

L. P. BARNES & J. H. FAUPEL.
Car-Roofs.

No. 199,014.

Patented Jan. 8, 1878.

FIG. 1.

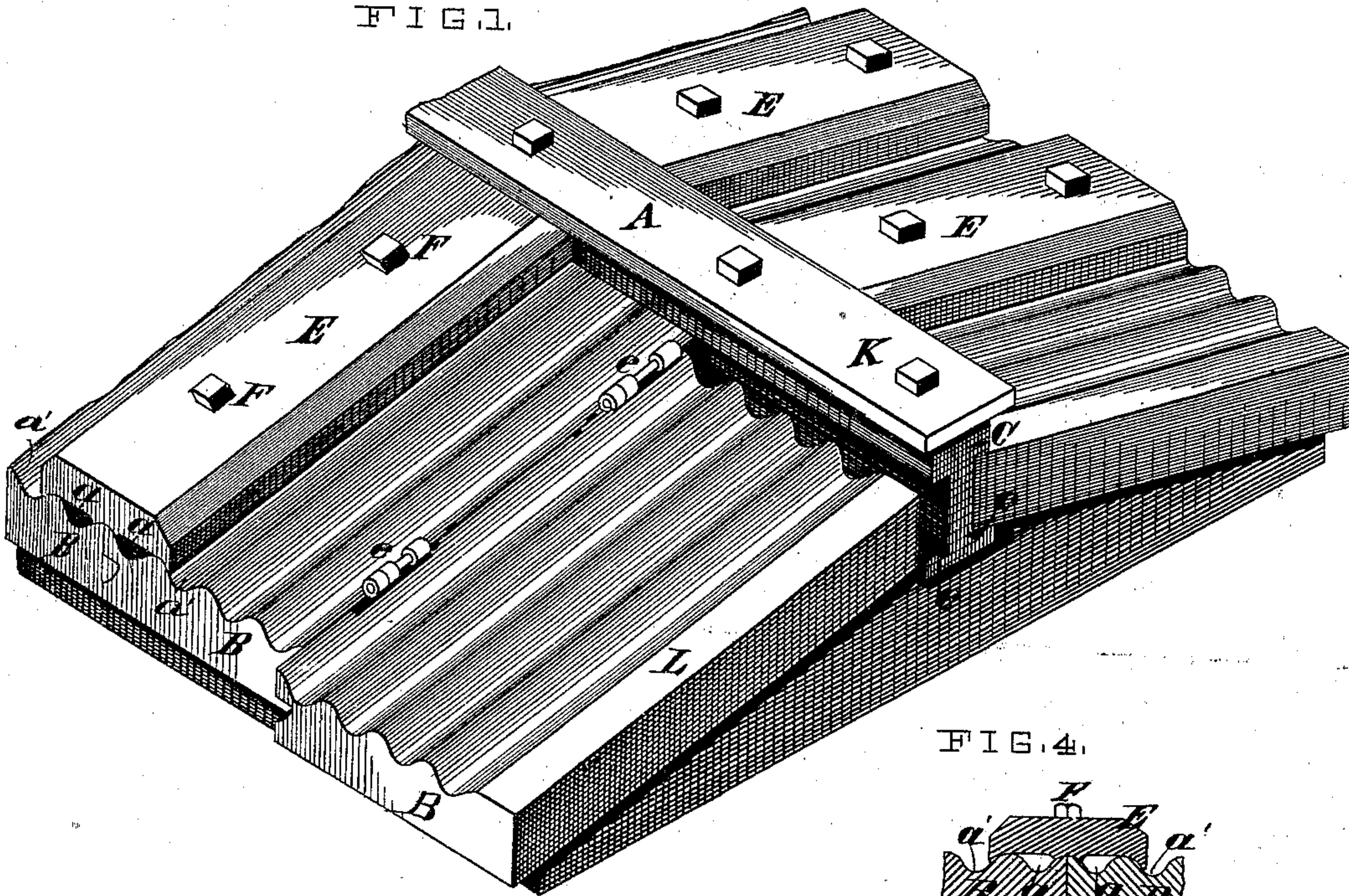


FIG. 4.

