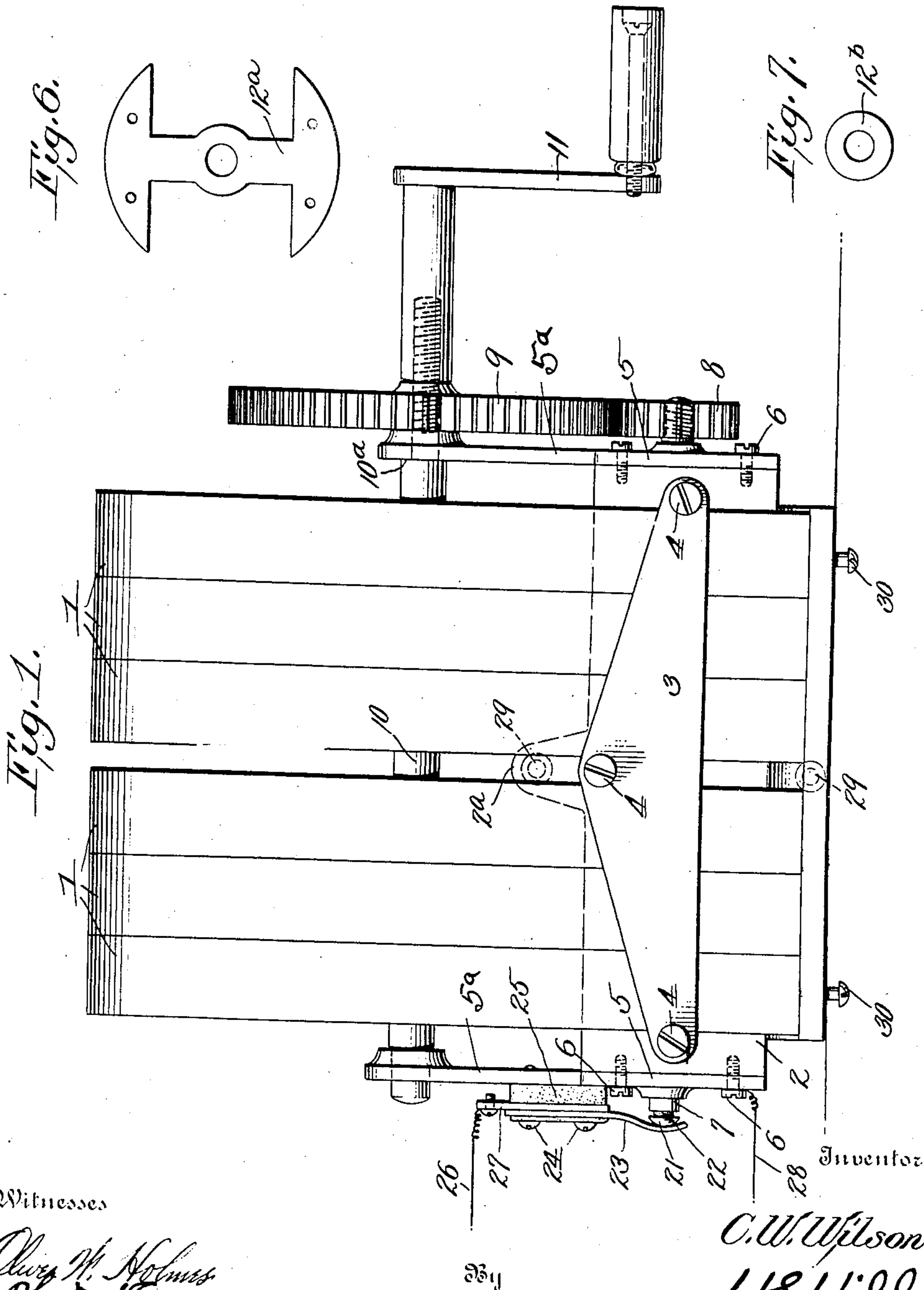


C. W. WILSON.
MAGNETO GENERATOR.
APPLICATION FILED JULY 26, 1909.

963,412.

Patented July 5, 1910.

