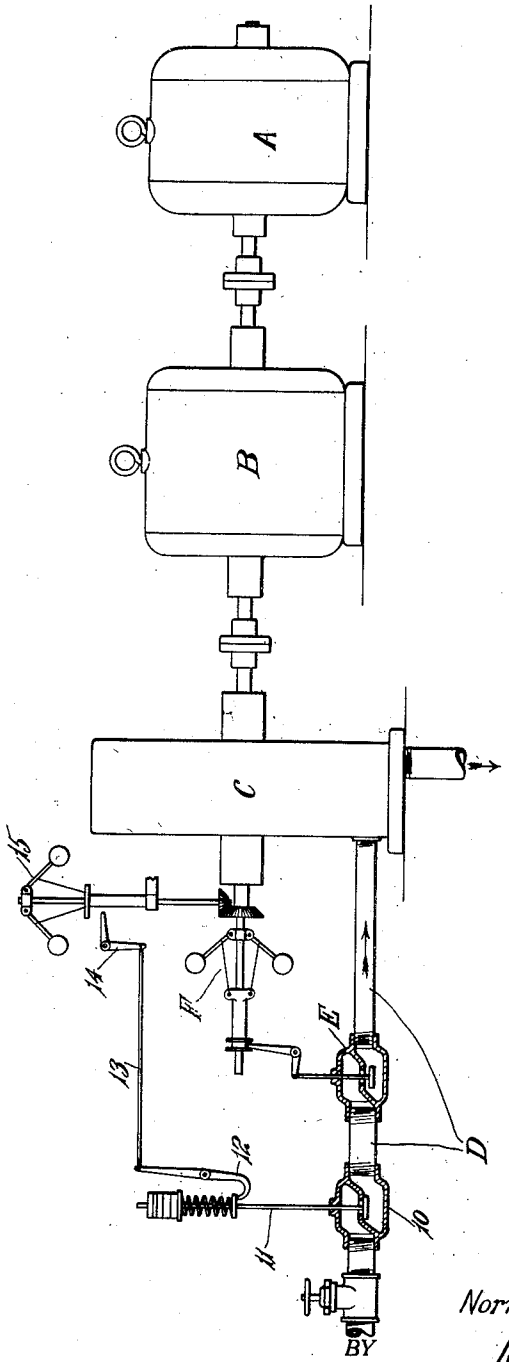
N. L. SNOW.

AUXILIARY POWER SYSTEM.

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AUXILIARY POWER SYSTEM.

1,259,307. Specification of Letters Patent. Patented Mar. 12, 1918.

Application filed July 6, 1916. Serial No. 107,774.

To all whom it may concern:

Be it known that I, NORMAN L. SNOW, a citizen of the United States, and a resident of Hartford, in the county of Hartford, State of Connecticut, have invented certain new and useful Improvements in Auxiliary Power Systems, of which the following is a specification.

My invention relates to improvements in auxiliary power systems, providing an arrangement by which a secondary unit may operate to carry the load at any predetermined rate, but in particular will carry the load at normal or a higher rate than normal. For instance, given an auxiliary steam plant running idle, the feed water pump might require but 10 H. P. to provide enough water for the boilers. If the main source of power, whatever it might be, should fail and the steam plant be called upon to carry the load, much more water would be required at the boilers, and consequently a greater horse-power at the feed water pumps.

In accordance with my invention a power unit, such as a steam turbine, might be connected with the feed water pump, running idle while the steam plant was running idle but automatically controlled when the load is thrown onto the auxiliary plant to cut in and operate at a higher speed to provide the increased horse-power needed to operate the feed water pumps.

The foregoing being descriptive of one use of the invention, I have illustrated diagrammatically in the drawings a simple installation made in accordance with my invention.

In the drawings, A denotes a primary unit such as a motor supplied with energy from any source and connected up with the generator B, or any other demand for power, which it normally drives. C is the secondary unit, illustrated as a steam turbine. It is connected to the generator shaft, and under normal conditions its rotor is merely driven up to speed by the motor A.

