

No. 633,478.

Patented Sept. 19, 1899.

R. J. NORTHAM & G. E. NOLAN.
COMBINED ELECTRIC MOTOR AND PUMP HEAD.

(Application filed Dec. 20, 1898.)

(No Model.)

2 Sheets—Sheet 1.

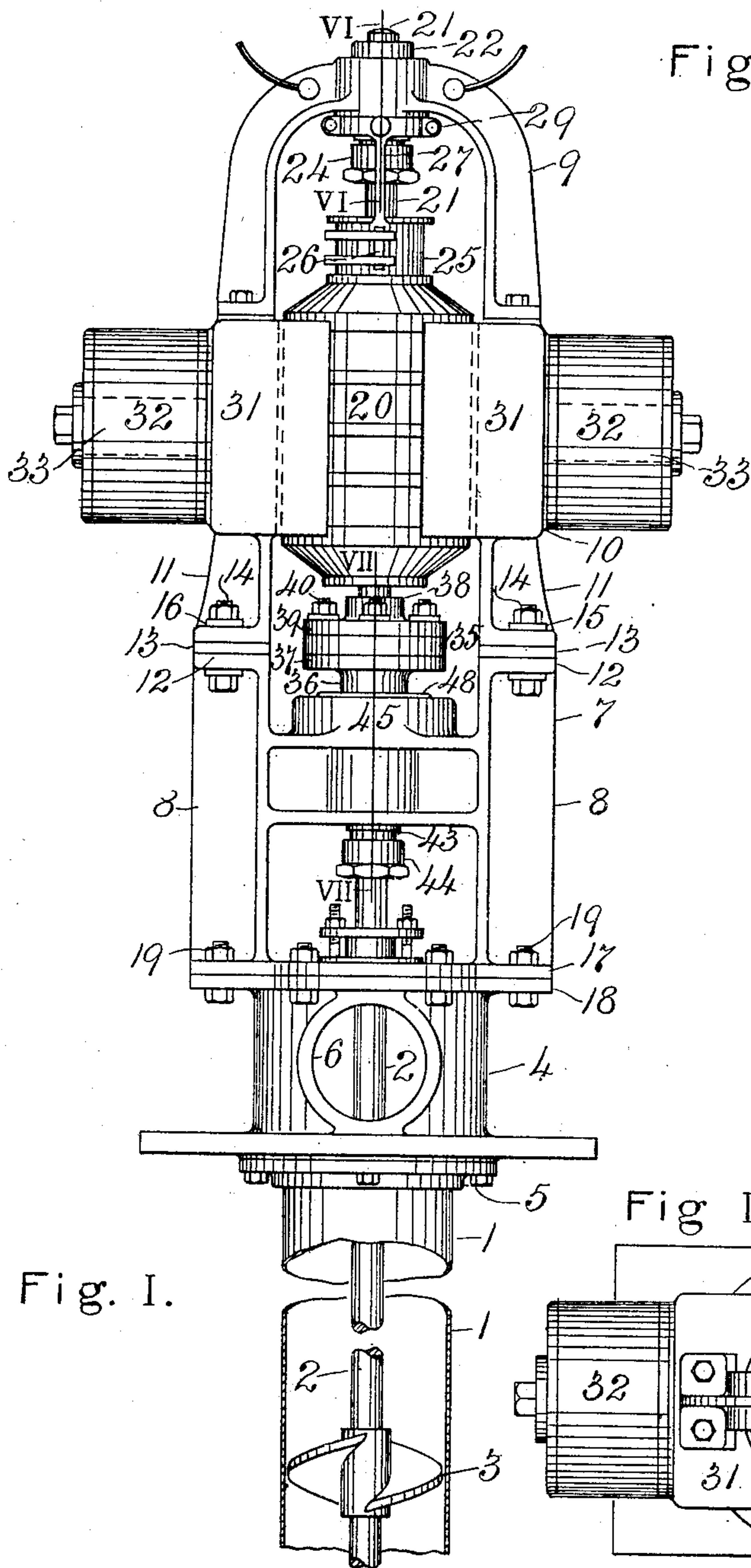


Fig. I.

