

W. E. PARTRIDGE.  
ANTISLIPPING DEVICE.  
APPLICATION FILED FEB. 16, 1907.

2 SHEETS—SHEET 1.

FIG. 4

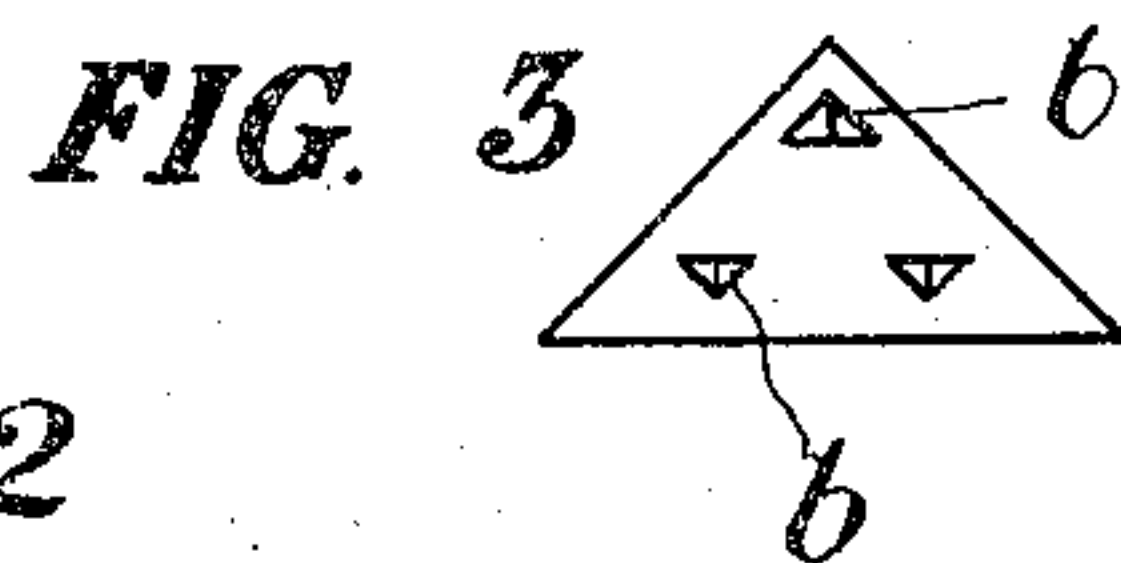
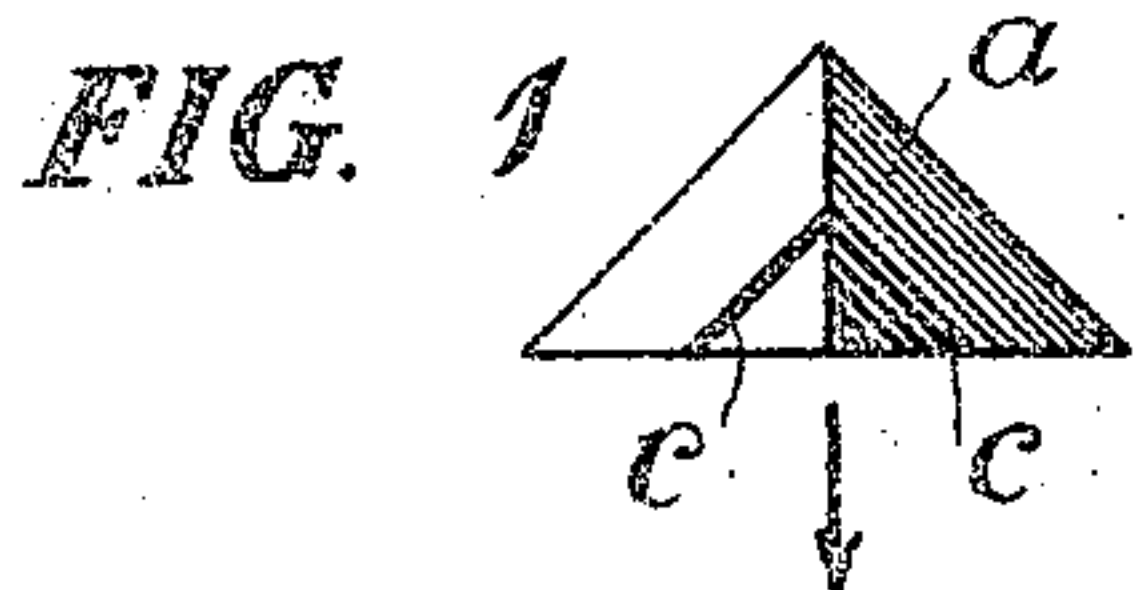
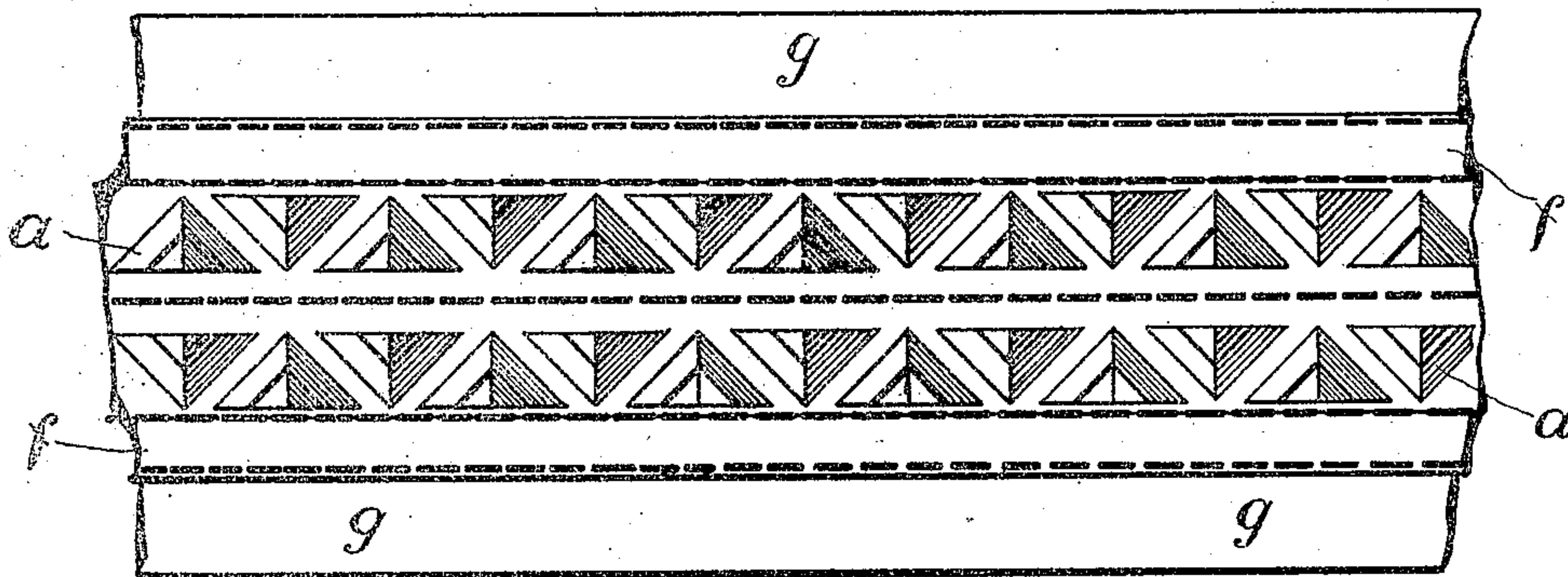


