No. 652,613. Patented June 26, 1900.

F. B. HART.

OVERLAPPING RAILWAY RAIL JOINT.

(Application filed Apr. 16, 1900.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

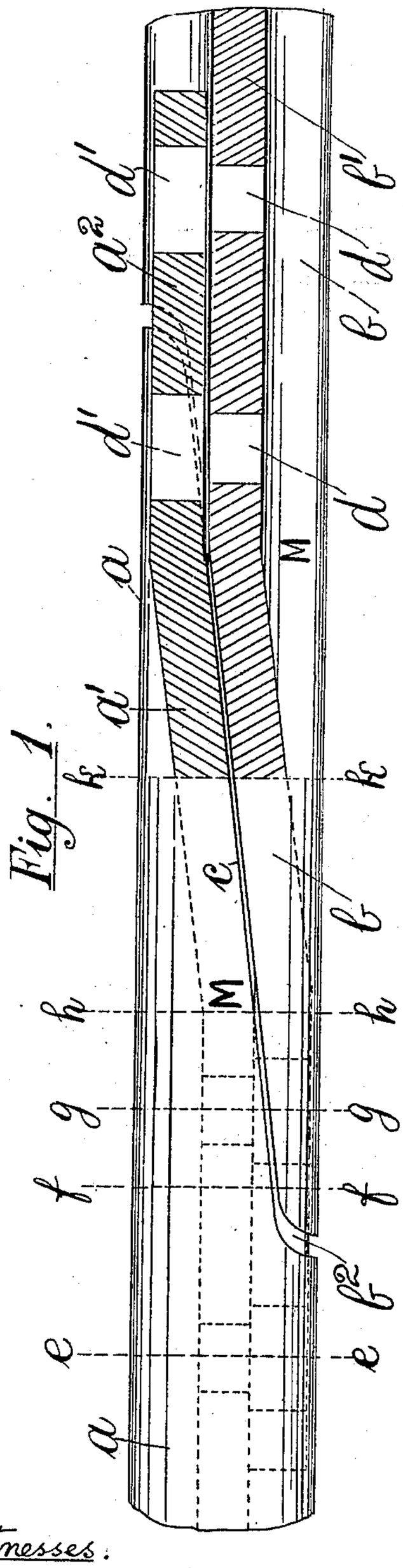
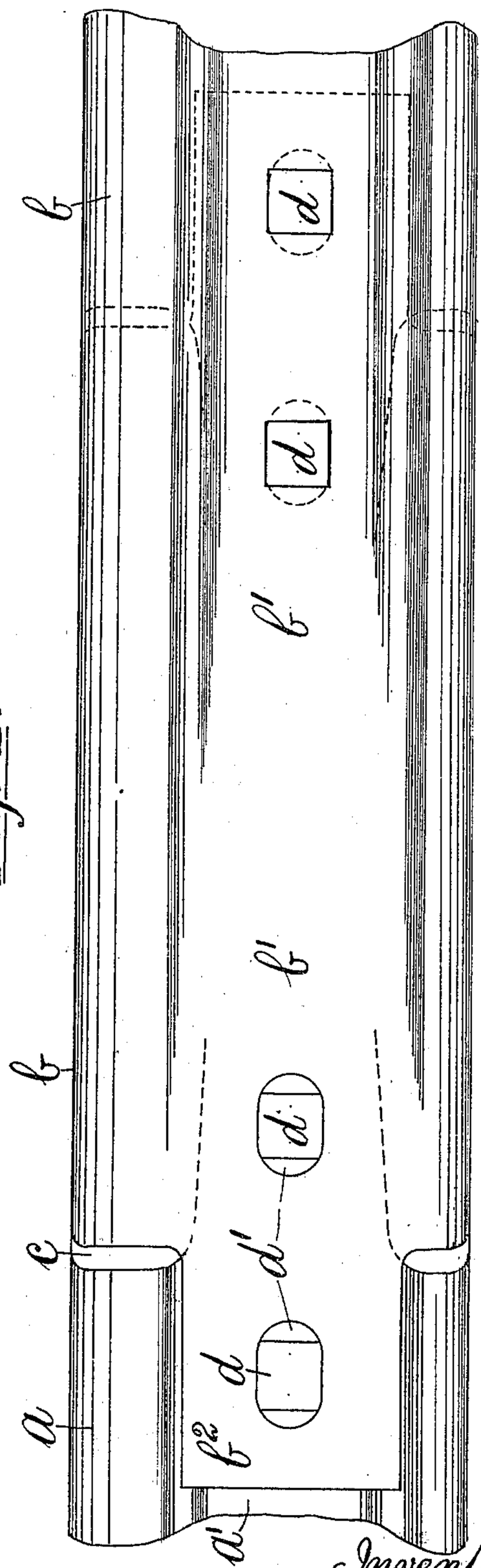


Fig. 2.



Witnesses:
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Fig. 3.

