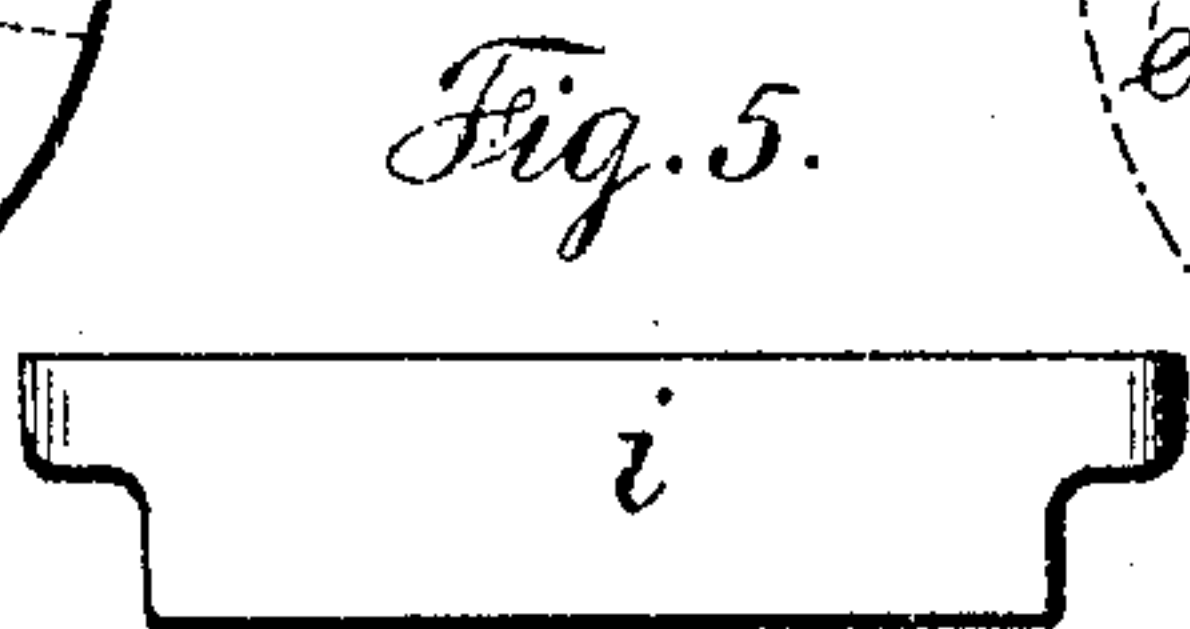
