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54 A strainer device for stretching a flat flexible material.

57 The strainer device for performance of announcements and signs, which comprises a hollow body inflated by a gas, around which a flexible plane of cloth, gauze or polymer is clamped, such that said plane remains correctly visible in the direction as required.

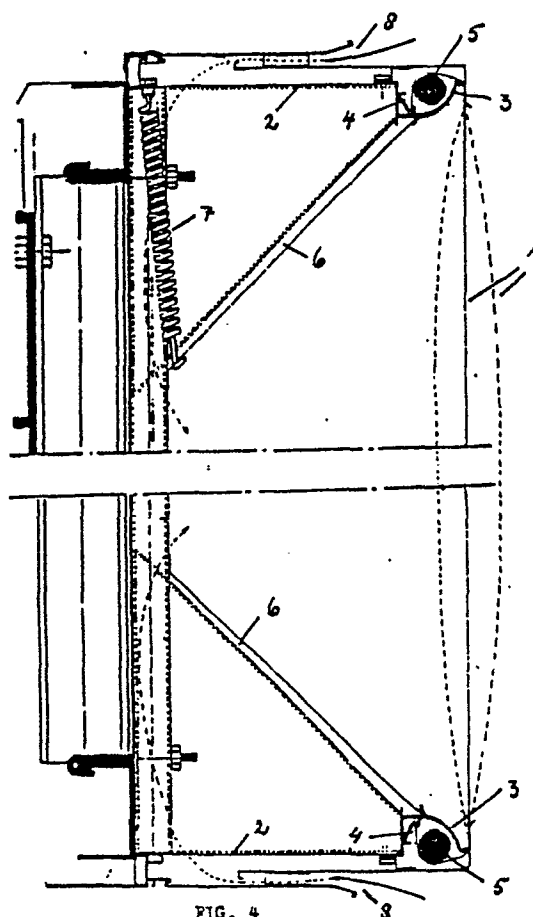


FIG. 4

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A strainer device for stretching a flat flexible material.

The present invention relates to a device which comprises a flexible screen cover which has to be kept in a stretched position, such as a cloth, gauze or reinforced plastic sheet, which is positioned in a frontal position of a box or shifting holder, and which is used mainly to perform announcements, warning signs and signals, advertisings, illuminated billboards and the like, e.g. at roads, public offices, stations, buildings, etc., and it can be illuminated from the front side or from the back side, and it may be provided with inscriptions, legends and signs, which may be discernable by colour or form of same.

In order to guarantee that such a means for announcements remains correctly visible within its holder or shift device, it ought to be kept taut and tightened by strain, also under changes of temperatures and of atmospheric pressures and in wind and storm, while resistance to such influences should be such, that the device will not be damaged.

For such a tensioning device a novel system has been developed, which is based upon the principle of expansion of a hollow body, that is tensioned by a confined gas therein, such as air or another gas, which is appropriate. This gas will keep the tension along the edges of the material in such a way that the surface of the screen is kept strained during increase and decrease of the volume of the hollow body within its frame during changes of external temperature and atmospheric pressure or wind.

The tension required for the strain adapts to the circumstances of the weather in such a manner, that the announcement upon the material of the screen always remains clearly and correctly visible.

The means used for the present system comprise a frame of moulded profiles, shaped in the form of a rectangular square or oblong housing, which at its front side is closed by an exchangeable flexible piece of cloth, gauze, canvas, tarpaulin or reinforced plastic, which at one or at both opposite seams within supports in the framework is pulled over an oblong elastic hollow body, shaped as a rolling tube or cylinder, while the edge of said flexible piece is clamped at the rear, and the said oblong hollow body is inflated with air or another gas. The gas has a tension such, that its volume increases by a decrease of outer pressure and said volume decreases by an increase of outer pressure.

Consequently the circumference of the elastic body decreases and increases accordingly.

