

J. P. NIKONOW.
 FRAMEWORK FOR TURBINES AND GENERATORS.
 APPLICATION FILED DEC. 29, 1908.

953,487.

Patented Mar. 29, 1910.

3 SHEETS—SHEET 1.

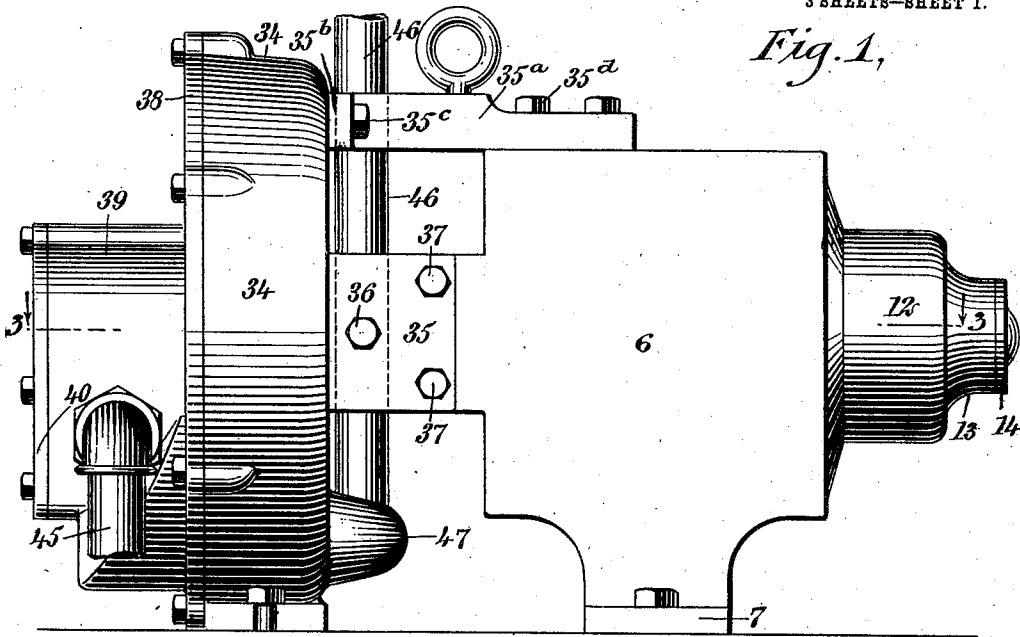


Fig. 1,

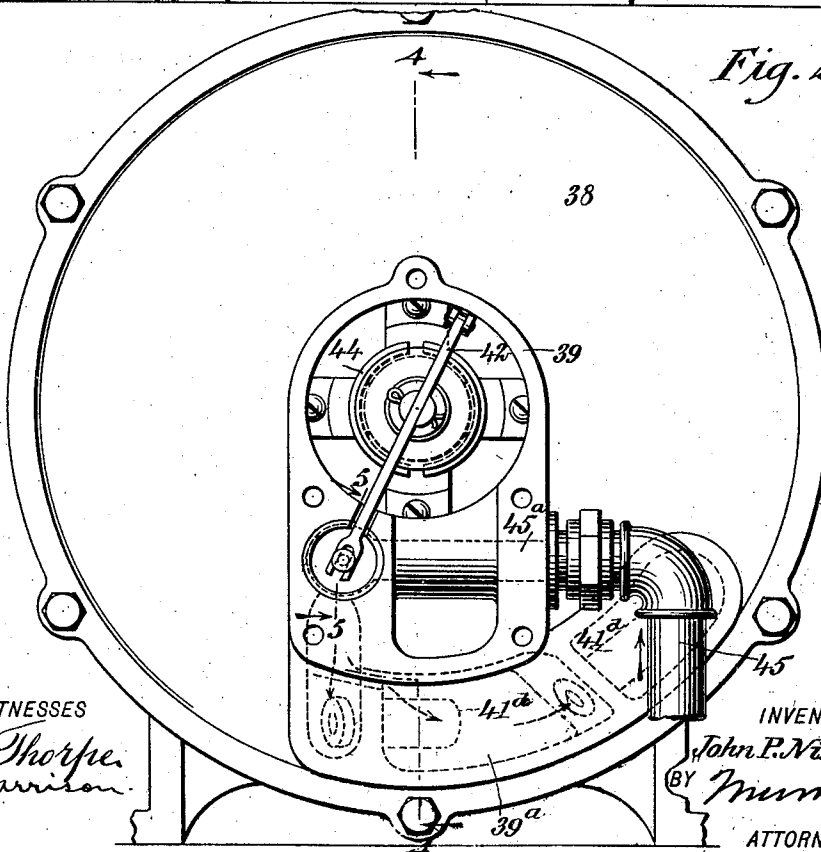


Fig. 2,