FIG. 2

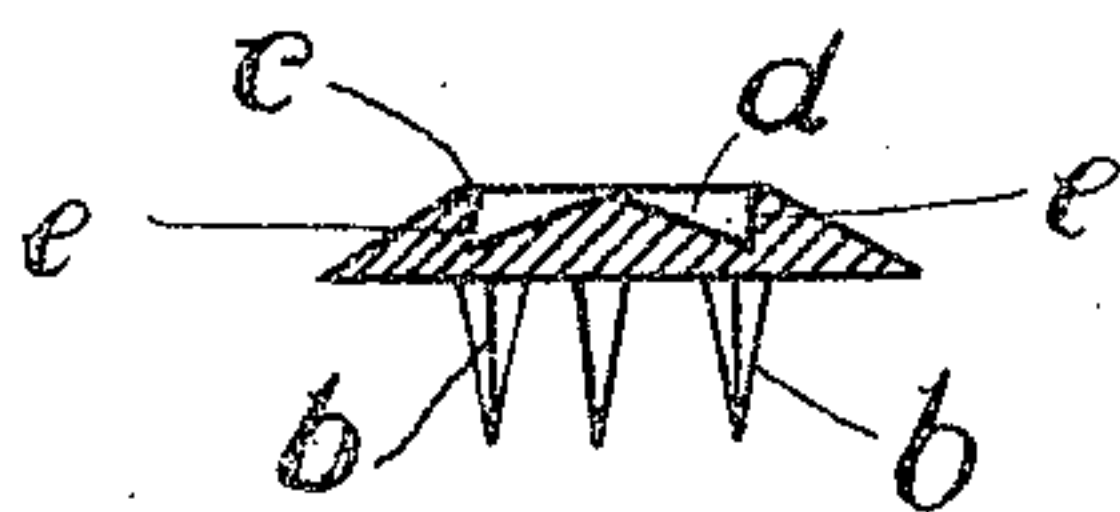


FIG. 8

