

APPLICATION FILED JULY 6, 1909.

Patented July 26, 1910.

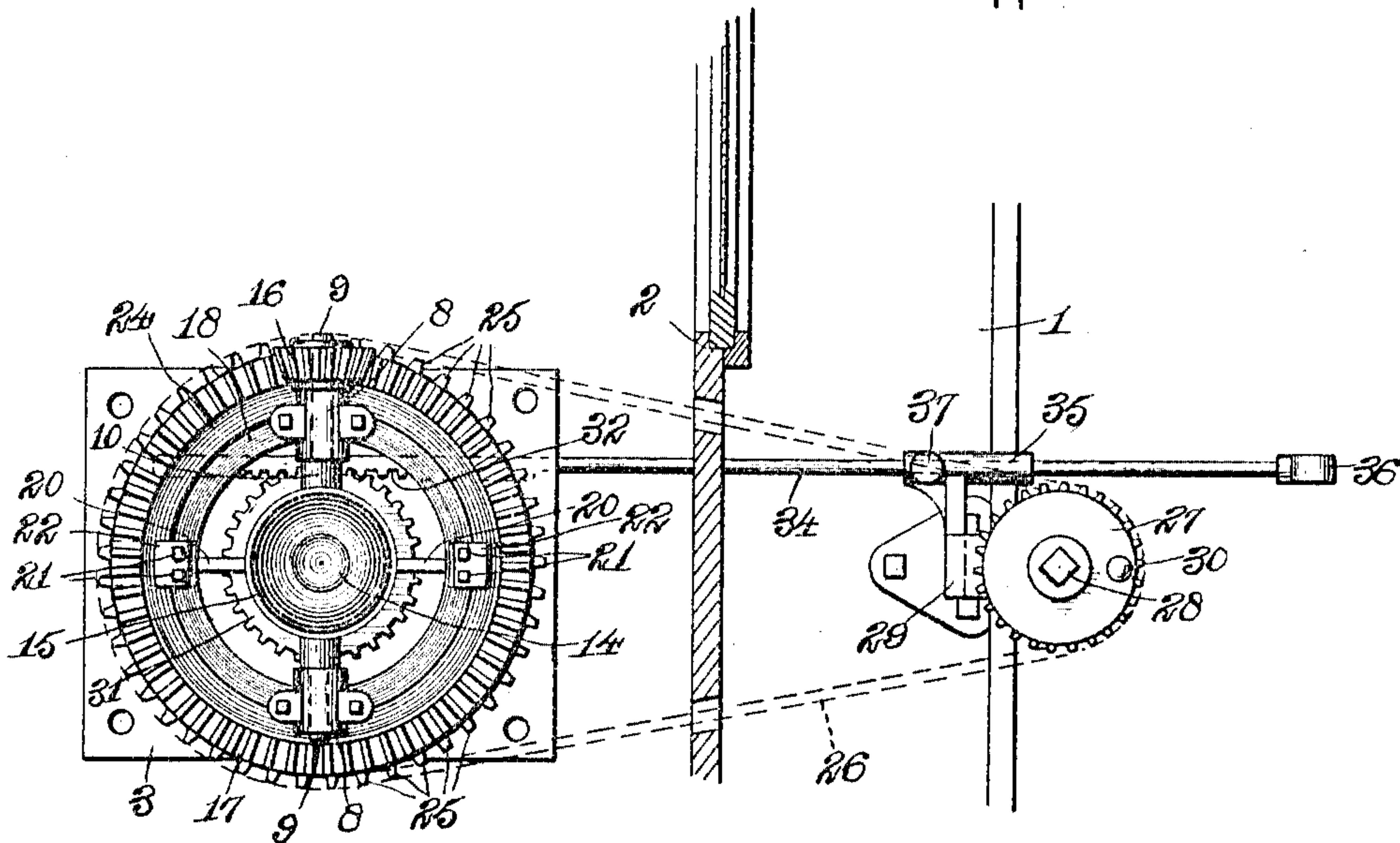


Fig. 2.

