No. 782,034. PATENTED FEB. 7, 1905.

A. C. JOHNSTON.

TRUCK.

APPLICATION FILED AUG. 20, 1904.

3 SHEETS—SHEET 1.

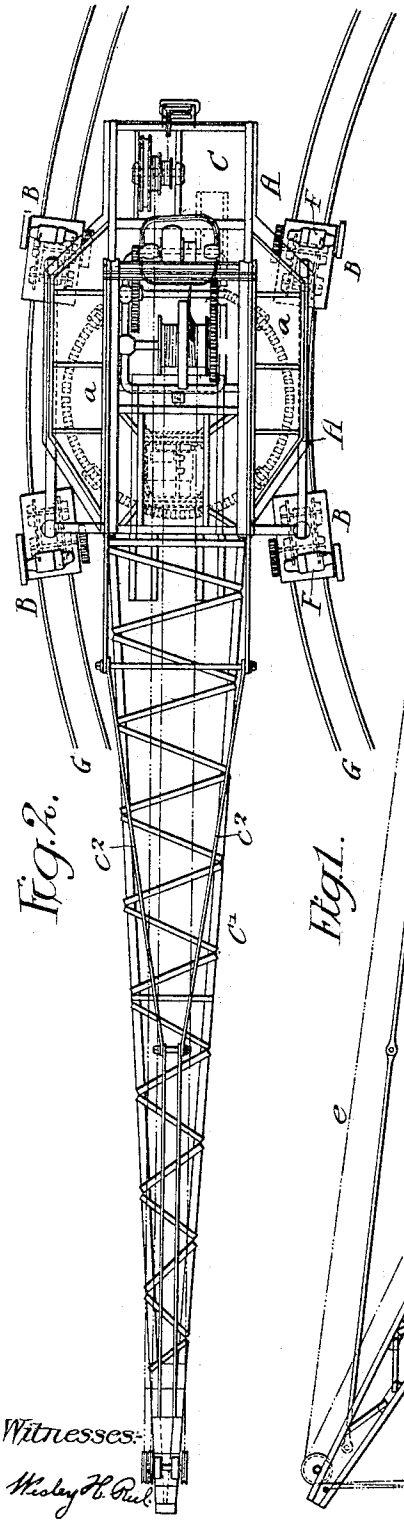


Fig. 2.

