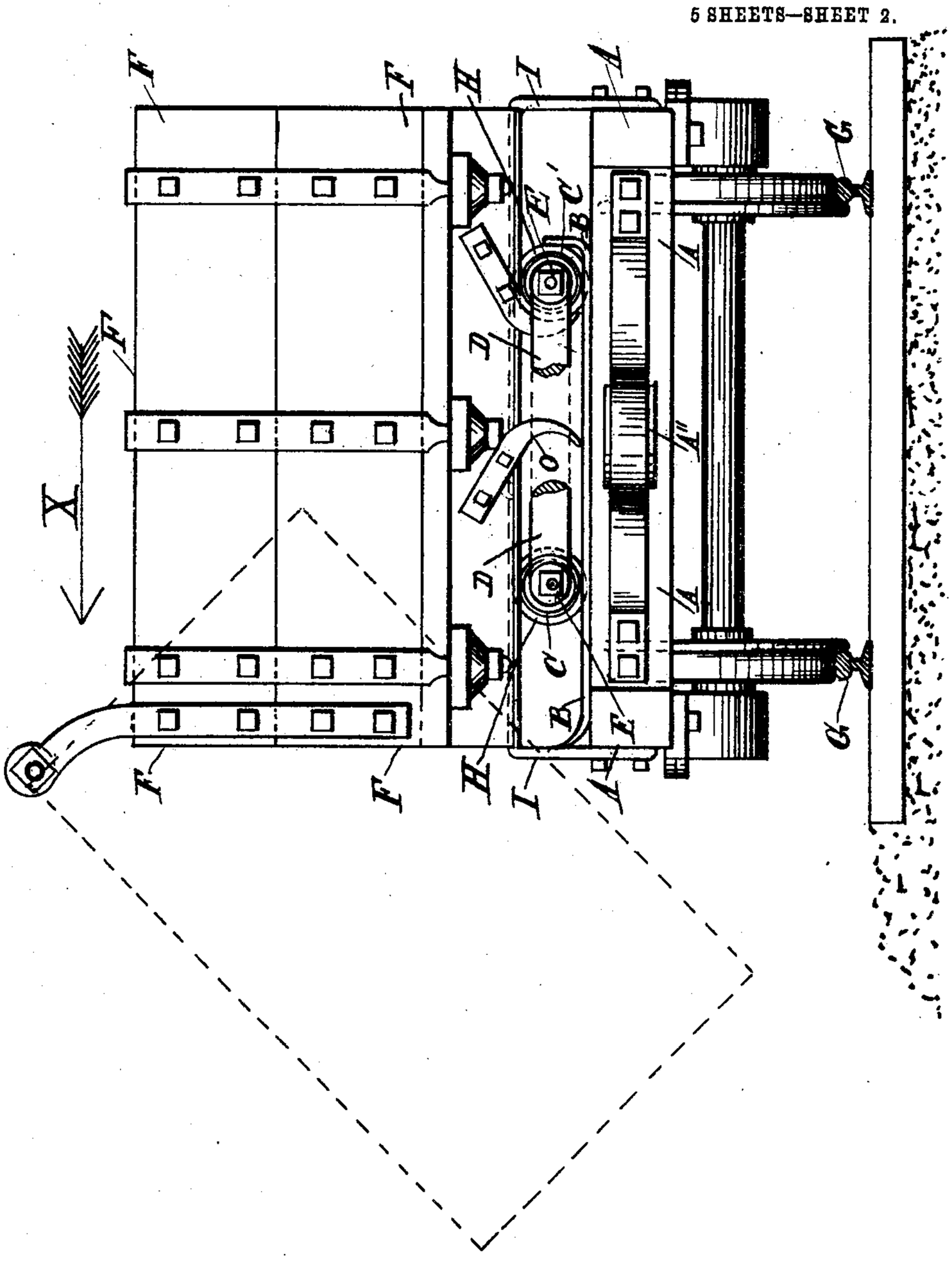

Fig. 2.