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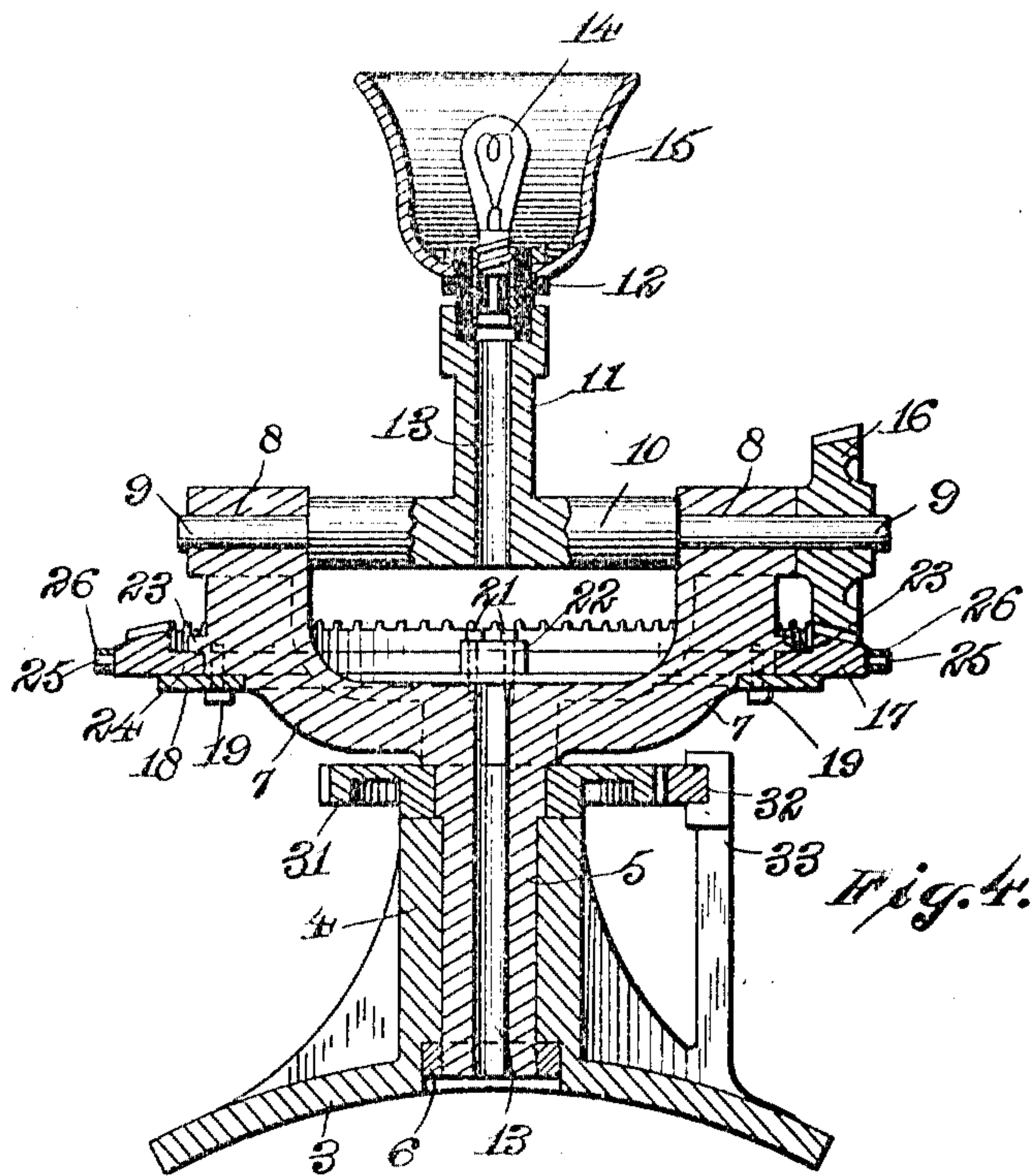
