May 26, 1953 J. ABLER 2,639,543

SMOKE-SIMULATING TOY GUN AND AMMUNITION

Filed July 23, 1949

FIG. 1

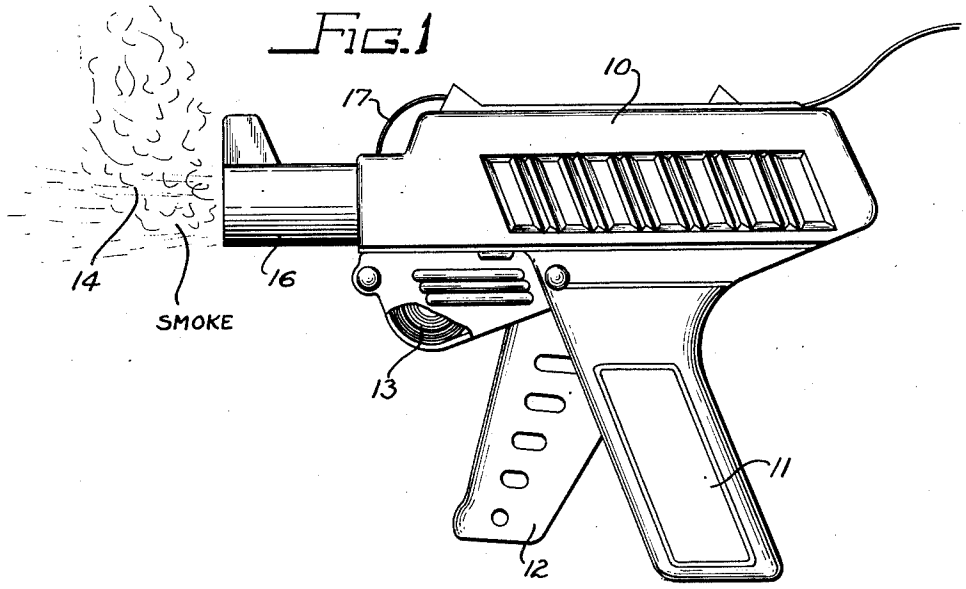


FIG. 2

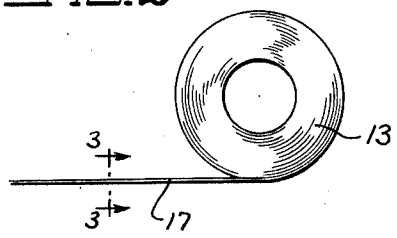


FIG. 3

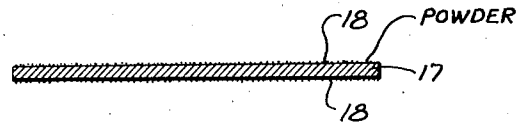
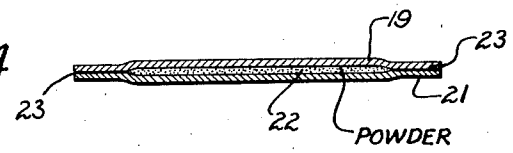


FIG. 4



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SMOKE-SIMULATING TOY GUN AND AMMUNITION

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6 Claims. (Cl. 46—9)

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My invention relates to popguns and a paper product for use therewith.

It is old in the art to associate with a device simulating a hand gun or the like, a narrow roll of paper which is fed in stages through the device and at successive stages is perforated with compressed air to produce a popping noise. Devices of this general type are operated in different ways but for the most part such devices are provided with means for supporting a roll of paper, mechanism for engaging opposite sides of the paper to seal it against an opening, mechanism associated with a trigger or like element for compressing air against the so held paper with sufficient force to break through the paper with a popping noise, and mechanism for advancing the paper after popping to present a fresh section to the holding portion of the mechanism. While devices of this general character are, in general, as realistic in appearance and action, so far as toys may be made realistic, and so far as the popping noise simulating the report of a firearm is concerned, they lack a certain amount of appeal such as is associated with capguns and like devices where odor and sight combine to produce a greater appearance of realism. The paper popgun has the definite advantage, however, that it is safe even for relatively small children.

The principal object of my invention is to improve paper popguns of the type discussed hereinabove.

Another object is to provide a paper popgun combination in which elements of realism heretofore not available can be utilized.

Still another object of the invention is the provision of an improved paper product which may be utilized with popguns of the prior art to improve the illusion of realism thereof.