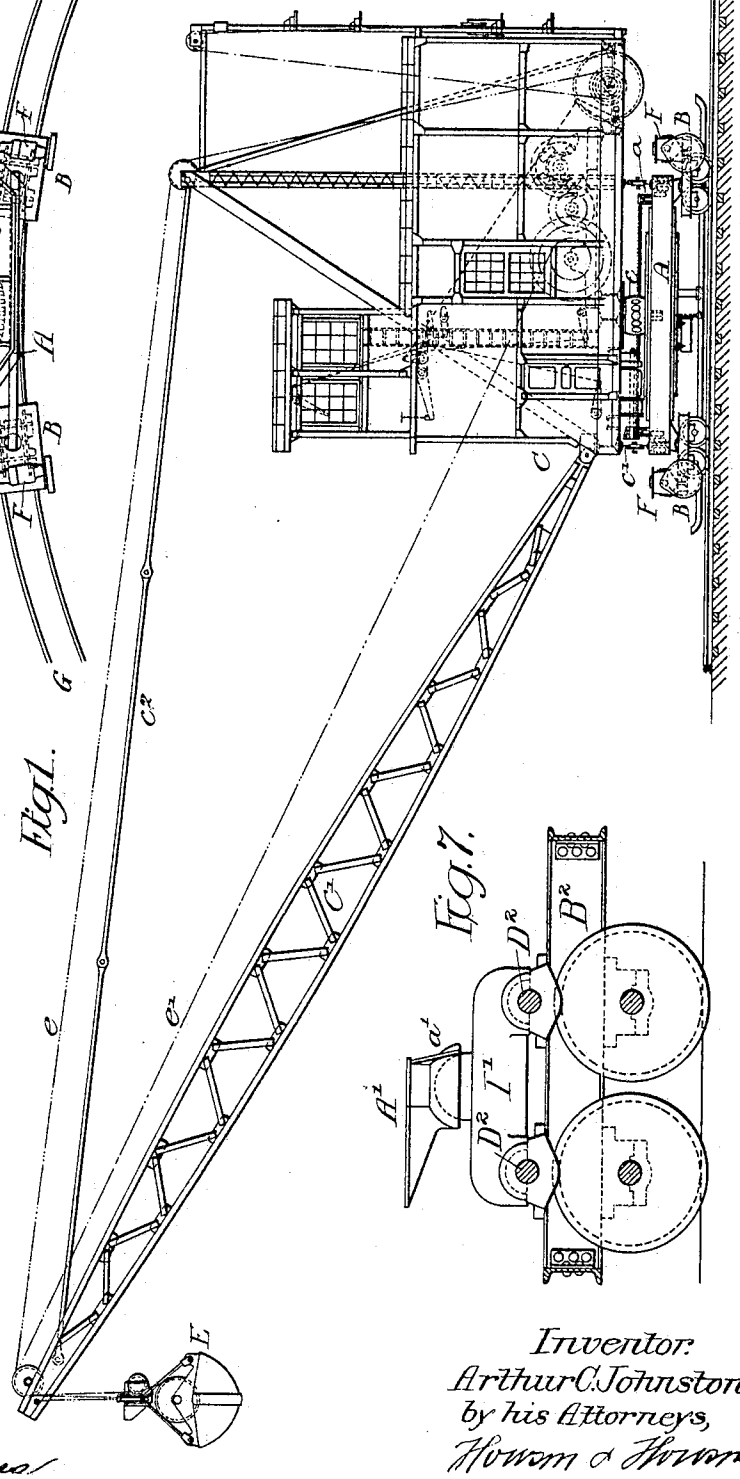


Fig. 1.

Fig. 7.

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3 SHEETS—SHEET 2.

Fig. 3.

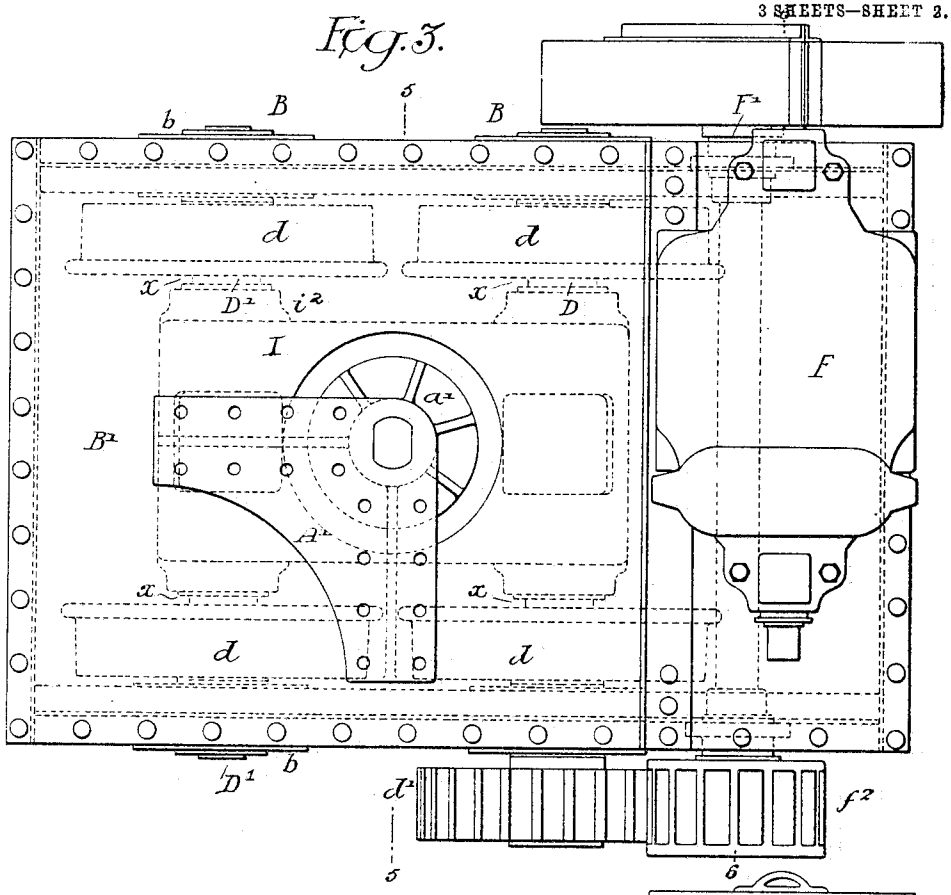
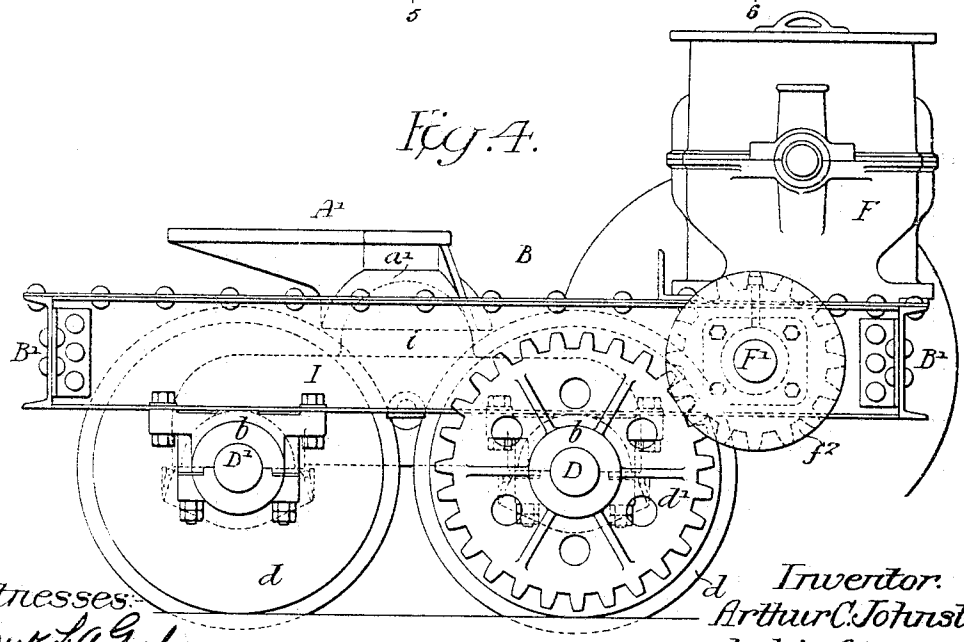


