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Complete Left, 11th June, 1888

Complete Accepted, 13th July, 1888

A.D. 1887, 10th SEPTEMBER. N° 12,290.

PROVISIONAL SPECIFICATION.

A Football Inflator.

WILLIAM FRASER Engineer 49 Oxford Road Finsbury Park London, N. do hereby declare the nature of this invention to be as follows :—

A, is a piece of tube about $2\frac{1}{2}$ " in diar. and about 2" long or thereby, with one end closed with the exception of a small hole about $\frac{3}{8}$ " or thereby for attaching the
5 small tube, B. B. is a small tapered tube about 2" long or thereby & about $\frac{5}{16}$ " in Diar. with a small check valve at the screwed end marked, H. C. is a piece of tube about 2" long and fits into, A. & has a small recess about $\frac{1}{16}$ " deep or thereby, by about $\frac{3}{8}$ " broad, at the inner or closed up end for the purpose of putting a little packing to prevent escape when working, having a closed up end like, A. with a
10 small recess marked, D. about $\frac{3}{4}$ " in Diar. & about same depth for the purpose of holding spring, E. E. is a small spiral spring about 3" long by $\frac{3}{4}$ " in Diar. or thereby. F. is a piece of tube about $\frac{3}{4}$ " long & $\frac{3}{8}$ " or thereby in diar. with a valve marked, G. at the inside end & passes right up thro the spring, I.E. through the interior of same. I. is the outside end of, C. with a small hole marked, J. & is
15 about $\frac{1}{8}$ " in Diar. for the admission of air. K. is a shield for covering the outside of, C. & passing over the top or outside of, A. when compressed. The Inflator works as well without as with said shield, being there only to prevent the hands coming in contact with plunger, C. which is always more or less wet with oil. To work the Inflator, B. is inserted into the tube of the football. The Inflator is then placed
20 between both hands & compressed by opening and closing both hands simultaneously, I.E. when it is compressed by the closing of the hands the moment the pressure from the hands is relaxed the spring, E. forces, A. & C. from one another again or back to there normal position. The two valves are placed *visa-versa*, so every time the Inflator is compressed, the air in the inside compartment or chamber is
25 forced into the football, the air being drawn in at one end and forced out through tube, B. the back pressure from the football being checked by valve, H. the air being admitted by valve, G. The Inflator can be manufactured & sold about 1/- each or thereby, are strong & substantial & understood almost without any explanation.

30 Dated this Tenth day of September 1887.

WILLIAM FRASER.

[Price 8d.]

COMPLETE SPECIFICATION.

A Football Inflater.

I, WILLIAM FRASER of 49 Oxford Road, Finsbury Park, London, N. Engineer, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement :—

This invention relates to a portable apparatus, for the inflation of foot and like game 5 balls, and consists essentially of a combined plunger and air chamber, working telescopically within an open-ended cylinder, with coiled spring disposed between the bottom of the latter, and a recess formed within the inner end of the former.

The combined plunger and air chamber, and cylinder, are provided with valves respectively, the cylinder valve being at the entrance of the pipe of an outlet nozzle. 10

The above arrangement, I also modify, by substituting for the combined plunger and air chamber, a cup leather piston, which works to and fro within a cylinder, whose enclosed end is provided with a nozzle, at the entrance pipe of which, is a cone valve.

The return movement of the piston, is effected by a coiled spring, disposed 15 between the underside of a cap, on the end of a piston rod, and a bridge carried across the open mouth of the cylinder.

Figure 1 represents in vertical section, a portable football inflater, constructed according to this invention.

Figure 2 represents a transverse vertical section of the said inflater, upon the dotted 20 lines AB figure 1.

Figure 3 shows the inflater collapsed, whilst the said figure 1, shows it opened out.

Figure 4 is a plan of the enclosed end of the combined plunger and air chamber, and figure 5 shows the said plunger, and air chamber, separately.

The same letters of reference indicate corresponding parts in figures 1 to 5. 25

a is a plunger and air chamber, working telescopically within a cylinder b , whose outer end is closed by a cap b^1 , in the middle of which, is the pipe of a nozzle c , wherethrough air is forced from the inflater.

The entrance to the pipe of the nozzle c , has an outwardly opening valve and valve seat d, e ; and disposed between the inside of the outer end b^1 , and the bottom of a 30 recess or well a^2 , formed within the inner end of the combined plunger and air chamber, is a coiled spring f , which when the inflater is collapsed, as in figure 3, it rests within the said recess, which has at its bottom, a valve seat g , wherein a valve h , opens outwardly, or in the direction as indicated by the arrow.

