BACK PRESSURE SAFETY STOP

The function of this mechanism (shown in Figure 1) is to shut down the turbine by closing the throttle valve if, for any reason, the turbine exhaust pressure should rise above a certain predetermined value.

The diaphragm "4" is clamped between the discs "3" and "5" at the center and between the safety stop body "1" and cover "6" at the outer edge. The chamber below this diaphragm is connected to the turbine exhaust as shown. The motion of this diaphragm is transmitted to the overspeed trip lever through a series of rods and levers as shown. If the exhaust pressure becomes great enough to overcome the compression of the spring "10" the rod "11" is raised by the action of stem "2" against lever "8" causing the rod end "14" to strike the overspeed trip lever, thereby closing the throttle valve and shutting down the turbine.

The pressure at which the back pressure safety stop operates is determined by the compression of the spring "10". The desired spring compression can be readily obtained by adjusting the nuts "13".

The following list has been compiled to facilitate ordering spare or renewal parts by item number and name together with the serial number of the turbine:

Item No.	Name
1	Back Pressure Safety Stop Body
2	Pin
3	Back Pressure Safety Stop Diaphragm Disc (Lower)
4	Back Pressure Safety Stop Diaphragm
5	Back Pressure Safety Stop Diaphragm Disc (Upper)
6	Back Pressure Safety Stop Body Cover
7	Fulcrum Pin
8	Back Pressure Safety Stop Lever
9	Back Pressure Safety Stop Trip Rod End
10	Back Pressure Safety Stop Spring
11	Back Pressure Safety Stop Trip Rod
12	Spring Seat
13	Locknut
14	Trip Rod End

