

No. 679,047.

Patented July 23, 1901.

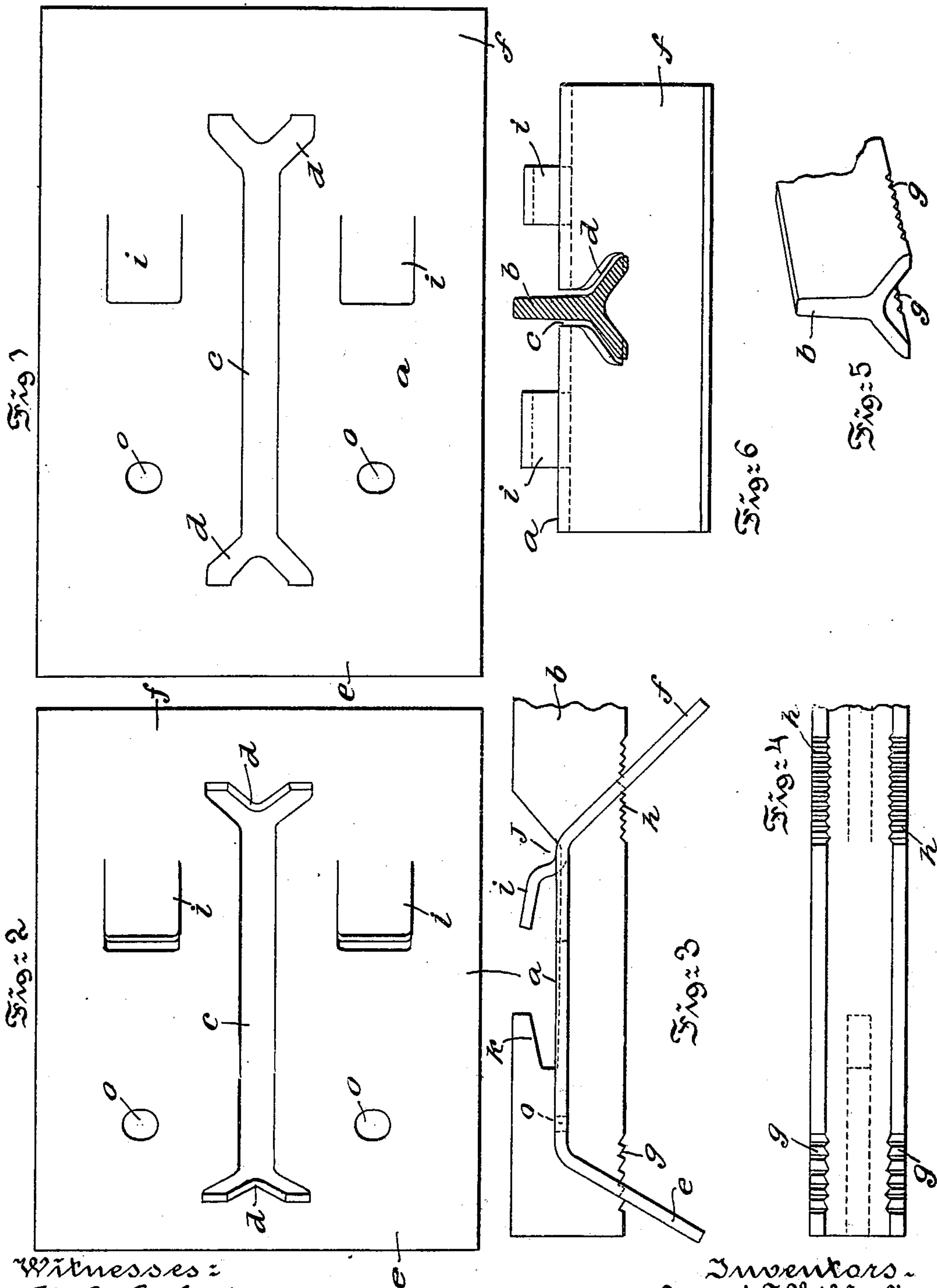
C. F. CLOTHIER, JR. & F. S. PECKE.

