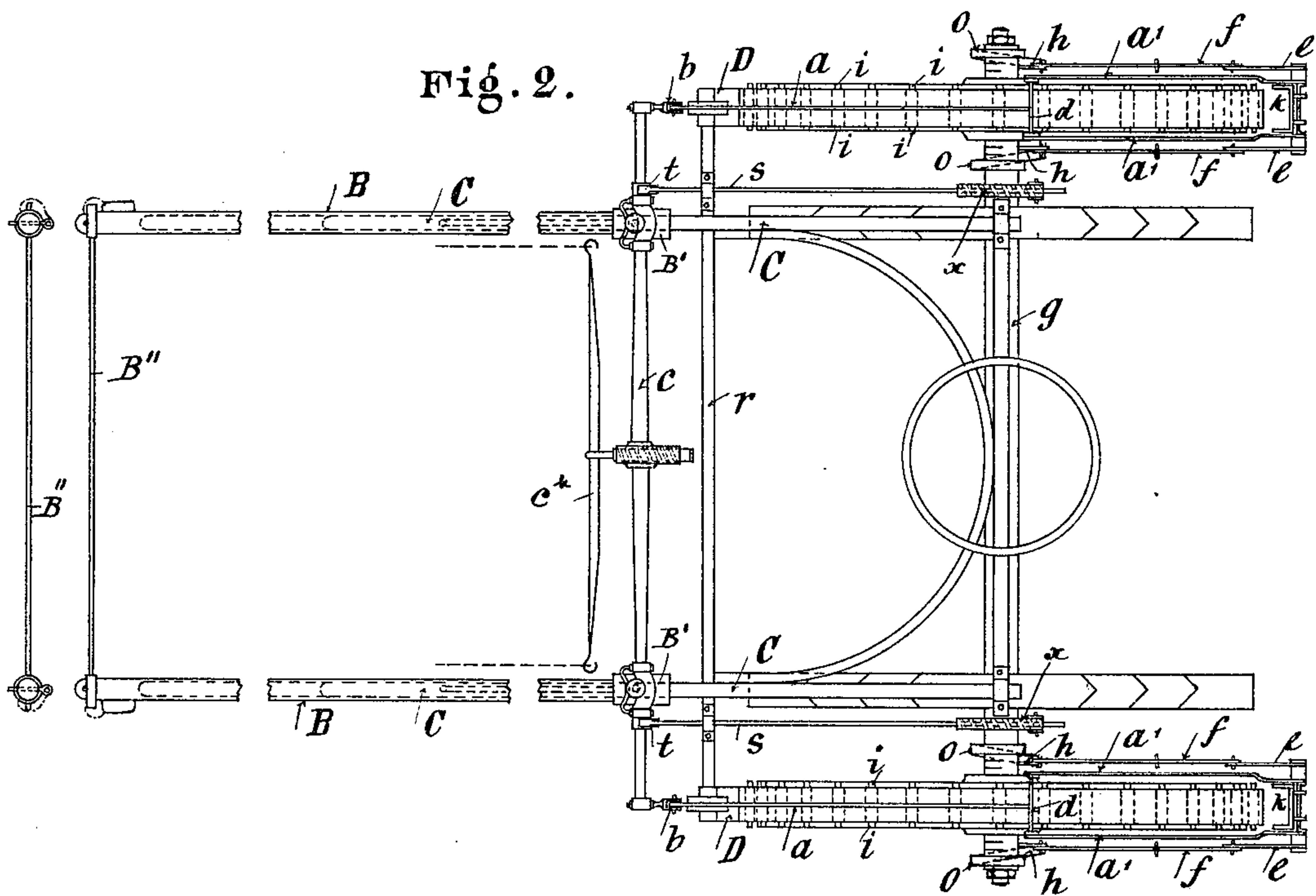
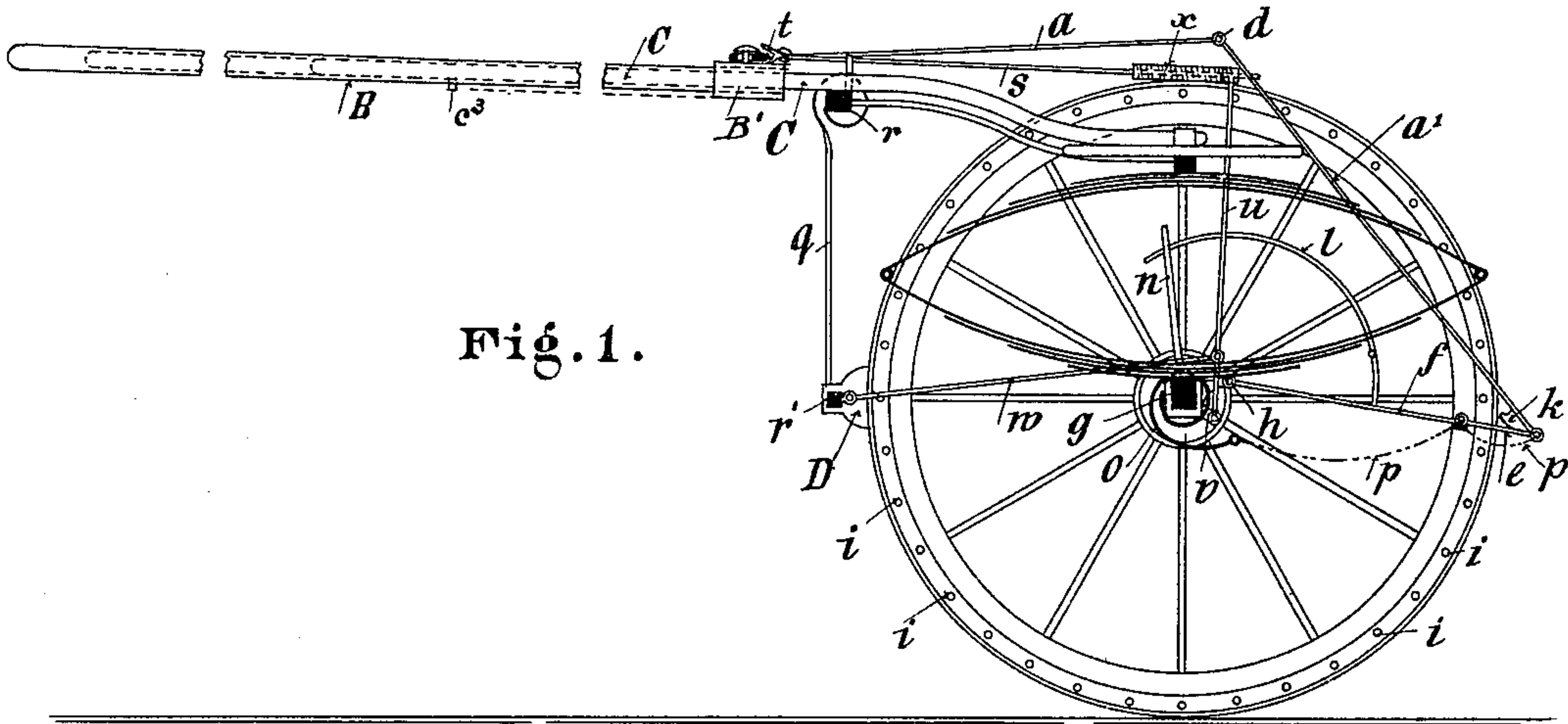


A. JEENEL.

CAR STARTER AND BRAKE.