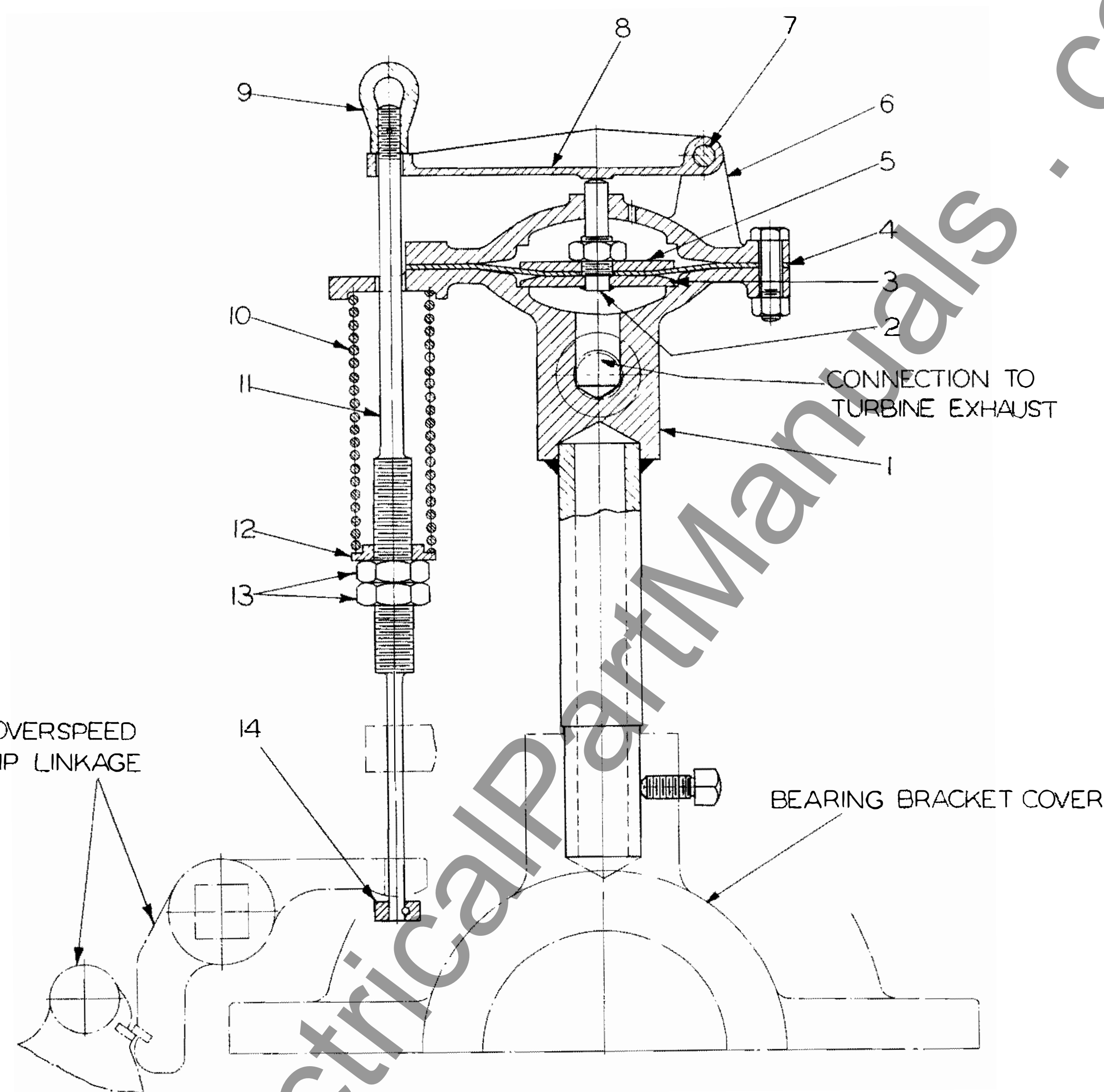

Figure 1

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IMPULSE BLADES

Figure 1 shows the arrangement of an impulse element consisting of two rows of rotating blades attached to the rotor, and one row of stationary blades attached to the blade ring. The rotating blades are secured to the rotor disc by the "straddle T root" type of fastening. This consists of a T-root with lugs machined on the blade shank which straddle and hold in the sides of the rotor disc groove, thus resisting the tendency of the blade pull to spread the sides of the groove. The blades are held against the top of the groove by half-round sections caulked in place at the bottom.

The stationary blades are secured in a straight sided groove in the blade ring by a series of short keys which fit in auxiliary grooves cut in the blade shank and in the side of the main groove. A groove in the cylinder locates the blade ring axially in the cylinder and it is secured to the cylinder by fillister head screws as shown.

These blades are shaped so as to form their own shroud, thus forming a closed passage for the steam flow. The shanks are machined accurately to fit closely to one another and give the correct spacing for the steam passage area.

On the longer rotating blades of this type (when the port height is greater than the blade width) a shroud strip is used to lash them together in groups in order to minimize the vibrational stresses. This strip is installed by machining a groove in the end of the blades and welding the strip in place. The lengths of the shroud strip sections are made so as to form groups of six to eight blades each. On the shorter blades (that is, when the port height is less than the blade width) this shroud strip is not used because the short blades are so solid that their vibration is negligible, and no further strengthening is necessary.

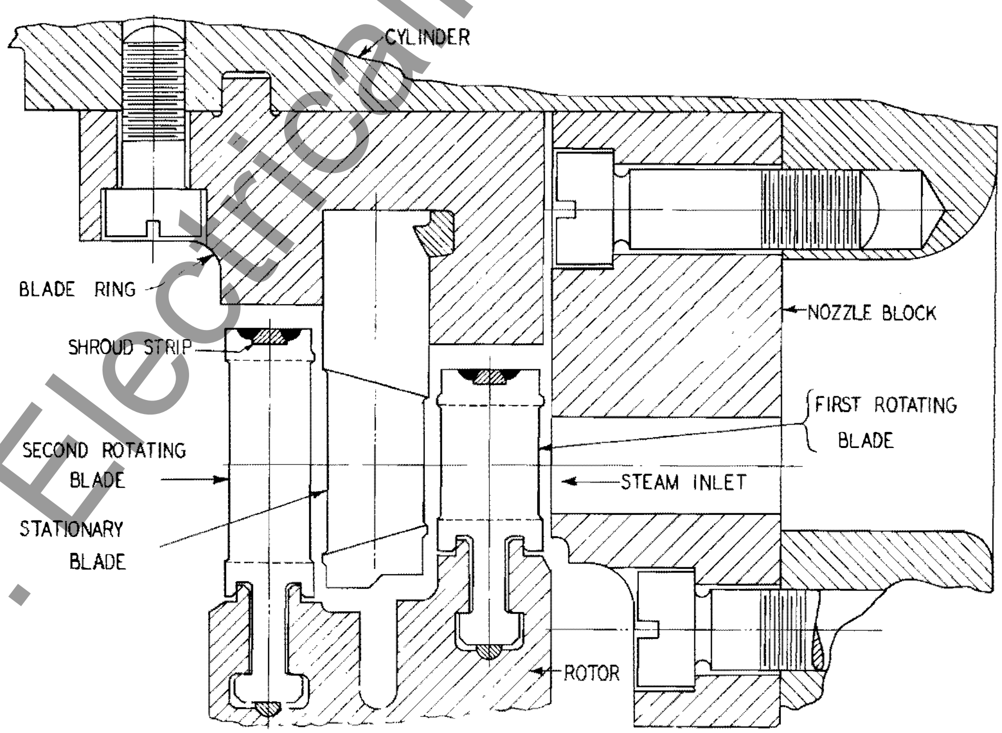

Figure 1