PERMANENT WAY.

(Application filed Aug. 17, 1900. Renewed Apr. 15, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:  
W. A. Schaefer.  
K. J. Shindler

Inventors:  
Comrad F. Clothier Jr.  
Francis S. Pecke.  
By their Attorney Chas. A. Rutter

No. 679,047.

Patented July 23, 1901.

C. F. CLOTHIER, JR. & F. S. PECKE.

PERMANENT WAY.

(Application filed Aug. 17, 1900. Renewed Apr. 15, 1901.)

(No Model.)

2 Sheets—Sheet 2.

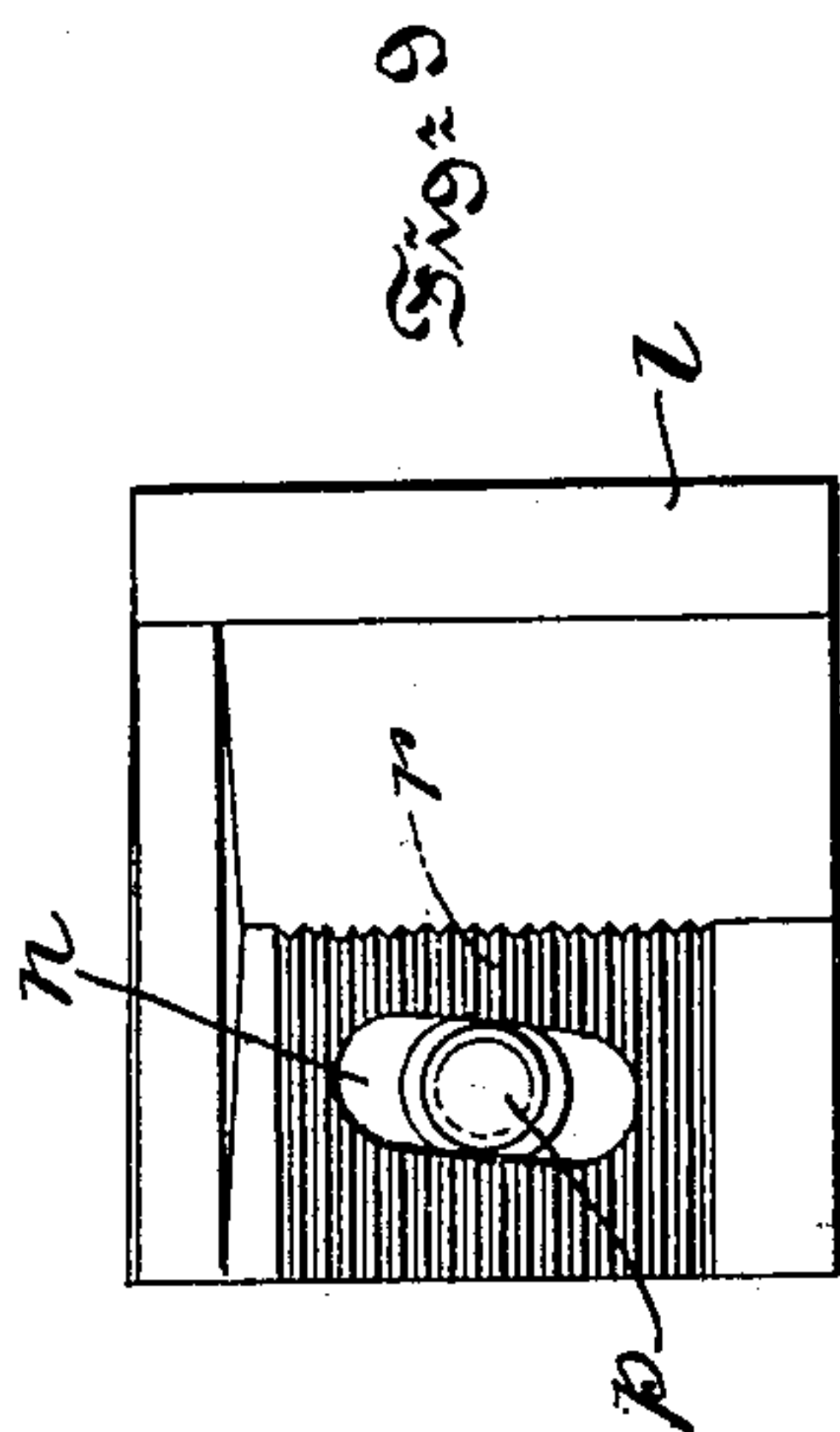
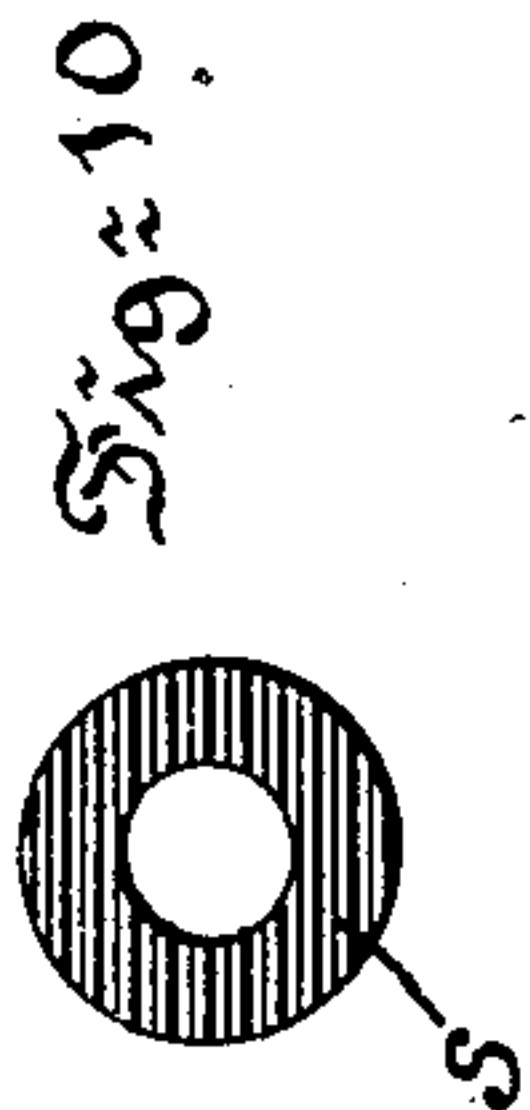
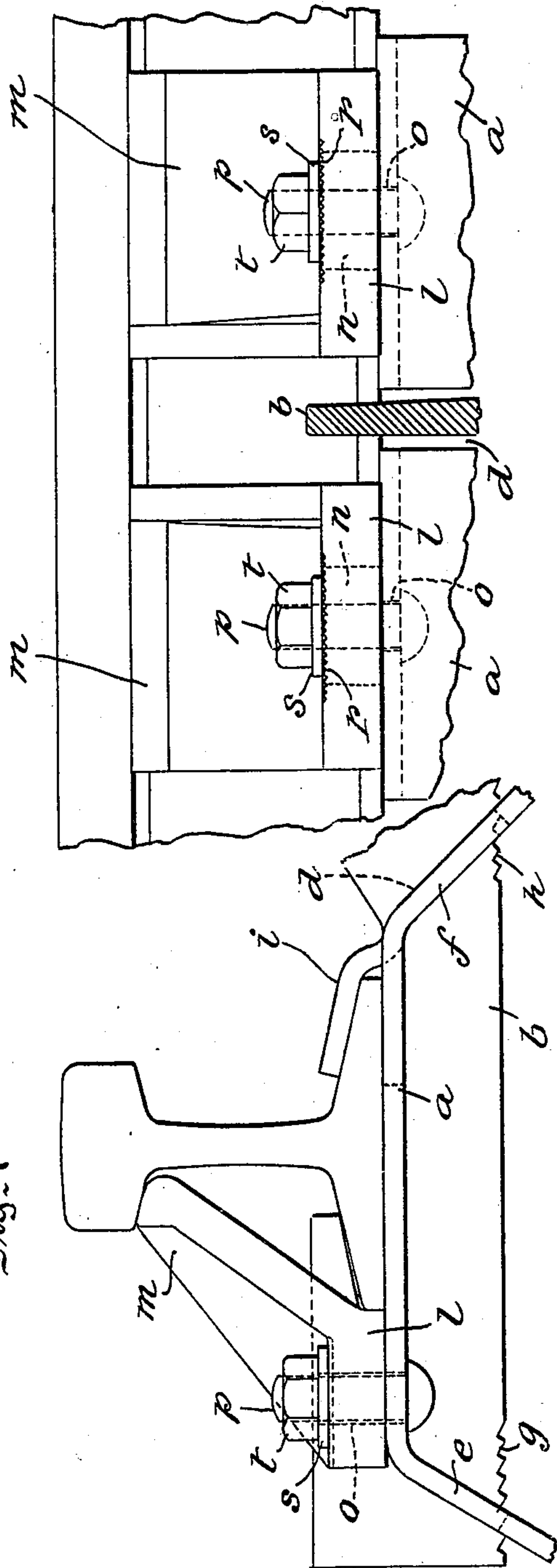


