L. & J. SCHULMAN.

PYROTECHNICS.

APPLICATION FILED DEC. 22, 1906.

956,546. Patented May 3, 1910.

Fig. 1.

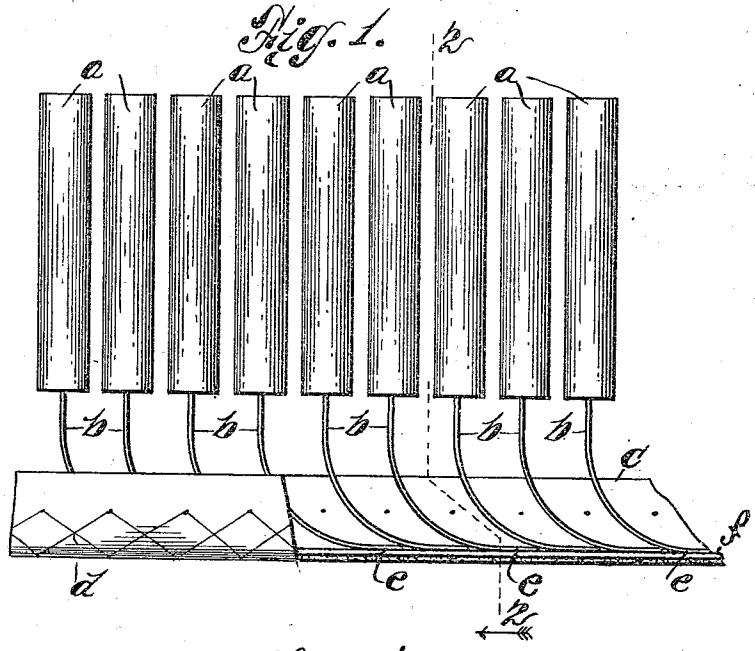
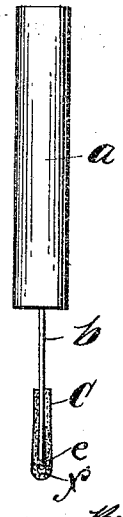


Fig. 2.



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UNITED STATES PATENT OFFICE.

LOUIS SCHULMAN AND JOSEPH SCHULMAN, OF NEW YORK, N. Y., ASSIGNORS TO AMERICAN FIRE CRACKER MANUFACTURING COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

PYROTECHNICS.

956,546. Specification of Letters Patent. Patented May 3, 1910.

Application filed December 22, 1906. Serial No. 349,081.

To all whom it may concern:

Be it known that we, LOUIS SCHULMAN and JOSEPH SCHULMAN, citizens of the United States, residing in the borough of Brooklyn, city of New York, county of Kings, and State of New York, have jointly invented certain new and useful Improvements in Pyrotechnics, of which the following is a specification.

This invention relates to pyrotechnics, and particularly to explosive pyrotechnics such as firecrackers, roman candles, and similar products, and it has for its object to provide an improved pyrotechnic article of manufacture whereby may be obtained spectacular effects of increased attractiveness and general efficiency.

A further particular object of the invention is to provide an improved article of manufacture of the character described of relatively more acceptable and convenient marketable form.

The present invention, in its specific aspects, relates to another invention for which we are jointly applying for Letters Patent as evidenced by an application for bunching machines, filed in the Patent Office simultaneously herewith, December 22nd, 1906, and serially numbered 349,082.

In the drawings: Figure 1 is a representation of a bunch of fire crackers combined with and connected together by a pyrotechnic element in accordance with the invention; and, Fig. 2 is a sectional view, taken upon the line 2—2 Fig. 1 and looking in the direction of the appended arrow.

Corresponding parts in both figures of the drawings are denoted by the same reference characters.

