

(No Model.)

2 Sheets—Sheet 1.

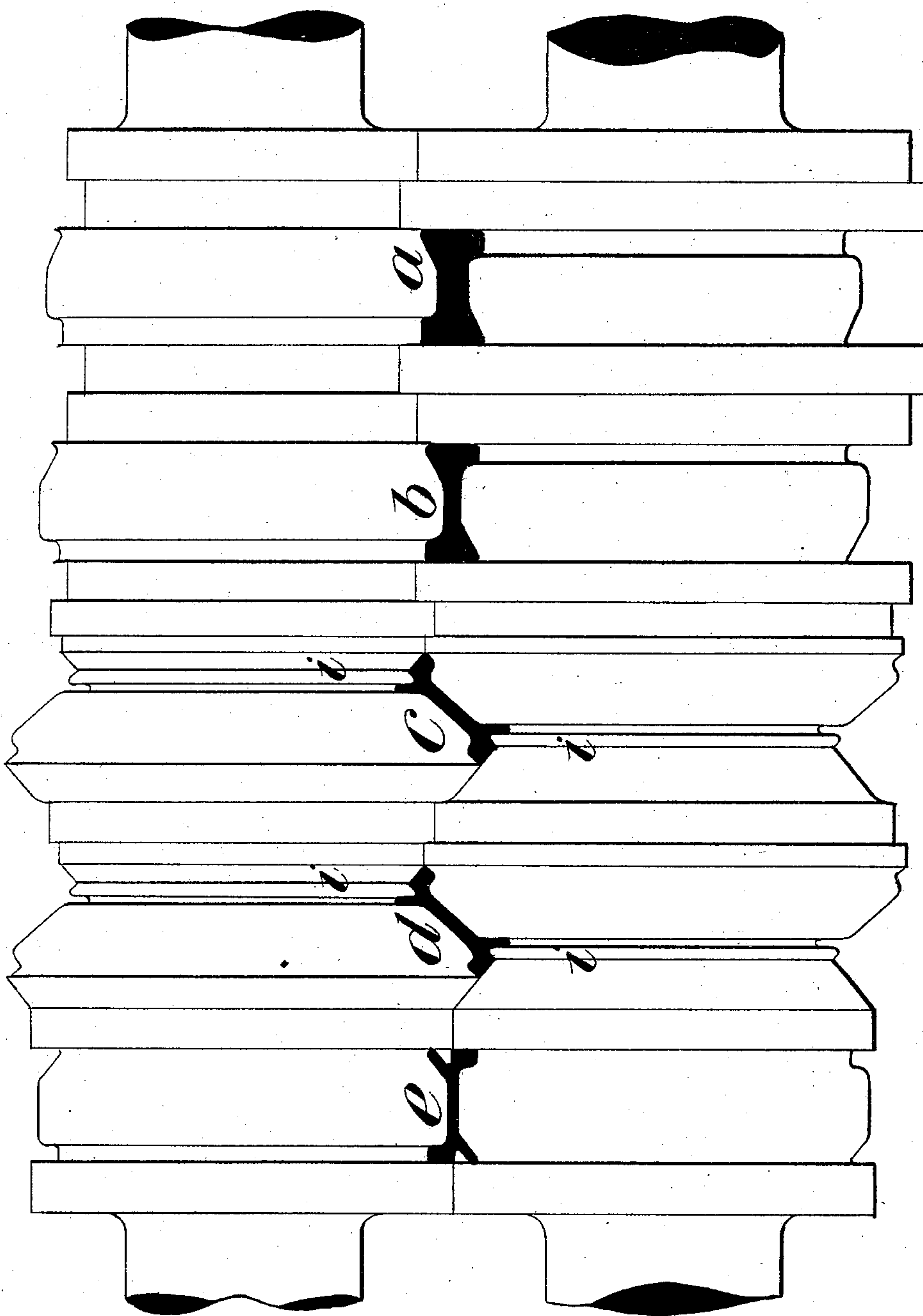
P. KIRK.

ROLLS FOR MAKING TRAM RAILS.