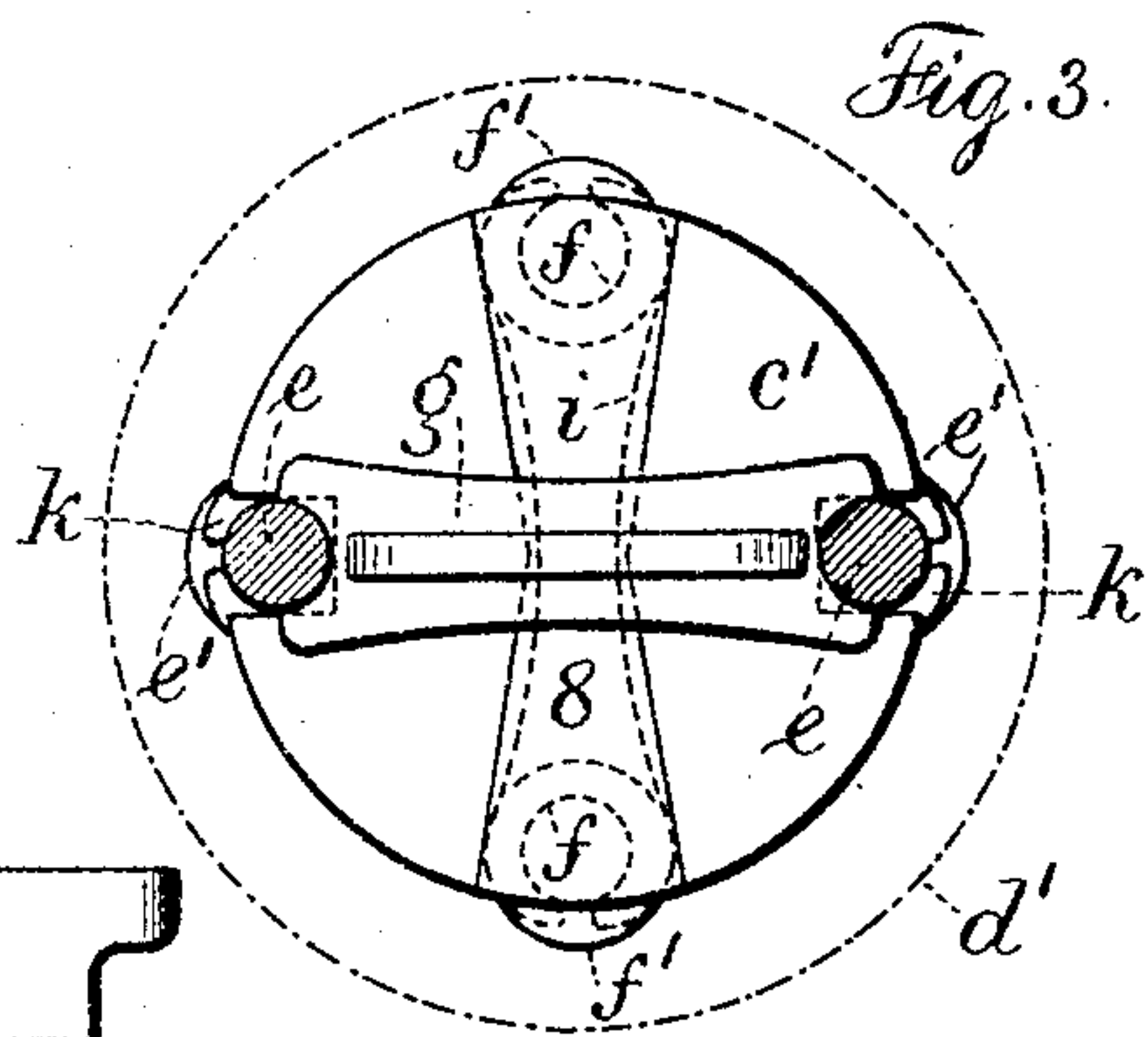
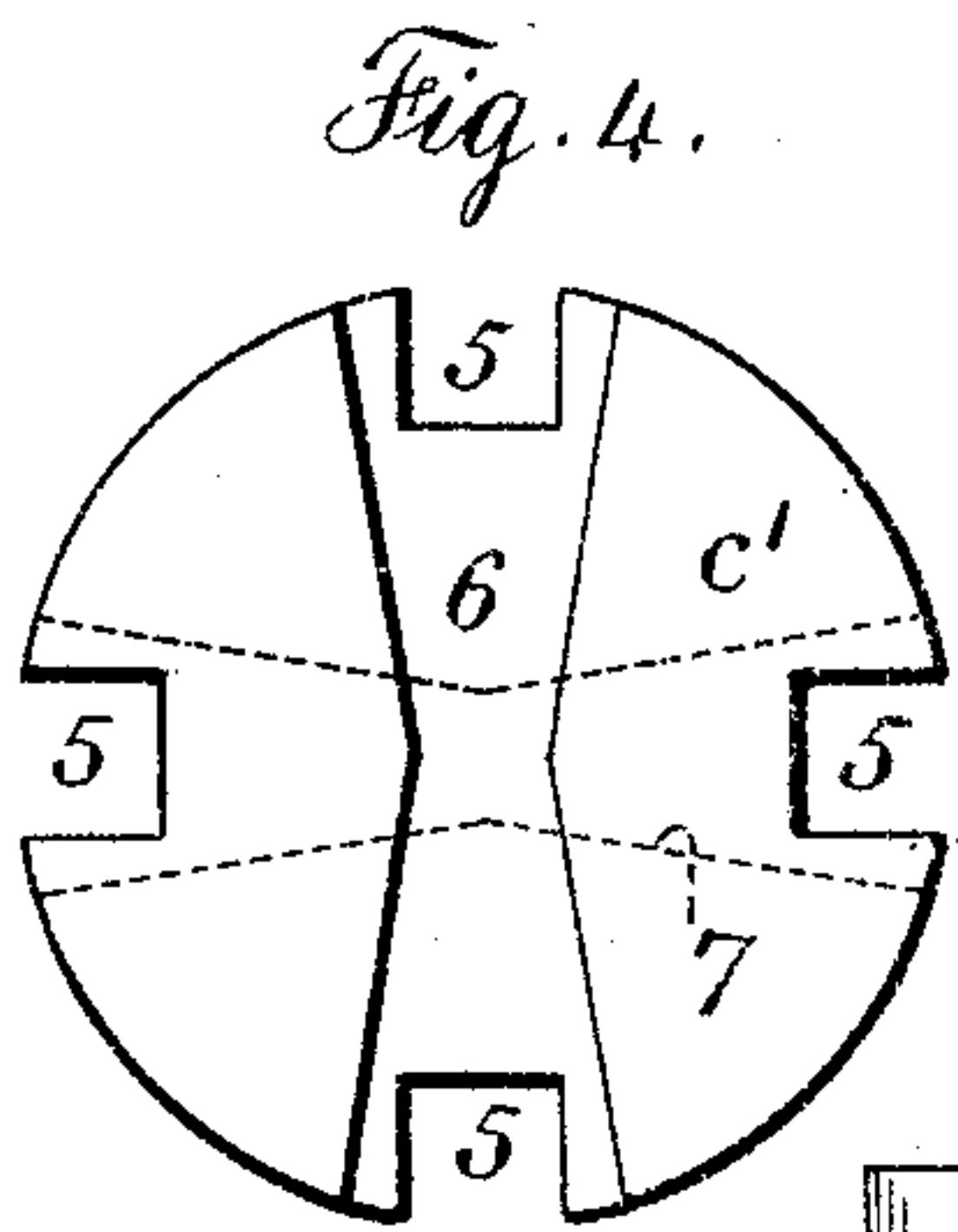
