NOTICE: When government or other drawings, specifications or other data are used for any purpose other than in connection with a definitely related government procurement operation, the U. S. Government thereby incurs no responsibility, nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use or sell any patented invention that may in any way be related thereto.
The author develops the approximate formula for determining the power characteristics of the control mechanism when the regulating system uses an incompressible fluid as working substance. All previous investigations on this subject assumed a flow toward the damper, the incompressible fluids used being air, kerosene and AMT10 (AM10) oil. However, for a large number of marine gas-turbine installations it is necessary to know the damper characteristics when the flow is directed away from the damper (Fig. 1). The fluid used for this particular investigation was diesel oil. The author finds the final formula (8) for the case of flow as shown in Fig. 1:

\[ N = \pi p_d r_0^2 + \pi p_0 (R_1^2 - r_0^2) - \frac{B^2 \rho}{\pi} \left( \frac{\xi}{4h^2} \ln \frac{R_1}{r_c} - \frac{1}{r_0^2} \right) \]  

where \( N \) is the jet pressure, \( p_d \) the discharge pressure, \( p_0 \) the static pressure, \( \rho \) the density of the liquid, \( B \) the flow volume per second, \( \xi \) the coefficient of loss. There are 3 figures.

Figure 1