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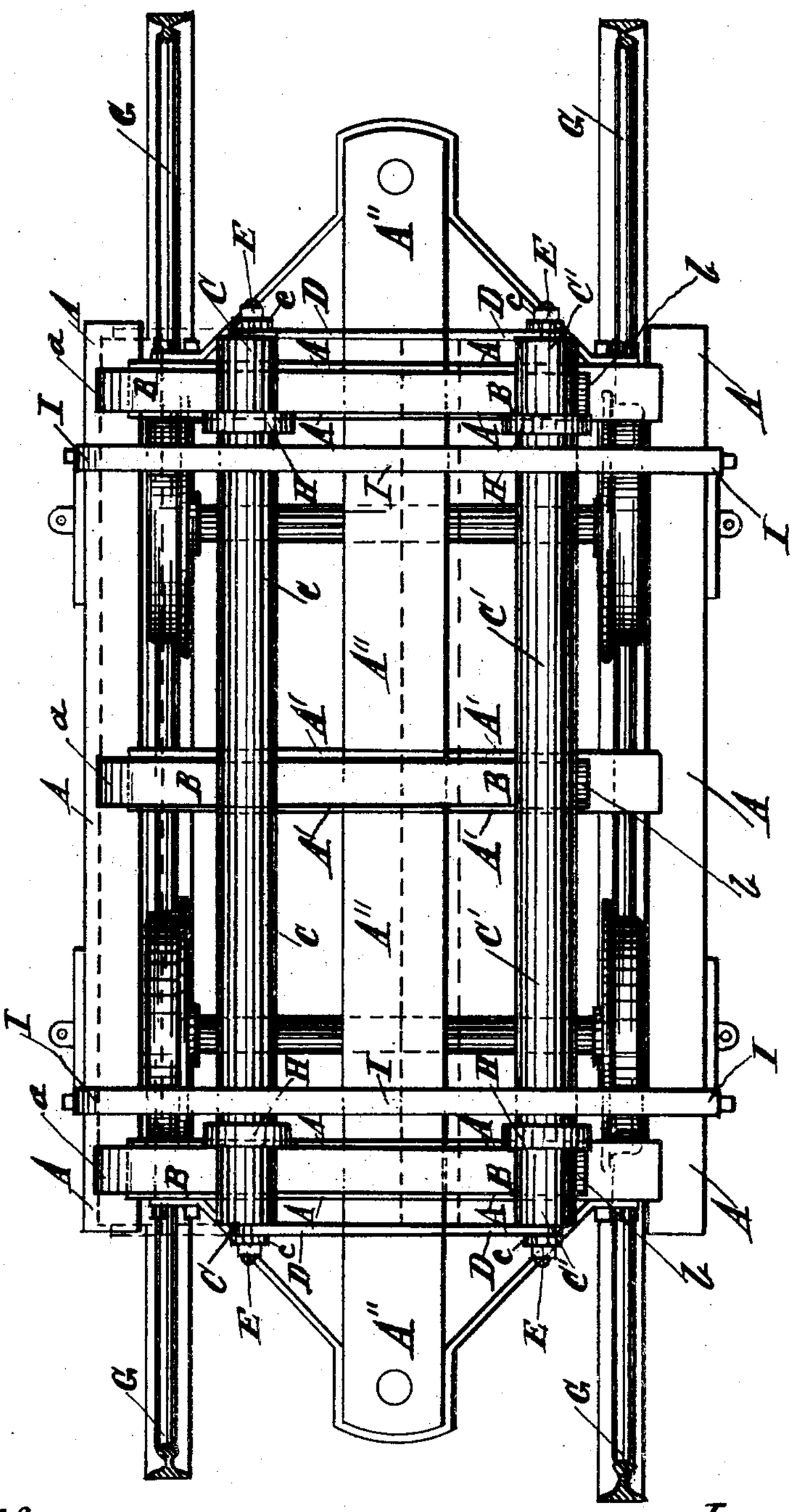
5 SHEETS—SHEET 3.

Fig. 3.



