

Oct. 12, 1971

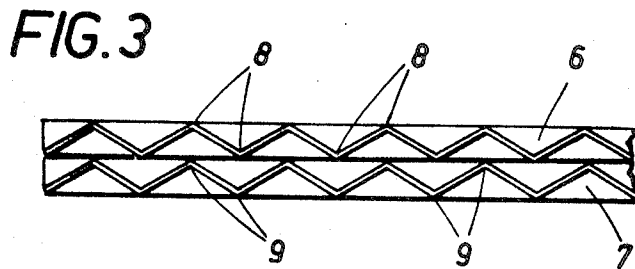
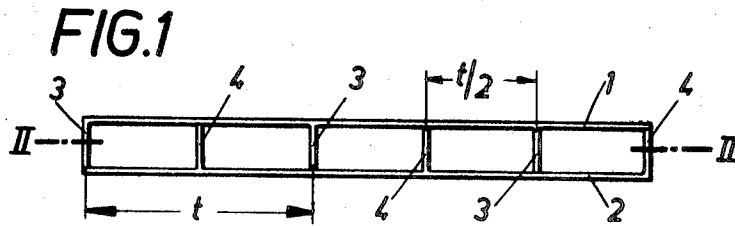
E. STARK

3,611,729

DRAINED ATHLETIC FIELD

Filed June 4, 1969

2 Sheets-Sheet 1



INVENTOR.  
ERWIN STARK  
BY *Kuselman*  
AGENT

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2 Sheets-Sheet 2

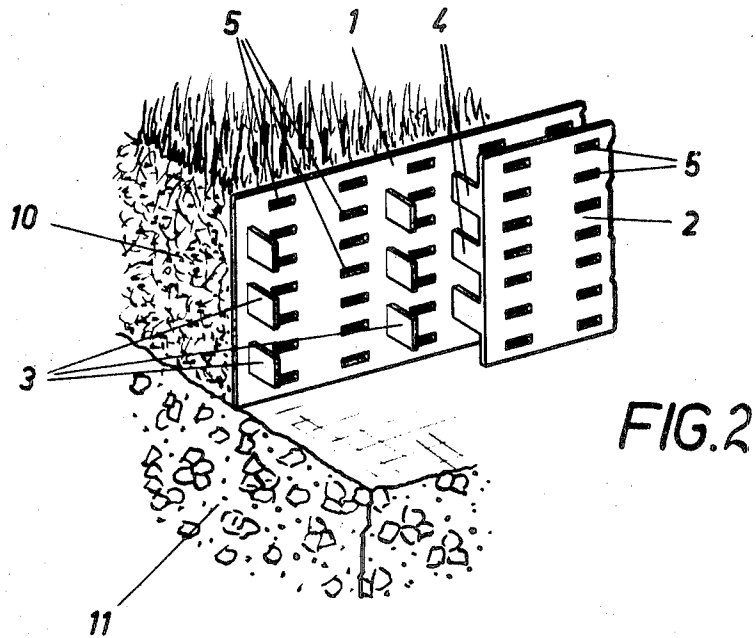
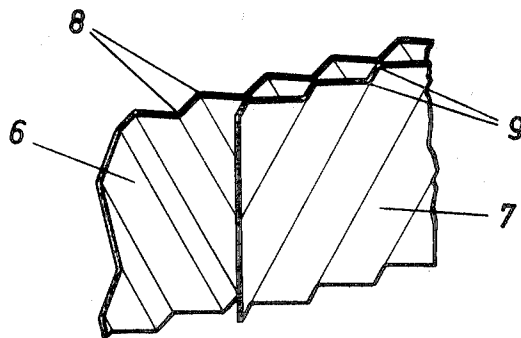


FIG. 4



INVENTOR  
ERWIN STARK  
BY *[Signature]*  
AGENT

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3,611,729

**DRAINED ATHLETIC FIELD**  
 Erwin Stark, Fischerfeldstrasse 28, Linz, Austria  
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4 Claims

### ABSTRACT OF THE DISCLOSURE

A substantially horizontal, compacted top soil layer overlies a substantially horizontal drainage layer and is sufficiently firm to be walked upon and formed with slots which extend through said top soil layer. A drainage device is placed in each slot, each device having two opposite side walls, an open top end and an open bottom end communicating with said drainage layer. Spacing means between the side walls maintain said side walls spaced apart while defining a drainage passage from said top end to said bottom end of said device.

This invention relates to a drained athletic field, in which the top soil, which has been compacted so that it can be walked upon, is provided with slots for conducting water into an underlying drainage zone.

The fact that the slots are cut into the soil involves the disadvantage that the slots become narrower in the course of time as the field is subject to loads in use and that the slots are sometimes closed, at least at their top end, as a result of a foot stepping thereon. These effects adversely effect a rapid drainage of water. It has previously been attempted to prevent such a narrowing or closing of the slots by filling the latter with a material, such as broken stone, which leaves large passageways for water. It will be realized that it is difficult to repair and clean such slots and to fill the same with a suitable material.

It has now been found that the preparation and maintenance of such an athletic field will be much facilitated if the slots are not filled with broken stone.

According to the invention, the slots are lined with drainage devices which have opposite side walls and spacing elements therebetween which support the walls. These elements ensure that the width of the slot will be permanently maintained throughout the depth of the slot. Hence, the slots remain empty and are covered only adjacent to their top end by a covering which can easily be penetrated by water. This covering may consist, of a web which consists of cellulosic fibers and has a suitable density and a high capacity to conduct water in a horizontal direction so that the water can quickly flow to the slots and through the same to the drainage zone.

