

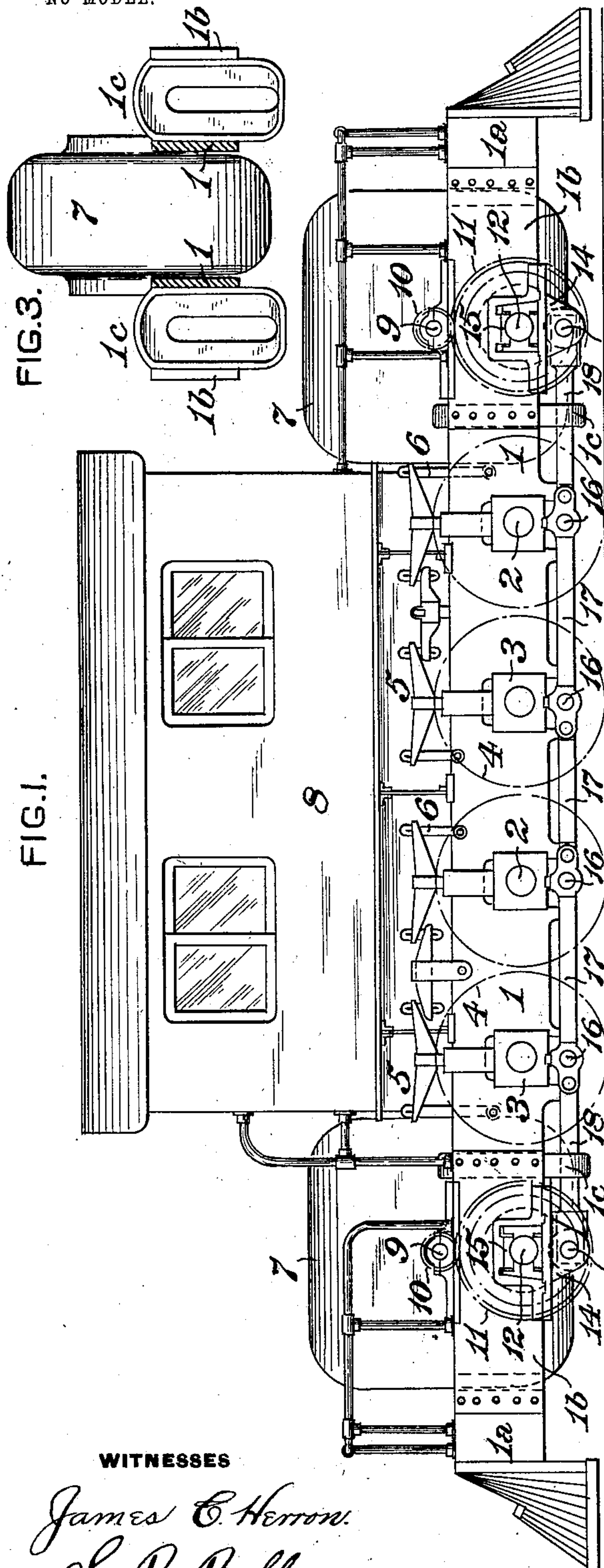
No. 744,301.

PATENTED NOV. 17, 1903.

W. DALTON & F. J. COLE.
ELECTRIC LOCOMOTIVE.

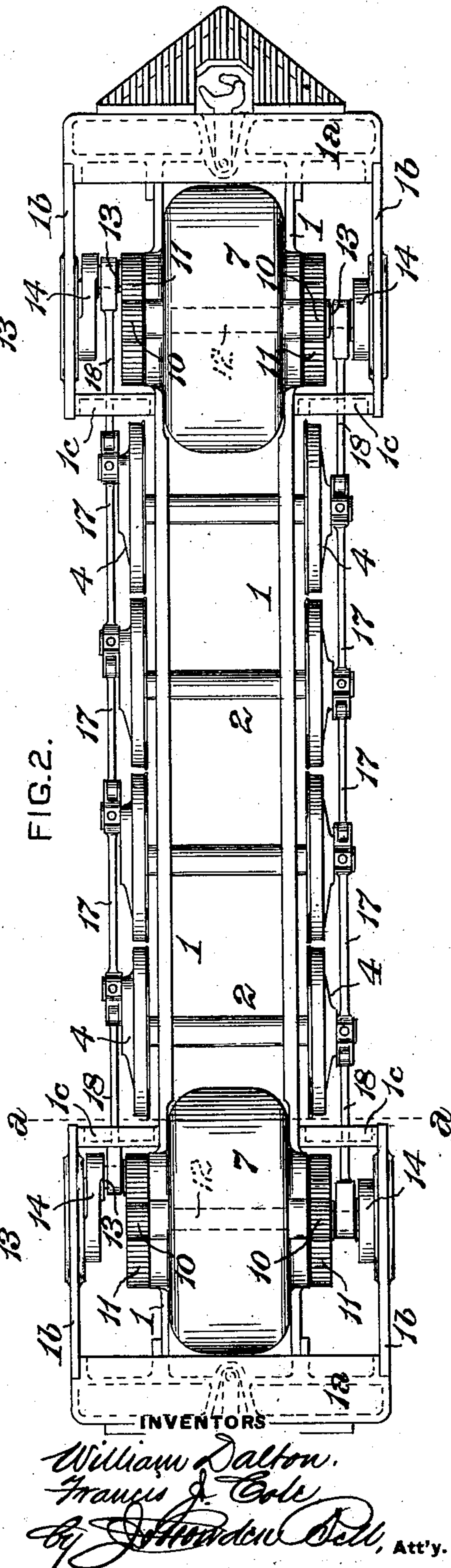
APPLICATION FILED JULY 8, 1903

NO MODEL.