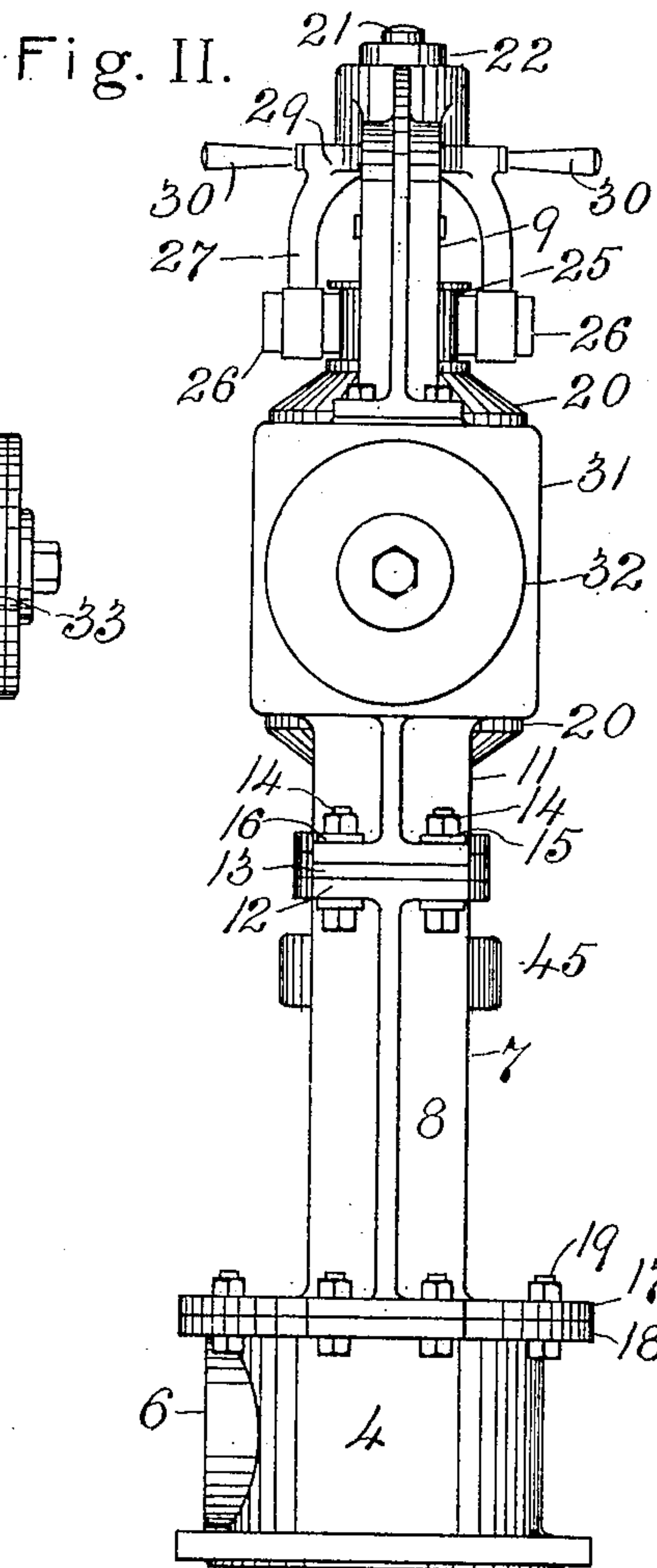


Fig. II.

