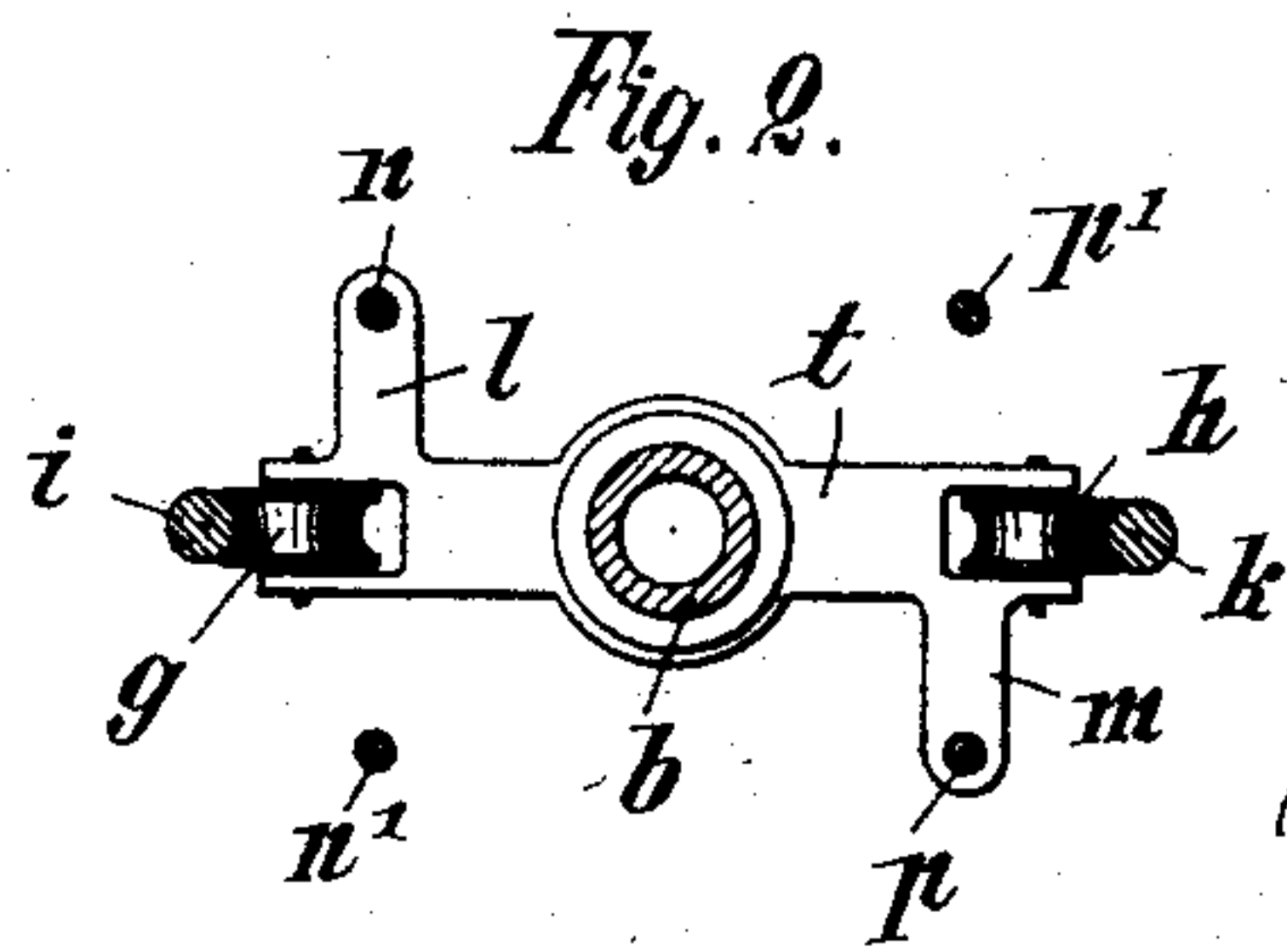