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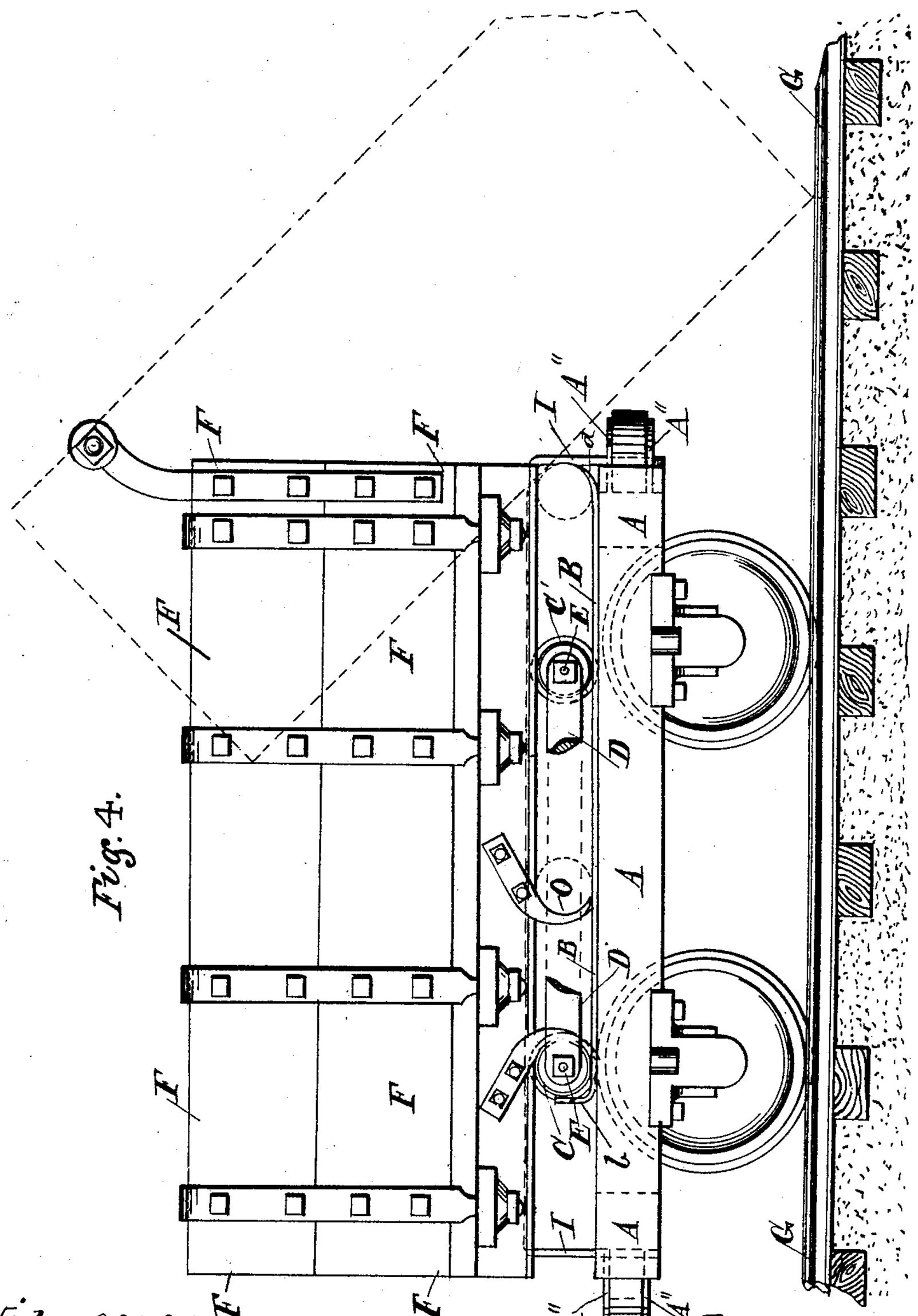

Fig. 4.

Witnesses.
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5 SHEETS—SHEET 5.

