

(No Model.)

2 Sheets—Sheet 1.

J. B. CLARK.
ELECTRICALLY ACTUATED VEHICLE.

No. 537,673.

Patented Apr. 16, 1895.

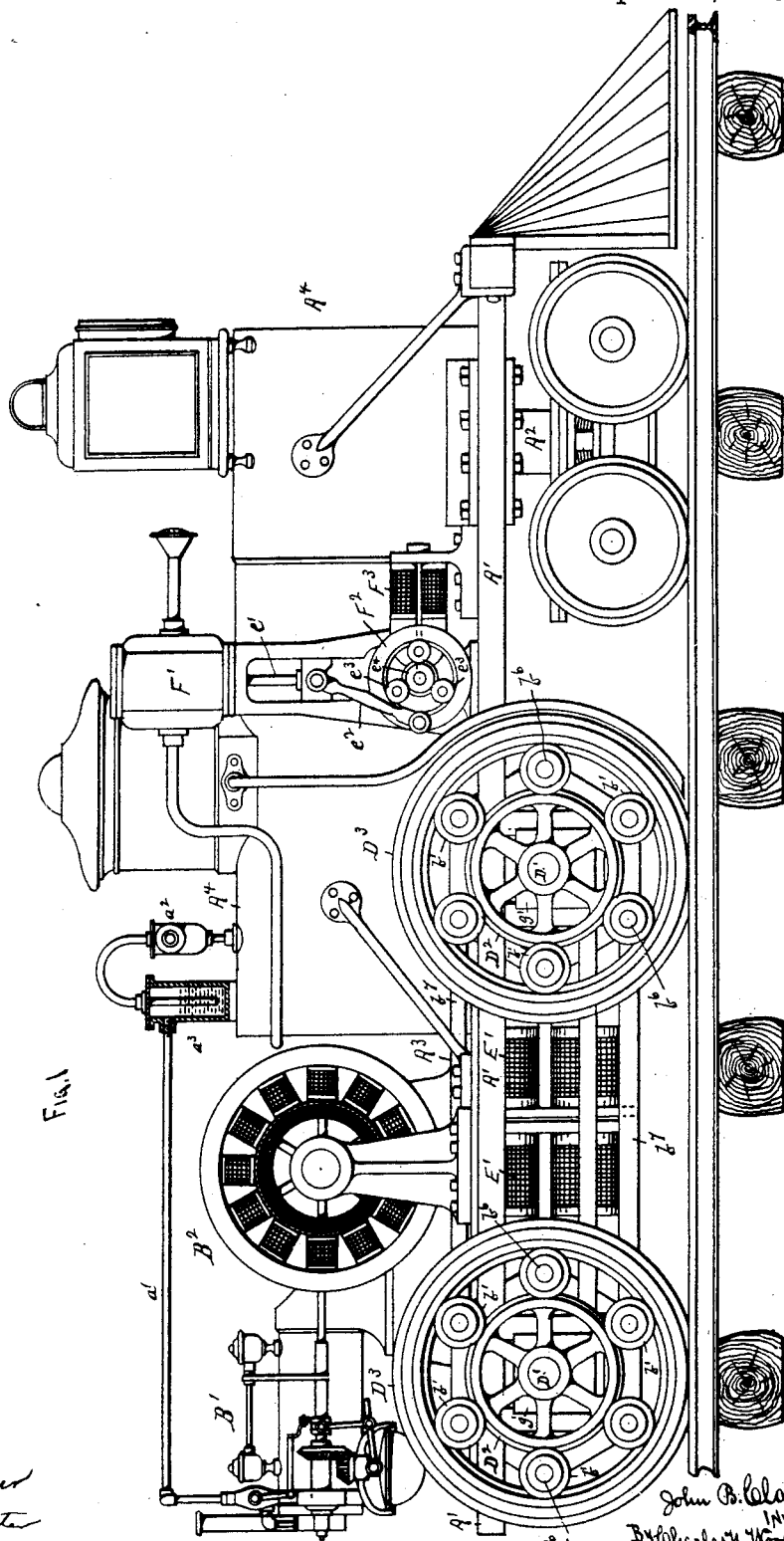


Fig. 1

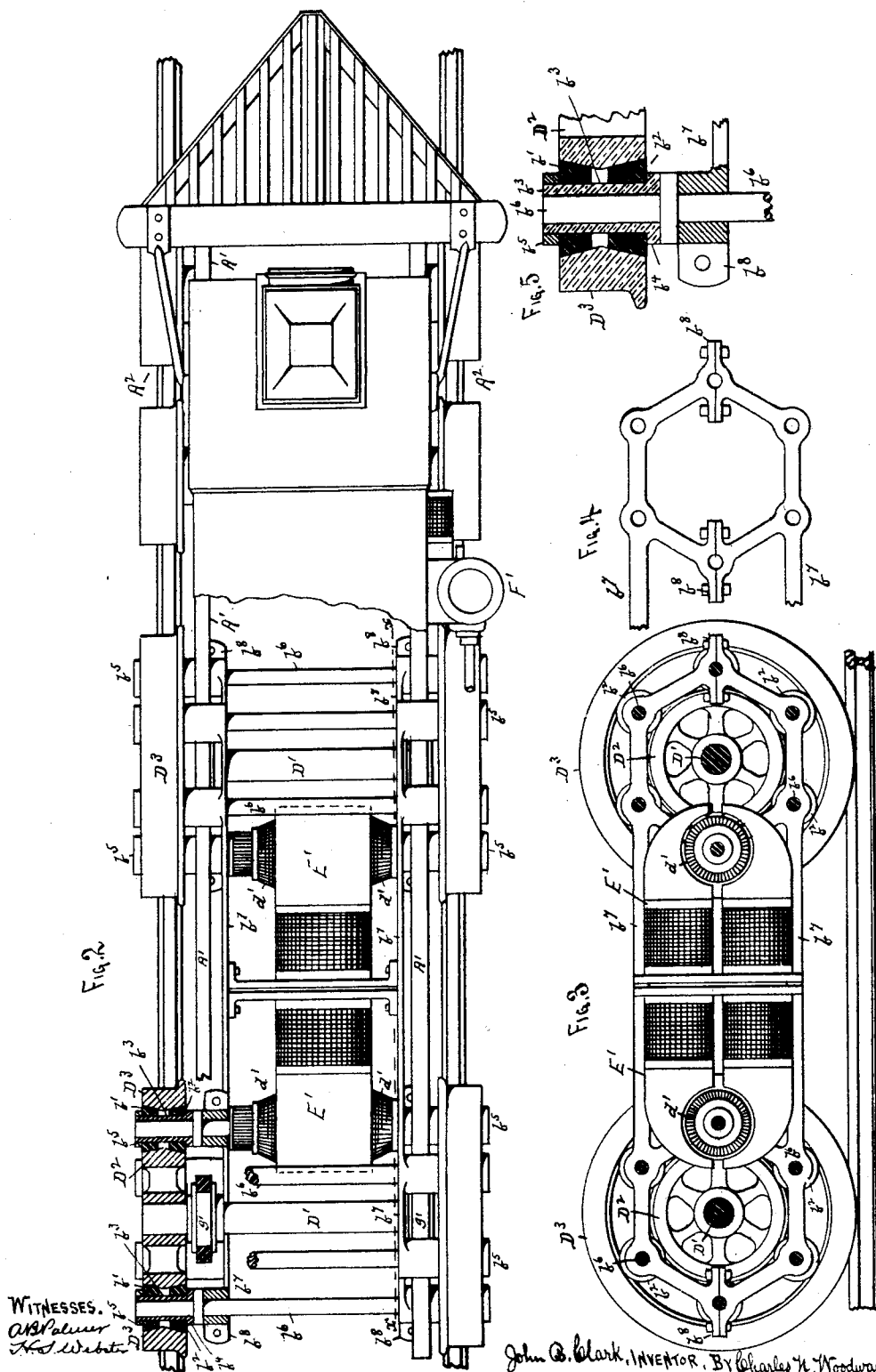
WITNESSES.
A. B. Palmer
H. S. Webster

John B. Clark,
INVENTOR.
By Charles H. Woodward Att.

J. B. CLARK.
ELECTRICALLY ACTUATED VEHICLE.

No. 537,673.

Patented Apr. 16, 1895.



UNITED STATES PATENT OFFICE.

JOHN B. CLARK, OF ST. PAUL, MINNESOTA.

ELECTRICALLY-ACTUATED VEHICLE.

SPECIFICATION forming part of Letters Patent No. 537,673, dated April 16, 1895.

Application filed March 3, 1894. Serial No. 502,161. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. CLARK, a subject of the Queen of Great Britain and Ireland, (who has declared his intention of becoming a citizen of the United States,) residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Electrically-Actuated Vehicles, of which the following is a specification.

