

December 29, 1948

TO: E. K. Wheat

FROM: W. E. Lock

SUBJECT: STRESS ANALYSIS ON DRAW RIFLED BARRELS

Four Barrels, two in .270 Winchester and two in the 30-06 Cal., were stress coated and subjected to the draw rifling process to determine stresses exerted by the draw rifling plug as it is pushed through the Barrel. The Barrels differ in their dimensions, two being of the standard type now used with the taper and two of the straight type which were previously standard. Results of the stress analysis are as follows:

Barrel I:

Straight .270 Winchester

End of Muzzle Stress - 56,000 psi

Radial Stress - 45,000 psi

Barrel II:

Tapered .270 Winchester

End of Muzzle Stress - 57,000 psi

Radial Stress - 51,000 psi

Wavy stress lines indicate stresses not to be perpendicular with the center line of the bore. Concentration in these sections up to 57,000 psi

Barrel III:

Straight 30-06 Cal.

End of Muzzle Stress - 56,000 psi

Radial Stress - 45,000 psi

Barrel IV:

Tapered 30-06 Cal.

Radial Stress overall - 57,000 psi

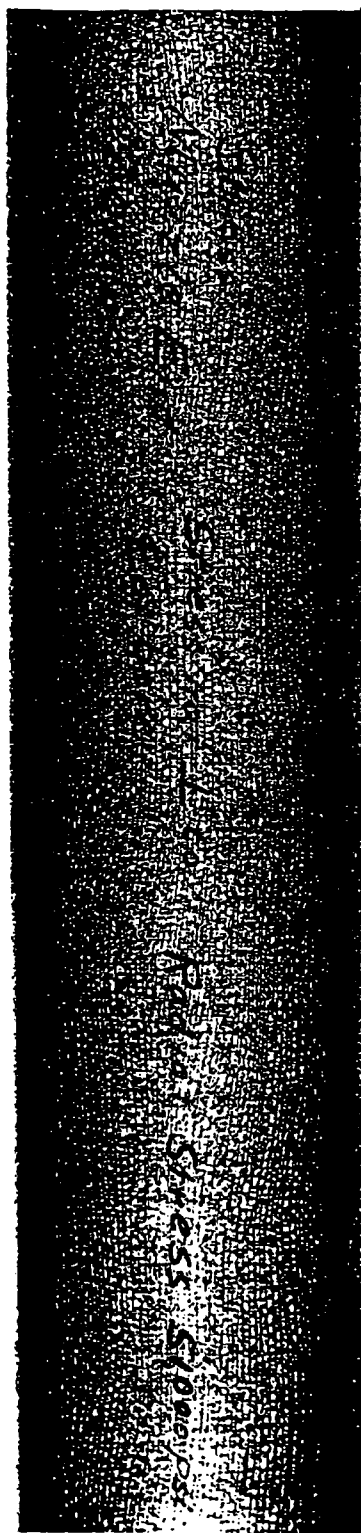
Wavy stress lines indicate stress not to be perpendicular to center line of bore.

