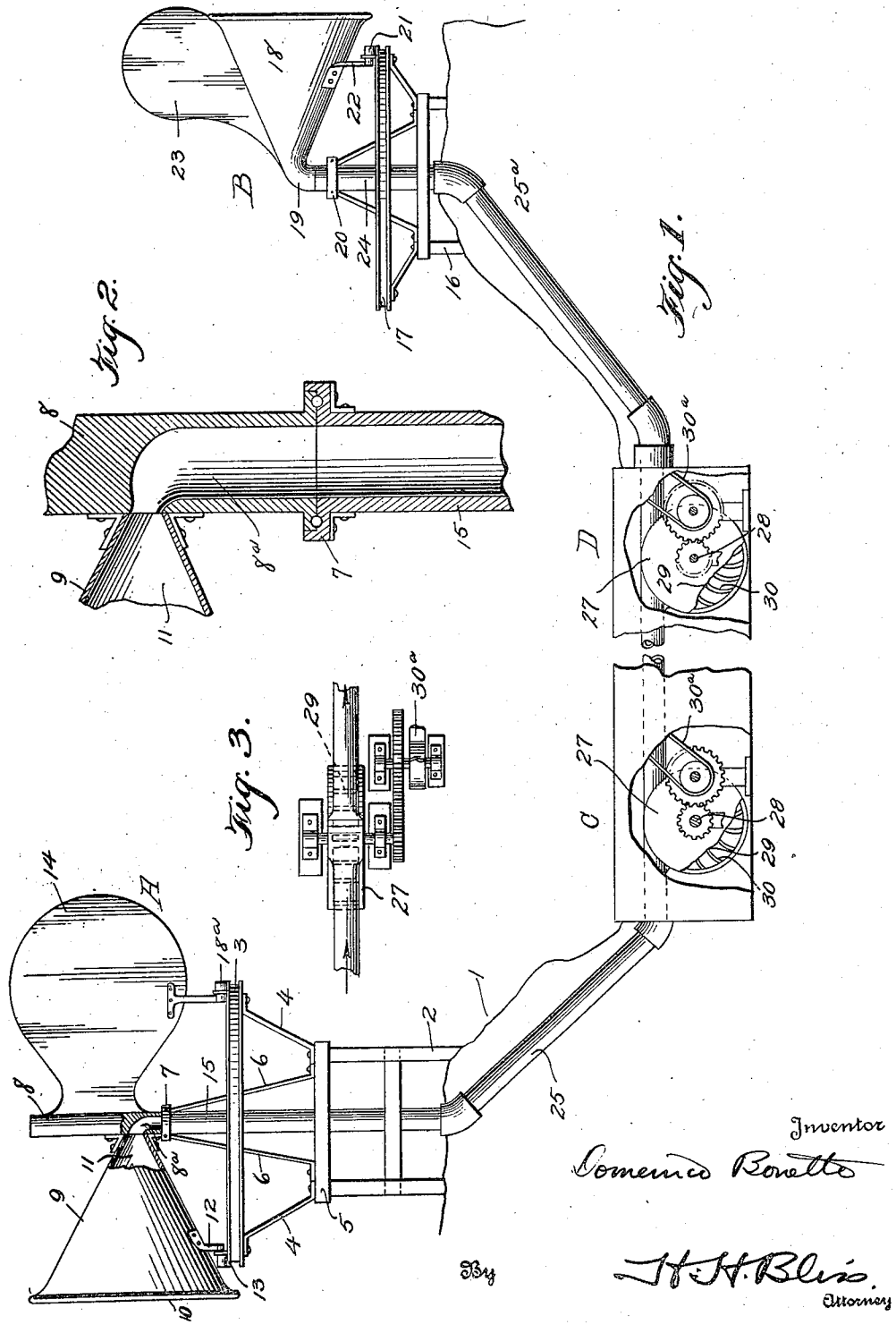
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FLUID MOTOR SYSTEM

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UNITED STATES PATENT OFFICE.

DOMENICO BONETTO, OF ROANOKE, ILLINOIS.

FLUID-MOTOR SYSTEM.

