

CONTROVERSY OVER REFILLABLE FUSES

Bureau of Standards Holds Hearings to Determine Whether or Not the Use of Refillable Fuses Introduces Extra Fire Hazard

At a public hearing on refillable fuses called by the National Bureau of Standards, Washington, D. C., July 8, two sessions were held, one in the forenoon and the other in the afternoon. Dr. S. W. Stratton, director of the Bureau of Standards, acted as chairman of the former session, and Dr. E. B. Rosa, chief physicist of the bureau, as chairman of the latter.

In opening the hearing Dr. Stratton outlined the development of the activities of the bureau, beginning with the investigation of standards of measurements, the preparation of specifications for materials, first for government service and later for use by the public. He stated that the hearing on refillable fuses represented an important event in the history of the bureau, which for the first time was acting as arbitrator to avoid the expense of unnecessary legal tangles. Upon the joint request of the Underwriters' Laboratories and the Economy Fuse & Manufacturing Company, the bureau undertook to bring together for discussion all available facts having a bearing on the following question:

"Has it been shown that the use of the fuses manufactured by the Economy Fuse & Manufacturing Company results in no greater fire or accident hazard than the use of other cartridge fuses at present listed as standard by the Underwriters' Laboratories?"

Dr. Rosa explained that members of the bureau's staff had tested many fuses in order to ascertain the behavior under all practical service conditions, had consulted with wiring inspectors of numerous municipalities, had visited many installations to make a thorough investigation of refillable and non-refillable fuses. He stated that a full digest of all the evidence considered at the hearing will be made public at some time in the future.

Among those who participated in the discussion were Messrs. W. H. Merrill for the Underwriters' Laboratories, Chicago, R. L. Foot, A. L. Eustice and H. E. Clifford for the Economy Fuse & Manufacturing Company, Chicago, H. R. Sargent for the General Electric Company, Schenectady, N. Y., Guy Cunningham and L. W. Downes for the D. & W. Fuse Company, Providence, R. I.

Mr. Merrill expressed his appreciation of the value of co-operation between the Bureau and the Underwriters' Laboratories for which arrangements were made two years ago. He said that the staff of the Bureau is well qualified and in excellent position to decide between citizens in conflict over technical matters.

Mr. Foot stated that more than 1,000,000 refillable fuses have been sold by the Economy company and sufficient evidence has been accumulated to determine whether or not these fuses in service represent a greater hazard than do the fuses approved by the Underwriters' Laboratories. He claimed that, on account of the extra cost involved in returning an approved cartridge fuse to the manufacturer for refilling, the temptation to refill the fuse on the premises is very great. As a matter of fact, 40 per cent of the users of standard approved fuses admit refilling on their premises. In the case of the Economy refillable fuse the cost involved in refilling the fuse properly is so slight that there is no temptation to refill improperly.

Mr. Foot read fourteen affidavits from wiring inspectors and persons similarly qualified to ascertain the magnitude of the fire hazards produced by fuses, in Chicago, Cincinnati, Indianapolis, Covington, Cleveland, Milwaukee, Philadelphia, St. Louis and Columbus, in order to show that the hazard with the Economy fuse

has proved to be at least no greater than that with standard approved cartridge fuses. In practically every case the inspectors stated that the Economy fuses had been properly refilled, while standard fuses had been abused.

Mr. Merrill claimed that the affidavits should not be taken too seriously because they related to experience with several types of Economy fuses. The earlier types were much superior to the latest type which alone was under discussion before the Underwriters. He remarked that the opinion of the staff of the Bureau of Standards cannot be different from that of the staff of the Underwriters' Laboratories.

Mr. Cunningham claimed that the manufacturer should always be held responsible for the operation of a fuse. He cannot be so held when the user is permitted to refill a fuse that has blown in service.

Mr. Sargent remarked that users who attempt to reload standard non-refillable fuses, in spite of instructions to the contrary, will improperly refill all other types of fuses. He said that the cost of the fuse service actually required will be less with the standard fuses reloaded by the manufacturer than with refillable fuses reloaded by the user.

Professor Clifford outlined the results of tests made upon fuses at the Market Street substation of the Commonwealth Edison Company, Chicago, which indicated that in no sense were the Economy fuses inferior to standard fuses and that in some respects they were superior thereto.

Mr. Downes claimed that the number of standard fuses improperly refilled is relatively very small, being perhaps 4000 per year out of 6,000,000 produced annually. In reply to a question by Mr. Foot, Mr. Downes stated that standard fuses refilled by the manufacturers are tested at the factory but not at the Underwriters' Laboratories.

Dr. Rosa mentioned the fact that standard fuses are reloaded in various localities by companies not associated with the manufacturers.

Mr. Foot claimed that the Underwriters are inconsistent in demanding extra long practical service of refillable fuses before approval while approving certain non-refillable fuses that have been in service for a very short time.

In bringing the hearing to a close, Dr. Rosa requested that all available information relating to the subject under discussion be submitted to the Bureau of Standards. The staff of the Bureau will investigate all evidence submitted before rendering its decision.