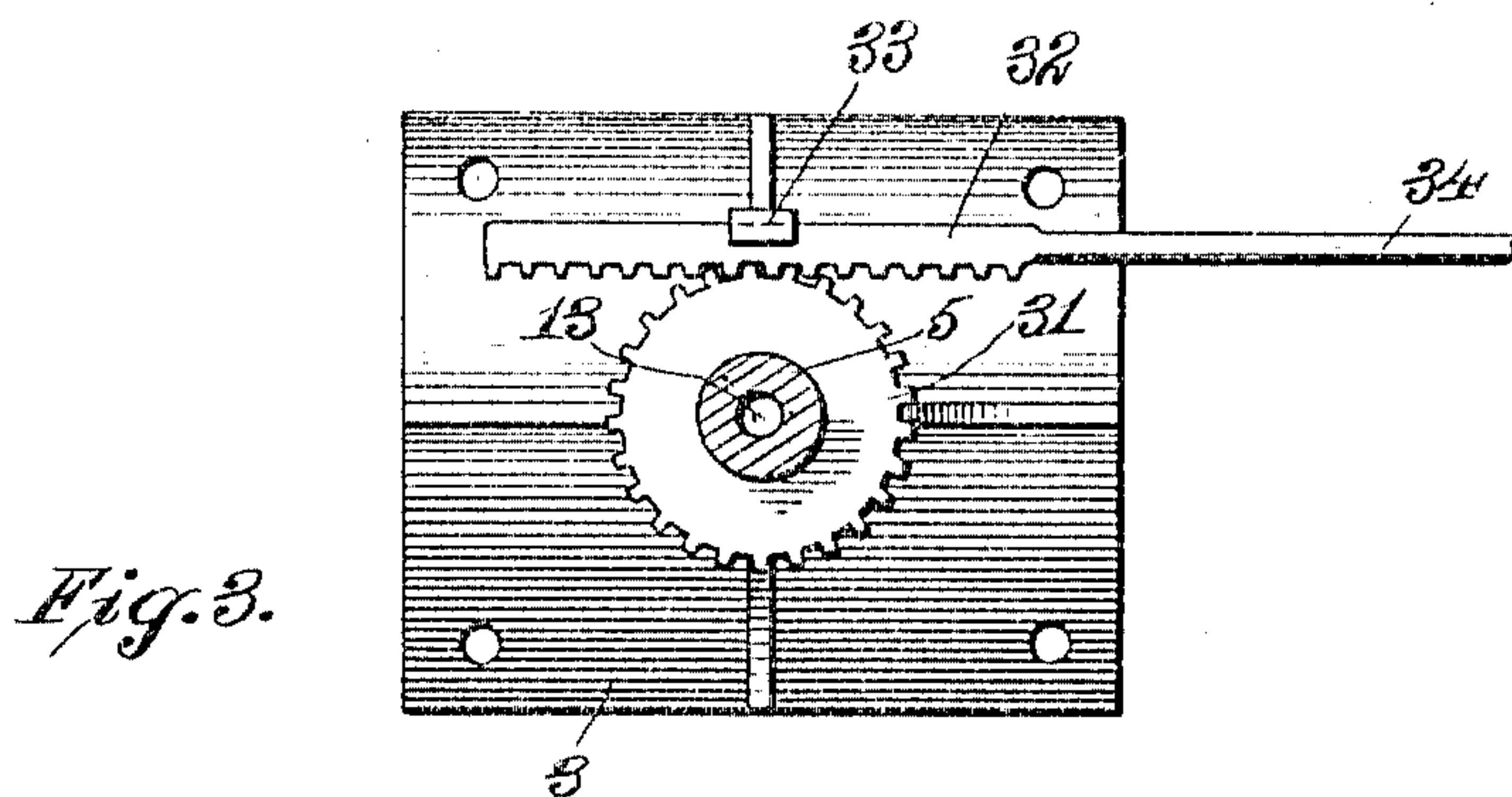
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965,201.

