

No. 654,700.

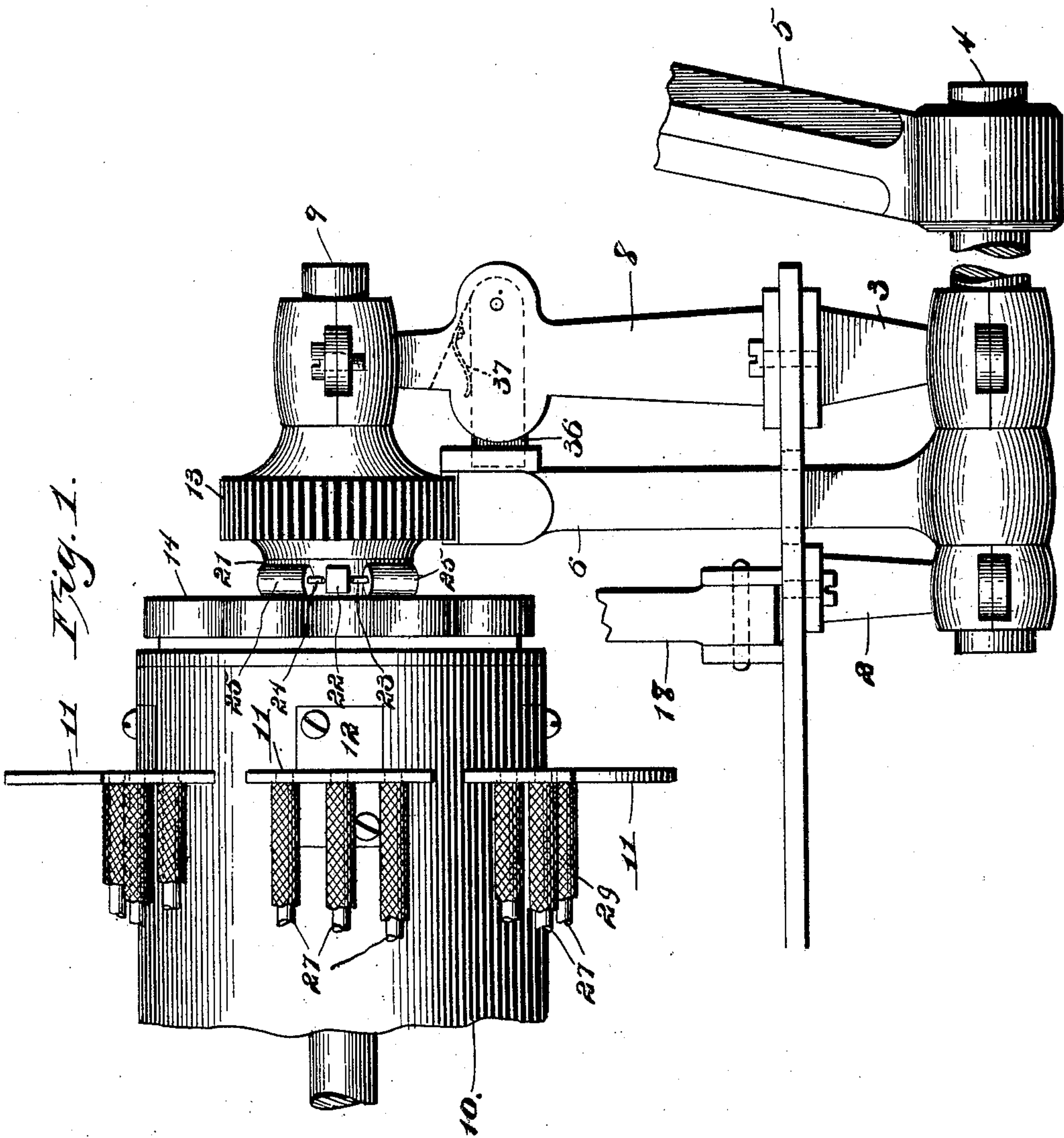
Patented July 31, 1900.

W. ASBURY.  
ELECTRIC CONTROLLER.

(Application filed Dec. 1, 1899.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses