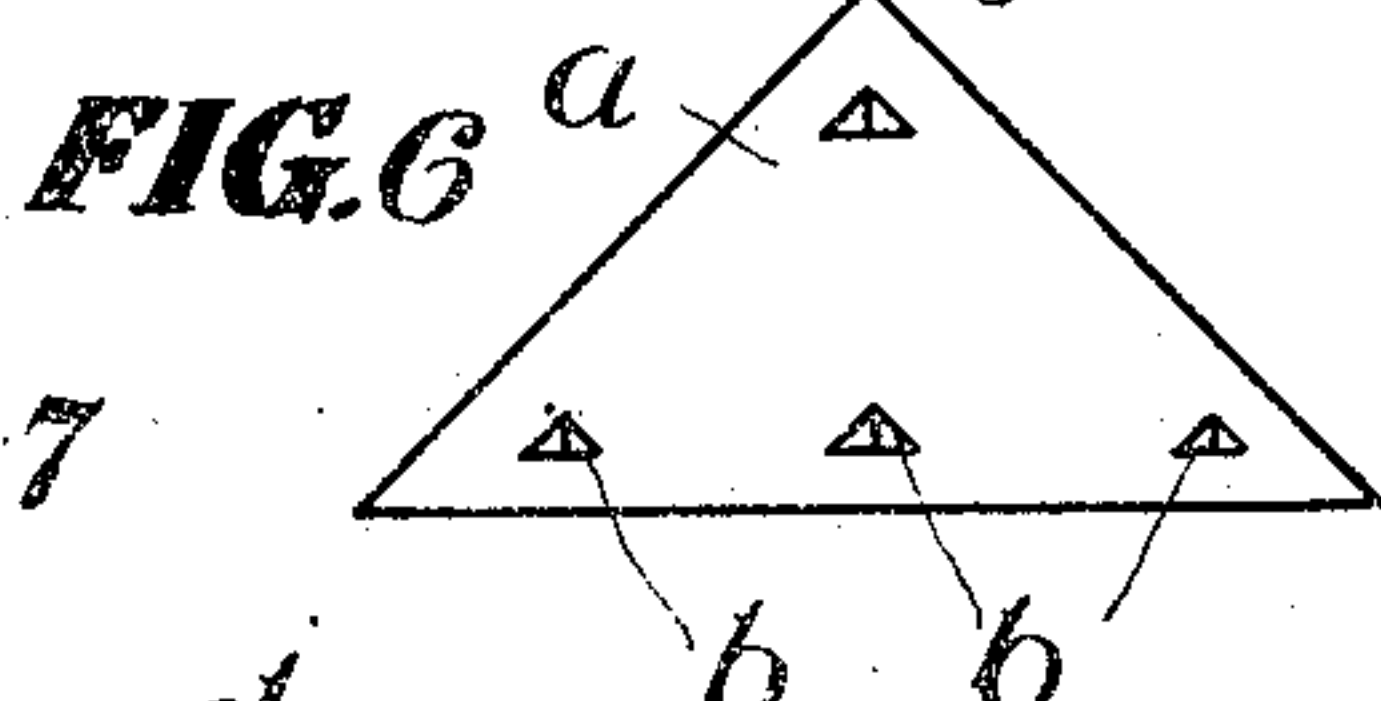
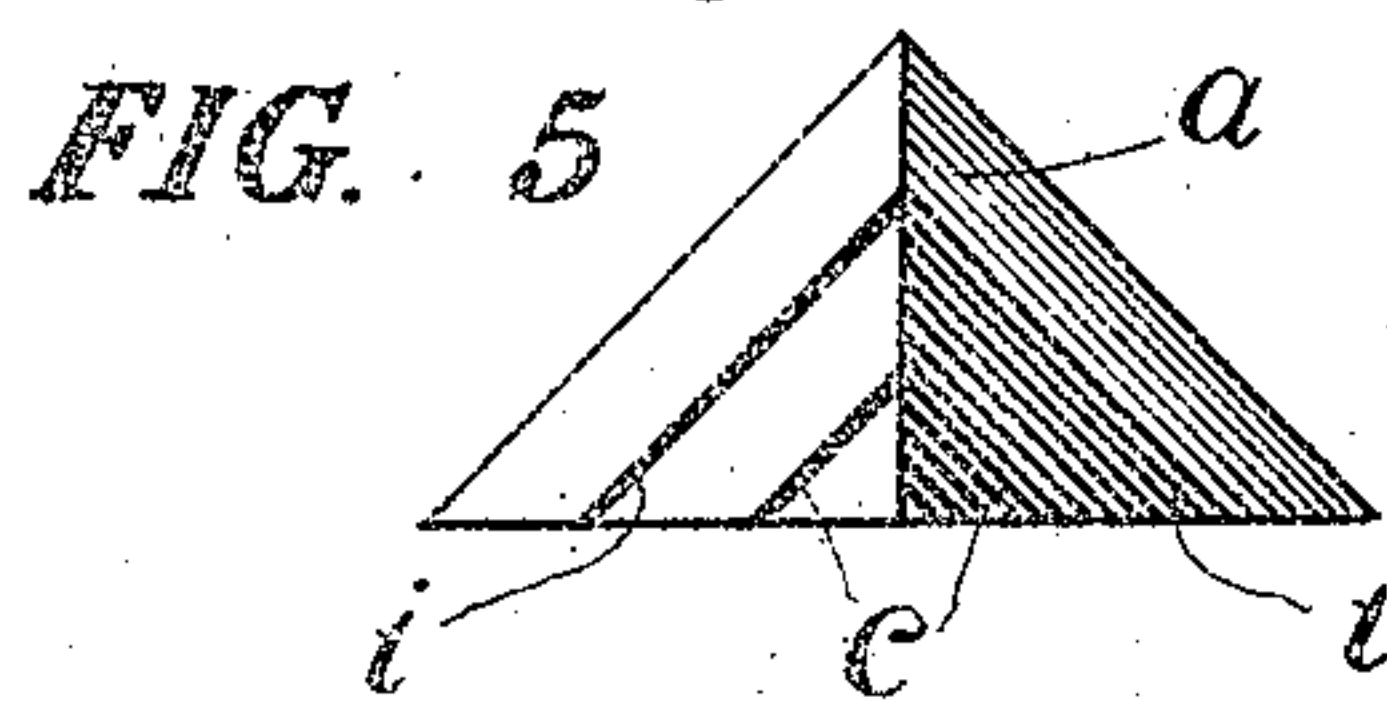