No. 386,923.

Patented July 31, 1888.



Witnesses.
Alfred Joughmans
Walter C. Harris.

Inventor.
Adolf Jeemel
per Rader & Prissner.
Attorneys.

(No Model.)

5 Sheets—Sheet 2.

A. JEENEL.

CAR STARTER AND BRAKE.

No. 386,923.

Patented July 31, 1888.

Fig. 4.

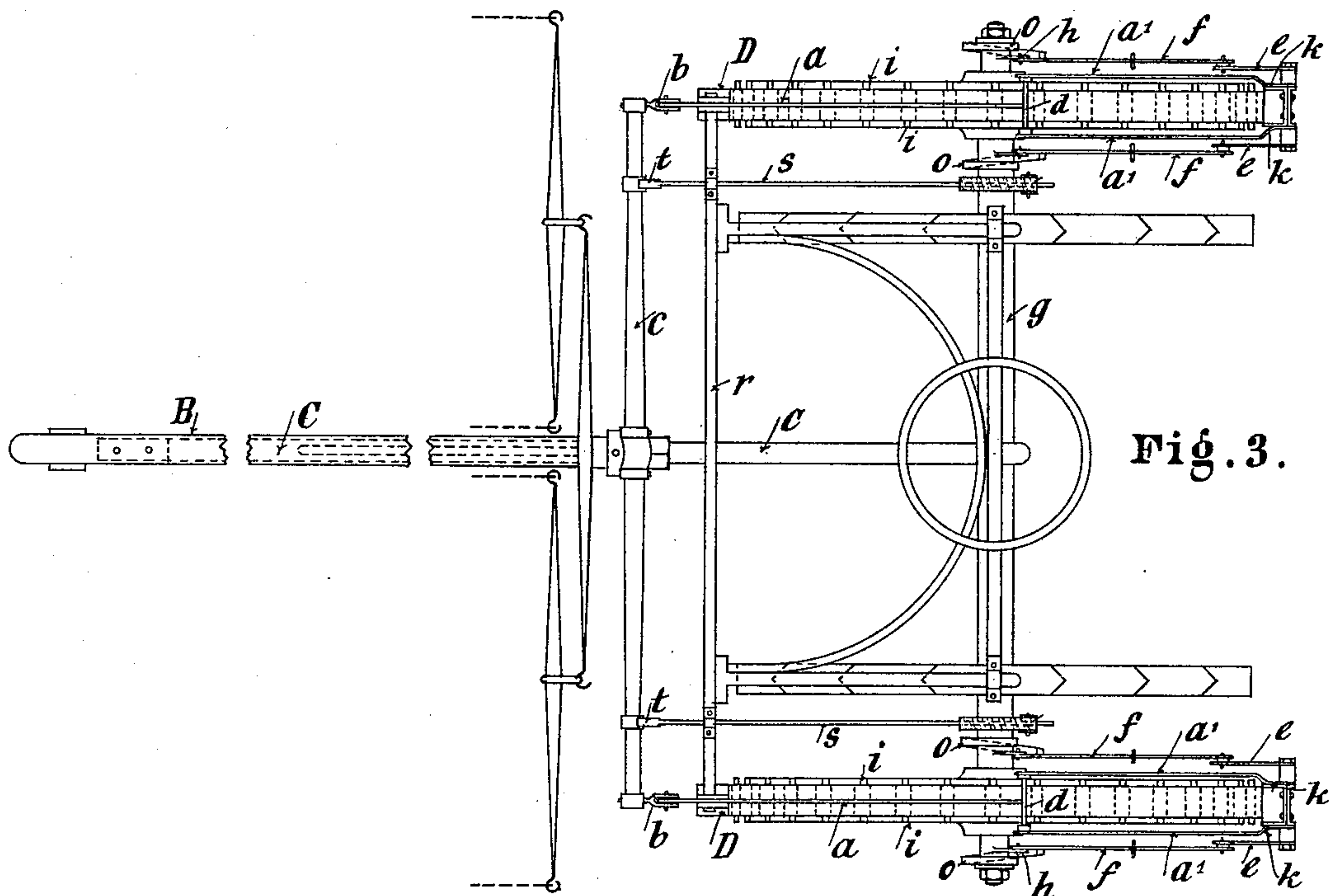
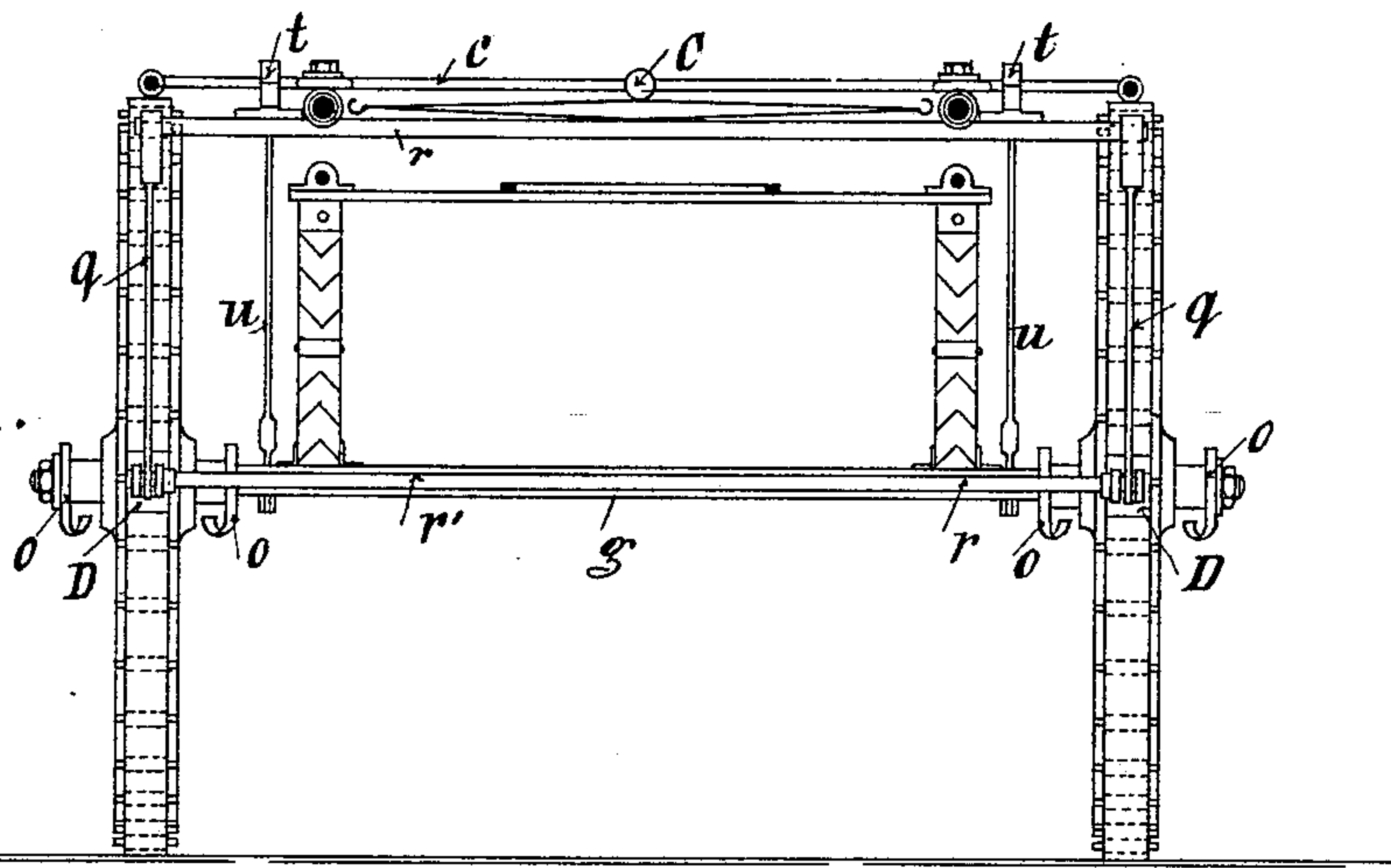


