

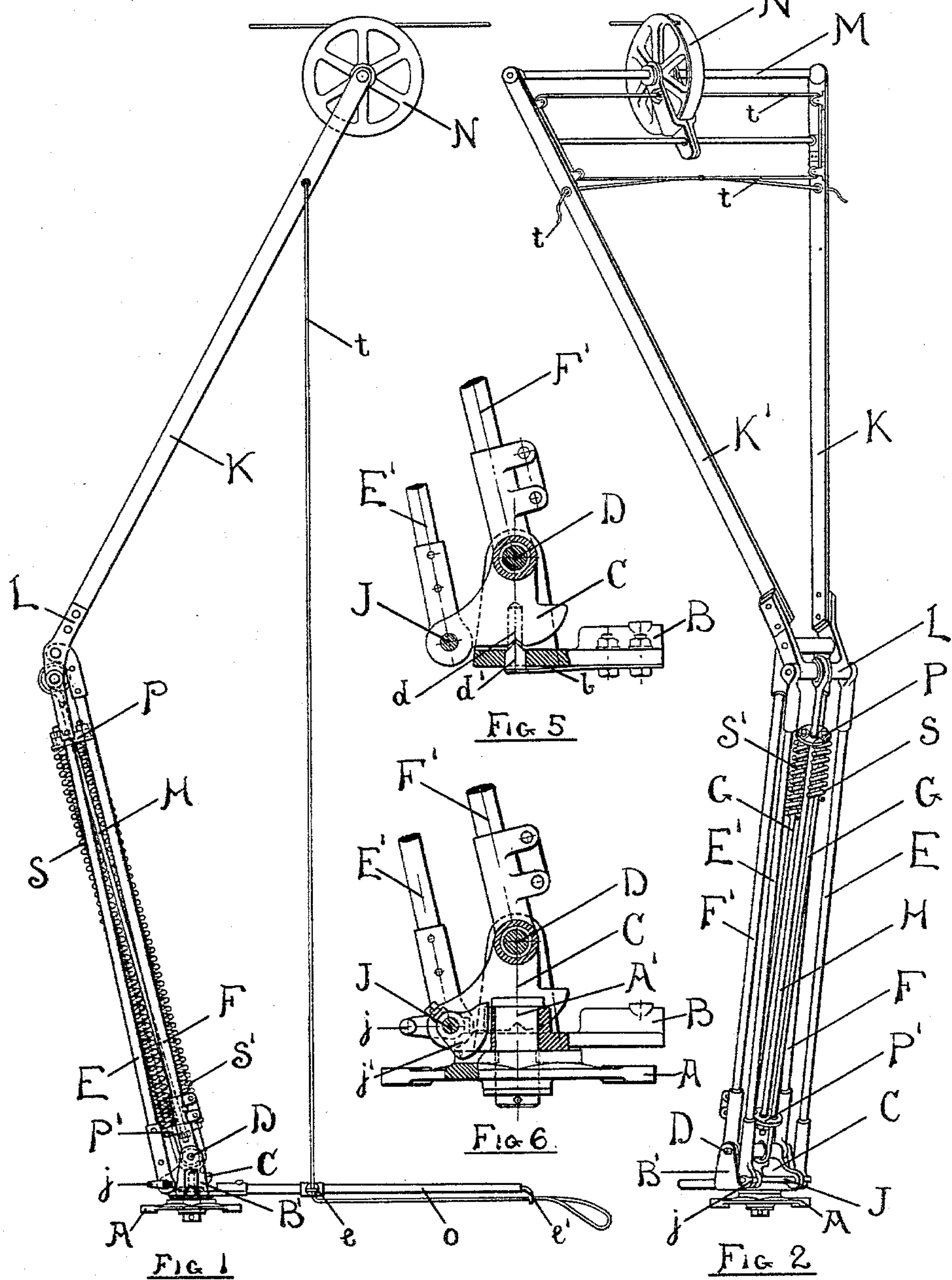
(No Model.)