Fig. 5

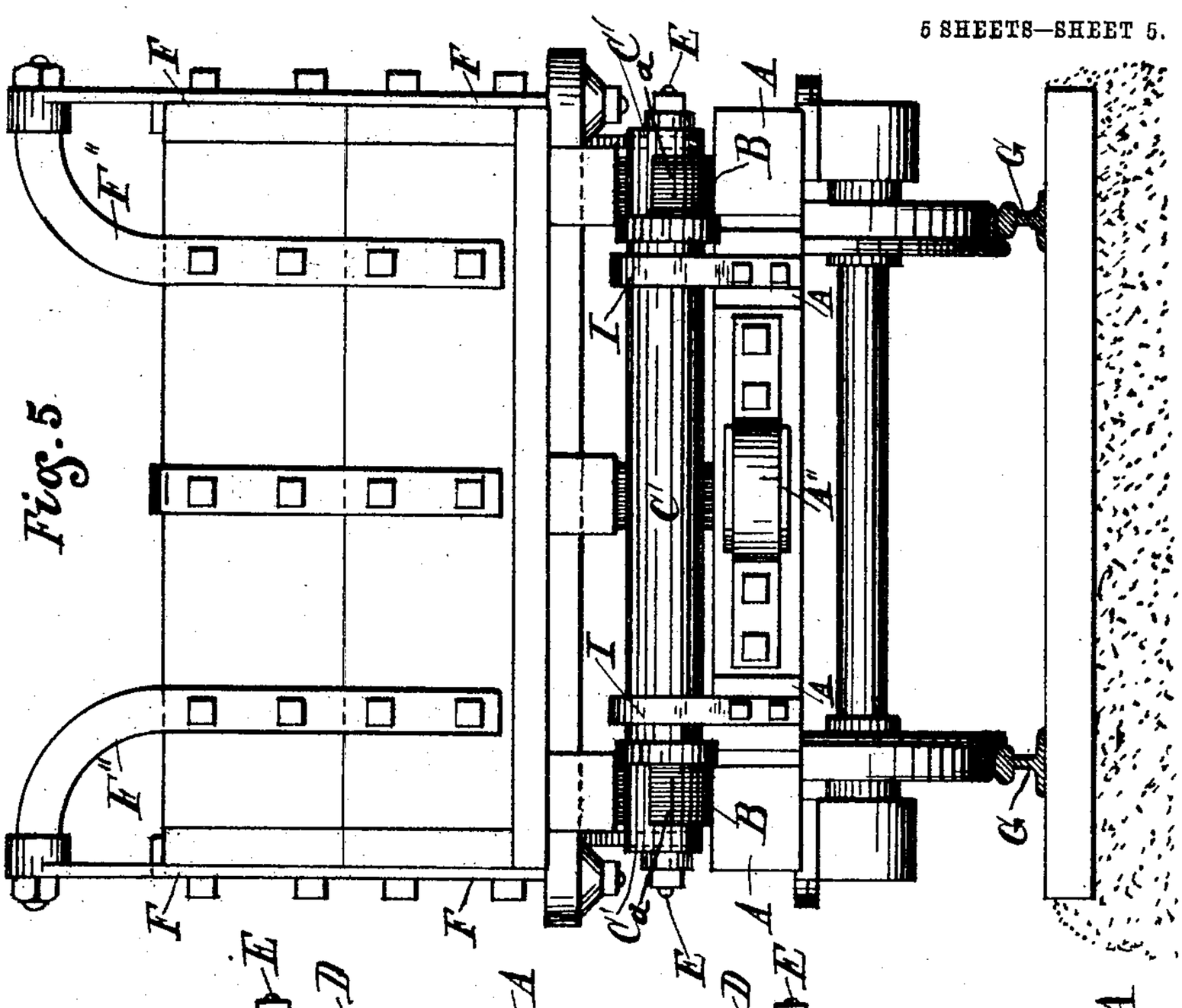

Fig. 6.

Witnesses.
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No. 782,807. Patented February 14, 1905.

UNITED STATES PATENT OFFICE.

CHARLES ERICKSON, OF SAN LUIS OBISPO, CALIFORNIA.

DUMPING CAR OR WAGON.

SPECIFICATION forming part of Letters Patent No. 782,807, dated February 14, 1905.

Application filed October 13, 1902. Serial No. 127,204.

To all whom it may concern:

Be it known that I, CHARLES ERICKSON, of the city of San Luis Obispo, in the county of San Luis Obispo, in the State of California, have invented a certain new or Improved Dumping Car or Wagon, Sometimes Known as a "Muck-Car," of which the following is a full, clear, and exact description or specification, reference being had to the annexed sheets of drawings and to the figures marked thereon.