Fig. 3.

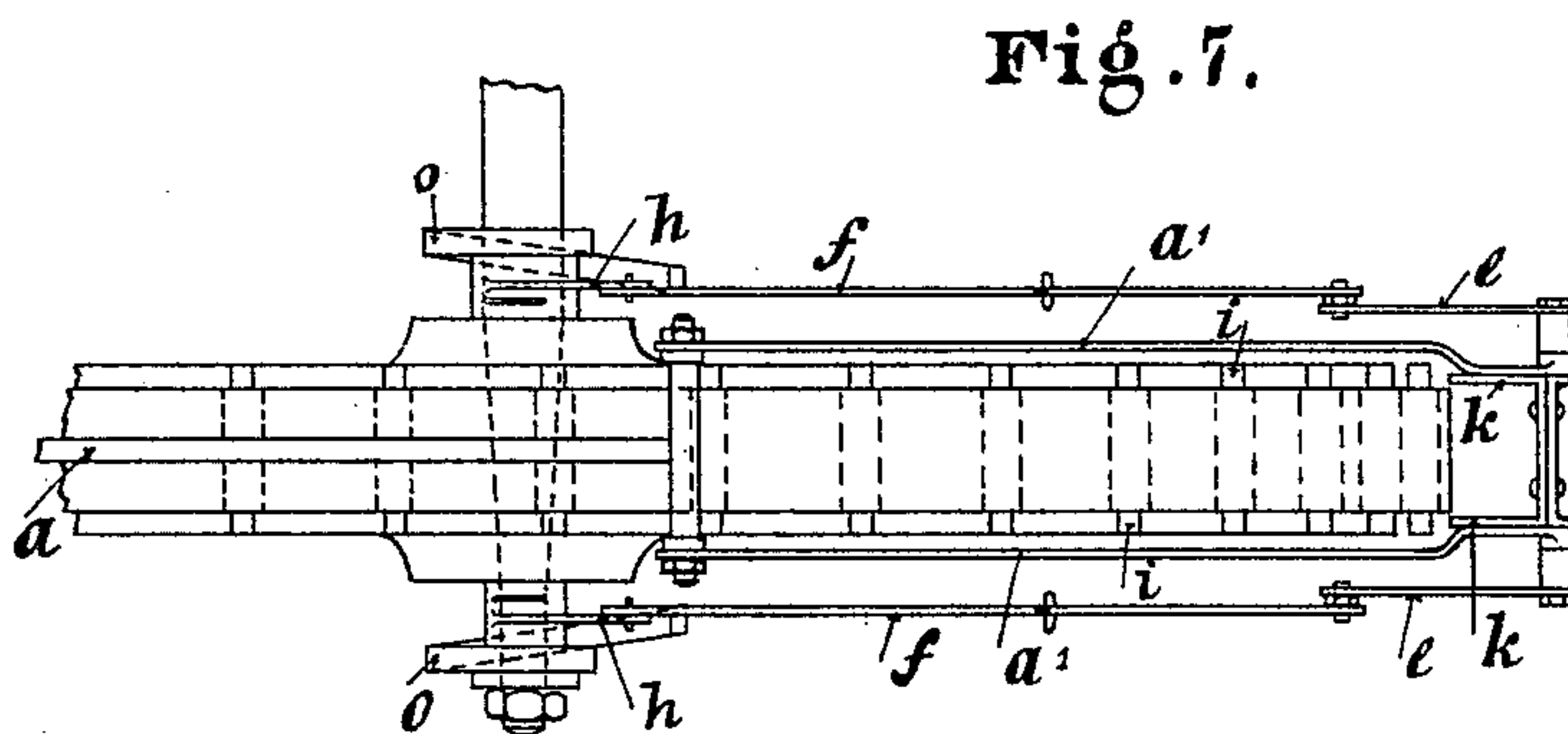
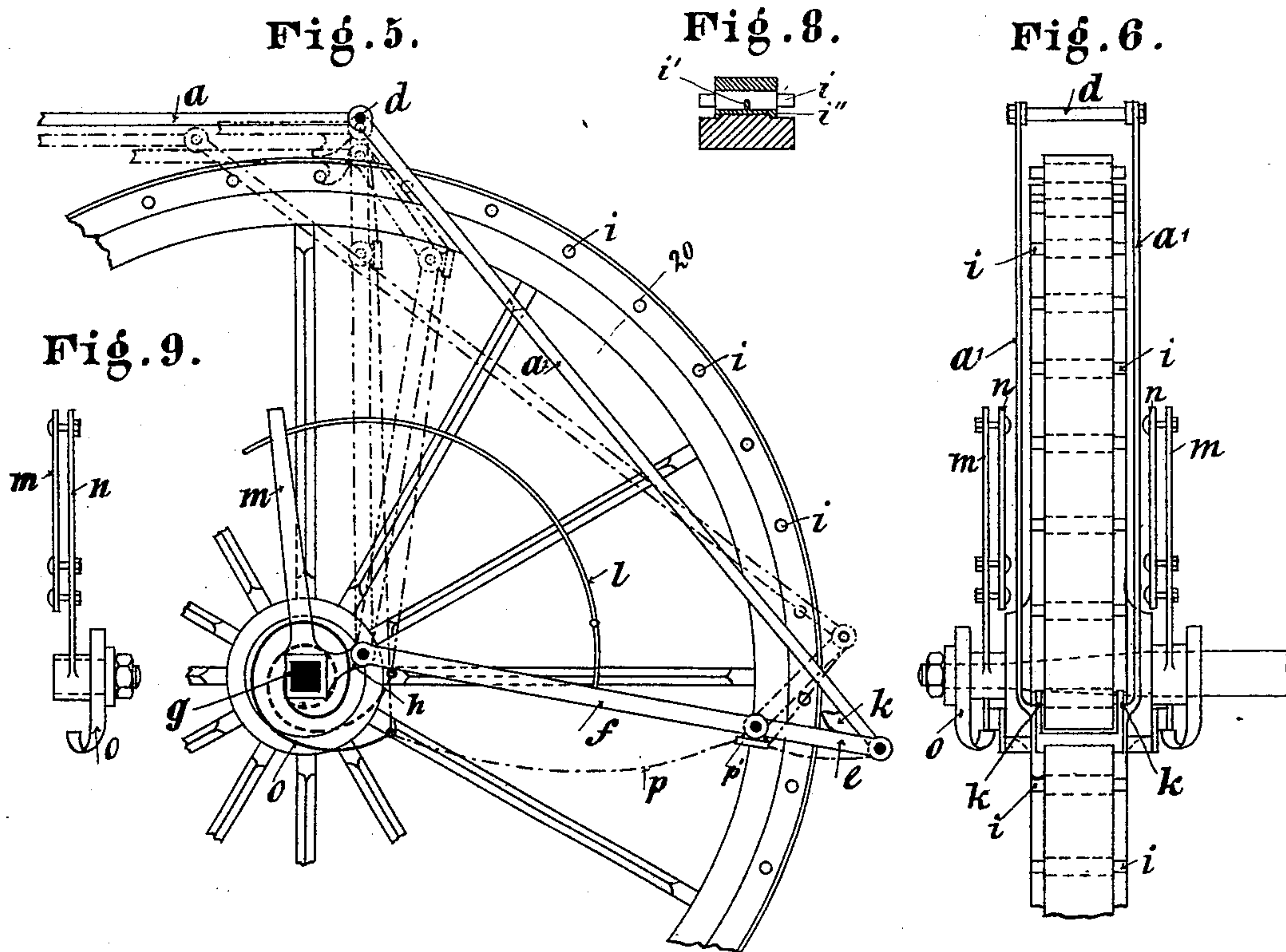
Witnesses..
Alfred Joughmans
Walter C. Harris.

