R. A. STOEHR.

MEANS FOR LAYING FLOORING.

APPLICATION FILED SEPT. 20, 1915.

1,274,953.

Patented Aug. 6, 1918.

2 SHEETS—SHEET 1.

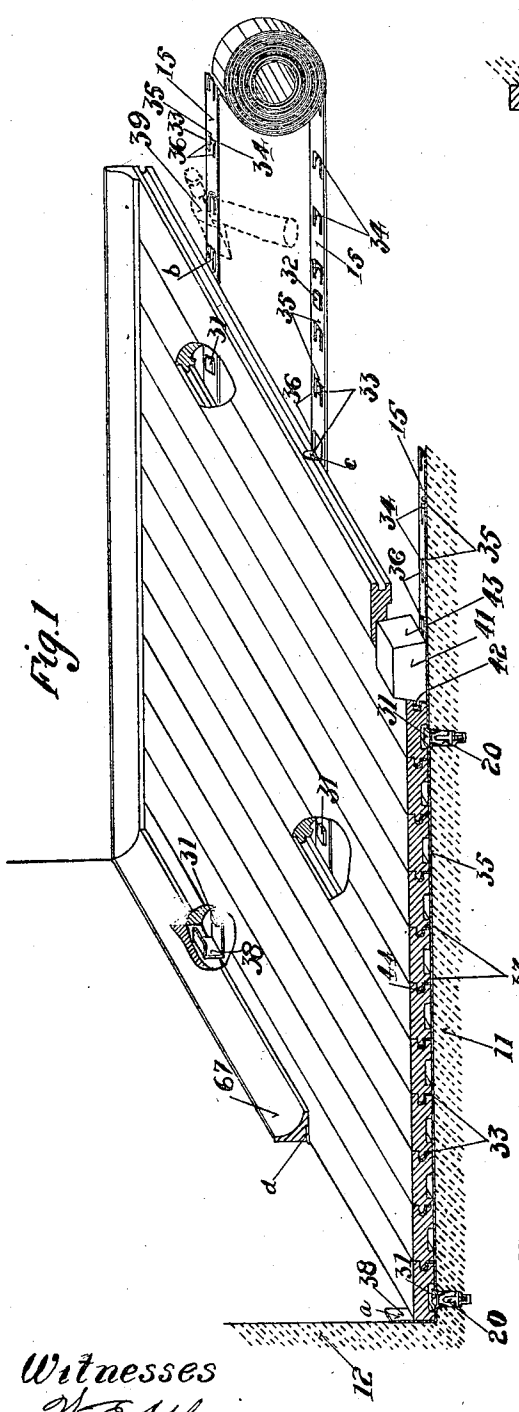


Fig. 1

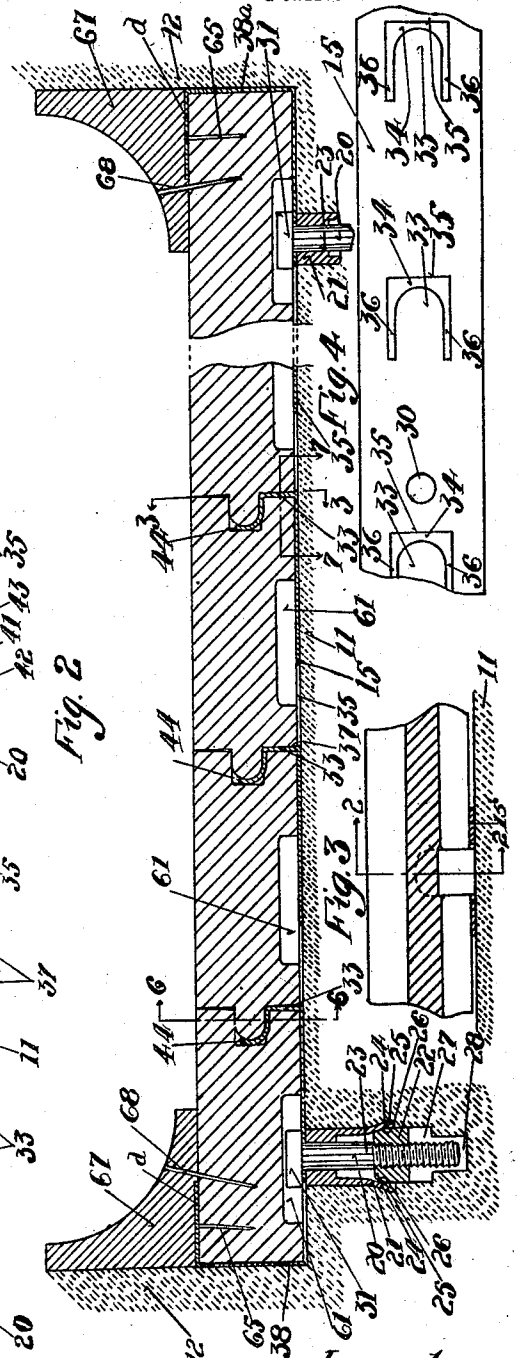


Fig. 2

