

No. 618,197.

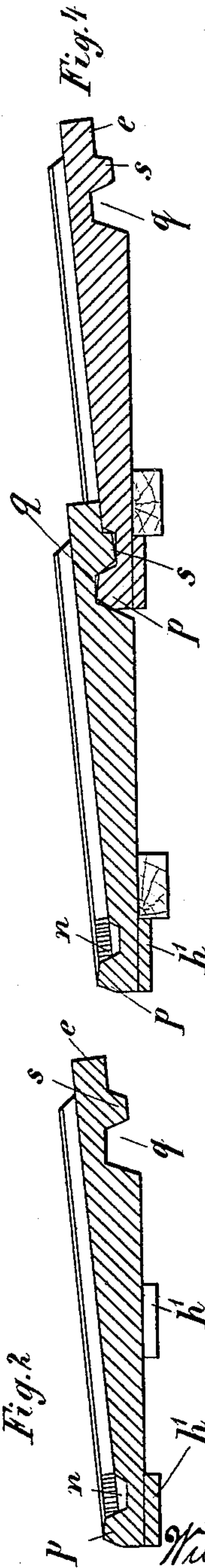
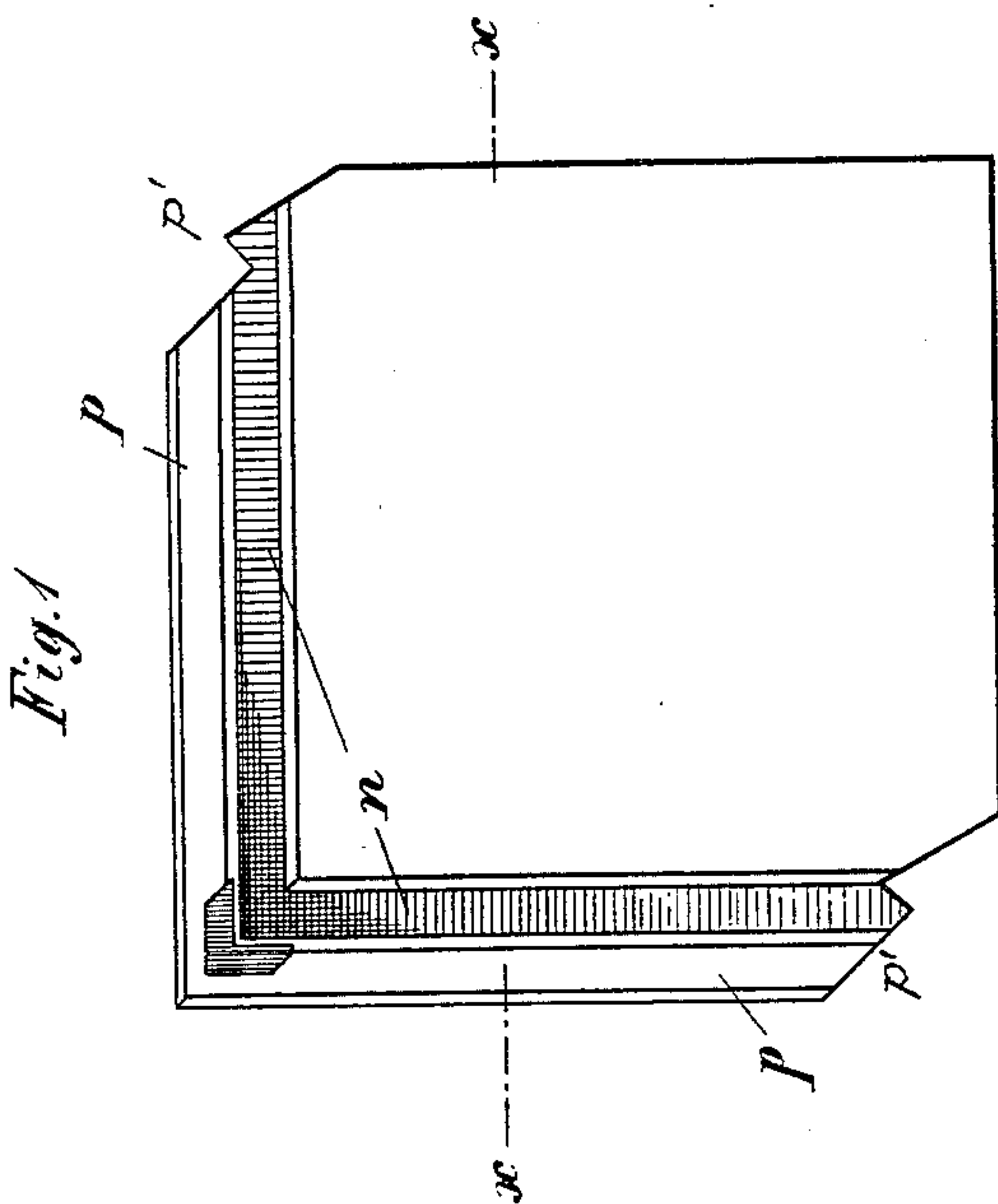