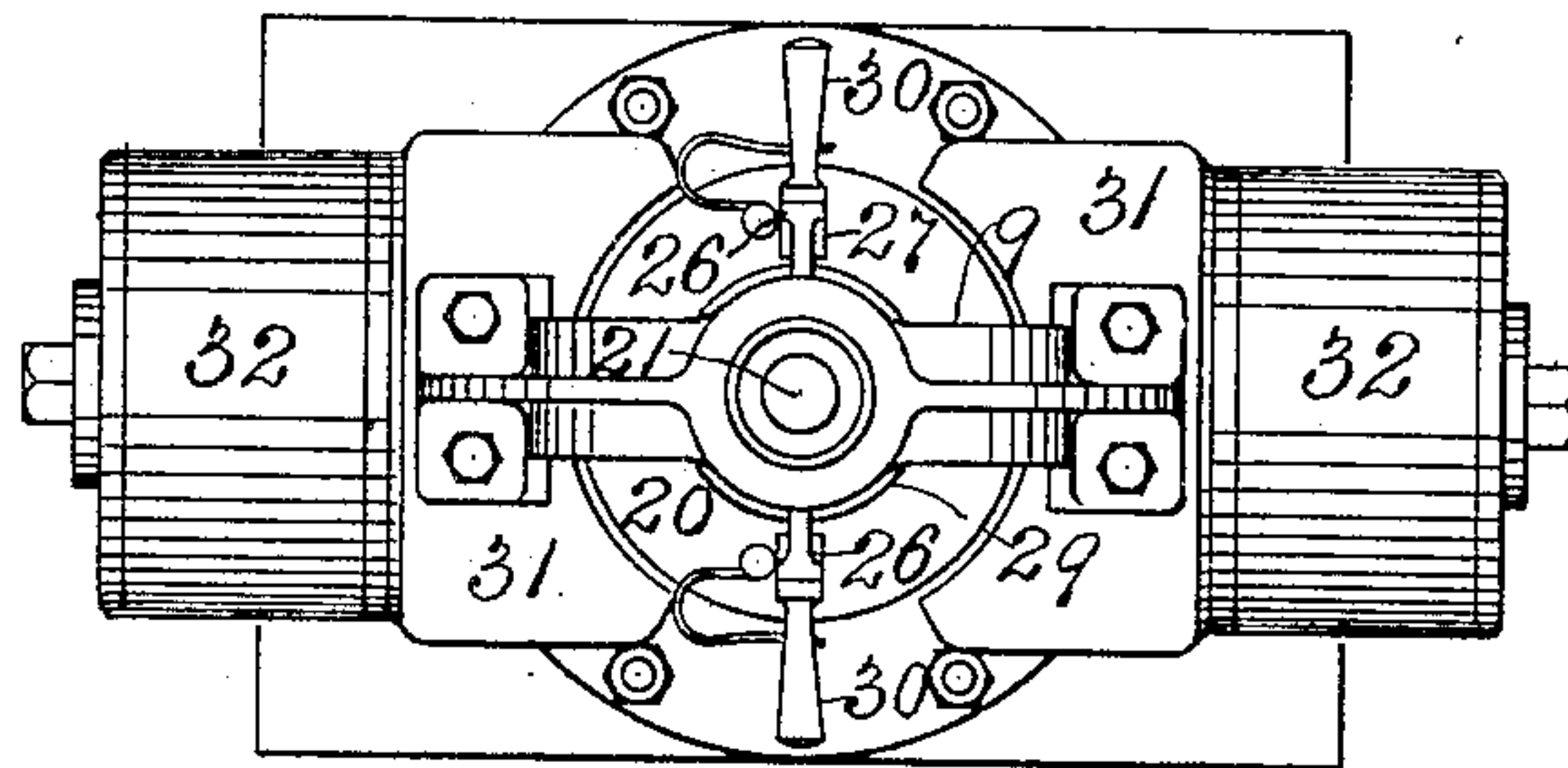


Fig. III.

