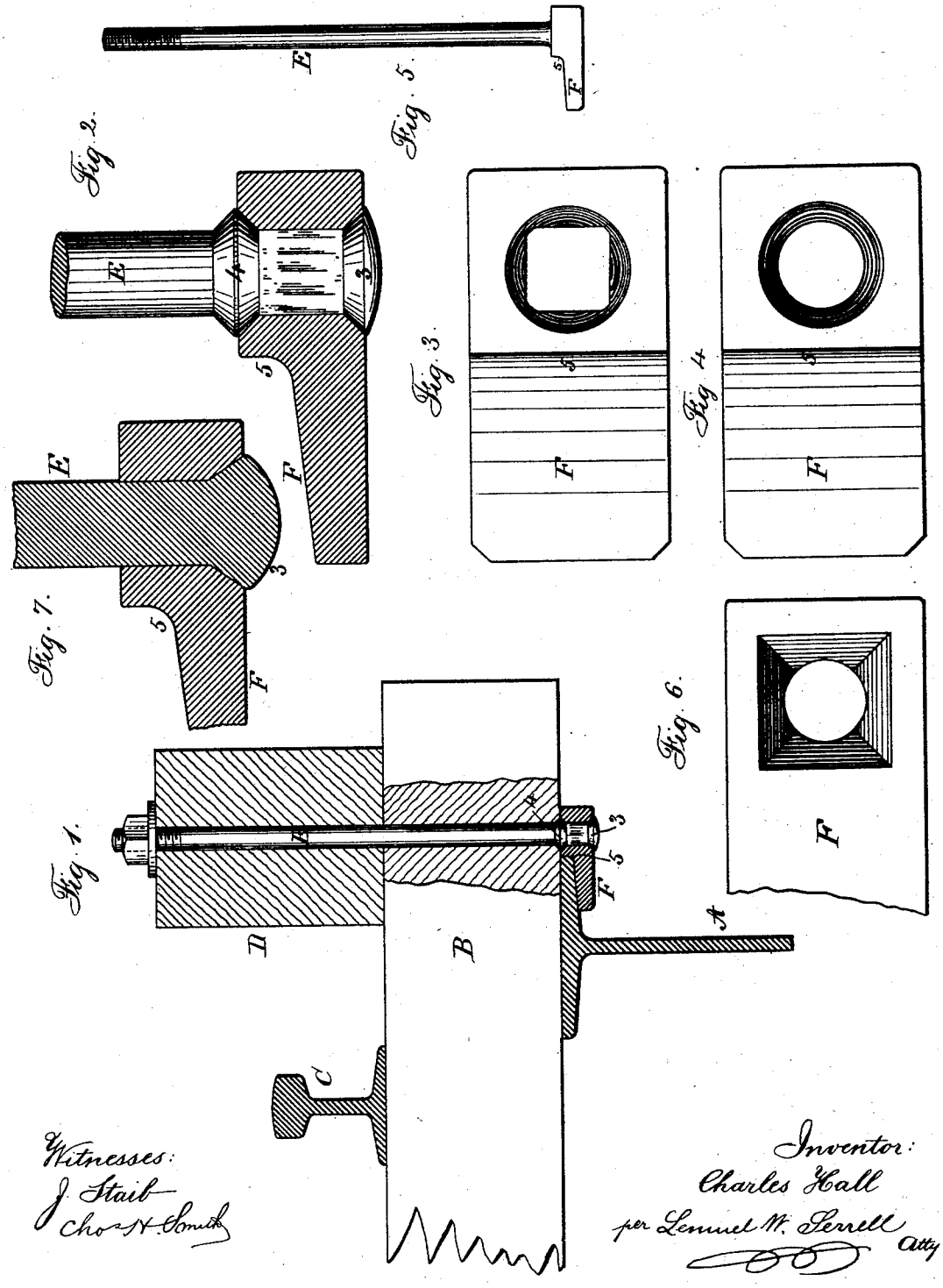
(No Model.)

C. HALL.

BOLT FOR ELEVATED RAILWAYS.

No. 362,274. Patented May 3, 1887.



Witnesses:
J. Stair
Chas. H. Smith

Inventor:
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UNITED STATES PATENT OFFICE.