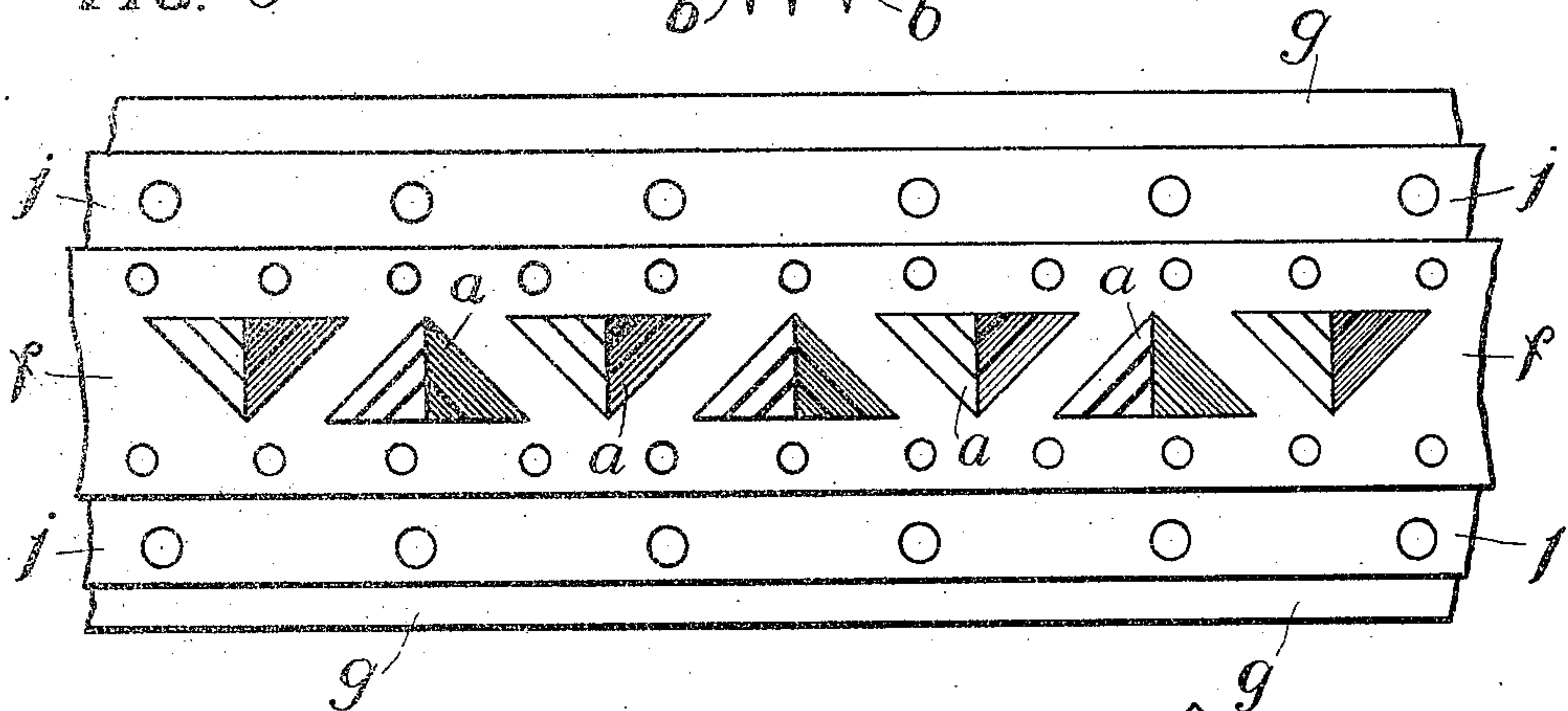
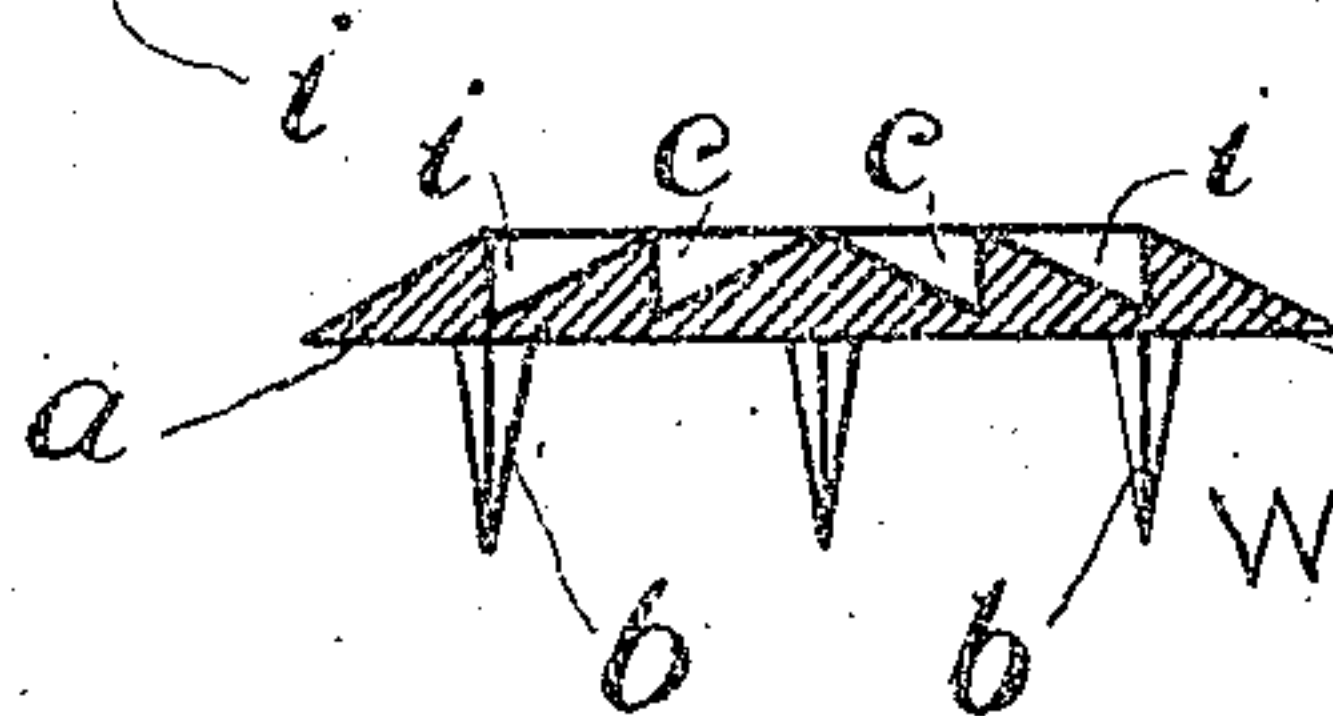