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To all whom it may concern:

Be it known that I, DOMENICO BONETTO, a citizen of the United States, residing at Roanoke, in the county of Woodford and State of Illinois, have invented certain new and useful Improvements in Fluid-Motor Systems, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to apparatus for deriving power from a fluid, such as air, in motion; and relates more particularly to the apparatus in which the fluid is collected and conveyed to one or more points where its motion can be translated into the movements of motor parts adapted to perform work.

The object of the invention is to provide a mechanism whose component parts are so positioned and related that from a fluid passing a certain region a volume can be collected and condensed, and then carried to one or more points where it is desired to derive power therefrom to actuate fluid motors of any suitable form.

In the drawings:

Fig. 1 shows one form of apparatus embodying my invention.

Fig. 2 is a vertical section of the air receiving apparatus.

Fig. 3 is a plan view of the parts at a power station.

I have illustrated my invention as being applied to mechanisms adapted to air currents; but it will be understood that I do not limit myself to this particular fluid and that modifications of the structures in a great many details can be made without departing from the spirit or scope of the invention.

A indicates a station at the end of the system where the fluid, in this case air, is collected and condensed; and B indicates the station at the end of the system where the air, after it has performed its work, is exhausted into the atmosphere.

These stations are preferably located at, or near, the summits of topographical elevations, and, at points as near as possible to the places where it is desired to derive and use the power. As shown, station A is situated on the top of a natural elevation 1. This station comprises a supporting framework 2, of any suitable construction and built on a firm foundation. The supporting framework carries a circular track 3, secured by a plurality of braces 4, to cross-bars 5 of the framework. The uprights 6 secured at their lower ends to the framework 2, support at their upper ends a collar 7 which forms a bearing support for a shaft 8, having a central longitudinal duct 8^a extending upward for some distance from its lower end. 9, is a large funnel element having its mouth 10 remote from the shaft 8, to which it is rigidly secured at its throat part 11, the latter registering with a radial aperture in the wall of the hollow part of the shaft at the upper end of the duct 8^a.

The funnel 9 is supported near its outer end by a roller 13 mounted on a bracket 12 which is secured to the funnel, the roller traveling upon the circular track 3.

A vane 14 is rigidly secured to the shaft 8 in the vertical plane which passes through the axis of the funnel 9, and projecting oppositely from the funnel. 18^a is a roller for supporting the vane on the track 3.

From the above it will be seen that the shaft 8 together with the funnel 9 and the vane 14 are rotatable around the axis of the shaft and are supported at a central point by the bearing collar 7 and at points remote from the collar by the rollers 13 and 18^a.

A pipe or tube 15 extends vertically downward from the collar 7 toward the ground line. At the collar 7 this pipe 15 makes a tight connection with the lower end of the shaft 8, thus furnishing a continuous passage with air-tight walls from the mouth 10 of the funnel through the throat 11 into the upper end of the duct 8^a in the shaft and thence downward into and through the pipe 15.

Station B which should also, preferably, be located at or near the summit of an elevation, is similar in construction to station A; but as shown, it need not be constructed as high above the ground as the receiving station. It has the supporting framework 16, the circular track 17 and the discharge funnel 18, terminating at its smaller end in the throat 19. 20, is a bearing collar similar to that at 7, supporting, rotatably, the lower end of the vertical portion of the throat part 19. A roller 21 on the bracket 22, rigidly secured to the funnel 18, travels on track 17 and furnishes a support for the moving parts remote from the axis of the collar 20. 23 is a vane secured to the funnel 18 and positioned in the vertical plane passing through the horizontal axis of the funnel. 24 is a pipe extending from the collar 20 to-

ward the ground line and making an air-tight connection at the collar with the throat 19 of the funnel 18.

25, 25ª are pipes connected in a suitable manner to those at 15 and 24, the former leading from the receiving station to the first fluid motor and the latter leading from the last fluid motor to the discharge station at B.

C, and D, are stations where fluid motors of any suitable sort are positioned. I have shown motors of simple character comprising "over-shot" wheels 27, 27, each mounted on a shaft 28 and each having radial blades 29 with spoon-shaped ends 30. By means of suitable gearing the rotation of a wheel 27 caused by the impact of the air on its blades 29 is translated into power at the belt wheel 30ª.