Inventor..
Adolf Jeemel
per Roscoe & Brien
Attorneys.

A. JEENEL.
CAR STARTER AND BRAKE.

No. 386,923.

Patented July 31, 1888.



Witnesses.

Alfred Jonghmanus,
Walter C. Morris.

Inventor.

Adolf Jeemel,
per Rader & Bruckner.
Attorneys.

A. JEENEL.

CAR STARTER AND BRAKE.

No. 386,923.

Patented July 31, 1888.

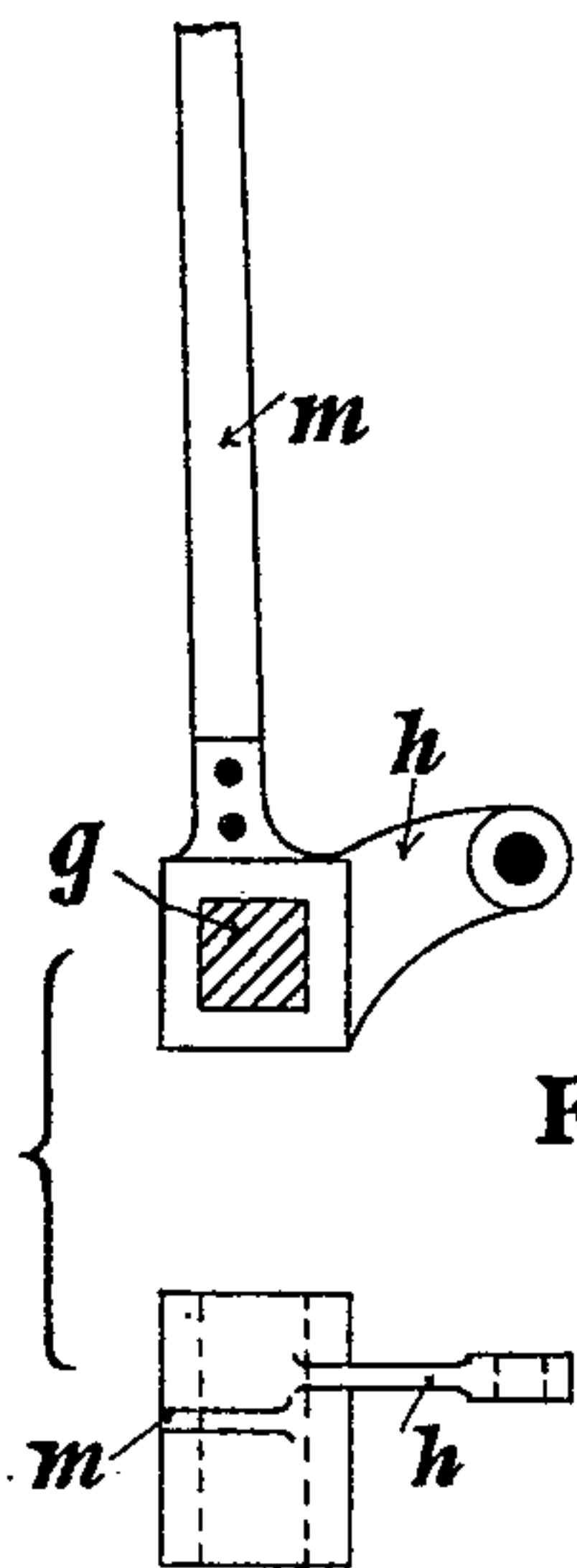
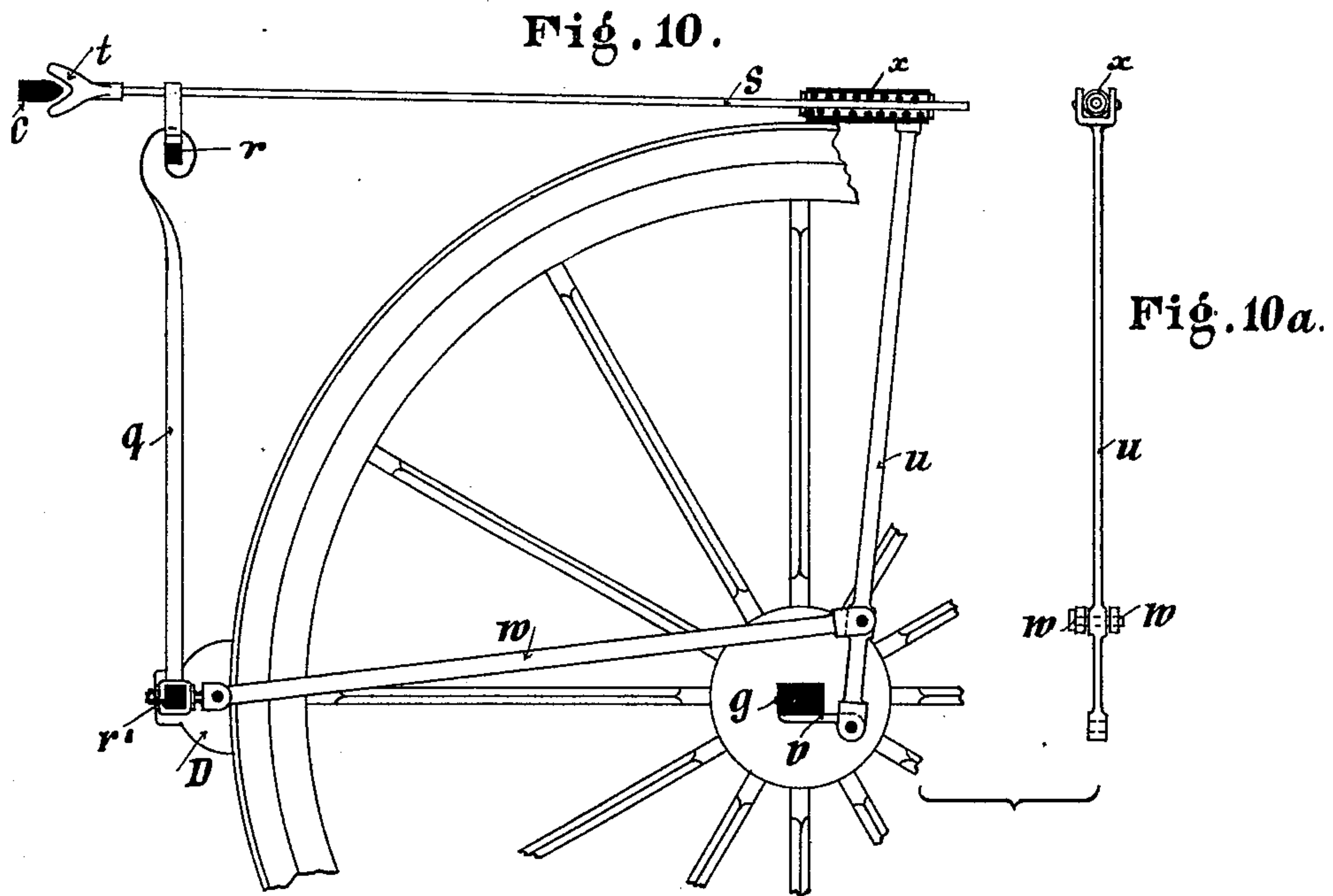