Fig. 4

Fig. 3

Witnesses

W. C. Splain.

Theresa M. Silber

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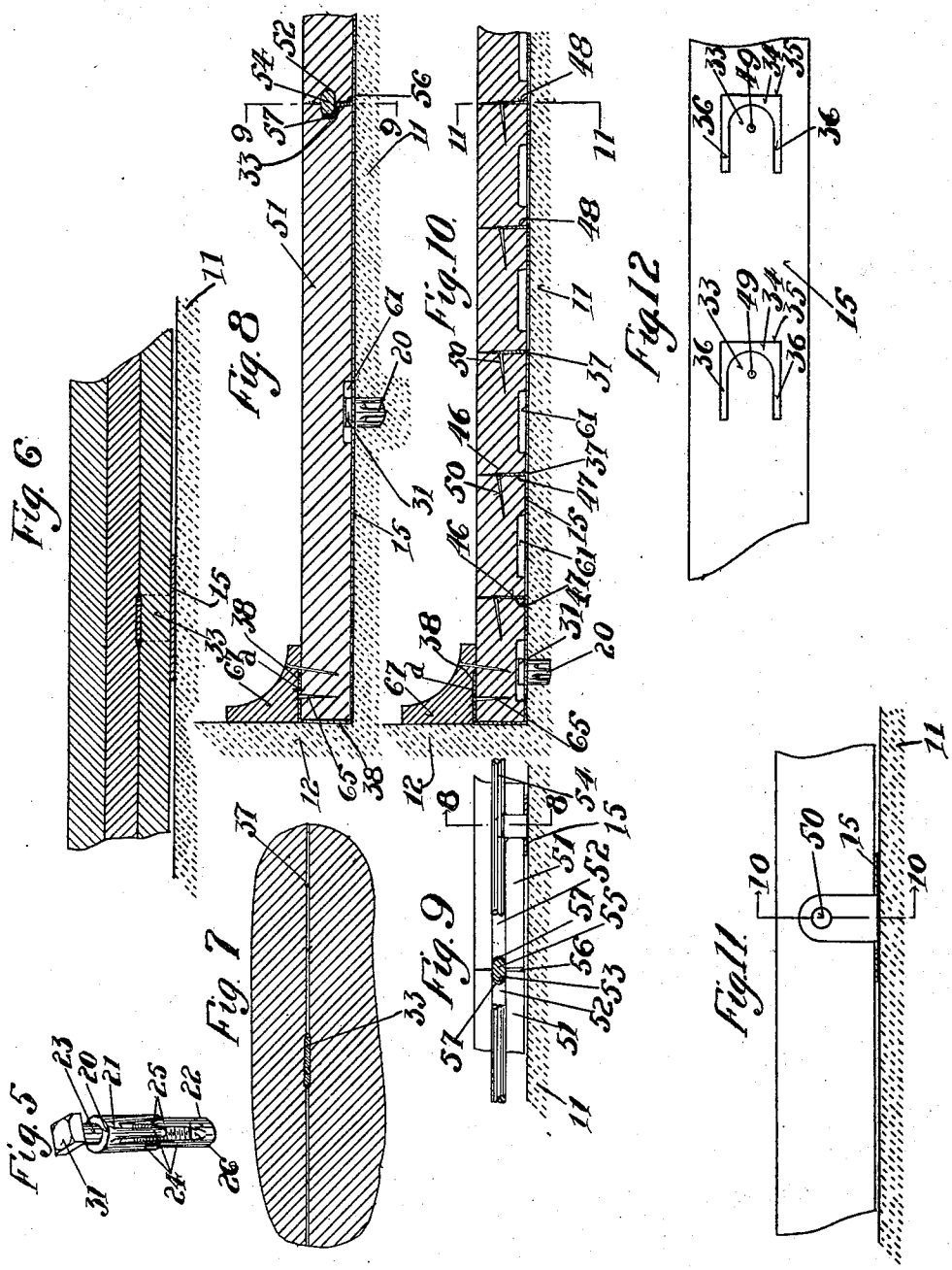
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UNITED STATES PATENT OFFICE.

