

C. E. LYTTLE.

PITCH BOARD.

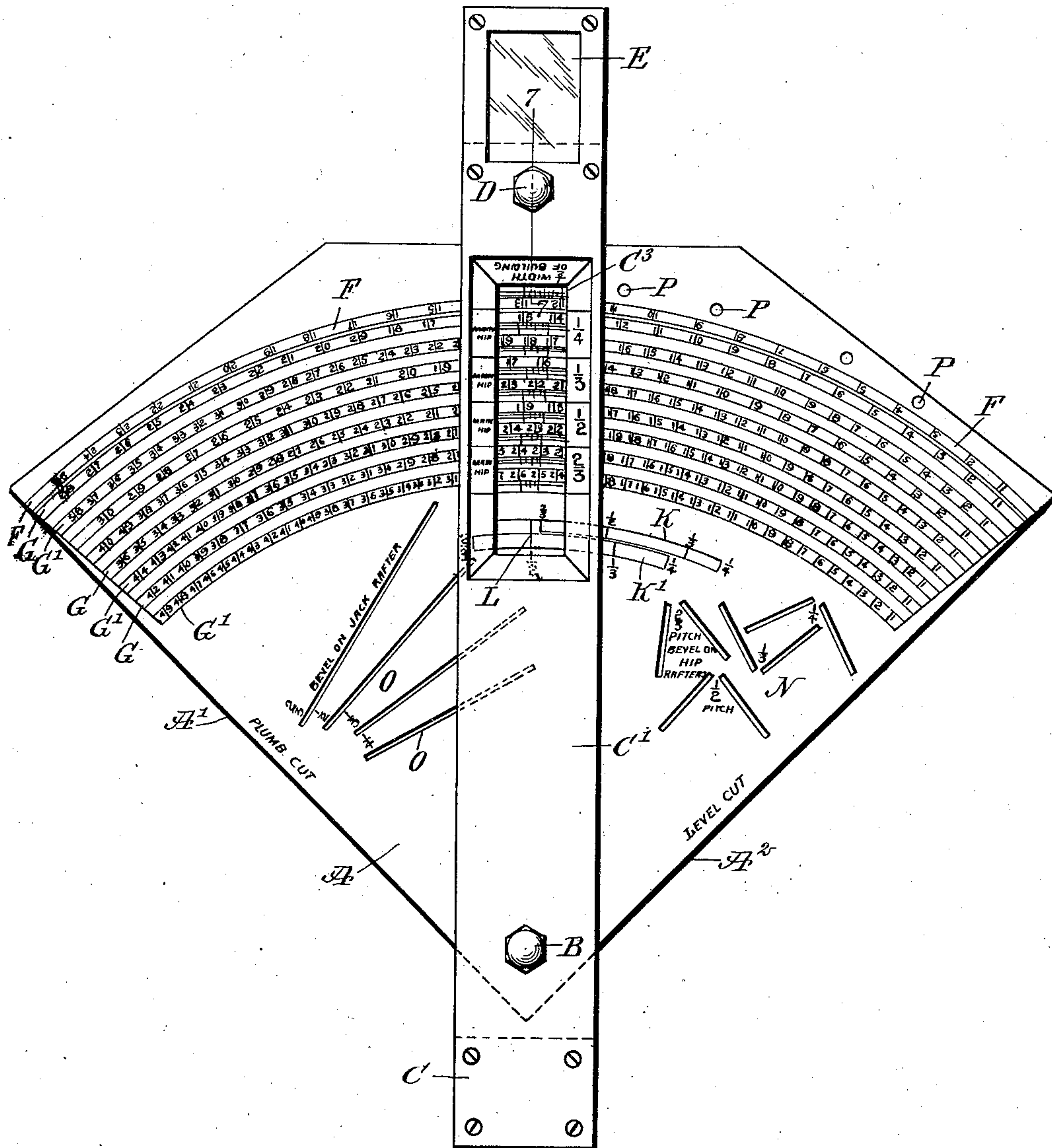
APPLICATION FILED MAR. 16, 1908.

944,799.

Patented Dec. 28, 1909.

3 SHEETS—SHEET 1.

Fig. 1



WITNESSES

Amos C. Starker
Wm. G. Foster

INVENTOR

Charles Edwin Lytle

BY *Mum & Co*

ATTORNEYS.