2 Sheets—Sheet 1.

G. VALLEY.
ELECTRIC TROLLEY DEVICE.

No. 597,516.

Patented Jan. 18, 1898.



WITNESSES:
HUGO NORMAN
M. E. Sharpe.

INVENTOR
Gustaf Valley
BY
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ATTORNEY.

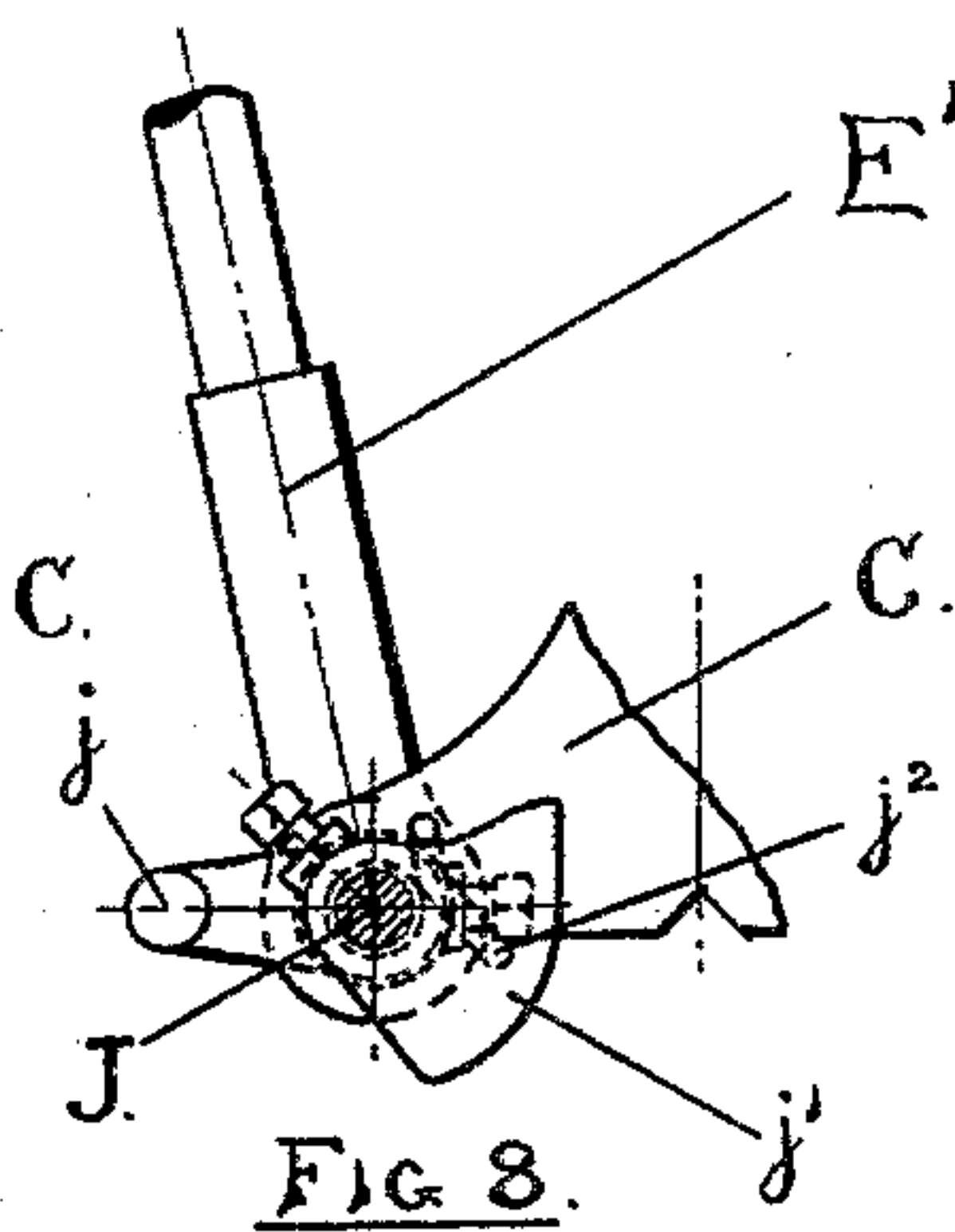
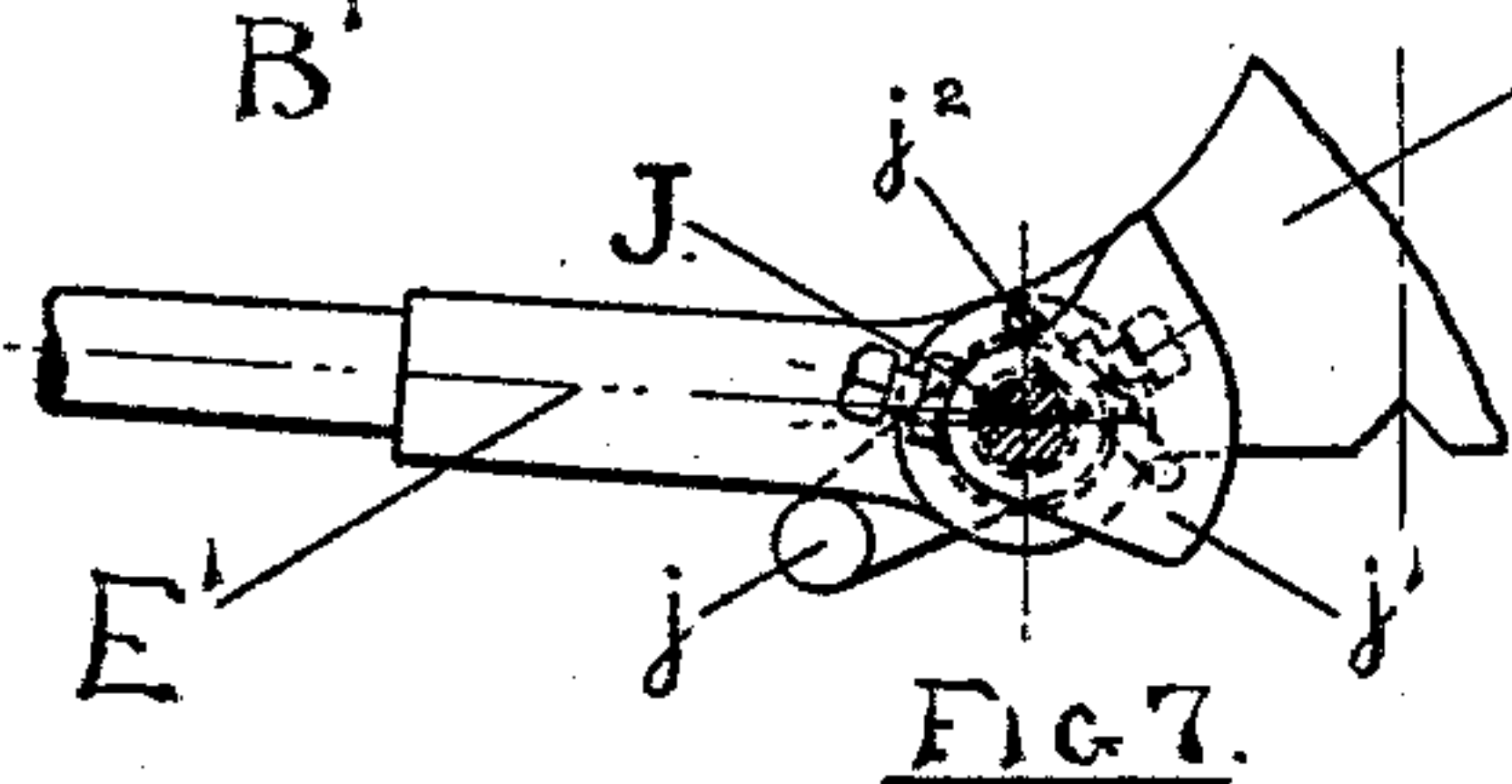
