May 26, 1936. A. K. BAMBER 2,042,377

PAVING OF TENNIS COURTS AND THE LIKE

Filed March 29, 1935

Fig. 1.

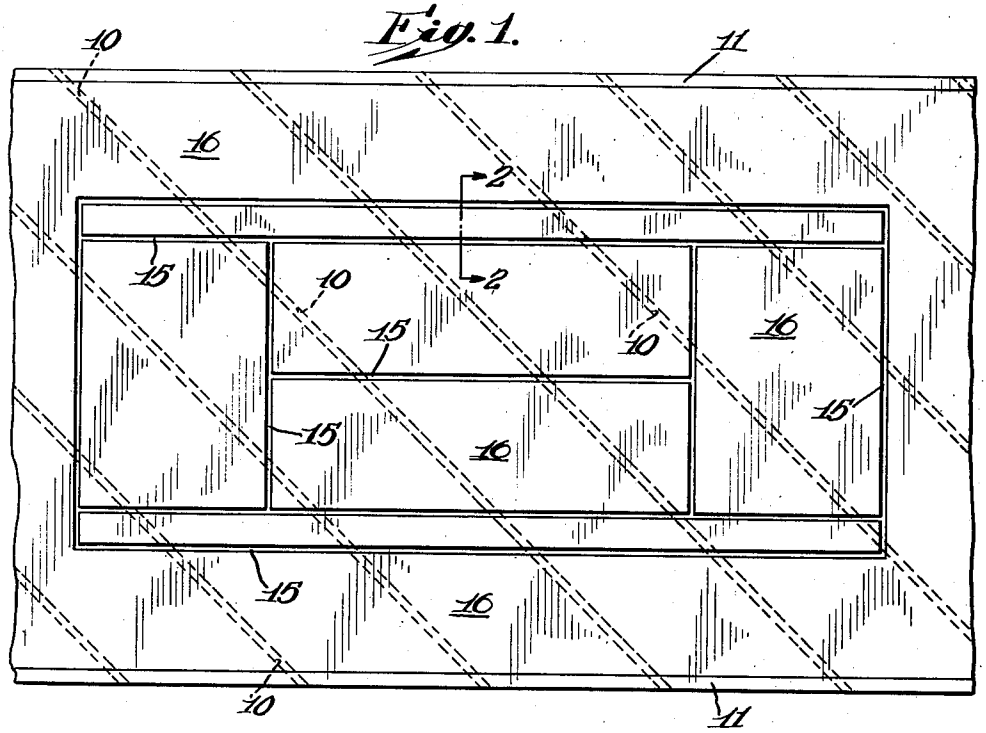
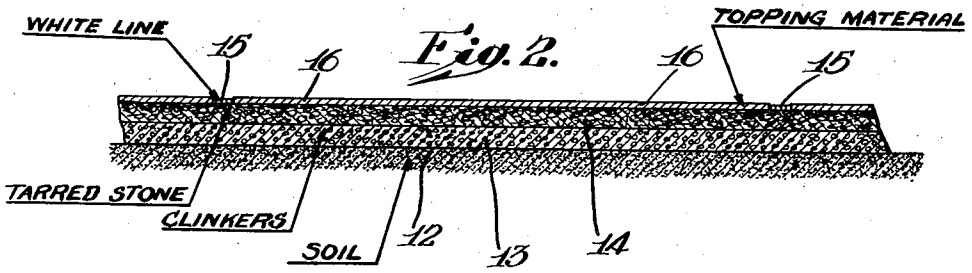


Fig. 2.



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Patented May 26, 1936 2,042,377

UNITED STATES PATENT OFFICE

2,042,377

PAVING OF TENNIS COURTS AND THE LIKE

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Application March 29, 1935, Serial No. 13,623

6 Claims. (Cl. 94—19)

My invention relates to paving for tennis courts, badminton courts, bowling greens, sports grounds, garden paths, and the like.

A purpose of my invention is to produce, with a minimum amount of labor, hard tennis courts, badminton courts, bowling greens, sports grounds, garden paths, etc., which are resilient under foot, impart a true bounce and a normal bounce to a tennis or other ball, whether in fast or slow play, and stand up permanently under exposure to the elements without softening in the sun, being injured by the rain, or being destroyed by frosts.

A further purpose is to make a tennis court, or similar construction, upon which one can play without harm to the court immediately after a rain.

A further purpose is to manufacture an open-air sports' court, or ground, which shall be permanent and shall not require any upkeep, such as rolling, watering, raking, etc.

A further purpose is to top a tennis court, or similar sports' court, with a resilient, porous material, comprising an aggregate, such as sand, bonded by a mixture of linseed oil, rosin, rubber and shellac, with the preferable addition of a suitable paste drier.

A further purpose is to employ tarred stone as a base for a tennis court or similar court, suitably topping the court by a layer of aggregate bonded by rubber and linseed oil.

My invention relates both to the method involved and to the structure employed.

I have preferred to illustrate merely a single embodiment of my invention, which embodiment is conventional and is chosen largely because of its convenience in illustrating the principles involved.

Figure 1 is a top plan view of a conventional tennis court embodying my invention.

