June 7, 1932. K. W. OTTO 1,862,423

PLAYING COURT

Filed Sept. 17, 1928

Fig. 1

Fig. 1a Fig. 1b Fig. 1c Fig. 1d

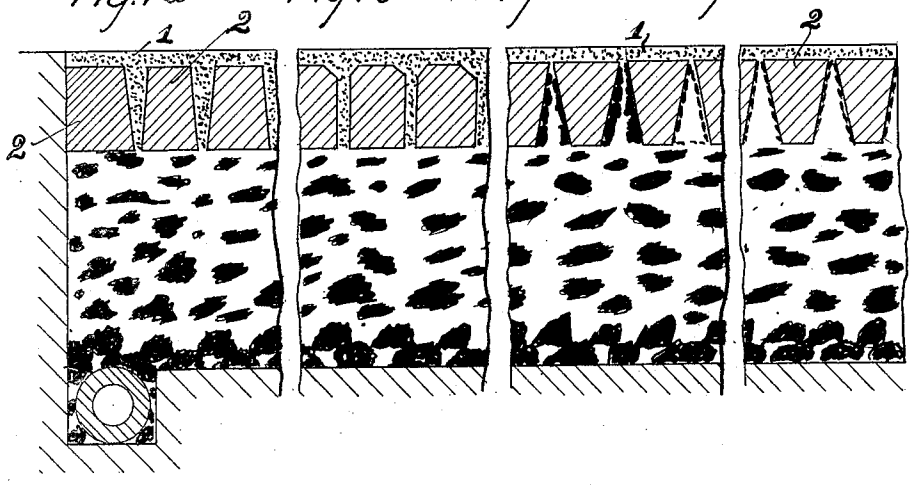
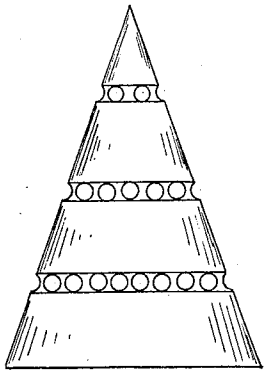


Fig. 2



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UNITED STATES PATENT OFFICE

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PLAYING COURT

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This invention relates to the production of playing courts, for example tennis courts.

It has hitherto been usual to produce playing courts of the type in question by at first providing a layer of brick or ashes and then applying horizontally thereto one or more finer layers of a suitable covering material.

To make the court perfectly faultless this covering material requires on the one hand to create a sufficient binding force that, by means of rolling, a flat, elastic and composite surface may be produced from the same, while on the other hand this material nevertheless requires to be so pervious to moisture, or capable of absorbing moisture, that after a shower of rain the court may again be used within a very short time.

Sand, brick dust and mire courts are certainly extremely pervious to moisture, but bind to so little extent that the same become very dusty in warm weather and also greatly cut up in use, so that they lose in elasticity.

Clay, marl and gravel courts are certainly always elastic and free from dust; the same, however, remain too moist after a shower of rain, and in order to prevent their absorbing too much water they require to be furnished with drops towards one or more sides. The irregularity of the surface thus occasioned on both sides is extremely undesirable.

Now it is the object of the present invention to overcome the disadvantages referred to.

According to the invention the arrangement is such that layers of material pervious to moisture penetrate more or less in scollop form layers of material less pervious to moisture. The penetration may be such that the surface of the pervious layer may be varied in proportion to the surface of the less pervious layer where the two meet, viz., in accordance with climate and the fall of rain.

The invention will now be described more fully with reference to the accompanying drawing, in which

Figs. 1*a*, 1*b*, 1*c*, and 1*d* are sections showing different constructions of tennis courts,

Fig. 2 being a detail.

Referring now to the drawing, the pervious layer is designated by 1, and the less pervious layer by 2. These layers are not only disposed horizontally one above the other but, as shown in Figs. 1*a* and 1*b*, vertically one through the other, i. e., the layer 1 pervious to moisture penetrates with scollops, teeth or other elevations or projections through the layer 2 less pervious to moisture.

Both layers serve different purposes in accordance with their peculiarity; the layer or layers pervious to moisture drain off the water, and those less pervious to moisture cause the court to be elastic and free from dust.

The stud or tooth-like connections form in a manner of speaking small drains. The form thereof, their distance apart and their diameter are selected in accordance with climatical conditions prevailing in different localities.