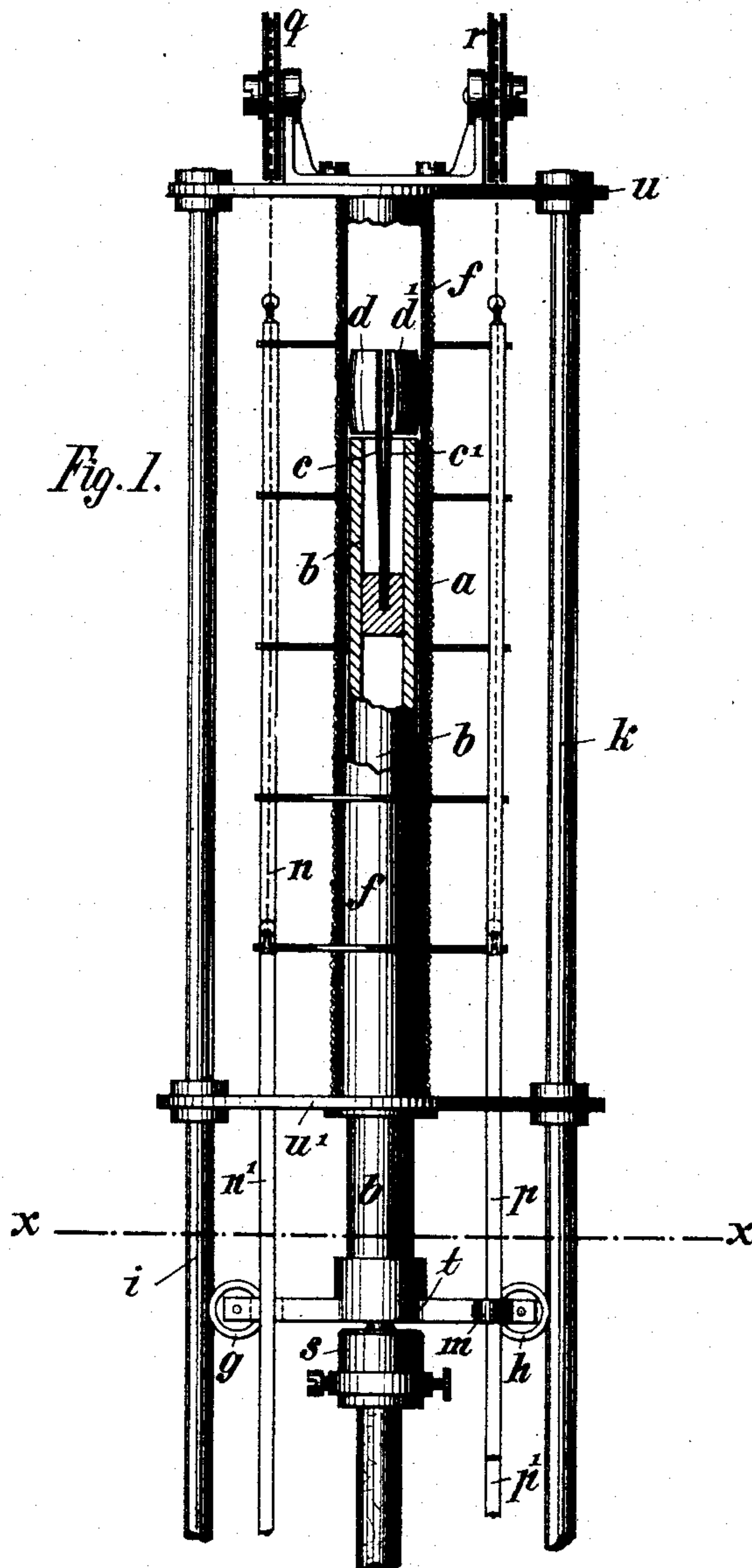