Figure 2 is an enlarged fragmentary section of Figure 1 along the line 2—2.

In the drawing similar numerals indicate like parts.

As my invention applies to a tennis court, in its preferable embodiment, I will consider the needs of the tennis court in detail as a specific example of the use of my invention.

A wide variety of tennis courts are at present used, clay courts and grass courts being perhaps the most common.

Clay and grass courts are objectionable because of the very high maintenance costs and the fact that such courts cannot be used for some time after wet weather, unless special precautions are taken to protect them from moisture. Accordingly, a number of efforts have been made to produce courts of a more permanent nature. The manufacture of such permanent courts is a difficult problem because the clay and grass courts have established definite standards of bounce, and no permanent court can be a success unless it gives a bounce approximating that to which tennis players are accustomed. Asphalt and concrete courts do not give nearly the same bounce as clay and grass courts, both of these hard courts are slow in drying, concrete courts are very hard under foot and likely to crack in frosts, and asphalt courts become soft and sticky in hot weather.

Of foremost importance, my improved tennis court gives a true bounce and a normal bounce, whether in fast or slow play. Unlike concrete courts, my tennis court is resilient under foot. I preferably color the top of my court green, which color is pleasing to the player.

My improved court is capable of remaining permanently in the open-air, without any upkeep, whether it be rolling, watering, raking, or lining. The tennis court of my invention does not soften or become sticky in hot weather. It is not injured by rains, and, due to the porous character of the top of the court, may be played on within a short time after the end of a rain, thus avoiding the interminable delays and cancellations of matches, which have been common in the case particularly of clay courts. I also avoid the necessity for spreading tarpaulins over a court during rain, and the necessity for sloping a court so sharply for drainage purposes as to produce a false or uneven bounce. My court construction will stand severe frosts without cracking, humping or buckling. The white lines for marking the court are preferably inlaid, so that re-marking is not required.

In producing a tennis court in accordance with my invention, I first level the site of the court and consolidate the ground thoroughly by rolling. In case an existing tennis court is to be surfaced, this procedure is not necessary, as it will have been already completed. I next cut six or eight diagonal V-shaped channels 10 across the site, and fill these channels with fine ashes, which are rolled until level with the rest of the site. In case the ground is porous, the cutting of channels may be dispensed with.

To facilitate the construction of the remainder of the court, I find it desirable to build a concrete border 11 entirely around the court, to retain the edges of the court material. The border should preferably be about six inches wide and high

enough so that it will be about level with the finished court. I find that the border may desirably be made from a mixture of one part of Portland cement to four parts of clean, sharp sand, and a suitable quantity of water. The border may be poured between suitable forms, not shown.

After the forms for the border are removed, I cover the earth 12 with a bed of good vitrified clinker or slag 13, of a depth of approximately two inches. The bed of clinker or slag is well consolidated by rolling.

On top of the base of clinker or slag, I spread a layer of tarred stone 14 about two inches thick. The tarred stone initially spread is preferably of about one inch to one and one-half inch grade and is thoroughly rolled. Any suitable tar as gas tar, or any other preparation employed in tarring stone for road-making, may be used. After the bed of tarred stone has been thoroughly rolled, I sweep over it some fine tarred stone of about one-quarter inch grade, sweeping off any excess material which may not fall into the interstices of the pieces of coarser tarred stone. After the fine grade tarred stone is spread over the coarser grade material I again roll it thoroughly.

The white marking lines 15, which are to be inlaid in the court, are next laid upon the tarred stone. These white lines should preferably be about three-eighths inch thick. The white lines are formed from a mixture of between one half part and two parts of binder to between three parts and six parts of very fine silver sand. I prefer to use one part of binder to four parts of silver sand. The binder for the white lines should comprise between three quarter quart and two quarts of boiled linseed oil, between one half quart and one and a half quarts of powdered rosin, between one quarter quart and one and a half quarts of rubber solution (suitably two ounces of pure crepe unvulcanized rubber dissolved in one gallon of suitable solvent, such as gasoline), between three pounds and six pounds of white lead paste, between one quarter ounce and two ounces of shellac and between one half tablespoonful and one and a half tablespoonfuls of paste drier (litharge).

The binder for the white lines should preferably comprise one and one-half quarts of boiled linseed oil, three-quarters of a quart of powdered pale rosin, one-half quart of rubber solution, four to six pounds of white lead paste, one-half ounce of shellac and one tablespoonful of paste drier. The ingredients which form the binder are melted down into a thick paste which is heated to boiling, and the hot binder is mixed with the hot silver sand. The mixture of silver sand and binder for the white lines is next spread on the tarred stone at the proper points in strips about two inches wide and three-eighths inch deep, thoroughly consolidated by a steel float or roll. I then preferably stretch a string the length of one side of the white line, draw the string upwardly a short distance and release it to make a longitudinal mark of the one boundary of the white line, repeat the operation for the other boundary, and cut off the excess material with a trowel to the marks. The trimmings from the sides of the white lines may be used with fresh composition in making other white lines. The white lines, after being suitably spread, as above noted, should be given two coats of boiled linseed oil for priming purposes, and then allowed to harden. The hardening time is usually about twenty hours.

