

(No Model.)

W. S. WELLER & E. B. MANN.  
RAIL SPLICE AND BOLT FOR RAILROADS.

No. 451,350.

Patented Apr. 28, 1891.

Fig. 1.

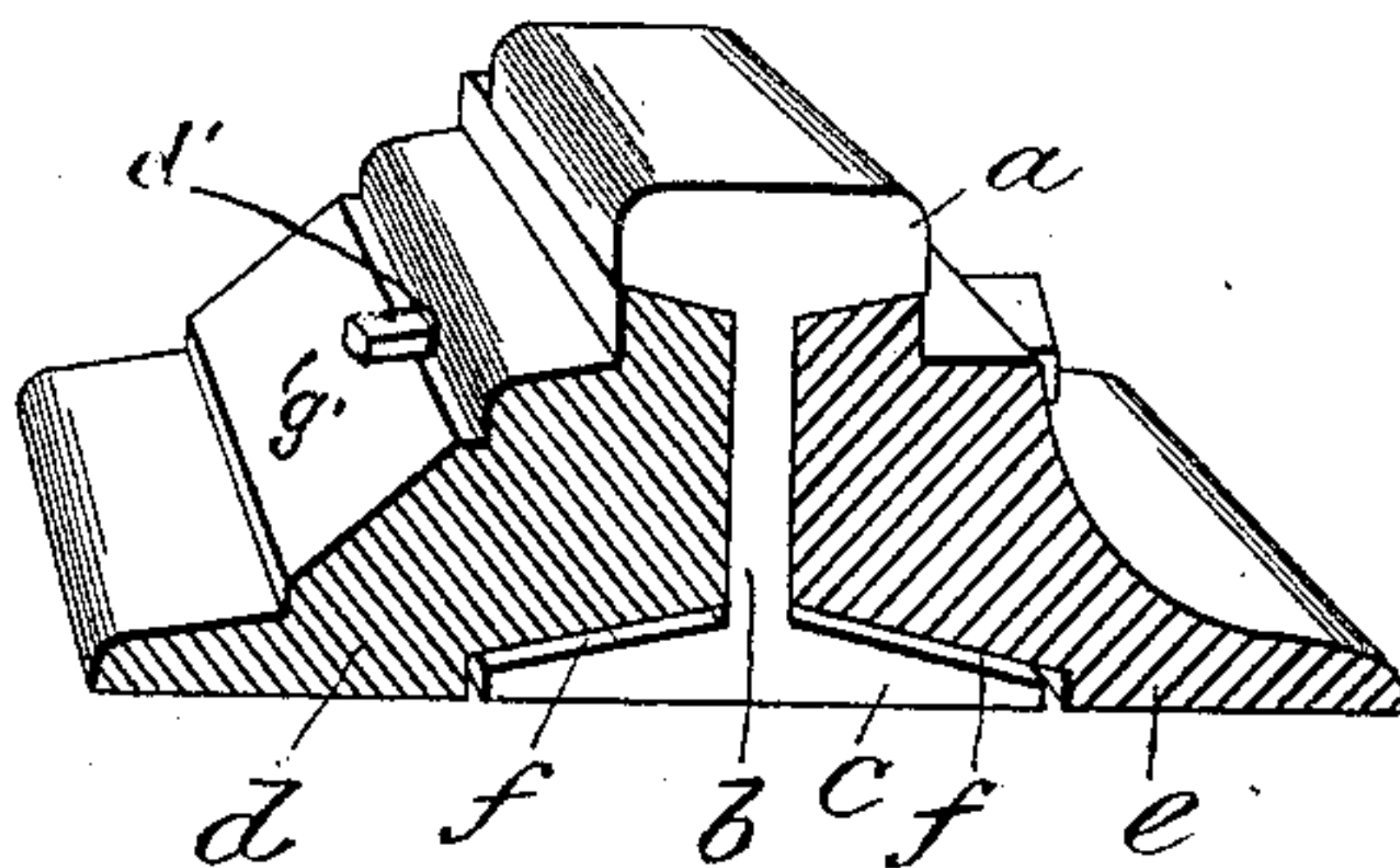


Fig. 2.