3 SHEETS—SHEET 1.

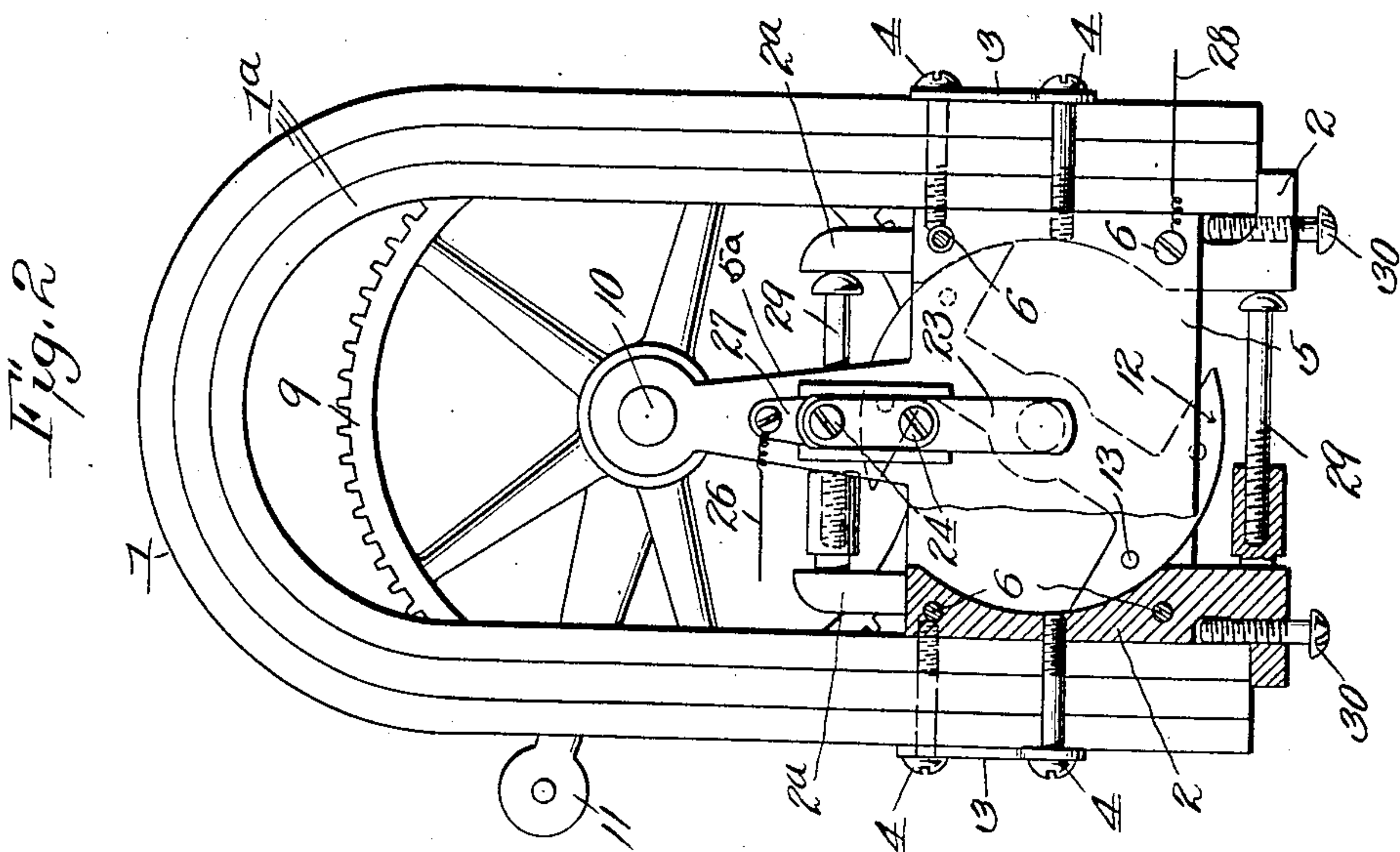