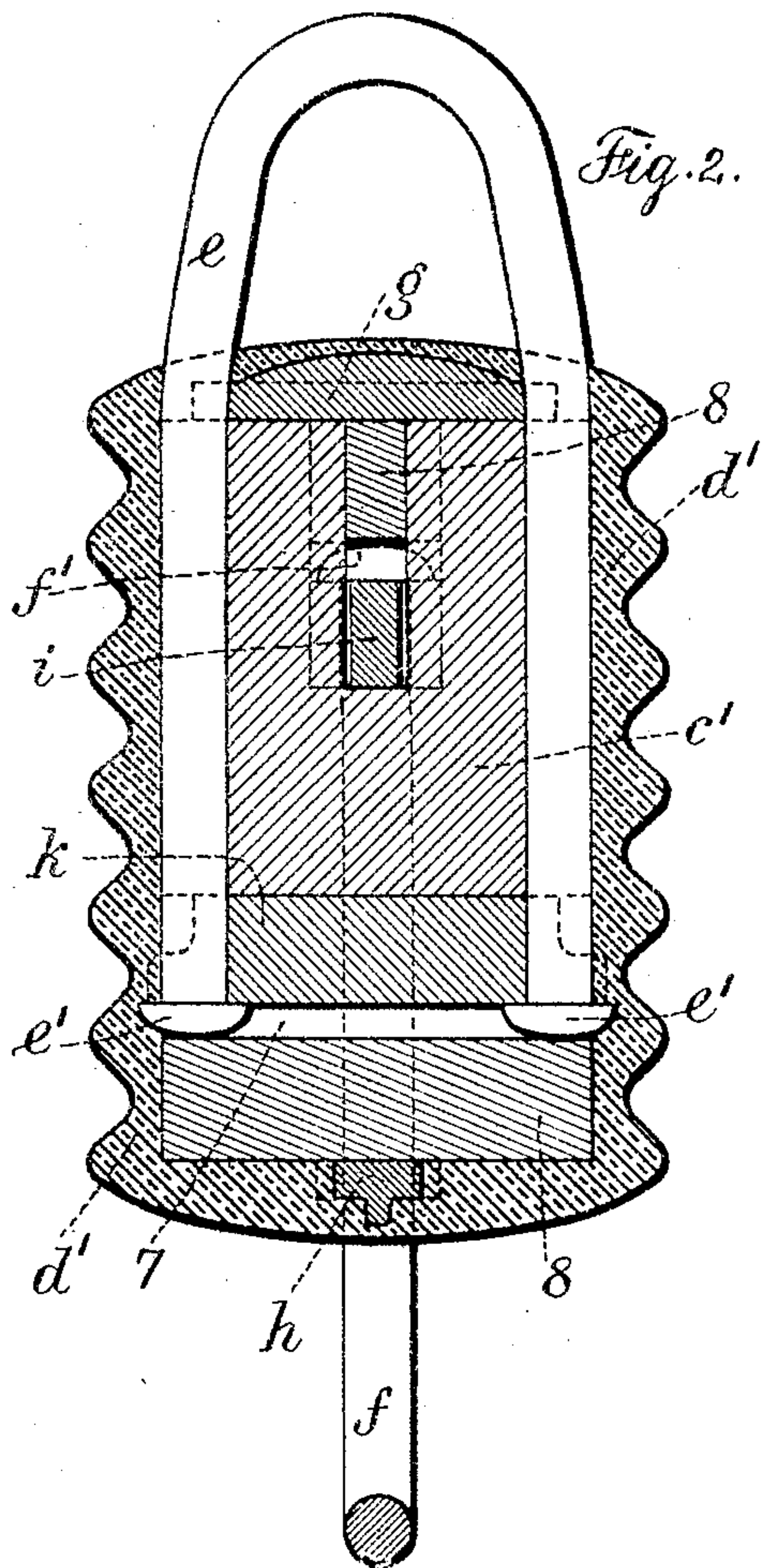
