

(No Model.)

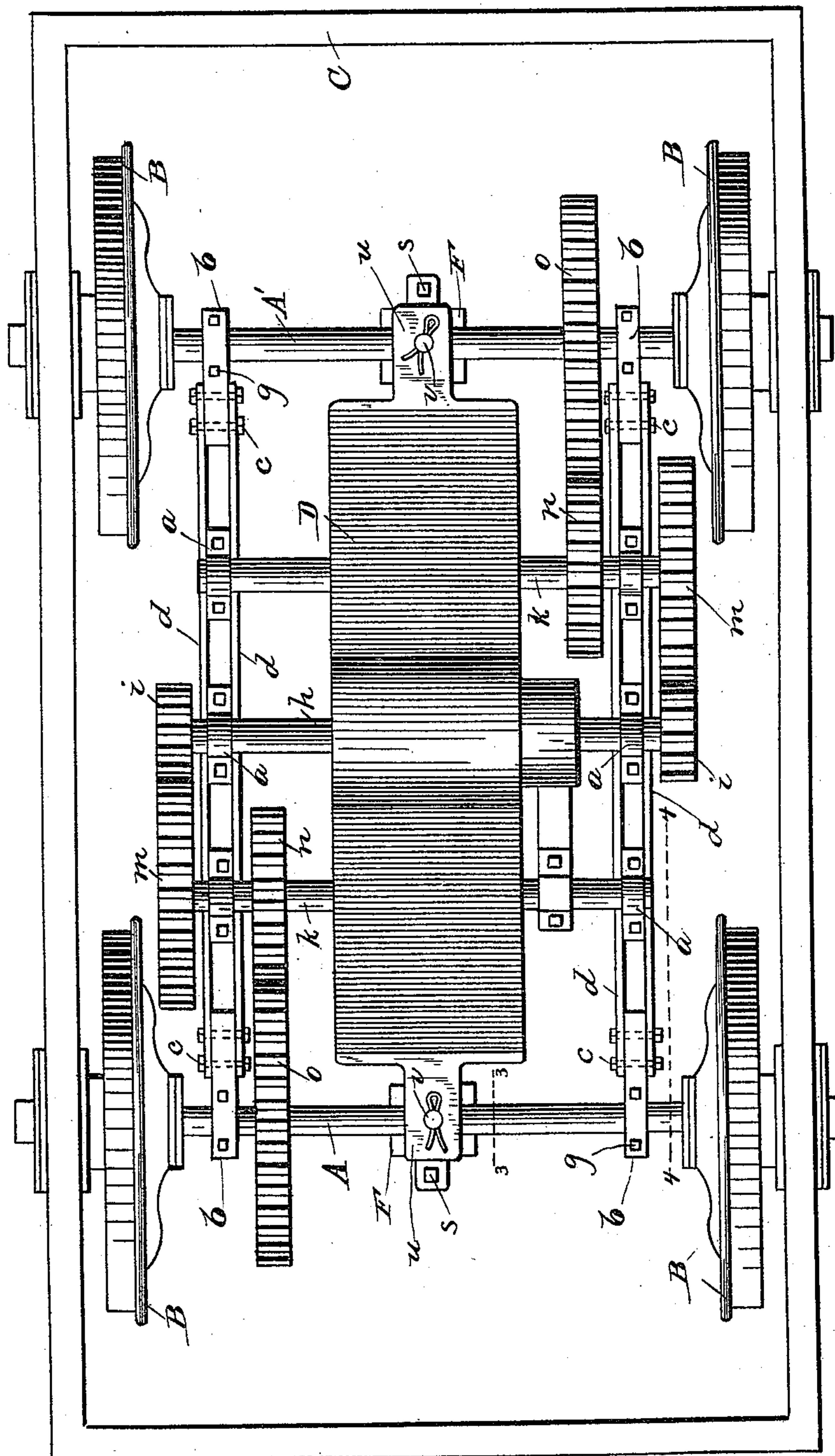
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E. PECKHAM.
ELECTRIC MOTOR TRUCK AND GEAR.

No. 440,189.

Patented Nov. 11, 1890.

Fig. 1.



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(No Model.)

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Fig. 2.