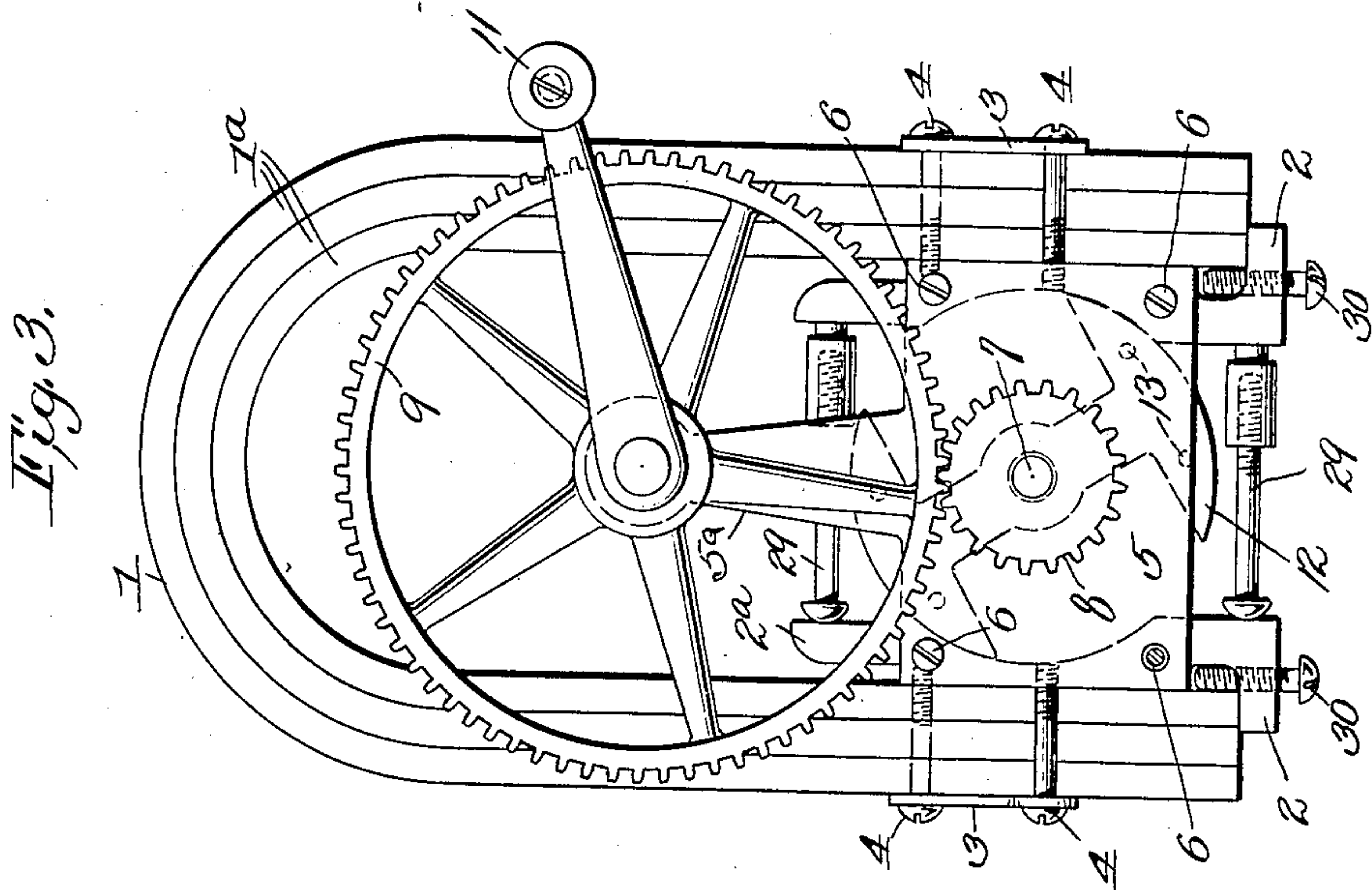