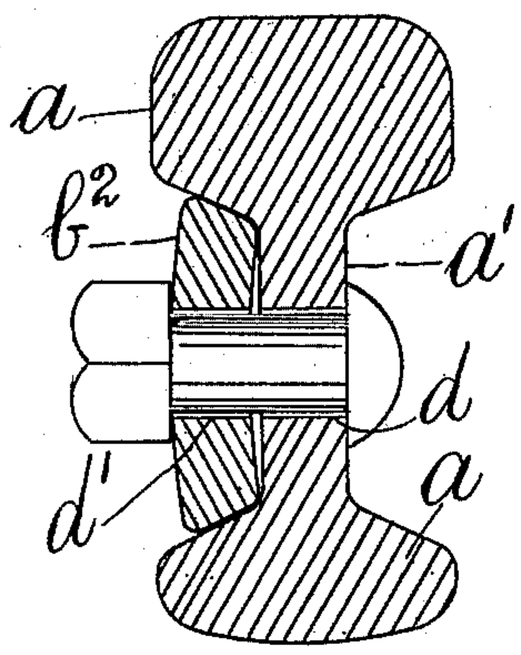


Fig. 4.

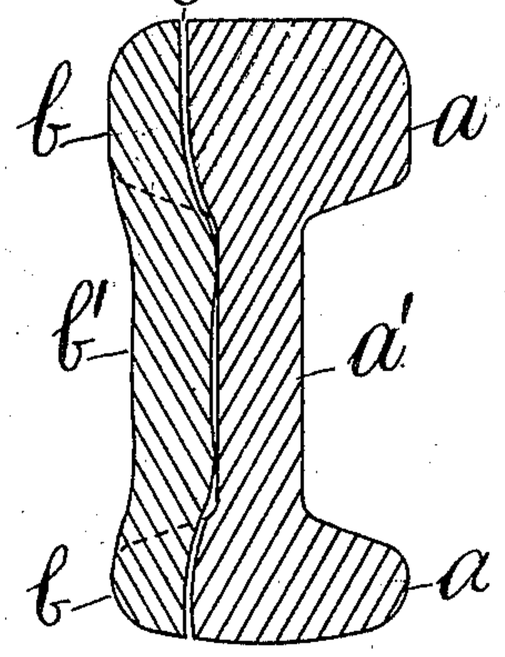


Fig. 5.

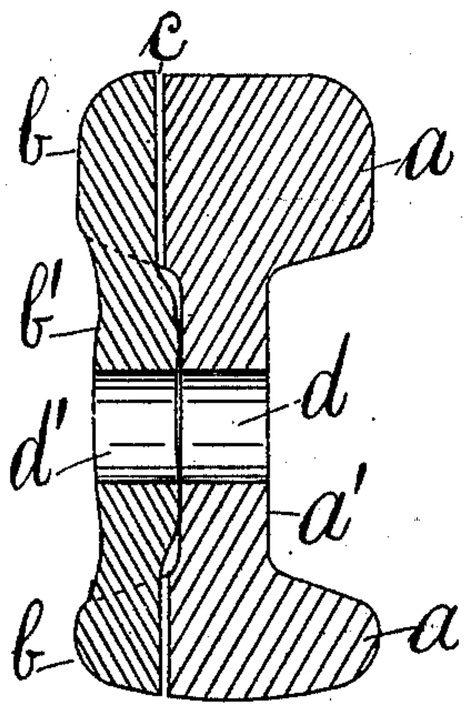


Fig. 6.

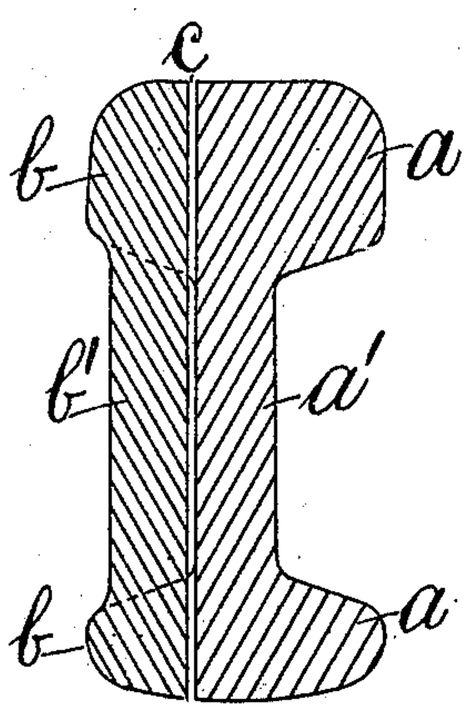
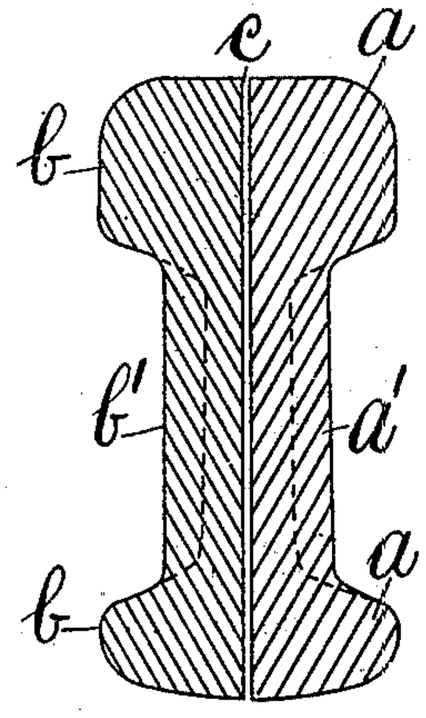


Fig. 7.



