June 22, 1926. 1,589,766

A. H. SCHREIBER

PNEUMATIC POWER GENERATOR

Filed Sept. 13, 1923 2 Sheets-Sheet 1

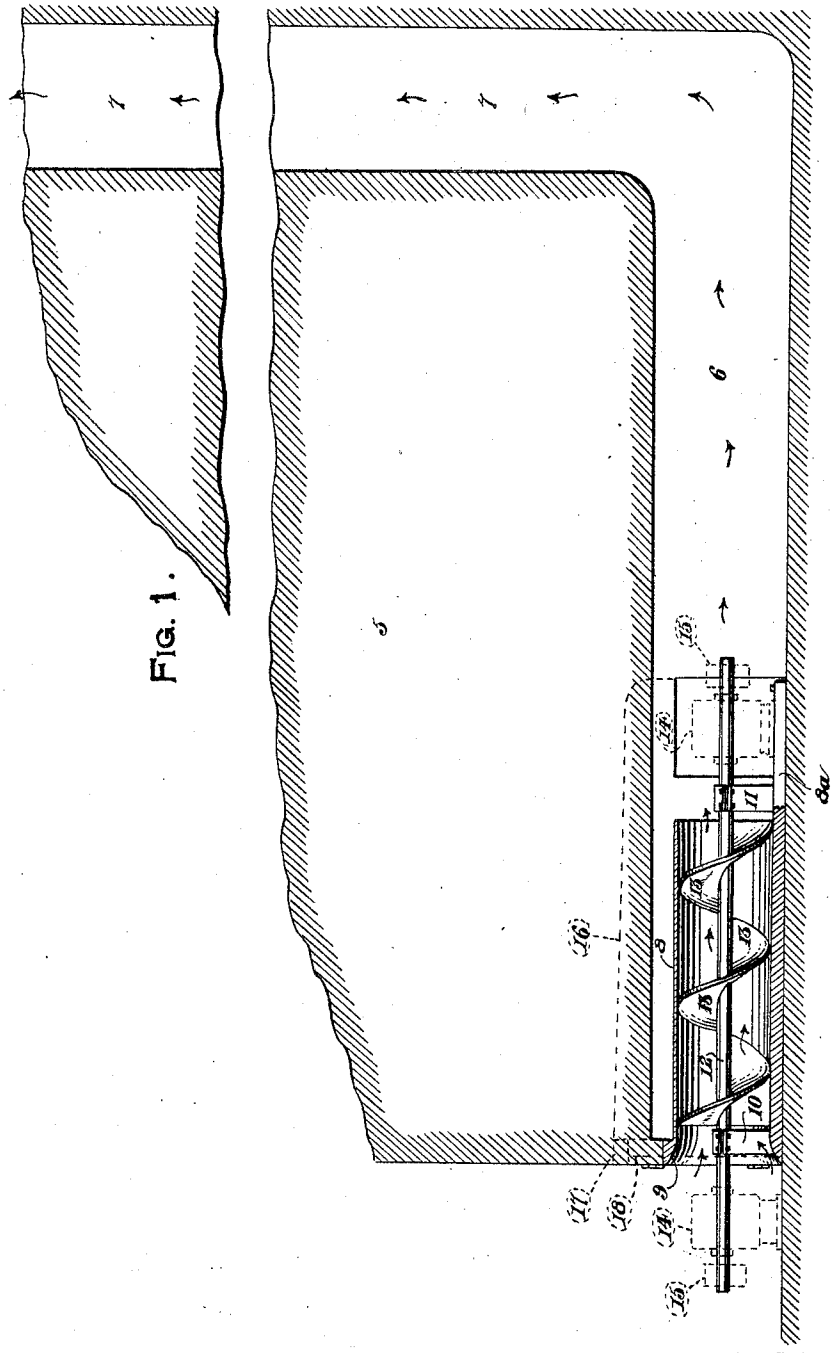


FIG. 1.

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FIG. 2.

