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SEALED FLOODLIGHT

The present invention is in the field of lighting and relates more particularly to a sealed floodlight, which
5 can be used for example on an outdoor stage for shows. This floodlight is designed in such a way as to make it possible to change the colour of the light emitted.

Various kinds of floodlights are known which are
10 capable of shining a light beam which can be adjusted in intensity and which can be made to change colour. This change of colour can be achieved using coloured filters ~~interposed~~ in a beam of white light, which filters can be disposed in a ring or overlaid ~~one~~ above
15 the other. It is also possible to carry out this change with an assembly of filters and of dichroic mirrors in the light beam. In practice all these systems with their advantages and drawbacks are more or less effective when they are working indoors. As soon as one
20 wishes to use these unsealed floodlights outdoors it is necessary to find solutions for protecting them from bad weather without impairing performance. If one has unsealed floodlights, they will certainly be limited in their steering movements on account of interference
25 with the ~~covers~~ provided for their own protection.

French Patent FR 908.257 presents an apparatus intended for underwater searches and characterized by an underwater floodlight forming an entirely closed
30 assembly, completely sealed, which effectively resists the pressure of the water, even at great depths, and exhibits great mechanical robustness.

American Patent US-A-5651 606 relates to an apparatus
35 for outdoor use which consequently is exposed to inclement weather and which is used as a floodlight with high-intensity light and as a steerable floodlight for accentuating buildings and other constructions.

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The present invention aims to alleviate these difficulties. It presents a sealed floodlight, which consequently can be subjected to inclement weather, which can change colours by reason of the assembly of
5 filters available to it and of the independent electrical supply system for each of the bulbs which it comprises.

The subject of the present invention is a sealed
10 floodlight comprising at least one series of three bulbs placed on a circle with their respective filters and their electrical supply system placed inside a frame in the form of a shell composed of two pieces, a front piece exhibiting a bore placed in front of each
15 bulb and closed by a glass pane secured to this front piece and another rear piece, the two pieces being joined by way of an O-ring seal; a gland being placed on the rear piece of the shell allows the passage of cables for supplying the electrical system, exhibiting
20 a fixing rod, characterized in that it comprises a central bulb which emits yellow or white coloured light, the light beams emitted by the bulbs and the central bulb being substantially parallel.

25 In a preferred mode of execution the filters relating to the bulbs are alternately red, green and blue. In this mode of execution, the floodlight can advantageously contain two series of three bulbs whose filters are slightly more tinted from one series to the
30 other. These filters are placed behind the glass panes between the glass panes and each bulb so that the light beams are coloured.

The clamping of the two pieces of the shell is
35 advantageously effected with fixing screws which collaborate to press the O-ring seal between the said pieces.

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To facilitate the clamping on the inside the bulbs collaborate with their sockets which are housed in a base which bears against a plate for separating two parts, the plate supported by the rear piece of the shell; the base and the plate are fixed by screws to the rear piece of the shell.

In one preferred embodiment the floodlight exhibits a compact shape; it can advantageously be an ovoid or a sphere.

It comprises a fixing rod with at its head a ball joint whose clamping is effected by means of the screws and of a round base which matches the shape of the ball joint.

In another mode of execution the electrical supply cables pass through the ball joint of the rod, thereby avoiding the need to have the gland in the rear part of the shell.

It is also possible to substitute the ball joint at the head of the rod with a screw and nut set together with a sealing collar.

The appended drawing represents by way of non-limiting example a preferred embodiment of the subject of the present invention as well as a variant of this first.

In the drawing,

Figure 1 represents a longitudinal section through the floodlight, showing the layout of the main components in a variant with double-ball-joint rod,

Figure 2 is a front view of the floodlight with two times 3 white bulbs forming a circle and furnished with colour filters which are in front of the corresponding

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bulbs, this view shows us the presence of a central bulb,

Figure 3 represents another variant of a rod with a ball joint at one end and a screw and nut pair at the other.

In Figure 1 the shell 1 is composed of two pieces, a front part 2 and a rear part 3. The front piece which houses in the bores 4 the colour filters 5, maintained by a sprung collar 6 and of [sic] a sealed glass pane 7. The sealed glass panes 7 which serve to protect the filters 5 adhere to the front part 2 by silicone glue seals 8. The filters 5 and the sealed glass panes 7 are on the axis of the bulbs 9. The bulbs 9 are supported by the pressure of the front part 2 and are plugged into the supply sockets 10. The supply sockets 10 are housed in a base 11 which matches their shapes, revealing only the electrical contacts for the power supply to the bulbs 9. At the rear of the base 11 is a plate 12 which makes it possible to hold the sockets 10 and to have them bear against the base 11. The plate 12 has a hole 13 on the axis of the socket 10 so as to allow the passage of the electric wires (not represented in the drawing). The screws 14 make it possible to hold the base 11 and the plate 12 against the rear part 3. The front part 2 is held against the rear part 3 by the tightening of the screws 15 in the base 11. An O-ring seal 16 lies at the end and around the perimeter of the rear part 3. The O-ring seal 16 allows sealing between the front piece 2 and the rear piece 3. The front piece 2 squeezes the O-ring seal 16 against the rear part 3. The squeezing of the O-ring seal 16 is effected by the screws 15. There are collars 17 at the rear of the heads of the screws 15 for sealing the front piece 2. The collars 17 are squeezed by the tightening of the screws 15 against the front piece 2. On the rear piece 3 may be seen a sealed gland