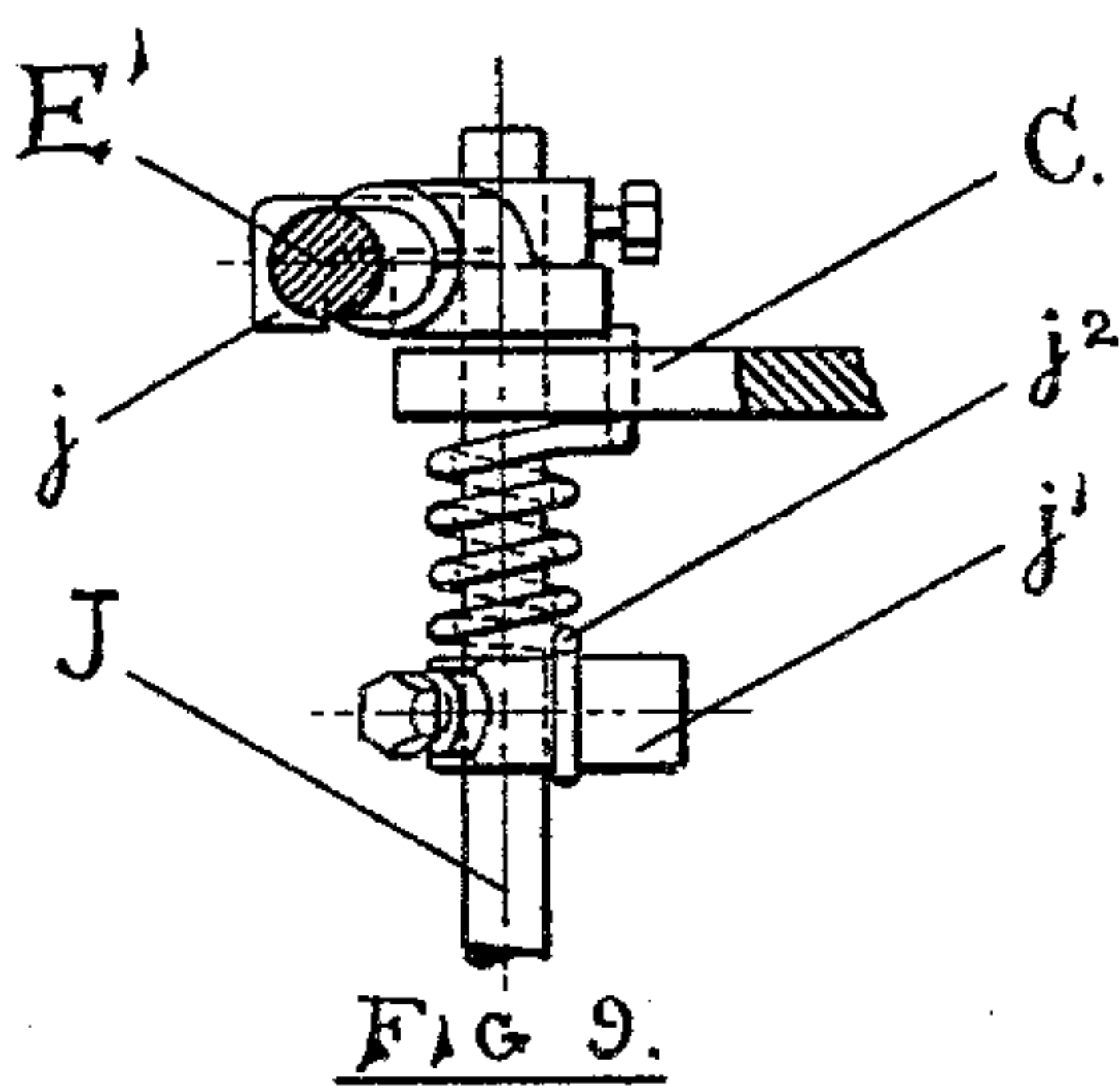
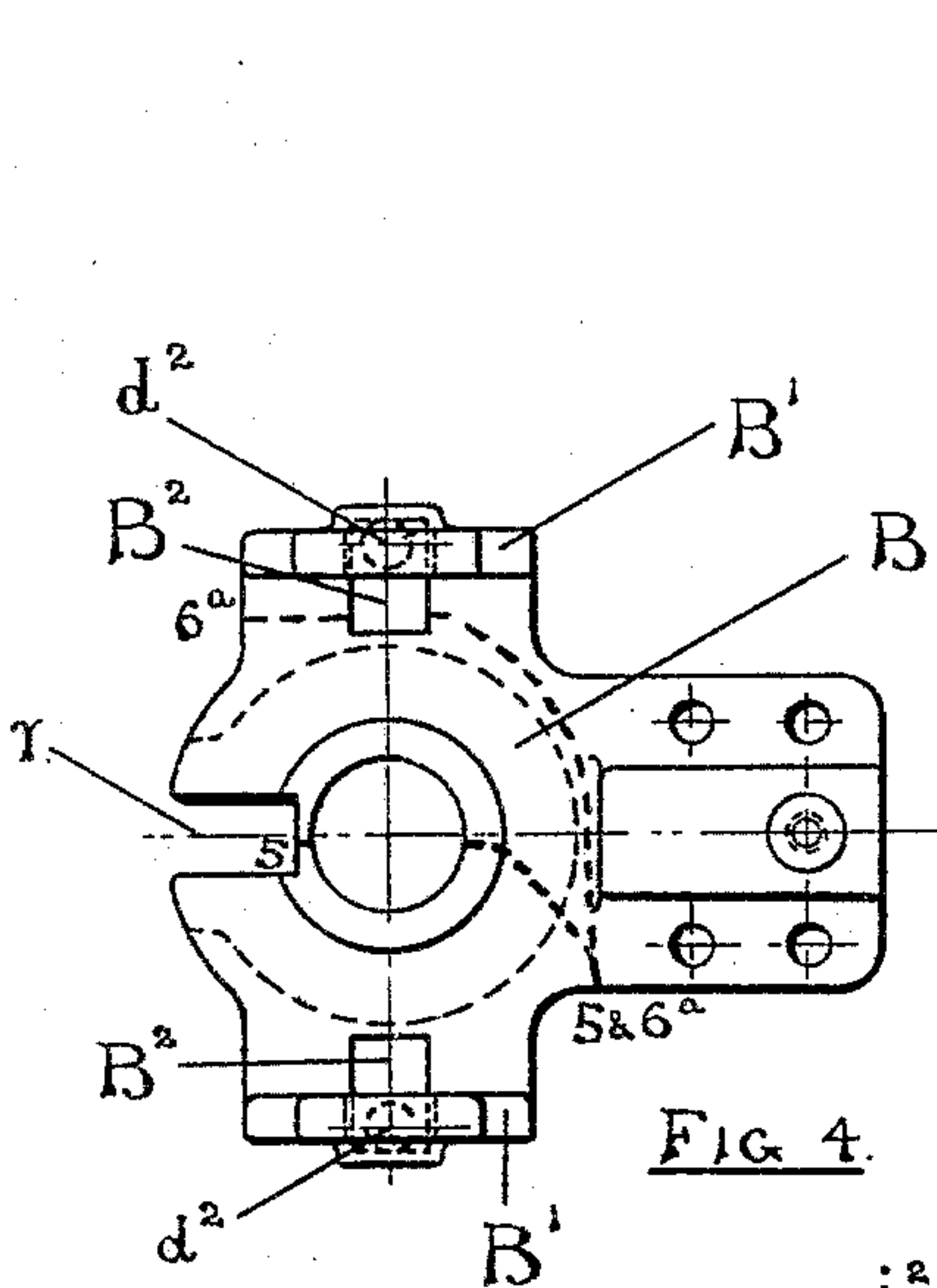