ROBERT A. STOEHR, OF CINCINNATI, OHIO.

MEANS FOR LAYING FLOORING.

1,274,953. Specification of Letters Patent. Patented Aug. 6, 1918.

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To all whom it may concern:

Be it known that I, ROBERT A. STOEHR, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Means for Laying Flooring, of which the following is a specification.

It is the object of my invention to provide means for laying flooring upon such surfaces as cement or concrete floors, or other surfaces not adapted to receive nails or similar fastening means for the flooring. By the term flooring I include wood, cork or composition flooring, such as jointed or tongue and groove flooring, parquetry flooring, flooring for dwelling, office or factory use, or flooring of a similar nature.

In laying flooring upon a surface not adapted for receiving nails or the usual securing means for the flooring, it has been a usual practice to first lay wood sleepers upon the original floor and to lay the flooring upon such sleepers, and to secure the flooring to such sleepers by nails driven through the flooring into the sleepers.

In practice it has been necessary to use quite thick sleepers, four inches being a usual height which said sleepers have extended above the surface of the original floor. The result has been to raise the upper surface of the laid flooring so high above the surface of the original floor as to be extremely objectionable and at times making it impossible to cover the original floor with wood flooring.

It is the object of my invention to provide novel means whereby the wood flooring may be laid substantially directly upon the surface of the original floor; further to provide means whereby the wood flooring is held downwardly by means engaging the flooring from below, and the invention will be further readily understood from the following description and claims, and from the drawings, in which latter:

Figure 1 represents a perspective view of a section of a floor being laid with employment of my improved means.

Fig. 2 is an enlarged sectional detail of the same taken on the line 2—2 of Fig. 3.

Fig. 3 is a vertical section of the same taken on the line 3—3 of Fig. 2.

Fig. 4 is a plan view of a section of the securing strip.

Fig. 5 is a perspective view exemplifying a securing means for securing the securing strip to the original floor.

Fig. 6 is a detail in vertical section on the line 6—6 of Fig. 2.

Fig. 7 is a detail in longitudinal section on the line 7—7 of Fig. 2.

Fig. 8 is a vertical cross-section on the line 8—8 of Fig. 9 showing my improvement applied in laying parquetry flooring.

Fig. 9 is a longitudinal section of the same taken on the line 9—9 of Fig. 8.

Fig. 10 is a vertical cross-section on the line 10—10 of Fig. 11 showing the securing means employed in laying jointed flooring.

Fig. 11 is a longitudinal section of the same taken on the line 11—11 of Fig. 10; and,

Fig. 12 is a plan view of a section of the securing strip, showing the strip-tongue provided with securing holes.

The original supporting surface or floor, hereinafter termed the floor, upon which the flooring is to be laid, is represented at 11, and is instanced as a concrete floor, walls being represented at 12. The flooring being laid is represented in Figs. 1, 2, 3 and 6, as tongue and groove flooring, in Figs. 8 and 9 as parquetry flooring, and in Figs. 10 and 11 as jointed flooring.

Metal securing strips 15 are provided. The securing strips may be instanced as thin soft-rolled steel strips and are arranged to be laid upon the floor and preferably extend throughout the width or length of the room to be floored, or of the floor upon which the flooring is to be laid. The securing strips are laid crosswise of the lengths of the flooring.

As an example, but not as a limitation, it may be stated that for usual seven-eighth inch flooring, these strips may be about one inch wide and about one thirty-second inch thick, although, of course, the width and thickness and the metal of the strips may be departed from without departing from the spirit of my invention.

The strips may if desired be arranged to be secured to the floor, being preferably laid upon or secured directly to the floor so that practically no height to the original floor is added except the thickness of the flooring boards.

When securing means are employed for securing the securing strips to the floor, they are preferably embedded in the floor. Such securing means are exemplified as expansion bolts 20. The expansion bolts exemplified comprise the expansion members 21, 22, and bolts 23. The expansion members have spreading wings 24 provided with tapering ends 25 coacting with inclined faces 26, the threaded shank of the bolt having threaded connection with the threaded member 22. The expansion members are received and securely held in recesses 27 in the floor, the securing of these expansion members in place being obtained in suitable manner, as by forcing the expansion members lengthwise one upon the other and toward each other, whereby the spreading wings of one of the members are spread upon the inclined faces of the other member for being spread against and crowding into the wall of the recess, the lower end of the threaded shank of the bolt being received in the extension 28 of the recess. The upper end of the associated expansion members is preferably flush with the surface of the floor.

