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W. F. COLEMAN

2,149,162

METHOD OF LAYING FLOORS IN MASTIC

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Fig. 1.

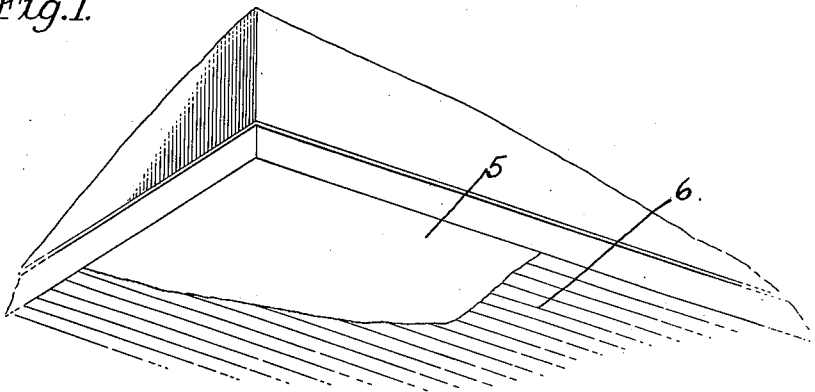


Fig. 2.

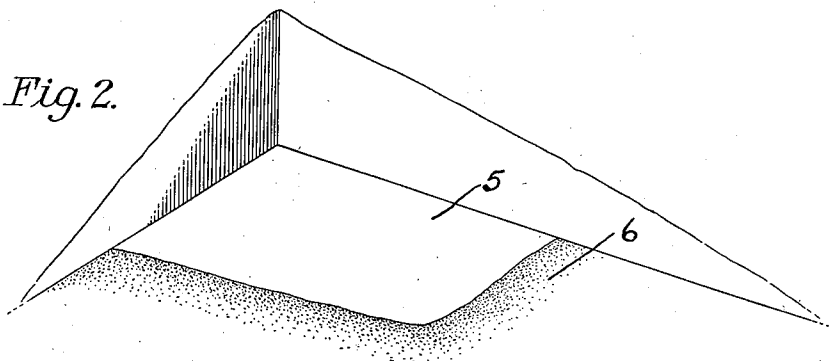


Fig. 3.

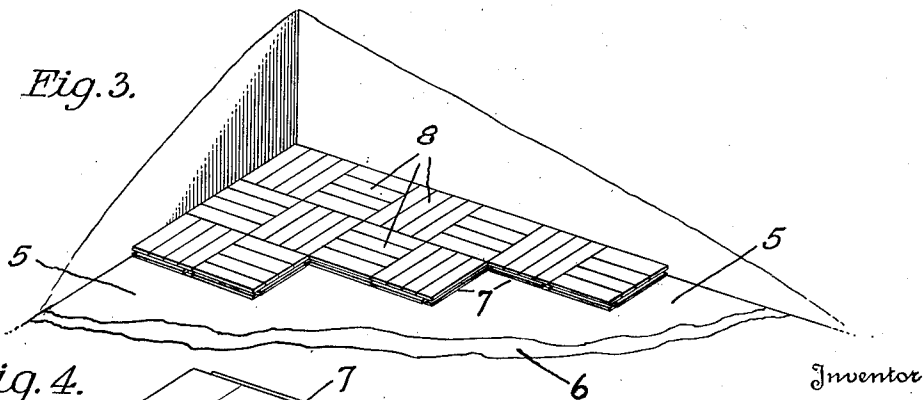
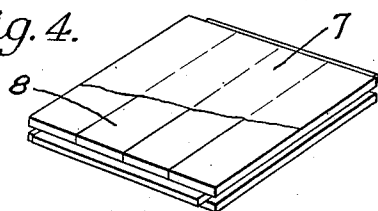


Fig. 4.



Inventor

WARREN F. COLEMAN

By

Dowell & Dowell

Attorneys

UNITED STATES PATENT OFFICE

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METHOD OF LAYING FLOORS IN MASTIC

Warren F. Coleman, McGaheysville, Va.

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10 Claims. (Cl. 20-7)

This invention relates to the laying of flooring and more particularly to methods, or to improvements in methods, thereof, wherein mastic cement is used as the securing or fastening down means, having reference more especially to wood-block and the like flooring.

One of the objects is to simplify and facilitate the work of laying the floor pieces or sections, making it possible to do it all in one regular continuous operation instead of alternatingly from a requisite first operation to the other.

Another object is to eliminate the transmission and absorption of moisture into the material of the flooring which results from the ordinary laying with mastic, causing the pieces to swell and warp or to buckle and loosen from place and thereby ruin the floor structure.

A further object is to attain a more certain and positive and a more enduring bond or securing to the sub-floor surface, whereby the flooring will remain smoothly and levelly in place for an indefinite time.

