

No. 631,090.

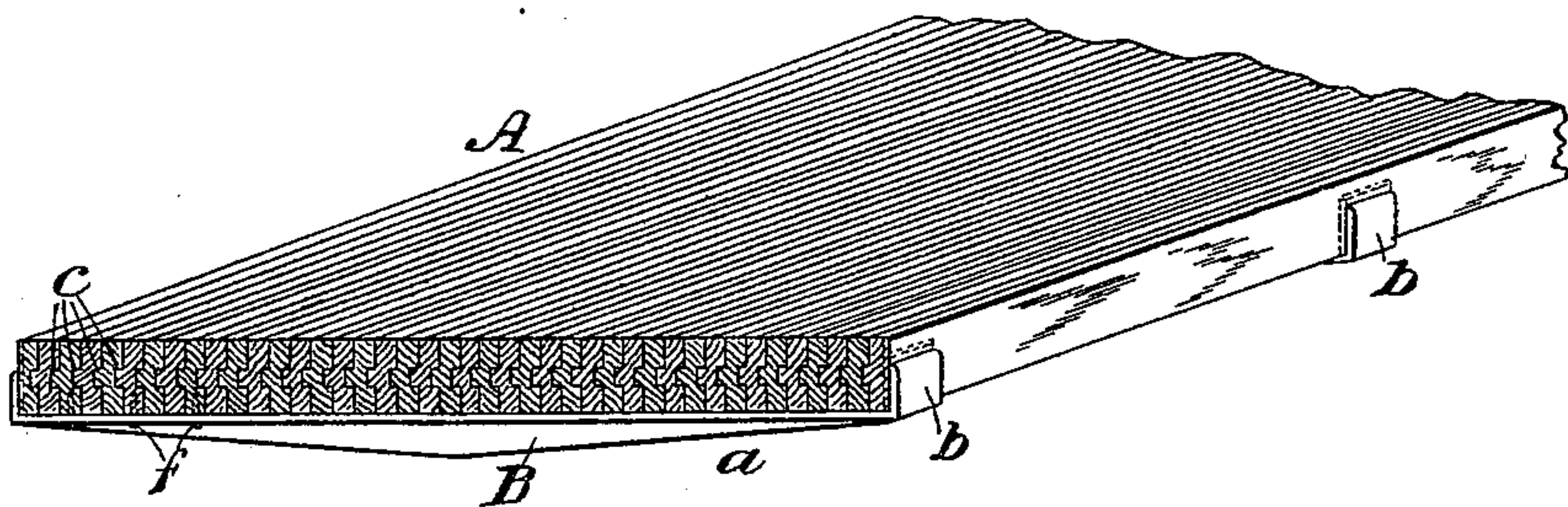
Patented Aug. 15, 1899.

W. P. MUSSEY.  
BOWLING ALLEY.

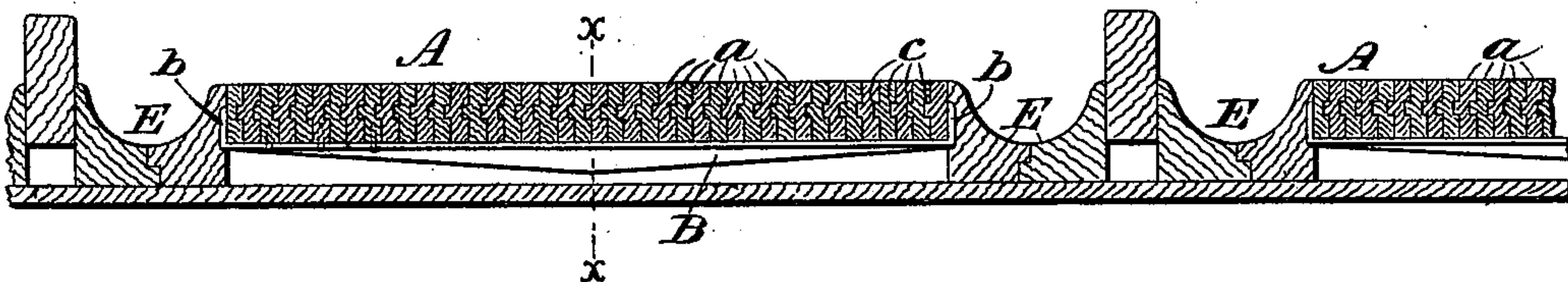
(Application filed May 29, 1899.)

(No Model.)