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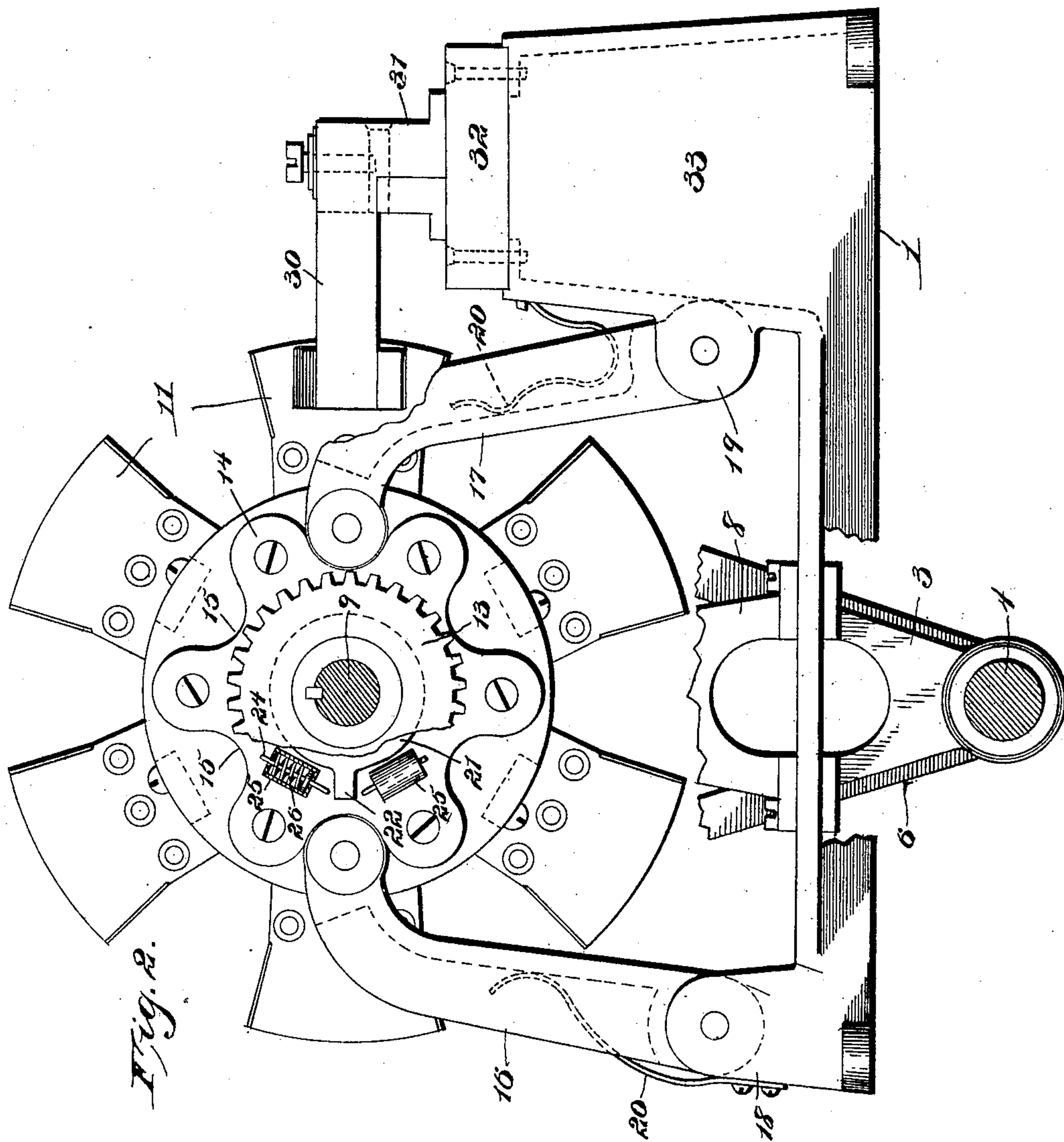