My said invention, which relates to certain new or improved cars or wagons to be used for the purpose of conveying material, such as portions of disintegrated or broken pieces of rock or soil removed in excavations or tunnelling or other works wherein material has to be removed from any part of a line of works —such as the works frequently necessary in constructing a line of railway or an ordinary roadway, canal-works, irrigation and dock works, wharves, and breakwaters—has for its object to provide a vehicle for easily receiving the dislodged or disintegrated rock or earth at the heading or at the side or sides of any of the works of the kinds hereinbefore referred to or in analogous works and to enable the dislodged or disintegrated rock or soil to be not only carried to the place where it is to be dumped or deposited in forming either an embankment or a fill or any other kind of deposited work, such as frequently has to be made or constructed in carrying out the works of construction which become necessary in laying out and building a line of railway, a roadway, a canal, or any of the other works hereinbefore mentioned, an irrigation-ditch or its adjuncts; and this invention is also designed to dump or discharge the material so removed by the operation of the mechanical arrangement upon which the dumping box or body of the car or wagon is moved in such manner that the dumping box or receptacle may be tipped at a sufficient angle upon the truck upon which it is carried so that the box or body containing the debris or removed, dislodged, or disintegrated material may, by reason of its angular position when tipped, discharge the material which it contains either over the side of an embankment or over the end thereof, accordingly as the box or body of the car is constructed to tip either at one side or over one end of the framing of the truck upon which the box or body of the car is mounted to be tipped either at one side or at one end of the said framing of the truck in the manner and by the means hereinafter described.

To enable the box or body of the car to be tipped or dumped either at one side or at one end of the framing of the truck, there is provided a pair of rollers extending either lengthwise or transversely of the framing. These rollers are connected together by straps or connecting-links through which studs pass and constitute the axes upon which the rollers are free to rotate, while the holes in the straps or connecting-links being equidistant the rollers are thereby maintained parallel each to the other, so that when rolled upon a smooth level surface these rollers move in a perfectly straight course. Such a pair of rollers being mounted on the truck of such a car—as the cars herein referred to move by rolling always in a parallel course upon the car-frames, and the box or body of the car being rested upon a pair of rollers so mounted always is capable of being moved in parallel with either the width of the truck or in a lateral direction or lengthwise of the truck or in a longitudinal direction. In either case the framing of the truck is provided with rails and stops to prevent the roller-frame from being rolled off from the truck either laterally or endwise, and the box or body of the truck is also provided with metallic bearing-surfaces by which its bottom rests upon the upper part of the rollers, while the ends of the box or body of the car are provided with retaining-hooks which engage with the outer roller during the act of dumping or discharging the load and at the same time prevent the body of the car from being dislodged or separated from the truck. The rollers themselves are kept in parallel position upon the truck by flanges which bear against the edges of the two rails or roller-plates which are placed on the truck either transversely or longitudinally, according to the direction wherein the dumping or discharging action of the material constituting the load of the truck is to

take place—that is to say, either at one side or at one end of the car.

My invention includes several details ancillary to the main features thereof which have been described in this preamble, all as hereinafter set forth and shown upon the annexed several sheets of drawings, in which—

Figure 1 is a side elevation of a dumping-wagon or muck-car constructed according to my present invention and arranged for dumping or discharging the load at one side. Fig. 2 is an end elevation of the dumping-wagon or muck-car constructed according to my present invention and corresponding to Fig. 1. Fig. 3 is a plan of the truck of the dumping-wagon or muck-car, showing the roller-frame upon which the box or car-body containing the material to be dumped is held. Fig. 4 is a side elevation of my dumping-wagon or muck-car arranged for dumping or discharging its load over one end of the car. Fig. 5 is an end view of the wagon or car corresponding to Fig. 4. Fig. 6 is a plan of the truck corresponding to Figs. 4 and 5. In the views Figs. 1, 2, and 3 it is here explained that they further illustrate a dumping-car or muck-wagon which tips and discharges its load at one side of the wagon or car, while the subsequent views, Figs. 4, 5, and 6, which are a corresponding set of figures to 1, 2, 3—namely, a side elevation and end elevation and a plan of the truck—illustrate my invention as applied to a dumping-car or muck-wagon which tips and discharges its load over one end of the truck, (instead of the side,) upon which the movable box or receptacle which carries the load is supported and operated upon the roller-frame, as hereinafter described.