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Patented July 5, 1910.

3 SHEETS—SHEET 2.



Witnesses

Oliver H. Holmes.
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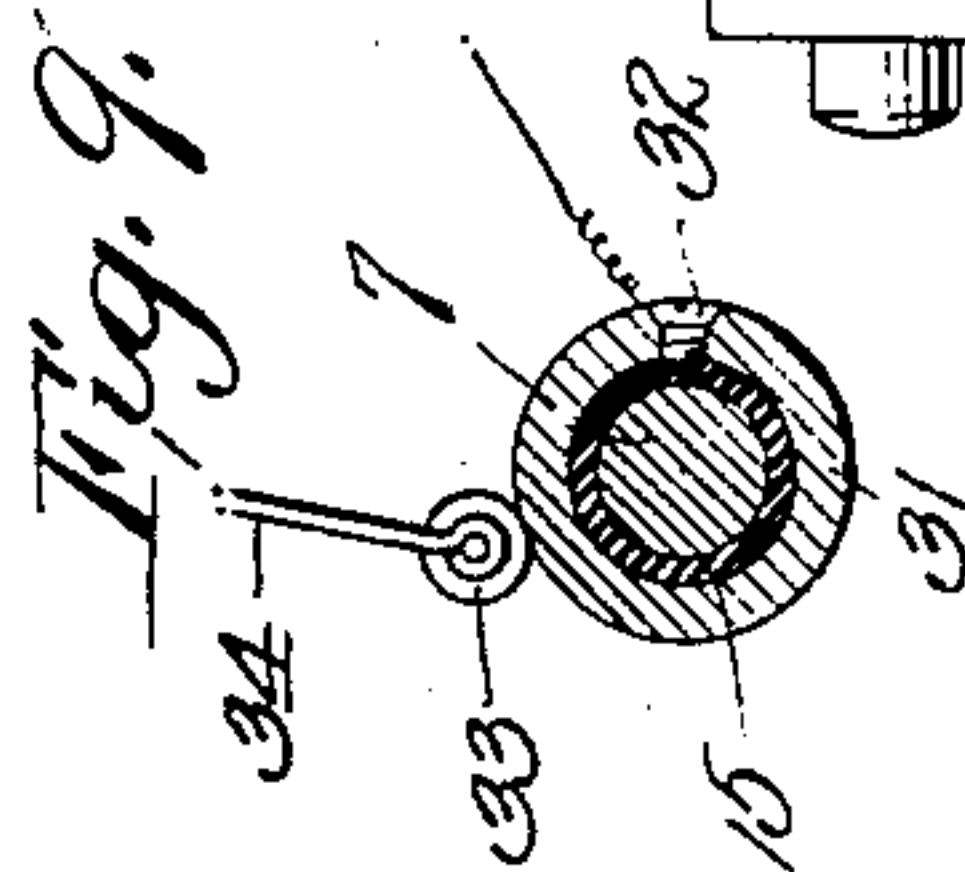