W. E. Lock
W. E. Lock
Design Unit

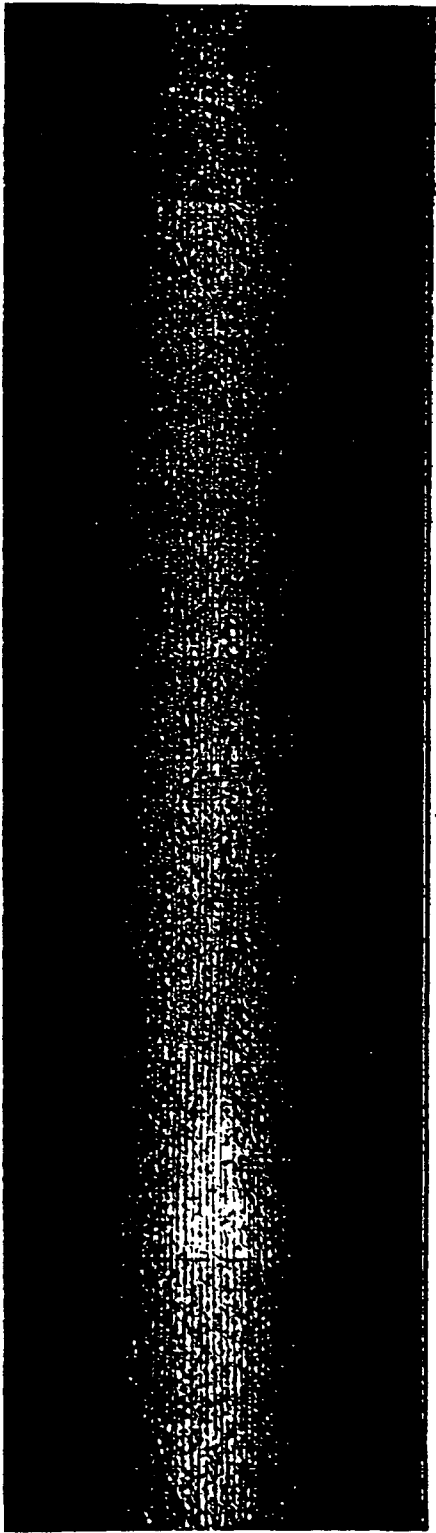
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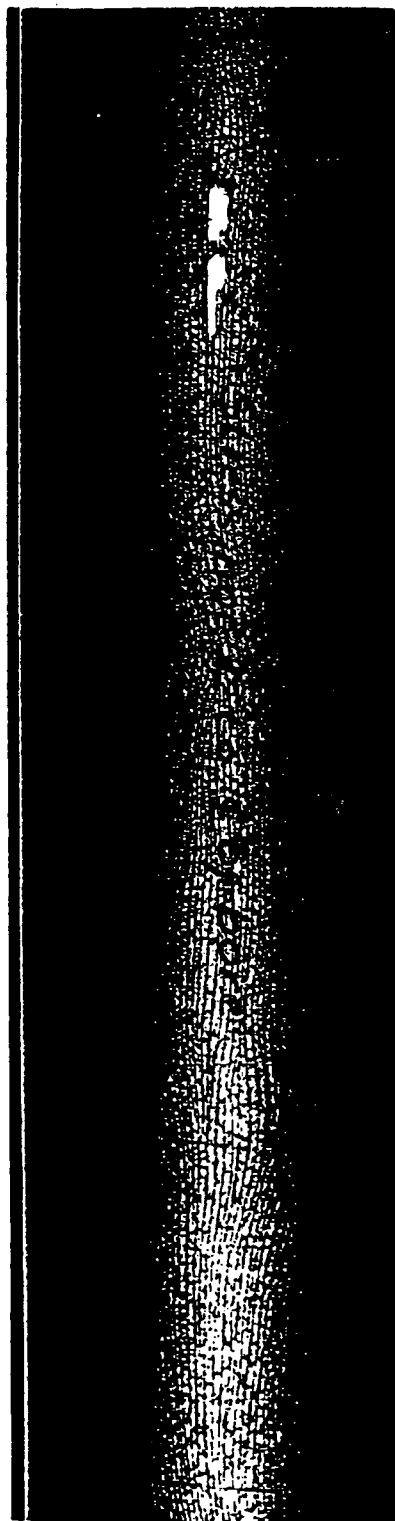
270 Tapered