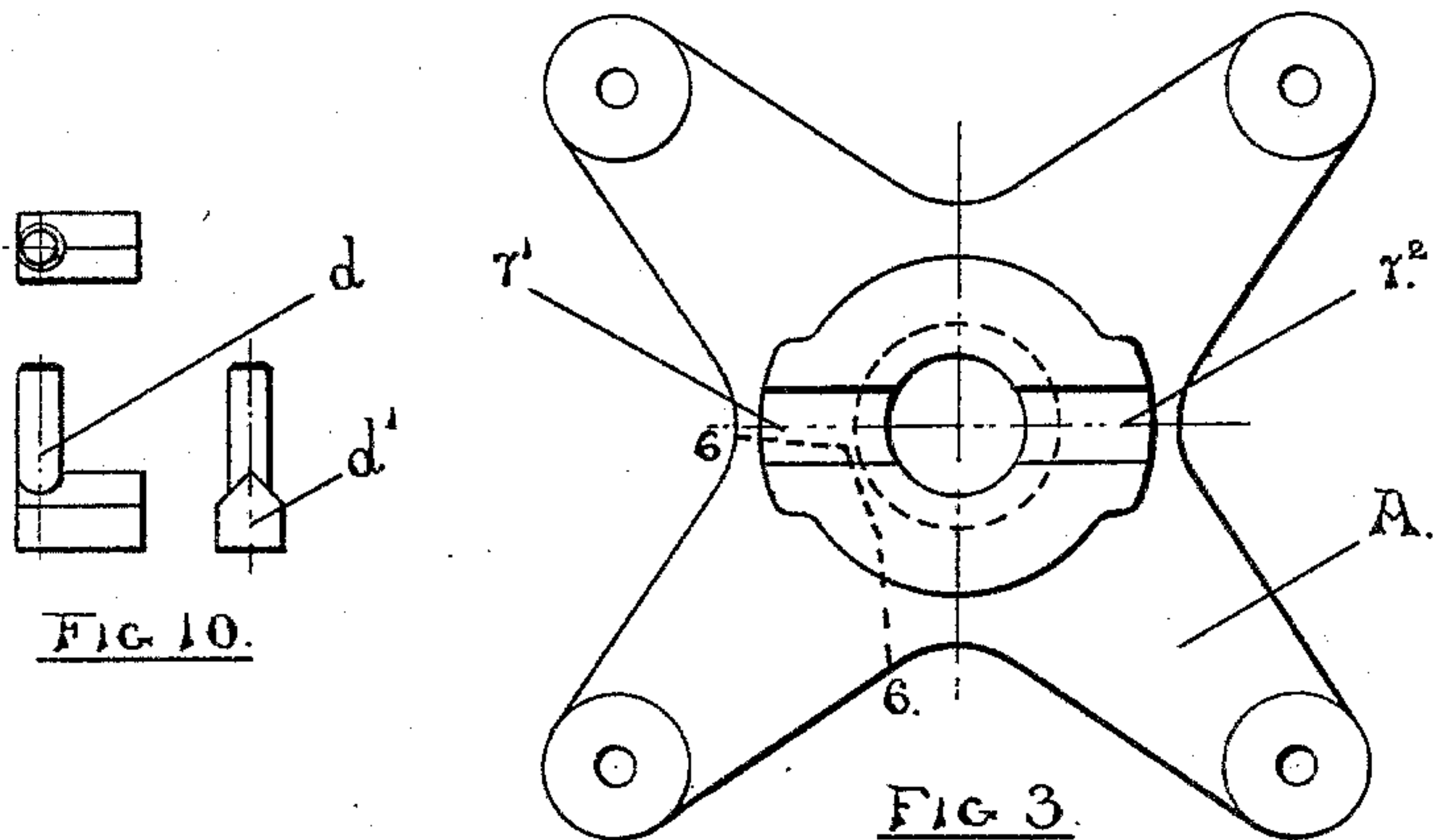
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2 Sheets—Sheet 2.