Witnesses
Henry C. Brock
Olin G. McWain

Inventors
R. J. Northam
G. E. Nolan
BY *Wm. H. Brown*
ATTORNEYS

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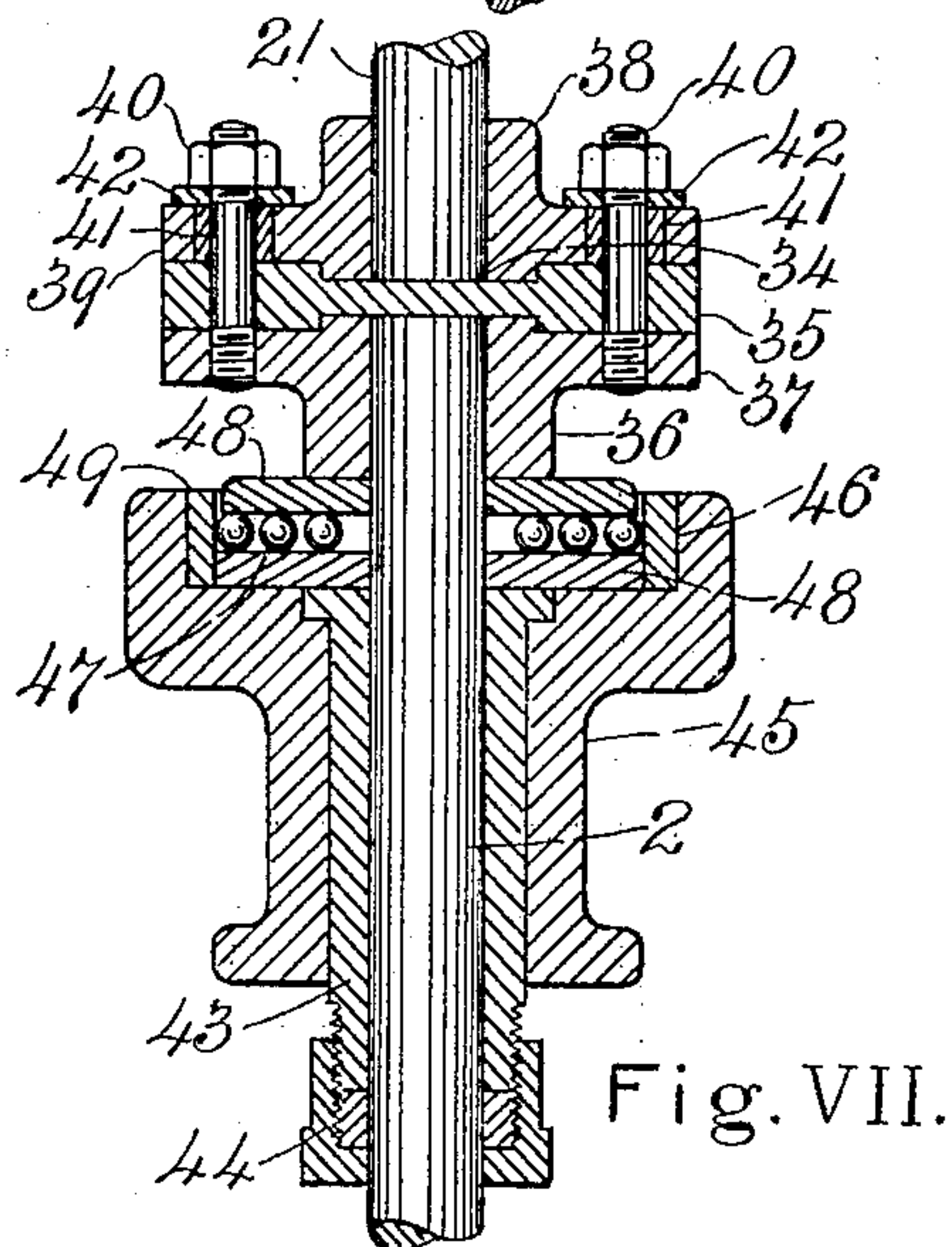
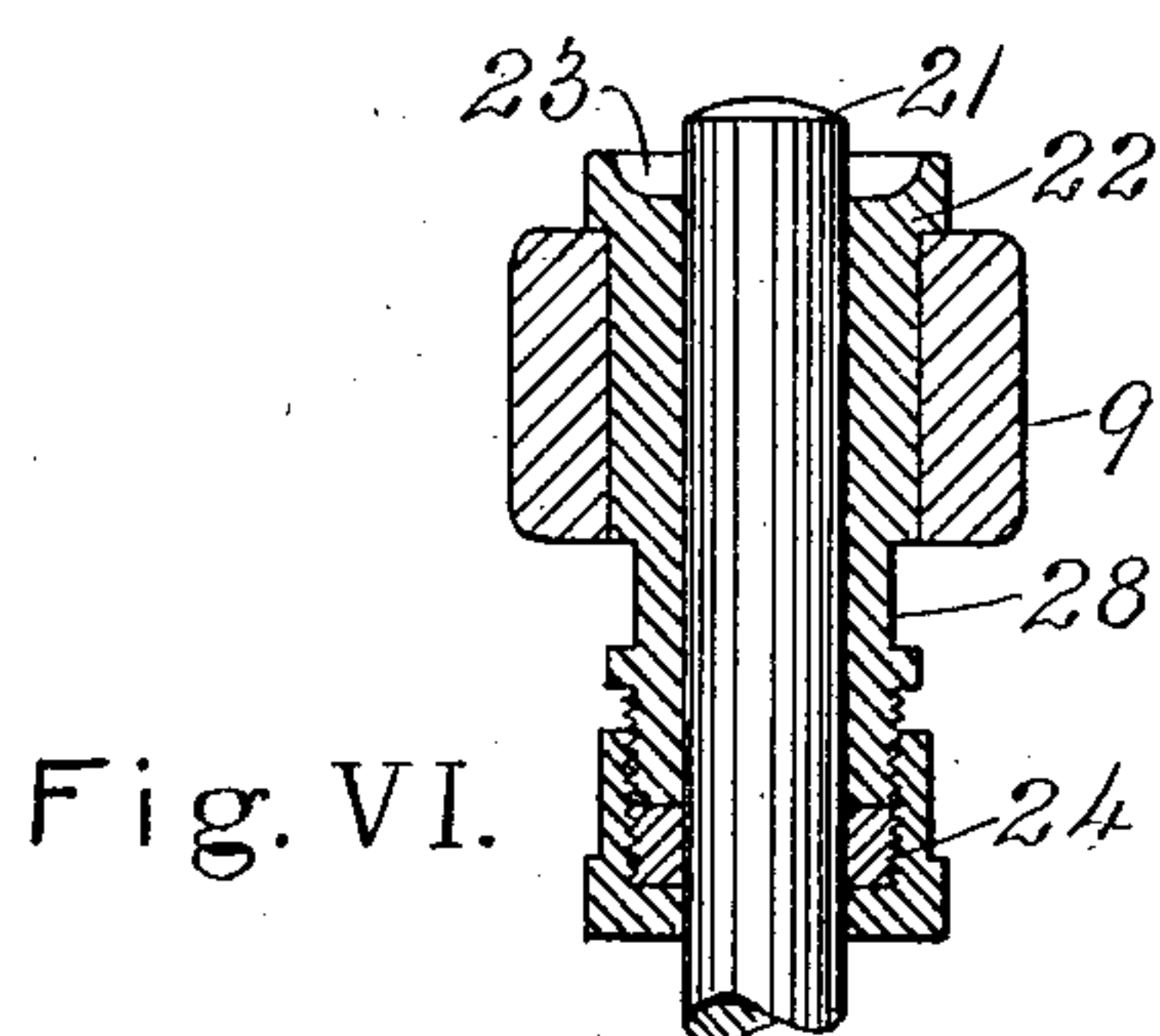
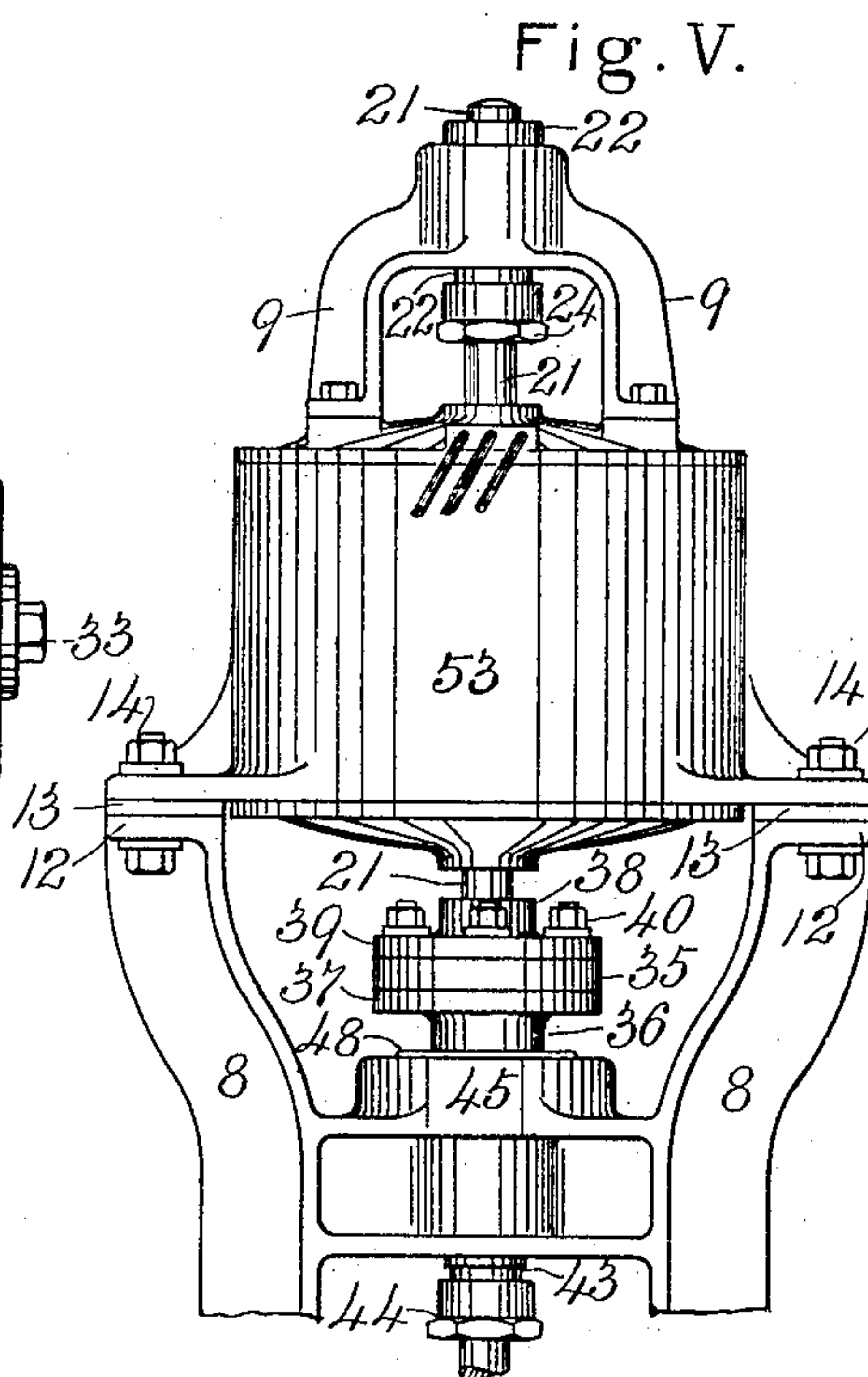