WITNESSES

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UNITED STATES PATENT OFFICE.

WILLIAM DALTON AND FRANCIS J. COLE, OF SCHENECTADY, NEW YORK,
ASSIGNORS TO AMERICAN LOCOMOTIVE COMPANY, OF NEW YORK, N. Y.,
A CORPORATION OF NEW YORK.

ELECTRIC LOCOMOTIVE.

SPECIFICATION forming part of Letters Patent No. 744,301, dated November 17, 1903.

Application filed July 8, 1903. Serial No. 164,627. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM DALTON and FRANCIS J. COLE, both of Schenectady, in the county of Schenectady and State of New York, have jointly invented a certain new and useful Improvement in Electric Locomotives, of which improvement the following is a specification.

The object of our invention is to provide an electric locomotive in which a high degree of tractive power may be afforded in a single vehicle by the employment of motors of comparatively large size and in which a motor or motors of such character shall be so located and supported as to admit of the use of continuous lateral frame members and of crank-shafts having inner and outer bearings and to be readily and conveniently accessible for attention and removal and replacement as required.

The improvement claimed is hereinafter fully set forth.

In the accompanying drawings, Figure 1 is a side view in elevation of an electric locomotive, illustrating an embodiment of our invention, the driving-wheels being shown in broken lines and the gearing indicated by broken circles; Fig. 2, a plan or top view with the cab and spring-rigging removed, and Fig. 3 a transverse section on the line *a a* of Fig. 2.

In the practice of our invention we provide a substantial supporting-frame comprising two continuous main side frame members 1, in or on which are formed or fixed jaws or pedestals for the reception of the journal-boxes 3, of a plurality of driving-axes 2, in the instance exemplified four in number, upon which the driving-wheels 4 are secured. The side frame members 1 are connected at their ends by transverse bumper-beams 1^a, and the frame is supported upon the driving-axes through the intermediation of springs 5, which rest upon saddles on the journal-boxes and are connected to the frame by spring-hangers 6, as in ordinary steam-locomotive practice. The detailed construction of the journal-boxes and spring arrangement do not form part of our present invention, and the same is not, therefore, herein at length set forth.

Power for the rotation of the driving-axes 2 is imparted thereto from an electric motor or motors 7, of any suitable and preferred construction, two being preferably employed, one at each end of the locomotive, as shown in the drawings. Each of the motors 7 is located between the side frame members 1 and as close as practicable to the bumper-beam 1^a at the adjacent end of the locomotive. The width of the motor is made as great as will permit it to fit between the side frame members 1, and in order to enable as wide a motor as possible to be employed the side frame members may, as shown, be reduced in thickness by being relieved on their inner sides throughout the portions of their length which adjoin the motor. Each of the motors is suitably secured to the side frame members, and an unobstructed space is left above the motor, the cab 8 being located between and entirely clear of the motors at the opposite ends of the locomotive. The attendant upon the running-board, which is fixed in the ordinary manner above the frame members, is thus enabled to get at all parts of the motor and attend to the brushes and bearings when the machine is running, and the removal and replacement of the motor may be readily effected whenever desired without interference with or obstruction by any other part.

Each of the motor-shafts 9 has fixed upon its outer ends spur-pinions 10, which engage corresponding gears 11, fixed upon a crank-shaft 12, journaled in the horizontal plane of the driving-axes 2. The gears 11 act also as crank-disks, there being secured in them crank-pins 13, which are also fixed to return crank-arms 14, on the opposite ends of which are formed prolongations of the crank-shaft 12 in line axially with the main body thereof and serving as outer journals therefor. The crank-shaft is mounted in suitable bearings in the side frame members 1 and in outer bearings or boxes 15, fitted in an auxiliary end framing comprising two supplemental side frame members 1^b, which are firmly connected to the main frame members 1 by being secured at their outer ends to yokes 1^c, which are interposed between and connected to the main frame members and the supple-

mental side frame members and are slotted to permit the passage of main connecting-rods. It will be seen that the provision of the auxiliary end framing attains the substantially valuable results of enabling the crank-shaft to be supported in outer bearings, and thus affording the greatest available space for the motor between the frames and also of greatly stiffening and strengthening the frame structure at the ends of the locomotive to which the strains of draft and buffing are applied in service.

The several pairs of driving-wheels 4 are provided with crank-pins 16, which are coupled by side or coupling rods 17, and the crank-pins of the driving-wheels at each end of the locomotive are coupled to the pins 13 of the crank-shaft of the motor at that end by main rods 18.

We claim as our invention and desire to secure by Letters Patent—

1. In an electric locomotive, the combination of a supporting-frame comprising two main side frame members fitted to receive the journal-boxes of one or more driving-axles, and connected by a transverse end bumper-beam, and an auxiliary end framing compris-

ing two supplemental side frame members located outside of the main frame members and slotted yokes interposed between and connected to the main and supplemental side frame members, the latter being connected at their outer ends to the buffer-beam.

2. In an electric locomotive, the combination of a supporting-frame comprising two main side frame members, driving-wheels fixed upon axles journaled in said frame, supplemental side frame members exterior to the main frame members and secured thereto at points between one end of the locomotive and the adjacent pair of driving-wheels, an electric motor located between and supported on the main side frame members adjacent to one end of the locomotive, a crank-shaft journaled in the main and supplemental frame members, gearing connecting said crank-shaft with the motor, and connections from the crank-shaft to the adjacent pair of driving-wheels.

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