The outer pressure upon the hollow body filled

with a gas is determined by meteorological factors, viz. barometric pressure, wind force, temperature and relative humidity; it has a compensating effect upon the tension of the flexible piece of the cloth or screen, resulting in a lasting strain of same within the supporting frame.

Dependent on the kind of gas and on the used inflating pressure the flexible material can be subjected to any tension as required and it can be kept at said tension, adapted to the prescribed effect and to the applicational need as a means for communication, advertising, caution, or other notice.

When the device according to the invention is put up and the hollow body is inflated with gas, the body can strain and release respectively as necessary, and no supervision or adjustment is needed.

The hollow body can be made of rubber or of a gas-tight elastic polymer, and the cloth, foil or gauze can be textile fabric, flexible plastics, such as PVC or polyester, with fibre or woven reinforcement, or metal gauze, canvas sail cloth, rubber or any other elastic cover.

For the use of the holder with flexible cover as an announcement or signal screen it may be illuminated from the front side, however the flexible plane can be illuminated as well from the back side; in this case reflecting planes are positioned within the frame, as described in Belgian Patent nr. 900 045.

These planes can be positioned at the back of the flexible material, kept by means of spring force at the supporting points.

As an alternative embodiment according to the invention, in the upper and lower profiles of the cornice or frame, slit- or channel-shaped apertures are provided, by which the pressure of the wind at the frontal side will be compensated by a guided inward flow to the back side, and in consequence the forces upon the flexible material are decreased. Thus the effects of inward pressure and of outer suction upon the flexible material, as e.g. during storm, are resisted.

The invention is further explained on the basis of the enclosed figures. In these figures the parts are indicated by corresponding numerals of positions.

Figure 1 shows a vertical cross-section of the cornice or frame (2) of the flexible material (1), into which the edge of said material is affixed at the upper and the lower frame part connection (4). Therein the flexible cloth is (1), the cornice or frame is (2), the supporting profiles are (3), the edge connection is (4), the oblong hollow body

inflated with a gas is (5), and the reflecting shield is (6) with a spring (7).

In said profiles are slit-shaped apertures (8).

Figure 2 shows a detail of the connection in the released position.

Figure 3 shows the detail of the connection in strained position, wherein the hollow body (5) is entirely extended by the increase in volume of the gas contained therein.

Figure 4 shows a vertical cross-section of a similar embodiment, which is provided with an adjustable reflecting shield (6), which is kept by a spring (7), while the housing is provided with slit-or channel-shaped apertures (8), whereby the wind pressure is compensated through inward and outward flow.

A similar construction fulfils in an optimal manner the need for a clamping flexible pane with signals or announcements or advertising means, for which said plane is detachable and exchangeable and which complies with requirements to be kept entirely taut under varying circumstances of the weather.

The device can be manufactured as an announcing sign, if it is provided with a bent supporting profile (3) at the inner edge of at least one rim, with a clamping edge (4) at the back side, and with the hollow oblong elastic air-or gas-containing body (5)-positioned upon the supporting profile, over which the gauze or cloth (1) is pulled.

Claims

1. A device with a flexible cover, characterized in that the flexible cover is kept tautened under strain by means of an oblong hollow body inflated with a gas.

2. A device for setting up or mounting a flexible surface for announcements, warnings, signals or notices, which can be illuminated from the frontside and/or from the backside, characterized in that said device comprises a frame (2) of profiles with the shape of a rectangular, square or oblong housing, which at its front side is closed by an exchangeable flexible cloth, gauze, canvas or plastic sheet (1), which at one or at both opposite sides is pulled into a supporting holder (3) of said frame over an oblong tube-or roller-shaped hollow body (5) and at the rear of same is fastened by clamping (4), while said hollow body (5) is inflated with air or another gas, having a pressure such, that its volume and its resulting circumference are increasing by a decrease of the outer pressure and are decreasing by an increase of the outer pressure respectively.

3. A device according to claim 1, characterized in that the hollow body is made of rubber.

4. A device according to claim 1, characterized in that the hollow body is made of an elastic flexible non-permeable polymer.

