

[54] **STEAM POWER PLANTS**

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122/35

[56] **References Cited**

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[57] **ABSTRACT**

A power plant which has an installation capable of accumulating energy during low-load periods and discharging the accumulated energy during peak-load periods. The installation includes steam accumulators which store a charge of steam under pressure until the energy thereof is required during a peak-load period. During discharge of the steam the pressure thereof gradually diminishes, and through a suitable conduit system the steam is delivered first to a turbine designed for optimum operation at an upper steam pressure range at which the steam is first discharged, and then steam is delivered to another turbine which is designed for optimum operation at a lower pressure range at which the steam is subsequently discharged, so that at any given instant the discharged steam operates only a turbine designed for optimum operation at the pressure at which the steam is discharged.

17 Claims, 3 Drawing Figures

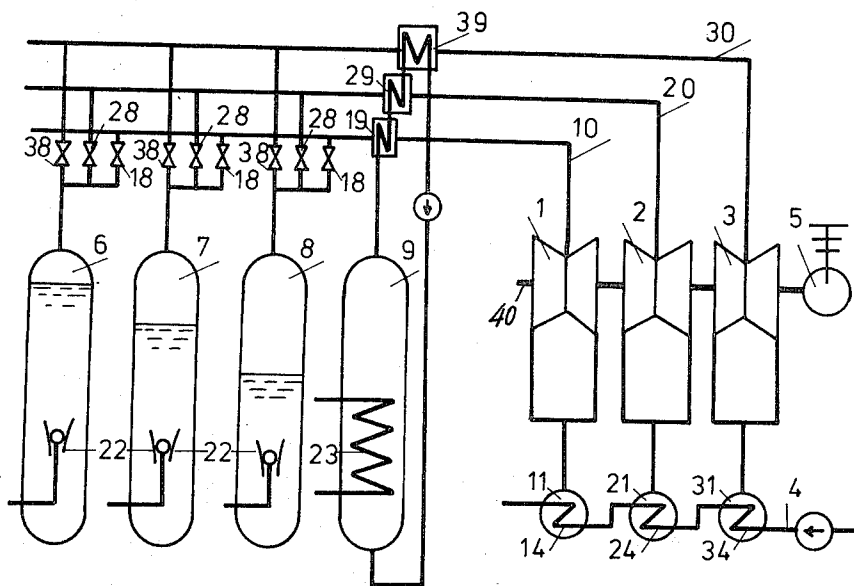


Fig. 1

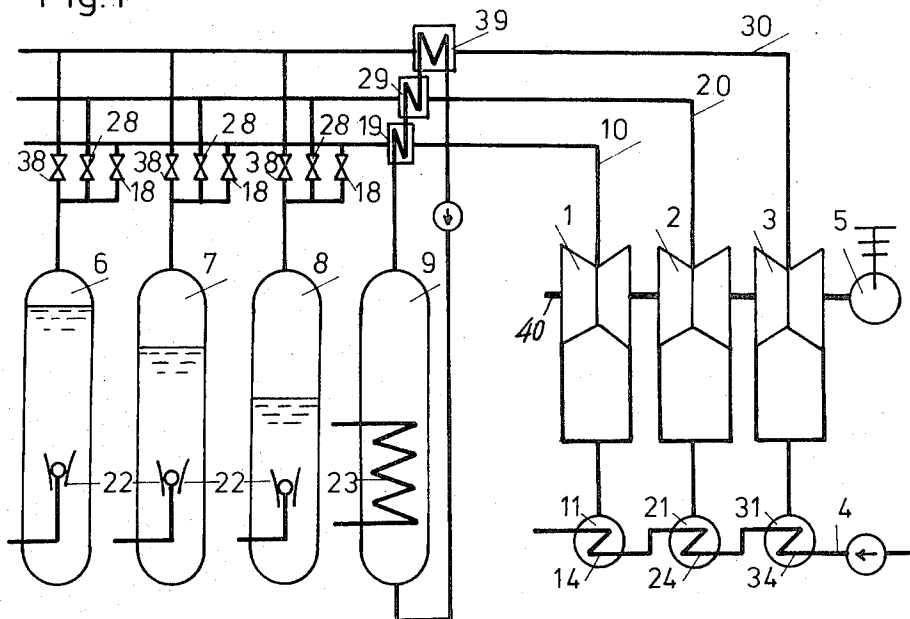
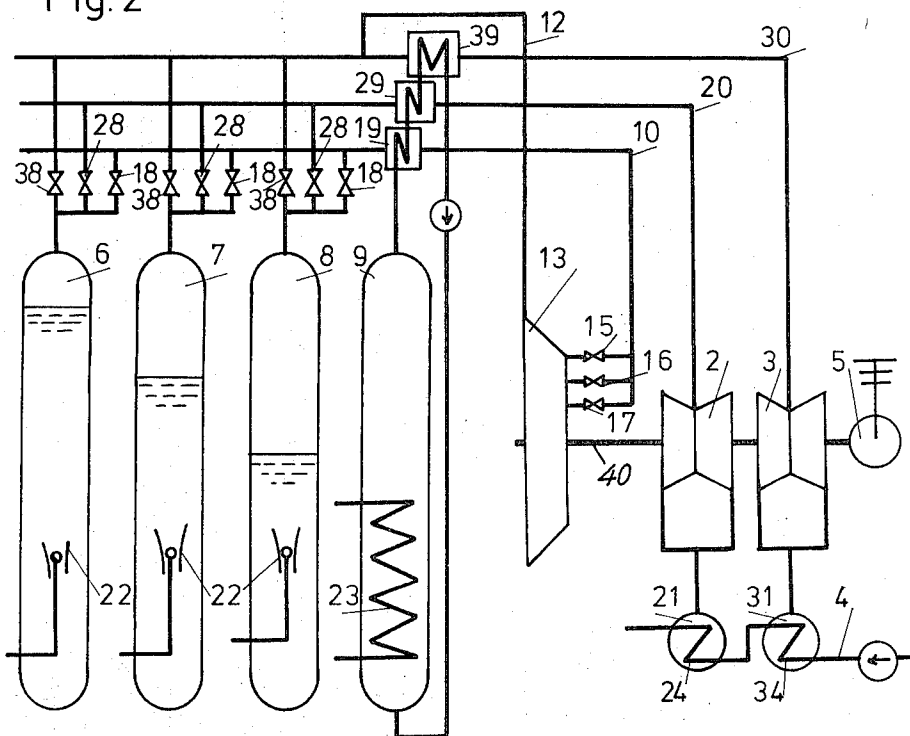