In carrying out my invention I associate with a paper tape of such a size and character as to be suitable for a popgun, a pulverulent material which becomes separated from the paper as the latter is perforated and appears as a smoke which can be readily seen and, if desired, may be of such a character as to carry a distinctive odor.

Other specific objects and details of the invention will be brought out in the following detailed description taken with the accompanying drawings, wherein:

Fig. 1 is an elevational view of a conventional type of popgun, the view being partly broken away to show the roll of paper carried thereby;

Fig. 2 is a perspective view showing a roll of paper as it is usually vended for use in the popgun of Fig. 1;

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Fig. 3 is an enlarged sectional view taken on the line 3—3 of Fig. 2; and

Fig. 4 is a view similar to Fig. 3 but showing a modified structure.

Looking now to the drawings, I show a toy pistol 10 with a grip 11 and trigger 12. The trigger is adapted to be pulled to perforate a single thickness of paper which is normally supported on the roll 13 and progressively fed upwardly through the toy pistol. I have indicated a puff of smoke 14 at the forward end of the barrel 16. I have not shown in detail the particular manner of feeding and perforating the paper because these features may be conventional and my invention is not primarily concerned with the particular structure or arrangement thereof. It is only essential that some usual feeding and air perforating means be employed.

The roll 13 comprises a single strip 17 of paper coiled on itself so as to be available for introduction into the toy pistol. The paper employed is preferably of highly imperforate, relatively tough but brittle stock so that a substantial air pressure can be applied against it before it is broken and so that when it is broken it has a tendency to produce a clean sharp break such as is needed to produce a sharp enough report. In general, this paper is about ¾ of an inch in width, but it may be somewhat narrower or somewhat wider, depending upon the design of the toy perforating device with which it is used. While the total length of the strip may vary, a common length is approximately 20 feet, particularly in the case of hand guns such as shown.

In carrying out my invention the opposite sides of the paper strip 17 are coated with pulverulent material 18. I find that this material may vary, and the manner of application may be modified rather extensively. When it is sufficient to produce a smoke-like appearance without regard to odor, I have found that ordinary talc may be used, and if it is merely dusted on the surface of the paper as it is passed from a large roll to a small one in the course of production of the roll as shown in Fig. 2, enough powder will adhere to the surface of the paper to produce a distinct smoke-like discharge when the air is sharply passed through the paper in the popping operation. More specifically, I have been able to produce a relatively very inexpensive but visually improved material by taking a wide roll of paper, passing the roll to a mandrel where the requisite length of paper 17 is wound thereon, cutting the wide paper into strips 17 of requisite length as it passes to the rewind mandrel, and,

as the paper moves from the original roll to the rewind mandrel, simply spraying a thin coating of powder to one side of the paper. I find that the very action of passing over idler and guide rollers and rolling the narrow sections up on themselves has the effect of evenly distributing the talc on the outside surfaces of the paper so that it is not readily displaced during usual handling of the small roll so produced. The talc so held in position, however, is dislodged when the paper is perforated and a distinct smoke-like discharge results.

I may also apply the powder in the manner shown in Fig. 4, in which I provide two paper strips 19 and 21 with powder 22 between them. The paper strips are sealed along their edges at 23 so as to retain the powder in position even though it may be present in greater amount than would normally be retained on the surface. I find also that I may introduce the powder in the form of a slurry which quickly dries and is held in position like an adhesive but which breaks up into discrete particles and is dislodged from the paper when the paper is perforated. These latter two arrangements, in general, are not recommended because they add to the cost as contrasted with the form of invention shown in Fig. 3 and, in general, do not offer a sufficient advantage over the structure of Fig. 3 to warrant the additional cost.

The pulverulent material may vary extensively and I have used powdered substances of many kinds, including various powdered rock-like materials such as powdered soapstone, powdered clays, diatomaceous earths, various inert metal salts and oxides, flours of various kinds, and the like, both alone and in admixture. Such materials may be white or tinted, as desired. With these I have incorporated substances which have a pungent, sulphurous, nitrous or acrid odor and which can be likened to the odor associated with gunfire. Such substances are available as essences or perfume constituents, and can be added to the powder, or they may be prepared by charring or partly charring various mixed carbonaceous substances.

I have found that ordinary talc and talc-like substances providing only the visual additive interest are so much an improvement over the paper products which provide only an audible imitation of gunfire, that they are greatly in demand and stimulate interest so much that the greater expense of introducing the factor of odor is frequently not warranted. The simulation of odor, moreover, can be more readily introduced when the powder is entirely encapsulated by the paper in the manner shown in Fig. 4, and, as pointed out, the relatively simpler form of Fig. 3 is in many respects preferred.

