Oct. 20, 1970 M. CAPPELLA 3,534,511

RETRACTABLE COVER FOR OUTDOOR AREAS

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Fig. 1.

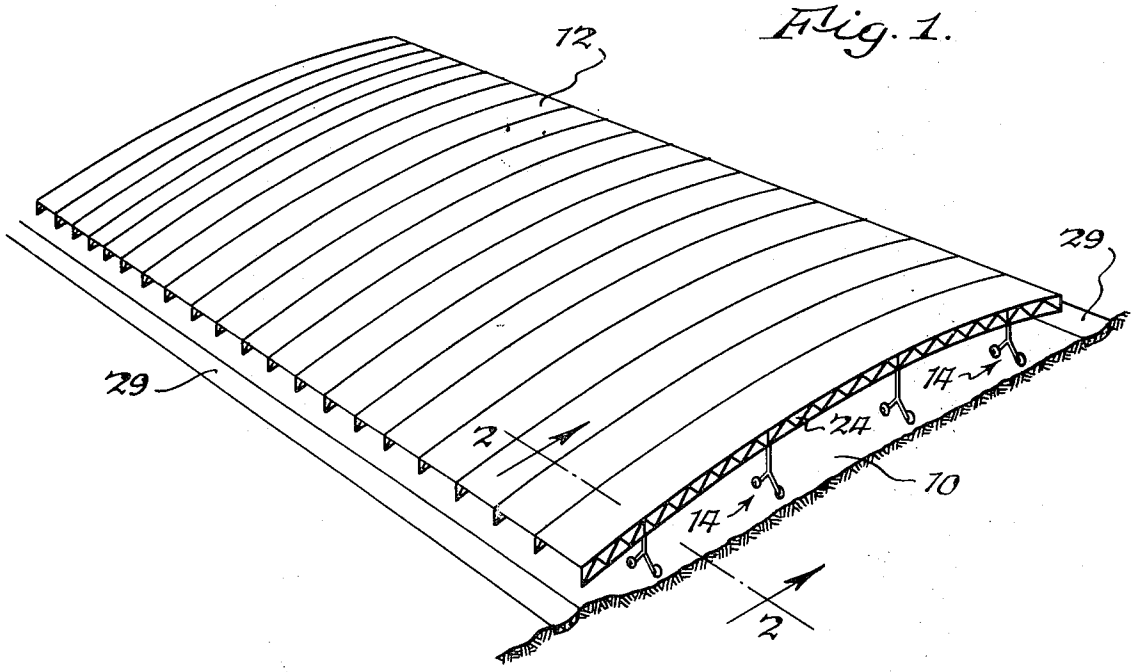
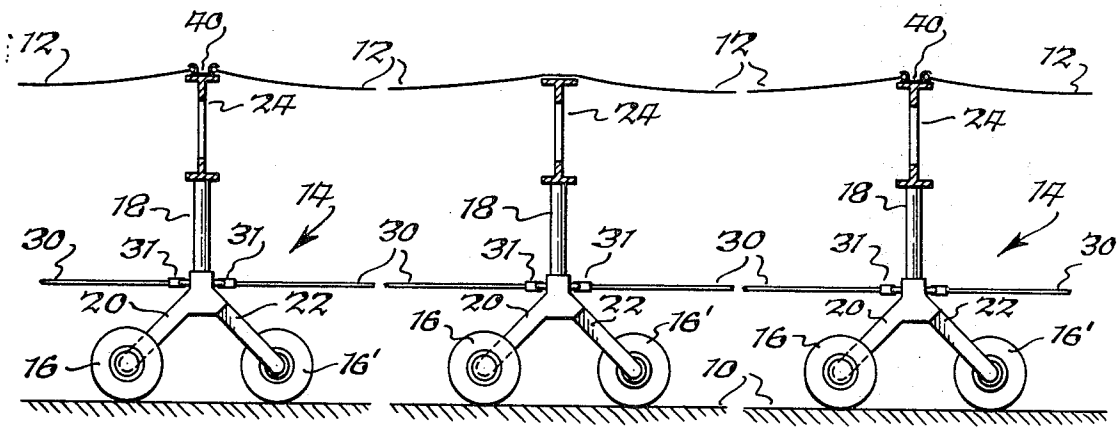


Fig. 2.



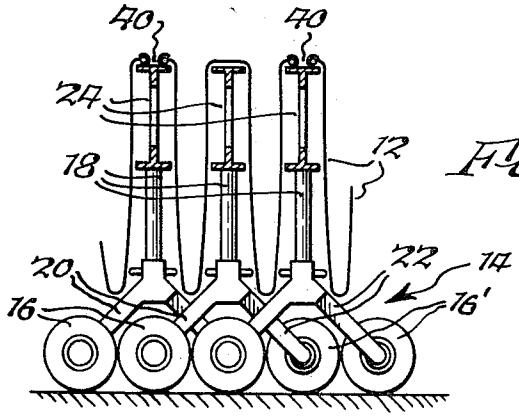


Fig. 3.