PITCH BOARD.

944,799.

3 SHEETS—SHEET 2.

Fig. 2.

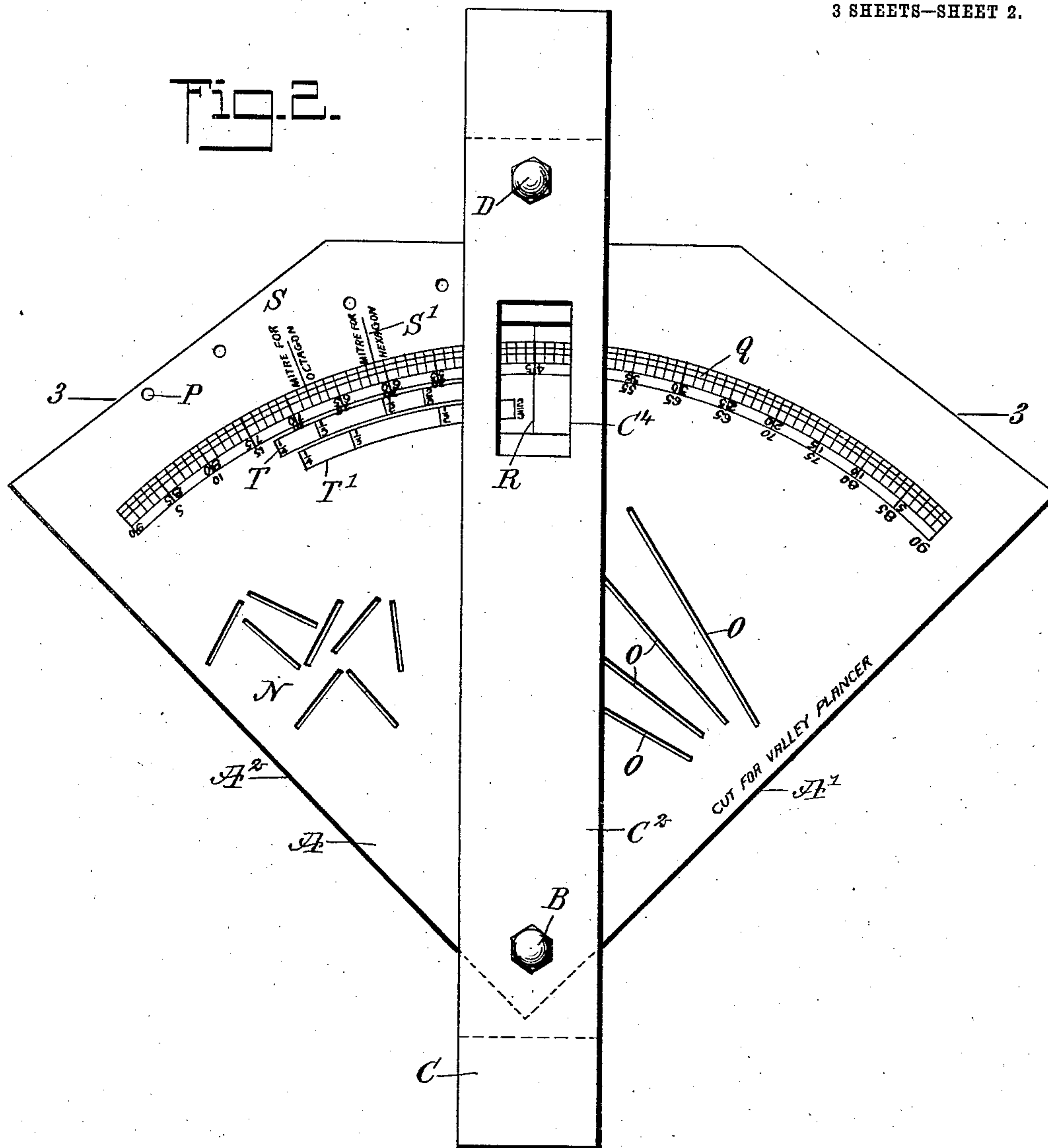
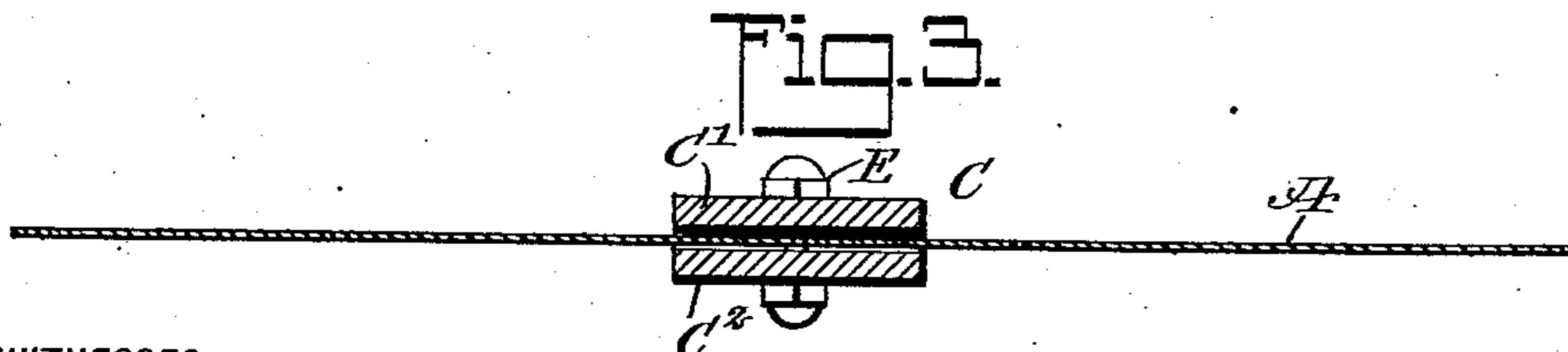


