

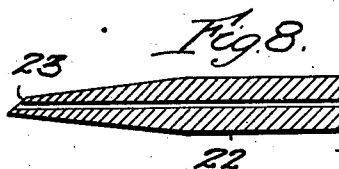
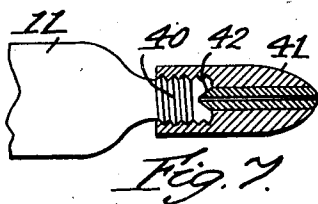
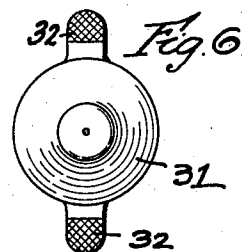
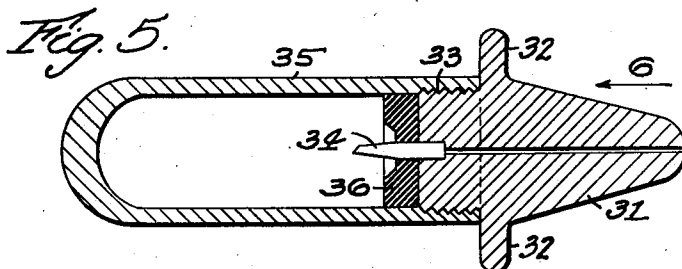
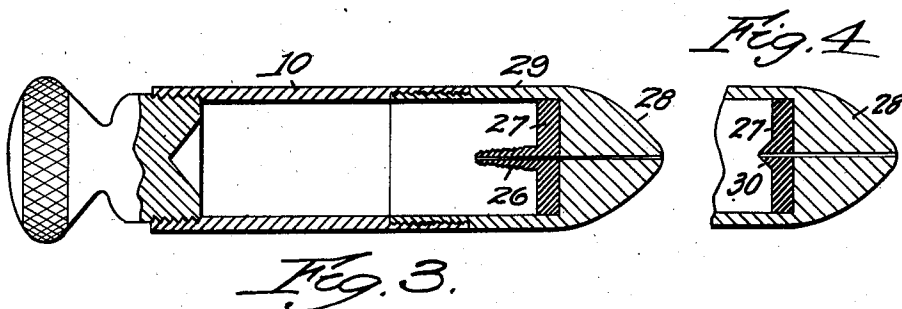
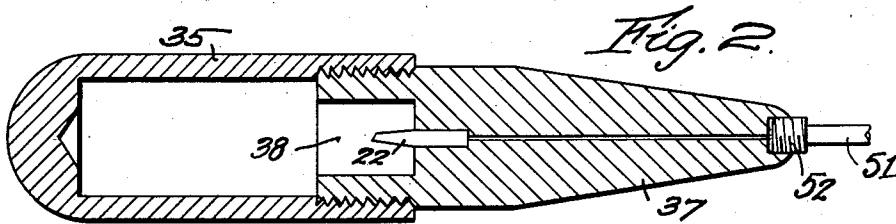
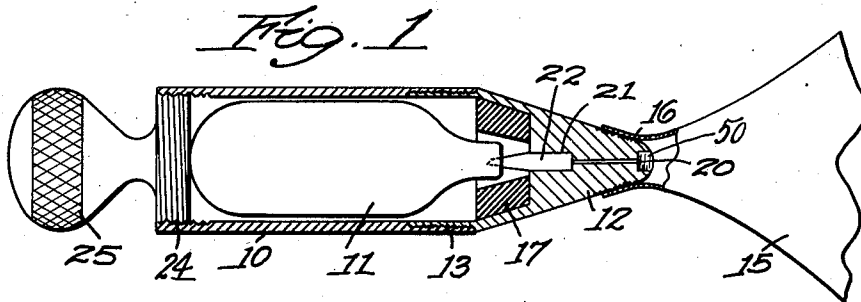
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DEVICE FOR INFLATING BALLOONS AND THE LIKE

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DEVICE FOR INFLATING BALLOONS AND
THE LIKE

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4 Claims. (Cl. 226—20)

The principal object of this invention is to provide a compact and convenient device by which toy and other balloons, tires, and the like can be inflated by means of a cartridge filled with compressed air or, if more buoyancy is desired, hydrogen or even helium.

Other objects of the invention are to provide convenient means for inserting means for piercing the cartridge for letting air into the balloon and to provide a nozzle of such shape as to receive the open mouth of the balloon and hold the balloon firmly in place by its own elasticity applied to the said nozzle. Another object is to provide an improved piercing pin.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawing, in which

Fig. 1 is a longitudinal central sectional view of a preferred embodiment of this invention;

Fig. 2 is a similar view of a modification;

Fig. 3, 4 and 5 are similar views of other modifications;

Fig. 6 is an end view of the form shown in Fig. 5, as indicated by the arrow 6;

Fig. 7 is a view of another modification, and

Fig. 8 is a sectional view of a preferred form of piercing pin on enlarged scale.

The main purpose of this invention is to provide adequate means for supporting the balloon firmly by its own elasticity in a position for receiving a charge of compressed air from a cartridge provided therefor and to provide for supporting the cartridge and balloon on the same holder.

The device comprises a casing 10 inside which a cartridge 11 previously filled with compressed air is located. This casing is provided with a nozzle 12 which is secured to the open end of the casing 10, preferably by a screwthread 13 long enough to prevent any escape of air or gas. The nozzle 12 in this form of the invention is shown as conical with a rounded end but, as will appear later, some other shapes can be employed. The essential feature is that the nozzle is large at one end and small at the other so that the balloon 15 can be placed about it and the mouth 16 of the balloon stretched on the nozzle to hold the balloon in place. The balloon is placed on the tip of the nozzle far enough up so that the natural resiliency of the mouth of the balloon will hold it on the nozzle in spite of the air under pressure that is forced into it by this device. This constitutes a very simple holder for the balloon and expander for its mouth and can be

made to form a part of the casing by means of the screwthread 13, as specified. A washer 17 is shown located inside the nozzle at the end toward the casing and serving the usual purpose of a washer.

