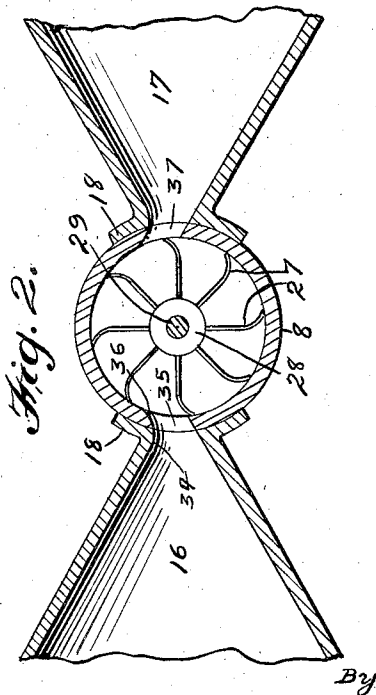
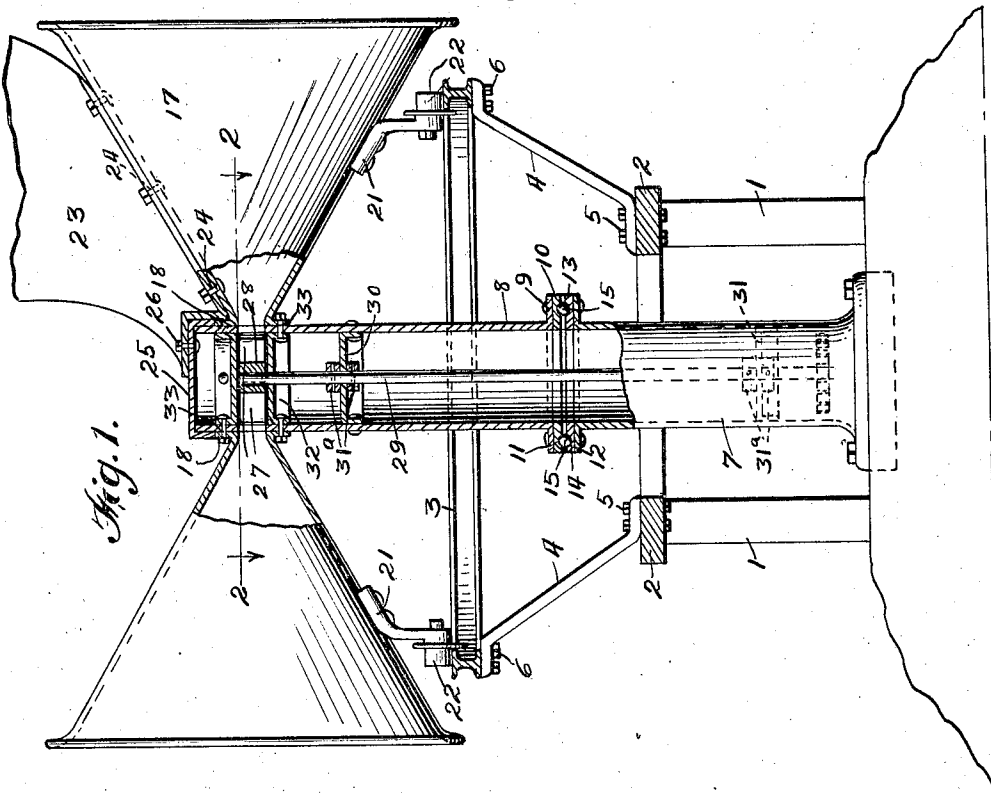


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FLUID MOTOR SYSTEM
Filed Aug. 5, 1921



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FLUID-MOTOR SYSTEM.

Application filed August 5, 1921. Serial No. 490,077.

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 means for collecting and condensing the fluid so as to increase its velocity at the points where it passes the motor element of the mechanism.

One object of the invention is to provide an apparatus whose component parts are so positioned and related that from a fluid passing a certain region a volume can be collected and condensed; and, while so collected and condensed, can be utilized to furnish power.

Another object of the invention is to provide an apparatus of the above class in which all of the parts are mounted in one compact structure so that the resistance to the flow of the fluid will be reduced to a minimum.

In my co-pending application, Serial Number 460,102, filed April 9, 1921, I have shown and described a fluid motor system in which the energy is derived from the movement of the fluid at points remote from the devices for collecting and discharging the fluid. But the apparatus in the present application, as stated above, is designed to have all of its parts assembled and mounted at the location where it is desired to use the energy derived from the moving fluid.

In the drawings:

Fig. 1 is a side view of the apparatus partly in section and partly in elevation.

Fig. 2 is a horizontal section on the line 2-2 of Fig. 1.

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 structure shown can be made in great many details without departing from the spirit or scope of the invention.

In the drawings illustrating a mechanism embodying my improvements a framework

is indicated for supporting some of the parts. This comprises the uprights, 1, suitably secured in firm foundations at their base and carrying at their upper ends the crossbars 2, 2. 3 is a circular track firmly supported by the uprights 4, 4 of which there are a suitable number to give the required strength and rigidity. They are bolted at their lower ends to the crossbars 2, as at 5, and at their upper ends to the base of the track rail 3, as at 6.