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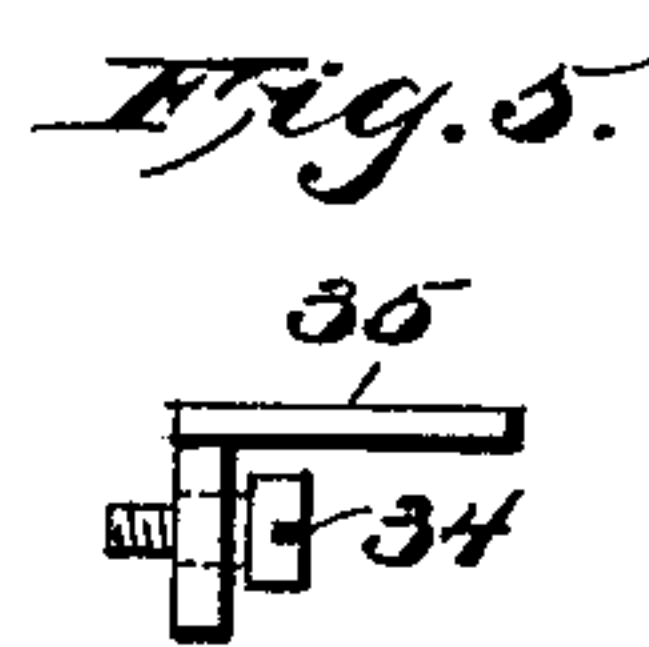