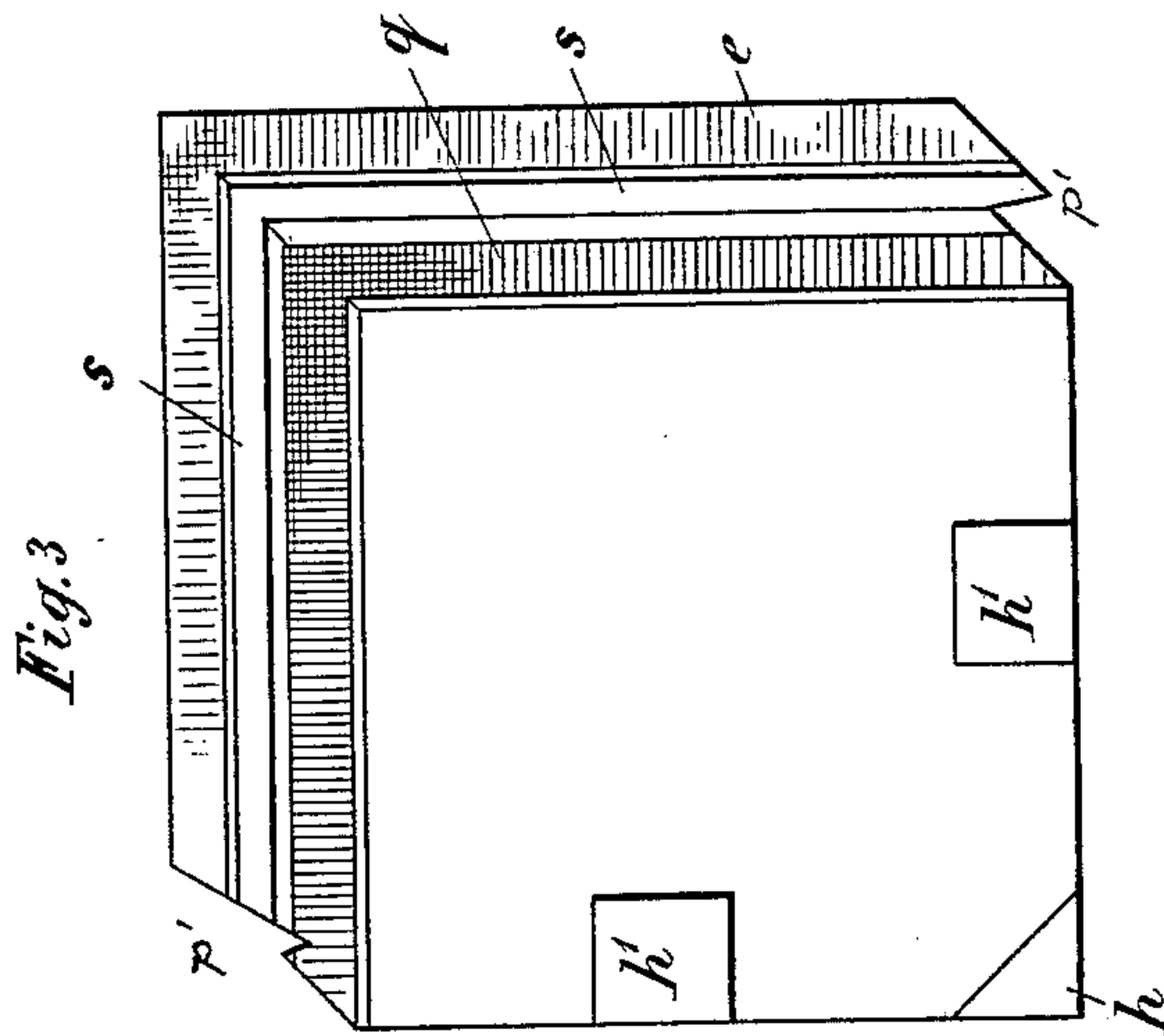
Patented Jan. 24, 1899.