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Fig. 4.

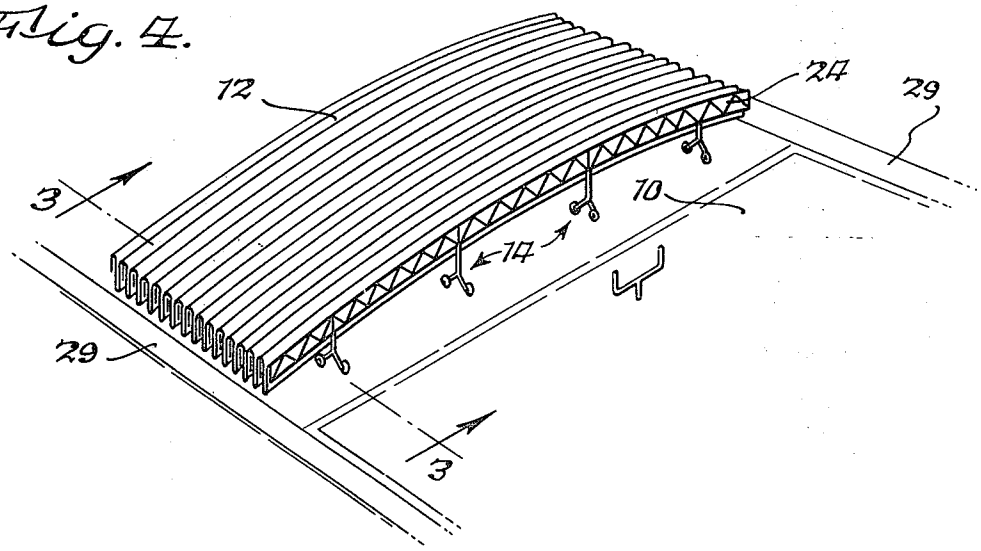


Fig. 5.

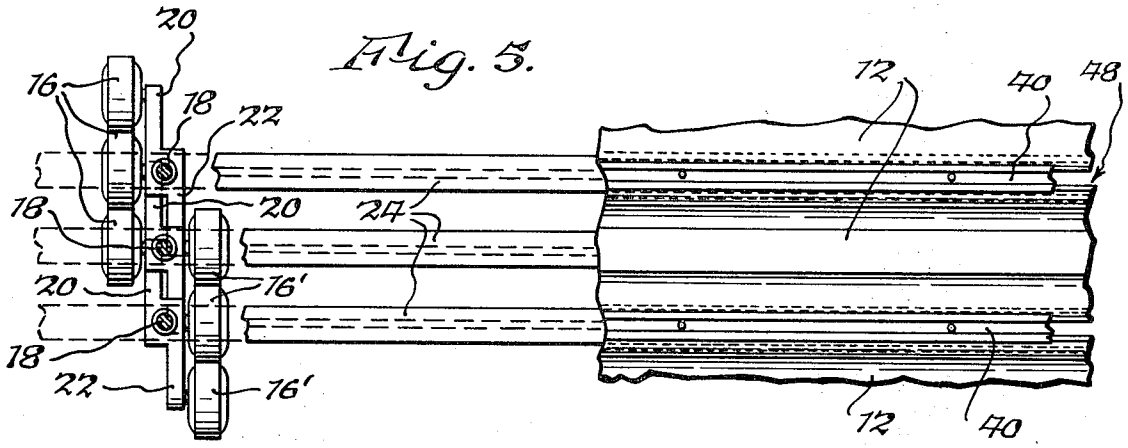
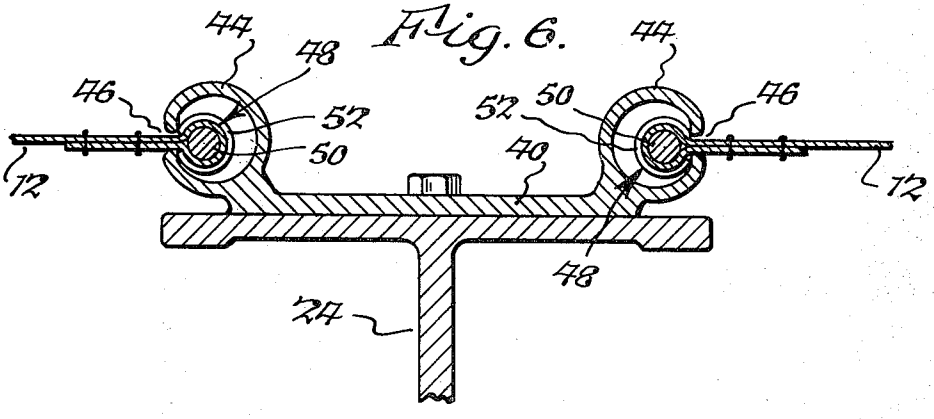


Fig. 6.