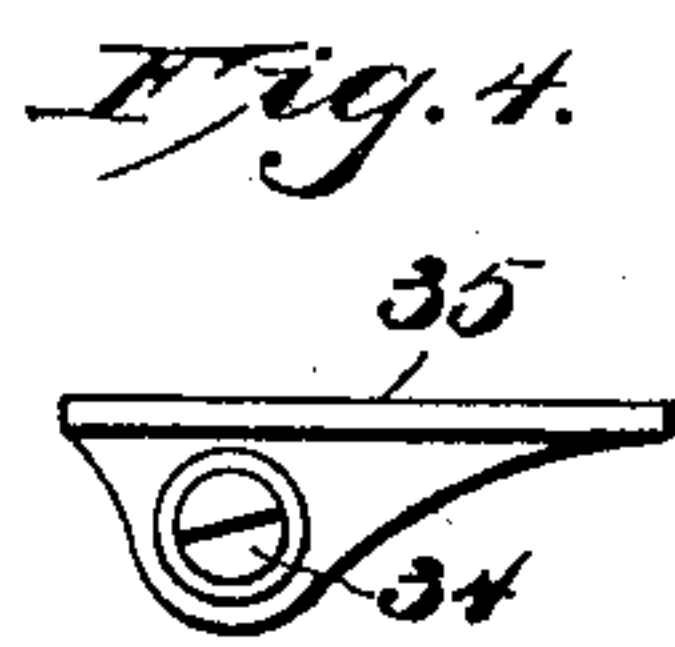
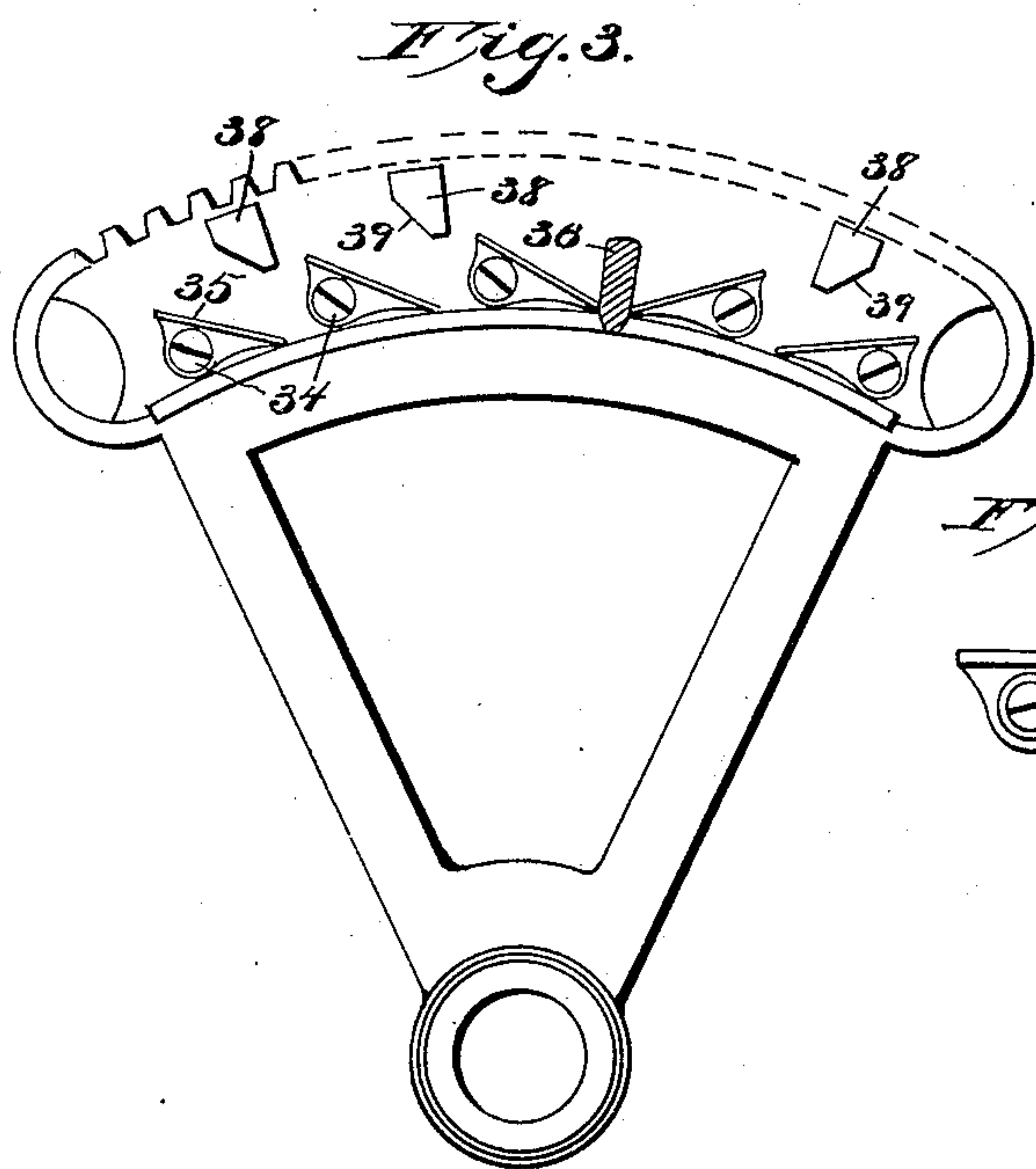
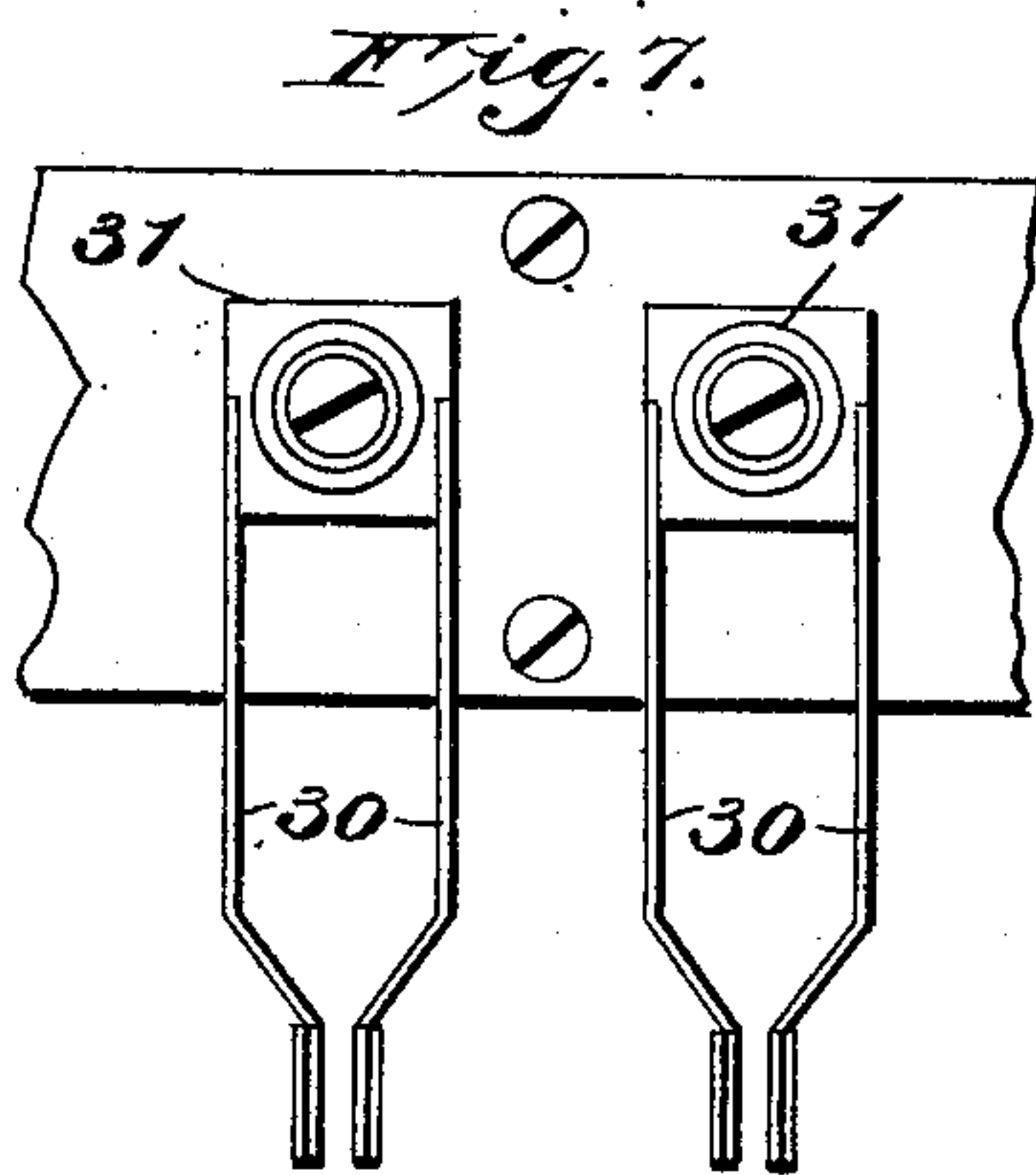