G. VALLEY.
ELECTRIC TROLLEY DEVICE.

No. 597,516.

Patented Jan. 18, 1898.



WITNESSES:
HUGO NORMAN
M. E. Skurpe

INVENTOR
Gustaf Valley
BY
Richard Lynn
ATTORNEY.

UNITED STATES PATENT OFFICE.

GUSTAF VALLEY, OF JOHNSTOWN, PENNSYLVANIA, ASSIGNOR TO THE
STEEL MOTOR COMPANY, OF SAME PLACE.

ELECTRIC TROLLEY DEVICE.

SPECIFICATION forming part of Letters Patent No. 597,516, dated January 18, 1898.

Application filed March 8, 1897. Serial No. 626,534. (No model.)

To all whom it may concern:

Be it known that I, GUSTAF VALLEY, of Johnstown, Cambria county, Pennsylvania, have invented certain new and useful Improvements in Electric Trolley Devices, of which the following is a specification.

My invention relates to that class of devices which are adapted to take current from a suspended conductor and deliver it to the electrical apparatus carried by the vehicle upon which the trolley is supported.

My invention has special reference to that class of trolleys in which the contact-maker is carried at all times substantially over the center of the car.

The object of my invention is to provide an improved form of such trolleys having a novel form of spring device for imparting upward pressure and having other advantages resulting from the construction, arrangement, and combination of parts, to the end that a staunch and durable trolley will be provided and one which will have as little weight as possible and occupy little space upon the vehicle-roof.

Referring to the drawings, Figure 1 is a side view of a complete trolley of my invention. Fig. 2 is a perspective view of the same with portions of the springs removed. Fig. 3 is a plan view of the fixed base. Fig. 4 is a plan view of the movable base. Fig. 5 is a side view of a portion of the trolley, the movable base being cut away on the line 5 5, Fig. 4. Fig. 6 is a side view of the lower part of the trolley, the fixed base being cut away on the lines 6 6 of Fig. 3 and the upper base being cut away on the line 6^a 6^a of Fig. 4. Figs. 7, 8, and 9 show the locking device for preventing the turning of the trolley about the fixed base. Fig. 10 shows one of the pins *d*.

The fixed base A is secured upon the roof of the car at about its center. A' is a vertical pivot in the center of this base.

B is the movable base, which is adapted to turn about A'. Below B is secured the plate-springs *b b*, which engage the lower side of the dogs *d' d'*, which form part of the pins *d d*. *d* passes into a vertical orifice *d*² in a side flange B' of the upper base B. The dog passes upwardly through the recess B² and engages an

indentation in the pivoted support C, which is pivoted about D. Any abnormal strain upon the trolley will cause C to depress and pass over *d'*, lowering the whole trolley away from the conductor and removing any danger to either the trolley or the conductor construction.

Pivoted about D are the arms F and F'. The pivot D is secured between the flanges B' B'. Arms E and E' are pivoted about the pivot D², which is secured between the sides of the support C. The upper ends of the arms E and E' are pivotally connected to the lower end of the yoke L, while the arms F and F' are pivoted to L at a point a short distance above its end.