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18 which allows the passage of the electric cables for supplying the electric sockets 10. The sealed gland 18 is screwed into the rear part 3 and also comprises a collar 19 which allows the sealing of the gland 18 with the rear piece 3. The collar 19 is squeezed by the sealed gland 18 against the rear piece 3. A double-ball-joint rod 20 makes it possible to move the rear piece 3 along all the axes. This ball joint rod 20 similarly matches its housing in the piece 3. The clamping of the ball joint 21 is effected by screws 22 and a round base 23 which matches the shape of the ball joint 21. It is possible to have the electric cables pass through the rod 20 and its ball joints 21, 21a by so as to replace the use of the sealed gland 18. It should be noted that if the electric cables are passed through the rod 20 and its ball joints 21, 21a, it is essential to have a sealed device (not represented in the drawing) similar to the previous ones and which would allow the sealing of the ball joint 21 with the rear piece 3. At the other end of the rod the ball joint 21a is housed in the base 24 which makes it possible, in a similar manner to the rear piece 3, to be able to move the ball joint 21a in all the axes. The clamping of the ball joint 21a is effected by screws 25 which pass through the round collar 26 and screw into the base 24. The round collar 26 and the base 24 allow good clamping since they match the shape of the ball joint 21a perfectly. The holes 27 allow the base 24 to be fixed to a wall or any other flat surfaces. It is possible also to have a sealed device in the base 24 so as to allow the passage of the electric cables through the rod 20 and its ball joints 21, 21a which, once again, would avoid the use of the sealed gland 18.

In Figure 2 we can appreciate a front view of the floodlight with the front part 2 and with the bulbs 9 on the axes of the bores 4 and which are in a configuration around a perimeter of a circle. The

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electric sockets 10 as well as the position of the filters 5 and the sealed glass panes 7 found in Figure 1 can be defined on the same axes of the bores 4. Also apparent are the screws 15 which allow the clamping of the front part 2 against the rear part 3 as well as the central bulb 9a.

In Figure 3, there is shown an alternative rod 20a whose upper head which collaborates with the rear piece 3 of the shell 1 is composed of a screw 28 with its nut 29. Tightening is achieved by the squeezing of a sealing collar 30. If one has this configuration of rod 20a, the steering of the floodlight must be done exclusively with the aid of the ball joint 21a housed in the base 24a.

Finally, the floodlight 1 composed of six bulbs 9 with their respective colour filters 5 and their individual supply systems makes it possible, with the collaboration of regulators for varying the current, to adjust the luminous intensity of the beams which will pass through the filters 5 whose basic red, green and blue colours may have shades of tints. For example, if there are two sets of three red, green and blue filters, one set could be darker than the other, so that the floodlight can provide a very varied sample of colours. Mention should also be made of the additional brightness-increase effect afforded by the central bulb 9a which in the case specified has no filter.

CLAIMS

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1. Sealed floodlight making it possible to change the
5 colour of the light emitted comprising at least
one bulb with its electrical supply system placed
inside a frame in the form of a shell (1) composed
of two pieces, a front piece (2) exhibiting a bore
(4) placed in front of each bulb (9) and closed by
10 a glass pane (7) secured to this front piece (2)
and another rear piece (3), the two pieces being
joined by way of an O-ring seal (16); a gland (18)
being placed on the rear piece (3) of the shell
(1) allows the passage of cables for supplying the
15 electrical system, exhibiting a fixing rod (20),
characterized in that it comprises at least one
series of three bulbs (9) placed on a circle with
their respective filters (5) which collaborate
with a central bulb (9a) which emits yellow or
20 white coloured light, the light beams emitted by
the bulbs (9) and the central bulb (9a) being
substantially parallel.
2. Sealed floodlight according to Claim 1,
25 characterized in that the filters (5) relating to
the bulbs (9) are alternately red, green and blue.
3. Sealed floodlight according to Claim 1,
characterized in that it contains two series of
30 three bulbs (9) whose filters (5) are slightly
more tinted from one series to the other.
4. Sealed floodlight according to Claim 1,
characterized in that the filters (5) are placed
35 behind the glass pane (7) between the glass pane
(7) and each bulb (9).