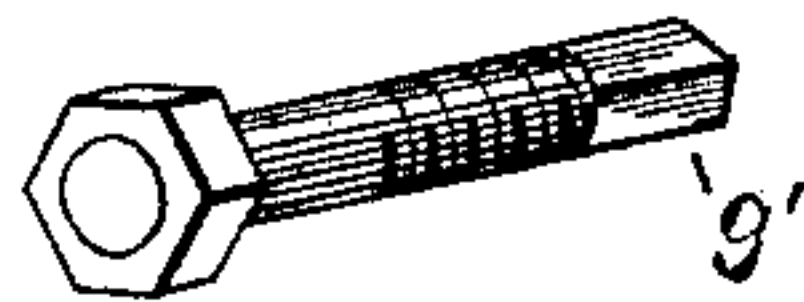
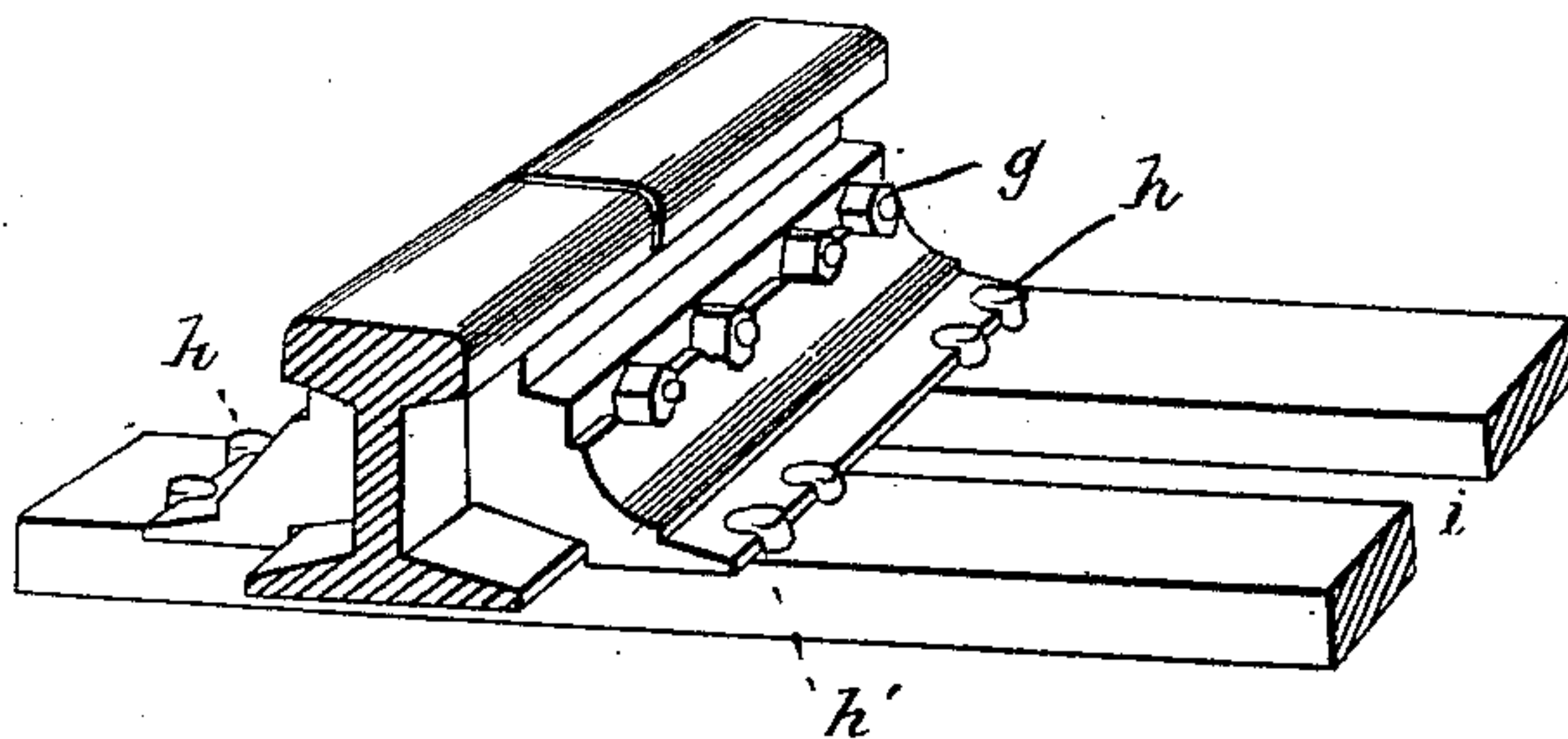


Fig. 3.