Air is admitted to the combined plunger, and air chamber, through a hole a^3 , in the 35 middle of the outer end a^4 .

The valves are prevented from rising too far from their seats by stops j, k .

In using the inflater, it is only necessary to force inwardly, the plunger and air chamber a , when the valve g is closed, and the valve d opened, and the air contained within the interior of the cylinder b , is forced passed the valve d , and up the nozzle c , 40 to the object to be inflated.

Fraser's Football Inflator.

On relieving pressure from the combined plunger and air chamber, the same returns to its normal position, by the opening out of the spring, which causes the instant closing of the valve *d*, and opening of the valve *h*, thus admitting a fresh supply of air to the interior of the cylinder *b*, ready for the next inward stroke of the plunger.

- 5 Figure 6 represents another form of my invention, and figure 7 is an inverted plan of the same, and with the piston rod in section, on the dotted lines C D.

a is a cup leather piston, working within a cylinder *b*, whose outer end is enclosed, and carries a nozzle *c*, whose inner entrance is provided with a coned seat *e* and valve *d*.

- 10 The cup leather piston *a*, is enclosed between two discs or diaphragms *a*², *a*³, whilst the outward motion of the piston, is limited by a bridged stop *l*, with guide and bearing sleeve *l*², wherethrough a piston rod *a*⁴ works; and to the inner end of the said rod, the piston is connected, while the outer end carries a pusher cap *a*⁵.

- 15 Disposed between the underside of the pusher cap *a*⁵, and bridge *l*, is a coiled spring *f*; so that on the inward stroke of the piston being made, by pressure applied to the pusher cap, the air contained within the interior of the cylinder *b*, is forced outwardly, through the nozzle *c*, by the valve *d* opening outwardly.

- The return stroke of the piston, by the opening out of the spring, from its compressed state or condition, causes the cup leather edges *a*¹, to turn inwardly, and thus allow air to pass to the back of it, thereby dispensing with the use of an inlet valve.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is.—

- First. A portable football inflator, consisting of a plunger and air chamber *a*, with 25 recess and valve, working telescopically within a cylinder *b*, whose outer enclosed end, carries a nozzle *c*, provided with valve and valve seat, at its inner entrance; and which said plunger and cylinder, has disposed between the inner end of the one, and the bottom of the recess, or the inner end of the other, a coiled spring, for giving the return stroke; the parts of which inflator, are constructed and arranged, and work, 30 substantially as described and set forth, in figures 1 to 5 both inclusive.

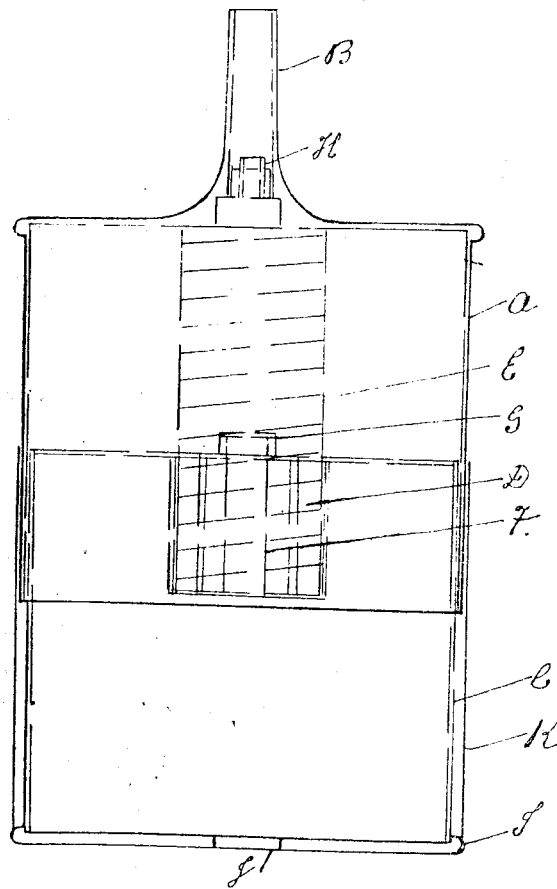
Secondly. The combination with an internally disposed coiled spring, of a well or recess *a*², wherein the said coiled spring, is enclosed, when the apparatus is collapsed, substantially as described and set forth in figures 1, 3 and 5.