The nozzle is provided with a longitudinal perforation 20 extending from one end to the other. It is also provided with a second central longitudinal perforation 21 for receiving a piercing pin 22. This piercing pin is located in said longitudinal perforation 21 and driven in to be seated at the end of it so that there will be no escape of air or other gas. It projects into a space in the washer 17 and preferably is provided with a slanting end 23. Of course, it is perforated all the way into this slanting end.

On the other end of the casing 10 located in a screwthread 24 is a handle 25 which, obviously, can be turned to force the cartridge against the sharp end of the piercing pin. The pin pierces the flat end of the cartridge and allows the air under pressure to pass through the perforation 20 into the balloon. There is no way for the air or gas to escape on the way to the balloon, which will be filled with the air that has been compressed in the cartridge 11 and which, by its expansion into the balloon will inflate the balloon many times the size of the cartridge.

It will be seen that this is unitary. The cartridge is put in by entirely removing the handle 25 and is pierced by further motion of that handle inwardly. There are no parts to apply to the device. The only thing to do is to put on the balloon, as shown in Fig. 1. This constitutes a very simple and convenient means for accomplishing the above mentioned objects.

The forms shown in Figs. 3, 4 and 5 are based on the same principles as the device shown in Fig. 1 although the operation in Fig. 5 is different. In Figs. 3 and 4 it is intended that the handle will operate the same as in Fig. 1. The only important difference is in the piercing pin. In Fig. 3 the piercing pin 26 is provided with screwthreads or other roughening on its slanted outside surface to permit it to enter the cartridge more freely and it is also integrally mounted on a metal washer 27. The nozzle 28 is integrally connected with a casing member 29 which screws into the main casing 10 in an obvious manner. In this case the shape of the nozzle is changed materially but a balloon can be mounted on it in the same way as in Fig. 1.

In Fig. 4 the change consists simply in making the piercing pin 30 considerably blunter but it is still integral with the washer 27 and the nozzle

28 here is shown as the same shape as in Fig. 3.

In Fig. 5 the nozzle 31 is of a different shape and it is provided with two projections 32 which constitute together a handle by which it can be
5 screwed in along screwthreads 33 for the purpose of forcing the piercing pin 34 into the cartridge. The latter is located in the casing 35 which has a solid end instead of an adjustable and removable one. Here the piercing pin is surrounded
10 and held in position by a washer 36 of another variety. The balloon is placed upon it as before and the handles 32 are turned to screw up the pin 34 until it pierces the cartridge.

In the form shown in Fig. 2 the conditions are quite similar to those shown in Fig. 5 with some
15 change in the nozzle 37 which is not provided with an operating handle. The piercing pin 22 is like the one shown in Fig. 1. The nozzle is provided with a recess 38 into which the end of the cartridge projects. The rear end of the casing 35
20 is solid and may be screwed up by hand until the cartridge which projects into the recess 38 is pierced.

In the form shown in Fig. 7 a cartridge 41 has
25 a screwthreaded end 40 which fits a screwthread in the nozzle 41 and a piercing pin 42 extends through the nozzle and is provided with a piercing point on its inner end which performs the same function as the others.

In all these forms the cartridge is filled with
30 air, or some light gas instead of CO₂. The instrument itself contains the nozzle for the balloon and the piercing pin releases the air in the cartridge and allows the filling of the balloon without
35 any means for protecting the article to be filled. No leakage can occur and the cartridge can be removed and replaced in an extremely simple manner.

For filling tires the nozzle is provided at its end
40 with an internal screwthreaded recess 50. When used for inflating balloons this does not affect the result as shown in Fig. 1. When filling a tire the cartridge is filled with compressed air. A rubber hose 51 with a terminal screwthreaded hollow

connection 52 is employed. The threaded connection is screwed into the recess 50. Of course, the other end of the tube is provided with the usual valve. This arrangement can be applied to
5 each of the forms shown.

This construction will be of use to any driver who has a puncture or even a more serious deflation. This device will enable him to reach a garage without running on the rim.

Having thus described my invention and the
10 advantages thereof, I do not wish to be limited to the details herein disclosed, otherwise than as set forth in the claims, but what I claim is:

1. A device for inflating balloons or the like comprising a tubular cartridge-receiving casing
15 internally screw threaded at at least one end, a one-piece unitary nozzle including a threaded nipple adapted to be screwed into the end of the casing and an external portion integral therewith of substantially conical shape adapted to receive
20 the expansible neck of a balloon or the like to insure a fluid tight fit during inflation, said nozzle having a passage extending therethrough, and a cartridge-piercing pin located at the inner end of said passage having a passage communicating
25 with the passage in the nozzle, said nozzle having a recess adjacent the pin to provide a guide for the neck of the cartridge as it is forced into contact with the piercing pin.

2. An inflating device as set forth in claim 1,
30 wherein both ends of the tubular casing are internally threaded and a cartridge propelling element is screwed into the end opposite the nozzle.

3. An inflating device as set forth in claim 1,
35 wherein the end of the casing opposite the nozzle is closed, and the cartridge is forced against the piercing pin by rotating the nozzle and casing relative to each other.

4. An inflating device as set forth in claim 1,
40 wherein a washer is provided within the nozzle having an opening to receive the neck of the cartridge.

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