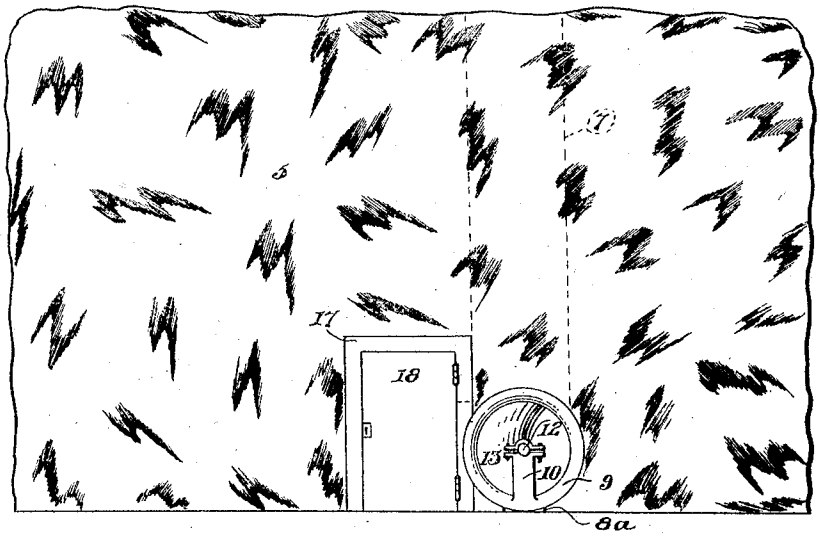


FIG. 4.

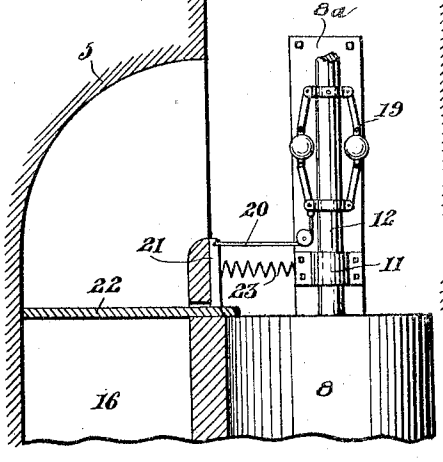
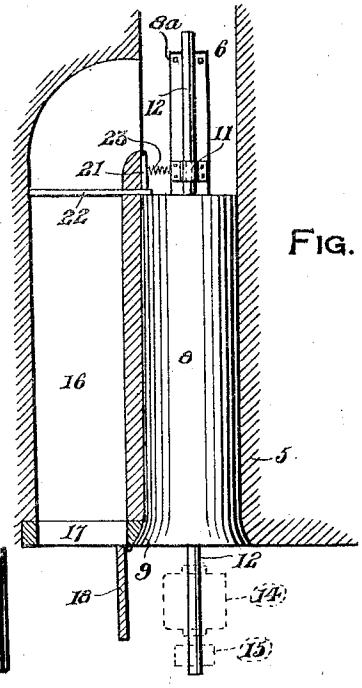


FIG. 3.



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Patented June 22, 1926. 1,589,766

UNITED STATES PATENT OFFICE.

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PNEUMATIC POWER GENERATOR.

Application filed September 13, 1923. Serial No. 662,424.

This invention relates to pneumatically operated power generators.

An important object of the invention is to provide means for producing power by utilizing the natural travel of air through a shaft or other passageway for driving a power generator.

A further object of the invention is to provide means for controlling the speed of the above mentioned generator for better enabling the power created thereby to be used for different purposes.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate like parts throughout the same,

Figure 1 is a vertical sectional view, partly in elevation, of a passageway formed in the side of a hill or mountain with the power generator properly positioned therein,

Figure 2 is a fragmentary front elevational view of the hill or mountain with the power generator associated therewith,

Figure 3 is a horizontal sectional view, partly in elevation, of the passageway and power generator with a by-pass associated therewith, and

Figure 4 is a fragmentary horizontal sectional view, partly in elevation, showing a governor controlled valve for the by-pass.

In the drawings, wherein for the purpose of illustration is shown a preferred embodiment of this invention, the numeral 5 designates a fragmentary portion of a hill or mountain with a passageway formed therein that consists of a horizontal shaft portion 6 which communicates with a vertically extending shaft portion 7. It is to be understood that this passageway may be in the form of a vertically extending stack with a horizontally extending shaft communicating therewith. Associated with the mouth of the horizontally extending shaft 6 is a tubular air confining element 8 having a flared mouth portion 9 which is associated with the outer end of said shaft. Secured to the inner bottom face of this tubular air confining element is a journal bearing support 10 while the inner end of the lower wall of the element 8 is extended to form a platform portion 8^a upon which is mounted a second journal bearing support 11. Rotatably mounted in these journal bearings is a horizontally extending shaft 12 having suitably secured thereto a spirally formed blade 13 which is adapted to be engaged by the natural travel of air through the tubular element 8 and shaft portions 6 and 7. This shaft 12 is extended outwardly at both ends beyond the journal bearing supports 10 and 11 for accommodating dynamos 14 and pulleys 15 from which different forms of power may be taken.