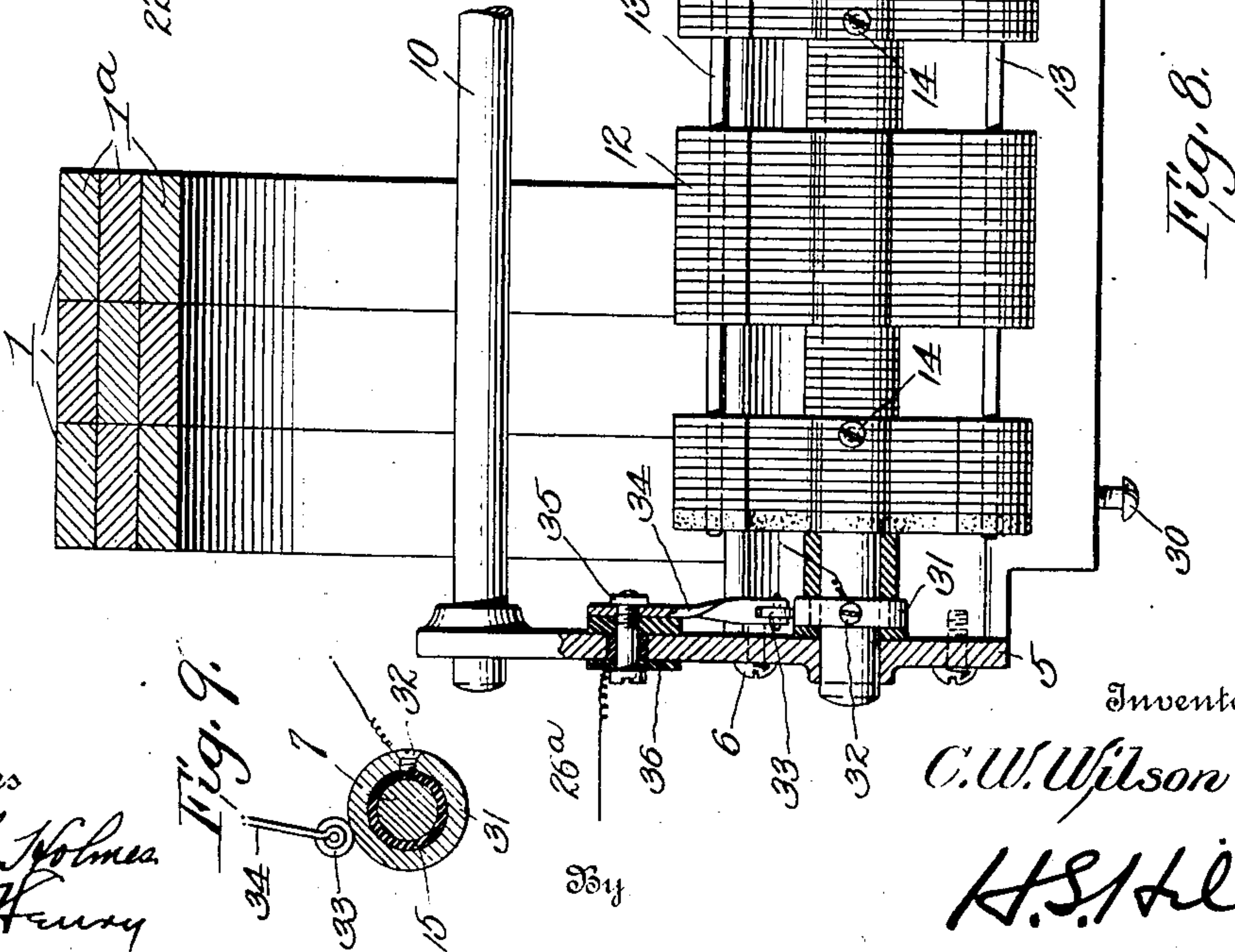
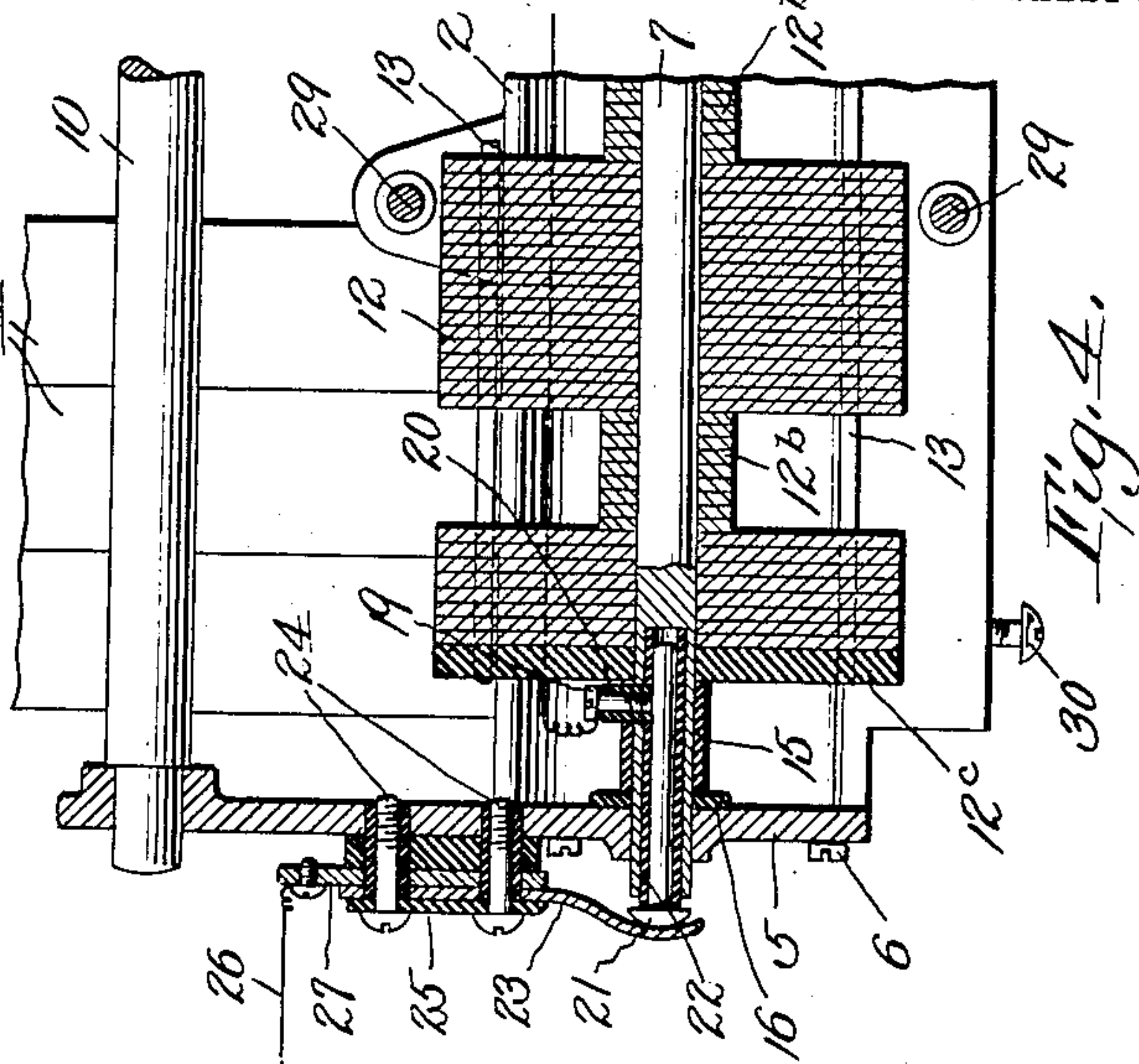
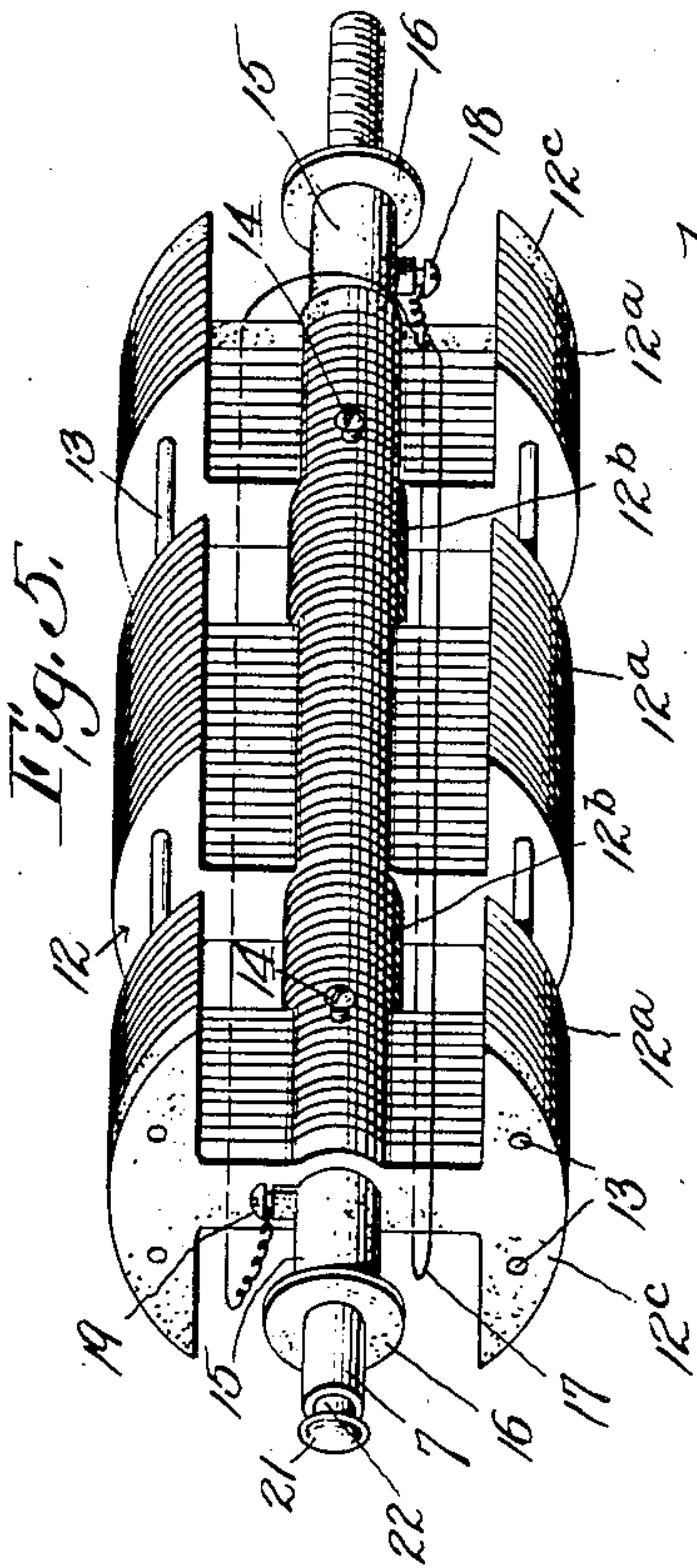
Attorney