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RETRACTABLE COVER FOR OUTDOOR AREAS

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U.S. Cl. 52—63 3 Claims

ABSTRACT OF THE DISCLOSURE

A cover for an outdoor area, such for example as a football field, which is capable of keeping rain or the like from an extended area and shedding the water beyond the area, and which is mounted on wheels above the area to be protected so that it can be readily removed from the area and stored in a compact space, from which it can again be placed over the area.

An object of this invention is to provide a cover of large dimension which is supported by a number of trucks or carriers mounted in rows to roll toward and from each other above the area to be covered and supporting the cover above the area, which trucks when moved beyond one end of the area may support the cover in folds or pleats between the trucks.

Another object of the invention is to form the cover in several parts or pieces, some of which may be removed from the trucks when desired.

In the accompanying drawings:

FIG. 1 is a perspective view of a football field or other area to be protected by a cover against rain or snow.

FIG. 2 is a fragmentary section thereof on an enlarged scale on line 2—2, FIG. 1.

FIG. 3 is a fragmentary end view of a series of trucks as shown in FIG. 2 showing the same nested together in storage positions, the section being taken approximately on line 3—3, FIG. 4.

FIG. 4 is a perspective view of the cover and its supports removed from the field or area to be protected.

FIG. 5 is a fragmentary, sectional top plan view thereof with a part of the cover removed and folded together.

FIG. 6 is a longitudinal, sectional view on a still larger scale showing a construction for connecting strips of cover material to supporting trucks.

In the drawings **10** represents a field or area to be protected by a cover such, for example, as a football field, which is to be kept dry when not in use. It is however possible to apply a cover according to my invention to a much larger area, such as an entire football stadium including the grandstand and the seating areas.

12 represents a cover of moisture-proof material which is positioned over the field **10** and supported by carriers or trucks **14**. These trucks include wheels or rollers **16** and **16'** of any suitable construction and which are capable of rolling on the area to be protected or on tracks laid on the edges of the area. These trucks have upwardly extending masts or poles **18** which support the cover material **12**. The wheels **16** and **16'** in the particular construction illustrated are supported on frames each comprising two legs **20** and **22** which are inclined upwardly and support the masts **18** at their upper ends.

Each of the trucks has two wheels spaced laterally from opposite sides of each truck so that the two wheels **16** and **16'** do not track or follow each other when moved on a supporting surface. As clearly shown in FIGS. 3 and 5, the two legs **20** and **22** are arranged in such spaced and offset relation that the wheels **16** and **16'** are arranged at opposite sides of the truck. The wheels of the next truck are similarly arranged in such

a manner that its two wheels **16** and **16'** will be directly in front of the corresponding wheels of the first truck. By this arrangement the trucks may be arranged in a straight alinement, one in front of the next one so that they can be readily pulled outwardly from each other when the cover is to be spread over an area and then moved back into a nested arrangement in contact with each other. The same arrangement can be employed in connection with all of the trucks mounted on the edge of the cover or intermediate of the edges. It will be obvious of course that the middle portion of the cover must be of a higher elevation than the sides thereof, this being preferably arranged by providing longer poles **18** on the trucks in the middle of the rows, or, if the row consists of only two trucks, the greater height at the middle of the rows may be provided by the curvature of the trusses **24**. Otherwise the structure of all trucks transversely across the area is of identical construction.

In order to hold the cover against excessive sagging crosswise of the field between the posts **18**, I prefer to provide underneath the cover, structural frames or trusses **24**, preferably of light metal. These trusses **24** may be supported on the upper ends of the masts **18** of the trucks in any suitable manner so that they will in turn hold the trucks of any row in correctly spaced relation to each other. If the area to be covered is of such width as to warrant the use of trucks intermediate of the edges of the cover, such trucks may be provided as shown in FIG. 1 and are then arranged in transverse alinement so that these trucks are arranged in rows extending crosswise of the area to be covered. The several trucks of each row will be spaced from each other by means of the trusses **24** so that when they are moved into uncovering or storage positions the various trucks of the several rows will be properly nested with each other.

