DETONATOR FOR CHRISTMAS CRACKERS AND THE LIKE

Filed Jan. 20, 1938

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.
This invention relates to noise producing devices such as frequently termed Christmas crackers which comprise tubular paper casings in which are contained detonating devices operable by pulling opposite ends of a pull member formed usually, of strips of tough cardboard. Each pull member has a detonating device incorporated therein formed of overlapped parts of the member having a fulminating compound therebetween ignitable by a relative sliding movement of the parts.

Such detonators give but a single detonation when pulled, and my object is to provide a detonator which, when pulled will give two or more successive detonations, thus vastly increasing the surprise effect and the amusement when a cracker is pulled.

I attain my object by means of a construction which may be briefly described as follows.

Two or more detonator pull members are provided each preferably formed as hereinbefore described. The ends of these pull members are associated in such a manner that all pull members can be pulled simultaneously, but, assuming two pull members to be employed, one of them includes a provision for lost motion to delay its action and thus cause the explosion of its detonating device to follow that of the other detonating device after a very brief interval determined by the amount of lost motion provided.

While the ends of the pull members may be merely laid together so that they may be simultaneously grasped and pulled, it is preferable to secure adjacent ends together, as, for example, by wire staples, in which case it is not essential that the pull members be coterminous.

The simplest method of providing lost motion is to include sufficient slack in one of the pull members to permit of the other pull member being drawn upon and its detonating device exploded before the slack referred to can be taken up and the second pull member tautened and its detonator exploded.

As an alternative more or less elasticity may be incorporated in one of the pull members which must be taken up before its detonating device can be exploded.

The invention is also readily adaptable to produce more than two explosions, the added pull members being provided with progressively increasing slack relative to one another and the initially taut pull member.

The invention is hereinafter more fully described and is illustrated in the accompanying drawing in which—

Fig. 1 is a longitudinal section of a Christmas cracker provided with my improved detonator.

Fig. 2 a perspective view of a detonator arranged for two explosions.

Fig. 3 a similar view showing one detonating device exploded.

Fig. 4 a similar view showing elastic included in one pull member to provide lost motion; and

Fig. 5 a side elevation showing a detonator adapted to produce three explosions.

In the drawing like numerals of reference indicate corresponding parts in the different figures.

Referring particularly to Fig. 1, 1 represents a tubular casing generally of paper or the like such as commonly employed for the production of Christmas crackers. Within the casing 1 is contained the detonator which comprises the pull members 2 and 3 each provided intermediate its ends with a detonating device 4 preferably of the type hereinbefore referred to. The ends of the pull members are shown as associated in such a manner that they may be simultaneously grasped and pulled. Preferably, however, the ends of the pull members will be stapled or otherwise secured together as shown at 6 in Fig. 2.

In Fig. 1 the slack to cause the explosions of the detonators to succeed one another is provided by simply bowing the pull member 3 as shown in Fig. 1 at 5. In Fig. 2 the slack is shown as provided by corrugating the pull member 3. Lost motion may also be provided by inserting an elastic member 5' in the pull member 3 as shown in Fig. 4. When the pull members are pulled from opposite ends, the elastic is stretched and ultimately the elastic pull is sufficient to explode the second detonating device.

It is contemplated that more than two detonations may be arranged for. This is readily effected by an arrangement such as shown in Fig. 5 in which a third pull member 7 is connected with the ends of the other pull members for simultaneous pulling and which contains a greater provision for lost motion than the pull member 3. This is easily effected by increasing the number of corrugations in the pull member 7 as compared with those provided in the pull member 3.

The operation of the device will be evident from an inspection of the drawing. Initially the parts are in the position shown in Figs. 1 and 2.

When the pull members are drawn upon, the detonating device in the member 2 first explodes. The slack in the pull member 3 is then taken up as shown in Fig. 3 when a further pull causes the second detonation to occur and so on.
From the above description it will be seen that I have devised a detonator for Christmas crackers which will satisfactorily attain the objects of my invention as set out in the preamble to this specification.

It is to be understood, however, that many other uses may be made of the detonator than its inclusion in Christmas crackers and such as will fall within the scope of my invention as defined in the appended claims.

What I claim as my invention is:

1. A detonator comprising two detonator pull members formed of inextensible strips and each including a detonating device intermediate of its ends, the said members being associated at each end for simultaneous pulling but one of them including slack to form a provision for lost motion to delay its action and thus cause the detonations to succeed one another.

2. A detonator comprising two detonator pull members formed of inextensible strips and each including a detonating device intermediate of its ends, the said members being directly connected together at each end for simultaneous pulling but one of them including slack to form a provision for lost motion to delay its action and thus cause the detonations to succeed one another.

3. A detonator according to claim 1 in which each detonating device is formed by overlapped parts of the pull members having a fulminating compound therebetween ignitable by a relative sliding movement of the parts.

4. A detonator according to claim 1 in which the slack is formed by transverse corrugations in the slack pull member.

5. A detonator according to claim 1 in which the slack is formed by transverse corrugations in the slack pull member and a third pull member is provided having corrugations to provide greater slack than in the other slack pull member.

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