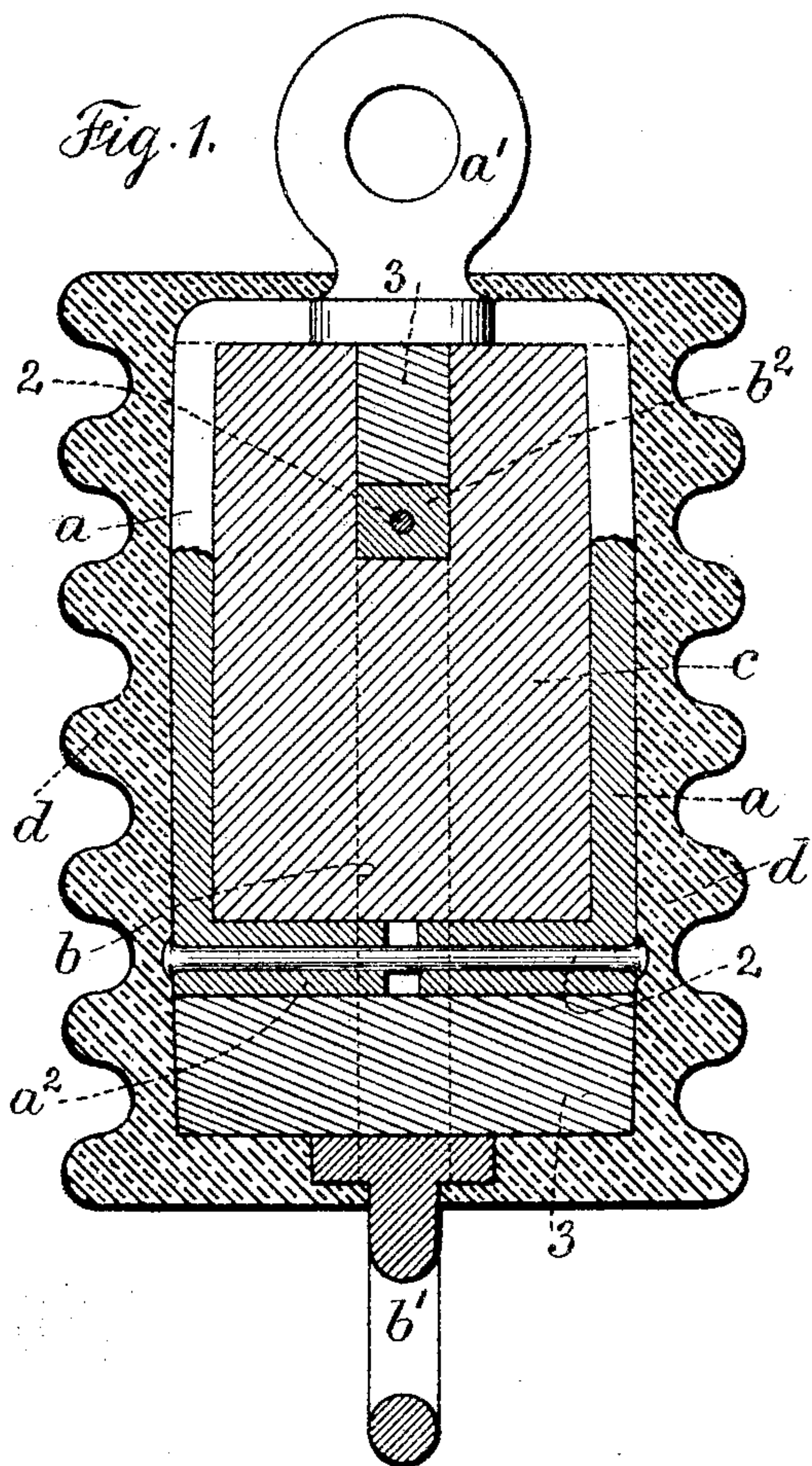