No. 345,512.

Patented July 13, 1886.

FIG. 1.



John M. Clayton.  
Harry Drury. } Witnesses

Inventor, P. Kirk  
by his Atty. *Howson T. Shaw*

(No Model.)

2 Sheets—Sheet 2.

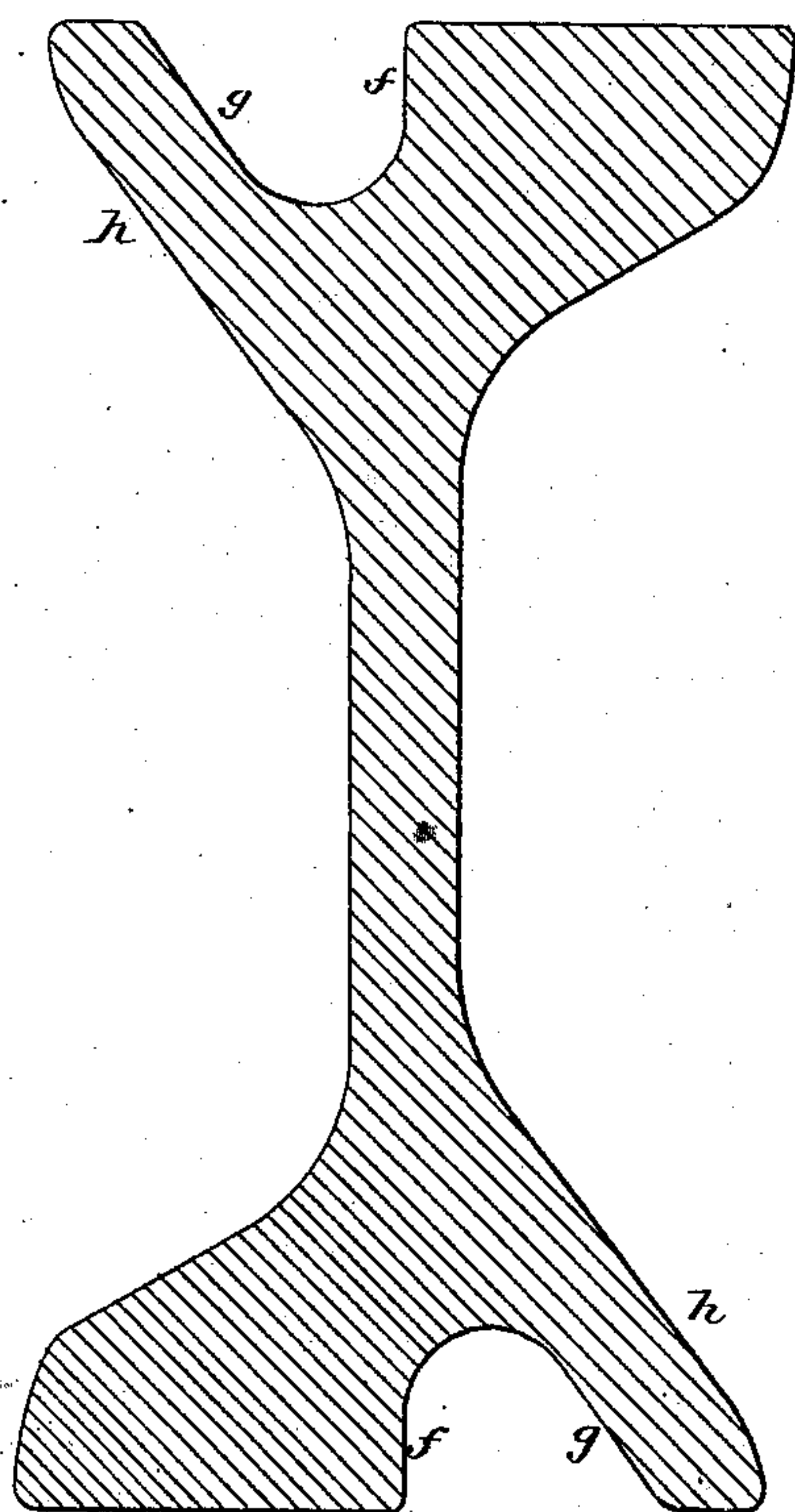
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FIG. 2.