FIG. 7



WITNESSES,

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No. 862,412.

PATENTED AUG. 6, 1907.

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ANTISLIPPING DEVICE.  
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2 SHEETS—SHEET 2.

FIG. 13

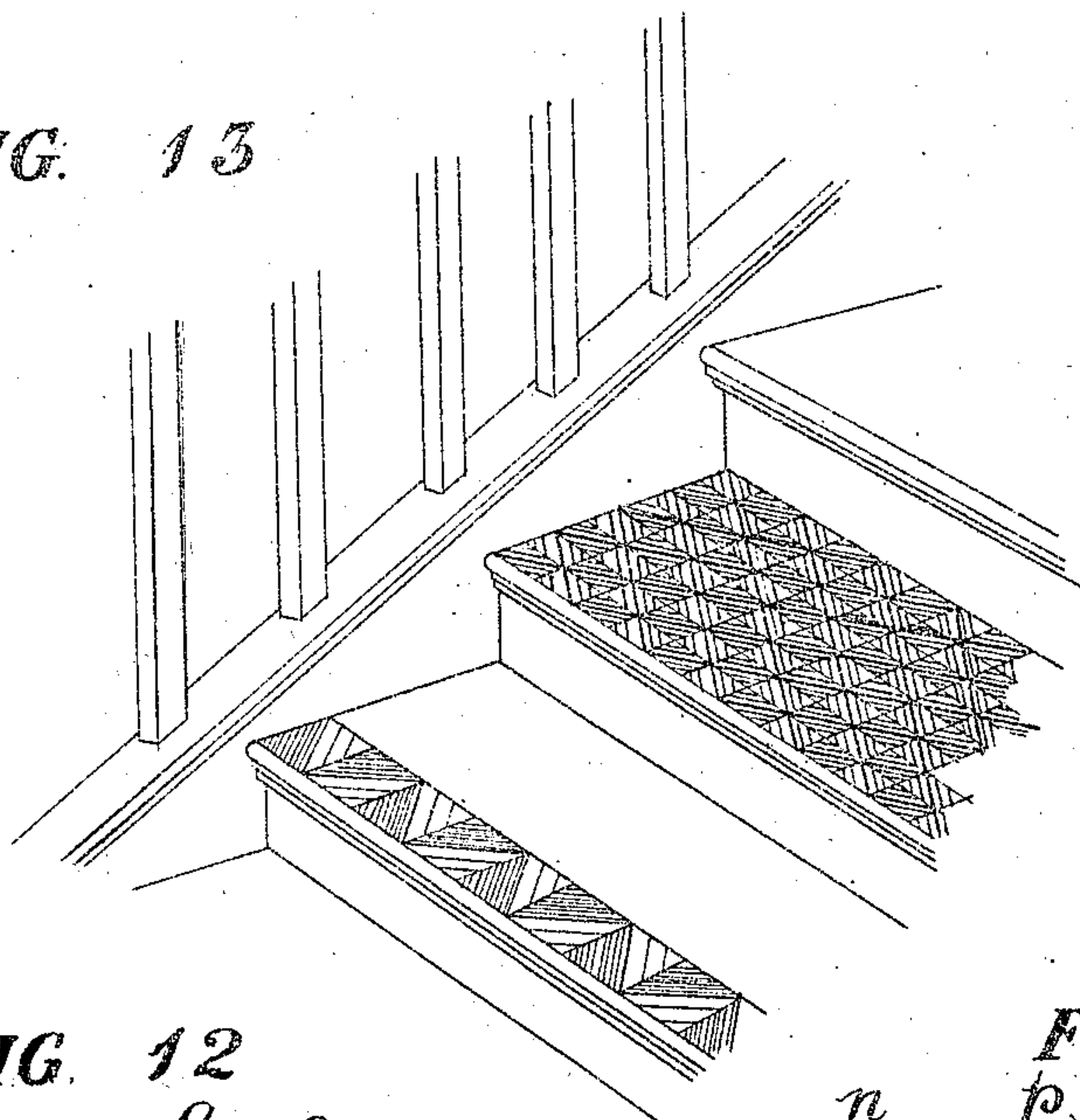


FIG. 12

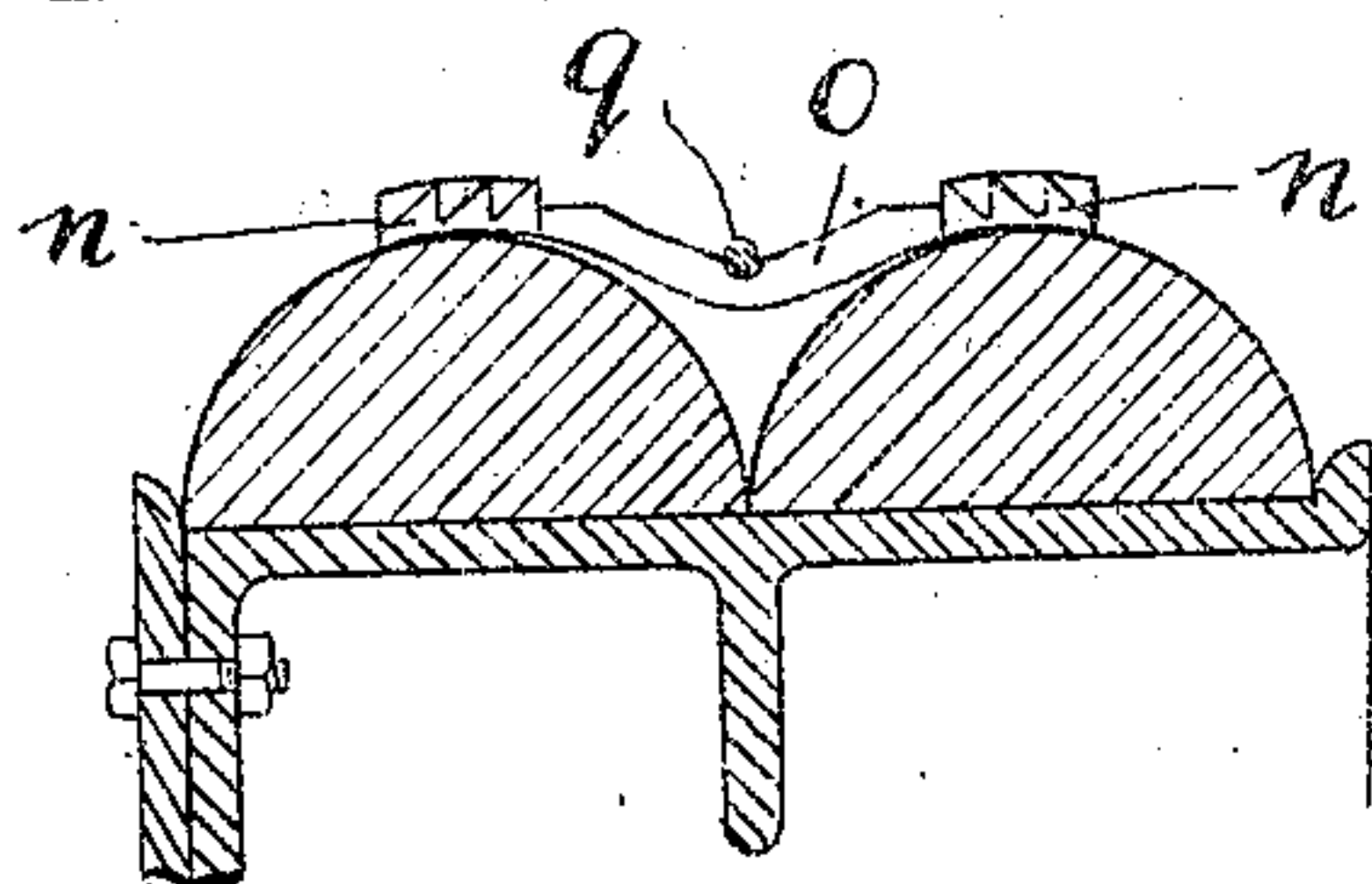


FIG. 11

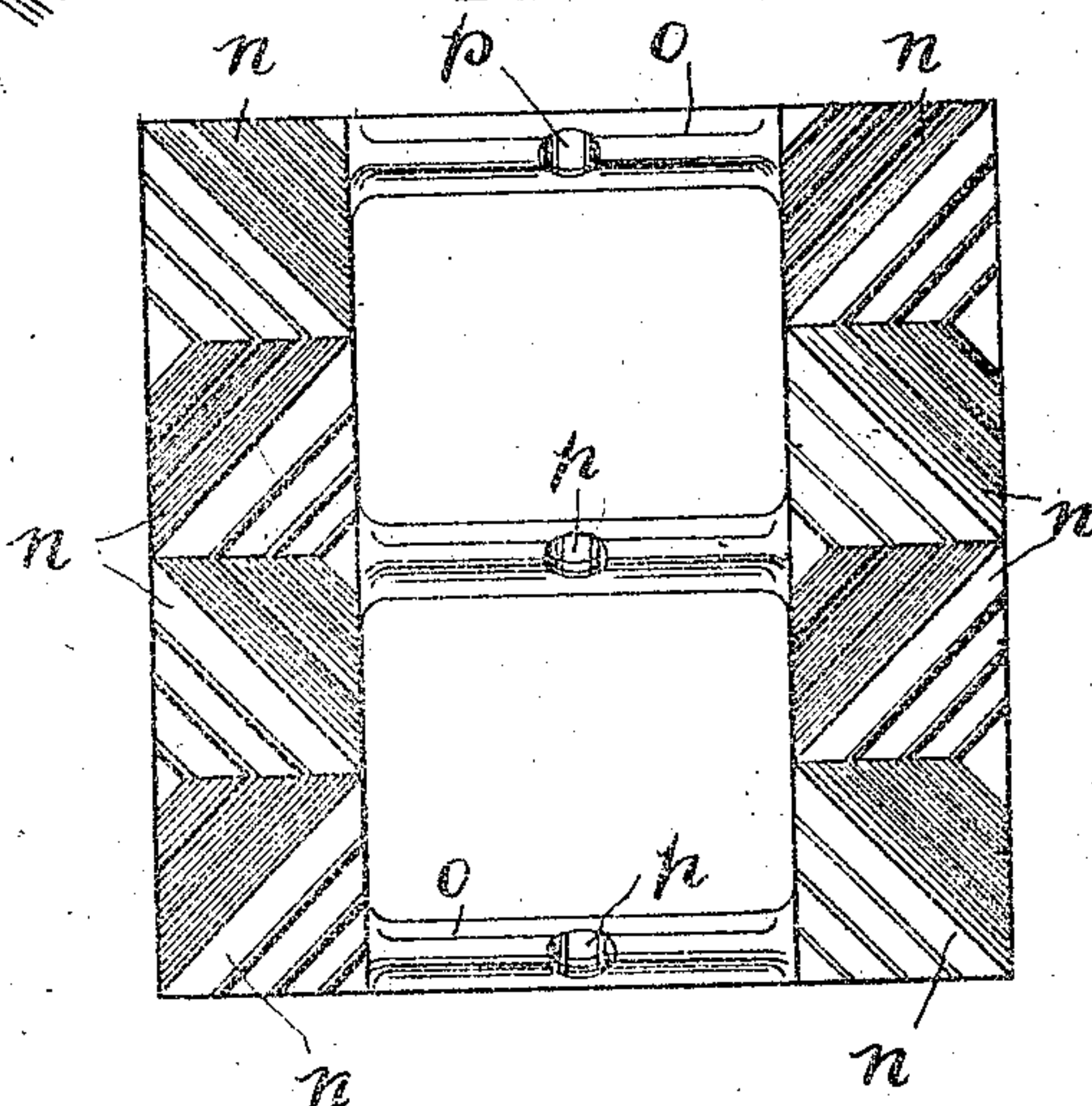