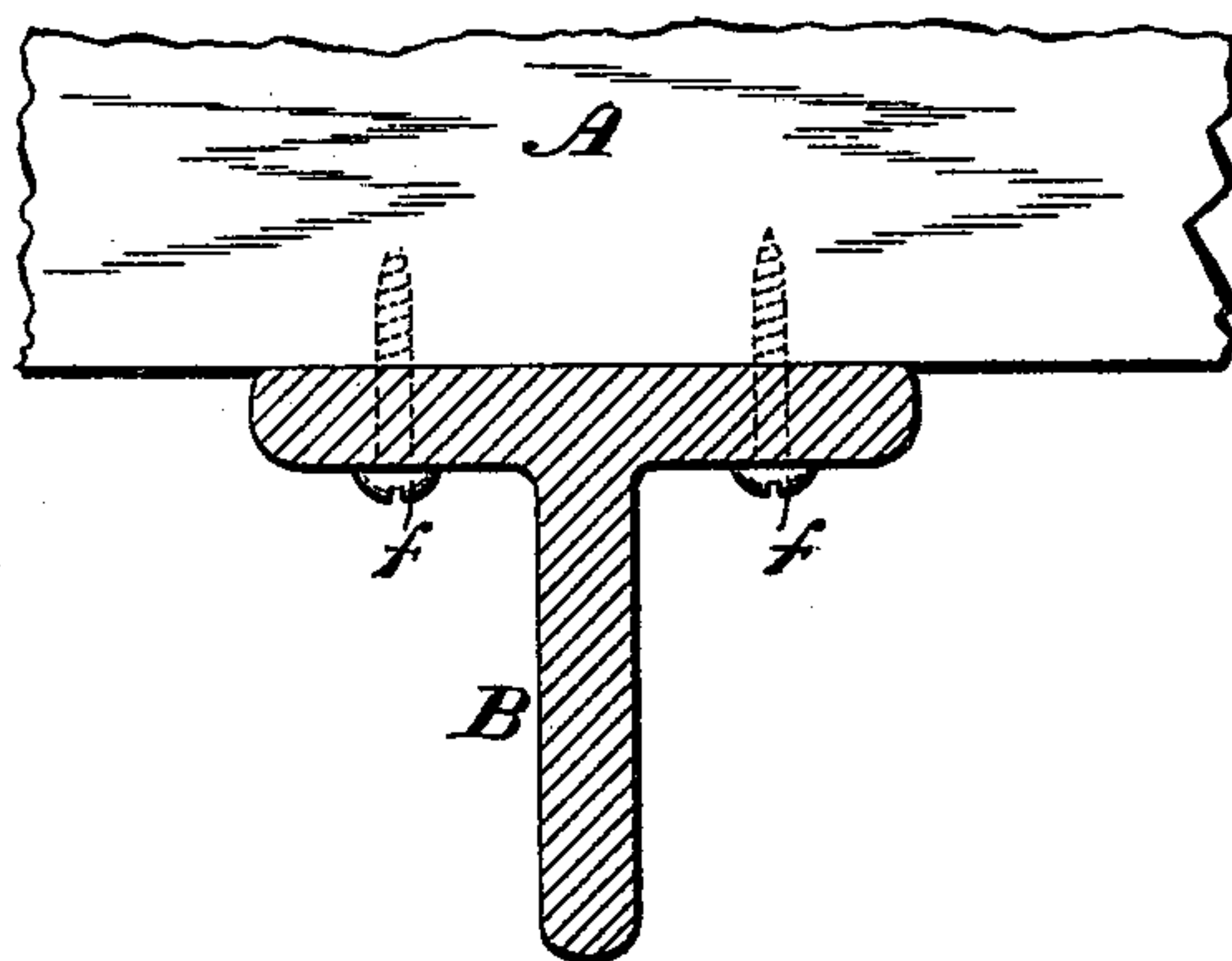
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



Witnesses:  
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# UNITED STATES PATENT OFFICE.

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## BOWLING-ALLEY.

SPECIFICATION forming part of Letters Patent No. 631,090, dated August 15, 1899.

Application filed May 29, 1899. Serial No. 718,623. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM P. MUSSEY, of Chicago, county of Cook, State of Illinois, have invented a new and useful Improvement in Bowling-Alleys; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to bowling-alleys, and has for its object to improve the construction of that part of an alley usually denominated the "bed" or the "ballway" thereof.

As every one knows who is skilled in the art of building bowling-alleys and familiar with uses of the same, nearly all alleys have the beds or ballways composed of narrow boards or strips of some suitably hard and desirable wood (generally maple) set on edge in perfect contact, securely fastened together, and firmly supported on a solid foundation of some sort, with the top surface finally finished off to a perfectly level plane and made smooth as well. Many substitutes for this kind of bed or ballway have been devised and patented—such, for instance, as beds composed of slabs of slate and other stone, sometimes presenting a naked surface for the balls to roll on and sometimes clothed or covered with canvas, rubber cloth, &c., beds composed of a series of steel plates, each finished up to a perfectly smooth plane surface and then securely fastened to some suitably stable metallic foundation and sometimes provided with means of vertical adjustment, so that the entire set of plates constitutes the entire ballway of the alley—and some few of these substitutes for the wooden ballway have been put into use practically and are now being used; but for many practical reasons the wooden alley-bed is still and will continue to be the preferable sort of ballway.