Still further objects will be set forth in the following specification from which a full understanding of the invention and the manner of employing the same will be gained best by a detailed description with reference to the attached drawing illustrating its application to a parquet block floor construction.

In said drawing:

Fig. 1 is a perspective corner view of a wooden sub-floor having a partial surfacing of the preparatory mastic coating;

Fig. 2 is a similar view similarly showing the preparatory coating applied to a concrete sub-floor;

Fig. 3 is a corresponding view showing a part of the complete floor assembly; and

Fig. 4 is a perspective inverted or bottom view of one of the floor units or blocks, having a surfacing or bindive mastic coating shown broken partially away.

In the ordinary laying of flooring with mastic cement, the mastic, either hot or cold, is applied immediately before and as the flooring pieces or sections are laid in place to the sub-floor. That is, the mastic is spread over a small area of the sub-floor at a time and a few of the flooring strips or blocks are then immediately fitted into place thereover, these operations being repeated by successional progression stages of alternately spreading a little mastic and laying several flooring members until the entire floor area has been covered. Thus the flooring units are laid in the mastic still in a fluent or plastic state. Conse-

quently, they initially receive an insecure inherently yieldable fastening and by compression may squeeze some of the mastic upward between contacted edges. Some may very easily lift or pull away from unevenness depressions in the sub-floor. Therefore, they are not bonded or embedded to the sub-floor with entire efficiency or the greatest possible advantage.

Moreover, the mastic until it has dried is a conductor of moisture. Confined between the close surfaces it does not dry or harden readily and until moisture contained in or contacting with it is expended or evaporated off it remains soft and pliable, albeit decreasingly. This is especially true of mastic spread upon fresh concrete or some other moisture laden base, from which it draws the moisture upward and so remains soft and pliable for as long as dehydration continues, which may be several months. Many mastics have a high moisture or aqueous ingredient. These naturally take a longer time to dry and harden. This moisture in or communicated to the mastic is imparted to the material of the flooring, so that it becomes swollen, deteriorative and subject to buckling and unevenness in addition to being infirmly secured. However, after drying and hardening the mastic becomes an insulate against moisture and may secure or hold down the flooring with measurable efficiency if the impairment beforehand has not been too great.

Different mastics have been proposed and used in the laying of floors. Both hot and cold as well as quick and slow drying mastics have been employed. A cold mastic is generally preferred because it eliminates considerable mess and difficulty in preparing and applying it. A quick drying mastic is also preferable for certain reasons, although less desirable for other reasons. But cold mastic does not congeal so speedily and cannot do so expediently in the confinement between the floor surfacings. On the other hand, hot mastic has its objections in workability and affect upon the flooring.

The present invention is based upon the discovery that opposing surfaces with dry mastic coatings will adhere together with an astonishingly great tenacity and that different mastics have a stronger and quicker affinity for each other than mastics of the same kind or composition. It aims accordingly to provide an improvement in the usual methods of laying flooring which will attain the most effective and efficient result.

Referring now to the drawing, a preliminary

and preparatory coating 5 of mastic is applied over the entire sub-floor 6, usually composed either of wood as shown in Fig. 1, or of concrete as shown in Fig. 2, although sometimes of some other material. This is spread evenly as by troweling over the entire surface of the sub-floor to a depth or thickness sufficiently adequate, or even surplusive, which will assure complete levelness filling all of the depression areas. The mastic used for this coating is preferably a cold mastic of the so-called "cut-back" type such for example as that produced by the following composition formula:

	Per cent by weight
Bolled linseed oil.....	2
Short asbestos fibre.....	8
Kerosene.....	18
Asphalt.....	72

A mastic of the foregoing or similar composition has an easy spread facility and a high penetrability into the pores of the flooring material, approximately 52% to 62%. It has the advantage that it is quick drying due to the absence of water and its evaporative constituency. The melting point is approximately 125° to 135°. Some other mastic however might be used with satisfactory result, so that it is not intended to limit the the invention to this particular or any equivalent mastic.

After spreading the mastic into the described coating, it is permitted to dry and harden by open exposure to the atmosphere so that it may be walked upon without yielding or sticking to the feet. In other words, it is allowed to fully expend or evaporate off all moisture in or absorptively in contact with it and so forms a firm blanket capable of supporting substantial weight and insulating anything above from moisture beneath. In this state it will not substantially tend to adhere or be tenacious to any other (foreign) material or surface for which it has no natural affinity. This will ordinarily take from two to four days, although the period may of course be shortened by artificial drying means.