Witnesses:

John E. Parker

David S. Williams

Inventor:

Peter Kirk

by his Attorneys:

Howson & Sons

# UNITED STATES PATENT OFFICE.

PETER KIRK, OF WORKINGTON, COUNTY OF CUMBERLAND, ENGLAND.

## ROLLS FOR MAKING TRAM-RAILS.

SPECIFICATION forming part of Letters Patent No. 345,512, dated July 13, 1886.

Application filed September 25, 1884. Serial No. 143,919. (No model.) Patented in England July 11, 1884, No. 10,036; in France August 13, 1884, No. 163,770; in Belgium August 14, 1884, No. 6,602, and in Germany August 16, 1884, No. 30,420.

*To all whom it may concern:*

Be it known that I, PETER KIRK, a subject of the Queen of Great Britain and Ireland, and residing at Workington, county of Cumberland, England, iron and steel manufacturer, have invented certain Improvements in the Manufacture of Tram-Rails, (for which I have obtained a patent in Great Britain, No. 10,036, July 11, 1884; in France, No. 163,770, August 13, 1884; in Belgium, No. 6,602, August 14, 1884, and in Germany, No. 30,420, August 16, 1884,) of which the following is a specification.

My invention relates to the manufacture of grooved rails for tramways, and has for its object to produce such rails in ordinary rolling-mills without the necessity for the use of additional rolls to form the grooves. I employ rolls which are so shaped that the rail when being grooved is rolled in an inclined position, the web of the rail making an angle with the axes of the rolls, the inclination depending upon the amount of inclination which can be given to the outer side of the groove in the rail. By this method of rolling I can produce either double-headed or single-headed rails.

In the accompanying drawings, Figure 1 represents a pair of rolls adapted to produce rails in accordance with my invention. Fig. 2 is a section of the double-headed rail which the rolls in Fig. 1 are designed to produce.

In Fig. 1 the sections of the rail in its stages of formation are represented in black at *a b c d*.

In working with the rolls represented in Fig. 1 the bloom is reduced in the ordinary manner by being first entered at *a* and then at *b*. The bloom is then entered at *c*. It will be seen that the rolls at this part are turned into such forms as that the part which is to form the web of the rail is inclined from the horizontal or from the line of the axes of the rolls.

Referring to Fig. 2, it will be seen that the

inner side, *f*, of the groove is perpendicular, or nearly so, and that the outer side, *g*, is inclined from the perpendicular. The angle *h* of the side of the head of the rail on the groove side is about the same as the angle of *g*, or, by preference, is slightly less inclined from the perpendicular. At *c* the web of the rail is inclined at such an angle as would cause the side *g* of the groove to be about perpendicular or about at right angles to the axes of the rolls. A bead, *i*, is turned upon each roll, and these beads are so shaped as to form the two grooves in the two heads of the rail, and in the case of each bead the side which forms the side *g* of the groove in Fig. 2 is about at right angles to the roll-axis. The partly-formed rail is next entered at *d*. At this part the rolls are formed to effect a further reduction in the section of the rail. It will be seen that the grooves in the two heads of the rail are completely formed at the same time that the rail is being rolled and shaped. The rail may be finally passed through the rolls at *e* with the web of the rail in a horizontal position, in order that the rail may receive a final straightening and finish; but this is not an essential feature of my invention.

I claim as my invention—

1. A pair of rolls for rolling double-headed tram-rails, said rolls having the successive annular forms *a*, *b*, *c*, and *d*, substantially as shown and described.

2. A pair of rolls for rolling double-headed tram-rails, said rolls having the successive annular forms *a*, *b*, *c*, *d*, and *e*, substantially as shown and described.

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

PETER KIRK.

Witnesses:

G. E. RUSHTON,  
ALFD. GILL,

*St. Dunstan's Hill, London, E. C., Notarial Clerks.*