Fig. 2



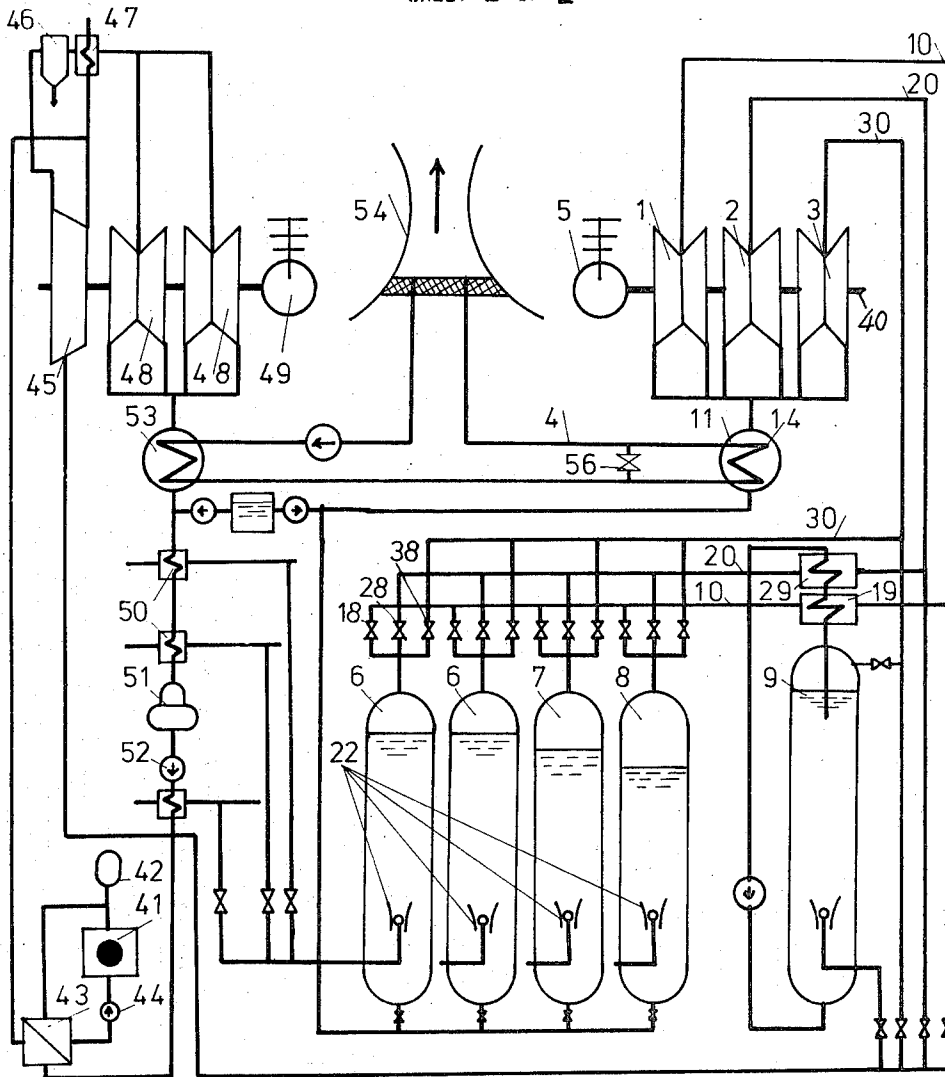


Fig. 3

STEAM POWER PLANTS

BACKGROUND OF THE INVENTION

The present invention relates to power plants.

In particular, the present invention relates to steam power plants such as, for example, power plants having nuclear reactors. Such power plants have conventionally a primary power-generating installation which is continuously operated. However, in order to take care of peak loads, the primary installation is used to accumulate energy at a secondary installation of the power plant where the accumulated energy in the form of a charge of steam is maintained in readiness for generating additional power during peak-load periods.

For this purpose it is conventional to charge accumulators with a charge of steam which is available for use during peak loads. The accumulated steam is conventionally discharged to a turbine which operates throughout the entire range of pressure at which the accumulated steam is discharged during peak-load operation. Because of the large range of pressure through which such a turbine must operate, this type of conventional turbine has extremely complex construction. Furthermore, such a turbine operates with a reduced efficiency because it is required to operate with a mixture of streams of steam having different characteristics. Moreover, when operating at partial load, such a turbine has a great windage loss, so that it is not possible to operate such an installation with the desired economy.

SUMMARY OF THE INVENTION

It is accordingly a primary object of the present invention to provide a method and apparatus which will avoid the above drawbacks.

In particular, it is an object of the invention to provide for peak-load operation with accumulated steam in such a way that the efficiency of the operation as well as the economy thereof are greatly increased as compared to conventional installations.

Yet another object of the present invention is to provide an installation for operating at peak-load in such a way that steam discharged from the turbines is condensed in a highly efficient manner.

It is also an object of the present invention to provide a method and apparatus according to which it is possible to maintain a constant power output from the auxiliary installation which provides additional power during periods of peak load.

Furthermore it is an object of the present invention to interconnect the condensers of the primary and auxiliary installations in such a way that the cooling water used in the condensers is treated in a highly efficient manner.

In accordance with the invention the power plant has an installation for providing additional power during periods of peak load. This latter installation includes an accumulator means for receiving a charge of steam under pressure during a low-load period of operation and for discharging the steam under pressure during a peak-load period. A plurality of turbine means are provided for the installation and this plurality of turbine means are respectively designed

for optimum operation at different sequential steam pressure ranges. A conduit means interconnects the accumulator means and the plurality of turbine means for sequentially operating the latter at the steam pressures for which they were designed with the steam which is discharged from the accumulator means. Thus, according to the method of the invention steam under pressure is accumulated during a period of low-load operation and this latter steam is discharged during a period of peak-load operation, with the discharged steam being used to operate first a turbine designed for optimum operation at a relatively high steam pressure and then for operation of a second turbine designed for optimum operation at a lower steam pressure so that by sequential operation of these turbines at the pressure ranges for which they are designed considerable efficiency and economy are achieved.

BRIEF DESCRIPTION OF DRAWINGS

The invention is illustrated by way of example in the accompanying drawings which form part of this application and in which:

FIG. 1 is a schematic representation of one embodiment of a power plant installation designed for operation during periods of peak load;

FIG. 2 is a schematic illustration of another embodiment of a power plant installation designed for operation during periods of peak load; and

FIG. 3 schematically illustrates how an installation of the type shown in FIGS. 1 and 2 is incorporated into the entire power plant.