Fig. 15.

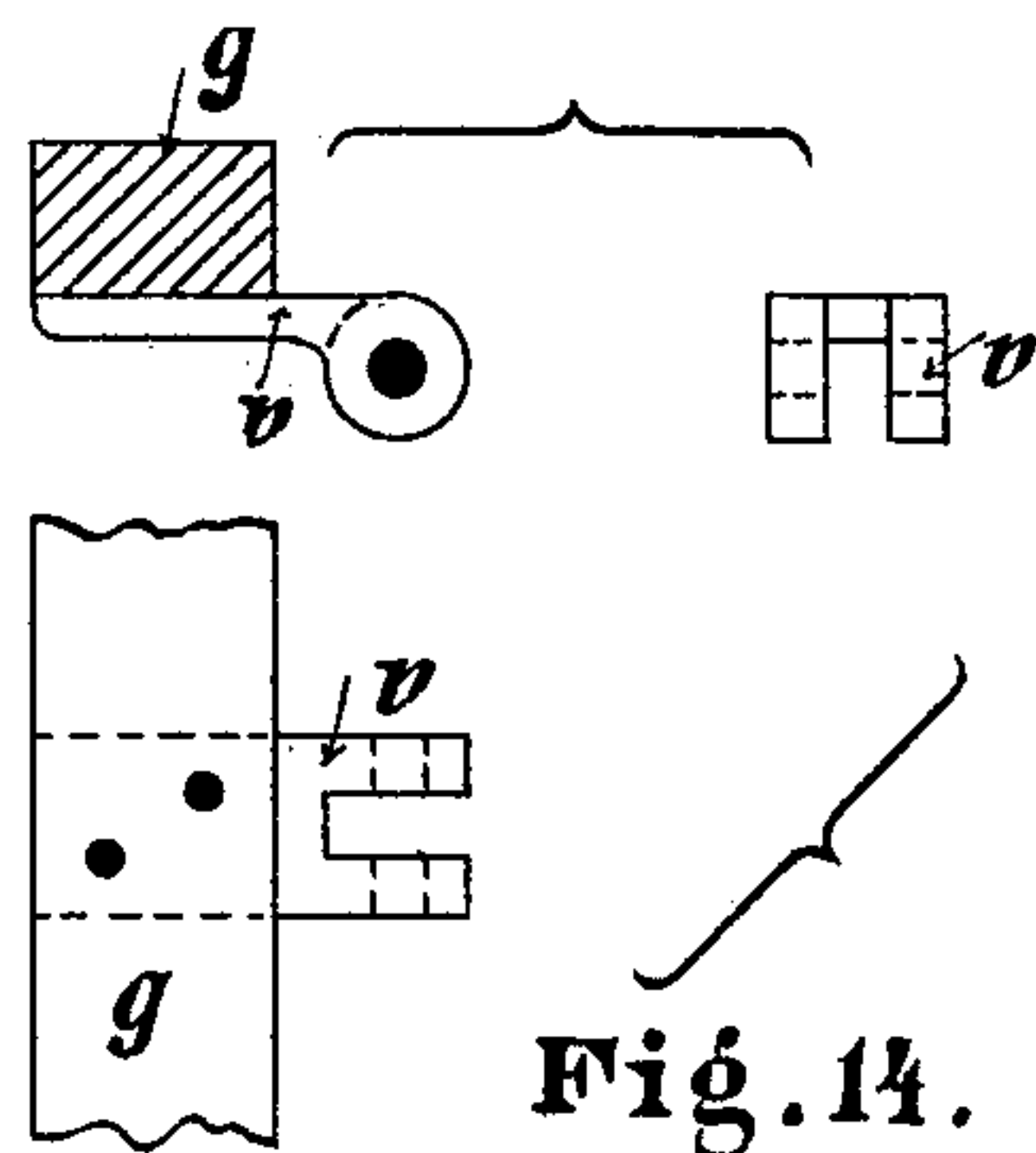


Fig. 14.

Witnesses.

Alfred Jonghmanus.
Walter C. Storrie.

Inventor.

Adolf Jeemel
per Rader & Bruden.