W. BORGOLTE.  
GROOVED TILE.

(Application filed Apr. 19, 1898.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:

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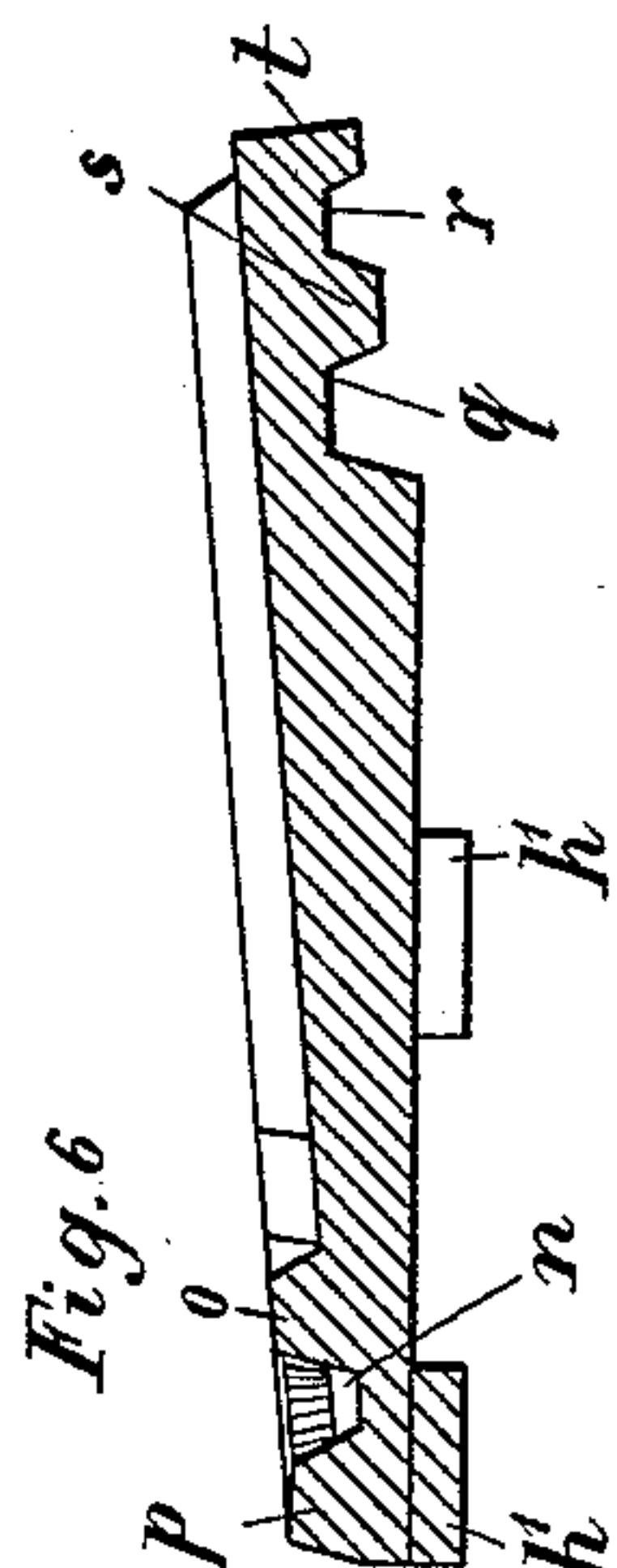
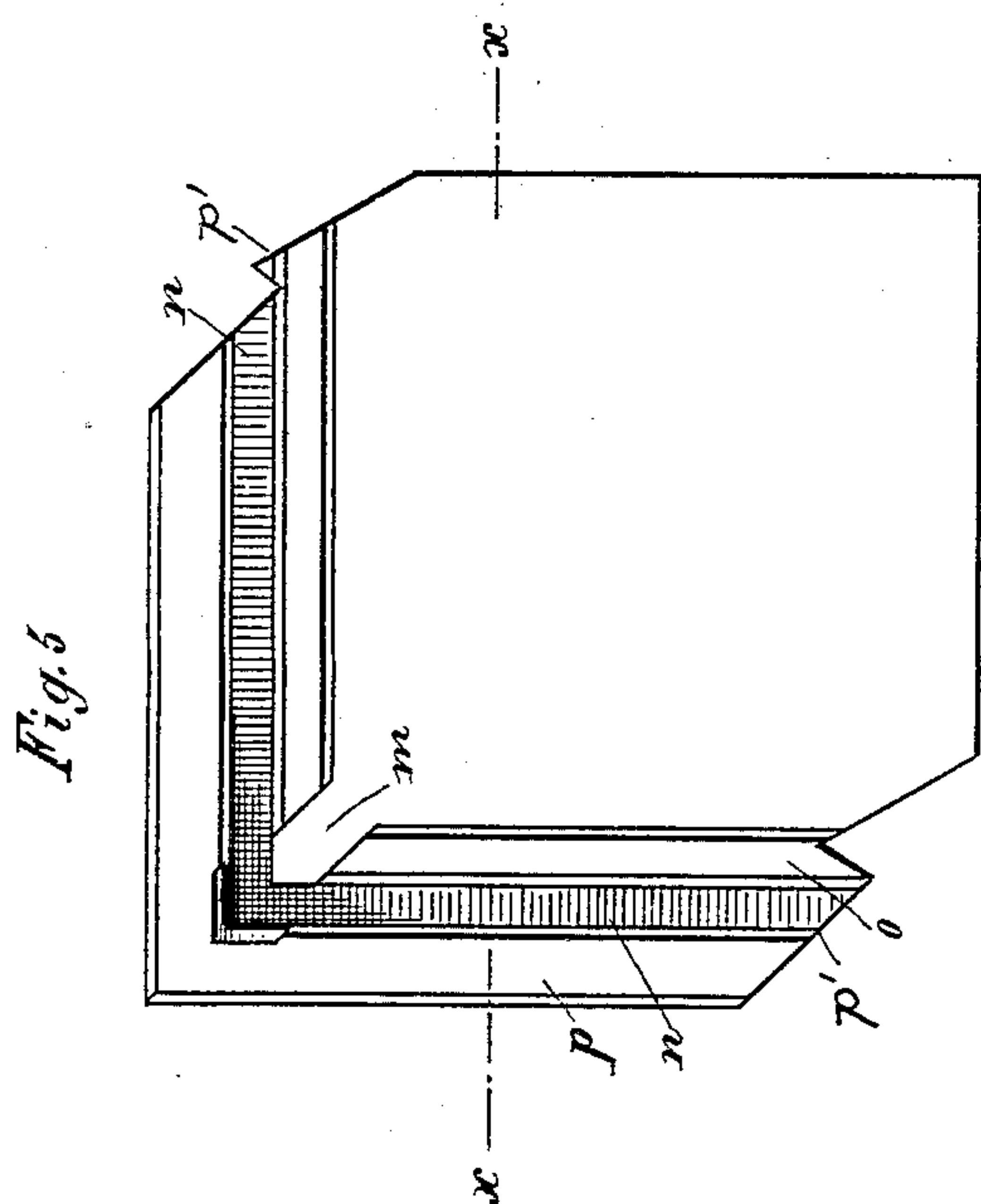
