

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 and seal strip holder. The rotating blades are secured to the rotor disc by the "Straddle 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 and seal strip holder by a series of short keys which fit in supplementary grooves cut in the blade shank and in the side of the main groove. A groove in the cylinder locates the blade and sealing strip holder axially in the cylinder and it is secured to the cylinder by fillister 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. All stationary blades are spot welded together in groups. This grouping causes the blades to vibrate as groups instead of individually thereby raising the frequency and lowering the amplitude of the vibration which, of course, decreases the vibrational stresses.

In order to decrease to a minimum the leakage of steam around the blades, special seal strips are used as shown on the drawing. These strips are held in the grooves by soft steel locking segments which are caulked into small offset grooves. The seal strips and locking segments must be fitted after the blades are installed. Since the strips are very thin, slight rubs between them and adjacent parts are negligible. Hence, they can be set with a close running clearance.

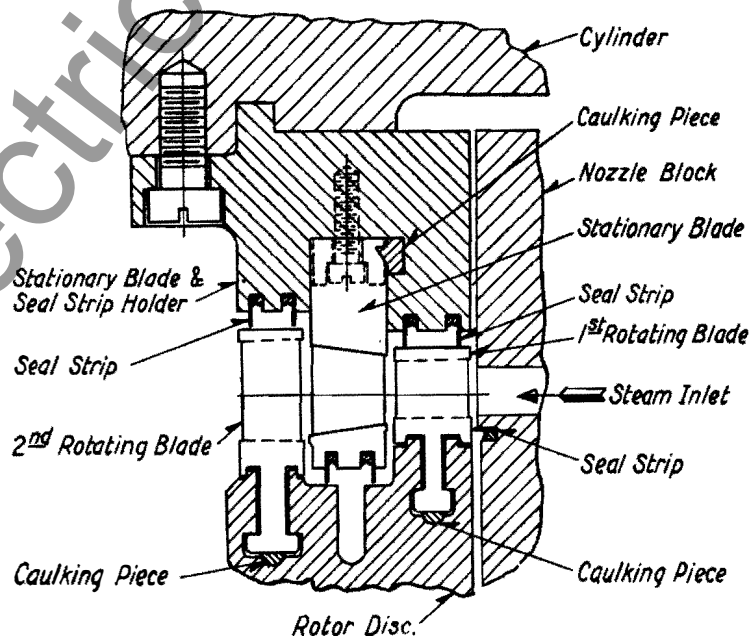


Figure 1