The securing strips are provided with holes 30 through which the shanks of the bolts are received when securing the strips to the floor, the strips being held between the nut-members of the expansion bolt and the head 31 of the bolt. The bolts are arranged in suitable locations in the floor and with relation to the strips, in order to hold the strips in place and to hold the flooring to the floor when the strips have been secured to the floor.

The securing strips are provided with tongues 33 which are arranged to be received in the joint between the proximate edges of the flooring. These tongues are formed in the securing strip, the bases of the tongues being spaced apart in the strip distances substantially equal to the width of the flooring employed, or so arranged that tongues are located at the meeting points between the adjacent flooring boards.

I prefer that the tongues shall normally lie in the plane of the strip and be arranged to be raised into contact with the edge of the flooring when the flooring is being laid. For readily accomplishing this I prefer to provide a space 34 between the end of the tongue and the adjacent wall of the opening 35 in which the tongue is formed. The sides of the tongue may be spaced from the side walls of the opening by spaces 36.

The meeting edges of the flooring are so formed that the upper edges of the joint will meet, while there is a space 37 between the lower ends of said edges, into which space the tongues 33 are arranged to be received, the space preferably tapering upwardly.

The flooring illustrated in Figs. 1 to 3 inclusive is exemplified as tongue and groove flooring having a face width instanced as two inches and a thickness instanced as seven-eighths inches, this example being instanced as an exemplification and not as a limitation.

In the exemplification, the strips may be laid on the floor about two feet apart and the securing means for securing the strips to the floor, when such are employed, may be spaced apart suitable distances lengthwise of the strip, the securing means on adjacent strips being alternately arranged, as indicated in Fig. 1.

Instancing my improved securing means as employed in securing tongue and groove flooring to a floor, the strips are arranged lengthwise on the floor, and, if desired, are secured to the floor, for instance as indicated in Fig. 1. In laying tongue and groove flooring, employing my invention, the flooring is laid with its grooved edge outward, opposite to the usual way in which such flooring is now laid. The securing strips are laid on the original floor, as stated, with the end 38 of the strip turned upwardly, as shown at *a*. The first flooring board preferably has its tongue removed, its tongueless edge being placed against the upturned ends 38, presenting the grooved edge of the board outwardly. The strip-tongues 33 are then bent upwardly, as by means of a hatchet 39, as indicated at *b*, so that the strip-tongue shall extend upwardly, for instance as indicated at *c*, the upper end of the tongue thus lying crosswise of the groove of the flooring board.

I provide a striking block 41, for instance a steel block, which is provided with a tongue 42 in position similar to the position of the tongues of the flooring. This striking block is placed against the upturned tongue of the securing strip, a blow as from the hatchet 39, upon the striking face 43 of the striking block, causing the tongue 33 to enter the groove of the flooring board crosswise of the lower wall of the groove for holding the flooring board securely downwardly toward the securing strip. The tongue 33 is preferably bent upwardly from a point at its base.

The next flooring board is then similarly secured, the tongue of the flooring board entering the groove of the previously laid board and binding upon the strip-tongue. The strip-tongue is received in the space 37 normally located between the lower edges of the meeting faces of the board, and bent across the lower wall of the groove for holding the flooring board downwardly, the end

of the strip-tongue being preferably received between the inner edge of the tongue of the flooring and the bottom of the groove in the space 44, provided between said inner edge of said tongue and the bottom of the groove, the strip-tongue being pinched between the bottom of the board-tongue and lower wall of the groove. The provisions stated insure that the upper edges of the joints between the boards shall meet and form a close joint and the boards be held down securely.

If it is desired to lay a floor, for instance a factory floor, with flooring which has jointed edges, (see Figs. 10 and 11), that is, tongueless and grooveless edges, the proximate edges 46, 47, of the flooring boards are preferably so formed that there is a space 48 between the lower ends of said proximate edges, into which the strip-tongues 33 are received, so that the upper ends of said meeting edges of the boards may form a close joint. When laying flooring of this character, the strip-tongues are turned upwardly in manner similar to that shown when laying tongue and groove flooring, the strip-tongues being provided with holes 49. A striker block similar to the striker block 41, but having a tongueless contacting face for laying the strip-tongue snugly against the outer edge of the flooring, may be employed for fixing the strip-tongue in upwardly extending position, preferably with its base at the edge line of the outer edge of the flooring board being laid, a nail 50 being driven through the hole 49 into the edge of the board for firmly holding the board to the strip and to the original floor.