Fig. 3.



Louis C. Starker
Rev. J. Hooper

Charles Edwin Lytle

BY *Munro*

ATTORNEYS.

C. E. LYTLE.
PITCH BOARD.

APPLICATION FILED MAR. 16, 1908.

944,799.

Patented Dec. 28, 1909.

3 SHEETS—SHEET 3.

Fig. 6.

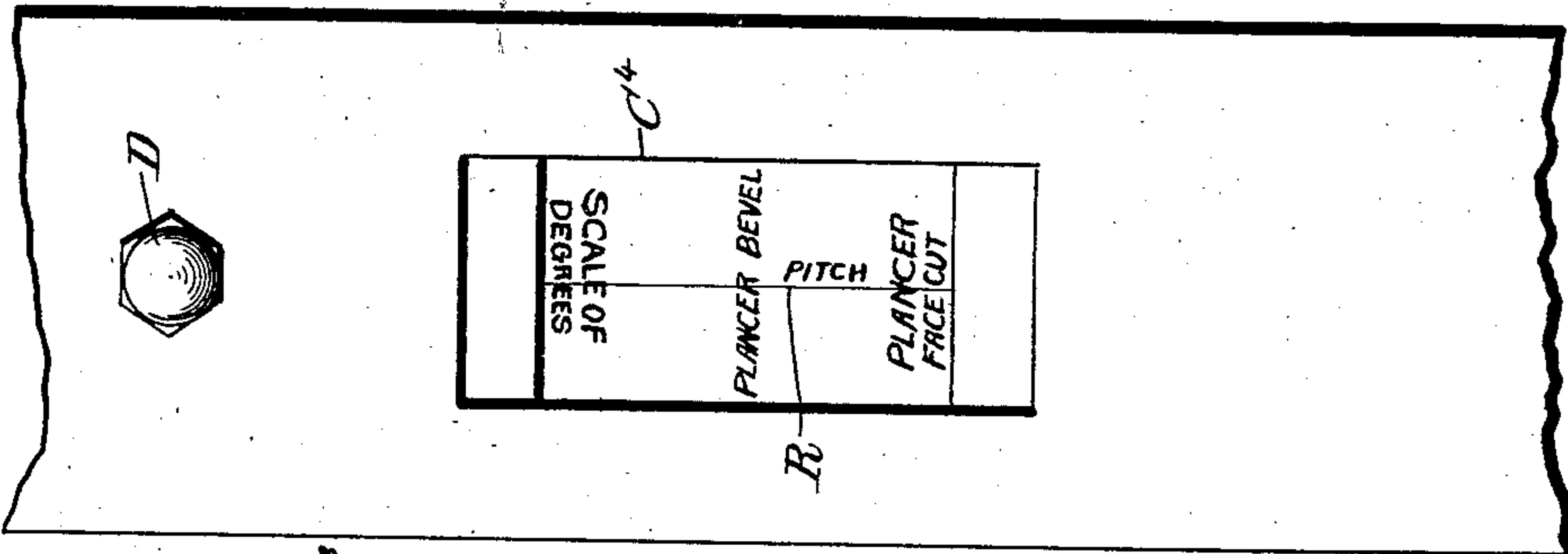


Fig. 5.