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UNITED STATES PATENT OFFICE.

FRANK BROOKS HART, OF MANCHESTER, ENGLAND.

OVERLAPPING RAILWAY-RAIL JOINT.

SPECIFICATION forming part of Letters Patent No. 652,613, dated June 26, 1900.

Application filed April 16, 1900. Serial No. 13,135. (No model.)

To all whom it may concern:

Be it known that I, FRANK BROOKS HART, a subject of the Queen of Great Britain, residing at Manchester, in the county of Lancaster, England, have invented new and useful Improvements in Overlapping Railway-Rail Joints, (for which I have obtained provisional protection in Great Britain, No. 17,664, bearing date September 1, 1899,) of which the following is a specification.

The improvements relate to overlapping railway-rail joints, and have for their object the making of rail-joints of the overlap or scarf character in such manner that the expansion and contraction of the rails is provided for without detriment to the security of the joint; and the present invention constitutes an improvement upon an invention for which British Letters Patent have been granted to John Stanley Holme and Frank Brooks Hart, numbered 11,889, of the year 1895. In experimenting with the invention for which such Letters Patent above named were granted I have found that if the bolts provided for holding the rails together are placed so as to pass through the thin end of the taper of one rail and the thick end of the taper of the other rail or through any part of that portion of the overlapping webs which is bent out of parallelism with the axis of the rail they cause the rails to bind, so as to prevent the necessary movement of the parts of the joint to allow for expansion of the rail, and I have found that it is essential to success that the bolt-holes should be formed outside or beyond the angle of the overlapping webs, which for this purpose are prolonged so far beyond the bend or angle as to be capable of affording the necessary space for bolt-holes in a length of parallel formation carried beyond the taper of the rail. To accomplish this and to effect my improvements, I form the joints or ends of each rail with a spliced rail-head of the character named and described in the specification above quoted and with a bent or angle-formed rail-web, which will enable the web of one rail to pass by or overlap the web of the other to which it is joined. It is necessary to serve the highest economy in manufacture and the greatest efficiency in use that the web should be continued of the full thickness throughout its length; but I find that rails rolled to the form or approximately to the form shown in the drawings accompanying this specification do not need to have their webs thickened up at the overlapping ends. The web is then continued to a point beyond the splice in the rail-head in a line parallel to the ordinary web of the rail and extended sufficiently to allow space in the parallel portion of the extended web for the requisite number of bolts to be employed, as well as to form a locking of the joint vertically. By these means not only is the joint firmly secured, but parallel sliding faces are provided where the jointed webs of the rails are bolted together, enabling expansion and contraction to take place as freely as in an ordinary fished joint; but that the improvement may be better understood I will, with the aid of the accompanying drawings, proceed more fully to describe means employed by me.

In the drawings, Figure 1 is a plan view, partly in section and partly in elevation, of two spliced or overlapped rail ends of the character hereinbefore referred to formed in accordance with my improvement and placed in position for being bolted together. Fig. 2 is a side elevation of the same; and Figs. 3, 4, 5, 6, and 7 are cross-sections thereof, taken through lines *e e*, *f f*, *g g*, *h h*, and *k k*, respectively, in Fig. 1.

The same letters indicate corresponding parts wherever they occur.

a b are the two rails to be joined, their webs *a' b'* being bent or formed at an angle for a portion of their length, so as to pass by or overlap each other. In the example shown the webs are so bent from about the points M M. Each web is continued beyond the angle in a line parallel to the ordinary web of the rails and is extended, as shown at a^2 b^2, sufficiently to allow of the requisite number of bolt-holes *d* being formed in the webs in such parallel portions thereof. Each extended part a^2 b^2 fits in between the head and foot of its complementary rail and forms a locking of the joint vertically. Elongation of the bolt-holes necessary to allow for movement in expansion or contraction is shown at *d'*.

c is the splice in the rail-head.

It will readily be seen that on expansion or contraction taking place the bent or inclined

portions of the webs between the points M M will approach or recede, as the case may be, whereas those faces of the overlapping webs which lie in a plane parallel to the ordinary web of the rail and through which the bolts are passed will merely slide against each other, and thus the bolts offer no cross-binding or unnecessary resistance to the necessary movement of the rails, such as would be the case if the bolts were passed through the angled portion of the overlapping webs.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

In rail-joints, of the overlap or scarf character, rail ends having bent overlapping webs provided with extensions beyond the bends, which extensions lie parallel to the ordinary webs of the rails, and are provided with a sufficient number of suitably-formed bolt-holes for the secure attachment of the rails to one another, the several parts being formed and arranged substantially as hereinbefore described and as shown in the accompanying drawings.

FRANK BROOKS HART.

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