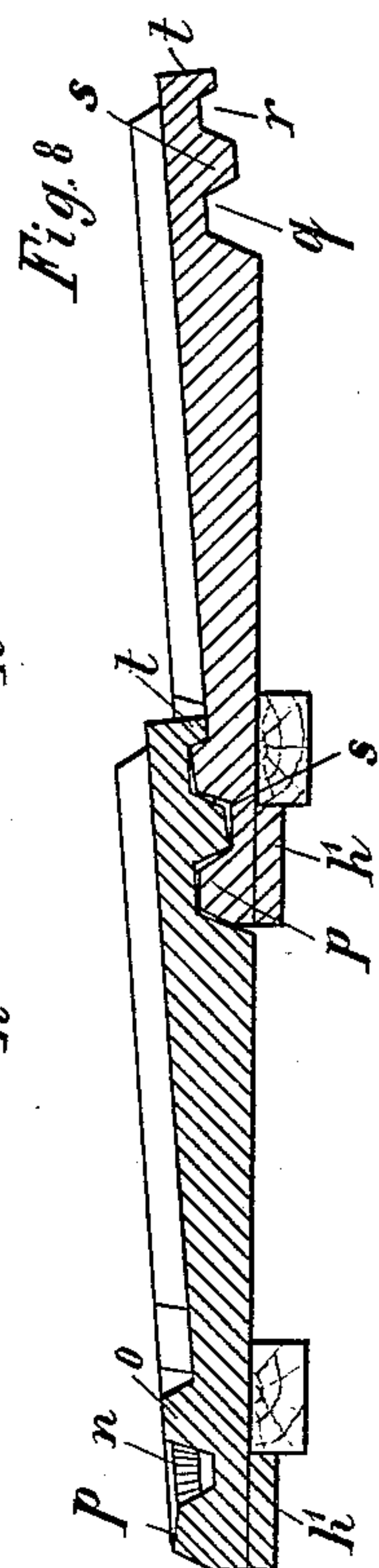
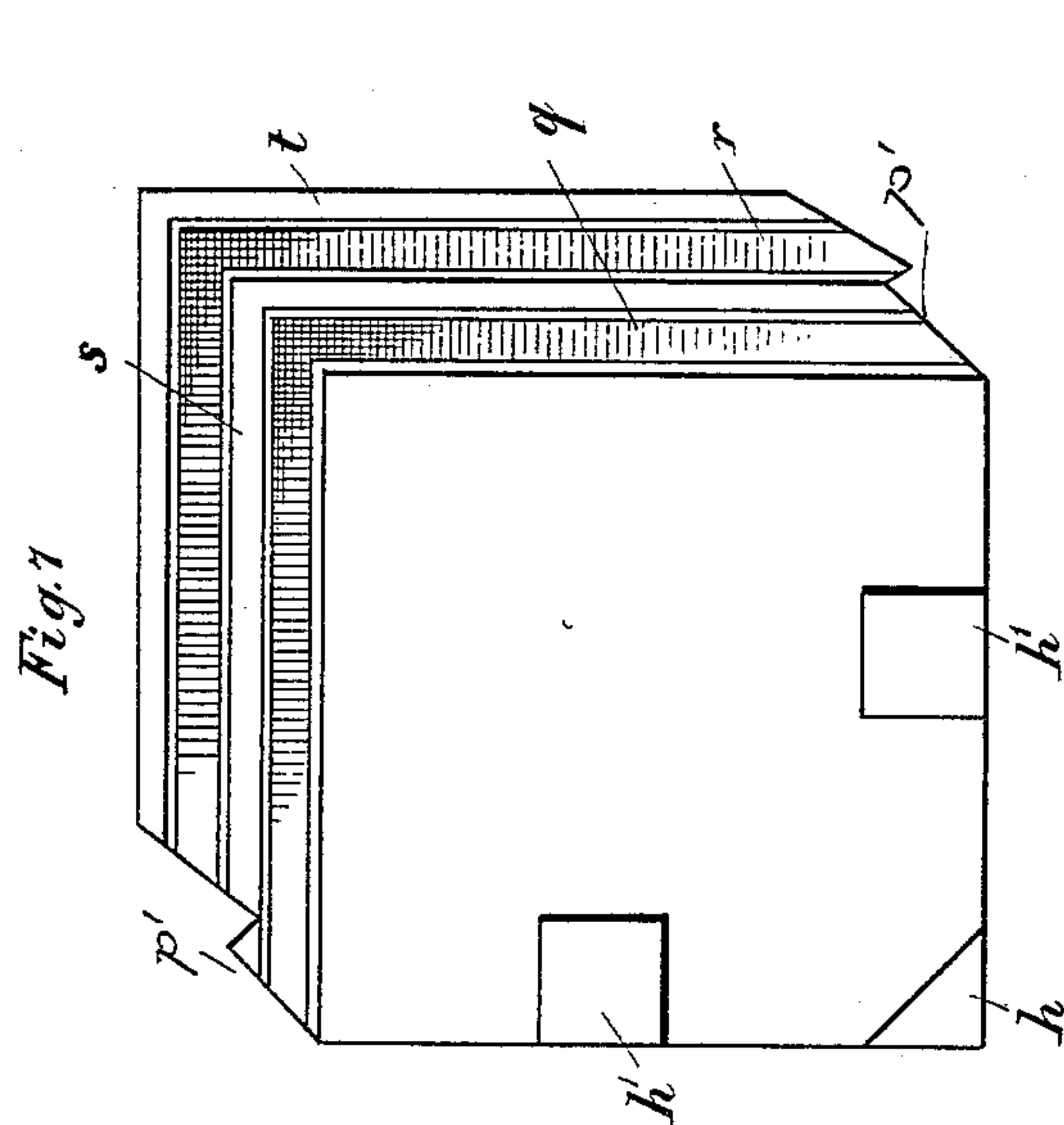
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(No Model.)