K and K' are strips connected at their lower ends by the yoke L and at their upper ends by a transverse shaft M, upon which a contact-wheel N is adapted to slide to adjust itself to changes in the lateral position of the conductor. The rope *t*, connecting N with the car, passes through eyes *e* and *e'* in the rod O, extending horizontally from the upper base B. Two compression-springs S and S', held between the cross-heads P and P', exert a constant upward pressure to the device, for one cross-head is secured to the end of the rod H, the other end of the rod being secured about the cross-bar of the yoke L.

I do not desire the trolley to swing laterally, and I therefore provide a lock to normally prevent the upper base from turning about A'. Upon the rod J, secured between the sides of C, is fastened the triggers *j j* and the keys *j' j'*, which normally engage recesses *r'* and *r*² in the lower base, one of the keys passing through the recess *r* in the upper base. When it is desired to reverse the position of the trolley, the operator pulls the adjusting-rope *t* until the device is at its lowest position, when the arms E and E' engage the triggers *j* and *j*, turning the shaft J and raising the key *j'* from its recess in the base. When the trolley is reversed, the tension of the torsion-spring *j*² forces the key into its recess again and locks the device. The two positions of the key are clearly contrasted in Figs. 7 and 8.

It will be seen that I have devised a trolley which will at all times carry the wheel

immediately over the center of the car, thus dispensing with any necessity for placing the conductor in any but a central position.

As my trolley can go down to almost a horizontal position I am able to pass under very low places in the conductor construction.

The novel form of spring device shown enables me to use very light springs, as they have much stronger leverage than is usual, for ordinarily the springs act through double the distance here required.

The use of my automatic locking device enables me to carry the contact-wheel in the same position relative to the conductor no matter what lateral variations there may be in the position thereof. This locking device may of course be used with any suitable form of trolley device—such, for example, as the trailing arm ordinarily used to-day.

I do not claim as my invention the parallel motion of the arms E and E', F and F', nor the use of a transverse shaft and sliding wheel, nor, broadly speaking, the combination of yielding dogs with a pivoted support. On the other hand, I do not limit myself to the exact details herein shown and described, for many changes may be made therein without departing from the scope of this invention.

What I claim, and desire to protect by Letters Patent, is—

1. A trolley comprising a suitable base portion and a tilting standard pivoted thereto and upheld by yielding members, in combination with a pair of arms pivoted to said standard, a second pair of arms pivoted to the base portion, a contact-carrying arm pivoted to the upper ends of both of said pairs of arms, and compression-springs secured between said pairs of arms and adapted to impart upward pressure to the contact-carrying arm.

2. In a trolley, the combination with the

arms pivoted at their upper and lower ends so as to form two independently-pivoted pluralities of parallel arms, of a rod secured at one end to the lower pivotal point of one of said pluralities of arms and carrying a cross-head at its other end, a second rod secured to the upper pivotal point of the other of said pluralities of arms and carrying a cross-head at its ends, and compression-springs operating between said cross-heads.

3. In a trolley, the combination with a fixed base and a movable base having registering recesses, of a shaft, a key mounted on said shaft and adapted to engage said recesses, and a trigger fastened to said shaft adapted to engage the trolley-arm when in a given position.

4. In a trolley, in combination, a shaft J, a key secured thereto and adapted to engage registering recesses in the trolley-bases, triggers also secured to the shaft and in the same vertical plane as the trolley-arms, and a torsion-spring surrounding the shaft and adapted to press the key into the recesses.

5. In a trolley, in combination, a fixed base, a movable base swiveled thereto, a tilting standard upheld by vertically-movable, spring-pressed, members, which engage guideways in the movable base, arms pivoted at their lower ends to the movable base, arms pivoted at their lower ends to said standard, a contact-carrying arm pivoted to the upper ends of all of said foregoing arms, and means for imparting upward pressure to the upper end of said trolley.

In testimony whereof I have affixed my signature in presence of two witnesses.

GUSTAF VALLEY.

Witnesses:

JOHN H. KENNEDY,
H. W. SMITH.