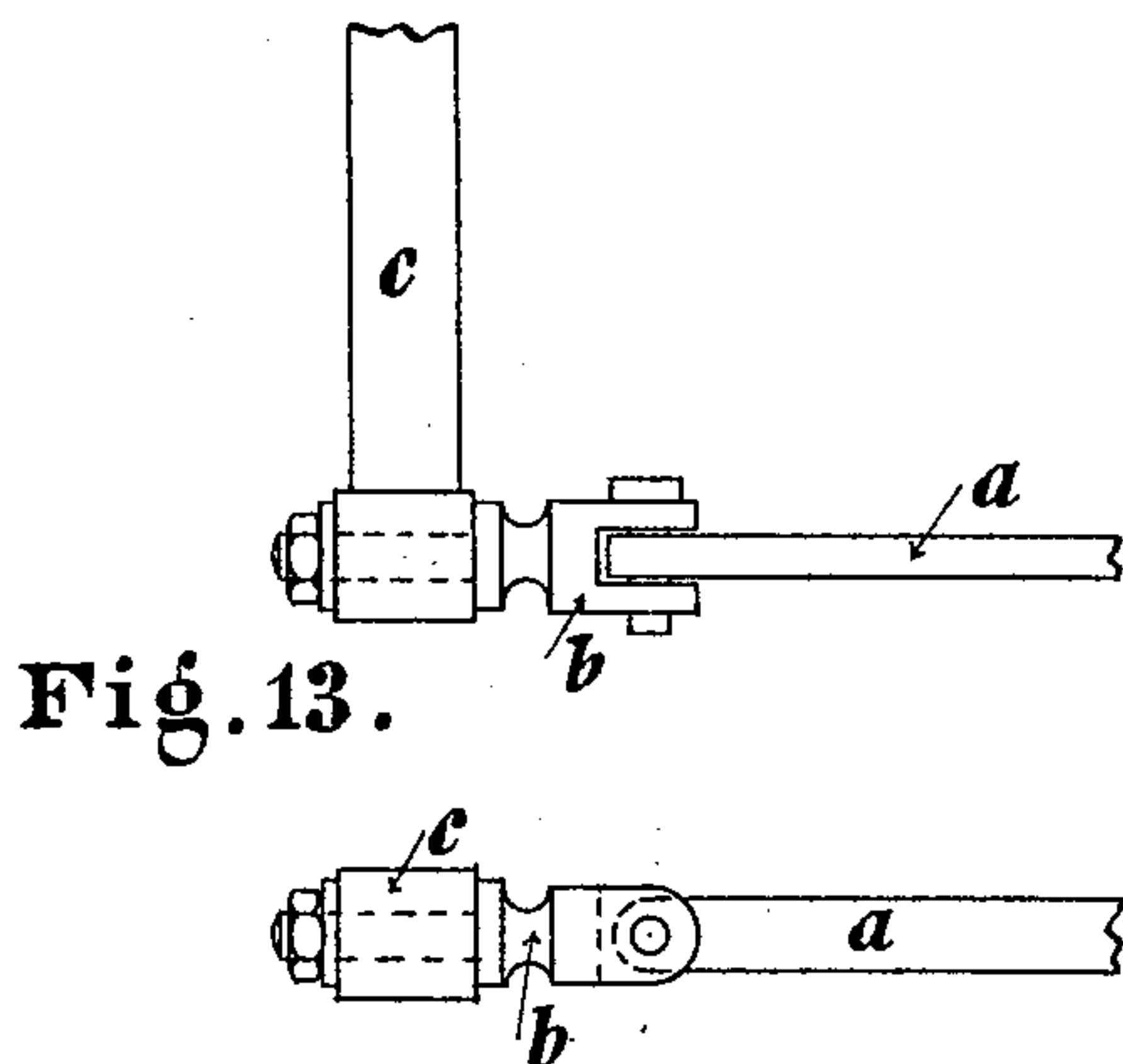
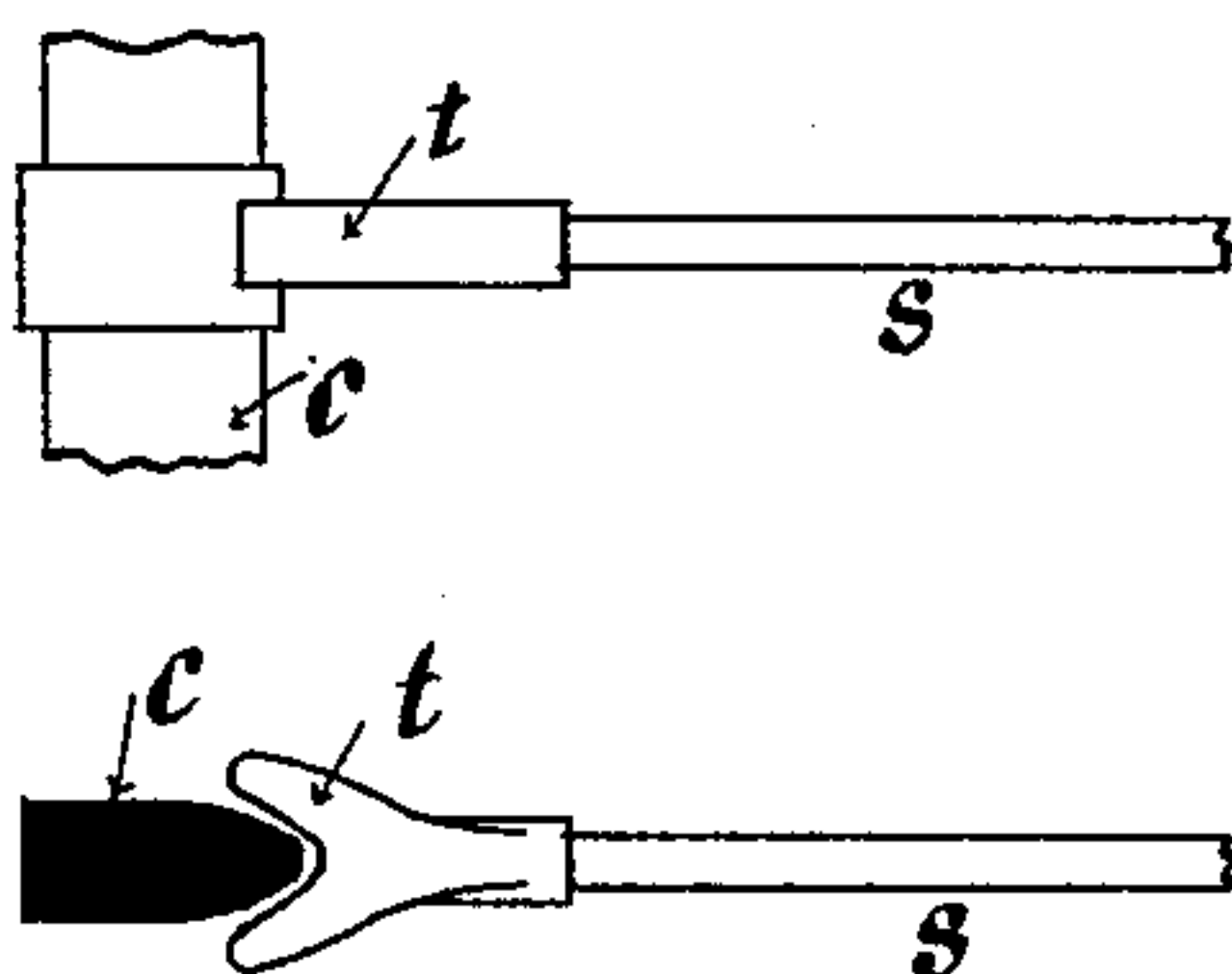
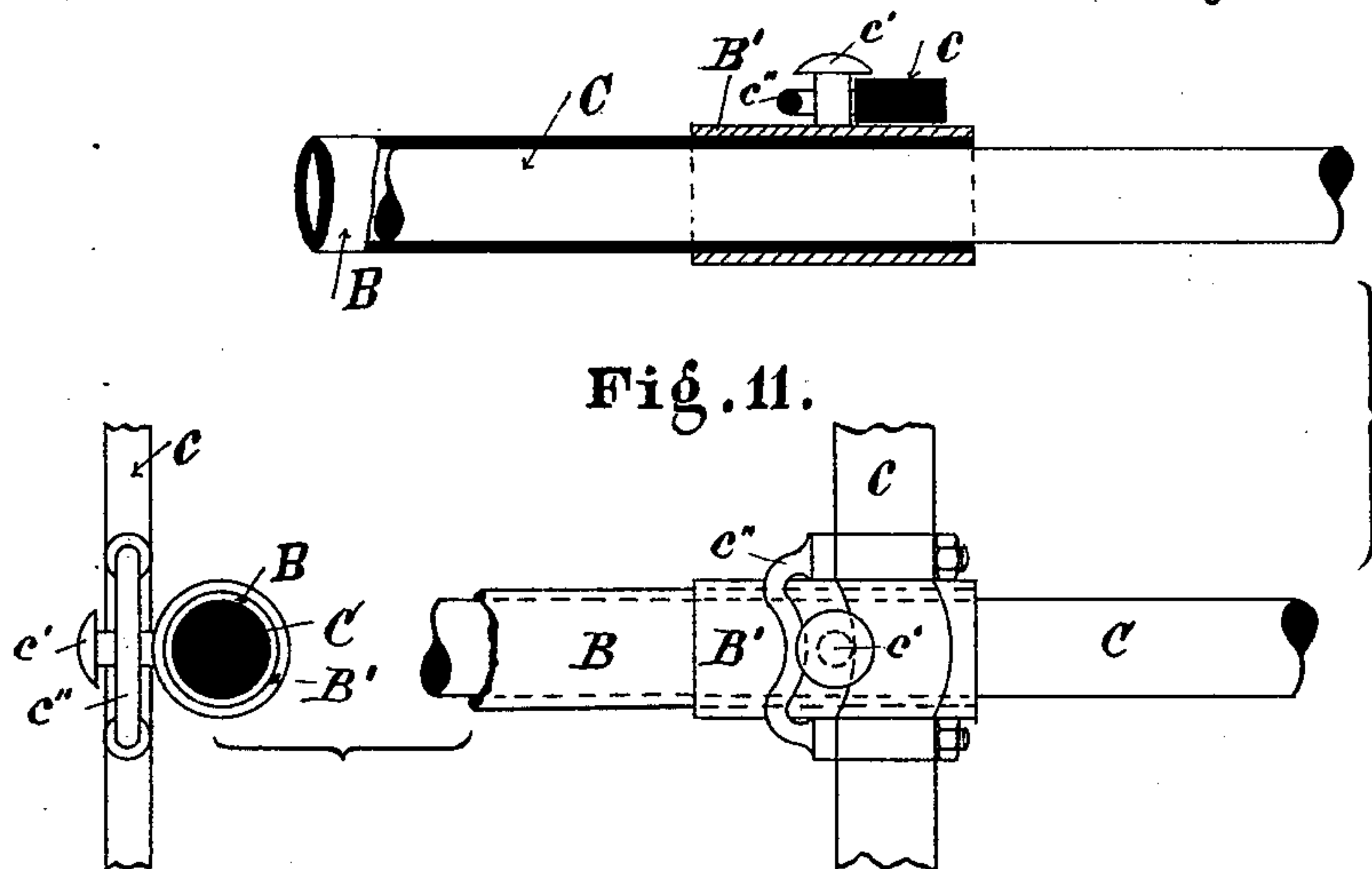
Attorneys.