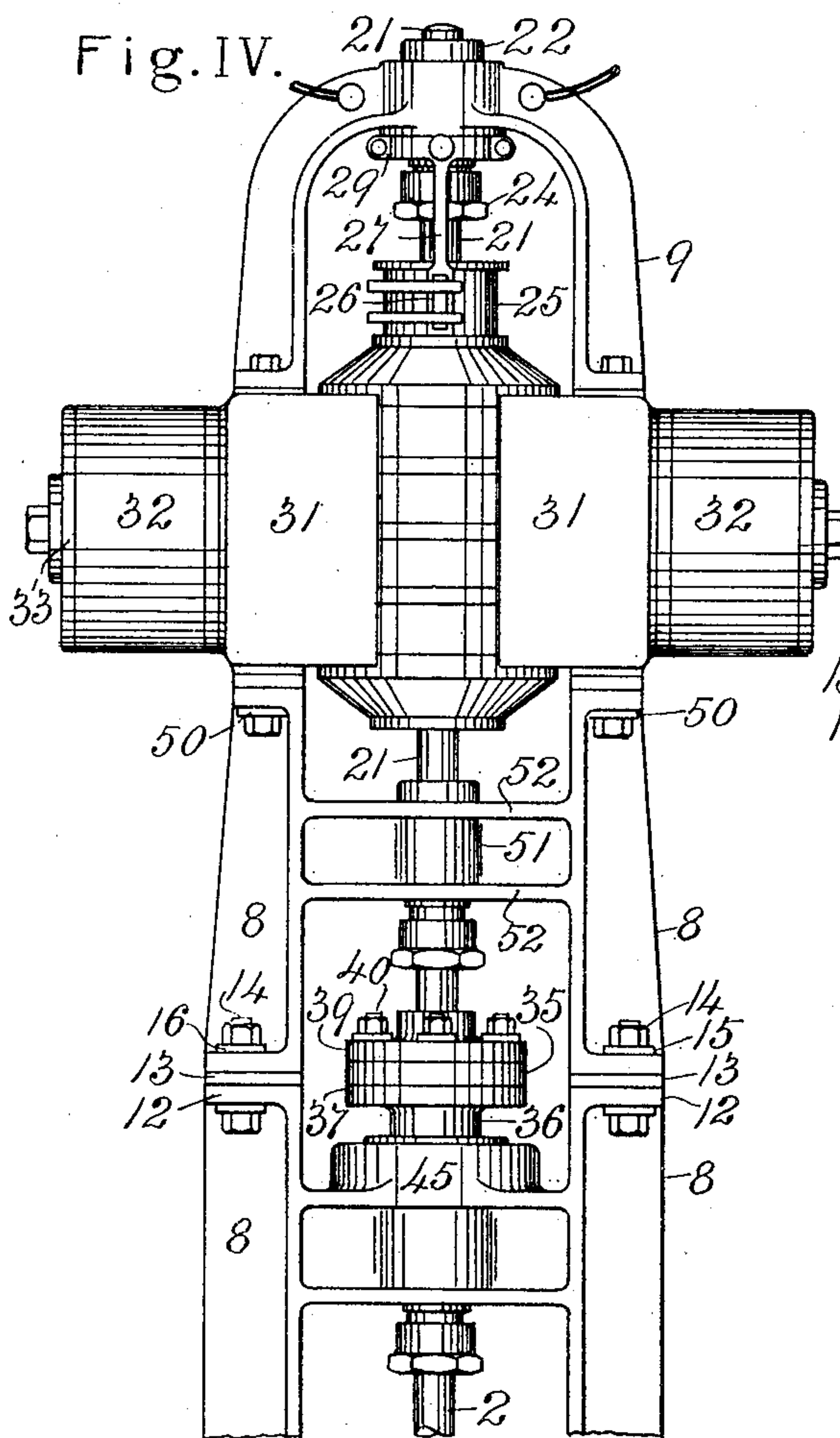
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Witnesses
Henry C. Brett
Olin G. McWain