In Figs. 2 to 4 inclusive, there is shown the by-pass 16 having a mouth portion 17 which is positioned laterally in proximity to the mouth of the horizontally extending shaft 6 and having a door 18 which is intended to be used as a valve element for regulating the amount of air that will pass inwardly through the said mouth 17. The inner end of this by-pass 16 communicates with the horizontally extending shaft portion 6 inwardly of the tubular air confining element 8 for permitting a desired amount of air to pass through the by-pass into the horizontally extending shaft portion 6 without traveling through the tubular element 8. A certain amount of the air which will naturally travel through this passageway may be converted around the power generator by this construction for varying the speed of the shaft and spirally formed blade 12 and 13 respectively.

If desired, the inner end of the shaft 12 may be provided with a governor 19 having connected thereto a flexible cable or chain 20 which is connected at its free end to an arm 21 carried by a sliding valve element 22 which is adapted for being shifted to control the amount of air passing through the tubular air confining element 8 or to completely shut off the by-pass 16 thereby providing means for governing the speed of the shaft 12. A spring element 23 is provided for normally retaining the sliding valve 22 in a position for closing the by-pass 16. It will be seen by this construction that when the by-pass is closed by the valve 22, the inner end of the tubular air confining element 8 is open for allowing the air to travel therethrough.

When the valve element 22 is in the position shown in Figs. 3 and 4, the by-pass 16 is completely shut off so that the full power of the air in passing through the tube 8 is completely utilized in driving the spiral blades 13 and shaft 12. It is not the intention to completely shut off the flow of air

through the tube 8 at any time, but only to close the same partially at the outlet end of the tube to control the amount of air passing therethrough and thus regulate the speed of rotation of the shaft 12. The present disclosure is intended only to regulate the speed. Therefore, the draft is not interfered with and the device is continuous in operation. Also, the utility of the by-pass and valve member that partially closes the outlet end of the passage should be appreciated, especially in such installations where the generator is disposed at the exhaust or outlet of a furnace or the like, and wherein an unobstructed outlet for the furnace or the like must exist.

It is believed that the operation and construction of the pneumatically operated power generator embodying this invention will be completely understood from the above detail description and accompanying drawings. It is to be understood, however, that the form of this invention herewith shown and described is to be taken as the preferred example of the same, and that various changes in the shape, size, and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described the invention, I claim:—

1. In a power generator of the type described, the combination with a passage way formed by a horizontal and a vertical shaft communicating with each other forming an air draft passage, of an air propelled element at the mouth of the horizontal shaft, means for confining the air passing through the last mentioned shaft to the zone occupied by said element, a by-pass communicating at its inner end with the horizontal shaft inwardly of said element, and a sliding plate valve operated by the speed of said element for partially closing and completely opening the passage for air through the horizontal shaft and for partially opening and completely closing the by-pass.

2. In a power generator of the type described, the combination with a passage way formed by a horizontally extending and a vertically extending shaft communicating with each other and forming an air draft passage, of an air propelled element adapted to be propelled by said air positioned at the mouth of the horizontal shaft, a by-pass communicating at its inner end with the horizontal shaft inwardly of said air propelled element, a manually operated valve element associated with the mouth of said by-pass for varying the amount of air admitted thereto, and a second valve element associated with the inner end of said by-pass and the horizontal shaft inwardly of said air propelled element, and a speed governor associated with said air propelled element for regulating the speed of the latter by controlling the relative amount of air passing through the by-pass and said air propelled element.

3. In a power generator of the type described, the combination with a passage way formed by a horizontal and a vertical shaft communicating with each other and forming an air draft passage, of a tubular air confining element positioned in the mouth of the horizontally extending shaft, a rotatable shaft extending longitudinally through the air confining element, a spirally formed blade mounted upon said rotatable shaft adapted to be engaged by the air traveling through said confining element, a by-pass around the portion of said horizontally extending shaft communicating therewith inwardly of the tubular air confining element, and a sliding plate valve operated by the speed of the rotatable shaft for controlling the relative amount of air passing through the by-pass and the horizontal shaft.

In testimony whereof I affix my signature.

AUGUST H. SCHREIBER.