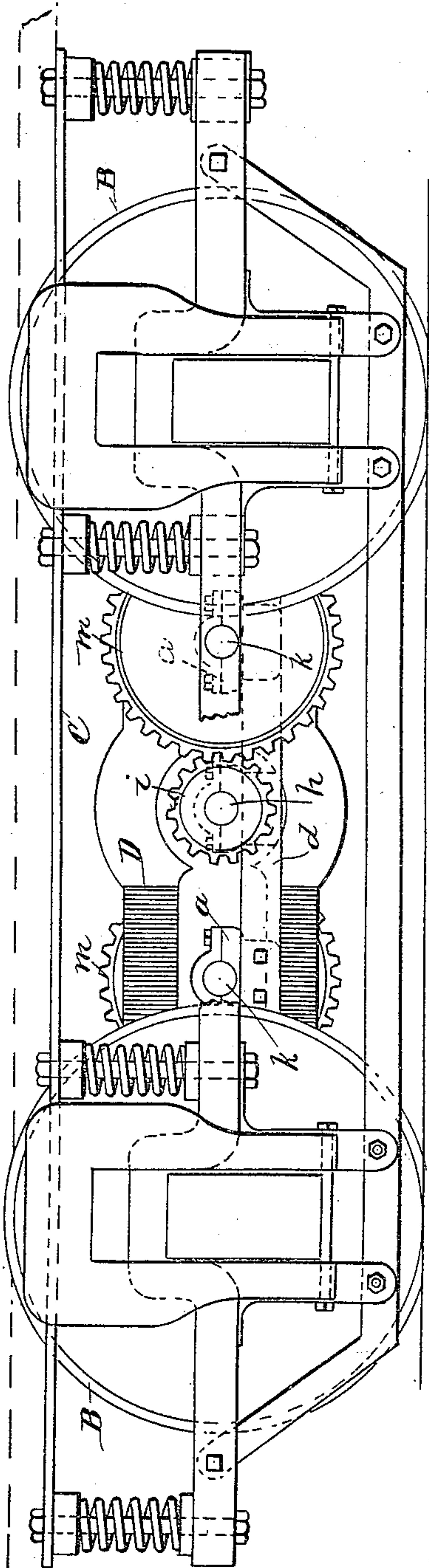


Fig. 4.