- Thirdly. A football inflator, consisting of a cup leather piston *a*, *a*¹, *a*², *a*³, with 35 rod *a*⁴, and pusher *a*⁵, working within a cylinder *b*, whose outer enclosed end, has a nozzle, at the entrance of the pipe of which, is a valve, and cone valve and seat, while the piston's return stroke is performed or made, by a coiled spring *f*, disposed between a bridge and stop *l*, and the underside of the pusher cap, and which said parts are constructed, arranged, and operate substantially as described and set forth in 40 figures 5 and 6.

Dated this Seventh day of June 1888.

WILLIAM FRASER.

By Henry Skerrett,
Agent for Applicant.



[This Drawing is a reproduction of the Original on a reduced scale]

A.D. 1887, Sep. 10. N^o 12,290.
FRASER'S COMPLETE SPECIFICATION.

(1 SHEET)

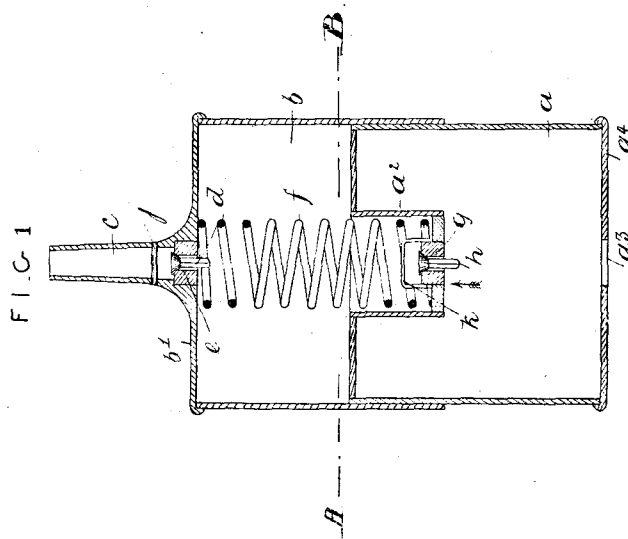


FIG. 2

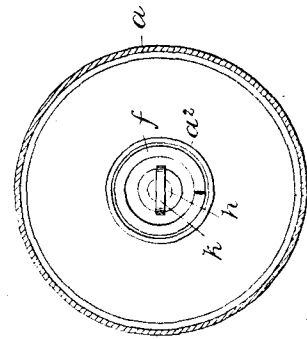


FIG. 3

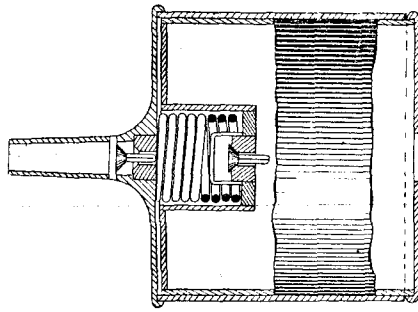


FIG. 4

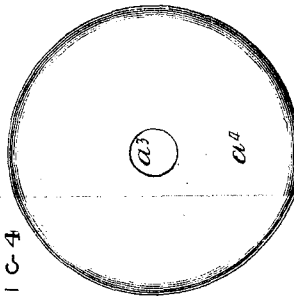


FIG. 5

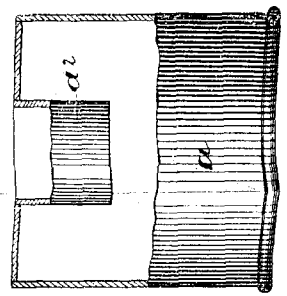


FIG. 6

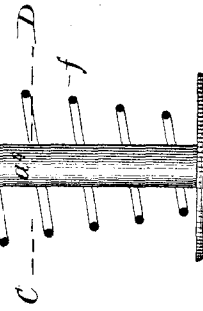
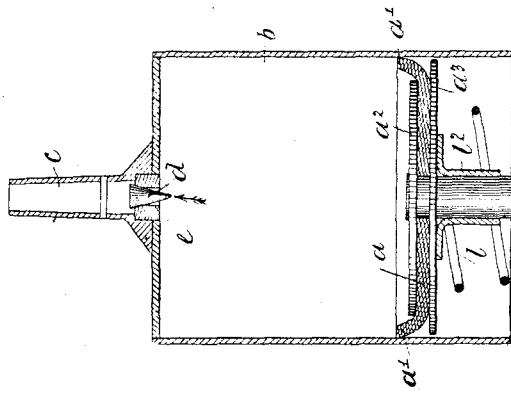


FIG. 7