Fig. 4.



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3 SHEETS—SHEET 3.

Fig. 5.

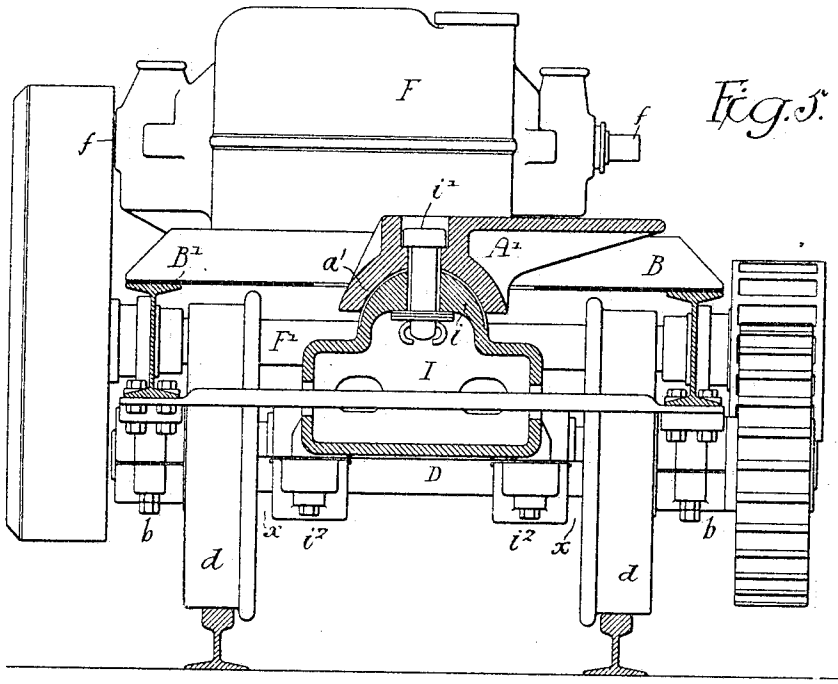
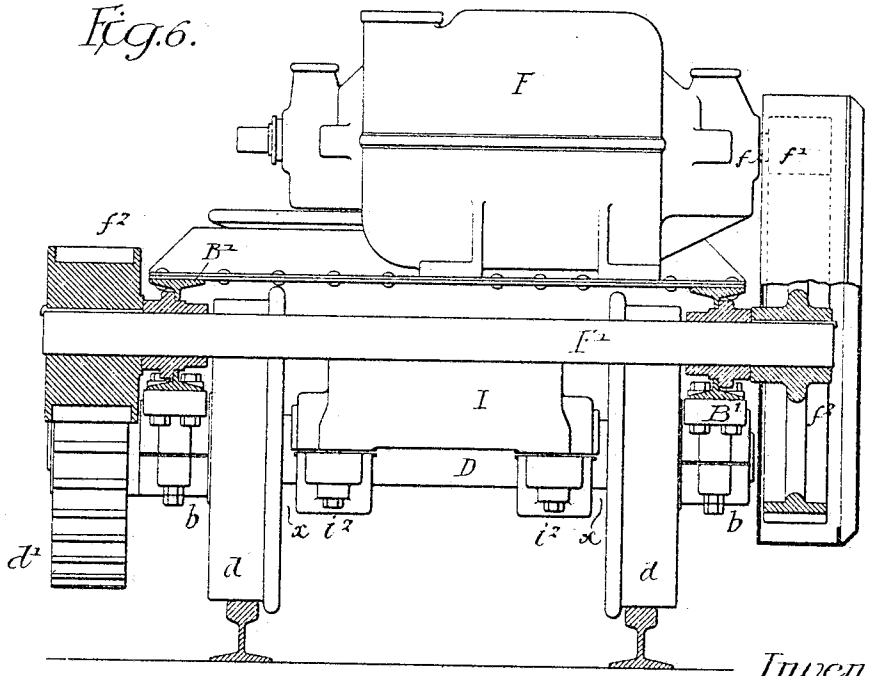