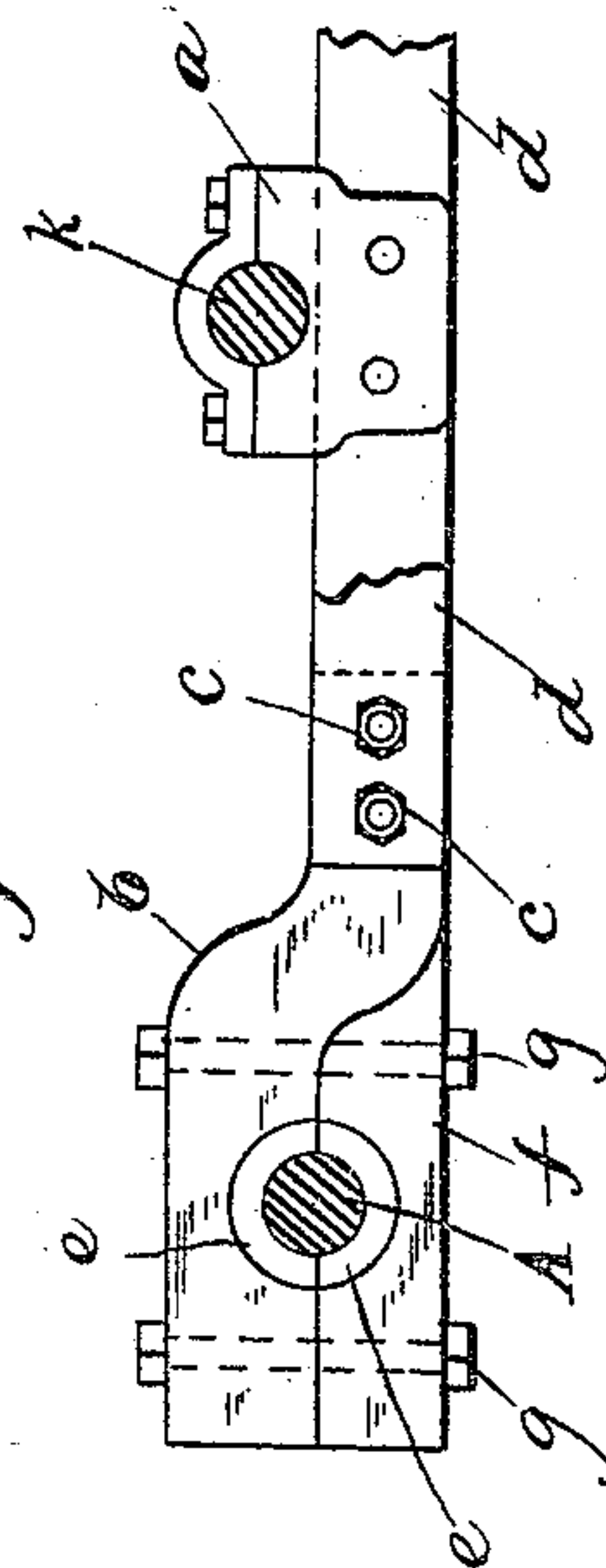
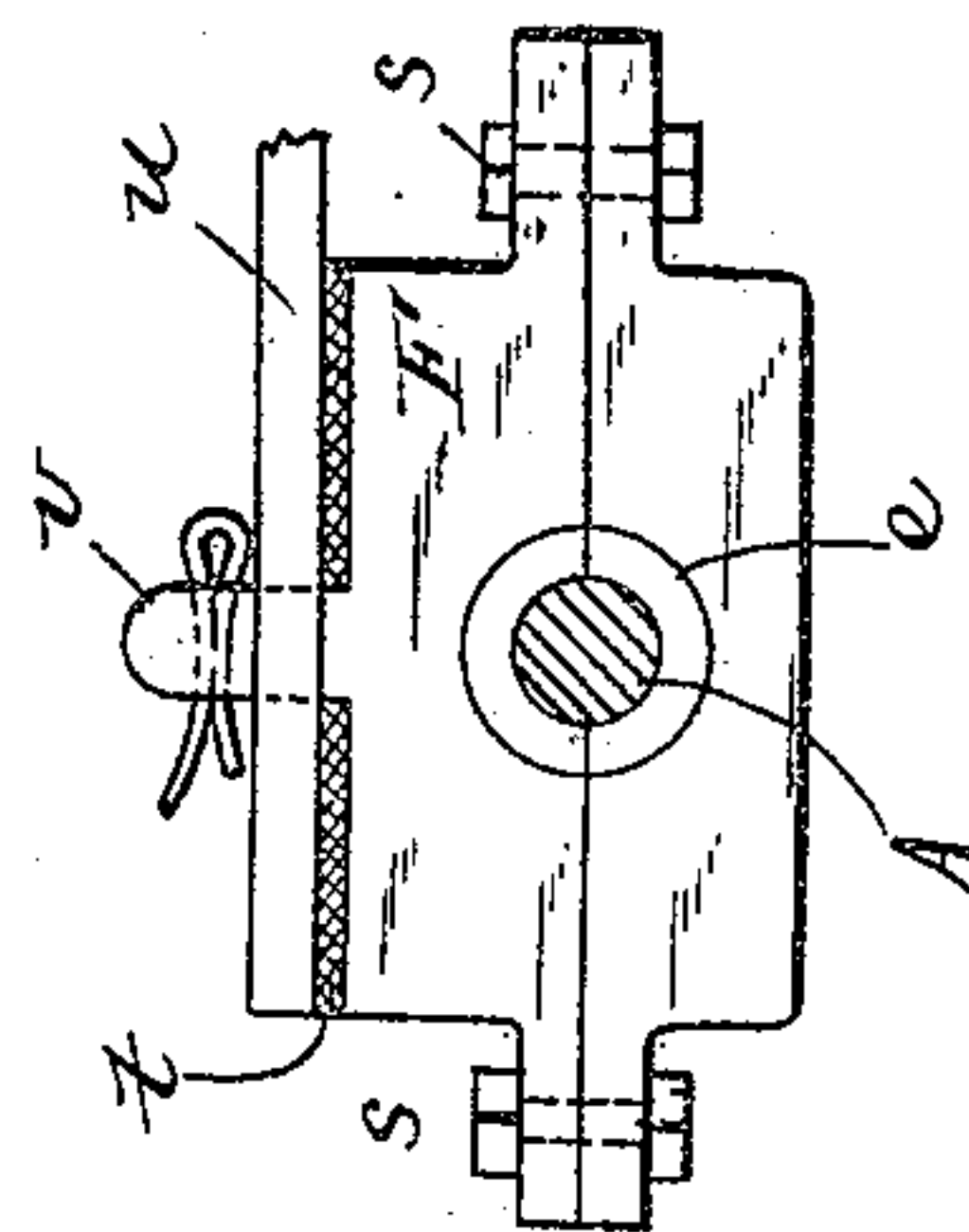