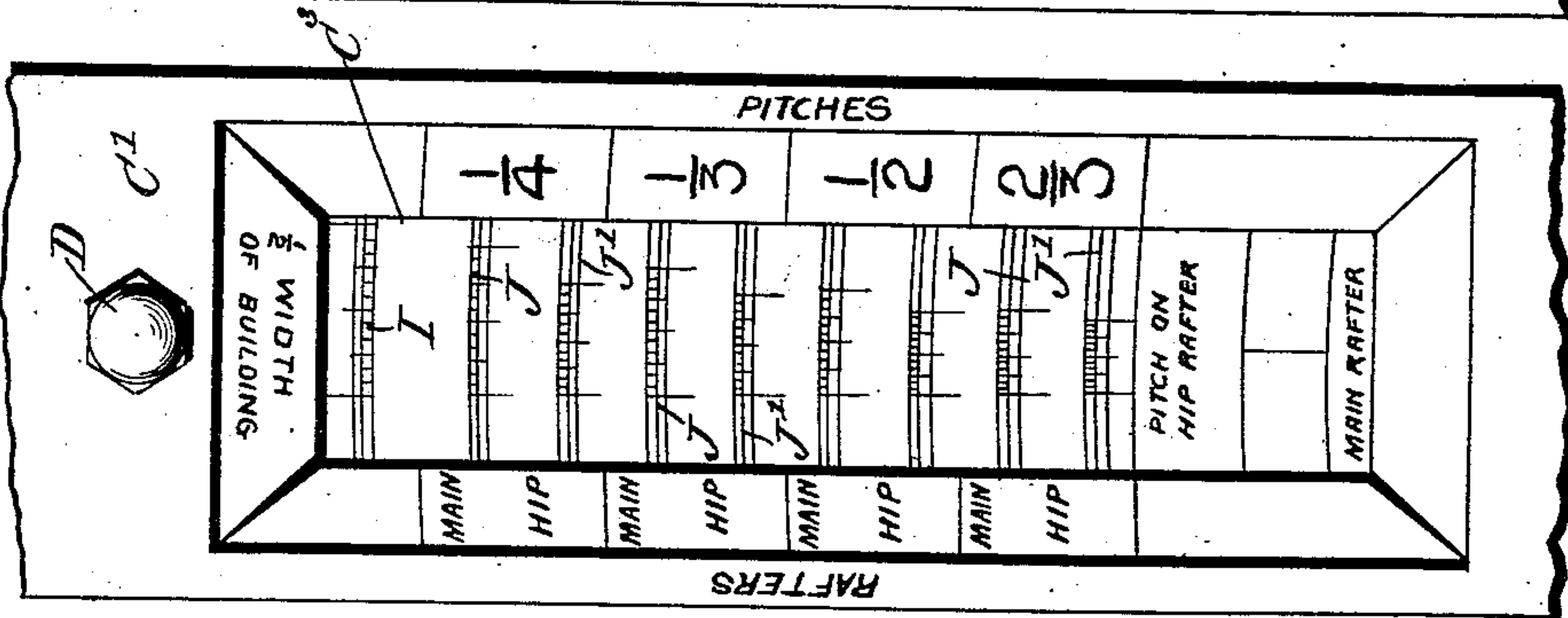
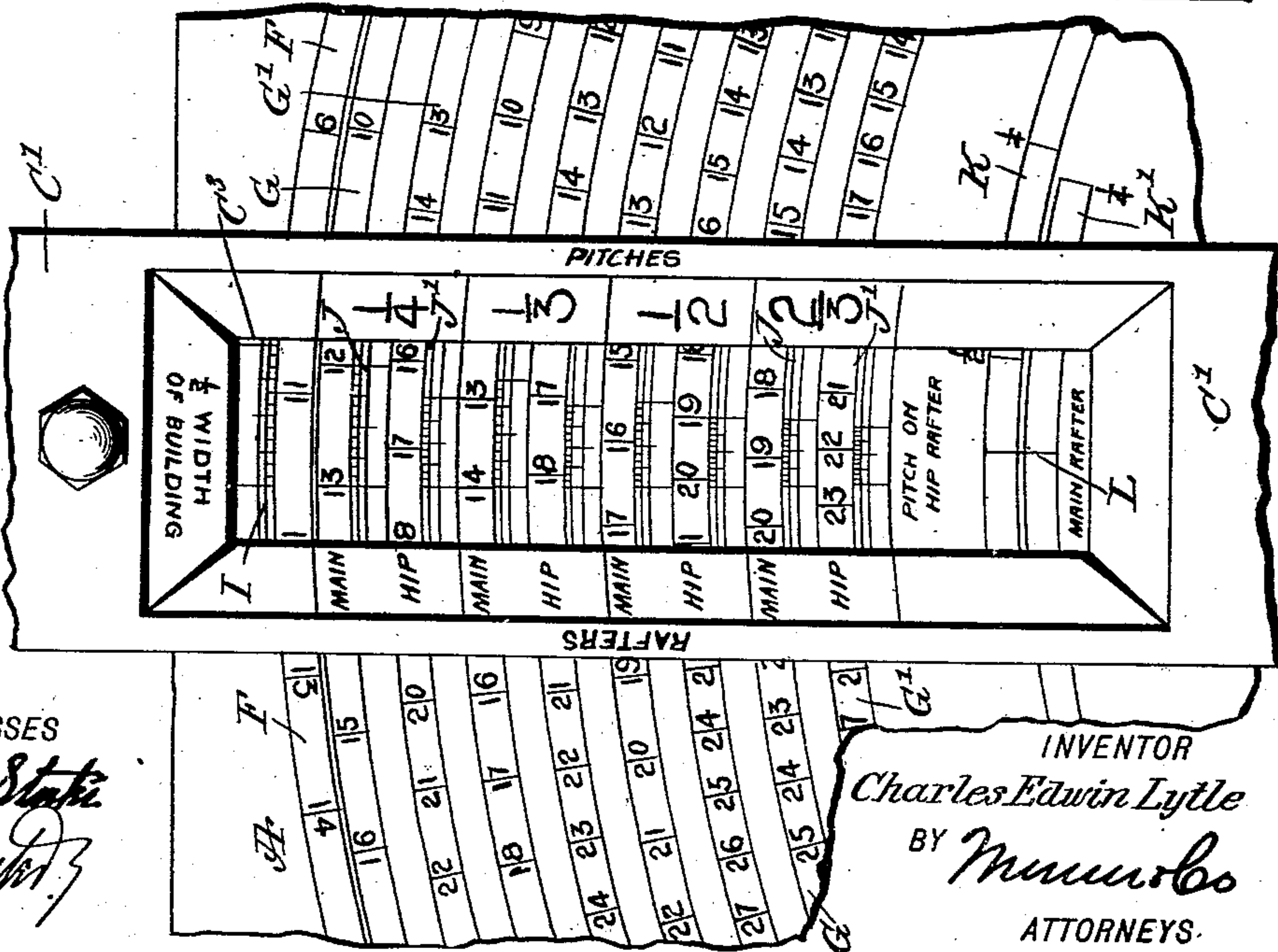


Fig. 4.



WITNESSES
Louis C. Stutz
Reed J. Hester

INVENTOR
Charles Edwin Lytle
BY *Mumford*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES EDWIN LYTTLE, OF ST. JOSEPH, MISSOURI.

PITCH-BOARD.

944,799.

Specification of Letters Patent.

Patented Dec. 28, 1909.

Application filed March 16, 1908. Serial No. 421,320.

To all whom it may concern:

Be it known that I, CHARLES EDWIN LYTTLE, a citizen of the United States, and a resident of St. Joseph, in the county of Buchanan and State of Missouri, have invented a new and Improved Pitch-Board, of which the following is a full, clear, and exact description.