DESCRIPTION OF PREFERRED EMBODIMENTS

Referring to FIG. 1, there is illustrated therein an installation which forms part of a power plant such as that shown in FIG. 3 and which is designed to deliver additional power during periods of peak-load operation. The installation shown in FIG. 1 includes a plurality of turbine means 1, 2, 3 in the form of separate, individual turbine units which are respectively designed for optimum operation at sequentially different pressure ranges. The turbine means 1 is designed for operation at the highest pressure range, while the turbine means 2 is designed for optimum operation at the next-lower pressure range and in the three-turbine installation illustrated, the turbine means 3 is designed for optimum operation at the lowest pressure range which immediately follows the pressure range at which the turbine means 2 will have its optimum operation.

An accumulator means is provided for receiving a charge of steam under pressure during a period of low load operation. The illustrated accumulator means includes the schematically illustrated accumulators 6, 7, 8, although it is to be understood that any desired number of accumulators may be utilized and these accumulators may be of the type which operate with a dropping pressure or of the type which have a constant pressure. The several accumulators 6-8 which form the accumulator means are charged to different extents as indicated by the different levels of the surface of the water therein beneath the compressed

steam situated above the water. Thus, the three-turbine means 1, 2, 3 of the illustrated installation may be characterized respectively as a high pressure turbine, an intermediate pressure turbine, and a low pressure turbine, and these turbines are condenser turbines which have their own individual condenser means operatively connected therewith as referred to below. The several turbine means 1-3 are coaxially arranged so as to operate on a common output shaft 40. Thus, through the use of suitable one-way clutches or the like, the several turbines 1-3 may successively drive the common output shaft 40 so that while one of the turbine means operates the remaining turbine means may remain in an inoperative condition. The output shaft 40 is operatively connected with a generator 5 as schematically illustrated so as to drive the generator 5 for providing additional power during the peak-load operation as referred to above.

In the illustrated installation the steam under pressure which is discharged from the accumulator means 6-8 is delivered through a conduit means 10, 20, 30 to the several turbine means 1, 2, 3, respectively. The conduit means 10, 20, 30 is designed to deliver the steam from the accumulator means 6-8 to the several turbine means in such a way that each of the turbine means is operated only with steam at a pressure within the range for which the particular turbine means was designed for optimum operation. For example, it may be assumed that when steam is discharged from the accumulator means 6-8 the steam initially has a maximum pressure of 20 atmospheres with this pressure gradually diminishing during discharge of the steam. The turbine means 1 may be considered as designed for optimum operation through a steam pressure range of 20 to 11 atmospheres, and thus while the discharged steam is within the latter range it will be delivered through the conduit 10 of the conduit means to the turbine means 1 for operating the latter only at its optimum pressure. For this purpose the conduit means includes valves 18 which are automatically opened as long as the steam discharging from the accumulator means is in a pressure range of from 20 to 11 atmospheres, and through these valves 18 the accumulator means 6-8 has the steam discharged thereby delivered to the turbine means 1 through the conduit 10 of the conduit means. Automatic operation of valves such as the valves 18 in response to steam within a given pressure range may be carried out in any well known manner. For example pressure gauges may be provided for automatically closing an electrical circuit as long as the pressure is between 20 and 11 atmospheres, and this electrical circuit may be connected with solenoid valves which form the valves 18 and which are maintained through these solenoid valves in an open position as long as the steam pressure is between 20 and 11 atmospheres.

In this particular example the next turbine means 2 may be designed for optimum operation at a pressure range of from 11 to 5 atmospheres, and thus in this latter pressure range the operation of the high-pressure turbine means 1 will be terminated and instead the operation will continue with the intermediate pressure turbine means 2 which in this example is designed for optimum operation at a steam

pressure of between 11 and 5 atmospheres. For this purpose the conduit means includes the conduit 20 connected through the valves 28 with the several accumulators of the accumulator means, and through suitable pressure gauges and through the use of solenoid valves to form the valves 28, these valves may be automatically opened at a pressure range of between 11 and 5 atmospheres while at this latter pressure range the valves 18 are closed, so that at this time the accumulator means only delivers steam to the turbine means 2. Thus, as soon as the steam pressure drops below the optimum pressure range for the turbine means 1, the operation of the latter is terminated and the operation continues with the turbine means 2 which starts operating when the turbine means 1 stops operating with this turbine means 2 continuing to operate until the pressure of the steam drops to 5 atmospheres in this particular example.