2 Sheets—Sheet 2.



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# UNITED STATES PATENT OFFICE.

WILHELM BORGOLTE, OF HOESTER, GERMANY.

## GROOVED TILE.

SPECIFICATION forming part of Letters Patent No. 618,197, dated January 24, 1899.

Application filed April 19, 1898. Serial No. 678,179. (No model.)

*To all whom it may concern:*

Be it known that I, WILHELM BORGOLTE, a citizen of the Kingdom of Prussia, and a resident of Hoester, in the Kingdom of Prussia and German Empire, have invented certain new and useful Improvements in Grooved Tiles, of which the following is a specification.

This invention relates to grooved tiles which may be arranged either parallel to the crest of the roof or diagonally and which are in this latter case supported in three points of their under side.

In the accompanying drawings, Figure 1 shows the improved tile in top view. Fig. 2 is a section through line  $xx$ . Fig. 3 represents the same seen from underneath. Fig. 4 represents a section through two neighboring tiles, showing their union by grooves and tongues. Fig. 5 is a top view of another form of execution of the same tile having double grooves and tongues. Fig. 6 is a cross-cut of same through line  $xx$ . Fig. 7 represents same as seen from underneath. Fig. 8 is a section through two neighboring tiles, showing their union by grooves and tongues.

Square tiles overlapping each other with simple or double grooves and whose upper corners are provided with recesses for collecting the rain-water, &c., have the advantage that they do not let snow or rain pass and that their unions may be formed in such a way as to allow the plates to move a little toward each other without loosening their union. The liquid collected in the recesses of the corners is led to the surface of the tile. The constructions of these tiles as now in use have some serious inconveniences. They rest in the first line only with their uppermost corner on the spars of the roof. Their lower end rests, by means of grooves and feathers, on the next lower tile. The whole weight of the tile therefore rests on these latter, pressing them together. If the air immediately underneath the roof be more expanded than the outside air, the difference in pressure can only be equalized when the inside pressure is strong enough to lift the tiles a little. An exchange of air from the outside to the inside is not at all possible. The tile resting only on one angle and the two opposite sides, the whole surface of it rests without any support, and it may be easily broken by any gust of wind.

The under side of such a roof always shows steps. Another drawback is that these tiles can only be used for diagonal arrangement.

The new tiles are square grooved tiles which may be used in both ways, either diagonally or rectangularly to the crest-line of the roof, their section being of such a description as to allow their adaptation even to the largest plates. They unite all the advantages of other constructions without having their inconveniences. Two neighboring sides of the tile have on the upper side a continuous tongue  $p$ , a groove  $q$  corresponding to it on the under side of the two remaining sides. Tongues and grooves have trapezoidal profile and engage each other in the way indicated by Figs. 4 and 8. The touching only takes place in a line instead of the whole surface, and therefore the air passes more freely from one side to the other. The flat part  $e$  of the upper tile rests on the next lower tile and serves as an additional packing against the entrance of rain and snow. The two remaining corners of the tile are broken off in the manner indicated at  $p'$  in Figs. 1, 3, 5, and 7. In cross-section the tiles have the form of a wedge. They therefore do not show the usual stepping; but they form a continuous surface, as shown in Figs. 4 and 8. On their under sides the tiles are provided with a triangular nose  $h$  and two projections  $h'$ , which serve to fasten the tiles on the spars.

In the form represented by Figs. 5 to 8 part of the surface  $e$  is replaced by a second feather  $t$  and a second groove  $r$ . On the upper part there is added a second feather  $o$ . The flat part  $m$  serves to collect the rain-water and drain it off to the outer surface of the tile.

By the wedge-shaped cross-section of the tile on line  $xx$  of Figs. 1 and 5 it is possible that they rest in their whole breadth on the surface of the ordinary spar and that in case of diagonal arrangement the middle of the tile is also completely supported. The under side of a roof made with the improved tiles forms a continuous surface. The tiles rest not only at their extremities, but also at the middle, the upper part and the middle resting immediately upon the spars and the lower corner on the next tile. The plates are advantageously made of cement and may be made in any desired size.

Having thus fully described my invention, what I claim is—

1. Grooved tiles of square form for parallel or diagonal arrangement to the crest of the roof, having in cross-section the form of a wedge, which are provided with grooves and feathers of trapezoidal cross-section, each tile being supported in three different points and having on its under side three projecting  
10 noses, which serve to suspend the tiles on the spars.

2. A grooved tile of square form for diago-

nal arrangement to the crest of a roof provided with grooves and feathers of trapezoidal cross-section, said tile being wedge-shaped for  
15 a major portion thereof and being supported in three different points, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WILHELM BORGOLTE.

Witnesses:

CARL FR. REICHELS,  
CHAS. H. DAY.