CHARLES HALL, OF NEW YORK, N. Y.

BOLT FOR ELEVATED RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 362,274, dated May 3, 1887.

Application filed December 20, 1886. Serial No. 222,055. (No model.)

To all whom it may concern:

Be it known that I, CHARLES HALL, of the city and State of New York, have invented an Improvement in Bolts for Elevated Railways, of which the following is a specification.

In elevated railways the cross-ties usually rest upon beams or girders, and they are connected by clip-pieces beneath the top flange of the girder or beam and lag-screws passing up into the cross-ties and having heads below the clips. These parts are liable to wear loose and rattle, and sometimes the clips turn around and fail to hold the cross-tie, and in addition to this the guard-rails, which are upon the cross-ties outside the rails, have to be bolted on separately to the said cross-ties.

My improvements are made for rigidly connecting the cross-ties to the beams or girders, and at the same time bolting the guard-rail to the cross-ties.

In the drawings, Figure 1 is a cross-section representing part of a railway with my improved bolt in place. Fig. 2 is a section of the bolt-head and clip, and Figs. 3 and 4 are plan views of the clip before the bolt is attached to the same. Fig. 5 is an elevation of the bolt and clip-shaped head in one. Fig. 6 is an inverted plan of the clip in one of the forms devised by me, and Fig. 7 is a section of the same and of the bolt.

The beam or girder A, the cross-ties B, the rails C, and the guard-rails D are to be of any ordinary or desired character, and my improved bolt is applied at each end of each cross-tie, or as often in the structure as may become necessary.

The bolt E and the clip F are permanently connected together, and the bolt is of a length to pass through the cross-tie B, and also the guard-rail D when required, and the clip F forms a head to the bolt, and it is shaped so as to pass beneath the edge of the flange upon the upper part of the beam or girder A, and it also sets up against the under side of the cross-tie B. The hole in this clip-piece F may be round, as seen in Fig. 4, and it is large enough for the bolt E to pass through it and be permanently secured in any suitable manner. I prefer to upset or head the bolt E while in a hot condition, so as to spread the metal within the hole in the clip, and form the head 3 into a recess in the clip, and also to spread the metal of the bolt, forming a tapering shoulder, 4, passing also into a recess in the clip around the hole through which the bolt passes; and by making the hole in the clip square, as seen in Fig. 3, the bolt is prevented from turning within the clip, and the tapering shoulder at 4 strengthens the bolt at this place, so that this shoulder is partially embedded into the wood of the cross-tie, and thereby the liability of the bolt to break at this place is lessened. The shoulder at 5, upon the clip coming against the edge of the girder A, prevents the clip turning. If the clip-shaped head is forged up in one with the bolt, as in Fig. 5, it will be similar in its action when applied to the railway structure.

In many cases it is preferable to have the bolt E fit into a round hole through the clip, and to have a pyramidal head, 3, fitting a similar-shaped countersink in the under side of the clip, as seen in Figs. 6 and 7, and the shoulder 4 may be omitted.

I claim as my invention—

1. The combined bolt and clip consisting of the clip F, having a hole through which the bolt passes and into which the bolt is permanently secured, substantially as set forth.

2. The combined bolt and clip composed of the clip F, having a hole through it and countersunk at the ends of the hole, and the bolt headed at 3 and upset to form the shoulder 4, substantially as set forth.

3. The combined clip and bolt consisting of the clip F, having a shoulder at 5 and a square hole passing through the same and countersunk at the ends, the bolt being spread to fill the hole and countersinks, substantially as set forth.

4. The combined clip and bolt for connecting the cross-ties and girders in railway structures, consisting in the clip having a shoulder at 5, to take against the edge of the girder, and a nut at the other end of the bolt, substantially as set forth.

5. The combined clip and bolt for connecting the cross-tie and girder in railway structures, consisting of a bolt passing through the cross-tie, with a nut on the upper end thereof, and a clip having one part of its upper surface adapted to take below the flange of the iron girder and the other part of its upper surface to rest against the under side of the cross-tie, substantially as set forth.

Signed by me this 17th day of December, A. D. 1886.

CHAS. HALL.

Witnesses:
GEO. T. PINCKNEY,
WILLIAM G. MOTT.