In Figs. 1 to 3 of the annexed drawings the truck-frame is marked A A A, &c. This frame consists of two side members and a central transverse member A′, two end members, and a longitudinal central member marked A″, which central member acts also as a door member in addition to stiffening the frame generally. Upon the end members A A and upon the transverse central member A′ there are fastened upon each a flat bar B, having upturned ends *a a a* and *b b b*, respectively. Upon these flat bars B B the rollers C and C′, respectively, rest, as shown in the drawings. These rollers C and C′ are connected together at their ends by stiff metallic straps or connecting-links D D, having a hole in each of their ends, through which the stud or bolt E passes through a washer *c*, as shown, and the central studs E E E E constitute several axes or bearing for the pairs of rollers C and C′ in the ends of the stiff links or straps D D. It will be obvious that when the roller-frame—that is to say, the frame constituted of the rollers C C′, the two straps D D, and the four studs E E E E—is in its central position upon the truck-frame A A A A, as shown at Figs. 1, 2, and 3, respectively, then the box or car-body F (shown at Figs. 2 and 3) is in its central position, this position being the position of equilibrium of the box or car-body F upon the said rollers, and that when the box or car body F, either with or without its load of material to be dumped, is moved laterally or sidewise upon the rollers C and C′ by being pushed over sidewise by an attendant in the direction of the arrow marked X in Fig. 2 until the outer roller C comes in contact with the upturned nose of the plates B B then the box or car-body F is moved out of the position of equilibrium and into a position which is not the position of equilibrium, so that if the box or car-body F be moved sufficiently laterally or sidewise upon the rollers C C′ then the box or car-body F has been moved into a position which is the position of unstable equilibrium by reason of that part of the box or car-body F which is outermost being in an unbalanced position upon the rollers C C′, so that by a very slight application of force on the part of the outermost roller C as the axis of upsetting—that is to say, when the roller C has been rolled upon the flat bars B B into the outermost position—it is readily tipped into the discharging position, (shown in dotted lines in Fig. 2,) and such slight application of force on the part of the attendant to overbalance the box or car-body F completes the tipping of the car and the discharge of its contents at the side of whatever part of the works which the car has been traveled upon the rails G G to reach, when the debris or dislodged or disintegrated material is discharged at this place, one side of the box or car-body F being provided with or formed of an automatic or self-opening door, constituting one side of the car-body F, and carried by the curved pivotal bars F″, as shown at Fig. 1, from which door the discharge takes place, this door being unfastened before tipping the box or car-body F, so that the weight of the contents forces the door open when the box or body F is tipped in the manner and for the purposes hereinbefore described. This door, however, constitutes no part of my present invention. The rollers C C′ are formed near each end with a flange H H, respectively, which when the rollers C C′ are in a stationary position or while being moved bear against the inner edges of the bars B B and act as flanges for the purpose of maintaining the rollers in proper parallel rolling and from being removed out of contact with the bars B B by any shaking or jolting action which may take place when the improved dumping-car or muck-wagon is either stationary or in motion, and to further insure the rollers C C′ from being moved out of their proper operative positions they are further held down in their places upon the bars B B by means of two horizontal strap-bars I I, bolted to the side bars of the framing A A, as shown in the drawings, and these bars, bearing, as they do, upon the tips of the rollers C

C′, prevent the rollers C C′ and their attached parts from being moved out of their operative positions. For the purpose of enabling the box or car-body F F to be easily returned into its horizontal position after having dumped its load one of the sides of the box or car-body F F is provided with straps wherein are holes J J for placing in a crowbar or equivalent bar for the purpose of using leverage of such bar for raising the car-body into its horizontal position upon the rollers C C′, and when in this position the car-body is rolled back into its normal position, as shown at Fig. 2. For the purpose of holding the box or car-body F F in its normal position there is attached to the truck A A a chain shackle K, Fig. 1, and there is attached to the under part of the box or body F an eyebolt L, to which the hinged link M is attached, as shown at Fig. 1. By moving the hinged part of the hook M downward—that is to say, horizontally—it becomes detached from the chain-link K, Fig. 1, thereby freeing the car-body F to be moved upon the rollers C C′, and when the car-body has discharged its load and is pushed back into its normal position, as shown at Fig. 2, then the movable point of the hook M is passed into the chain-link K′ and held therein by a drop-ring *d*, which surrounds the upper parts of the hook when the box or car-body F is in the locked position for traveling. The flat bars B B are made of such length as to admit of the box or car-body F F being rolled back into its normal position after having discharged a load by means of the roller C coming into contact with the upturned ends *a a a* of each such flat plate B, and the box or car-body F is prevented from becoming dislocated from the truck and rollers C C′ by means of the hooks O, Fig. 2, fastened to each end of the car-body F, respectively, engaging with the outer roller C′ when the box or car-body F is pushed outward into the tipping position, as shown at Fig. 2.