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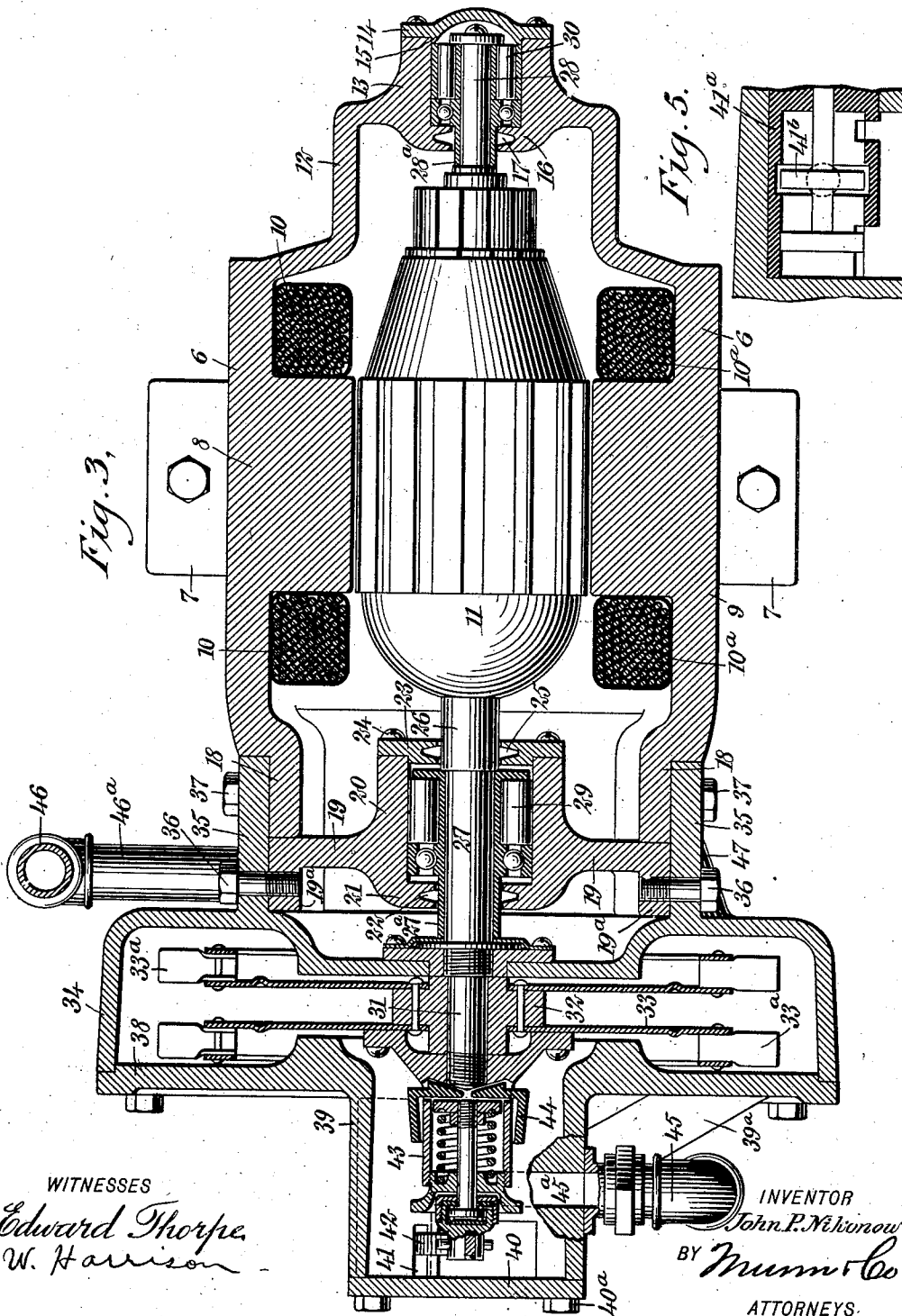
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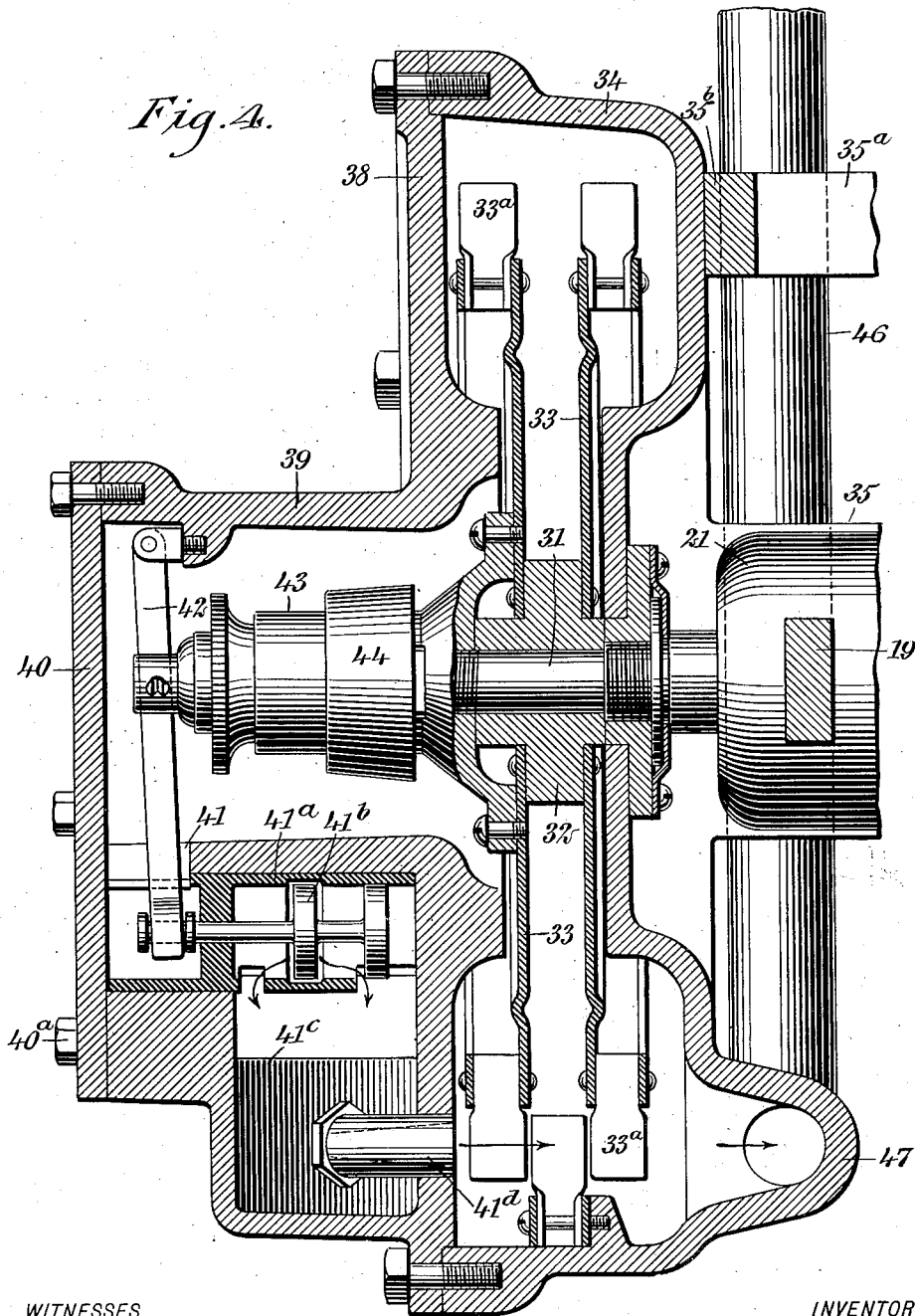
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UNITED STATES PATENT OFFICE.