When laying parquetry flooring (see Figs. 8 and 9), securing strips 15 having a less number of tongues may be employed, or a less number of the tongues in the strips may be used, as desired, boards of parquetry flooring being in practice a number of times the widths of usual flooring boards and of considerably less lengths, the parquetry boards, indicated at 51, having their longitudinal edges provided with grooves 52 and their ends provided with grooves 53, insert-tongues 54, 55, being inserted in the grooves 52 and 53 respectively.

The proximate edges of parquetry boards are formed to provide a space 56 between them at their lower edges, this space tapering upwardly.

The parquetry boards are laid similarly to the tongue and groove flooring boards. The strip-tongue is bent upwardly and forced into the groove of the parquetry board, preferably by means of a striker-block 41, for firmly clasping the lower wall of the groove between the strip-tongue and the strip and securing the parquetry board to the floor.

The insert-tongue is inserted upon the strip-tongue and driven into place by suitable means, the strip-tongue being pinched between the insert-tongue and the lower wall of the groove.

The end of the strip-tongue is preferably received in the space 57 between the inner edge of the insert tongue and the bottom of the groove. The construction and arrangement insures meeting between the upper ends of the proximate edges of the parquetry boards and secure positioning of the boards.

The backs of the flooring boards are provided with recesses 61 into which the heads 31 of the securing bolts are received, when such securing means are employed. These recesses may be formed by the hollows extending through the lengths of the backs of the flooring.

After the laying of the floor has been completed, the upper ends of the turned-up ends 38, 38[a], of the securing strips are laid down upon the surfaces of the outer edges of the outer boards, as shown at *d*, at both ends of strips, and nails 65 driven therethrough into the end flooring boards. For additionally securing the outer edges of the outer flooring boards to the original floor, finishing strips 67 may then be nailed by nails 68 over the joint between the outer edges of the flooring and the walls 12, covering the down-turned ends.

In laying the securing strips upon the original floor, they are preferably laid so as to be stretched across the floor. My improved securing means secures all of the flooring boards to the strips from below, holding the flooring boards downwardly and resisting rise of any flooring board or boards. Any rise of the flooring laid is further counteracted by the stretched condition of the securing strips and the tension upon the strips which would be exerted by any tendency of the boards to rise.

My improved securing means further provides means whereby, while the flooring is laid so as to raise the surface of the laid flooring above the original floor substantially only to the extent of the thickness of the flooring laid, still the thin securing strips insure a very slight space between the original floor and the flooring laid, providing an air space comprising said slight space and the recesses in the backs of the flooring, and forming an insulating space to insulate the flooring from the original floor for resisting transference of moisture and cold and resisting rotting of the flooring laid.

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

1. In means for laying flooring, the combination with a floor of the character described to be covered, a wall, and tongue and groove flooring boards, of metal strips of the character described laid in spaced-apart relation, with the ends of said strips at said

walls turned upwardly, said flooring laid with its groove-edges outward, said strips provided with tongues extending upwardly into the joints between proximate flooring boards and secured in said joints, with said ends of said strips bent downwardly above the flooring, and means for securing said downwardly bent ends in downwardly bent relation.

2. In means for laying flooring, the combination with the supporting surface, of flooring-boards whose proximate edges have spaces between them at the lower portions of said edges and whose upper portions are arranged to meet when said flooring-boards are laid, securing strips for said flooring-boards parallel with said supporting surface, and securing means for securing said securing strips to said supporting surface, said securing strips provided with receiving means for receiving said securing means, and said securing strips provided with tongues normally lying in the plane of said securing strips and arranged to be bent out of said plane for being received in said spaces between said lower portions of said proximate edges of said flooring-boards.

3. In means for laying flooring, the combination with the supporting surface, of flooring-boards whose bottoms are provided with recesses, said flooring-boards laid edge to edge, and flat metal securing strips provided with tongues normally in the plane of the body of said strip registering with said edges and with apertures registering with said recesses, securing means received in said recesses and through said apertures for securing said securing strips to said supporting surface, said tongues bent upwardly between the proximate one of said edges, and hold-down means at said tongues.

In testimony whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

ROBERT A. STOEHR.

Witnesses:
PAUL O. CONNOLLY,
THERESA M. SILBER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents Washington, D. C."