

(1)

UNION IRON WORKS  
FOR  
ROLPH BOATS  
HULL - 119.

Maximum H.P. - 2400

Speed- Turbine - 3552 R.P.M.  
Intermediate - 707 R.P.M.  
Propeller - 90 R.P.M.

Prints- Section Arrangement W-1167213  
Assembly of Shaft & Gears W-1614807  
Wheels T-1613951  
Buckets T-1614521

Physical Properties of Materials:

Bucket Blades- B-Metal (Nickel Bronze)  
Ultimate Strength- 75,000#/sq.in.  
Elongation- 28% in 2 inches.

Bucket Blades- D-Metal (Monel Metal)  
Ultimate Strength- 80,000#/sq.in.  
Elongation- 30% in 2 inches.

Bucket Wheels- Carbon Steel Forgings- Specs.-M-544.  
Ultimate Strength- 78,000#/sq.in.  
Elastic Limit- 40,000#/sq.in.  
Elongation- 22 1/2 in 2 inches.

Steam Pressures:

High Pressure Throttle Valve- 200 lbs. Gauge.  
Turbine Valve Casing- 200 lbs. Gauge.  
First Stage- Maximum- 55 lbs. Gauge.

Tests (Hydraulic):

Throttle Valve 3 times norm.stm.pres  
Turbine Head (Subject to Live Steam) 2 " " " "  
Turbine Casing- High Press. End- 100 lbs. Gauge.  
Turbine Casing- Low Press. End & Exh.- 30 lbs. Gauge.



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## DESCRIPTION OF GEAR

HIGH SPEED GEAR

The high speed gear consists of a pinion driving on each side a flexible gear wheel. Each flexible wheel is built up from twelve discs mounted on a hub and firmly clamped and held to a central flange on the hub by means of bolts. The discs are separated by a small clearance space at their peripheries and capable of individual axial deflection under load and by this means the load is equally distributed over the teeth in mesh. The turbine pinion is hollow and is driven by means of a flexible shaft.

LOW SPEED GEAR

This gear consists of two pinions driving a common low speed wheel. The speed of the pinions is 707 R.P.M. and they are driven by means of flexible shafts extending through them. These flexible shafts drive the load equally between the two pinions and are at the one end coupled to the shafts of the flexible disks of the high speed gear and at their other end, driving the low speed pinions by means of sliding couplings, which are secured to the flexible shafts.

J.H.D.

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