Fig. 3.



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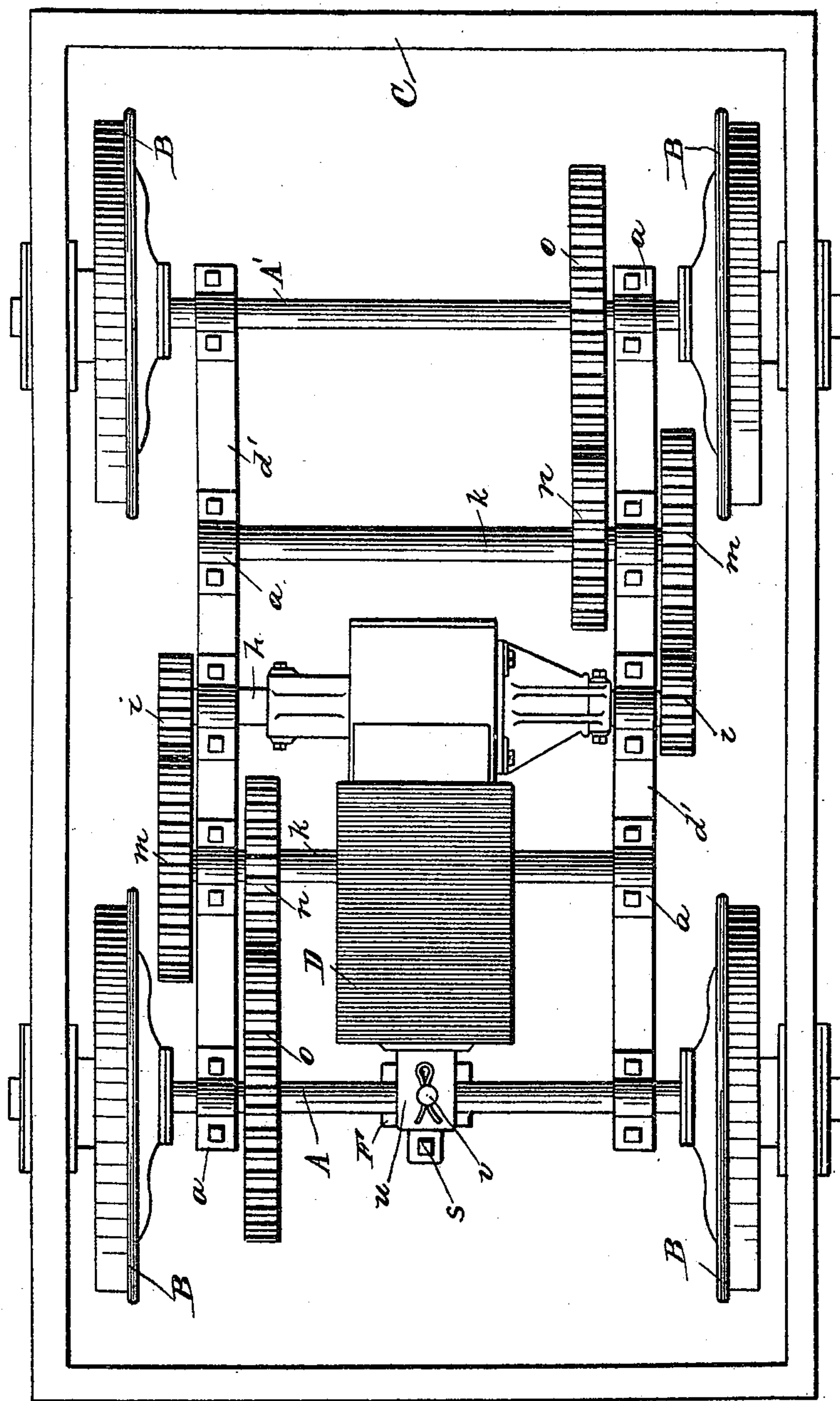
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Fig. 5.