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# UNITED STATES PATENT OFFICE.

WARRINGTON S. WELLER AND EDWIN B. MANN, OF DELAWARE, NEW JERSEY.

## RAIL SPLICE AND BOLT FOR RAILROADS.

SPECIFICATION forming part of Letters Patent No. 451,350, dated April 28, 1891.

Application filed September 11, 1890. Serial No. 364,695. (No model.)

*To all whom it may concern:*

Be it known that we, WARRINGTON S. WELLER and EDWIN B. MANN, citizens of the United States, both residing at Delaware, in the county of Warren, State of New Jersey, have jointly invented a new and Improved Device for Splicing Together Steel Rails in Use on all Railroads in this and other countries, which shall be known as the "Improved Rail Splice and Bolt," of which the following is a specification.

Our object is to make as near a perfect splice as possible, or one that cannot break or bend at the joint of rails, at the same time making the joint of rails as solid and springy as the center of rail.

Figure 1 shows section of rail and splice cut through at joint of rails. *a* is the top of rail. *b* is the vertical part of rail. *c* is the base of rail. *d* is the inside part of splice. *e* is the outside part of splice. *f f* is the space or coving extending around the top of base of rails down to the ties one-eighth ( $\frac{1}{8}$ ) of an inch high. *g* are screw-bolts, Fig. 1. *d*, when applied to the largest rails now in use, extends outward on the ties from the space at *c* three (3) inches, the exact shape of which is shown in Fig. 3. This space is to be on *d* and *e* the same width. This part *d* is also to have a thread cut in every hole *d'* to adjust both parts of splice tight and solid against the rails. *d* is also so constructed as to be below the longest wheel-flange made now. It is a trifle heavier than part *e*. *d*, like *e*, when applied to any different size made, can be made smaller or in proportion, but must always retain the aforesaid shape. *e* is somewhat similar to *d*, with the exception of having a place for each bolt-head countersunk to allow of a level surface for the adjustment of bolt-heads, and also varies a trifle in its shape, which can be seen on Fig. 3. *e*, like *d*, has in its extension-places notches *b'* cut in or punched to admit four spikes *h*, to be firmly driven when placed on the joint, the first one to be cut or punched out three inches from each end, the next one five inches from the first, making in all for both parts eight notches in number. Both these parts *e*

and *d* are to be firmly spiked, each end splice on the center of a tie *i*, firmly and solid in every case.

Fig. 2 is the bolt. Unlike other bolts, this bolt is to have what is known as a "hermaphrodite" thread, that being the strongest thread known. It is to be not less than three-fourths of an inch in diameter and its thread not less than eight to the inch. It is made square on thread end, as shown at *g'*, to admit of that part screwing the broken piece out in case it should by some means be broken. The other end is to have a heavy hexagonal head, which will give it less space to be turned, thus adding extra strength to splice, and this bolt can be made as best suited to manufacturers, but always out of good tough steel, as is the splice also to be made.

Fig. 3 shows the splice complete in position on the joint of rail when it is properly adjusted.

We are aware that prior to our invention there has been a variety of devices to fasten the joints of rails. We have seen nearly every kind in use and can safely say that there is not one in use that gives the desired results. Some of its advantages can be seen below. First, when properly made and adjusted they cannot break at the joint, neither can they bend, thereby leaving a level and solid joint; second, our splice and bolt does away with all spring-washers and nuts, the splice and bolts to be made out of good tough steel; third, the splices are to be rolled and cut in any length, but not less than twenty-four inches; fourth, our splice does not rest upon the base of rails, thus giving spring enough to allow the joints of rails to raise to their proper position after a train passes over them, which would be impossible if they fit tight between top and base of rail.

We believe that our splice will supply the needed strength, making a solid level joint, as herein described and set forth, which will not be liable to become so jammed or set in its splices to the "sag" of the passing engine-wheel as to be unable to recover its true alignment by elastic recoil.



What we do claim as our invention, and desire to secure by Letters Patent, is—

The combination, with a pair of abutting railway-rails, of the pair of splices or fish-plates  
5 *d e*, which support the rail-head and rail-web, which rest upon and are spiked to the cross-ties, are bolted to each other through the rail-web, and have sole spaces or covings

*f* for play above the rail-base, as and for the purpose set forth.

Washington, New Jersey, August 4, 1890.

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