the internal primer cavity height into which the priming mixture is spun is probably the chief controlling mechanical factor both in uniformity and in the degree of sensitivity. This finding prompted work by other groups on optimum primer ingredient granulation and optimum head thickness which promises to benefit present product.

This Quarter's Work:

Evaluation of the one-draw process, both to refine its processing and to establish its ballistic performance, was carried out. It appears that a satisfactory mass production process giving a superior product at a lower cost has been worked out.

Proposed Next Quarter's Work:

A pilot production lot of upwards of 100,000 cases will be made and tested.

Project: New Crimp Binder - TM-3342
Personnel: D. R. Adessa, G. E. Hutchinson
Authorized Amount: $21,000 Total Expended to Date: $22,958

Nature of Problem:

The outstanding difficulty associated with the New Crimp development has been that of securing an entirely satisfactory binder which could be applied in mass production, which would be stable in storage and which would not cause chamber buildup or ejection failures, particularly during rapid firing in hot weather. This project investigated both thermosetting binders and thermoplastic binders which, by the addition of a cross linking agent, could be rendered thermosetting so that, once bonded onto the shell, the binder would be absolutely non-tacky under any future conditions and therefore could cause no chamber buildup or ejection difficulty.

Summary of Progress from Inception:

A considerable number of possibilities was evaluated and work was concentrated on the most promising, a urea-formaldehyde resin applied from a water dispersion onto paper tape and subsequently affixed to the shot shell at approximately the same temperature and pressure employed with the hitherto standard ethyl cellulose thermoplastic binder. To facilitate the setting up of the urea-formaldehyde, a water-dispersed catalyst is applied to the shot shell closure immediately prior to affixing.

This Quarter's Work:

The chief activity has been the processing of a field test for the new binder on trap and skeet loads. This involved establishing a satisfactory source of coated tape supply as well as modifying plant equipment and processing sufficient quantities of shells for the field test. A Part V has been submitted to complete this work in addition to securing some data required by the Patent Attorney prior to filing an application on the new binder.