As soon as the pressure of the discharged steam drops from a pressure of 5 atmospheres down to the completely discharged condition of the accumulator means, the valves 28 of the conduit means will be automatically closed and the valves 38 will be automatically opened, for example, in the manner described above in connection with the valves 18 and 28, and at this time it will be seen that the accumulator means 6-8 delivers the steam to conduit 30 of the conduit means 10, 20, 30. This conduit communicates with the turbine means 3 which is designed for the lowest range of steam pressure, this being the pressure of from 5 atmospheres and lower in the above example. Therefore, with the embodiment of FIG. 1 during the last stage of the operation only the turbine means 3 will operate while the turbine means 1 and 2 will remain idle. Thus, with the method and apparatus of the invention the successive turbine means 1, 2, 3 will be successively operated only at their optimum pressure ranges during continuous discharge of steam from the accumulator means 6-8 during a period of peak-load operation.

The saturated steam which is discharged from the accumulator means 6-8 is superheated in the illustrated example by way of steam-dryers or superheaters 19, 29 and 39 respectively connected into the conduits 10, 20, 30. For this purpose the installation includes a superheating accumulator 9 which delivers steam successively through the coils of the superheaters 19, 29, and 39 in the manner illustrated in FIG. 1. The highest-temperature superheated steam is derived by travel of the steam in the conduit 10 through the superheater 19, while the intermediate-temperature superheated steam is derived from travel of the steam in the conduit 20 through the superheater 29, and the lowest-temperature superheated steam is achieved by travel of the steam in the conduit 30 through the superheater 39. After traveling through the several superheaters the steam is returned to the accumulator 9 to again be raised to the required temperature by way of the coil 23 which is situated within the accumulator 9 and which receives hot steam in the manner described in greater detail below from the primary part of the power plant.

Thus, in this case it will be seen that the charging

of the accumulator 9 takes place indirectly by contact with the surface of the heating coil 23. However, in the case of the accumulators 6-8 the steam under pressure may be directly charged into these accumulators through the charging nozzles 22 which are supplied with the required steam under pressure from the primary power plant also in a manner described in greater detail below. Thus, the direct charging through nozzles 22 or indirect charging through a coil 23 may be used as desired either separately or in combination in any of the accumulators of the installation shown in FIG. 1. For the purpose of charging the accumulators it is possible to use either live steam from the primary power plant installation or steam which is bled from the power plant installation by being tapped off from the latter.

A plurality of condenser means 11, 21, 31 respectively communicate with the plurality of turbine means 1, 2, 3 for receiving the steam which discharges from the several turbine means and for condensing this steam. A cooling-water conduit means 4 supplies the cooling water for the several condenser means 11, 21, 31 and it will be noted that the cooling-water conduit means 4 has the portions 34, 24 and 14 which are successively connected in series with each other and which are situated in the successive condenser means 31, 21, and 11, respectively. Therefore, the condenser means 31 of the lower-pressure turbine means 3 receives cooling water at the lowest temperature so that the vacuum of the greatest degree is maintained in the condenser means 31. The several condenser means 11, 21 and 31 are surface condensers which are connected in series at the cooling-water conduit portions thereof so that the condenser means 31 for the low-pressure turbine means 3 whose inlet steam has the highest inlet entropy has the cooling water of the lowest temperature. The cooling surfaces of the condensers are schematically illustrated by the coil portions 14, 24, and 34 which are connected in series and form parts of the cooling water conduit means 4.

A second embodiment of an installation according to the invention is illustrated in FIG. 2. In this case instead of the high-pressure condenser turbine 1 and the condenser means 11 which is in communication therewith there is a back-pressure turbine 13 which is connected with the conduit 10 of the conduit means to receive steam at the highest pressure range, and only the intermediate pressure range turbine means 2 and the lower-pressure range turbine means 3 are retained, the back-pressure turbine 13 operating on the same common power shaft 40 to drive the generator 5 as was described above in connection with FIG. 1.