D is the steam line of the turbine, E a governor valve in the steam line, and F the governor controlling said valve. 10 is an automatic service valve, illustrated as placed in the steam line in front or outside of the governor valve E. Obviously it may be positioned where desired. The valve disk 11 is loaded, giving it a normal tendency to open, but it is held in closed position by the trip 12 connected through the link 13 with the trigger 14, one arm of which is in the path of a movable part of the cut-in governor 15 driven from the generator shaft.

Under normal conditions while the motor A is driving the load, the rotor of the turbine C is driven, the governor F may function, but is inoperative because there is no steam passing through the governor valve E, the automatic service valve 10 being closed, and the cut-in governor 15 held out of contact with the trigger 14. As the speed decreases owing to any cause, such as a failure of the supply to the motor, or an increase of the load, the cut-in governor 15 strikes the trigger 14, withdraws the trip 12, and the loaded valve 11 drops, opening up the steam supply. This governor valve E is operated by the governor F, and steam is immediately passed into the turbine C which takes up the load.

It will be apparent that the governor F may be set for any speed desired, either below, even with, or higher than the normal speed at which the motor A drives the generator B. It is to be remembered that the illustration is merely diagrammatic, and that the foregoing description applies thereto.

I am aware that there are various ways in which the governor valve and automatic service valve may be controlled and combined with one another or with other mechanisms; that the invention is broady adaptable for use with any type of primary apparatus or energy source; and that other devices than a steam turbine may be utilized as the auxiliary unit. Obviously the auxiliary unit need not be directly connected with the main source of energy or the demand for energy.

In accordance with the provisions of the statutes there has been described the principle of operation of my invention together with a diagrammatic illustration thereof; but I desire to have it understood that the apparatus shown is only illustrative, and that the invention may be carried out in other ways and under other conditions.

I claim as my invention:—

1. In an apparatus of the character described, a primary driver and a supply of motive-power therefor, a driven unit connected therewith and normally operated

thereby; a secondary driver connected with said driven unit, a motive-power supply therefor, means for cutting off the supply of motive-power, means independent of governing mechanism to normally hold said cutting off means in position to interrupt said supply, and means operative for releasing said holding means when the speed has decreased to a predetermined point.

2. In an apparatus of the character described, a primary driver and a supply of motive-power therefor, a driven unit connected therewith and normally operated thereby; a secondary driver connected with said driven unit, a motive-power supply therefor, means for cutting off the supply of motive-power, means independent of governing mechanism to normally hold said controlling means in position to interrupt said supply, and means operative for releasing said holding means when the speed has decreased to a predetermined point, and constant speed governing mechanism for said secondary driver.

3. In an apparatus of the character described, a primary driver and a supply of motive-power therefor, a driven unit connected therewith and normally operated thereby; a secondary driver connected with said driven unit, a motive-power supply therefor, a valve for closing said supply, means independent of governing mechanism to hold said valve shut while the primary driver is normally operative, and means operative for releasing said holding means when the speed has decreased to a predetermined point.

4. In an apparatus of the character described, a primary driver and a supply of motive-power therefor, a driven unit connected therewith and normally operated thereby; a secondary driver connected with said driven unit, a motive-power supply therefor, a valve for closing said supply, a catch to hold said valve in closed position, and means sensitive to a decrease in speed to actuate said catch, and means operative upon the release of said catch to actuate said valve and move it to open position.

5. In an apparatus of the character described, a primary driver and a supply of motive-power therefor, a driven unit connected therewith and normally operated thereby; a secondary driver connected with said driven unit, a motive-power supply therefor, a valve for closing said supply, a catch to hold said valve in closed position, a governor connected with said primary driver and operative upon a decrease in speed thereof to move said catch to release said valve, and means operative upon the release of said valve to move it to open position.

NORMAN L. SNOW.