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ILION RESEARCH DIVISION

MONTHLY REPORT

MAY 1955

SHOTGUNS

SPORTSMAN-58

12 Gage

The TE Grade has been authorized for adding to the line and specifications have been completed so that the Plant can proceed on putting up a quantity for the Grand American.

16 & 20 Gage

Work was stopped on the Research design, completed in April, in order to take advantage of the lower cost design recommended by the D.E.D. Group. Design tests were completed with four guns and results were very good. We have therefore suggested that the Plant assemble a pre-pilot lot and these guns should be available within several weeks.

Design Improvements

Magazine Spacer - This is a molded nylon part designed for use with a steel pin and will require no staking to the magazine tube. The assembly provides better control for the end coils of the magazine spring and also is easier for disassembly and servicing.

Piston and Ring - With the old style piston assembly it was possible for the piston ring to be caught or jammed in an extreme forward position when the magazine cap and barrel is

removed and the action released. A refinement has been made to the machining of the top of the piston to eliminate this condition. Occasional trouble has also been experienced when the sharp ends of the piston rings have become caught in the gas ports of the magazine tube. A ring with a square joint has eliminated this condition.

Fore End Assembly - The original design of the fore end assembly provided a neoprene ring as a "filler piece" between the barrel guide ring and the recess in the front of the fore end. This appeared to be adequate throughout testing for the past several years; however, some shooters have experienced trouble when the neoprene ring has become damaged or out of position through improper reassembly. The Sales Department has requested an improvement to eliminate the condition. A retaining groove added to the steel fore end ring has been tested and seems to offer little improvement. An alternate proposal would replace the neoprene ring with a steel spring and seems to be the answer.

Grip Cap - This is another component which has given trouble both from standpoint of assembly and cost. Design improvement to simplify assembly has been devised and is being tested. Also, there are several ideas for improved finishing being explored. Quotations have been solicited from other vendors in attempt to reduce the material cost and fabrication from metal powders or perhaps die casting is also being considered.

#### SPORTSMAN X

Model making for the preliminary mock-up has been completed to a point where it is possible to evaluate the proposed construction.

of the trigger guard grip and stock assemblies. Work on the action and feeding mechanisms has been started and can be accelerated with completion of the new laboratory facilities which should be available in June.

#### CENTER FIRE RIFLES

##### MODEL 725

The proposed design for a new safety has been completed to the extent that model making is under way. Work has also been started on revised stocks which will be required to accommodate the safety as well as the suggested fore end improvements by Sales. Present indications are that a new sample rifle will be available for review in July.

##### MODEL 740 - CALIBER 308

Testing of the pilot assembly has been completed and recommendation made that corrections be incorporated to the magazine before this new caliber is introduced. There was a larger percentage of gallery rejects because of failures to "blow back". It was found that after the rifle was fired some 25 to 50 rounds the action tends to become smoother and functions satisfactorily. Investigation fails to point to any single cause for this condition and generally speaking it appears to be a combination of interferences relating to either finishes or burrs which seem to "clear" after the gun is "broken in". Some practical means for eliminating this situation is being studied.

##### MODEL 740 - 244 CALIBER

Further development work for this caliber will be deferred until components for pre-pilot assembly are available.

MODEL 760 - 308 CALIBER

Further development work for this caliber will be deferred until components for pre-pilot assembly are available.

MODEL 760 - CALIBER 222

The rifle containing the necessary modifications for incorporating this caliber has been turned over to the Plant for estimating purposes. Further development will be dependent upon action taken in adopting this caliber.

RIM FIRE RIFLES

MODEL 552

*Except for completing the design history*  
Further activity on introducing this model <sup>is</sup> has been deferred since the Plant is involved with a critical situation in respect to parts for producing the Model 572 Rifle. This difficulty has been principally confined to the automatic barrel processing machine now undergoing major modifications in effort to eliminate the frequent breakdowns which have hampered production.

MODEL 555

The mold for producing the nylon stocks is still expected to be available in September and work on the functioning model is virtually completed to a point where it should be held for incorporating such revisions as found necessary to accommodate shrinkage characteristics of the nylon stock assembly. Arrangements have been completed for consultation with consultants on colors during the first week in June.

MODEL 524 BOLT ACTION RIFLE

There has been no further activity on this model which is a modification of the M/521T in combination with some of the M/513T components. Further activity awaits action to be taken with respect to adopting this model to replace the M/513T and M/521T.

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