The invention relates to measuring instruments, and its object is to provide a new and improved pitch board, more especially designed for use by carpenters, to enable them to readily and accurately obtain the length and bevels of rafters, thus enabling a carpenter to frame the roof of a building with ease and despatch and without the use of a square or a bevel and without requiring mental calculations.

The invention consists of novel features and parts and combinations of the same, which will be more fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figures 1 and 2 are face views of opposite sides of the instrument; Fig. 3 is a horizontal sectional view of the same on the line 3—3 of Fig. 2; Fig. 4 is an enlarged front view of the improvement; Figs. 5 and 6 are face views of opposite sides of the swing arm, and Fig. 7 is a transverse section of the improvement on the line 7—7 of Fig. 1.

The plate A of the pitch board is preferably made of sheet metal, and is provided with the side edges A', A² standing at a right angle one to the other, and near the apex of the said sides A', A² is arranged a pivot B for an arm C to swing on, the said arm being slotted to provide front and rear members C', C², extending on opposite faces of the plate A, as plainly indicated in Figs. 3 and 7. The front and rear members C', C² are engaged near their outer ends by a clamping bolt D, to clamp the said members upon the plate A, thus holding the arm C in position on the plate A after the desired adjustment is made, as hereinafter more fully described. On the outer or free end of the swing arm C is arranged a tablet E of slate or other suitable material, to permit the user of the instrument to write memo-

randa thereon, such as the length of the rafters and other desiderata.

On the front face of the plate A (see Figs. 1 and 4) is arranged a segmental graduation F, indicating one-half of the widths of buildings, and next to this graduation F are arranged sets of segmental concentric graduations G, G', of which the graduation G indicates the length in feet of main or common rafters, while the graduation G' indicates the length in feet of hip rafters. The segmental graduations F, G and G' have their center coinciding with the center of the pivot B.

On the front member C' of the swing arm C is formed an elongated opening C³, covered by a pane H Fig. 7 of transparent material such as glass, celluloid and the like, and through which pane the graduations F, G and G' are visible. On the pane H are engraved or otherwise produced vernier graduations I, J, J', of which the graduation I is complementary to the graduation F and represents one foot and subdivisions thereof, the foot corresponding to one foot of the graduation F. The graduations J are complementary to the graduations G, and the graduations J' are complementary to the graduations G', and each of the graduations J, J' represents one foot and subdivisions, the foot corresponding to one foot as represented on the corresponding graduations G, G'.

On the member C' at the outer end of the opening C³ is produced the legend "1/2 width of building," indicating that the graduations F and I are for indicating one-half of the width of a building in feet and subdivisions thereof. On the member C' to the left of the opening C³ is produced in the direction of the length of the arm C, the word "rafters" and transversely thereto the words "main" and "hip." Opposite the graduations J, J' and on the member C' are produced the fractions 1/4, 1/3, 1/2 and 2/3, each fraction being complementary to the pairs of graduations G, J and G', J'. Adjacent to the fractions is produced the word "pitches," indicating that the fractions are pitches of the roof of a building.

In using the device for obtaining the length of the main rafters or hip rafters, the user of the instrument proceeds as follows: If the building to be erected is say 23 feet 4 inches wide, then one-half of

this width is 11 feet 8 inches, and this length is indicated by swinging the arm C on the plate A until 11 feet 8 inches are indicated by the graduations I and F, as illustrated in Fig. 4. Now if the roof is to be one-third pitch then the operator reads the length of the main rafter on the graduations G, J at $\frac{1}{3}$ pitch, and will thus find that the length of the main rafter is to be 14 feet and the length of the hip rafter can be read at the graduations G', J' for $\frac{1}{3}$ pitch as 18 feet 2 inches. Thus from the foregoing it will be seen that the length of the main or common rafters and hip rafters for the different widths of buildings can be readily read off, on swinging the arm C into the proper position on the plate A and fastening it thereon by the clamping bolt D.

For obtaining the length of jack rafters, the distance from the corner of the building to the location of the jack rafter is laid out by the use of the swing arm C on the graduations F and I.