Fig. 8

Fig. 7



Witnesses:  
W. A. Scharfer.  
J. H. Shields

Inventors:  
Conrad F. Clothier Jr.  
Francis S. Pecke.  
By their attorney Chas. A. Putter.



# UNITED STATES PATENT OFFICE.

CONRAD F. CLOTHIER, JR., AND FRANCIS S. PECKE, OF PHILADELPHIA,  
PENNSYLVANIA.

## PERMANENT WAY.

SPECIFICATION forming part of Letters Patent No. 679,047, dated July 23, 1901.

Application filed August 17, 1900. Renewed April 15, 1901. Serial No. 55,955. (No model.)

*To all whom it may concern:*

Be it known that we, CONRAD F. CLOTHIER, Jr., and FRANCIS S. PECKE, citizens of the United States, and residents of the city and county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Permanent Ways, of which the following is a specification.

Our invention relates to improvements in the construction of permanent ways, and more particularly to improvements in the construction of metallic railway-ties and means for securing the rails thereto; and the objects of our invention are, first, to furnish an improved tie-bar and chairs, constituting together the metal tie; second, to furnish an improved means for locking the tie-bar to the chairs, and, third, to furnish an improved rail-brace for the rails and means for securing said brace to the tie.

In the accompanying drawings, forming part of this specification, and in which similar letters of reference indicate similar parts throughout the several views, Figure 1 is a plan of blank from which our chairs are formed; Fig. 2, a plan of the chair after being bent to shape; Fig. 3, a side elevation of one of the chairs, showing the tie-bar in place; Fig. 4, a plan of bottom of tie-bar; Fig. 5, a perspective view of one end of tie-bar; Fig. 6, an end elevation of chair and tie-bar; Fig. 7, a side elevation of a chair and part of tie-bar, showing a rail in place and a brace for supporting it; Fig. 8, a side elevation of Fig. 7; Fig. 9, a plan of the rail-brace; Fig. 10, a plan of the bottom of washer which engages with top of base of rail-brace.

*a* represents the chairs; *b*, the tie-bars connecting the chairs. The tie-bars have the form of an inverted Y and the chairs have punched out of them a piece of metal having a slot *c*, the ends *d* of which are Y-shaped, as best shown in Figs. 1, 2, and 6. When the ends of the blank *a* are bent down to form the chair, the Y-shaped ends *d* of the slot *c* form seats for the Y-shaped end of the tie-bar *b*, the main web of the tie-bar extending upward through the slot *c* and above the tops of the chairs, as shown in Figs. 3 and 6. The Y shape is given to the tie-bar, so that the greatest amount of metal will be in the ver-

tical member, which will always be kept in a vertical position by the bifurcated end resting in a corresponding seat in the chair. The ends *e f* of the chair are both bent down, preferably at an angle of forty-five degrees to the top. In the drawings, however, the outer ends *e* of the chairs are shown as bent down at about an angle of sixty degrees for a purpose presently to be described. The bottoms of the tie-bars near their ends are furnished with serrations *g h*, which are at the same angle as the legs or ends *e f*, which they are adapted to engage to prevent any lateral movement of the tie-bar after it has been placed in the chairs.