Thus, for example, in localities in which the fall of rain is fairly considerable the projections will preferably be conical in form with the base of the cone situated towards the top (sections 1*a* and 1*b*), while in the case of a dry climate the projections will be arranged in the reverse order, i. e., with the apex towards the top, so that the surface of the court will certainly be drained but nevertheless not entirely parched (sections 1*c* and 1*d*).

The court according to the invention is produced with the assistance of a tapered iron rod, the dimensions and shape of which are selected in accordance with the normal fall of rain in the particular locality, this rod being employed to make holes in the rolled, less pervious layer extending as far as the layer of ashes situated thereunder, whereupon the holes are filled with sand, fine gravel or the like.

The iron rod may also be hollow and arranged to receive a filling of sand. By depressing a lever a valve is opened allowing the sand to pass into the holes. It is of course also possible to employ a plurality of these rods.

A court in which the conical projections are situated with their bases towards the bottom is produced with the assistance of the device shown in Fig. 2. This latter consists of fired

clay, plaster, sheet metal or the like. The rings in which the drainage openings are situated are covered with moist sand, so that the openings will not be choked or clogged by the material less pervious to moisture. The members thus prepared are placed upon the rolled layer of ashes or the like, whereupon the layer of less pervious material is applied in such thickness that the tips of the hollow members will not be damaged when the upper layer is being rolled. If the openings are insufficient in the case of a heavy fall of rain, or if the layer of less pervious material is relatively thin, consideration to these conditions may be paid by making the members frusto-conical in form. The upper surface of such a member will be in the form of a crater, i. e., depressed, and furnished with a drainage hole. The craters formed may be filled out with small stones.

It will be understood that no restriction is made to the exact embodiments shown, and that various other forms may be devised without departing from the spirit of the invention.

One embodiment of my invention is constructed as follows:—

On a firmly rolled layer of slag, which is furnished with a drainage, there is applied a layer of water storing gravel or marl of a few centimetres in thickness, the single particles of which are surrounded by particles of clay or intimately mixed therewith. This layer, due to its water absorbing properties, maintains the court for a long time in a moist and elastic condition. To prevent the same, however, from storing too much water and thus becoming too soft, there are provided therein by means of a suitably constructed spike, a number of conical holes having a diameter of between 6–7 cm. at the top and a diameter of between 2–3 cm. at the bottom, where they open out into the layer of slag. These holes which cover the whole court at distances apart amounting to approximately 15 cm. are filled out with fine gravel etc. and reach from the surface of the marl into the layer of slag. The holes are filled out with gravel to approximately three-quarters of their depth, the remainder being filled with the same material forming the upper layer of the court, so that the latter does not roll on to the gravel or become detached therefrom. In place of gravel it is also possible to employ ground stone or artificial stone having a size of grain amounting to 4–8 mm.

The upper playing surface consists of finely ground artificial or natural stone or sand, having admixed therewith approximately 10–20% of finely ground marl as employed in the water absorbing layer, so that the binding and the capillary action of this layer is increased The layer in question sucks up the rain and passes the same to the water absorbing layer and via the projectory portions to the layer of slag. These projectory portions accordingly act in the manner of drains. When rain ceases to fall the playing surface dries very rapidly, the same being at once freed from the main amount of water falling on to the same. If, on the other hand, the playing surface should dry to a too great extent, the same, by reason of the capillary action, obtains fresh moisture from the storage layer situated thereunder. The court therefore is continuously in a slightly moist and bound condition, i. e. in an ideal condition for playing purposes.

What I claim as new and desire to secure by Letters Patent is:

1. In a playing court, a layer of covering material pervious to moisture, and a second layer less previous to moisture, the said pervious layer penetrating the less pervious layer in its entire thickness and having the effect of conducting away the water.

2. In a playing court, a layer of covering material pervious to moisture, and a second layer less pervious to moisture, the said pervious layer penetrating with conical projections the said layer less pervious to moisture, said projections extending entirely through the less pervious layer and having the effect of conducting away the water.

3. In a playing court, a layer of covering material pervious to moisture, and a second layer less pervious to moisture and penetrated by projections of the said pervious layer, whereby the surface of the said pervious layer in proportion to the said less pervious layer may be varied where the two meet in accordance with climatical conditions and the normal fall of rain in the particular locality, said projections extending entirely through the less pervious layer and having the effect of conducting away the water.

4. In a playing court, a layer of covering material pervious to moisture, and a second layer less pervious to moisture and penetrated by projections proceeding from the said pervious layer, the said projections being of a different material to the said layers and serving to conduct away the water and extending entirely through the less pervious layer.

In testimony whereof I have affixed my signature.

KURT-WILLY OTTO.