After the white lines have been suitably provided, the top layer 16 of the court is applied. This consists of aggregate such as clean sharp sand or slag and a binder. The binder comprises between one-half quart and two quarts of boiled linseed oil, between one-half quart and two quarts of powdered rosin, between one-quarter quart and one and a half quarts of rubber solution, between one-half quart and one and one-half quarts of coloring matter, between one quarter ounce and two ounces of shellac and between one-half tablespoonful and one and one-half tablespoonfuls of paste drier (litharge). The preferable composition of the binder is one and one-half quarts of boiled linseed oil, three-quarters of a quart of powdered rosin, one-half quart of rubber solution, one quart of coloring matter, one-quarter ounce of shellac and one tablespoonful of paste drier. The rubber solution preferably comprises about two ounces of pure crepe rubber in a gallon of suitable solvent, such as gasoline. The viscosity of the rubber solution is about the same as linseed oil. The rubber used in the rubber solution should not be vulcanized, although vulcanized rubber may be used as part of the aggregate. The coloring matter is preferably Brunswick green, a copper carbonate color.

The ingredients of the binder are boiled until the rosin is completely dissolved, and then are desirably mixed with about 30 quarts of hot aggregate. Of course the quantities of ingredients in the binder, the ingredients of the binder and the quantity of binder may be varied.

The mixture of aggregate and binder is spread over the tarred stone to a thickness of about one-half inch (it extends slightly above the white lines). The topping material may desirably be straight-edged off with a wooden lute and rolled to a true, even surface. Fine aggregate mixed with binder is then desirably sifted over the top to give a uniform surface and color, and the court is again rolled. The court should then be allowed to set for about five days.

The final operation is to give the white lines one or more coats of white paint. The court is now ready for play.

The binder for the white lines or that for the top of the court, after the ingredients are mixed and heated, has the consistency of a thick white paint. This may be kept in sealed cans indefinitely, and, when ready for use, can simply be stirred up and added, cold, to hot aggregate.

I find that, even after the aggregate and binder have been mixed and have cooled, they may be used without reheating by breaking up, screening through a sieve (one-quarter inch mesh), and laying. Heating is desirable in this case also, but not necessary, as the aggregate is already coated with binder. Fresh binder will desirably be added before the material is laid. Water will assist in breaking up the hard material prior to screening, and will assist in preventing the material from sticking to the roller during laying.

It is thus possible to make up the binder at a distance from the tennis court, ship it to the site of the tennis court in air-tight cans and there combine it with the aggregate. On the other hand, I may mix the binder and aggregate at a distance from the tennis court, ship the mixture of binder and aggregate to the site of the tennis court, and there separate the particles of the mixture, lay the mixture and consolidate it to permit the binder to become effective.

The completed court is resilient, giving a normal and a true bounce and being restful to the players. The material of the top is not affected by hot or cold weather, and is sufficiently porous

to allow water to run through it into the ground, so that the court can dry quickly after a rain. No upkeep is required during extended periods of normal use.

It will be evident that excessive amounts of very fine material should be avoided in the aggregate, as it renders the finished tennis court or the like less porous.

The use of shellac assists in obtaining a much stronger top layer and makes it possible to get a highly satisfactory bond when the binder is added cold, and even when the top is cold at the time it is laid.

Where heating is necessary, a hot plate may be desirably used.

The tarred stone may be replaced, if cheapness is important, by a layer of stone which is subsequently sprayed with tar.

Paste drier is much preferable to liquid drier because the paste drier does not cause discoloration in the finished product.

The material forming the top of the court may be reused by simply breaking it up, screening it, laying it again and consolidating it. A little fresh binder may be added if desired.

In view of my invention and disclosure variations and modifications to meet individual whim or particular need will doubtless become evident to others skilled in the art, to obtain all or part of the benefits of my invention without copying the structure shown, and I, therefore, claim all such in so far as they fall within the reasonable spirit and scope of my invention.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. A top surface material for a tennis court or the like, comprising particles of aggregate and a binder composed of linseed oil, rosin, rubber and shellac.

2. A top surface material for a tennis court or the like, comprising particles of aggregate and a binder composed of linseed oil, rosin, rubber, shellac and a paste drier.

3. A top surface material for a tennis court or the like, comprising particles of aggregate and a binder composed of linseed oil, rosin, rubber, coloring matter, shellac and a paste drier.

4. A tennis court or the like comprising a foundation layer of tarred aggregate properly consolidated and a properly consolidated top layer of aggregate mixed with a binder containing linseed oil, rosin, rubber and shellac.

5. A top surface material for a tennis court or the like, comprising particles of aggregate and a binder containing between one-half quart and two quarts of boiled linseed oil, between one-half quart and two quarts of powdered rosin, between one-quarter quart and one and a half quarts of rubber solution and between one-quarter ounce and two ounces of shellac.

6. A top surface material for tennis court or the like, comprising particles of aggregate and a binder containing about one and one-half quarts of linseed oil to about three-quarters of a quart of rosin, about one-half of a quart of rubber solution and one quarter ounce of shellac.

ARTHUR KELWAY BAMBER.