The operation of the devices for collecting, condensing and carrying the air to the motors will be readily understood from the above description and from the drawings. The vane 14 at station A will hold the funnel 9 in a position facing the direction from which the wind is blowing. The air which passes into the funnel 9 is condensed, to a great extent, as it passes from the mouth 10, toward the throat 11. And the velocity with which it passes through the throat is greatly increased over that which it initially had. It is then carried through the pipes 15 and 25 and through the fluid motor stations C and D, where its motion is translated into movements of the motor elements. From the last motor station it passes through the pipe 25ª to the discharge station B. At this station the vane 23 holds the funnel 18 so that its mouth faces the direction towards which the wind is blowing.

As the outside air passes the funnel 18 there is a tendency to create a vacuum at points in the vertical transverse plane of the mouth and within the outlines of the latter, and this condition materially aids in the exhausting of the air from the interior of the funnel and offsets to a great extent the resistance to the flow of the air in the portions of the ducts near the discharge end of the system.

Both of the funnels 9 and 18, being rotatably mounted, are free to swing with the wind as it changes in direction; and, as described above, the vanes 14 and 23, hold the funnels which they respectively control, in the proper positions for the receiving and discharging of the air.

The fluid motor stations may be arranged in series, as shown in Figure 1; or, if desired, the ducts may be so arranged that the motor stations can be fed in parallel.

It will be understood that many modifications in the arrangement of the component parts of the apparatus may be made in order to adapt it to different topographical conditions and to different requirements incident to the locations of the motors, etc.

What I claim is:

1. In an apparatus of the class described, the combination with an air motor, of a self-adjusting funnel adapted to be held in such position that its mouth will face the direction from which air is moving, an airtight passageway for conducting the air collected in the funnel to the motor, a second passageway to conduct the air from the motor, and means independently adjustable as to the direction of discharge for discharging the air from the second passageway into the atmosphere.

2. In an apparatus of the class described, the combination with an air motor, of a self-adjusting funnel for receiving air from the open atmosphere and condensing it while in motion, an airtight passageway leading from said funnel to the motor, a second funnel, a second passageway for conducting the air from the motor to said second funnel, and means on the second funnel for retaining it in a position opposite to the position of the first said funnel relatively to the movements of the air.

3. In an apparatus of the class described, the combination with an air motor, of means to collect moving air from the open atmosphere and simultaneously condense said air while in motion, a passageway of reduced area relative to that of the funnel-mouth and leading from the funnel to the motor, a second funnel, a second passageway leading from the motor to the second funnel, and means for holding said funnels respectively and independently in proper positions for receiving and discharging the air which passes through the motor.

4. In an apparatus of the class described, the combination with an air motor, of a funnel positioned with its axis approximately horizontal and adapted to rotate around a vertical axis near its apex, a second funnel having its axis horizontally disposed and adapted to rotate independently of said first funnel around a vertical axis near its apex, an airtight passage leading from the first of said funnels to the motor, and a second airtight passage leading from the motor to the second of said funnels.

5. In an apparatus of the class described, the combination with a funnel-shaped air collecting device rotatably mounted on a central supporting shaft, of a funnel-shaped discharging device rotatably mounted on a second supporting shaft, means on each of said collecting and discharging devices to hold them in the proper respective positions relative to the direction in which the air is flowing, an air motor, and means to conduct the air to and from said motor.

6. In an apparatus for collecting, conducting, and discharging currents of air from

the open atmosphere, the combination with an air motor, of a funnel-like air receiving device adapted to be automatically adjusted to have its receiving end positioned toward the advancing air, a second funnel-like discharging device adapted to have its discharge end automatically and independently adjusted to have its discharging end positioned away from the advancing air, and passages for conducting and distributing the air communicating with both said funnels.

7. In an apparatus of the class described, the combination with a fluid motor, of an adjustable fluid-collecting device and a separate and independently adjustable fluid discharge device and means for establishing fluid communication between said devices and said motor.

8. In an apparatus of the class described, the combination with a fluid motor, of an adjustable fluid-collecting device and a separate and independently adjustable fluid-discharge device mounted in different horizontal planes and means for establishing fluid communication between both of said devices and said motor.

9. In an apparatus of the class described, the combination with a fluid motor, of an adjustable fluid-collecting device, and a separate and independently adjustable fluid suction and discharge device, and means for establishing fluid communication between said devices and said motor.

In testimony whereof, I affix my signature.

DOMENICO BONETTO.