J. SACHS.  
INSULATING AND SUSPENDING DEVICE.  
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# UNITED STATES PATENT OFFICE.

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## INSULATING AND SUSPENDING DEVICE.

SPECIFICATION forming part of Letters Patent No. 778,507, dated December 27, 1904.

Application filed March 16, 1904. Serial No. 198,339.

*To all whom it may concern:*

Be it known that I, JOSEPH SACHS, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented an Improvement in Insulating and Suspending Devices, of which the following is a specification.

My invention relates to insulating devices or terminals for supporting and suspending electrical devices such as are employed in electric-line and railway-work and lighting systems; and the object of my invention is the production of an insulating and suspending device of great dielectric and mechanical strength, simplicity, and compactness inexpensive to construct and in which the efficiency shall be so great that even in wet weather the leakage of current across the surface of the same will be practically negligible.

In carrying out my invention I provide a part for connection with a support, a part for attachment thereto of the device or devices to be suspended, a central part extending between and means for connecting the same to these aforesaid parts, and an intermediate section of insulating and preferably composition material extending between the aforesaid parts surrounding the major portion of the central part and presenting a maximum non-conducting surface against the passage of the electric current.

The invention may be embodied in several forms.

The device of my improvement comprises a block or foundation with longitudinal surface grooves and transverse end grooves, with strap structures received in said grooves, the one at right angles to the other, and interlocking means being provided for connecting the ends of the strap structures for holding them in position in said grooves; and over all of said parts is placed a covering of insulating material.

In the drawings, Figure 1 is a vertical section representing the simpler form of my invention. Fig. 2 is a vertical section representing the approved form of my invention. Fig. 3 is a plan of the parts shown in Fig. 2 without

the covering of insulating material and with a strap structure in section. Fig. 4 is a plan, or, in other words, an end view of a block. Fig. 5 is an elevation, and Fig. 6 a plan, of one of the locking-plates with bifurcated ends.

Referring to Fig. 1, the strap structure *a* is provided with an eye *a'*, and the strap structure *b* with an eye *b'*. The block or foundation *c* is preferably made of wood or some strong insulating or composition material. This block is preferably provided with longitudinal surface grooves and with transverse end grooves connecting the longitudinal surface grooves so that the parts of the strap structures are received in said grooves, the respective returned ends *a'' b''* of the strap structures *a* and *b* passing into the transverse end grooves and being connected by rivets 2, which pass through holes made in said end portions, and between these end portions and the ends of the blocks and also the under surface of the adjacent strap structures, beneath the eye portions, there are wooden blocks 3, which are preferably forced home to place, so as to apply sufficient tension to the connected parts to keep them in position. Outside of all these parts is a covering or intermediate section of insulating material *d* with a corrugated surface, which forms a maximum non-conducting surface against the passage of the electric current.

In the approved form of my invention shown in Figs. 2 to 6, inclusive, *e f* represent the yoke-straps, *c'* the block or foundation of wood or other suitable material and which block is provided with longitudinal surface grooves 5 and with transverse end recesses 6 7. The yoke-straps extend in opposite directions, as do the strap structures of Fig. 1, and they are at right angles to one another, and *g h* are tension-plates placed at the respective ends of the block *c'*, between the parts of the yoke-straps *e f*, adjacent to the bent portions thereof, having the office of keeping the parts of the yoke-straps separated under tension. These plates are preferably provided with longitudinally-ribbed centers to stiffen the same. Extending through the end recesses 6 7 are locking-plates *i k*. These



are seated on the bases of the end recesses, and their outer surfaces come beneath the heads  $e'$   $f'$  upon the ends of the yoke-straps, and in connecting the parts the bifurcated ends of the locking-plates  $i$   $k$  are preferably bent around the parallel members of the yoke-straps at the ends, so as to grip the same to prevent accidental separation and properly and firmly connect the parts. In this preferred form of the invention there may be filling-blocks 8, preferably of wood, that are placed in the recesses 6 7, between the heads of the yoke-straps  $e$   $f$  and the under surface of the tension-plates  $g$   $h$ , and in this preferred form of the invention  $d'$  represents the intermediate section of insulating and preferably composition material which surrounds the major portion of the central part or block and extends around the yoke-straps and over the tension-plates, presenting in its surface of corrugated or grooved form a maximum non-conducting surface against the passage of the electric current.