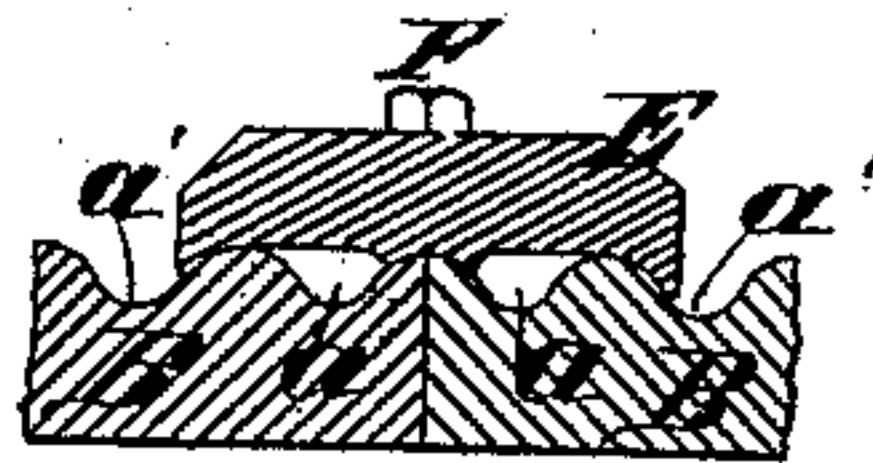


FIG. 2.