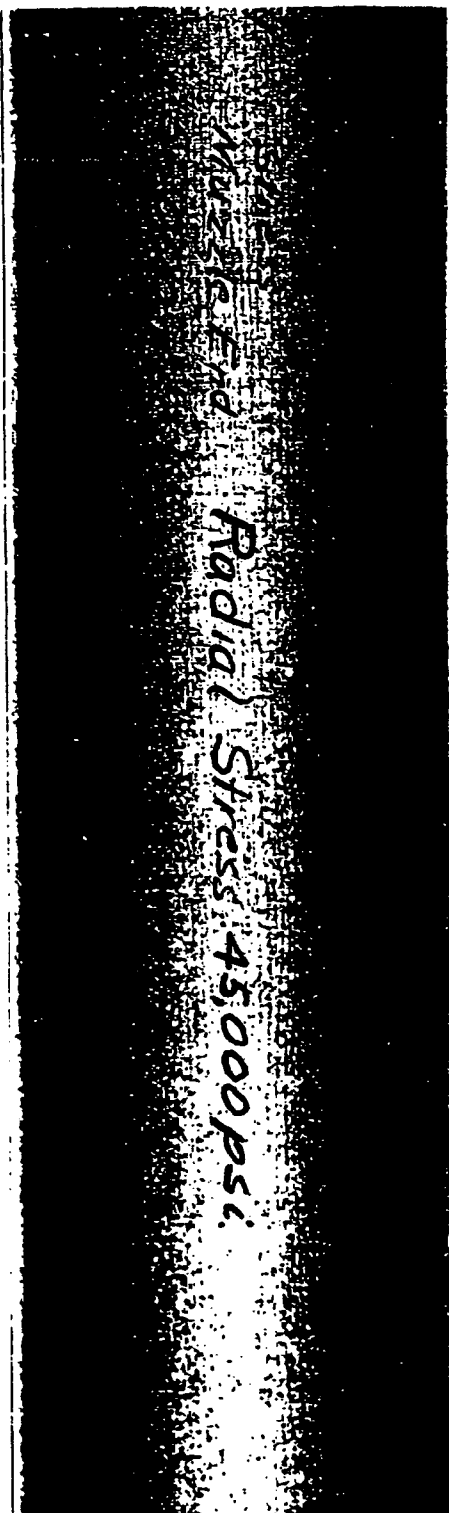
270 Straight



30'06 Tapered



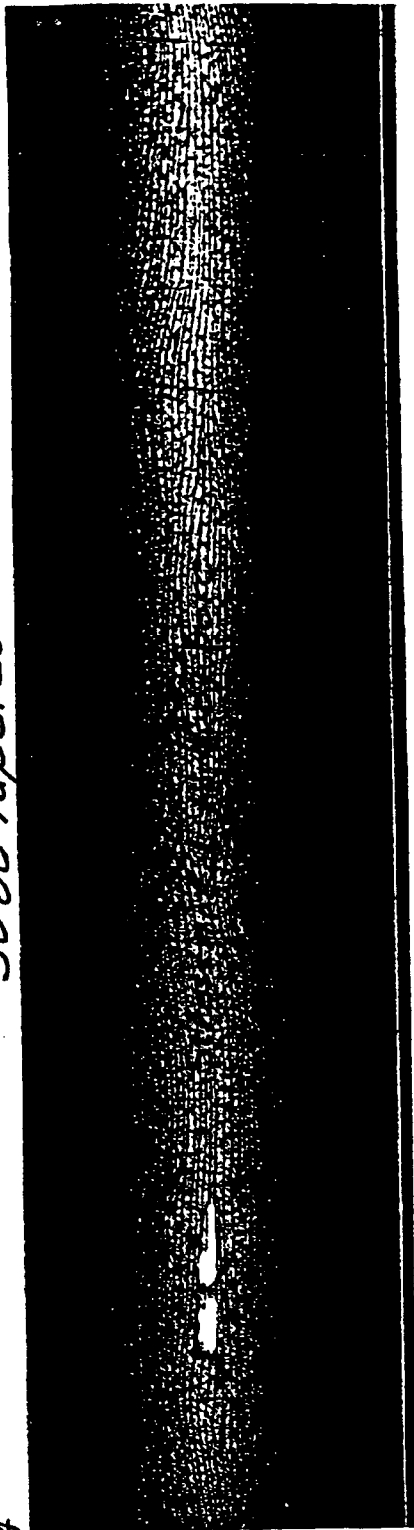
30'06 Straight



Radial Stress 45,000 psi

30'06 Tapered

4



30'06 Straight

3