Referring particularly to Figs. 1 and 2, the part for connection with a support is the strap structure  $a$ , Fig. 1, and  $e$ , Fig. 2. The part for attachment thereto of the device or devices to be suspended is the strap structure  $b$ , Fig. 1, and  $f$ , Fig. 2. The central part extending between these parts is the block  $c$ , Fig. 1, and the block  $c'$ , Fig. 2, which structures may be of hard wood, porcelain, or any other suitable material. The intermediate section of insulating and preferably composition material is the part  $d$ , Fig. 1, and the part  $d'$ , Fig. 2.

These structures are adapted for employment either in the guard-wire or in the span-wire between the poles supporting a trolley-wire in railway-work to suspend electric wires or to carry or suspend an arc-light from a suitable support. These instances are only illustrations of the uses to which the forms of my invention may be put, it being a fact that the same are applicable to many uses in these arts.

I claim as my invention—

1. As an insulating and suspending device and in combination, a strap structure for connection to a support, a second strap structure at right angles to the aforesaid strap structure as a part for attachment thereto of the device or devices to be suspended, an elongated central block or foundation extending between and separating the major portions of said strap structures, means for connecting the free ends of said strap structures at opposite ends of the central part, and a section of insulating and preferably composition material extending between and surrounding the major portion of the aforesaid parts and presenting a maximum non-conducting surface against the passage of the electric current.

2. As an insulating and suspending device and in combination, a block or foundation hav-

ing longitudinal surface grooves spaced apart and transverse end grooves connecting with pairs of the longitudinal grooves, strap structures at right angles to one another extending in opposite directions and with the parallel members thereof in pairs of said longitudinal grooves, devices extending through the transverse grooves and connecting the free ends of the strap structures, and a section of insulating and preferably composition material extending between and surrounding the major portion of the aforesaid parts and presenting a maximum non-conducting surface against the passage of the electric current.

3. As an insulating and suspending device and in combination, a block or foundation having longitudinal surface grooves in pairs at equally-spaced-apart intervals, and transverse grooves at the respective ends of the block extending in opposite directions and connecting the ends of pairs of grooves, yoke-straps having parallel portions occupying pairs of said grooves at right angles to one another extending in opposite directions beyond the ends of the block or foundation, devices in said transverse grooves between the free ends of the yoke devices and connecting the same together, a part extending between the bent ends of said yoke devices and over the surfaces of the transverse grooves, and a section of insulating and preferably composition material extending between and surrounding the major portion of the aforesaid parts and presenting a maximum non-conducting surface against the passage of the electric current.

4. As an insulating and suspending device and in combination, a block or foundation having longitudinal surface grooves in pairs at equally-spaced-apart intervals, and transverse grooves at the respective ends of the block extending in opposite directions and connecting the ends of pairs of grooves, yoke-straps having parallel portions occupying pairs of said grooves at right angles to one another extending in opposite directions beyond the ends of the block or foundation, tension-plates extending over the respective ends of the block or foundation between the parallel parts of the yoke-straps at their bent ends and across the transverse recesses, locking-plates with bifurcated ends extending through the transverse recesses at their bases and between the free ends of the yoke-straps with their ends bent around the members of the yoke-straps to lock the parts together, and a section of insulating and preferably composition material extending between and surrounding the major portion of the aforesaid parts and presenting a maximum non-conducting surface against the passage of the electric current.

5. A strain-insulator, comprising a block, yoke-straps extending in opposite directions from one another, means for securing said yoke-straps to said block, means for keeping the members of the yoke-straps separated



when under tension, and a section of insulating material having a corrugated surface and surrounding the sides of the block and extending around the yoke-straps and over the  
5 ends of the block.

6. A strain-insulator, comprising a block having longitudinal surface grooves at diametrically opposite points and transverse end recesses, yoke-straps placed at right angles to one another, running in said longitudinal recesses and extending in opposite directions, means for securing the said yoke-straps to the block, means for keeping the said straps separated when under tension, and a section of insulating material having a corrugated surface and surrounding the sides of the block and extending around the yoke-straps and over the  
15 ends of the block.