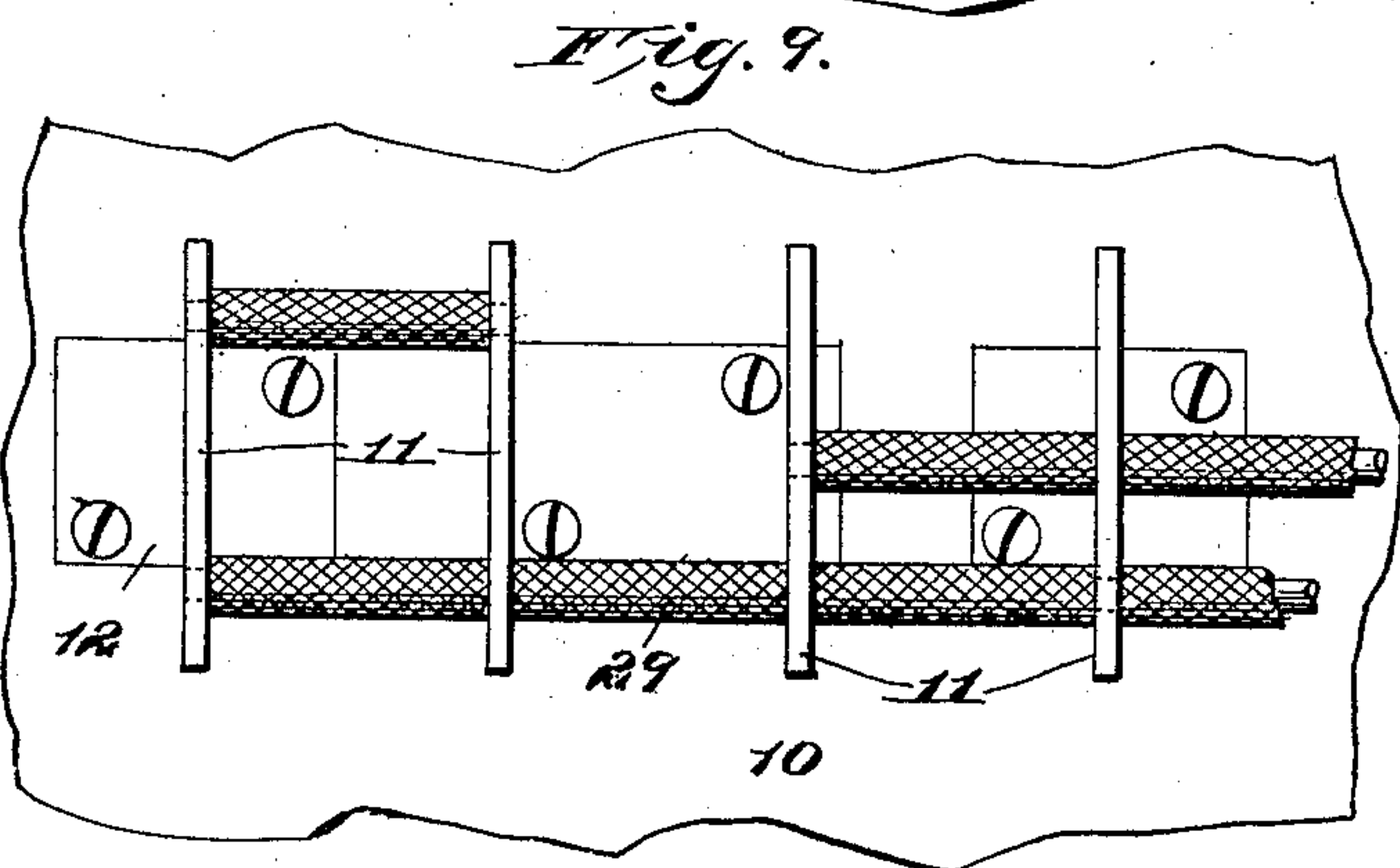
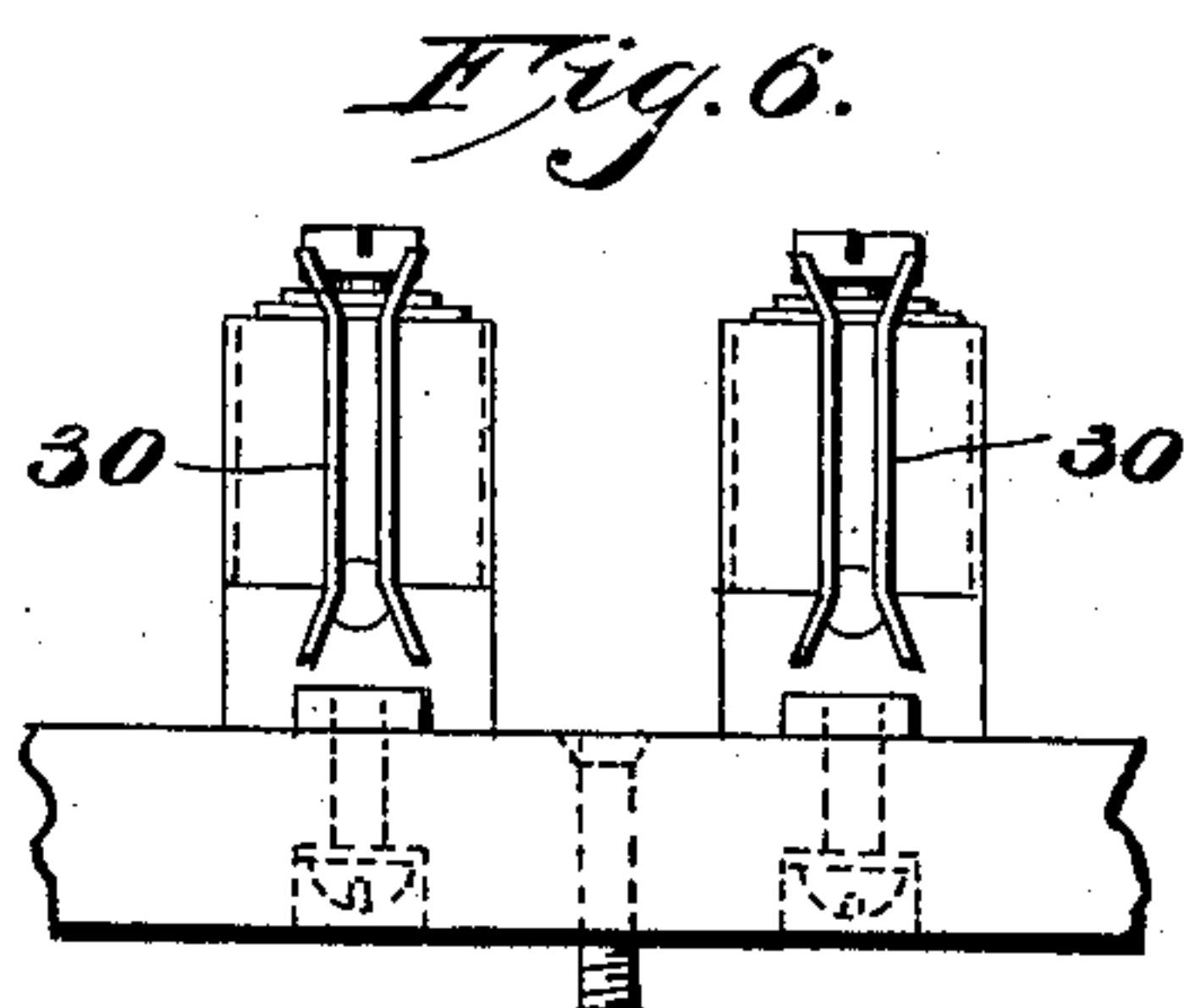
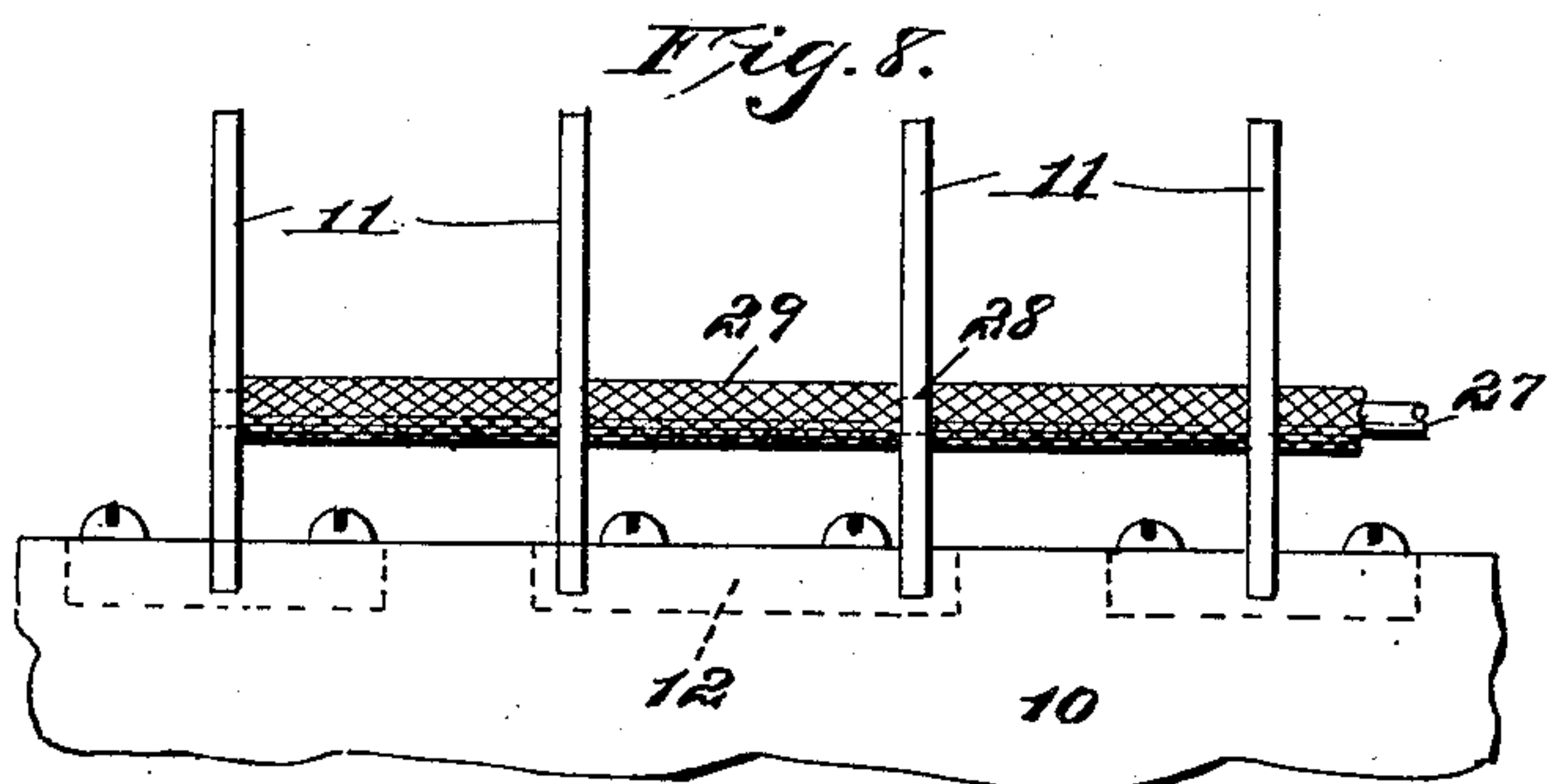
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# UNITED STATES PATENT OFFICE.