G. LAWRENCE.
SIGNALING DEVICE.
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2 SHEETS—SHEET 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

GEORGE LAWRENCE, OF MELROSE PARK, ILLINOIS.

SIGNALING DEVICE.

965,201.

Specification of Letters Patent. Patented July 26, 1910.

Application filed July 6, 1909. Serial No. 506,221.

To all whom it may concern:

Be it known that I, GEORGE LAWRENCE, a citizen of the United States, residing at Melrose Park, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Signaling Devices, of which the following is a specification.

My invention relates to signaling devices and more specifically to that class thereof in which a pencil of light is the medium employed in effecting the signaling purpose.

The object of my invention is to provide a device adapted for the production of a light pencil as stated, so designed as to be applicable upon railway trains, automobiles, and other similar conveyance in which a danger or other signaling means may be found desirable.

A further object is the provision of a device as stated by means of which the pencil of light may be thrown in any direction and at any angle and whereby a comprehensive signaling code may be compiled.

A further object is to provide a mechanism as mentioned which may be readily and easily operated and which will be comparatively simple and economical of construction.

Other objects will appear hereinafter.

With these objects in view my invention consists in a signaling device characterized as above mentioned and in certain details of construction and arrangement of parts all as will be hereinafter fully described and more particularly pointed out in the appended claims.

My invention will be more readily understood by reference to the accompanying drawings forming a part of this specification, and in which,

Figure 1 is a side elevation of a portion of a locomotive boiler and cab equipped with the preferred form of my signaling device, the cab being shown in section, Fig. 2 is a top plan view thereof, showing the cab in section, Fig. 3 is a horizontal section taken on the line $x-x$ of Fig. 1, and Fig. 4 is a vertical transverse section taken on the line $y-y$ of Fig. 1.

Referring now to the drawings, 1 indicates an ordinary locomotive boiler and 2 the locomotive cab. Rigidly attached to the upper side of the former adjacent the front end of the cab 2 is a metallic base 3 having a vertical socket or bearing 4, into which is fitted for rotary movement, a shaft 5 the

same being secured therein by a nut 6 threaded upon the lower extremity thereof. Extending outwardly and upwardly from the upper end of the shaft 5 are diametrically opposed arms 7—7 in the outer end portions of which are formed axially alining bearings 8—8. Having its reduced end portions 9—9 rockingly mounted in said bearings 8—8 is a shaft 10 formed integral with which is an arm 11 disposed at right angles to said shaft and into the upper end of which is screwed an electric light socket 12 of any well known construction, the electrical connections with which may be made through passages 13 formed in the arm 11 and the shaft 5 for that purpose. An incandescent light bulb 14 may be connected with said socket 12, the light emitted therefrom being reflected by means of a suitable reflector 15. Secured to one of the ends 9 of the shaft 10 is a beveled pinion 16 into which meshes an annular gear 17 supported loosely upon a circular plate 18 which is secured as by bolts 19 to the arms 7—7, as well as to arms 20—20 formed integral with and projecting from the base socket 4 by bolts 21 passing through angular fittings 22—22 resting upon said plate, said fittings serving as bearings for said annular gear. Lugs 23—23, shown in Fig. 4, projecting from the arms 7—7 and overlapping the upper surface of said plate aid in holding said gear in place, the ends of the arms 20—20 and said fittings 22—22 which bear against the inner edge of the ring or inner flange 24 of the gear 17, serving to center the latter.