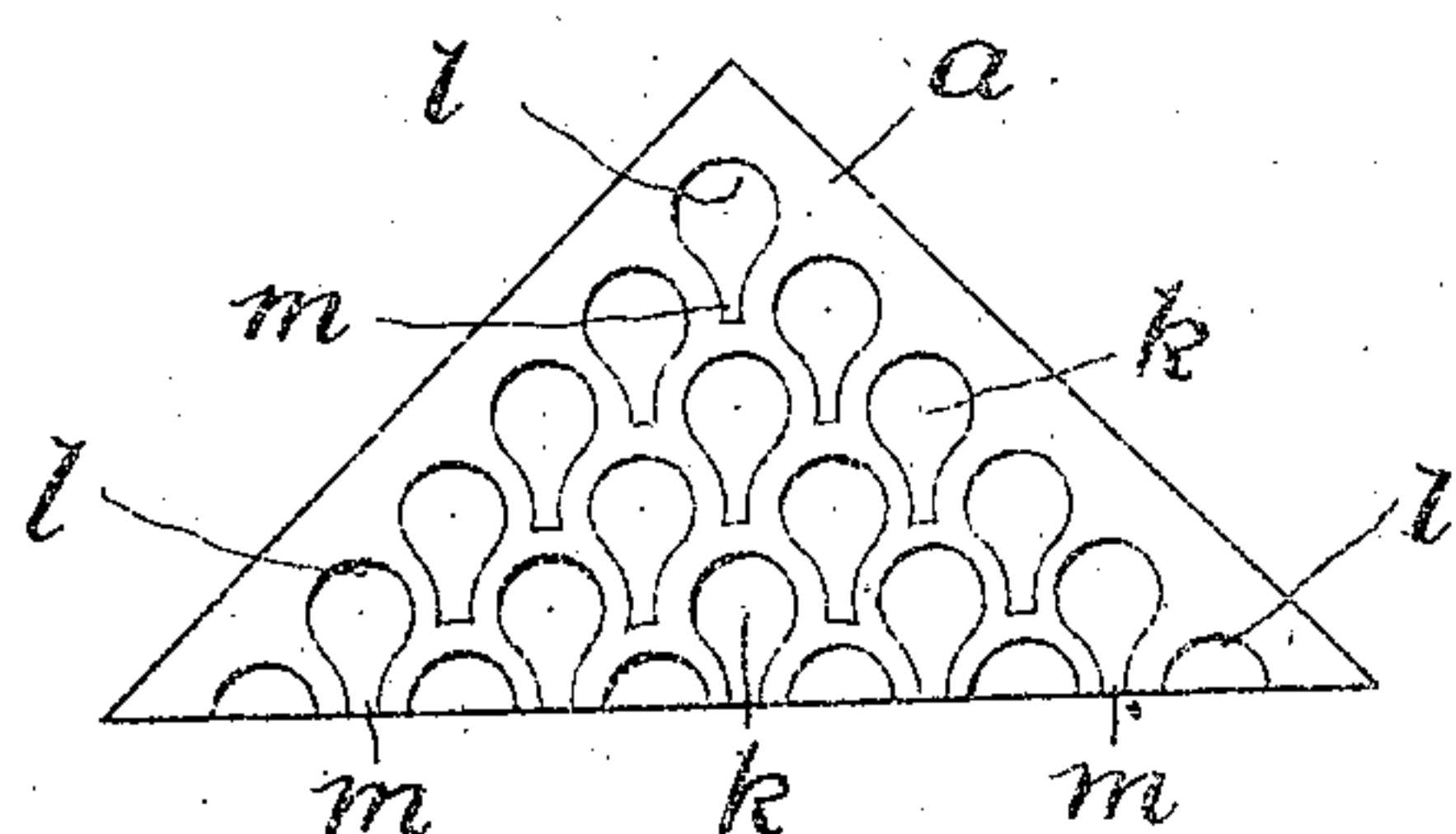
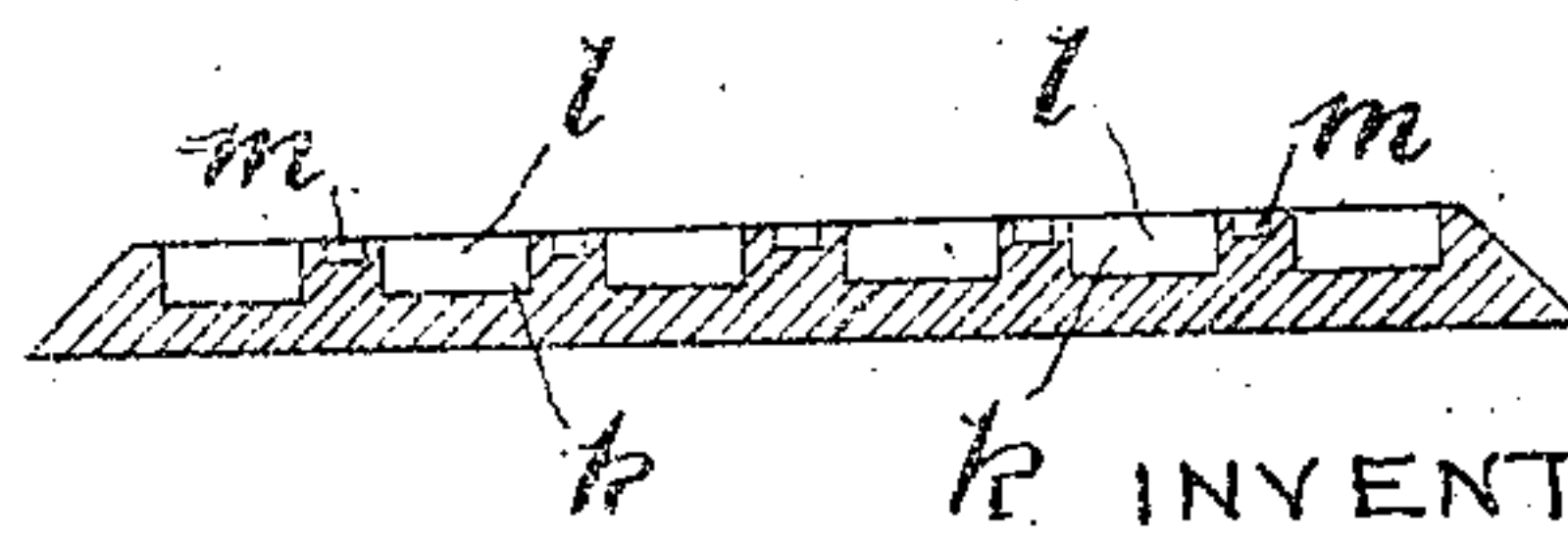


FIG. 9



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FIG. 10



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# UNITED STATES PATENT OFFICE.

WILLIAM EDWARD PARTRIDGE, OF BIRMINGHAM, ENGLAND.

## ANTISLIPPING DEVICE.

No. 862,412.

Specification of Letters Patent.

Patented Aug. 6, 1907.

Application filed February 16, 1907. Serial No. 357,748.

*To all whom it may concern:*

Be it known that I, WILLIAM EDWARD PARTRIDGE, a subject of the King of Great Britain, residing at 722 Coventry road, Birmingham, in the county of Warwick, England, mechanical engineer, have invented certain new and useful Improvements in Antislipping Devices, of which the following is a specification.