WILLIAM ASBURY, OF NEW YORK, N. Y.

## ELECTRIC CONTROLLER.

SPECIFICATION forming part of Letters Patent No. 654,700, dated July 31, 1900.

Application filed December 1, 1899. Serial No. 738,899. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM ASBURY, a subject of the Queen of Great Britain, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Electrical Controllers, of which the following is a specification.

My invention relates to electric controllers for electric cars or other vehicles; and one of its objects is to provide stop devices which limit or interrupt the movement of the operating device in one direction, so that only one combination (the next highest) can be made at one movement, but permit a return of the operating device to its normal position or home-point by a single movement from any point at which it may have been set.

A further object of the invention is to provide an improved construction embodying contacts of the knife-switch type whereby a large number of switch or circuit combinations may be formed within a small space.

A further object of the invention is to so arrange the conductors of the controller that they will be readily accessible.

Further objects are to provide means for insuring quick breaks in the formation of the several combinations, thus reducing sparking to the minimum, and to provide improved details of construction whereby an effective operation of the apparatus is insured.

The invention will be fully described hereinafter in connection with the accompanying drawings, which form a part of this specification, and its novel features will be defined in the appended claims.

In the drawings, Figure 1 is a side elevation of a controller embodying the invention, parts being broken away. Fig. 2 is an end elevation of the same, partly in section. Fig. 3 is an elevation of the outer side of the operating-quadrant employed, together with its stop devices. Figs. 4 and 5 are respectively a side elevation and an end view of one of the pawls carried by the quadrant. Figs. 6 and 7 are respectively an end view and a top plan of the contact-clips and their supporting-base and blocks; and Figs. 8 and 9 are a side elevation and plan of a portion of the revoluble cylinder of the controller and its contact-

blades, showing the manner of arranging and insulating the conductors.

The reference-numeral 1 designates a support upon which the device is mounted provided with depending bracket-bearings 2 and 3 for a shaft 4, provided with an operating lever or handle 5.

6 designates a quadrant-gear formed with a hub 7, which is fixed to the shaft 4.

On the upper surface of the support 1 suitable bearing-brackets, as designated at 8 in Fig. 1, are provided for a shaft 9, upon which is loosely mounted a cylinder 10, of wood or other non-conducting material, carrying radially-projecting contact-blades 11, mounted upon bases 12 of conducting material.

Upon the shaft 9, concentric with the cylinder 10, is keyed a gear-wheel 13, which meshes with the quadrant-gear 6, and upon the end of the loosely-mounted cylinder adjacent to the wheel 13 is secured a catch-disk 14, formed with peripheral semicircular recesses 15, adapted to engage the free upper ends of pawls 16 and 17, pivotally secured to suitable bracket-supports 18 and 19 upon the support 1 on opposite sides of the disk 14 and projected normally toward the disk by springs 20, located behind the pawls. The gear-wheel 13 is provided with a lateral annular extension 21, from which projects a radial lug 22, extending between two oppositely-disposed plunger-rods 23 and 24, supported in housings 25, secured to the catch-disk 14 and surrounded by coil-springs 26.

27 designates conducting-wires extending through openings 28 in the blades and covered by insulating-tubing 29 of any suitable material.