A central hollow pedestal 7 is also suitably imbedded in a foundation in the ground and is so positioned that its vertical axis is at the center of the supporting framework 1, 2. Upon this pedestal is rotatably mounted a hollow shaft 8 terminating at its lower end in a flange 9 to which is secured a bearing annulus 10, having a raceway 11. The upper end of the pedestal also terminates in a flange 12 which carries an annulus 13 having a raceway 14, the latter registering with the raceway 11 of the bearing annulus of the shaft 8. Balls 15 rolling in the raceway provide an anti-friction bearing for the shaft 8 and permit it to rotate freely on the pedestal.

Near the upper end of the shaft 8 and connected rigidly thereto are two funnels 16 and 17 positioned diametrically opposite to each other and having their mouth ends remote from the shaft. They are secured to the shaft by means of flanges 18, 18 by which they can be bolted or riveted to the shaft.

Each of the funnels 16 and 17 is provided with a bracket 21 rigidly secured thereto, each bracket carrying at its lower end a roller 22 which travels on the circular track 3 when the shaft 8 and funnels are rotating.

A vane 23 is rigidly secured to the upper portion of the funnel 17 by means of bolts 24 which pass through a flange on the bottom edge of the vane and through the shell of the funnel. The vane 23 is shaped, at its inner end, to conform to the vertical wall of the shaft 8 and to extend to a point approximately at the center of the shaft and across the top thereof. The vane serves to hold in place a cap 25 which fits over the upper end of the shaft and to which the vane flange is bolted as at 26.

In the interior of the shaft 8 is mounted an air motor comprising the spoon-shaped blades 27, 27 which are secured to a hub

28, the latter, in turn, being keyed to a vertical shaft 29 which extends approximately the entire distance from the top of the shaft to the base of the pedestal. The shaft 29 is held against lateral movement by bearing plates 30 and 31, the former being secured to the inner face of the wall of the shaft and the latter to the inner face of the wall of the pedestal. The shaft is also held against vertical movement by collars 31^a secured to the shaft by pins, there being one of these collars above each bearing plate to prevent movement downward and one below each bearing plate to prevent movement upward.

The chamber in which the air motor is located is made air-tight from the other parts of the shaft 8 by means of horizontal plates 32, one above and one below the motor, and which are bolted to the wall of the shaft as shown at 33. The bolts 33 as shown also serve to secure the flanges 18 at the inner ends of the funnels to the shaft 8. To assist in directing the air against the blades 27 of the air motor, the throatway of the funnel 16 is shaped, at one side, as shown at 34. And the side wall of the aperture 35 in the shaft is correspondingly curved as shown at 36. And similarly one of the side walls of the aperture 37 in the shaft and the throatway of the funnel 17 are formed to assist in directing the air from the motor chamber and into the discharge funnel 17.

The method of using my improved apparatus will be readily understood from the foregoing description and from the drawings.

The entire structure is preferably mounted on the summit of a topographical elevation. The vane 23, when any wind is blowing, will cause the rotatable parts of the structure to swing to such position that the mouth of the funnel 16 will face toward the direction from which the wind is blowing and the mouth of the funnel 17 will face in the opposite direction. The air which is collected in the receiving funnel 16 is rapidly condensed in volume because of the tapering walls and when it passes through the throatway of the funnel its velocity is much greater than that which it originally had. From the throatway it passes through the aperture 35 of the shaft and is directed against the blades 27 of the motor causing them to rotate, and, drive the shaft 29. After it has expended its energy upon the

blades it is exhausted through the shaft aperture 37 into the throatway of the funnel 17 and thence is exhausted again into the atmosphere. The outside air passing the funnel 17 tends to create a vacuum at points in the vertical transverse plane of the mouth of the funnel and within its outlines, and this materially aids in exhausting the air from the interior of the funnel and correspondingly increases its velocity as it is discharged.

That part of the structure which includes the receiving and discharge parts and the air motor is free to swing, as a unitary structure, as the direction of the flow of air changes and a continuous rotation of the air motor is insured as long as there is any wind blowing. Power may be taken from the shaft 29 in any desired manner such as by gearing or pulley wheels.

What I claim is:

1. In an apparatus of the class described the combination with a fluid motor of self-adjusting means immediately adjacent the motor to properly receive and discharge the fluid by which the motor is adapted to be driven, said means comprising a funnel-shaped receiving device and a funnel-shaped discharging device, both of said devices being rigidly connected together and positioned to have their enlarged ends face in diametrically opposite direction.

2. In an apparatus of the class described, the combination of a fluid motor comprising a casing having a funnel-shaped receiving device, a funnel-shaped discharging device and a rotary wheel within the casing between the inner ends of said funnel-shaped devices, a circular track arranged concentric with the axis of the motor wheel, and rollers carried by the motor casing and engaging said track.

3. In an apparatus of the class described the combination of the rotatable, tubular, upright, a track arranged concentric with said upright, a fluid motor casing rigidly secured to the upright and provided with a funnel-shaped receiving device and a funnel-shaped discharging device, rollers carried by said casing and engaging the track, a rotary wheel within the casing between the ends of the funnel-shaped devices, with its axis coinciding with that of the tubular upright, and a power shaft connected to the wheel.

In testimony whereof, I affix my signature.
DOMENICO BONETTO.