5. A device according to claim 1, characterized in that the upper and lower profile of the frame has slit-or channel-shaped apertures (8) for compensation of the wind pressure at the front side resulting from inflow from the back side.

6. A device according to one of claims 1-4, characterized in that the flexible plane of cloth, plastic or gauze (1) is provided with a heading or signs and that it is illuminated from the interior of the housing or from the outer side of same.

7. A device according to one of claims 1-5, characterized in that the flexible material (1) which is strained between the profiles, is exchangeable for another item of a different colour and/or heading, sign or announcement.

8. A method for manufacture of a device for announcements, which bears an exchangeable flexible plane material as a screen for announcements, characterized in that the flexible material (1) is braced tautly by means of a supporting profile (3) with an oblong elastic air-or gas-containing body (5).

9. A device according to claim 1, characterized in that it is placed in horizontal direction.

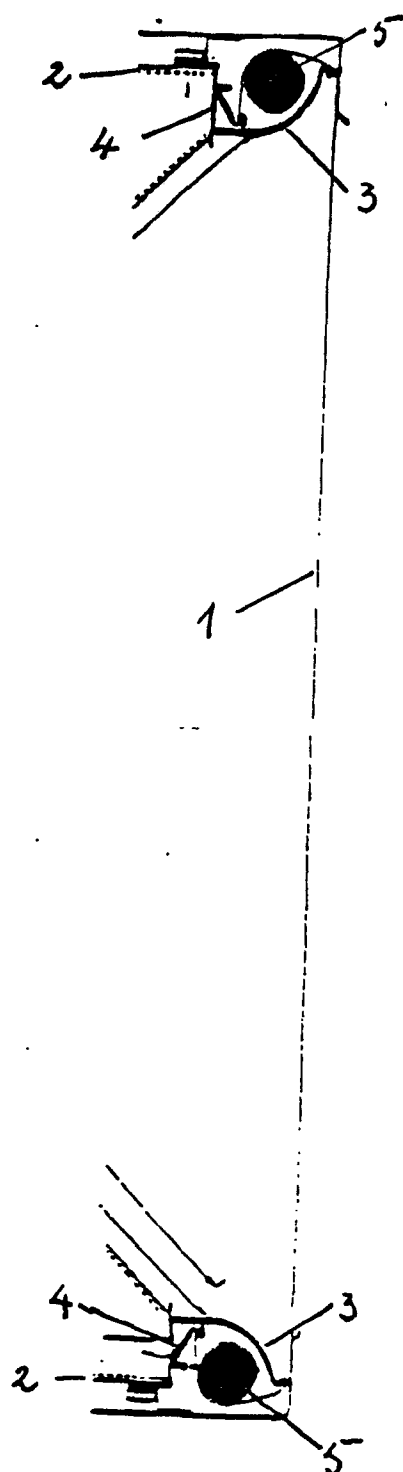


FIG. 1

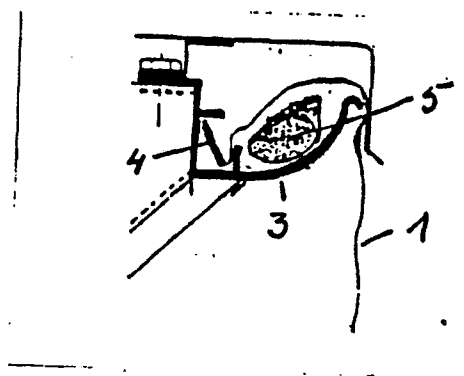


FIG. 2

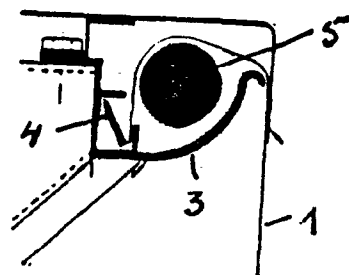


FIG. 3