The contact-blades 11 are adapted to contact successively with contact-clips 30, secured to blocks 31 of conducting material, which are supported upon a base 32, of non-conducting material, mounted upon a standard or bracket 33 of the supporting-frame of the controller. As illustrated in Fig. 2, the free ends of the contact-clips project horizontally into the path of revolution of the blades 11, so that the latter will make a good sweeping contact therewith.

To the outer face of the quadrant-gear 6 are secured upon screws 34 a plurality of in-



clined catches 35, over which passes the inner end of a stop-bar 36, the outer end of which is pivotally secured within the bracket 8 and controlled by a spring 37, fixed at one end to the bracket and having its free end bearing upon the bar 36.

38 designates stop-lugs projecting from the outer face of the quadrant in such relation to the inclined catches as to arrest the movement of the catch-bar 36 between the inclines 35 until said bar drops down in position to ride up the next incline, thus rendering it impossible to throw in more than one combination at once. The beveled edges 39 of the stop-lugs 38 permit the stop-bar to pass under said lugs for its return to the home-point.

In the operation of the controller the shaft 4 is rotated by its handle 5, thus moving the shaft 9 through the medium of the quadrant 6 and gear-wheel 13. The lug 22 is thus forced against one or the other plungers, depressing the same and causing the lug to strike the housing on the disk 14 to move the cylinder as soon as the pawls 16 and 17 in riding up out of the recesses 15 pass the dead-center. Thus a quick contact of the next pair of blades with the clips is effected.

It will be understood by those skilled in the art to which the invention relates that a plurality of combinations representing circuits of varying resistance will be formed by the electrical connections of the blades 11, so that the combinations may be thrown into play successively from slowest speed to highest and that the conducting-plates of said blades may be connected in series, multiple, or parallel.

By the arrangement shown the conductors are above the surface of the cylinder 10, thus preventing the lodging or accumulation of dirt, which might cause short-circuiting.

The contact-clips are preferably made integral with the blocks 31 to insure good conductors, and the mechanism is all easy of access for repairs or renewal of parts.

I claim—

1. In an electric controller, the combination with a revoluble shaft, of a cylinder of non-conducting material loosely mounted on said shaft: radial contact-blades projecting from said cylinder: conducting-bases for said blades: a catch-disk secured to one end of said cylinder: contact-clips with which the blades contact: a gear-wheel fixed to said shaft; a quadrant-gear meshing with said gear-wheel: stop mechanism coöperating with said catch-disk and quadrant-gear: means for rotating said shaft and means for causing the rotation of the cylinder by the rotation of the shaft.

2. In an electric controller, the combination with a revoluble shaft, of a gear-wheel keyed

thereon: a cylinder of non-conducting material loosely mounted on said shaft: a disk secured to one end of said cylinder and having peripheral recesses: contact-blades projecting from said cylinder in radial pairs: conducting-bases for said blades: conducting-clips with which said blades contact: spring-controlled pawls engaging the disk: a quadrant-gear meshing with said gear-wheel: and stop mechanism controlling the movement of said quadrant-gear.

3. In an electric controller, the combination with a revoluble shaft and contact-clips, of a cylinder loosely mounted on said shaft and carrying contact-blades, and a catch-disk: a gear-wheel fixed to said shaft: a quadrant-gear meshing with said gear-wheel: a shaft upon which said quadrant is fixed: a handle for the quadrant-shaft: and stop mechanism comprising inclined catches and lugs projecting from the quadrant: and a stop-bar, adapted to engage said inclined catches and lugs.

4. In an electrical controller, the combination with a revoluble shaft, and contact-clips: of a non-conducting cylinder loosely mounted on said shaft: perforated contact-blades projecting from the cylinder and arranged in radial pairs, and insulated conductors extending through the perforations of the blades.

5. In an electrical controller, the combination with a revoluble shaft, of a cylinder of non-conducting material loosely arranged thereon, and carrying contact-blades: of quick-break mechanism for said blades, comprising a disk secured to one end of said cylinder and formed with peripheral recesses: oppositely-arranged pawls engaging in said recesses: spring-pressed plungers on said disk: and a projection carried by said shaft for operating said plungers.

6. In an electrical controller, the combination with a revoluble shaft, of a gear-wheel fixed thereon, a cylinder loosely mounted on said shaft: a catch-disk secured to one end of the cylinder: housings on said disk: spring-pressed plungers supported in said housings: an arm or lug projecting from the shaft to operate said plungers: pawls to engage said disk: a toothed quadrant meshing with said gear-wheel: stop devices on said quadrant: and a stop-bar coöperating with said stop devices.

7. In an electrical controller, the combination with a revoluble cylinder, of radially-arranged blades, connected by insulated conductors supported above the surface of the cylinder.

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

WILLIAM ASBURY.

Witnesses:

WILLIAM FEHR,  
WM. HAMILTON.