F. WILHELM & R. SEIFERT.

ARC LAMP.

No. 414,130.

Patented Oct. 29, 1889.



Witnesses,

Chas. Scott

C. A. Brandenburg

Inventor,

*Friedrich Wilhelm
Richard Seifert*

*By Paine & Co.,
attys.*

(No Model.)

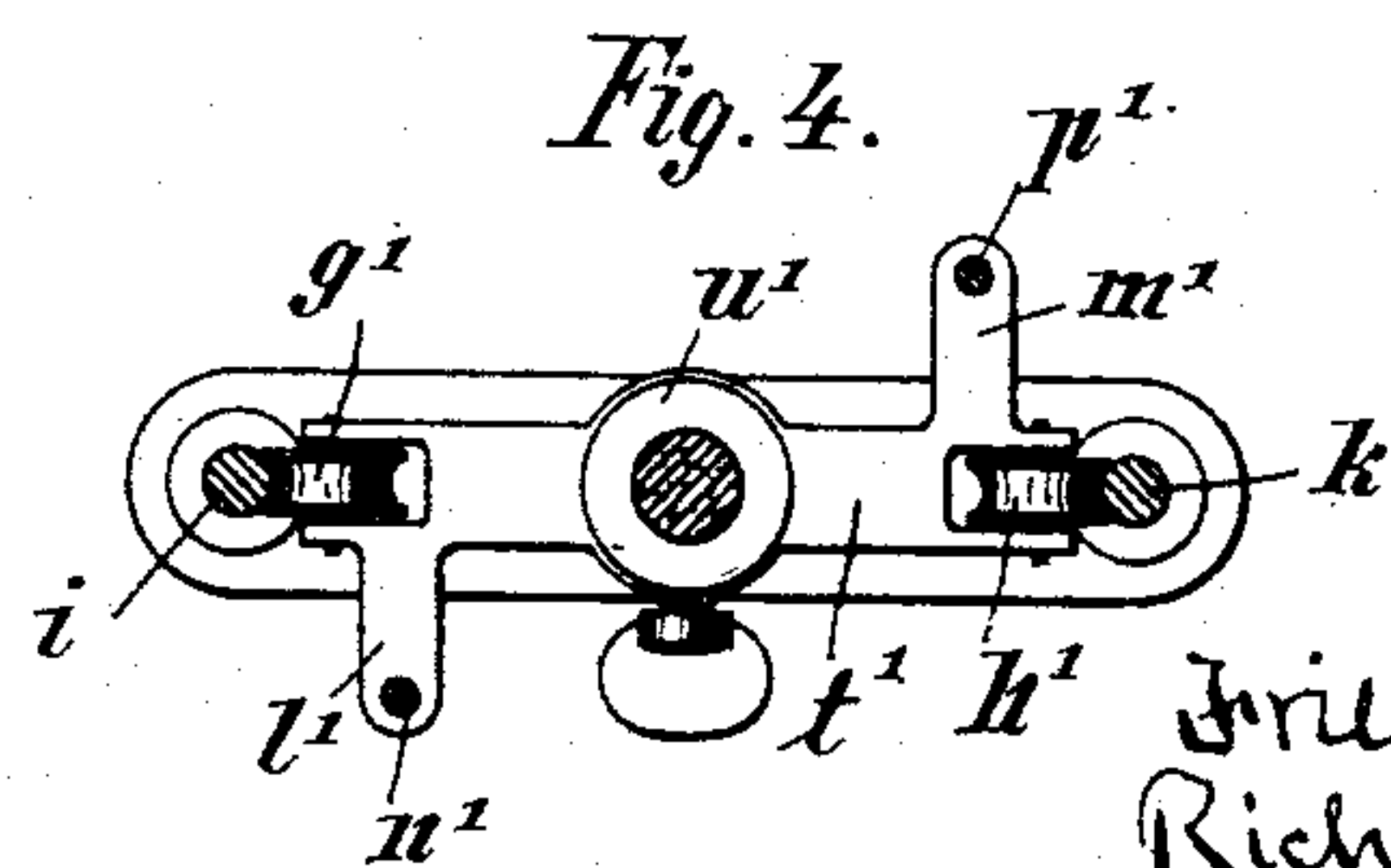
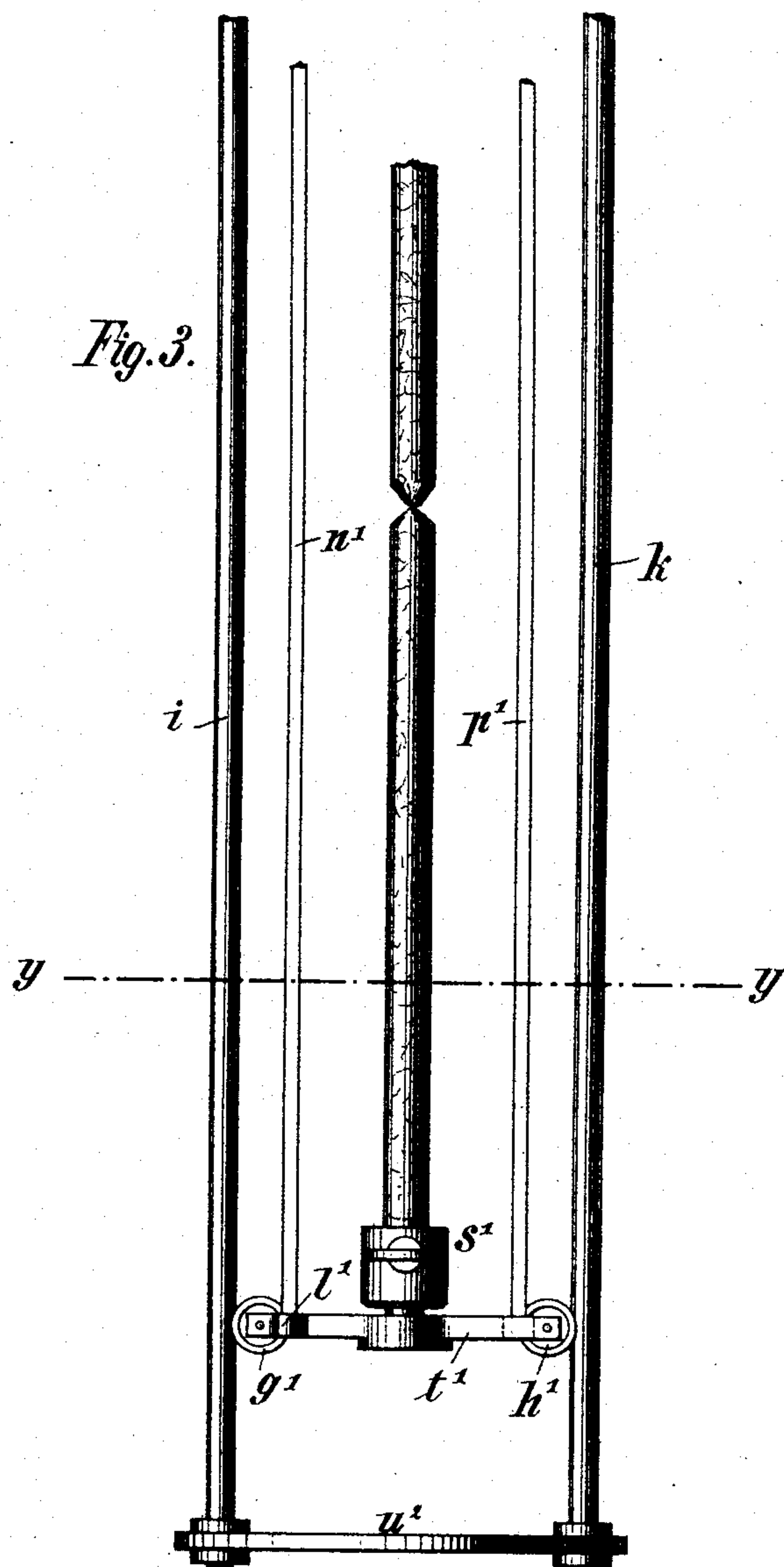
2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