7. A strain-insulator, comprising a block  
20 having longitudinal surface grooves at diametrically opposite points and transverse end recesses, yoke-straps placed at right angles to one another, running in said longitudinal recesses and extending in opposite directions,  
25 locking-plates adapted to be received in said transverse recesses and to secure the said yoke-straps to the block, means for keeping the said straps separated when under tension, and a section of insulating material having a corrugated surface and surrounding the sides  
30 of the block and extending around the yoke-straps and over the ends of the block.

8. A strain-insulator, comprising a block having longitudinal surface grooves at diametrically opposite points and transverse end recesses, yoke-straps placed at right angles to one another, running in said longitudinal recesses and extending in opposite directions, locking-plates adapted to be received in said  
40 transverse recesses and to secure the said yoke-straps to the block, tension-plates placed at the ends of the said yoke-straps to keep them apart when under tension, and a section of insulating material having a corrugated surface  
45 and surrounding the sides of the block and extending around the yoke-straps and over the ends of the block.

9. A strain-insulator, comprising a block, yoke-straps extending in opposite directions  
50 from one another, means for securing said yoke-straps to said block, means intermediate of the yoke-straps for determining their relation and position to one another and to the central block or foundation, and a section  
55 of insulating material having a corrugated surface and surrounding the sides of the block and extending around the yoke-straps and over the ends of the block.

10. A strain-insulator, comprising a block,  
60 yoke-straps extending in opposite directions from one another, means for securing said yoke-straps to said block, means for keeping the yoke-straps separated when under tension, means intermediate of the yoke-straps for de-

termining their relation and position to one  
65 another and to the central block or foundation, and a section of insulating material having a corrugated surface and surrounding the sides of the block and extending around the yoke-straps and over the ends of the block.  
70

11. As an insulating and suspending device and in combination, a block or foundation having longitudinal surface grooves spaced apart and transverse end grooves connecting with pairs of the longitudinal grooves, strap structures at right angles to one another extending in opposite directions and with the parallel members thereof in pairs of said longitudinal grooves, devices extending through the transverse grooves and connecting the free ends of the strap structures, filling-blocks in the said transverse end grooves, and a section of insulating and preferably composition material extending between and surrounding the major portion of the aforesaid parts and presenting  
80 a maximum non-conducting surface against the passage of the electric current.  
85

12. As an insulating and suspending device and in combination, a block or foundation having longitudinal surface grooves in pairs at  
90 equally-spaced-apart intervals, and transverse grooves at the respective ends of the block extending in opposite directions and connecting the ends of pairs of grooves, yoke-straps having parallel portions occupying pairs of said  
95 grooves at right angles to one another extending in opposite directions beyond the ends of the block or foundation, devices in said transverse grooves between the free ends of the yoke devices and connecting the same together, a part extending between the bent  
100 ends of said yoke devices and over the surfaces of the transverse grooves, filling-blocks within said transverse end grooves, and a section of insulating and preferably composition  
105 material extending between and surrounding the major portion of the aforesaid parts and presenting a maximum non-conducting surface against the passage of the electric current.  
110

13. As an insulating and suspending device, and in combination, a block or foundation having longitudinal surface grooves in pairs at  
115 equally-spaced-apart intervals, and transverse grooves at the respective ends of the block extending in opposite directions and connecting the ends of pairs of grooves, yoke-straps having parallel portions occupying pairs of said  
120 grooves at right angles to one another extending in opposite directions beyond the ends of the block or foundation, tension-plates extending over the respective ends of the block or foundation between the parallel parts of the yoke-straps at their bent ends and across the transverse recesses, locking-plates with  
125 bifurcated ends extending through the transverse recesses at their bases and between the free ends of the yoke-straps with their ends

bent around the members of the yoke-straps  
to lock the parts together, filling-blocks in  
said transverse end grooves and extending be-  
tween said transverse plates and said locking-  
5 plates, and a section of insulating and pref-  
erably composition material extending be-  
tween and surrounding the major portion of  
the aforesaid parts and presenting a maximum

non-conducting surface against the passage of  
the electric current.

Signed by me this 7th day of March, 1904.

JOSEPH SACHS.

Witnesses:

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S. T. HAVILAND.