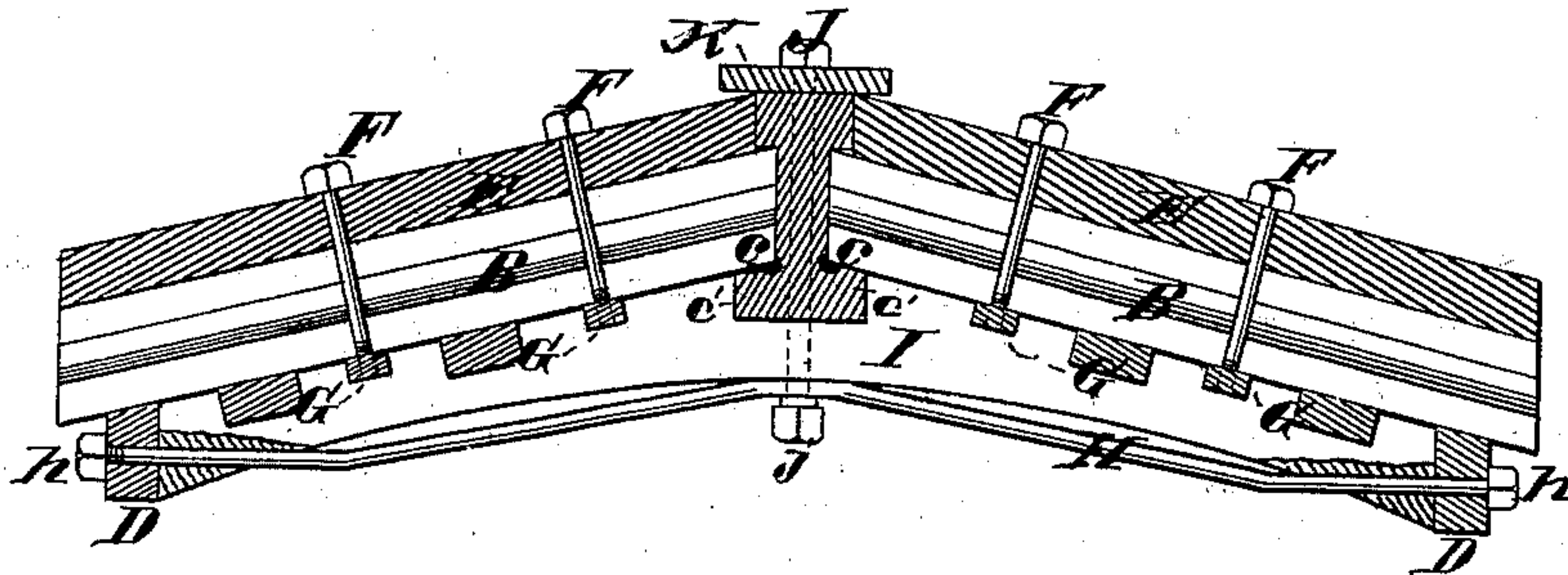
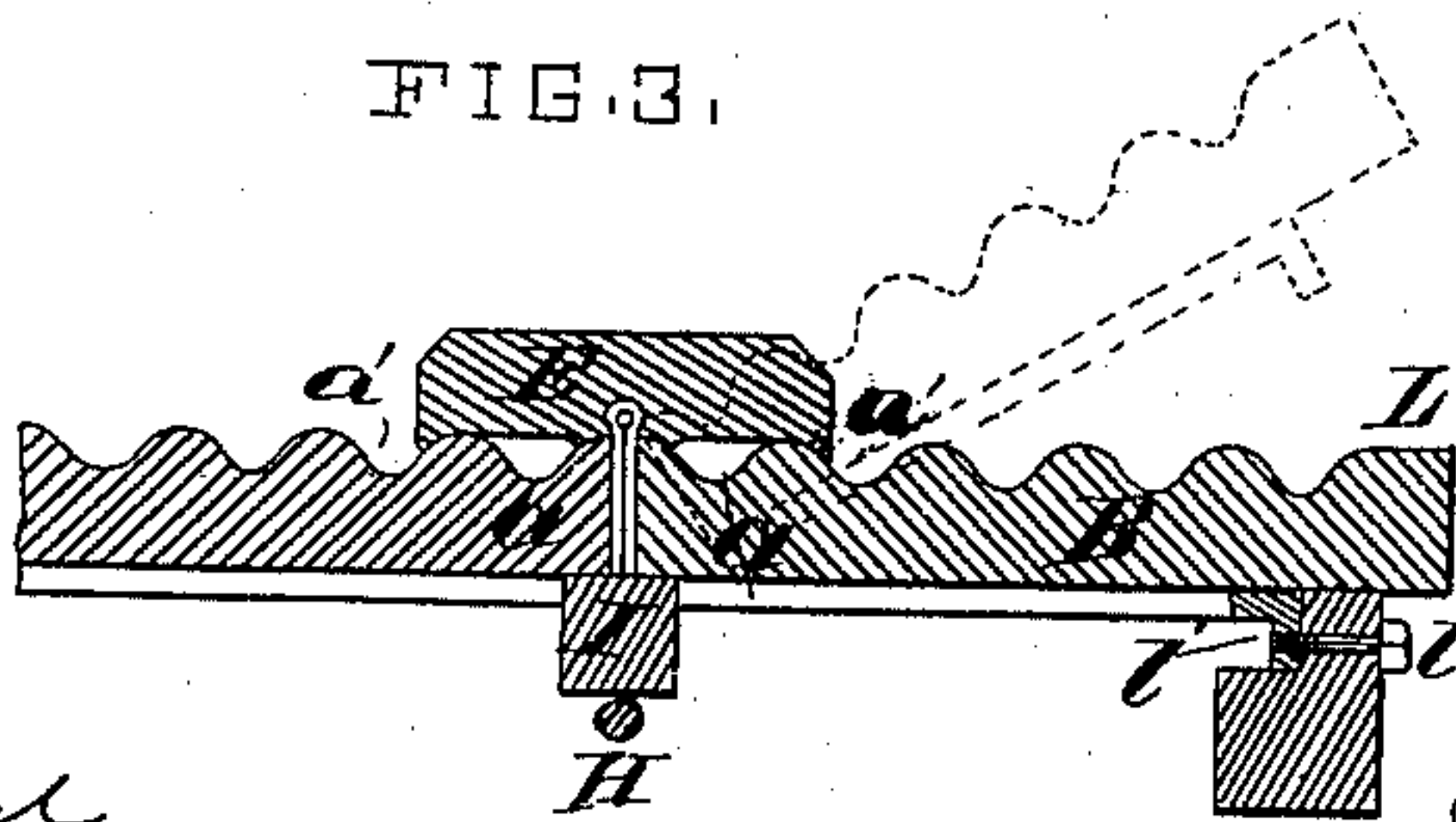