Inventors
R. J. Northam
G. E. Nolan
BY *Knigh R. R. R.*
ATTORNEYS

UNITED STATES PATENT OFFICE.

ROBERT J. NORTHAM AND GEORGE E. NOLAN, OF LOS ANGELES,
CALIFORNIA.

COMBINED ELECTRIC MOTOR AND PUMP-HEAD.

SPECIFICATION forming part of Letters Patent No. 633,478, dated September 19, 1899.

Application filed December 20, 1898. Serial No. 699,860. (No model.)

To all whom it may concern:

Be it known that we, ROBERT J. NORTHAM and GEORGE E. NOLAN, citizens of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in a Combined Electric Motor and Pump-Head, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

Our invention relates to certain new and useful improvements in combining an electric motor with a pump-head for the purpose of operating the pump; and our invention consists in certain features of novelty hereinafter described and claimed.

Figure I is a front elevation of our improved device, showing a portion of the well-casing in section. Fig. II is a side elevation. Fig. III is a top view. Fig. IV is a front elevation showing a slightly-modified form of frame and bearing. Fig. V is a front elevation showing an alternating electric motor as distinguished from a direct-current motor, as shown in Fig. I. Fig. VI is a vertical section taken on line VI VI, Fig. I. Fig. VII is a vertical section taken on line VII VII, Fig. I.

Referring to the drawings, 1 represents a well casing or pipe, 2 a vertical pump-operating shaft, and 3 a screw or blades for raising water.

4 represents a cylindrical casting secured to the upper end of the well-casing at 5.

6 represents a discharge-port through which the water flows, said port being located in the casting 4.