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UNITED STATES PATENT OFFICE.

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ELECTRIC-MOTOR TRUCK AND GEAR.

SPECIFICATION forming part of Letters Patent No. 440,189, dated November 11, 1890.

Application filed May 29, 1890. Serial No. 353,605. (No model.)

To all whom it may concern:

Be it known that I, EDGAR PECKHAM, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Electric-Motor Trucks and Gears, of which the following is a specification.

This invention relates to electric car-motors and their supporting trucks, and particularly to the gearing by which the electromotor is operatively connected with the axles of the truck.

The object of the invention is to devise a system of motor-gearing whereby the motion of the armature-shaft of the electromotor may be imparted simultaneously to both axles of the truck. The means made use of by me for effecting this object are so disposed in the organization that the weight thereof is evenly distributed over the truck-frame and a smooth and regular motion is obtained.

To enable others who may be interested in the art to construct and use my invention, I have hereinafter described the same in connection with the accompanying drawings, which form part of this specification, and wherein like features are indicated by like letters and figures of reference in the several views, and in claims at the end hereof I have set out the novel features for which Letters Patent are desired.

In the drawings, Figure 1 is a plan view of an electric-motor truck embodying my invention. Fig. 2 is a side elevation of Fig. 1. Fig. 3 is a sectional view through the line 3 of Fig. 1. Fig. 4 is a section on the line 4 of Fig. 1, with a part of one of the beams supporting the journal-boxes broken away. Fig. 5 is a plan view of an electric-motor truck embodying my improvements and carrying a single electromotor instead of a double motor, as in the construction shown in Fig. 1.

Referring to the drawings, A A' indicate the axles of the truck; B, the drive-wheels mounted on said axles, and C the truck-frame, supported on the pedestals or in any other suitable manner. The support for the armature-shaft and counter-shafts consists of longitudinal rails arranged inside the drive-wheels and having bearings at each end on the axles A A' of the truck. In Fig. 1, which

shows the preferred embodiment of my invention, the said support comprises two rails *d* at each side of the truck, arranged with their flat surfaces vertical, between which are bolted the journal-boxes *a*, furnishing the bearings for the armature-shaft and counter-shafts. The said journal-boxes *a*, when bolted in position between the rails *d*, have their bearings for the respective shafts above the top edge of the rails *d*, as shown in Figs. 2 and 4. The rails *d* are supported on the axles A A' by short bent bars *b*, considerably thicker in cross-section than the rails *d*. The bent bars *b* are placed between the rails *d* and connected thereto by bolts *c*, as seen in Fig. 1, and their opposite ends are bent upward and are provided on their under sides with bearing-surfaces. The truck-axles at the points where the short bars *b* rest thereupon are fitted with Babbitt metal or other suitable bearings *e*, which are embraced by the bearing-surfaces of the short bars *b* and by the metal pieces *f*, located beneath the bars *b*, and likewise provided with the required bearing-surfaces. The short bars *b* and metal pieces *f* are held together by the bolts *g*, so as to embrace the axles of the truck, but permit them to turn in the bearings thus provided. It is obvious that the bearing-surfaces of the short bars *b* and metal pieces *f* may be fitted with Babbitt or other metal bearings instead of securing said metal bearings to the axles.

In Fig. 5 the support for the armature and counter shafts consists of flat metal bars *d'* of the required width, on the tops of which the journal-boxes *a* of the several shafts are supported, the ends of said bars being provided with journal-boxes, in which the axles of the truck turn in the usual manner.