In building and providing for use by the public the wooden ballway many practical difficulties have, however, been and are still met with in an effort by the alley-builder to furnish this type of alley-bed constructed so that it will possess in an eminent and satisfactory degree all the requisites of a first-class bowling-alley.

As is well understood by those skilled in the art, the ballway of an alley must present when laid down a perfectly smooth bowling-surface which lies in a perfectly level plane, and it must possess the capacity to maintain these conditions to the greatest possible extent.

Of course a maintenance of the ballway in a perfectly level plane depends in a measure on the retention of the bed-supporting means or the foundation on which the alley may be placed in its original perfect condition, and by various means well known and respectively employed, according to surrounding circumstances, this may be satisfactorily accomplished. It is also true, of course, that even in the case of a perfectly-constructed ballway the surface of the latter will wear out of true after a while by the pounding upon and rolling along over its surface of the hard wood and usually very heavy wooden balls used in bowling, so that periodically the face of the ballway or bed has to be trued up or planed and refinished to its original perfectly level and smooth condition. Sometimes where the bed may have been laid on its foundation irremovably this is done by workmen, who plane and refinish to a level the playing-surface after the fashion in which the permanent floor of a room would be planed off. In other cases, however, where the bed has been put down in removable sections, the latter are all taken up, carried to a mill, where their top surfaces are planed and smoothed by machinery, and the refinished sections are replaced and resecured in their original relative positions on the alley-foundation.

In the building or manufacture of bowling-alleys with wooden ballways the latter are first "built up" or made (preferably in sections) on edge—that is to say, a series of the narrow boards or wooden strips are successively piled up, each one in turn being securely fastened by nailing (and sometimes also gluing) it to the one immediately beneath it, until the vertically-arranged pile of strips thus securely fastened together is about equal to the width of the proposed bed or ballway, after which the set or pile of attached boards or strips has applied to it a series of clamping



or tie rods of metal, each long enough to pass through a hole running edgewise through the pile and provided at one end with a head and at the other with a screw-nut. Theoretically it seems a comparatively easy matter to thus secure the strips together so that after the set of strips shall have their top edges planed off and finished up to a perfectly smooth plane the set when properly positioned upon and securely fastened to a stable foundation will retain such perfectly level condition of playing-surface; but when it be remembered that it is physically impossible to use lumber in the construction of the bed every portion of which will be free from a liability to shrink and swell to some extent under atmospheric changes, and when it be, furthermore, taken into consideration that this wooden bed of comparatively small thickness has to be (for a regulation alley) forty-two inches wide and sixty-three feet long, the practical problem of a construction such that the working face will not soon get appreciably out of true or out of level is not one easy of solution.

I have found by experiment and actual practice that the wood construction of bed or ballway which I have devised and which forms the subject-matter of this application enables me to build or manufacture the wooden bed of a bowling-alley so that it will maintain its original perfect shape or condition longer than wooden beds as heretofore made, while at the same time the better ballway thus produced can be made cheaper and will in all respects be more desirable than any heretofore manufactured.

In constructing my improved alley-bed I dispense with the usual incorporated clamping tie-rods, thus saving the labor of perforating the wood for the accommodation of said devices, while at the same time avoiding the weakening of the stock of the bed by the presence of such perforation running through and through the comparatively thin bed, and I employ a series of bed-supporting and laterally-clamping metallic bars or beams, which perform the double function of rigid vertical supports to the series of laterally-united strips of wood, being located at intervals immediately beneath the united set of strips, crosswise of the bed, and of clamps for confining widthwise of the bed the joined strips, so as to prevent the least spreading apart of the strips or lateral swelling or expansion of the concrete bed.

My invention may therefore be said to consist, essentially, in the combination, with the wooden bed composed of numerous narrow strips fastened together side by side, of metallic underlying, supporting, and laterally-clamping bars arranged crosswise of the bed and at suitable distances apart lengthwise of the bed, all as will be hereinafter fully explained and as will be most particularly pointed out in the claims of this specification.

To enable those skilled in the art to which my invention relates to make bowling-alleys according to the same, I will now proceed to more fully describe the construction of my improved alley, referring by letters to the accompanying drawings, which form part of this specification and in which is shown my improvement carried out precisely as I have so far practiced it.