A similar coating 7 is applied to the underside of the flooring pieces or sections 8, in this instance comprising interconnectingly tongued-and-grooved wooden blocks or tiles (see Fig. 4). This latter coating does not need to be so thick as the coating applied to the sub-floor, but it should be sufficiently thick to completely blanket or cover the surface of the pieces. This may and in many cases preferably will be done at the factory where the pieces or tiles are manufactured. The mastic used for said coating is also preferably cold and preferably one of the so-called "emulsified" type, such for example as that produced by the composition formula:

	Percent by weight
Asphalt.....	60
Bentonite clay.....	2
Water.....	38

A mastic of the above character spreads readily and has a relatively high penetrability into the pores of the material. Although it does not dry so quickly as a cut-back mastic, it will dry fairly rapidly and has certain advantages such as the elimination of any fire hazard. Consequently, its drying may be accelerated by passing the coated pieces through an oven space. It has a very strong affinity for and with the aforementioned cut-back mastic and other mastics of different composition. Placed together they coa-

lesce or merge one into the other most tenaciously. Like the first-named coating, this coating of the pieces is allowed or aided to dry and harden until it has expended all moisture and will not wipe or scrape off but acquires a firm surface. By natural drying this will ordinarily take from three to five days. Of course a somewhat different mastic may be used for the purpose if desired, there being no intent to limit the use to the one described or illustrated by the last-named formula.

When the coatings on both the sub-floor and the flooring pieces are fully dried and hardened, the pieces are laid into place in the usual manner, the only difference being that no mastic is spread or applied in the process. That is, the pieces are laid down and fitted together as though no mastic whatever had been used and they were merely being assembled upon a plane surface. The hardened condition of the mastic permits them to be moved or slid into union, but instantly holds them into place as the assembly proceeds. All of the mess of applying fresh mastic, or alternating the lay of a few pieces with the spread of more mastic is eliminated and the work may proceed in the single operation of fitting the pieces together in place. The weight or compression of the coated pieces upon the coated sub-floor causes them to cohere and given time to settle they will become embedded or affixed with a tenacity which will make it difficult if not impossible to remove them. This may be aided by running a heavy roller over the top surface. Ordinarily in three or four days they will become so firmly bonded to the sub-floor that it would require a crowbar to rip them up and they will be likely to split or pull a part of the sub-floor up with them when so pried loose. This has been determined by actual test. The oppositely coated surfaces fuse or blend together in a solid hold upon the flooring pieces and so fasten them down most firmly and securely.

In addition to the secure holding or fastening of the pieces in place, an important advantage gained by this improved method is that the preparatorily dried and hardened mastic forms an insulate against moisture which will prevent the transmission thereof from the sub-floor to swell and damage the surfacing floor. The pieces are blanketed and protected from all moisture except that which may come from the open atmosphere above it. The pieces are held firm, solidly and level without any allowable causation of buckling or the likelihood of loosening from place. Squeaking and cracking from frictional contacts is therefore substantially eliminated. Moreover, the coating of mastic beneath forms an effective cushion or cushioning, giving the floor a certain resiliency and a definitely solid feel to the feet.

The several advantages of the invention will accordingly be appreciated. It provides a distinct advance and improvement in the art by eliminating substantial objections in the laying of floors with mastic as it has been done heretofore. Its superior features and effective results obtained will be recognized by those familiar with the deficiencies of most floor constructions.

Although mastics of different kind are preferred to be used for the coatings of the sub-floor and flooring pieces, it will be understood of course that the same mastic may be used for both. Also, it may be desirable in some instances to employ hot mastic instead of the cold mastic ordinarily preferred. This will depend somewhat

upon choice. Hot mastics are sometimes advantageous because of the higher content of asphalt which they may have and because of their usually greater ductility as compared with cold mastics. However, whether hot or cold, mastics of a different kind or composition will ordinarily be preferable because of their stronger affinity for each other and in general cold mastics will be preferred.

It will be understood that the invention is not limited to wooden tile or section flooring nor to mastics of an asphalt base. Various kinds of flooring tile or pieces may be laid by this method and the mastic or cement used may be variously different in composition or constituent including varying proportions of asphalt, even though those which have been described are considered preferable and productive of the best results. Therefore, the words "flooring" and "mastic" or "mastic cement" as hereinafter used in the claims are not intended to be limiting to wooden floors or the specific mastics hereinbefore described, but are intended to cover respectively any kind of flooring piece or section and any kind of mastic or mastic cement having the characteristics described.

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

1. The improved method of laying flooring, which consists in applying a coating of plastic asphaltic mastic cement to the sub-floor area, allowing said coating to dry and harden into a firm blanketive surface which may be walked upon without yielding or sticking to the feet, applying a like coating to the bottom surfaces of the flooring pieces, allowing the latter coatings to also dry and harden into a like surface state, and then laying the pieces bottom down properly into place upon the sub-floor and permitting them to become adherently bonded thereto by the affinitive action of the coatings upon each other.