Upon the periphery of the gear 17 are formed sprocket teeth 25 which are connected, by means of a sprocket-chain 26 to a sprocket-wheel 27 mounted as shown upon a vertical axis 28 carried by a bracket 29 rigidly attached, preferably to the locomotive boiler, within the locomotive cab. A handle 30 secured to and projecting from the sprocket-wheel 27 enables the operator to rotate the latter and hence the gear 17 for the purpose hereinafter stated.

Keyed to the shaft 5 is a gear 31 meshing with which is a rack 32 supported in a suitable bearing guide 33 formed upon and upwardly projecting from the base 3, as clearly shown in Figs. 3 and 4. By means of a rod or stem 34 formed preferably integrally with and rearwardly projecting from the rack 32 through a supporting bearing 35 formed integrally with and laterally projecting from

the bracket 29, said rack, and hence said gear 31 may evidently be operated. To facilitate the actuation of said rod 34, the rearward extremity thereof is preferably provided with a handle or grip 36. A hand screw 37 threaded into the bearing 35 adapted to contact the rod 34, is provided to effect the locking of the latter in any position in said bearing to which it may be adjusted.

10 The operation of the device is as follows: Upon grasping the handle 36 and moving the rack 32, the shaft 5 is caused to rotate, such rotation causing the shaft 10 to be revolved in a horizontal plane, hence the latter may be positioned in any desired angle

15 relative to the line of movement of the vehicle upon which the device is arranged. Assuming that when the rack 32 is in normal position the axis of said shaft is at right angles to the path of the locomotive, it follows that upon grasping the handle 30 and rotating the gear 17 through the medium of the sprocket-chain 26 and sprocket-wheel 27, the shaft 10 may be caused to rotate or to oscillate to any extent desired,

25 thereby moving the signaling lamp accordingly. This would cause the pencil of light thrown from the lamp which is ordinarily directed toward the zenith, to move back and forth in the train of the path of the locomotive. Should the shaft 5 be rotated, the movement of said light pencil desired may be thrown at any desired angle to said path. It follows, therefore, that a pre-arranged

30 code of signals may be utilized to enable locomotive engineers to determine therefrom the relative positions and direction of movement of locomotives on the same or other tracks, which could not be seen by them. For example, a vertical position of a light pencil might indicate the locomotive to be standing upon a side track. If held steadily to the right, that it is standing upon the right hand main track, and if oscillated in

35 a given direction, that it is moving in that direction, upon a given track. The simplicity, accuracy, and effectiveness of such a system would tend to obviate many series of accidents not otherwise avoidable.

40 While I have shown what I deem to be the preferable form of my device I do not wish

to be limited thereto as there might be many changes made in the details of construction and the arrangement of parts without departing from the spirit of the invention comprehended within the scope of the appended claims. And although I have designed my device with special reference to locomotives I may use the same in any other connection to which it is applicable.

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

1. The combination with a railroad locomotive of a base member; a vertically rotatable member mounted in said base member; a horizontally rotatable shaft mounted in said vertically rotatable member; a light and a reflector therefor mounted on said horizontally rotatable shaft and adapted to project a pencil of light upwardly; and means in the cab of said locomotive for adjusting said member and shaft angularly, substantially as described.

2. The combination with a railroad locomotive of a base member; a vertically rotatable member mounted in said base member; a horizontally rotatable shaft mounted in said vertically rotatable member; a light and a reflector therefor mounted on said horizontally rotatable shaft and adapted to project a pencil of light upwardly; a beveled gear fixed to said horizontally rotatable shaft; a beveled gear rotatably mounted on said vertically rotatable member and meshing with said first mentioned beveled gear; sprocket teeth on the periphery of the other bevel gear; a sprocket wheel located in the locomotive cab and a sprocket chain for operating said last mentioned beveled gear; an annular gear fixed on said vertically rotatable member; a slidable rack bar meshing with said annular gear; and means in the locomotive cab for operating said rack bar, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE LAWRENCE.

Witnesses:

HELEN F. LILLIS,
JOSHUA R. H. POTTS.