The muck-car or dumping-car (shown at Figs. 4, 5, and 6) is in all respects the analogue of that hereinbefore described and shown at Figs. 1, 2, and 3, excepting in the direction wherein the tipping movement of the car-body takes place, which in the case of the car shown at Figs. 4, 5, and 6 is in the endwise direction, and this does not require any alteration in the arrangement of the truck A other than the fastening of the rails B B longitudinally upon the truck A instead of transversely, as in Figs. 1, 2, and 3, while to admit of the body F of the truck tipping endwise, as shown in dotted lines in Fig. 4, the central or draw beam A″ of the truck is made to project from the transverse end beams of the truck A to a much less length than is the projecting length of the draw-beam A″ in Figs. 1, 2, and 3, while the only other difference in construction in the two trucks A A is that the bars I I in Figs. 4, 5, and 6 are arranged longitudinally of the truck A to admit of the frame of rollers C and C′ in Figs. 1 to 6 moving lengthwise of the truck A instead of transverse, as in Figs. 1 to 4. The other features of the muck or dumping car shown at Figs. 4 to 6 are essentially the same as in the car shown and described with reference to Figs. 1 to 3, and for that reason need not be repeated, more especially as such features do not constitute any essential parts of my present invention, and therefore need not be herein further referred to.

I wish it to be understood that while I have shown upon the annexed drawings a dumping-car wherein the box or car-body is rolled upon a pair of rollers moving in parallel my invention is not limited to using a pair of rollers only, but that instead of using a pair of rollers I may use a larger number of such rollers in or as constituting a roller-frame, or I may use a single roller. When I use a single roller, I support the box or body part of my car upon one side of a rectangular framing in which the single roller is carried, such roller being of slightly larger diameter than the thickness of the frame, so that the box or car-body can be moved to either side or either end of the truck, being supported partly upon the roller and partly upon the side of the roller-frame nearest the side or end of the truck toward which the box or car-body is to be moved for dumping or discharging its load.

My improved muck or dumping cars may have doors on both sides or at both ends, accordingly as they tip sidewise or endwise, and they may be provided with brakes for the wheels. These, however, are not parts of my invention. A practical advantage of this over other dumping or muck cars is its diminished height, whereby the car is much more easily loaded.

Having now described the nature of my said invention and the best manner I am at present acquainted with for carrying the same into practical effect, I observe in conclusion that what I consider to be novel and original, and therefore claim as the invention to be secured to me by Letters Patent, is as follows:

1. A dumping-wagon or muck-car, wherein the box or receptacle is mounted upon a pair of parallel cylindrical rollers which are independent of the car-body and whose axes are connected by horizontal links, said rollers rolling upon a truck-frame having parallel guide-bars for retaining the rollers, the box or receptacle, carried by and rolling upon said cylindrical rollers, the outer of said rollers being the upsetting-axis of the box or receptacle, the outer ends of the guide-rails on the truck being bent upward for preventing the rollers from passing off the truck, the box or receptacle with its load and the outer roller being in position for the box or receptacle to be tipped over for discharging its load, and

when discharged ready for being returned to its normal position in the manner and for the purposes substantially as hereinbefore described.

2. The dumping-wagon or muck-car, consisting of the combination of a truck, carrying-wheels, rails on said truck, rollers and a roller-frame, movable upon said rails, a car body or receptacle with rails, carried upon or by, and movable upon said rollers, retaining devices for maintaining said rollers and roller-frame upon said rails and truck, retaining-hooks on said car body or frame for engaging with said rollers, all operating in the manner, and for the purposes substantially as hereinbefore described.

3. The dumping-wagon or muck-car, consisting of the combination of a truck, carrying-wheels, rails on said truck, rollers and a roller-frame movable upon said rails, a car body or receptacle carried upon or by and movable upon said rollers, retaining devices for maintaining said rollers and roller-frame upon said rails and truck, retaining-hooks on said car body or frame for engaging with said rollers, the opening and closing door or doors of the car body or receptacle, all operating in the manner and for the purposes substantially as hereinbefore described.

In testimony whereof I, the said CHARLES ERICKSON, have hereunto set my hand and seal, this 14th day of April, 1902, in the presence of two subscribing witnesses.

CHARLES ERICKSON. [L. S.]

Witnesses:
ST. JOHN DAY,
HADASSAH DAY.