The accumulator means 6-8 and the superheater means of FIG. 2 are identical with that of FIG. 1. Thus, with the embodiment of FIG. 2 instead of the high pressure turbine 1 there is the back-pressure turbine means 13 which may take the form of a Curtis wheel. The back-pressure turbine means 13 is thus capable of being operated in an adjustable manner and for this purpose it receives steam through a group of nozzles 15-17 so that by way of the adjustable throttling achieved with these nozzles it is possible

to operate the back-pressure turbine means 13 with a controlled amount of high-pressure steam. Steam from the turbine means 13 is discharged through the discharge conduit means 12 to the lower-pressure turbine means 3 which thus acts as a condenser for the back-pressure turbine means 13. For this purpose the discharge conduit means 12 delivers the steam from the back-pressure turbine means 13 directly to the conduit 30 upstream of the superheater 39 so that the steam discharged from the back-pressure turbine means 13 is first superheated and is delivered together with steam derived from the accumulator means through the valves 38 to the lower-pressure turbine means 3. Thus, the low-pressure steam from the accumulator means 6-8 is mixed with the exhaust or discharge steam of the turbine means 13 prior to flowing of the combined mixture through the superheater 39, so that both of the sources of steam are dried and heated to a slight extent before being delivered by the conduit 30 of the conduit means to the low-pressure turbine means 3 which is in the form of a condenser turbine in the same way as the intermediate-pressure turbine means 2.

Thus, it will be seen that with both embodiments of the invention at least half of the number of turbine means are in the form of condenser turbines respectively communicating with their own individual condenser means. Those turbine means which are not in the form of condenser turbines take the form of a back-pressure turbine as illustrated in FIG. 2. In this case the operation of the back-pressure turbine is capable of being adjusted with this particular turbine being connected to the conduit which delivers steam at the highest pressure.

It is to be noted that in accordance with the method of the invention the operation of one turbine means is terminated when the pressure of the steam discharged from the accumulator means falls below the optimum pressure range for this one turbine means, and simultaneously the turbine means which is designed for optimal operation at the next lower pressure range is started and continues to operate while the discharged steam from the accumulator means has this next lower pressure range, and so on. However, in the case of the embodiment of FIG. 2, the back-pressure turbine means 13 is continuously operated but with adjustable throttling of the delivery of steam thereto by way of the nozzle assemblies 15-17 in such a way that the output from the back-pressure turbine means 13 is increased as the pressure of the steam delivered from the accumulator means drops so that it becomes possible with such an embodiment to maintain at the output shaft 40 a constant power output for driving the generator 5 with a constant power.

On the other hand, while the several turbine means are successively operated, the several condenser means which are operatively connected thereto are continuously operated so as to maintain the vacuum therein. Moreover, while adjustment of the operation of the back-pressure turbine is maintained by adjustably throttling the flow of steam thereto, the remaining condenser turbines are operated without throttling of the flow of steam thereto. By increasing the

delivery of steam to the back-pressure turbine 13 through the adjustable nozzle assembly 15-17 it is possible to compensate for the drop in the power output from the condenser turbines 2 and 3 in the embodiment of FIG. 1 so as to maintain the constant power output at the shaft 40 of the embodiment of FIG. 2. The nozzle assemblies 15-17 may be operated automatically by providing in the illustrated example three nozzles to which steam is delivered from the three valves in the three branches shown in FIG. 2 with these three valves also being solenoid valves automatically opened in response to the sequential dropping of the pressure ranges. Thus, the valve of nozzle assembly 15 may be opened simultaneously with the opening of the valve 18, and then while all the latter valve, are maintained open, instead of closing of the valves 18, as described above, the valve of the nozzle assembly 16 is opened simultaneously with the opening of the valves 28, and then with both of the valves of both assemblies 15 and 16 maintained open upon closing of the valve 28 the valve assembly 17 is opened simultaneously with the opening of the valves 38. In this way it is possible to successively increase the delivery of steam to the back-pressure turbine 13 to provide an increasing output which compensates for the drop in power which otherwise would result from the successive operation of the turbines.

Referring to FIG. 3, it will be seen that an installation of the type shown in FIG. 1 is illustrated in the entire power plant, although this particular installation for operating during peak-power periods includes two accumulators 6. As was indicated above any desired number of accumulators may be incorporated. The entire power plant installation which is shown in FIG. 3 includes a primary power plant installation which has as its heat source a pressurized water reactor assembly including the nuclear reactor 41, the pressurizer 42 operatively connected therewith, the heat exchanger or transformer 43, and the pump 44 which forms the main pump for the coolant circuit of the primary installation. By way of the heat exchanger 43 the heat derived from the reactor is delivered through a suitable conduit to an intermediate pressure turbine 45 so as to drive the latter, this turbine having its steam discharging to a steam dryer 46 which delivers the dried steam to a reheater 47 from which low-pressure steam is delivered to the lower-pressure turbines 48, the turbines 45 and 48 driving a common power shaft which serves to drive the generator 49. The steam discharged from the turbine 45 is thus condensed at the turbines 48, and the combined steam discharged from the turbines 48 is in turn condensed in a primary condenser means 53 from which the condensed steam is delivered to a feedwater preheater 50 made up of a pair of units from which the feedwater is delivered to a feedwater tank 51 communicating with a feedwater pump 52.