FRIEDRICH WILHELM RICHARD SEIFERT, OF ALTONA, ASSIGNOR TO OTTO LINDEMANN, OF HAMBURG, GERMANY.

ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 414,130, dated October 29, 1889.

Application filed June 27, 1889. Serial No. 315,725. (No model.)

To all whom it may concern:

Be it known that I, FRIEDRICH WILHELM RICHARD SEIFERT, a subject of the German Emperor, and a resident of Altona, in the German Empire, have invented certain new and useful Improvements in Regulating Devices for Electric-Arc Lamps, of which the following is a specification.

This invention pertains to an electro-magnetic regulating device connected to the core of a solenoid, and the object of the same is to provide improved means to replace the mechanical brakes heretofore employed which serve to obviate the vibrations of the core of a solenoid when the electric current is conducted through the windings of the solenoid.

Although this invention is preferably adapted to be used in connection with electric-arc lamps, it is also applicable for other appliances in which the action of a solenoid upon the core is employed to perform work of any kind.

In order to make my invention more clearly understood, I will describe the same by way of example in connection with a particular constructed electric-arc lamp, reference being made to the accompanying drawings, in which—

Figure 1 is a front view of the upper particularly active part of the arc provided with my electro-magnetic regulating device, the casing being removed and several constructive parts shown in section. Fig. 2 is a horizontal section at $x x$ of Fig. 1, showing a top view of the carriage carrying the upper carbon. Fig. 3 is a front view of the lower part of the lamp with the lower carbon, and Fig. 4 is a horizontal section of Fig. 3 at $y y$, showing a top view of the lower-carbon carriage. Similar letters refer to similar parts throughout the several views.

a represents a series of solenoids coaxially arranged, but separated from each other by indifferent layers receiving but one conjoint core b , of throughout equal diameter, pending within the tube f of the solenoid, in accordance with intensity of the current conducted through the wire, which is continuously wound around the tube f .

s is the holder for the upper carbon, being connected to the carriage t , receiving the so-

lenoid-core b . The carriage t is provided with the rollers g and h , by the aid of which it is vertically guided within the rods i and k , forming, together with the disks $u u' u''$, the framing of the lamp. A similar carriage t' , having rollers $g' h'$, serves to receive the lower carbon within the socket s' and guiding it correspondingly between the vertical rods i and k . The oscillating movement of the core b is correspondingly transmitted to the carriages t and t' by the aid of cords leading over the guide-rollers q and r to the ends of the rods $n p$ and $n' p'$, respectively, which are connected to the brackets $l m$ and $l' m'$ of the carriages t and t' , and guided by the disk u'' of the lamp-framing, so that the lower carbon will ascend in the same proportion as the upper carbon will descend while the lamp is in activity.

The electro-magnetic brake or regulating device forming the subject of this invention consists of two semi-cylindrical or globular or other shaped iron jaws $d d'$, adjusted to fit within the central tube f of the solenoid a , around which the insulated conducting-wire is wound, and being each connected by means of a spring or articulated rod $c c'$ to the end of the iron core b , pending within the said central tube f of the solenoid. These springs c or articulated rods are of diamagnetic material or otherwise insulated from the core b in order to prevent magnetism of the latter to be conducted to the said jaws $d d'$, and they are constructed so as to admit free play of the jaws within the boring or central tube f of the solenoid a . When the electric current is conducted through the windings of the solenoid, the iron core b of the latter, as well as the said jaws $d d'$, become at their extreme ends either positively or negatively magnetized, according to the direction of the electric current conducted through the windings. In consequence of their polarity being of the same name both the semi-cylindrical jaws d and d' will repel one another and with their outer surface press against the inner surface of the insulated central tube f of the solenoid, and so act as a brake upon the movement of the iron core b of the solenoid a . The power with which the jaws $d d'$ are pressed against the diamagnetic walls of the central tube f of the solen-

oid will depend upon the intensity of the electric current conducted through the windings, and therefore this invention is advantageously applicable for electric-arc lamps, as it would serve to prevent the carbons from separating too suddenly and too far from another when interposing the lamp into the circuit. As soon, however, as the voltaic arc between the points of the carbons is established and it will become larger, and consequently the intensity of the electric current reduced, the action of the jaws $d d'$ as a brake will be proportionally decreased, so as to allow the carbons to approach each other until the voltaic arc has attained its normal length. In the reverse case with the decreasing length of the arc and increasing intensity of the current the jaws are strongly pressed against their surrounding tube f , and so preventing a too sudden and great attraction of the iron core b of the solenoid, so that the regulating of the lamp will be effected without any disturbances in such a manner as not to be observable to the human eye.

25 Having now described my invention, what I

do claim, and desire to secure by Letters Patent, is—

1. The combination, with a coaxially-arranged solenoid and the central diamagnetic tube, of the core pending in said tube and the two iron jaws connected to and projecting above the upper end thereof and bearing against said tube, as set forth. 30

2. The combination, with a coaxially-arranged solenoid and the central diamagnetic tube, of the core pending in said tube, the two semi-cylindrical or globular jaws in contact with said core, and the springs or articulated rods connected at their lower ends to said core and at their ends to said jaws, substantially as set forth. 35 40

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 24th day of May, 1889.

FRIEDRICH WILHELM RICHARD SEIFERT.

Witnesses:

ALEXANDER SPECHT,
G. MÉGUIN, Jr.