In the drawings, Figure 1 is a perspective view showing portion of a ballway or bed made according to my invention ready to be placed in position and secured to the foundation of the alley. Fig. 2 is a partial vertical cross-section of a pair of alleys embodying my invention. Fig. 3 is a detail vertical section at the line  $x x$  of Fig. 2, showing particularly the shape of the metallic clamping bar or beam.

In the several figures the same part will be found always designated by the same letter of reference.

A is the ballway or bed of a bowling-alley, composed of the usual narrow boards or strips of wood  $a$ , which have been attached or fastened to each other as securely as possible in the usual manner, but which are tongue-and-grooved together at their contacting and united sides or contiguous vertical faces, as plainly seen at  $c$ , Figs. 1 and 2.

B shows a series of bed-supporting metallic beams or bars which, as shown, are arranged crosswise of the bed at intervals, say, of from forty to sixty inches apart and each of which is formed or provided with an upturned end portion or jaw  $b$ , all in such manner that in the construction of the bed the distance between the innermost vertical faces of the vertically-projecting lugs or jaws  $b b$  of each cross-bar B is forty-two inches, (scant,) so that when driven onto or over the opposite edges of the joined series of strips  $a$ , as shown at Fig. 2, the jaws  $b b$  of each cross-beam B will tightly confine between them widthwise the wooden bed, while the top surface of the beam B itself will contact with the bottom surface of the wooden bed A. Thus put together any possible upward movement of the bed A after the finishing of the alley that would throw the bottom surface of the bed out of contact with the top surface of any one of the beams B is effectually prevented by numerous wood-screws  $f$ , (see Fig. 3 and dotted line at Fig. 1,) which securely unite the top-plate portion of the beam B, as shown, with the boards  $a$  of the alley-bed.

By the combination, with the united pile or series of wooden strips  $a$ , of the underlying metallic beams B, securely screwed to the boards  $a$  and with their jaw-like ends  $b b$  forcibly embracing the bed A, a most rigid and enduring bed is formed, since the embracing-jaws  $b b$  successfully clamp or hold the series of boards  $a$  against any tendency to spread apart, while the securement of these boards vertically to the rigid metal beams B by the



numerous wood-screws *f* prevents any rising or upward bulging of any of the said boards.

In the possible event of the least shrinkage of the stock composing the bed A, so as to throw the clamping-jaws *b b* of any beam out of forcible contact with the vertical edge or edges of the bed A, thin wedges, preferably of metal, may be driven in (at one or both sides of the bed) between the adjacent faces of jaws *b b* and the edges of the wooden bed, as I have illustrated in dotted lines at Fig. 1. Of course to provide for such a contingency in putting up or building the alley openings should be left in the stock of the ball-gutter pieces E (see Fig. 2) at the proper localities provided with suitable removable covers.

As illustrated at Fig. 2, the ends of the metal beams B, that support and form part of the bed A, are durably supported on the ball-gutter beams or pieces E, though they may be otherwise supported. In no case, however, is the middle portion of the beam B allowed to contact with the floor or foundation on which the alley or alleys may be built or set up.

I have found the precise form in which I have shown my invention carried out to give very satisfactory results in actual practice; but of course modifications in the details may be made without departing from the spirit of my invention, and though the pith of the latter lies in the idea of the use, in connection with the bed A, of the underlying metallic beams B, secured to the said bed in substantially the manner shown and described, more or less advantage results from the use also of the structural features of the tongue-and-

grooved united strips *a*, put together as explained.

What I therefore claim as new, and desire to secure by Letters Patent, is—

1. In a bowling-alley, the combination, with a bed or ballway, composed, as usual, of a series of narrow hardwood boards, or wooden strips, set on edge and all securely fastened together, of a series of underlying, metallic cross-beams, arranged at suitable distances apart, that have each upwardly-projecting end portions which forcibly embrace the said bed, widthwise; the said cross-beams not only supporting, or sustaining, the said bed; but being also securely fastened to the board *a*, of said bed; all in the manner and for the purposes hereinbefore set forth.

2. In a bowling-alley, the combination, with a bed or ballway, composed of a series of boards, or wooden strips, set on edge and having their adjacent sides tongue-and-grooved together and being all securely fastened together, as specified, of a series of underlying, metallic, cross-beams which support, or sustain, said bed; which are securely fastened to the lower edges of the strips composing the bed; and which have upwardly-projecting end portions that forcibly embrace the bed widthwise; all in the manner and for the purposes hereinbefore set forth.

In witness whereof I have hereunto set my hand this 15th day of May, 1899.

WILLIAM P. MUSSEY.

In presence of—

D. H. SWEET,  
THOMAS M. MCHALE.