It will be noted that in the illustrated example the nozzles 22 for charging the accumulator means 6-8 receive steam from the feedwater preheater units 50 one of which is located downstream of the pump 52. On the other hand, the accumulator 9 is shown as being charged also directly by a nozzle similar to the

nozzles 22, but in this case the charging steam is derived directly from the turbine 45, at an intermediate stage of the latter. In addition, part of the steam derived from the intermediate stage of the turbine 45 is delivered in the illustrated example, if desired through suitable valves, to the conduits 10, 20, 30 of the conduit means for supplying the several turbine means 1-3 of the auxiliary installation, so that the power plant may be operated in such a way that part of the steam used for the turbine means 1-3 may also be derived from the turbine 45.

For the purpose of simplification the one condenser means 11 is shown in FIG. 3 for condensing steam discharged from the several turbine means 1-3, but it is to be understood that this construction may actually take the form shown in FIGS. 1 or 2. The cooling-water conduit means 4 not only has portions 14, 24, and 34 connected in series and forming part of the different condenser means 11, 21, 31 as shown in FIG. 1, but in addition this cooling-water conduit means is connected in series with the cooling coils of the primary condenser means 53. Thus, the secondary condenser means for installation as shown in FIG. 1 or FIG. 2 has its cooling water conduit means connected in series with the cooling water coils for the primary condenser means 53. The cooling water is cooled by way of a natural-draft cooling tower 54 which forms a cooling means for the cooling water. The cooling water from the cooling means 54 is first delivered to the primary condenser means 53 and then flows to the secondary condenser means of the auxiliary installation used during peak-load operation.

In the event that the auxiliary installation is not operating, for example during periods of low-load operation, then it is possible to open a bypass line by way of a valve 56 so that the cooling water will not flow through the condensers of the auxiliary installation. During peak-load operation the valve 56 is closed so that bypassing the auxiliary condenser means cannot take place. Thus, after cooling water flows through the primary condenser means 53 it will flow through the condenser means of the auxiliary installation shown either in FIG. 1 or in FIG. 2 for operating the condensers thereof. In order to cool the cooling water which flows through the cooling-water conduit means 4, the cooling-water means 54 is provided in the form of a dry or wet natural draft cooling tower which, even in the case of an overload resulting from simultaneous operation of the primary and secondary condenser means during peak load, nevertheless is able to remove the greater amount of heat as a result of the increase in buoyancy due to the higher temperature of the cooling water without, however, increasing the temperature of the cooling water of the primary condenser means 53 in a significant manner. Therefore, the condenser pressure of the primary power plant installation remains constant even in the case of such an overload.

It is to be noted that in the illustration of FIG. 3 for the sake of simplicity the superheater means 39 of the conduit 30 of the conduit means has been omitted.

What is claimed is:

1. In a power plant having an installation for provid-

ing additional power during periods of peak load, said installation comprising an accumulator means for storing energy when said accumulator means is charged during periods of low load and for delivering steam which initially has a given maximum pressure and which gradually diminishes in pressure during discharge of said accumulator means, a plurality of turbine means respectively designed for operation at optimum efficiency at different sequential pressure ranges included within the range of steam pressure provided by said accumulator means during discharge thereof, and conduit means operatively connected on the one hand to said accumulator means and on the other hand to said plurality of turbine means for delivering steam from said accumulator means first to one of said turbine means which is designed to operate at the steam pressure which is delivered by said accumulator means and then to another of said turbine means which is designed to operate at the next lower pressure range when the pressure of the steam delivered by said accumulator means reaches said next lower pressure range, so that at any given instant steam from said accumulator means is delivered only to a turbine means which is designed to operate at the particular pressure which is provided by said accumulator means.

2. The combination of claim 1 and wherein said conduit means includes a plurality of conduits respectively communicating with said plurality of turbine means and valve means for respectively connecting said accumulator means sequentially to said conduits.