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3 SHEETS—SHEET 3.



Witnesses
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H. D. Harvey

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UNITED STATES PATENT OFFICE.

CHARLES W. WILSON, OF EDGEWOOD, ILLINOIS.

MAGNETO-GENERATOR.

963,412.

Specification of Letters Patent.

Patented July 5, 1910.

Application filed July 26, 1909. Serial No. 509,498.

To all whom it may concern:

Be it known that I, CHARLES W. WILSON, a citizen of the United States, residing at Edgewood, in the county of Effingham and State of Illinois, have invented certain new and useful Improvements in Magneto-Generators, of which the following is a specification.

The present invention relates to certain new and useful improvements in magneto generators such as are commonly employed in connection with internal combustion engines for producing the electric sparks to explode the charges, and the primary object of the invention is the provision of a novel and efficient device of this character which will wholly eliminate the necessity of using batteries to start the engines, as is the usual custom.

The invention further contemplates a magneto generator which is comparatively simple and inexpensive in its construction, and which is very efficient in the generation of current.

With these and other objects in view, the invention consists in certain novel combinations and arrangements of the parts as will more fully appear as the description proceeds, the novel features thereof being pointed out in the appended claims.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawings, in which,

Figure 1 is a side elevation of the preferred embodiment of the magneto generator, Fig. 2 is an elevation of one end of the generator, Fig. 3 is a similar view of the opposite end of the generator, Fig. 4 is a vertical longitudinal sectional view through one end of the generator, Fig. 5 is a perspective view of the armature, showing the same removed from the machine, Figs. 6 and 7 are plan views of the blanks of which the armature is built up, Fig. 8 is a vertical longitudinal sectional view showing a slightly modified form of the invention, portions being broken away, and Fig. 9 is a transverse sectional view through the collecting ring employed in the said modified form of the invention.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Specifically describing the preferred em-

bodiment of the invention, the numerals 1 designate a number of permanent horseshoe magnets of which the field is composed, each of the said magnets being preferably made up of several laminæ or sections nested within each other. In the present instance there are three laminæ or sections 1^a to each of the magnets 1, and the latter are arranged in two spaced groups of three each. The cast pole pieces 2 are fitted to the inner sides of the limbs of the field magnets 1 and have their opposing faces concaved in the usual manner to receive the armature. Each of the pole pieces 2 is connected to a strip 3 extending along the outer sides of the limbs of the magnets 1 by means of three screws 4, the middle screw passing between the two groups of magnets while the remaining screws are at the ends of the same. In this manner the pole pieces are securely clamped to the field magnets 1, and the latter are held rigidly in their relative positions.

End plates 5 are secured to the extremities of the pole pieces 2 by means of the screws 6, and the armature shaft is journaled upon the said end plates. One of the projecting ends of the shaft is provided with left hand threads and has a pinion 8 mounted thereon, the said pinion meshing with a comparatively large gear wheel 9 upon the reduced end of an upper shaft 10 journaled upon an upwardly projecting pair of extensions 5^a carried by the end plates 5. A handle 11 is also fitted upon the reduced end of the upper shaft 10, and the latter is held against longitudinal movement within its bearings by means of the shoulder 10^a which is upon one side of one of the bearings and the gear wheel 9 which is upon the opposite side of the said bearing. It will thus be obvious that by turning the handle 11 in the usual manner the armature may be rotated at a high speed.

The armature 12 is built up of a number of sheet metal plates 12^a and 12^b which are fitted upon the shaft 7, the plates 12^a being formed with oppositely extending wings to form the poles upon which the wire is wrapped, while the plates 12^b are merely in the form of circular washers. These plates 12^a and 12^b are arranged in alternate groups, and the plates 12^c at the ends of the armature are formed of insulating material. With this construction air spaces are provided between the wings of the various plates 12^a and the objectionable eddy cur-

rents thereby practically eliminated. Rods 13 pass through the wings of the various plates 12^a and serve to hold all the laminæ or plates of the armature together, the extremities of the rods being flattened to prevent withdrawal, and the armature is locked upon the shaft 7 so as to rotate therewith by means of the set screws 14. Fitted upon the shaft at each end of the armature so as to bear against the latter is an insulating sleeve 15, and a ring 16 which is also formed of insulating material is located at the outer extremity of each of the said sleeves.

The armature is wrapped lengthwise in the usual manner by a suitable size of insulated wire as indicated at 17, and one end of this wire is secured to a screw 18 which passes through the sleeve 15 at one end of the armature and makes electrical connection with the shaft 7 and thence with the entire metallic frame of the device. The opposite end of the winding 17 is secured to a screw or pin 19 which passes through an insulating sleeve 20 and contacts with a pin 21 inserted longitudinally in one end of the shaft 7 and insulated therefrom by a sleeve 22 of insulating material. A contact spring 23 bears yieldingly against the end of the pin 21, the said contact spring being secured to one of the end plates 5 by means of the screws 24, and insulated both from the screws and the end plate by the insulation 25. One of the leads 26 of the machine is attached to a plate 27 which contacts with the upper end of the spring 23 and is held in position by the screws 24, while the opposite lead 28 may be connected to any part of the machine, and in the present instance is shown as connected to one of the screws 6.