Referring with particularity to the drawing, the improved article of manufacture, as represented, comprises a plurality or bunch of firecrackers, *a*, *a*, *a*, or similar pyrotechnic devices, each of which is provided with the customary fuse *b*, said firecrackers being connected together by and combined with a pyrotechnic binder element *c* which consists preferably of a strip of paper, textile material or other pliable fabric which is folded over the free end portions of the fuses *b* and is impregnated with a suitable combustible or explosive pyrotechnic substance, such as red fire or other illuminating compound or mixture. The strip *c* is conveniently and preferably united with the fuses *b* by a line or lines of stitching *d*. The strip *c* is folded around the fuses *b* in such manner as to extend transversely of the same; and, preferably, in such manner that the firecrackers *a* may assume a serial arrangement in flat relation. The end portions of the fuses *b* are preferably bent substantially at right angles, as at *e*, so as to extend longitudinally of the strip *c*, at their terminal portions, as clearly illustrated in Fig. 2.

Associated with the binder element *c* and the fuses *b* of the several firecrackers is an extended fuse *f* whereby ignition is more positively transmitted throughout the series of fuses *b*.

It will be noted that the strip *c*, while serving as an inflammable or combustible connection between the several fuses *b*, at the same time serves to bind the firecrackers *a* together in convenient form for packing, storage or sale. By igniting the strip *c* at any point, said strip is caused to burn and present the prearranged pyrotechnic effects, at the same time transmitting ignition by itself and the agency of the fuse *f* successively to the several fuses *b* and the firecrackers *a* which latter are in turn ignited and present their explosive pyrotechnic effects.

A wide variety of alterations and substitutions may be made with respect to the firecrackers *a*, the fuses *b* and the pyrotechnic strip *c*, with a consequent wide variety of effects obtained. We do not therefore desire to limit ourselves to the specific nature of the formation, connection or composition of the parts and elements described and disclosed; but reserve the right to vary the same, in adapting the improvements to varying conditions of use without departing from the spirit of the invention or the terms of the following claims.

Having thus described our invention, we claim and desire to secure by Letters Patent:—

1. An article of manufacture comprising a plurality of pyrotechnic devices each provided with a fuse, and a display pyrotechnic element common to the said devices and connected to the fuses thereof.

2. An article of manufacture comprising a plurality of firecrackers provided with fuses, and a display pyrotechnic element to which the fuses of the said firecrackers are connected.

3. An article of manufacture comprising a plurality of firecrackers each provided with a fuse, a display pyrotechnic element common to the said firecrackers and connected to the fuses thereof, and an extended fuse combined with the said pyrotechnic element and the other said fuses.

4. An article of manufacture comprising a bunch of pyrotechnic devices each provided with a fuse, and a trough-shaped pyrotechnic element within which the ends of the fuses are secured.

5. An article of manufacture comprising a bunch of pyrotechnic elements each provided with a fuse, and a trough-shaped pyrotechnic element consisting of an impregnated folded flexible strip within which the ends of the fuses are secured.

6. An article of manufacture comprising a bunch of firecrackers each provided with a fuse, and a trough-shaped pyrotechnic element consisting of an impregnated flexible strip which is folded about the end portions of the fuses.

7. An article of manufacture comprising a bunch of pyrotechnic devices each provided with a fuse, and a pyrotechnic element consisting of an impregnated flexible strip which is folded about and stitched in connection with the end portions of the fuses, which end portions of the fuses are bent to extend within, and longitudinally of, the folded strip.

8. An article of manufacture comprising a plurality of pyrotechnic devices provided with fuses, a pyrotechnic element connecting them together, and an extended fuse combined with the said pyrotechnic element and the other said fuses.

9. An article of manufacture comprising a plurality of pyrotechnic devices each provided with a fuse, a pyrotechnic element consisting of a flexible strip, and an extended fuse which is combined with the said other fuses, the said flexible strip being folded about the end portions of the first named fuses and also about the same extended fuse.

10. An article of manufacture comprising a plurality of pyrotechnic devices each provided with a fuse, a pyrotechnic element consisting of a flexible strip, and an extended fuse which is combined with the said other fuses, the said flexible strip being folded about the end portions of the first named fuses and also about the said extended fuse, the said parts being secured together by stitching transverse of the folded flexible strip.

In testimony whereof, we have signed our names, in the presence of the subscribing witnesses.

LOUIS SCHULMAN.
JOSEPH SCHULMAN.

Witnesses:
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MICHAEL R. MATTEO.