FIG. 3.



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LOVICK P. BARNES AND JOHN H. FAUPEL, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN CAR-ROOFS.

Specification forming part of Letters Patent No. **199,014**, dated January 8, 1878; application filed May 18, 1877.

To all whom it may concern:

Be it known that we, LOVICK P. BARNES and JOHN H. FAUPEL, residents of St. Louis, Missouri, have made a new and useful Improvement in Car-Roofs, of which the following is a full, clear, and exact description, reference being had to the annexed drawing, making a part of this specification, in which—

Figure 1 is a view in perspective, showing a portion of our improved roof, one of the battens being removed to show the door in the roof; Fig. 2, a cross vertical section of the roof; Fig. 3, a detail showing a portion of the roof in longitudinal vertical section, the dotted lines indicating the position of the door in the roof when opened; and Fig. 4, a detail, being a portion of the roof in longitudinal vertical section, showing the mode of forming the joints in the roof.

Similar letters refer to similar parts.

The present improvement has relation, mainly, to the means used in rendering the roof water-tight. It also has reference to the provision for closing the joints in the roof. It further relates to a removable portion of the roof, to provide thereby an entrance to the car. By means of it, also, the roof can be readily and strongly made from inexpensive material.

In the annexed drawing, A represents a portion of a car-roof embodying our improvement. B B B represent the roof-boards, resting at the upper end upon the ridge-pole C, and at the lower end upon the string-pieces D D. The upper surface of the boards B B B is corrugated, as shown at *a a'*, forming gutters, extending from the ridge of the roof to the eaves. The boards may be either dovetailed together or made to butt, as shown in Fig. 4. E E E represent battens, arranged above the joints between the roof-boards. They are made wide enough to extend into the second corrugation, *a' a'*, on either side of the joint, and are so shaped as to bear upon the boards B B directly at the joint, and also in the second corrugations, *a' a'*, but not to come in contact with the boards B B at the first corrugations, *a a*, as shown in Figs. 1, 3, and 4. The battens are held in place by bolts F F, passing down through the battens between the roof-boards, and through the straps G G,

that extend from end to end of the roof on its under side. In the ridge-pole C, and just below the point where the ends of the boards B B butt against the pole, are gutters *c c*, extending from end to end to the pole. The latter is also extended laterally each side, respectively, of the gutters *c c*, to form a bearing, *c' c'*, for the upper ends of the roof-boards. H H H (but one shown) represent tie-rods extending just beneath the rafter I, across the roof, and through the pieces D D, and provided at the ends with nuts *h h*. A king-rod, J, (one to each tie-rod,) passes down through the ridge-pole C, rafter I, and the tie-rod H, and at its lower end is furnished with a nut, *j*. K represents a cap attached to the upper side of the ridge-pole, and projecting over the battens. If desired, the rods J can pass through the cap, as shown, or may extend through the ridge-pole only.

L represents a removable portion of the roof, the object whereof being to thereby provide an entrance to the car, through which boards or other long articles can be readily passed into the car. The door L is formed of one or more of the roof-boards. As shown, but one board is used. The door may be made entirely removable, or it may be hinged, as shown, to the adjoining board.

To open the door, the batten is first removed, as shown in Fig. 1. The door is then drawn out from the ridge-pole to escape the recess in the latter, and the cap when it is raised, as indicated by the dotted lines in Fig. 3. The hinges *e e* are made suitably to enable the door to be moved down from the ridge-pole. The door is fastened suitably by a screw-bolt, *l*, passing into an eye, *l'*. Now, by reason of the batten extending laterally into the second corrugations, *a' a'*, at either side, respectively, of the joint, the principal portion of the water falling upon the roof is prevented from entering beneath the batten even as far as the corrugations *a a*. Such small amount, however, as may enter under the side edges of the batten, has opportunity to run off in the last-named corrugations *a a*, and, by reason of the batten not coming in contact with the roof in the corrugations *a a*, all liability of the water being carried into the joint by capillary attraction (which would

exist if the batten and board came together throughout the width of the former) is avoided. The joint, therefore, between the roof-boards is rendered practically water-tight. Such water as is liable to be driven past the upper ends of the boards and battens into the recess of the ridge-pole is carried off by the gutters *c c*.

Whenever the roof needs tightening, the nuts *h h* are screwed up on the tie-rods *H H*, as well as the nut *j'*. This readily operates to draw the various parts of the frame of the roof closely together.

The battens aid in holding the roof-boards in place. Screws are also passed from beneath upward through the straps *G G* into the roof-boards.

When the roof is made of wooden boards, as shown, an advantage arises from using curved in place of square grooves in the formation of the gutters *a' a'*. With the latter form of groove the boards are very liable (especially in the roof of a car) to split in the line of the corner of the groove. This does not occur with a curved groove.

We claim—

1. A car-roof joint consisting of two corrugated adjoining lower boards and an upper

board or batten, the latter coming in contact with the former at three points only—viz., at the seam between the lower boards, and in the second corrugation at each side of the seam—and being separated throughout the first corrugation at each side of the seam, substantially as described.

2. The combination, in a car-roof, of the boards *B B*, battens *E E*, bolts *F F*, and straps *G G*, substantially as described.

3. In a car-roof, the ridge-pole *C*, having the gutters *c c*, substantially as described.

4. The combination, in a car-roof, of the pieces *D D*, rafters *I I*, ridge-pole *C*, tie-rods *H H*, and king-rods *J J*, substantially as described.

5. The combination of the roof *A*, door *L*, ridge-pole *C*, and sliding hinges *e e*, substantially as described.

6. The combination of the roof *A*, door *L*, batten *E*, ridge-pole *C*, and sliding hinges *e e*, substantially as described.

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Witnesses:

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