In order that the ends *e f* of the chairs may have the maximum hold, both lateral and vertical, in the ground or ballast, and in order that the firmest lock between the bottoms of the tie-bars and the ends of the chairs may be made, the ends are bent downward at an angle of forty-five degrees, and the notches in the tie-bars are at the same angle. For the purpose of saving some inches in the length of the tie-bar we may bend down the outer ends of the chairs at an angle of about sixty degrees, as illustrated in the drawings, and make the outer notches *g* on the lower sides of the tie-bars, so that they will engage squarely with these ends. For purposes of adjustment we make a number of serrations or teeth *g h* on the bottom of the tie-bar. Theoretically but one tooth at each point would be sufficient.

*i* represents lugs struck up from the tops of the chairs *a*, which are adapted to engage the tops of one side of the rail-base, as shown in Fig. 7.

*j*, Fig. 3, is a notch cut out of the top of the vertical web of the tie-bar *b*, one side of which is furnished with a hook or lug *k*, which is adapted to engage the top of the base of the rail opposite to that part engaged by the lugs *i* on the chair. The base of the notch *j* inclines slightly downward as it passes inward from hook *k*, so that the base of the rail may rest directly upon the top of the chair and not against the tie-bar *b*. The result of this construction is that when a wheel passes over the chair the inner side of the rail is depressed until it engages the tie-bar. At the



same time the inner leg *f* of the chair is moved outward, engaging one of the notches *h* firmly, thus locking the leg to the tie-bar. Simultaneously the lugs *i* are depressed, firmly engaging the base of the rail.

Notches *j* are formed one at each end of the tie-bars, the lugs or hooks *k* forming a positive gage for the rails.

In order to prevent the heads of the rails from being forced outward on curves or on straight lines where heavy traffic is passing over them, we have devised a rail-brace which is illustrated in Figs. 7, 8, and 9. This brace consists of a base portion *l*, adapted to be bolted to the chair *a*, and an arm *m*, adapted to engage the under part of the outside of the head of the rail, as best shown in Fig. 7.

*n* is a slot in the base *l*, which is inclined at an angle to the sides of the brace.

*o*, Figs. 1 and 2, represents elliptic holes punched on the top of the chairs, through which bolts *p*, Figs. 7 and 8, with elliptic-shaped shanks, pass, the same bolts passing through the slots *n* in the base *l* of the braces.

The tops of the bases of the braces are corrugated, as shown best at *r*, and the under sides of the washers *s*, which are placed intermediate between the nuts *t* and the base, are similarly corrugated.

In applying the rail-brace it is first placed in position by hand and the bolt *p* is passed through it. It is then driven along by a hammer until it is in the desired position, when the nut *t* is screwed down until the corrugations in the washer *s* engage the corrugations

on the base of the brace. This locks the brace in place.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. A metallic railway-tie consisting, in combination, of a tie-bar having the form of an inverted **Y** and chairs having substantially the form of an inverted **U** with sloping sides and a flat top, the sides and top of said chairs being furnished with a slot, corresponding in shape to that of said tie-bar, to receive said tie-bar, and the bottom edges of said tie-bar being furnished with teeth or serrations cut at an angle corresponding with that of the sides of the chair adapted to engage the outside edges of the lower ends of the slots in the sides of said chair, substantially as and for the purposes set forth.

2. The combination with a metallic railway-tie substantially as described of a rail-brace the base of which is furnished with a slot inclined at an angle to the rail and the top of which is serrated and which is furnished with an arm adapted to engage the rail as described, a washer with a serrated side adapted to engage the serrations on said base, and a bolt and nut whereby said base may be secured to said tie.

CONRAD F. CLOTHIER, JR.  
FRANCIS S. PECKE.

Witnesses:

JOHN B. RUTHERFORD,  
CHARLES H. SPECKMAN.