JOHN P. NIKONOW, OF EVANSVILLE, INDIANA, ASSIGNOR TO SCHROEDER HEADLIGHT COMPANY, OF EVANSVILLE, INDIANA, A CORPORATION.

FRAMEWORK FOR TURBINES AND GENERATORS.

953,487.

Specification of Letters Patent. Patented Mar. 29, 1910.

Application filed December 29, 1908. Serial No. 469,866.

To all whom it may concern:

Be it known that I, JOHN P. NIKONOW, a subject of the Czar of Russia, and a resident of Evansville, in the county of Vanderburg and State of Indiana, have invented a new and Improved Framework for Turbines and Generators, of which the following is a full, clear, and exact description.

My invention relates to generators and turbines for driving the same, my more particular purpose being to provide a suitable framework by aid of which the turbine, the generator and various parts associated with the same, are readily combined into a single machine of compact form.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side view of the turbine and generator complete, this view showing the framework common to both; Fig. 2 is an end elevation showing the device as seen from the left of Fig. 1; Fig. 3 is a horizontal section upon the line 3—3 of Fig. 1, looking in the direction of the arrows, and showing the internal construction of the generator, the turbine and the turbine governor; Fig. 4 is an enlarged vertical section, on the line 4—4 of Fig. 2, looking in the direction of the arrows, through the turbine and parts immediately associated therewith, and Fig. 5 is a fragmentary section, on the line 5—5 of Fig. 2, looking in the direction of the arrows, through the valve controllable by the centrifugal governor for regulating the inflow of the elastic fluid used for driving the turbine.