7 represents a loop-frame consisting of a lower section 8 and an upper section 9.

10 represents the motor, having legs 11, the lower end of said legs being located at 12 on the upper end of the section 8 of the frame.

13 represents an insulation-washer interposed between the legs 11 and the frame 8.

14 represents bolts for securing the frame to the legs, said bolts being insulated from the legs by means of insulation-washers 15 16. The lower end of the frame 8 is provided with a flange 17, which rests upon a flange 18 at the upper end of the cylindrical casting 4.

19 represents bolts for securing said flanges together.

20 represents the armature, and 21 the armature-shaft. The upper end of the armature-shaft 21 is journaled in the frame 9 and is surrounded by a non-conducting sleeve 22, having an oil-cup 23 at its upper end, where-by the shaft 21 may be lubricated.

24 represents a stuffing-box located at the lower end of the sleeve 22 and surrounding the shaft 21.

25 represents the commutator of the armature, and 26 the commutator-brush. The brush is supported by a movable yoke 27, journaled in a recess 28 on the sleeve 22 by means of a collar 29, fitting in said recess.

30 represents handles for adjusting the brush. The armature is vertically suspended within the loop-frame 7 and has its field-cores 31 located on each side of the armature.

32 represents the field-coils located outside of the fields and supported on cores 33 of the fields. The lower end of the armature-shaft 21 extends to a point 34 in close proximity to the upper end of the operating-shaft 2, there being an insulation-disk 35 interposed between the respective ends of the shafts.

36 represents a hub surrounding the upper end of the shaft 2, said hub having a flange 37.

38 represents a hub surrounding the lower end of the armature-shaft 21, said hub having a flange 39, the insulation-disk 35 being interposed between said hubs and flanges.

40 represents bolts for securing the flanges together, said bolts being insulated from the flanges 39 by means of washers 41 42.

43 represents a sleeve surrounding the shaft 2 and having a stuffing-box 44 at its lower end.

45 represents a hub surrounding the sleeve 43, said hub having a cup 46 at its upper end, in which are located bearing-balls 47 and plates 48 49.

In Fig. I we have shown the motor having legs 11, by which it is attached to the frame 8.

In Fig. IV a slight modification is shown, in which the motor is bolted directly to the frame 8, as shown at 50. We have also shown an additional bearing 51 for the armature-shaft, said bearing resting upon cross-bars 52

of the frame 8, thus affording an upper and lower positive bearing for the armature-shaft, while in Fig. I the armature-shaft is supported by the bearing at the upper end of the shaft.

In Fig. V we have shown still another modification, in which the application of an alternating or induction motor 53 is shown connected with the pump-head.

We claim as our invention—

1. In a device of the kind described, the combination of a suitable frame, a pump-shaft journaled in the frame, an electric motor secured to the frame and the shaft of the motor having mechanical connection with the pump-shaft, substantially as set forth.

2. In a device of the kind described, the combination of a suitable frame, a pump-shaft having bearings in the frame, an armature vertically suspended within the frame, the armature-shaft coming in close proximity to the pump-shaft, with suitable insulation material between the ends of the respective shafts, substantially as set forth.

3. In a device of the kind described, the combination of the frame, a pump-shaft, an electric motor, the shaft of the motor being journaled in the frame and an oil-cup sur-

rounding the upper end of the motor-shaft, substantially as set forth.

4. In a device of the kind described, the combination of a suitable frame, an armature journaled in the frame, a pump-shaft, hubs surrounding the lower end of the armature-shaft and the upper end of the pump-shaft, insulation material interposed between the ends of the shafts, flanges on said hubs, bolts for securing said flanges and insulation-washers surrounding said bolts, substantially as set forth.

5. In a device of the kind described, the combination of a suitable frame, an armature supported within the frame, a commutator on the armature, brushes adjacent to the commutator, a yoke for supporting said brushes, an armature-shaft, a collar connected with the yoke and surrounding the armature-shaft, and a recess formed in the armature-shaft for the reception of said collar, substantially as set forth.

ROBERT J. NORTHAM.
GEORGE E. NOLAN.

Witnesses:

PAUL PEIPERS,
JAS. E. KNIGHT.