2. The improved method of laying flooring, which consists in applying a plastic coating of one kind of asphaltic mastic cement to the sub-floor area, and a like coating of another kind of asphaltic mastic cement to the bottom surfaces of the flooring pieces, allowing the coatings on each to dry and harden thoroughly enough to be walked upon easily, and then laying the coated pieces bottom down properly into place upon the coated sub-floor and permitting them to adherently bond themselves thereto by the affinitive action of the respective coatings fusing to each other.

3. The improved method of laying flooring, which consists in applying a coating of cut-back mastic cement to the sub-floor area, allowing said coating to dry and harden thoroughly, applying a like coating of an emulsified mastic cement to the bottom surfaces of the flooring pieces, allowing the latter coatings to also dry and harden thoroughly, and then when both coatings are sufficiently hard and firm laying the coated pieces bottom down properly into place upon the coated sub-floor and allowing them to adherently bond themselves thereto by the action of the respective coatings affinitively fusing upon and into each other.

4. The improved method of laying flooring with or by mastic cement, which consists in applying a coating of one characteristic kind of asphaltic mastic cement to the sub-floor area, separately applying a like coating of a different

characteristical kind of asphaltic mastic to the bottom surfaces of the flooring pieces, allowing the coatings upon each to dry and harden sufficiently to be walked upon easily, and then when the same are sufficiently dry, hard and firm laying the coated pieces bottom down properly into place upon the coated sub-floor and allowing them to adherently affix themselves thereto by the fusive action of the respective coatings affinitively merging into each other under the compressive weight of the assembled pieces.

5. The improved method of laying flooring with or by mastic cement, which consists in applying a coating of a preferably cold one compositional kind of asphaltic mastic cement to the sub-floor area, allowing said coating to dry and harden thoroughly into a firm supportive surfacing, applying a like coating of preferably cold another or different compositional kind of asphaltic mastic to the bottom surfaces of the flooring pieces, allowing the latter coatings to also dry and harden into a like state, and then when the coatings upon both are sufficiently dry, hard and firm laying the coated pieces bottom down properly into place upon the coated sub-floor and allowing them to adherently secure themselves thereto by the combined fusive action of the respective coatings and the pressure weight of the pieces thereupon.

6. The improvement in methods of laying flooring by or with asphaltic mastic cement, which consists in coating the sub-floor area to be covered and the bottoms of the flooring pieces to be applied thereto with the mastic in a workable plastic state, allowing the coatings upon each first to dry and harden into a firm blanketive surface which may be walked upon without yielding or sticking to the feet and will not readily adhere to any other material or surface for which it has no natural affinity, and then laying the pieces bottom down properly into place upon the sub-floor and allowing them to bond adherently thereto by the fusion of the respective coatings from their natural affinity for each other.

7. The improvement in methods of laying flooring by or with a bituminous or asphaltic mastic cement, which consists in coating the sub-floor area with a layer of the mastic in a plastic state, separately coating the bottoms of the flooring pieces also with mastic in a plastic state, allowing the coatings upon each first to dry and harden thoroughly enough to be walked upon with a firm support and without sticking to the feet, and then laying the pieces bottom down properly into place upon the sub-floor and allowing them to adherently embed themselves thereto by the affinitive fusion of the respective coatings to each other, combined with the compressive weight of the pieces against the sub-floor.

8. The improved method of laying flooring, which consists in applying a plastic coating of one kind of bituminous mastic cement to the sub-floor area, causing said coating to dry and harden into a firm surface capable of being walked upon without yielding or sticking to the feet and forming an insulate against moisture passage there-through, applying a like coating of another kind of bituminous mastic cement to the bottom surfaces of the flooring pieces, allowing the latter coatings to also dry and harden into a like surface and insulate thereon, and then laying the coated pieces bottom down properly into place upon the coated sub-floor and permitting them to adherently bond themselves thereto by the af-

affinitive action of the respective coatings fusing to each other.

9. The improved method of laying flooring, which consists in applying a plastic coating of asphaltic mastic cement to the sub-floor area, causing said coating to dry and harden into a firm blanketive surface capable of being walked upon without yielding or sticking to the feet and forming an insulate against moisture passage therethrough, applying a like coating of asphaltic mastic to the bottom surfaces of the flooring pieces, causing the latter coatings to dry and harden into a like surface and insulate thereon,

and then laying the pieces bottom down properly into place upon the sub-floor and permitting them to become adherently bonded thereto by the affinitive action of the coatings for and upon each other.

10. The improved method of laying flooring according to claim 9, facilitated by the supplemental step of applying an auxiliary pressure upon the top surface of the pieces as and after they are laid in place so as to further promote and accelerate their action of binding to the coated sub-floor area.

WARREN F. COLEMAN.