A generator casing 6 is provided with feet 7 integral with it, and above these feet and disposed internally of the casing are pole pieces 8, 9, integral with the casing. Field windings are shown at 10, 10^a, and encircle the pole pieces 8, 9. At 11 is an armature which is disposed as nearly as practicable intermediate the pole pieces 8, 9. Connected with the casing 6 is a web 12, and integral with this web is an annular bearing sleeve 13, closed by a cap 14, the cap being provided with an annular bead 15 for maintaining the cap in registry with the bearing sleeve 13. This bearing sleeve is provided with a web 16 integral with it and extend-

ing slightly inward, the web having an annular channel 17.

The casing 6 is provided with bearing plates 18 integral with it and engaging these bearing plates is a web 19. This web is provided with a bearing sleeve 20 integral with it and is also provided with a portion 21 turned inwardly, this portion having an annular groove 22. A cap 23 is mounted upon one end of the bearing sleeve 20 and is secured thereupon by aid of screws 24. The cap 23 is provided with an annular channel 25. The armature 11 is supported by an armature shaft 26, the latter being revoluble. This shaft is provided with reduced portions 27, 28, and mounted upon these reduced portions and revoluble with the shaft are bearing sleeves 27^a, 28^a. These bearing sleeves constitute the inner or revoluble members of anti-friction bearings 29, 30, the outer members of said bearings being the bearing sleeves 20, 13. The armature shaft is also provided with a reduced portion 31, and mounted rigidly upon the latter is a hub 32 carrying revoluble disks 33. Vanes 33^a are mounted upon the disks 33.

A turbine casing 34 is provided with bearing plates 35 and these engage the bearing plates 18 and also engage the outer portions 19^a of the web 19. At the top of the machine a bearing plate 35^a, provided with lugs 35^b, is connected to the turbine casing 34 and to the generator casing 6, by bolts 35^c and 35^d. Bolts 36 extend directly through the bearing plates 35 and into the portions 19^a. Bolts 37 extend through the bearing plates 35 and into the bearing plates 18. In this manner the generator casing 6, web 19 and turbine casing 34 are connected rigidly but detachably together.

A head 38, having generally the form of a disk, is provided for the turbine casing 34 and fitted against the same. This head is provided with an extension 39, integral with it, and this extension is closed by a cap 40 secured by bolts 40^a. The extension 39 is provided with a slot 41 through which extends a lever 42. This lever is connected with a governor 43 which is located within the extension 39 and is provided with centrifugally-operated weights 44. A pipe 45 supplies steam or other elastic fluid to the turbine. This pipe registers with a passage 45^a, the latter being in communication with

a valve cylinder 41^a, in which is located valve mechanism 41^b, the latter being connected with the lever 42 and, through the medium of this lever, being under control of the governor 43.

The head 38 is provided with a cored portion 39^a, which is in communication with the valve cylinder 41^a. Disposed below this valve cylinder is a partition 41^c for distributing the steam or other elastic fluid. A jet 41^d extends from the partition 41^c to the head 38. As indicated in Fig. 2, there are two of these jets 41^d. An exhaust pipe 46 is connected with the casing 34, the latter being provided with an extending portion 47 for this purpose.

The operation of my device is as follows: Steam being admitted through the pipe 45 passes through the passage 45^a and into the valve cylinder 41^a, thence passing, as indicated in Fig. 4, downwardly so as to enter the jets 41^d. From here it is discharged into and passes through the turbine casing 34 so as to cause the movable parts contained in the latter to rotate. The steam or other elastic fluid now makes its escape through the portion 47 of the casing 34 and also through the exhaust pipe 46. The armature shaft being thus caused to rotate turns the armature 11 and the current is thus generated.

It will be noted from the foregoing description that the generator casing 6 and the turbine casing 34 are connected together very strongly and compactly, and further that the projecting portion 39 of the head 38 being integral with this head, the entire framework may, for most purposes, be considered as a single casing. It will also be noted that the bearing sleeves 20, 13 are disposed in such position that the bearings are readily accessible, and further that these

bearings are, as far as possible, protected against the ingress of dust and dirt.

It will also be noted that the framework may readily be taken apart, and that the various parts are of comparatively simple construction easy to duplicate or to interchange; further, that these parts may be cheaply constructed and that the complete machine is unusually strong and durable.

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

1. The combination of a generator casing provided with bearing plates integral with it, a turbine casing provided with bearing plates integral with the latter, bolts for holding together said bearing plates of said generator casing and said turbine casing, a bearing sleeve supported by said turbine casing, and another bearing sleeve supported by said generator casing and disposed in alinement with said first-mentioned bearing sleeve.

2. The combination of a turbine casing provided with bearing plates integral therewith and extending therefrom, a turbine casing provided with bearing plates integral with it, means for securing said bearing plates of said turbine casing with said bearing plates of said generator casing, and an additional bearing plate mounted upon the top of said generator casing and provided with a portion secured to the top of said turbine casing.

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

JOHN P. NIKONOW.

Witnesses:

LAURA M. GABERT,
DANIEL M. FAIRCHILD.