In order to obtain cuts for main rafters and hip rafters on the various pitches, the following arrangement is made: On the front face of the plate A below the innermost graduation G' are arranged the segmental graduations K, K', representing pitches for hip rafters and main rafters, and on the lower end of the pane H is arranged a radial hair line L for setting the arm C on the corresponding pitch graduation K or K', the angle between the sides of the arm C and the edges A' and A² giving the corresponding plumb and level cuts.

On the right hand side of the plate A are formed a series of V-shaped slots N for laying out the cuts for the top ends of hip and valley rafters for the different pitches marked in the angle of the said slots, as shown in Fig. 1.

In using the V-shaped slots, one of the slots is placed parallel with the side of the rafter, the other being transverse to the rafter and marking the line of the cut.

On the left-hand side of the plate A are arranged a series of straight slots O at angles to the edge A', to lay out the bevel cuts on the upper ends of jack rafters for the various pitches marked on the plate A at the corresponding slots.

In using the above slots, the central line of the plate which is designated by the line R in Fig. 2 is laid parallel with the edge of the rafter, and the slots O designate the line of the cut.

Along the outer marginal edge of the plate A are formed apertures P, to permit the user to mark the foot or base of a rafter at the point of projection of the rafter over the side of the building.

In using the apertures P, the central line of the plate which is designated by the line R is placed at right angles to the rafter, at

the point of the rafter which is even with the edge of the building, and a pencil is inserted through the proper opening P, to mark the point on the rafter where it is to be cut, the distance between the pencil mark and the central line R is the distance which the rafter end projects beyond the building.

On the reverse face of the plate A (see Fig. 2) is arranged a protractor scale Q, on which indicates a radial hair line R, engraved or otherwise produced on the pane H' of transparent material and covering an opening C¹ formed in the rear clamping member C² of the arm C. The scale is marked in both directions, so that by the arrangement described the arm C can be readily set at any desired angle relative to either side A' or A² of the plate A.

Miter lines S and S' for octagons and hexagons appear radially on the plate A above the scale Q, to allow of setting the arm C by the hair line R on the miter lines and relative to the edge A² of the plate, to obtain the sides of octagons and hexagons.

The hair line R is also adapted to indicate on graduations T, T' indicating pitches for plancher bevels and plancher face cuts, it being understood that in order to obtain a plancher bevel or a plancher face cut the arm C is swung until the hair line R coincides with the desired pitch on the graduation T or T', and then the arm C is fastened in place and the corresponding bevel or face cut can be laid by the use of the arm C and the edge A² of the plate A.

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

1. A device of the class described comprising a plate of sheet material provided with two side edges at right angles to each other, an arm slotted to receive the plate and pivoted thereto near the junction of the two sides, means for clamping the arm on the plate said plate being provided with a plurality of arc shaped scales, and the arm with an opening therethrough above the scales, said opening being covered with a transparent plate provided with a vernier scale.

2. A pitch board comprising a plate having adjacent sides standing at a right angle to each other, an arm mounted to swing on the said plate and provided with a hair line, and segmental graduations on the said plate, indicating the pitch for the main and hip rafters, the said graduations, the said hair line and the said adjacent sides determining plumb and level cuts for rafters.

3. A device of the class described, comprising a plate of sheet material provided with two side edges at right angles to each other, an arm slotted to receive the plate and pivoted thereto near the junction of the two sides, means for clamping the arm on the plate, said plate being provided with a plu-

ality of arc shaped scales, said plate having adjacent to one of said side edges a series of V-shaped slots for the purpose set forth.

4. A device of the class described comprising a plate of sheet material provided with two side edges at right angles to each other, an arm slotted to receive the plate and pivoted thereto near the junction of the two sides, means for clamping the arm on the plate, said plate being provided with a plurality of arc shaped scales, said plate having adjacent to one of the said sides a plurality of slots at different angles to the said sides for the purpose set forth.

5. A device of the class described comprising a plate of sheet material provided

with two side edges at right angles to each other, an arm slotted to receive the plate and pivoted thereto near the junction of the two sides, means for clamping the arm on the plate, said plate being provided with a plurality of arc shaped scales, said plate having spaced apertures adjacent to one of said side edges for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES EDWIN LYTTLE.

Witnesses:

J. C. HEDENBERG,

A. GWYNNE-VAUGHAN.