In Fig. 1 there is illustrated a double electromotor D, the centrally-arranged armature-shaft *h* occupying a central transverse position on the truck with bearings in journal-boxes *a*, its ends extending beyond the supporting-rails *d* and fitted with pinions *i*, as shown. The counter-shafts *k* pass through the cores of the electro-magnets without, of course, having any contact therewith, and have their ends supported in journal-boxes *a* on the rails *d*. One end of each counter-shaft *k* is extended outside the supporting-rails *d*, and is provided with a gear-wheel *m*, which

meshes with the pinion *i* on the end of the armature-shaft *h*. On each of the counter-shafts *k*, at that end thereof which carries the gear-wheel *m*, there is mounted inside of the supporting-bars *d* a gear-wheel *n*, which meshes with the larger gear *o*, fixed to the respective axles. By this disposition of the several elements of the gearing the armature-shaft is adapted to drive both axles of the truck simultaneously, and by arranging the gear equally on both sides of the truck, preferably at diagonally-opposite corners, a smooth and regular motion is obtained. This mode of driving the axles is applicable when employing a single as well as a double motor, a single motor being shown in Fig. 5.

It will be observed that the armature-shaft of the electromotor is arranged in the center of the truck, equally distant from both axles of the truck, and that the counter-shafts are located between the respective axles and the armature-shaft. This disposition of parts is adopted, whether the motor employed be double or single. The gearing of both ends of the armature-shaft to the axles also assists in securing a steady and uniform motion of the truck.

The electromotor *D* is flexibly supported at its end or ends on the driving axle or axles. The means which I prefer to use in making this flexible connection is shown in Fig. 3, which consists of a two-part box *F*, provided with suitable bearing-surfaces which embrace the truck-axle, so that the axle may revolve therein, the two parts of the box *F* being held together on the axle by the bolts *s* passing through flanges on said parts, as shown in Fig. 3. The upper section of the box *F* is provided on its top surface with a suitable material *t*—as rubber, for instance—for the purpose of preventing shock as the truck sways and vibrates on the way, and in turning curves.

The extension *u* of the electromotor is provided with a hole fitting over an upwardly-projecting post *v*, formed integral with the top section of box *F*, and transversely through the post *v* there may be passed a pin to prevent the disconnection of the extension *u* and post *v*.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an electromotor-truck, the combination, with the truck-axles and longitudinal supporting-bars arranged inside the car-wheels and journaled on the car-axles, of an electromotor flexibly connected with the axle or axles of the truck, an armature-shaft supported in bearings on the longitudinal bars,

a pair of counter-shafts also supported in bearings on said longitudinal bars, and gearing connecting said armature-shaft and counter-shafts with the driving-axles, substantially as set forth.

2. In an electromotor-truck, the combination, with the truck-axles, an electromotor flexibly supported on said axles, an armature-shaft and counter-shafts, of supports for the bearings of said shafts, each comprising longitudinal bars arranged with their flat surfaces vertical, journal-boxes bolted between said bars, and short bent bars bolted to said longitudinal bars and serving, in conjunction with metal pieces, as *f*, to connect said longitudinal bars to the driving-axles, substantially as set forth.

3. The combination, with the truck and longitudinal supports for the armature and counter shafts arranged inside the drive-wheels and journaled on the axles, of an electromotor provided with an extension, as *u*, and two-part box *F*, bolted to the truck-axle and provided on its upper bearing surface with a post connecting the extension *u* of the motor and said box together, substantially as set forth.

4. The combination, with the truck and longitudinal supports for the armature and counter shafts, of an electromotor provided with an extension-piece *u*, having a hole therein, a two-part box bolted to the truck-axle, the upper section of which box is provided with a post passing through said perforated extension *u*, rubber surface *t* between the upper section of the box and the extension *u*, and a pin passing through the post of the box above extension *u*, substantially as set forth.

5. In a motor-gear, the combination, with a pair of side bars supported by the axles of the drive-wheels, and an electromotor flexibly sustained on the driving-axles, of a single armature-shaft and a pair of counter-shafts supported in bearings on said side bars, both ends of the armature-shaft provided with pinions, as *i*, and the counter-shafts provided at their opposite ends with gear-wheels meshing with the pinions *i*, and gear-wheels mounted upon the driving-axles and meshing with gear-wheels mounted on the counter-shafts, whereby the motion of the armature-shaft is transmitted to propel both axles of the drive-wheels, substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 24th day of May, A. D. 1890.

EDGAR PECKHAM.

Witnesses:

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