This invention relates to electrically actuated vehicles, and consists in the construction, combination, and arrangement of parts, as hereinafter shown and described and specifically pointed out in the claims.

In the drawings I have shown approved means of applying my invention, Figure 1 being a side elevation, and Fig. 2 a plan view, partially in section. Fig. 3 is a side elevation of the running gear of the driving wheels, in longitudinal section on the line $x x$ of Fig. 2. Fig. 4 is a detached detail of a portion of the connecting frame of the motor and the driving gear. Fig. 5 is an enlarged sectional detail of one of the adjustable friction driving pulleys, illustrating more fully its construction.

A' represents the main frame of a locomotive mounted by its forward end upon a truck frame, A^2 , and supporting a platform A^3 , the latter carrying a tank A^4 in which the gas to be used as fuel for the gas motor is stored, under pressure.

B' is a gas engine of any approved construction, adapted to actuate an electric dynamo B^2 , the gas engine adapted to receive its supply of fuel from the tank A^4 through the supply pipe a' , the latter passing first through a reducing valve a^2 and a water trap a^3 , as shown, the reducing valve insuring the proper pressure to the engine, and the trap preventing any danger of fire running back into the tank from the engine.

The rear portion of the frame A' is arranged to support axles D' by bearings g' in the ordinary manner, and upon the outer ends of these axles, pulleys D^2 are rigidly secured. Surrounding these pulleys D^2 are rims D^3 with a space between the inner surfaces of the rims and the outer surfaces of the pulleys, this space being occupied by friction rollers, as shown. The friction rollers are of peculiar

construction as more clearly shown in Figs. 2 and 5. Each roller is formed in two parts b' b^2 , tapering inward, and corresponding to the double tapered inner surface of the rims D^3 and outer surfaces of the pulleys D^2 , as shown. Each pair of the tapered rollers are mounted upon a sleeve b^3 with a collar b^4 on the inner end and a ring nut b^5 on the outer end, the sleeve being mounted upon cross shafts b^6 , running across beneath the framework.

Just inside the frame A' the cross shafts b^6 are supported by hanger frames b^7 , each hanger frame extended so as to embrace the cross shafts of both the axles D' , as shown. These hanger frames are each formed in two parts united at b^8 , so as to be easily attached to and removed from the machine. By this simple arrangement the adjustment of the ring nuts b^5 will regulate the frictional contact of the tapered rollers b' b^2 , as well as to enable the operator to take up any lost motion caused by the wearing of the parts.

One of the cross shafts b^6 , of each axle, (preferably the two innermost ones,) will be provided with an electric armature d' which a field magnet E' , supported by the hanger frames b^7 , is adapted to actuate, the current being supplied from the dynamo in the ordinary manner. I have not shown the "brushes" or the conductor wires connected to the dynamo or the motors, as their arrangement and construction are so well known. By this simple arrangement the high speed of the electric motor is communicated to one of the cross shafts b^6 , and from thence by the doubly conical rollers to the flanged rims and pulleys, and thereby transmitting the requisite slower motion to the running gear, the remaining rollers acting as "idlers" to carry the strains and equalize the action.

F' is an air pump, its piston e' adapted to be actuated from a rim F^2 through a connecting rod e^2 , the rim F^2 adapted to be revolved by a system of friction rollers e^3 , a pulley e^4 and an electric motor F^3 , in the same manner as the main traction rims are actuated. This air pump may be utilized to charge the air brake tanks, and also to charge the tanks with their supply of gas.

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

1. In an electrically operated vehicle, a

framework mounted to run upon tracks, an axle journaled to said framework and having pulleys upon its ends, rims surrounding said pulleys and running upon said tracks, friction rollers supported in a framework and interposed between said rim and pulleys, a constantly running engine upon said framework and adapted to actuate a dynamo, and an electric motor adapted to be energized by said dynamo, and so connected as to actuate one of said friction rollers, substantially as and for the purpose set forth.

2. In an electrically operated vehicle, a framework mounted to run upon tracks, an axle journaled to said framework and having pulleys upon its ends, rims surrounding said

pulleys and running upon said tracks, reversely inclined friction rollers supported in a framework and interposed between said rim and pulleys and with means for adjusting said friction rollers, and an electric motor, so connected as to be adapted to actuate one of said friction rollers, substantially as and for the purpose set forth.

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

JOHN B. CLARK.

Witnesses:

C. N. WOODWARD,
HOWARD T. SMITH.