Any other coherent covering which can easily be penetrated by water may also be used, e.g., a fine mesh of wire or plastics material, a suitable foamed plastics material, a coarse woven fabric and the like. This covering is then covered in turn by the usual covering layer for a grassless or grass-covered athletic field. If the covering and the slots have become filled with mud after some time, the covering can then be exchanged or cleaned. At the same time, the exposed slots may be cleared by flushing. Thereafter, it is sufficient to replace the covering layer adjacent to the slots. Thus, the preparation and maintenance of the athletic field are much simplified. Alternatively, the covering may be inserted into the upper end portion of the slots so that the covering rests, on the uppermost spacing elements.

An embodiment of the invention is shown by way of example in the accompanying drawing, in which

FIG. 1 is a top plan view showing a slot lining device,  
 FIG. 2 is a perspective view of the device of FIG. 1,

one of the side walls being broken away for illustrative purposes,

FIG. 3 is a top plan view showing another slot lining device, and

FIG. 4 is a perspective view showing the slot lining device of FIG. 3 one of the side walls being broken away.

As the slot is cut on top soil 10 overlying drainage layer 11, two strips 1 and 2 of plastics material are inserted into each slot immediately behind the slot-cutting tools. These strips are suitably withdrawn from respective reels on which they have been wound. The strips 1 and 2 are provided with projecting spacing elements 3 and 4, the spacing elements of one strip being staggered in relation to those of the other strip approximately by one-half of the distance between the spacing elements. In addition to the spacing elements 3 and 4, the strips have slots 5, through which the water can drain into the slots from the side. The slots extend transversely to the spacing elements so that a spacing element which is in registry with a slot cannot move through the slot.

FIGS. 3 and 4 show two strips 6, 7, which have corrugations extending at an oblique angle to the longitudinal direction of the strip. These corrugations may have straight boundary surfaces, as shown, or curved boundary surfaces. The strips 6, 7 are so arranged that the corrugations of the strip 6 extend obliquely in one direction and the corrugations of the strip 7 extend obliquely in the other direction, the opposite crests 8, 9 of the corrugations are only in point contact with each other because the corrugations of the two strips cross.

The two strips 6, 7 may also be provided with slots through which the water can flow from the side.

The invention is not restricted to the embodiment shown by way of example. The form of the strips, projections and slots may obviously be different and the projections and slots may be arranged in a pattern which is different from that shown. The elements which support the slot walls may also be used in numbers which differ from those shown. For instance, the slot lining may be assembled from individual elements which extend in the longitudinal direction of the slot and which are suitably arranged in series. It would also be conceivable to form the lining from grooved or corrugated strips, which contact each vertical longitudinal wall of the slot, and to force the two strips against the slot walls by striplike spacers. In this case, the striplike spacers are simply inserted from above into properly spaced grooves or valleys.

What I claim is:

1. An athletic field comprising

- (1) a substantially horizontal drainage layer;
- (2) a substantially horizontal, compacted top soil layer overlying the drainage layer and sufficiently firm to be walked upon,
  - (a) the top soil layer defining a series of slots, and
- (3) a drainage device in each of said slots, including
  - (b) an open top end,
  - (c) an open bottom end communicating with the drainage layer, and
  - (d) two opposite side walls lining the slot, each of the side walls consisting of a corrugated strip, the inwardly projecting corrugation crests of the opposite strips being in contact with each other to constitute spacing means for maintaining the side walls spaced apart in lining engagement with the slot, the corrugations of the strips extending obliquely from the bottom end to the top end, and the corrugations of one of the strips extending in a direction opposite to that of the corrugations of the other strip.

2. An athletic field comprising

- (1) a substantially horizontal drainage layer;

**3**

- (2) a substantially horizontal, compacted top soil layer overlying the drainage layer and sufficiently firm to be walked upon,
- (a) the top soil layer defining a series of slots, and
- (3) a drainage device in each of said slots, including
  - (b) an open top end,
  - (c) an open bottom end communicating with the drainage layer, and
  - (d) two opposite side walls lining the slot, each of the side walls consisting of a slot lining strip, each strip having inwardly projecting spacing elements contacting the opposite strip to constitute spacing means for maintaining the side walls spaced apart in lining engagement with the slot, the spacing elements of each strip being equidistantly spaced along the length of the strip, and the spacing elements of one strip being staggered in relation to the spacing elements of the other strip approximately by one half of the distance between the spacing elements.
- 3. An athletic field comprising
  - (1) a substantially horizontal drainage layer;
  - (2) a substantially horizontal, compacted top soil layer overlying the drainage layer and sufficiently firm to be walked upon,
  - (a) the top soil layer defining a series of slots, and
  - (3) a drainage device in each of said slots, including
    - (b) an open top end,
    - (c) an open bottom end communicating with the drainage layer, and

**4**

- (d) two opposite side walls lining the slot and defining openings for the passage of water from the top soil into the slot, each of the side walls consisting of a slot lining strip, each strip having inwardly projecting spacing elements contacting the opposite strip to constitute spacing means for maintaining the side walls spaced apart in lining engagement with the slot, the spacing elements extending in a first direction and the openings extending in a second direction.
- 4. The athletic field of claim 3, wherein said directions are perpendicular to each other.

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25 JACOB SHAPIRO, Primary Examiner

U.S. Cl. X.R.

61—11, 35; 94—33

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