A. JEENEL.

CAR STARTER AND BRAKE.

No. 386,923.

Patented July 31, 1888.



Witnesses.
Alfred Joughmans,
Walter C. Storis.

Inventor.
Adolf Jeemel.
per Rader & Priebe.
Attorneys.

UNITED STATES PATENT OFFICE.

ADOLF JEENEL, OF BRESLAU, PRUSSIA, GERMANY.

CAR STARTER AND BRAKE.

SPECIFICATION forming part of Letters Patent No. 386,923, dated July 31, 1888.

Application filed March 27, 1888. Serial No. 268,690. (No model.)

To all whom it may concern:

Be it known that I, ADOLF JEENEL, of Tauentzienstrasse, 27^b, Breslau, in the Kingdom of Prussia, German Empire, have invented certain new and useful Automatic Car Starting and Braking Apparatus to be used in connection therewith, of which the following is a specification.

My invention relates to improvements in automatic car starting and braking apparatus which may be applied with good result to cars, carriages, and vehicles of any kind.

To better explain my invention reference is had to the accompanying drawings, in which—

Figure 1 is a side elevation of the improved starting and brake apparatus applied to a one-horse carriage. Fig. 2 is a plan of the same. Fig. 3 is a plan of the starting and brake apparatus applied to a two-horse carriage. Fig. 4 is an end view of the same. Fig. 5 is a side elevation of part of a wheel with the improved starting device. Fig. 6 is an end view of the same. Fig. 7 is a plan of the same. Fig. 8 is a cross-section through the felly at line 20, Fig. 5. Fig. 9 is a front view of the guide-rods *m n*. Fig. 10 is a side elevation of part of a wheel with the improved brake and without the starting device. Fig. 10^a is a front view of lever *u*. Fig. 11 is a plan, side elevation, and sectional view, respectively, of the pole-fastening and cross-piece. Fig. 12 is a plan and side elevation, respectively, of the rod *s*, with fork *t* engaging with the cross-bar *c*. Fig. 13 is a plan and side elevation, respectively, of the link-joint between the cross-bar *c* and draft-bar *a*. Fig. 14 is a front and side elevation and plan, respectively, of the arm *v* on which the brake-lever *u* is fulcrumed; and Fig. 15 is a side elevation and plan, respectively, of the arm *h* mounted on the axis *g*, to which arm the drawing-rod *f* is attached.

I will now proceed to describe first the car-starting apparatus.