I wish to point out, however, that even with the simple form of invention shown in Fig. 3, it is possible to introduce the factor of odor by merely preliminarily absorbing the odor on the surface of the powder.

The scope of the invention is defined by the appended claims.

I claim:

1. A paper roll for use in a popgun and adapted to be perforated by air pressure applied thereto by the popgun comprising a strip of imperforate and tough but brittle paper formed in a roll and having a width for reception in the popgun and constructed to withstand a substantial air pressure applied thereto before it is perforated thereby and to produce a clean sharp break to afford a sharp report when perforated by the substantial air pressure, and a coating of pulverant material releasably carried by the surface of the paper strip to be forcefully separated from the paper strip when the paper strip is so perforated by the air pressure to produce the appearance of gunfire smoke.

2. A paper roll for use in a popgun and adapted to be perforated by air pressure applied thereto by the popgun comprising a strip of imperforate and tough but brittle paper formed in a roll and having a width for reception in the popgun and constructed to withstand a substantial air pressure applied thereto before it is perforated thereby and to produce a clean sharp break to afford a sharp report when perforated by the substantial air pressure, and a coating of pulverant and odoriferous material releasably carried by the surface of the paper strip to be forcefully separated from the paper strip when the paper strip is so perforated by the air pressure to produce the appearance and odor of gunfire smoke.

3. In a popgun having means for supporting a strip of paper, mechanism for compressing air against a section of the paper strip with sufficient pressure to perforate the paper with a popping noise and means for advancing the paper strip to present a fresh section thereof for perforation, in combination therewith, a strip of imperforate and tough but brittle paper received in the popgun in operative position with respect to said supporting means, air compressing mechanism and advancing means and constructed to withstand a substantial air pressure applied thereto before it is perforated thereby and to produce a clean sharp break to afford a sharp report when perforated by the substantial air pressure, and a coating of pulverant material releasably carried by the surface of the paper strip to be forcefully separated from the paper strip when the paper strip is so perforated by the air pressure to produce the appearance of gunfire smoke.

4. In a popgun having means for supporting a strip of paper, mechanism for compressing air against a section of the paper strip with sufficient pressure to perforate the paper with a popping noise and means for advancing the paper strip to present a fresh section thereof for perforation, in combination therewith, a strip of imperforate and tough but brittle paper received in the popgun in operative position with respect to said supporting means, air compressing mechanism and advancing means and constructed to withstand a substantial air pressure applied thereto before it is perforated thereby and to produce a clean sharp break to afford a sharp report when perforated by the substantial air pressure, and a coating of pulverant and odoriferous material releasably carried by the surface of the paper strip to be forcefully separated from the paper strip when the paper strip is so perforated by the air pressure to produce the appearance and odor of gunfire smoke.

5. In a popgun having means for supporting a strip of paper formed in a roll, mechanism for compressing air against a section of the paper strip with sufficient pressure to perforate the paper with a popping noise and means for advancing the paper strip to present a fresh section thereof for perforation, in combination therewith, a strip of imperforate and tough but brittle paper formed in a roll and received in the popgun in operative position with respect to said supporting means, air compressing mechanism and advancing means and constructed to

withstand a substantial air pressure applied thereto before it is perforated thereby and to produce a clean sharp break to afford a sharp report when perforated by the substantial air pressure, and a coating of pulverant material releasably carried by the surface of the paper strip to be forcefully separated from the paper strip when the paper strip is so perforated by the air pressure to produce the appearance of gunfire smoke.

6. In a popgun having means for supporting a strip of paper formed in a roll, mechanism for compressing air against a section of the paper strip with sufficient pressure to perforate the paper with a popping noise and means for advancing the paper strip to present a fresh section thereof for perforation, in combination therewith, a strip of imperforate and tough but brittle paper formed in a roll and received in the popgun in operative position with respect to said supporting means, air compressing mechanism and advancing means and constructed to withstand a substantial air pressure applied thereto before it is perforated thereby and to produce a clean

sharp break to afford a sharp report when perforated by the substantial air pressure, and a coating of pulverant and odoriferous material releasably carried by the surface of the paper strip to be forcefully separated from the paper strip when the paper strip is so perforated by the air pressure to produce the appearance and odor of gunfire smoke.

JULIUS ABLER.

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