Fig. 6.



Witnesses:—
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No. 782,034. Patented February 7, 1905.

UNITED STATES PATENT OFFICE.

ARTHUR C. JOHNSTON, OF WYNCOTE, PENNSYLVANIA, ASSIGNOR TO THE DODGE COAL STORAGE COMPANY, OF NAUGATUCK, CONNECTICUT, A CORPORATION OF CONNECTICUT.

TRUCK.

SPECIFICATION forming part of Letters Patent No. 782,034, dated February 7, 1905.

Application filed August 20, 1904. Serial No. 221,564.

To all whom it may concern:

Be it known that I, ARTHUR C. JOHNSTON, a citizen of the United States, residing at Wyncote, Pennsylvania, have invented certain Improvements in Trucks, of which the following is a specification.

The object of my invention is to provide a truck to be used especially for supporting cranes and other apparatus adapted to travel on double tracks so that the trucks will readily accommodate themselves to different curvatures or any unevenness of the track.

The invention is especially applicable to traveling cranes, which must be supported upon a wide wheel-base and which travel on a straight as well as a curved track. In the present instance I have shown two tracks, each composed of two sets of rails and four independent trucks, two mounted on one track and two on the other track. These four trucks support the crane structure, which may be of any type desired.

It will be understood that while the invention is especially applicable to traveling cranes the trucks may be mounted under any structure without departing from my invention.

In the accompanying drawings, Figure 1 is a side view of a crane illustrating my invention. Fig. 2 is a plan view. Fig. 3 is a plan view of one of the trucks. Fig. 4 is a side view of the truck shown in Fig. 3. Fig. 5 is a section on the line 5 5, Fig. 3. Fig. 6 is a section on the line 6 6, Fig. 3; and Fig. 7 is a view of a modification.

A is the frame of a traveling crane in the present instance.

B B are trucks situated under each corner of the frame A.

C is a pivoted carriage mounted on the center pivot c and turned by means of a rack a on the frame A and a pinion c', carried by the carriage C and driven by the power mechanism mounted on the carriage; but in some instances the carriage may be turned by hand.

C′ is a suitable boom pivoted to the carriage and supported by a rod c^2 in the usual manner, and suspended from the outer end of the boom is a clam-shell bucket E. This bucket is operated by ropes e e', leading to the operating mechanism on the carriage C. I lay no claim to the special mechanism for raising, lowering, and discharging the bucket, as it forms no part of the present invention.

In the present instance there are four trucks, and each truck is independently driven by an electric motor; but it will be understood that any motive power may be used to drive the trucks, and the power mechanism may be applied to only one truck, if desired; but I prefer in mechanism such as described to use four trucks and have each truck driven by a motor, preferably an electric motor.