For the purpose of enabling the pole pieces 2 to be sprung slightly apart or brought together to regulate the clearance of the armature and adjust the air gap, a pair of expanding bolts 29 are used, the said expanding bolts being located at an intermediate point between the ends of the machine and both above and below the armature, the upper expanding bolt operating between the extensions 2^a projecting upwardly from the pole pieces. Screws 30 are threaded in the lower faces of the pole pieces 2 and constitute a ready means for securing the generator to any suitable base or support.

A slight modification is shown in Figs. 8 and 9 in which a metallic ring 31 is fitted upon the insulating sleeve 15 at one end of the armature and has one end of the armature winding 17 connected thereto by means of a screw 32. The current is taken from this ring 31 by means of a contact roller 33 journaled in one end of a spring or brush 34, the said brush being secured to the end plate by the bolt 35 and insulated therefrom by the insulating material 36. In this in-

stance the lead 26^a is connected to the bolt 35, while the opposite lead 28 is connected to one of the screws 6 as in the previous instance.

It is to be understood that I do not restrict myself to the exact construction shown in the drawings and described in the specification, as slight changes and departures can be made without departing from the spirit of the invention.

It may be explained that the openings in the end plates 5 are slightly larger than the shanks of the screws 6, thereby admitting of the slight necessary adjustment of the pole pieces 2 through the medium of the expanding bolts 29. The armature may also be secured to the armature shaft by means of rivets passing through the same instead of by the set screws 14 if desired.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent is:

1. In a magneto generator, the combination of a U shaped field magnet formed of a single piece of material and having resilient limbs, pole pieces applied to the limbs of the field magnet, an armature mounted between the pole pieces, and an adjustable member between the pole pieces for spreading them apart or permitting them to come together.

2. In a magneto generator, the combination of a U shaped field magnet formed of a single piece of material and having resilient limbs, pole pieces applied to the limbs of the field magnet, an armature mounted between the pole pieces, and adjustable members between the pole pieces upon opposite sides of the armature for spreading the pole pieces apart or permitting them to come together to regulate the air gap.

3. In a magneto generator, the combination of a U shaped field magnet, pole pieces applied to the limbs of the field magnet, an armature mounted between the pole pieces, and an expanding bolt between the pole pieces for spreading them apart or permitting them to come together to regulate the air gap.

4. In a magneto generator, the combination of a U shaped field magnet, pole pieces applied to the limbs of the field magnet, end plates adjustably connected to the pole pieces, an armature journaled upon the end plates, and means for spreading the pole pieces apart or permitting them to come together.

5. In a magneto generator, the combination of a U shaped field magnet, pole pieces applied to the limbs of the field magnet, end plates adjustably connected to the pole pieces, an armature journaled upon the end plates, and an adjustable member between the pole pieces for spreading them apart or permitting them to come together.

6. In a magneto generator, the combination of a horseshoe magnet the limbs of which have a resilient action, a pair of pole pieces, a pair of strips, means cooperating with the pole pieces and strips to clamp the respective limbs of the horseshoe magnet between the same, an armature mounted between the pole pieces, and means between the pole pieces for spreading them apart or permitting them to come together.

7. In a magneto generator, the combination of a field magnet formed of a number of independent horseshoe magnets having resilient limbs and arranged side by side in spaced groups, pole pieces applied to the inner faces of the limbs of the magnets, strips applied to the outer faces of the limbs of the magnets, screws connecting the pole pieces and strips so as to clamp the limbs of the magnet between them, the said screws passing between the groups of the magnets and at the ends of the same, an armature mounted between the pole pieces, and ad-

justable members between the pole pieces for spreading the said pole pieces apart or permitting them to come together.

8. In a magneto generator, the combination of a field magnet, pole pieces for the field magnet, an armature mounted between the said pole pieces and formed of alternate groups of laminæ, the laminæ of one set of groups being constructed with wings for providing the poles of the armature while the laminæ of the opposite set of groups are in the form of circular washers whereby air spaces are provided between the wings, the end laminæ being formed of insulating material, and means for holding the laminæ of the armature together.

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

CHARLES W. WILSON.

Witnesses:

J. A. GLADSON,
J. D. NAVE.