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REC. R.A.A.H.
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ACTIVITIES OF THE ARMS SECTION

TECHNICAL DEPARTMENT

SECOND QUARTER, 1945

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TECHNICAL DEPARTMENT

SECOND QUARTER, 1945

Project: Model 721, Bolt Action, High Power Rifle - L-3121

Personnel: M. H. Walker, Design Section; M. H. Smith, P. F. Henriksen,
H. C. Moss, E. W. Angell, Engineering Section

Authorized Amount: \$71,100

Total Expended to Date: \$36,652

Nature of Problem:

Development of a low cost high power rifle to take the place of the present Model 720.

Summary of Progress from Inception:

A design was conceived and built in which the objective of simple parts was met very successfully. Twenty-three of the fifty parts are blank and form operations or springs which can be furnished by vendors specializing in this field. Basic process records have been written for the remaining twenty-seven parts, which are being reviewed by a committee representing Design, Tool Design, Estimating, and Production Engineering of the Technical Department. In processing the gun, operations little used at Ilion, such as internal broaching, rise and fall milling, induction brazing, swage rifling, and automatic machine finishing of barrels, are planned. The recommendations of the Arms Study Processing Report are being given careful consideration.

This Quarter's Work:

Military work has limited this quarter's progress; however, extractor revisions have been made, and work on minor alterations to comply with Products Committee action has been started. No further progress has been made on processing the 721.

Proposed Next Quarter's Work:

Test revised extractor, complete revisions, and submit for Products Committee approval. Make and test models in 30-06, .270, and .257 calibers. It is planned to resume processing work on this model. Further developments will be made on the rough process already established. Machine tool manufacturers will be contacted as an aid in selecting machines. Further efforts will be made to place orders for producing stamped and formed parts.

Project: Model 760 Slide Action Center Fire Rifle - H-1029

Personnel: J. D. Howell, C. C. Orloff, H. W. Young, Gun Design Section

Authorized Amount: \$89,000

Total Expended to Date: \$24,110

Nature of Problem:

Design a high power slide action rifle capable of handling ammunition more powerful than any previously handled in slide action rifles and yet weighing less and costing less to produce than our present medium power slide action center fire rifle.

Summary of Progress from Inception:

A project was made out and approved for a 20 KW. Unit, and an order was sent to the Purchasing Department. Since no 20 KW. Unit was available, the project was revised for a 30 KW. Unit and reapproved. The order is being amended prior to being placed.

This Quarter's Work:

Revised the project and order, as shown above.

Proposed Next Quarter's Work:

Submit the order to Bridgeport for approval, and then have the Purchasing Department place it with the vendor. After the order is placed, we plan to visit the Tocco Company to obtain information on coils, coil manufacture, and the operation of the new Tocco Unit. When the new equipment is received, we shall dispose of the present machine.

Project: High Speed Milling - TP-3403-10

Personnel: E. K. Wheat, I. R. Wilson

Authorized Amount: \$500

Total Expended to Date: \$462

Nature of Problem:

(Exploratory) To determine the advisability of replacing the conventional high speed steel cutters used to mill some cuts, with tungsten carbide negative angle cutters, in order to realize increased feed rates with less time per piece, better surface finish, and longer cutter life.

Summary of Progress from Inception:

Five operations were analyzed. It was found that one operation required a machine of more power than we have available. Another operation required an arbor of 1 inch diameter for a cut $3\frac{1}{2}$ inches wide, so, because of poor cutter support, no further work is planned. Tooling on one operation is now ready for run-off on a 1-H-K & T 15 inch milling machine in the Technical Pilot Plant Area. No work was started on the fifth operation, since the analysis showed that it is desirable to have a machine with rise and fall to the spindle carrier to raise the cutter off the work on the machine table return.

This Quarter's Work:

No further work was attempted during this period because of the lack of funds. A project was prepared and is now being approved. The work not completed on this project will be finished under the proposed project.

Proposed Next Quarter's Work:

No further work will be done on this exploratory project. All work will be absorbed on the proposed High Speed Milling project.

Project: Cold Test Equipment - TP-3403-11

Personnel: H. C. Moss

Authorized Amount: \$300

Total Expended to Date: \$158

Nature of Problem:

(Exploratory) To design and specify equipment for testing all model guns at reduced temperatures.

Summary of Progress from Inception:

A perspective drawing has been made and a probable supplier contacted. Modification in design is progressing.

This Quarter's Work:

Same as above.

Proposed Next Quarter's Work:

A design and specification will be prepared, a quotation will be obtained, and a project prepared.

Project: Surface Peening - TP-3403-12

Personnel: H. C. Moss

Authorized Amount: \$300

Total Expended to Date: \$179

Nature of Problem:

(Exploratory) To determine the value of surface peening as a method of producing superior quality arms components; then, if the quality is increased sufficiently to justify further investigation, to determine the economic feasibility of the process to Remington.

Summary of Progress from Inception:

The Model 11 mainspring has in the past been a component of doubtful quality; therefore, the Model 11 mainspring was chosen to be the part with which to compare quality of regular production and surface processes.

This Quarter's Work:

Twelve Model 11 mainsprings were sent to the W. W. Sly Company for surface peening. Destructive tests show a variation in cycles of from 57,000 maximum to 16,000 minimum, with no definite trend noticeable.

Proposed Next Quarter's Work:

More springs will be tested for comparison with those currently produced.

Project: Mann Barrel Equipment: TP-3403-13

Personnel: H. C. Moss

Authorized Amount: \$500

Total Expended to Date: \$210

Nature of Problem:

(Exploratory) To prepare a project to procure equipment necessary for accommodating the Mann Barrel and machine rests for files.

Summary of Progress from Inception:

Specifications and prices with a source of supply have been assembled.