The object of the present invention is to provide means for this purpose which shall be exceedingly cheap to manufacture, readily applied, and effective in use.

The invention consists essentially in a plate of right angled isosceles triangle shape provided with grooves running parallel with the short sides of the plate to meet at the apex of the triangle; or instead of the grooves, recesses may be formed with sharp deep edges toward the apex so that the plate has great gripping power towards its apex. The triangles may if preferred for ordinary use or for heavier work, be cast or formed in a larger plate, being arranged alternately with their bases and apices in one direction.

The most important use probably for the invention is for the prevention of skidding of vehicles and for this purpose the plates are arranged on a band preferably in one or two rings alternately as to direction as before. The plates are riveted to the band which may be of any suitable material, such as leather canvas, balata, and the latter is then applied to the wheel tire. Any method of applying the band may be used but I have found a very convenient method of doing this which will be explained later.

On the drawings—Figure 1. is a plan view of a plate constructed in accordance with my invention with one groove each side. Fig. 2. is a section of the same taken near the base of the triangle. Fig. 3. is an under-side plan. Fig. 4. shows these studs arranged on a band secured to the tire. Figs. 5, 6, and 7. are similar views of a stud having two grooves each side. Fig. 8. shows these studs secured to a non-skid band riveted to a protective band on the tire. Fig. 9. is a plan of a plate formed with recesses with their deepest parts toward the apex of the triangle. Fig. 10. is a section near the base of the triangle. Fig. 11. shows a plurality of the triangles arranged on a plate suitable for a twin wheel of a bus. Fig. 12. shows the application of the plate. and Fig. 13. shows the triangular plates used as treads for stairs.

In carrying the invention into practice as applied to the prevention of skidding of wheel tires as illustrated at Figs. 1, 2, 3, and 4, the plate *a* is preferably cast in steel and is of right angled isosceles triangle shape. It is cast with two or three downwardly projecting points or prongs *b* for securing purposes. The plate is formed with grooves *c*; these are pronounced and run parallel with the short sides of the plate meeting on a perpendicular line from the apex to the center of the

base, as clearly seen at Fig. 1. The grooves *c* are shaped at a gradual slope on one side *d* but with a sudden vertical face *e* on the outer side, that is the one nearest the short side of the plate as will be understood from reference to Fig. 2. The grooves leave ribs on the plate and these ribs would allow skidding in the direction toward the gradually sloping side but would prevent it in a direction toward the sharp vertical side. Being arranged oppositely and meeting at a point, when on a road these ribs absolutely prevent skidding in a direction from the apex, shown by an arrow, as the material of the surface of the road would be compressed in the grooves and relative movement would tend to further compress this toward the apex of the plate, a splendid grip thus being provided. The formation of each plate is like the double helical teeth formation now much used in gear wheels for enhancing the power of their mesh and smoothness of working. The plate is riveted to a band or to the tire direct by means of the prongs *b* and in the case of a band this may be secured to the tire by riveting.

I have found it very convenient in practice to employ balata for the band, constructing it in several layers solutioned firmly together; to this band the plates *a* are riveted in alternate directions, being preferably arranged in broken or unbroken rings as seen at Fig. 1. I then apply the band *f* to the tire *g* by stitching in a suitable machine with a solutioned thread. The stitching may be carried out in particular ways to give greater strength and in applying subsequent bands to the old tire would be carried out on different lines to avoid working on the same places.

At Fig. 4. the plates *a* are riveted to a band *f* which is stitched to the cover of the tire *g*.

In the arrangement shown at Figs. 5 to 8. the plate is constructed in exactly the same way except that an additional groove *i* is used on each side. These plates are shown riveted in a single broken ring on a band *f* riveted to a protecting band *j* on the cover of the tire *g*. But in the securing of the plates on the tire any method may be used or they may be riveted direct to the cover or molded thereon. While if desired, the triangles of hard rubber are molded with the tire forming a part of the cover itself.

In the modified form of plate shown at Figs. 9 and 10, the grooves are dispensed with and shaped recesses *k* formed in their place. These recesses are deep at their ends *l* and shallow at their ends *m* so that any movement in the direction indicated by the arrow is strongly resisted when the plate is in contact with the road surface.

With heavier vehicles, plates of the form shown at Fig. 11. may be used; this is particularly intended for a twin wheel such as used for the driving wheels of heavy motor vehicles. The triangles are cast in the plate with sets of grooves in alternate directions, and



are arranged in two bars  $n$  connected by cross pieces  $o$  which may be rigid or hinged, but are preferably formed with a recess  $p$  to receive a cable or chain  $q$  for securing a series of plates in position round the wheel as seen at 5 Fig. 12.

At Fig. 13, the plates are shown applied as treads to stairs. In this case two triangles would preferably be formed into one square, as this would be easier for fitting in the stair. The squares would thus be arranged 10 so that the triangles are opposite in direction as before, and when so arranged provide a very effective non slipping tread.

What I claim is:-

1. In anti-slipping and tread surfaces triangles with de- 15 pressions, each having one gradually sloping wall and one vertical wall with a sharp edge, the said triangles being arranged alternately, the base of one triangle in the same direction as the apex of the next.
2. In anti-slipping and tread surfaces, a triangular

plate with grooves meeting on a perpendicular line from the apex to the middle of the base, the grooves having one gradually sloping wall and one vertical wall with a sharp edge.

3. In anti-slipping means for vehicle tires, rings ar- 25 ranged around a vehicle tire and each ring comprising triangular plates with depressions having sharp edges toward the apex of the plate and arranged alternately with their apices and bases in the same direction.

4. An anti-slipping means for vehicle tires, consisting of a cover for a vehicle tire and a band of balata stitched to 30 said cover, said band being provided with rings arranged therearound and each ring comprising grooved triangular plates arranged alternately with their apices and bases in the same direction.

In testimony whereof, I have signed my name to this 35 specification in the presence of two subscribing witnesses.

WILLIAM EDWARD PARTRIDGE.

Witnesses:

F. GILBERT BRETTELL,  
STANLEY BANNER.