3. The combination of claim 1 and wherein a superheating means is operatively connected with said conduit means for superheating the steam delivered from said accumulator means before the steam reaches a given turbine means.

4. The combination of claim 1 and wherein a plurality of condenser means are respectively connected operatively with at least some of said turbine means for receiving steam therefrom and for condensing the latter steam.

5. The combination of claim 1 and wherein said plurality of turbine means are in the form of separate turbine units, and a single power-output shaft operatively connected with a generator for delivering power thereto, said several turbine units being distributed along and operatively connected with said single power-output shaft.

6. The combination of claim 1 and wherein said conduit means includes a plurality of separate conduits respectively communicating with said plurality of turbine means and all communicating with said accumulator means, at least half of the number of said turbine means being in the form of condenser turbines and a plurality of condenser means respectively operatively connected with said condenser turbines for receiving steam therefrom and for condensing the latter steam, the remainder of the number of turbine means including at least one back-pressure turbine communicating with that one of said conduits which delivers steam at the highest pressure range, and means connected between said back-pressure turbine and said one conduit for regulating the delivery of steam from said one conduit to said back-pressure turbine.

7. The combination of claim 6 and wherein a discharge conduit means communicates with said back-pressure turbine for receiving steam therefrom and communicates with one of said condenser turbines for delivering the steam discharged from said back-pressure turbine to said one condenser turbine.

8. The combination of claim 7 and wherein said discharge conduit means provides communication between said back-pressure turbine and that one of said conduits which delivers steam from said conduit means to the condenser turbine which operates at the lowest pressure range.

9. The combination of claim 1 and wherein a plurality of condenser means are respectively connected operatively to at least some of said turbine means for receiving steam from the latter and for condensing said steam said plurality of condenser means including a cooling-water conduit means progressing in series from one condenser means to the next so that the cooling water flows first through one of said condenser means and then through the next condenser means, whereby the condensing pressures are different at the different condenser means.

10. The combination of claim 9 and wherein that one of said condenser turbines which operates with steam of the greatest inlet entropy is in communication with that one of said condenser means which receives cooling water at the lowest temperature.

11. The combination of claim 1 and wherein said power plant has in addition to said installation a primary turbine means and a primary condenser means communicating with said primary turbine means for receiving steam therefrom and for condensing the latter steam, auxiliary condenser means operatively connected with at least some of said turbine means of said installation for receiving steam therefrom and condensing the latter steam, cooling-water conduit means communicating both with said primary and said auxiliary condenser means for supplying cooling water thereto, and cooling means operatively connected with said cooling-water conduit means for cooling the water therein.

12. The combination of claim 11 and wherein said cooling-water conduit means is common to said primary and auxiliary condenser means for providing a series-connection of the cooling water between said primary and auxiliary condenser means with the cooling water flowing first from said cooling means to said primary condenser means, then from the latter to said auxiliary condenser means, and from the latter back to said cooling means.

13. The combination of claim 12 and wherein said cooling means is in the form of a natural-draft cooling power.

14. In a method for operating a power plant, accumulating a charge of steam under pressure during a period of low-load operation, discharging the latter steam during a period of peak load operation, and delivering the discharged steam successively to at least two steam turbines designed respectively for optimum operation at two sequential steam pressure ranges while operating the turbine of the higher pressure range with discharged steam in a pressure range for which the latter turbine is designed and then terminating the operation of the latter turbine and

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continuing the operation with the turbine of lower pressure range while delivering to the latter steam at a pressure for which the turbine of lower pressure range is designed.

15. In a method as recited in claim 14, condensing steam received from both of said turbines with a pair of condensers respectively connected to the latter turbines for receiving steam therefrom and for condensing the latter steam, and maintaining both of the condensers operating continuously to maintain a vacuum in both condensers even though the turbines are operated sequentially.

16. In a method as recited in claim 14 and wherein steam at the highest pressure range is delivered to

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a high pressure turbine with adjustable throttling of the steam delivered to the high pressure turbine for controlling the operation of the latter while unthrottled steam is delivered to the remaining turbines.

17. In a method as recited in claim 16 and wherein all of the turbines have a common power output, the throttling of the steam to the high pressure turbine being regulated for increasing the output thereof as the discharged steam is sequentially delivered to turbines designed for sequentially lower steam pressure ranges for maintaining a substantially constant power output.

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