Referring now to the truck, Figs. 3 to 5, inclusive, B′ is the main frame of the truck, in the present instance made of structural shapes and plates. b b are the boxes, mounted on the frame B′, for the reception of the axles D D′. It will be noticed that the boxes are rigidly mounted on the frame, so that there is no independent motion between the axles and the said frame B′, and the axles are prevented from moving longitudinally in the frame by the boxes. F in the present instance is an electric motor mounted on one end of the frame B′. The armature-shaft f of this electric motor has a pinion f', which meshes with a gear-wheel f^2 on an intermediate shaft F″, mounted in bearings on the frame B′. On the opposite end of the shaft F″ is a pinion f^3, which meshes with a gear-wheel d', secured to the axle D. Each of the axles D D′ have flanged traction-wheels d d of the ordinary type. Thus the axle D of the truck is driven directly from the motor F, carried by the truck. Each motor is controlled in the present instance by mechanism mounted on the carriage C, so as to be within easy reach of the operator.

In order to allow the several trucks B to accommodate themselves to the tracks G G, I secure to the under side of the crane-frame A a bracket A′. In the present instance a bracket A′ is secured to each corner of the frame A. The under portion a' of the bracket is cup-shaped to receive a hemispherical projection i on a frame I. A king-bolt i' passes through the bracket A and through the pro-

jection i of the frame I and couples the frame to the bracket. The frame I has boxes i^2, through which pass the axles D D of the truck B. It will be noticed in referring to the drawings that there is a space x between the frame I and the wheels d d, so that the truck-frame B′ can have a limited movement laterally independent of the frame I and the structure to which the frame is secured. By this means each truck is free to accommodate itself to its track no matter whether the track is straight or curved or whether it is out of line with the opposite track. The ball-and-socket connection allows each truck to accommodate itself to any unevenness in the track, so that each truck has an independent limited movement.

In Fig. 7 I have shown the frame I′ mounted on cross-bars D^2 on the frame B^2 above the axles D D′ in place of being mounted directly upon the axles.

I claim as my invention—

1. The combination in a truck, of a frame having bearings, axles mounted in said bearings, a motor on the truck for driving one of the axles, a supporting-frame mounted on the axles so that the truck will have a lateral motion independent of the supporting-frame, substantially as described.

2. The combination in a truck, of a frame having bearings, axles mounted in the bearings, said axles having wheels thereon, a motor on the truck geared to one of the axles, a supporting-frame so mounted on the axles as to allow the truck to have lateral movement independent of the supporting-frame, and a structure to which the supporting-frame is pivoted, substantially as described.

3. The combination in a truck, of a frame having bearings, axles mounted in the bearings, said axles having wheels thereon, a motor on the truck geared to one of the axles, a supporting-frame so mounted on the axles as to allow the truck to have lateral movement independent of the supporting-frame, a hemispherical projection on the frame, a bracket, and a socket on the bracket to receive the hemispherical projection on the frame, substantially as described.

4. The combination in a truck, of a frame having bearings, axles mounted in the bearings, said axles having wheels thereon, a motor on the truck geared to one of the axles, a supporting-frame so mounted on the axles as to allow the truck to have lateral movement independent of the supporting-frame, a hemispherical projection on the frame, a bracket, a socket on the bracket to receive the hemispherical projection on the frame, and a king-bolt passing through the bracket and the frame, substantially as described.

5. The combination in a crane, of a frame, a carriage mounted on the frame, brackets at the four corners of the frame, a supporting-frame pivoted to each bracket, a truck-frame, axles thereon, wheels on the axles, each supporting-frame being so connected to its truck that the truck will have a limited lateral movement independent of the crane structure so that the truck will accommodate itself to the tracks, substantially as described.

6. The combination of four trucks, means for independently driving each truck, a base-frame, a ball and socket between the base-frame and each truck, a crane-body pivoted to the frame, a boom carried by the crane-body, and a bucket carried by the boom, substantially as described.

7. The combination of a crane, four trucks, each truck-frame having two axles and carrying a motor and gearing, said motor being geared to one of the axles, a supporting-frame mounted on the axles, the base-frame of the crane being carried by the said second frame, a crane-body pivoted to the base-frame, and a boom carried by the body, substantially as described.

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

ARTHUR C. JOHNSTON.

Witnesses:

FRANK L. A. GRAHAM,

JOS. H. KLEIN.