During the normal operation of the device described the trucks may be pulled lengthwise of the area to be covered while the last row of trucks remain stationary at the edge of this area. When the trucks are pulled outwardly in this manner, as shown in FIG. 1, a rounded or tapering surface is provided on the cover for the reason that the trucks in the middle portion of the field have higher masts than those at the side portions, so that the water on the cover can readily flow toward opposite sides of the same. Preferably suitable drainage means, such as troughs **29**, are provided at the sides of the area.

In order to facilitate the pulling of the trucks lengthwise of the field, I preferably provide cables or ropes **30** connecting the succeeding trucks in a row with trucks in adjacent rows so that the trucks can be pulled out along the field and remain in spaced relation to each other at the end of the pull and no excessive tension will be exerted on the cover. These cables or ropes **30** may be secured to the trucks by means of couplings **31** or other suitable connections.

It will be understood that when the trucks are pushed away from the fields and toward each other, the cover will fold downwardly in pleats between succeeding rows of trucks, as shown in FIG. 4. When the cover hangs in this manner, it can be readily moved into its elevated or protective position by pulling the rows of trucks away from each other lengthwise of the field area to be protected, thus raising the folds between transverse rows of trucks into their elevated, operative positions.

It may be possible that the distance between transverse rows of trucks is so great that the folds in the cover will move downwardly and partly rest upon the ground. When this occurs it may be desirable to remove some of the parts of the cover in strips crosswise of the cover. It may also be desirable to remove some structures of the cover for replacement or repair. For this purpose I provide on the

trusses **24** transversely extending connecting members **40** which extend across the area and which are provided at opposite edges with means for connections with the sections or strips of the cover, and in the construction shown for this purpose, I provide tubular members **44** at each edge of the connecting members. These tubular parts **44** each have slits **46** at the outer faces thereof and each sections or strip of the cover member **12** to be fastened to the connecting members has an enlarged end **48** which may be formed in any suitable manner, for example, by sewing or otherwise securing edge portions of the strip of the cover around a rod or bead **50** shown in FIG. 6, so that the turned-over extensions of the edge of the cover member when wound around the middle part **50** is of considerably greater thickness than the widths of the slots **46**. These tubular members are made of considerably greater diameter than the edge portion of the cover member surrounding the rods or beads **50** so that the edge of the part of the cover member will be securely held within the tubular retaining member **44**. If desired, a protective series of clips **52** may extend around the rolled-over portion of the cover member to reduce the wear of the turned-over edge against the interior of the tubular member **44** and the edge of the slit therein.

By means of this construction any piece or strip of the cover member extending crosswise of the cover from side to side may have its edges placed within the tubes **44** and may be pulled out of engagement at opposite sides of the cover. Because of the connections between adjacent transverse rows of trucks, by means of the cable **30**, the rest of the cover will not be disarranged by removal of one or more sections or strips of the cover.

If desired, heat can be applied under the cover in any suitable manner, as may be desired, for melting snow on the cover or for keeping the area under the cover from freezing.

It will be understood that various changes in the details, materials and arrangements of parts which have been herein described and illustrated in order to explain the nature of the invention may be made by those skilled in the art.

What is claimed is:

1. A truck for a device for supporting a flexible cover,
said truck comprising a frame having forward and rearward legs extending in laterally spaced planes to enable the rear wheels of one truck to fit at the side of the front wheels of an adjacent truck when said trucks are moved into close proximity to each other,
said trucks having upwardly extending masts supporting a cover,
said trucks when moved into close proximity to each other providing a space into which the cover may extend when folded into pleats.

2. A device for protecting an area against rain including a flexible cover of water-tight material of a width and length sufficient to extend over the area to be covered,
a series of trucks capable of rolling over said area and supporting said cover and forming a row extending crosswise of said area,
said trucks each having a frame comprising a pair of legs extending one in advance of the other and offset laterally from each other,
wheels mounted on the outer faces of said legs,
masts on said truck frames extending upwardly,
a truss extending crosswise of said area and supporting said cover and rigidly secured to the masts of the trucks of a row,
and flexible connections between trucks of adjacent rows to limit the extent to which said rows can be separated from each other.

3. A device for protecting an area against rain including a flexible cover of water-tight material of a width and length sufficient to extend over the area to be covered,
a series of trucks capable of rolling over said area and supporting said cover,
a truss structure supporting said cover between said trucks and holding said trucks in spaced relation to each other crosswise of said area,
said trucks being connected to the cover and being movable lengthwise of said area to uncover the same and into close proximity with each other, with said cover folded in pleats between trucks,
each of said trucks having two wheels,
frames supporting said wheels and arranged with said wheels spaced one ahead and laterally of the other,
whereby said trucks may be positioned in close proximity with the rear end of one truck spaced at a side of the front of the other truck.

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U.S. Cl. X.R.

52—66; 135—5; 280—33.99