The draft-bars *a* are hinged with one end as at *b*, to the cross-bar *c*. At the other end they are coupled by the connecting cross-piece *d* to the draft-bars *a'*. The latter draft-bars are jointed by links *e* to the drawing-rods *f*, arranged at both sides of the wheels. The joints of the draft-bars *a a'* and of the rods *f* are arranged so as not to break beyond the straight line. At the opposite ends the said rods *f* are piv-

oted to the arms *h*, mounted on the axis *g* of the wheels, as shown in Fig. 5. The draft-bars *a'* carry at their lower ends a cross-bar, *k*, forming hooks at both sides of the felly. The felly of the wheels is provided all around with bolts *i*, passing through the felly and projecting at both sides, as shown in Figs. 5, 6, 7, and 8. The said bolts are secured within the felly by clamps *i''*, which catch into a central hole of the bolt by a stud, *i'*, as shown in Fig. 8. Each of the two rods *f* at the sides of the wheel carries an arc-shaped rod, *l*, sliding between vertical guide-bars *m n*, and secured between the same by set screws, Fig. 9. This arrangement serves to adjust the rods *f* in such a position that on starting the car that part of the rods *f* nearest to the axis is lifted only after the links *e* have sufficiently stretched to make the hooks *k* engage with the bolts *i*, and, further, to prevent the joints of the rods *f* from being deflected down when the draft-bars descend, which would cause the hooks to slide freely over part of the bolts. The arc shaped rods *l* have stops at their ends.

At both sides of the wheel, and secured to the axis *g*, a spiral spring, *o*, is arranged, the free end of which is connected by a chain, *p*, to the link-rod *e*. Said chain passes through a sleeve, *p'*, at the link-joint of the rods *f*, and is secured to the end of link *e*. (See Fig. 5) The starting apparatus is operated by a device arranged to slide upon the carriage-poles. Said poles *C* are arranged within sliding sleeves *B B*, having a slot at their end on the under side, within which slot works a stud, *c''*, secured in the pole. The said sleeves *B B* are at their ends surrounded by a socket or collar, *B'*, to which the cross-bar *c* is loosely secured. (See Fig. 11.) Said cross-bar is arranged to slide on the socket by means of a bolt, *c'*, and hoop *c''*. This arrangement has for its purpose to provide sufficient play in case that the hooks *k* should fail to engage simultaneously with the pins *i* of both wheels, and that the sleeves *B B* accordingly should not simultaneously slide on the poles *C*. By providing such play the sleeves are allowed to slide on the poles even in the case referred to, and jamming is prevented between the sleeves and poles. The free ends of the pole-sleeves are connected by a rod, *B''*, which serves to prevent the shaft-bars from turning inside when

the carriage is stopped, as such bending of the shaft-bars would be equally prejudicial to the free sliding motion of the sleeves on the poles. To the cross bar *c* the splinter-bar *c'* is secured, to which the horse is hitched, the harness of which is secured to the loops carried by the free ends of the pole-sleeves.

On starting the car the traction will cause the pole-sleeves *B* to slide forward on the poles *C*, and at the same time the strain will work on the two draft-bars *a a*, after which the two hooks of the bar *k* will be lifted, together with the links *e* of the rods *f*. The said hooks will then engage with the bolts *i*, and, owing to the resistance there encountered, the rods *a'* and links *e* will bend into the position indicated by dotted lines in Fig. 5. It will be obvious that as the traction begins to work on the circumference of the wheels the starting of the car will be greatly facilitated. When the hooks engaged with the pins *e* have reached the apex of the wheel, the traction will begin to work on the axis of the wheels, as the end of the slot in sleeves *B B* have at that moment reached the stud *e'* in the poles, and will then draw the said poles forward. At the same time the springs *o*, which have been wound up during the lifting motion of the rods *f*, draw the hooks *k*, now disengaged from the bolts *i*, back and the rods *f* down into the normal position, as shown in Fig. 5, the rods *a'* and hooks being carried along by said rods *f*. When the carriage is braked or stopped in its course, the poles will again slide forward into their sleeves, and the receding cross-bar *c* forces the draft-bars *a a'* back into their original position, the extent of which rearward and downward motion is limited by the stops secured to the arch-shaped rods in bearing against the guide-bars *n*. The said stops are so adjusted that the draft-bars *a*, with cross-bar *c*, may in their utmost rearward position be lifted so much beyond the height of the wheels that in moving downhill the said bars are prevented from bearing upon the wheels.

The automatic brake mechanism, combined with the starting device hereinbefore described, will act at the moment when the traction device has been forced back into its original normal position.

The brake is illustrated independent of the starting device in Fig. 10.

The two brake-blocks *D D* are carried each by a vertical spring-lever, *q*, both spring-levers *q* being connected by a horizontal cross-bar, *r*, secured to the slide-bars *s s*. Said slide-bars are forked at one end, as at *t*, (see Figs. 5 and 12,) and at the other ends they are hinged to a lever, *u*, the lower ends of which are hinged to arms *v*, secured to the axis *g*. At some dis-

tance above said arms *v* the rods *w* of the brake-blocks *D* are hinged to said levers *u*. The blocks *D* are connected by a cross-bar, *r'*. When the carriage is being stopped in its motion, the poles enter more deeply into their sleeves, whereby the cross-bar *c* recedes toward the carriage and enters into the forks *t* of the slide-bars *s s*. The said cross-bar *c*, acting against said slide-bars *s s*, forces them back, whereby the position of the levers *u* is so changed as to apply the brake-blocks *D* against the wheel by means of the rods *w*, thus braking the wheels. The levers *q*, which carry the brake-blocks *D*, form strong springs at their upper ends, said springs serving to take the brake blocks off the wheels as soon as the carriage has again been started and the cross bar *c* has released the fork of the slide-bars *s s*. In case of applying the said braking apparatus to a carriage without the simultaneous use of the car-starting device, the fork *t* of the slide-bars may be omitted and the said slide-bars hinged to the cross-bar *c*. In such case the stud of the poles, working in the slot of the sleeve, may be located so much back that the sliding motion of the sleeve on the pole is limited to such extent as will correspond with the distance between the brake blocks and the wheels.

In a two-horse carriage or vehicle the only modification of the starting and braking apparatus consists, mainly, in the use of one pole only, and accordingly one sleeve *B* only will be necessary, the other parts remaining essentially the same as shown in Fig. 3.

Having now particularly described and ascertained the nature of my invention and in what manner it is to be performed, I declare that what I claim is—

1. The combination of poles *C*, sleeves *B*, cross-bar *c*, draft-bars *a, a', f*, and *e*, hinged to each other, and hooks *k*, with bolts *i* projecting on each side of the felly of the wheels, chains *p*, and springs *o*, secured to the axis *g*, substantially as and for the purpose described.

2. The combination of cross-bar *c*, spring-bars *s*, levers *u*, brake-rod *w*, with spring-rods *q*, and brake-blocks *D*, as and for the purpose set forth.

3. The combination of poles *C*, sleeves *B*, and cross-bar *c* with sleeve or band *B'*, bolt *e'*, and loop *e''*, substantially as and for the purpose specified.

In testimony whereof I hereunto sign my name, in the presence of two subscribing witnesses, this 5th day of March, 1888.

ADOLF JEENEL.

Witnesses:

SIEGFRIED WOLFHEIM,
JULIUS ABER.