(No Model.)

D. SERVIS.

RAILWAY SPIKE.

No. 455,362. Patented July 7, 1891.

Fig. 1.

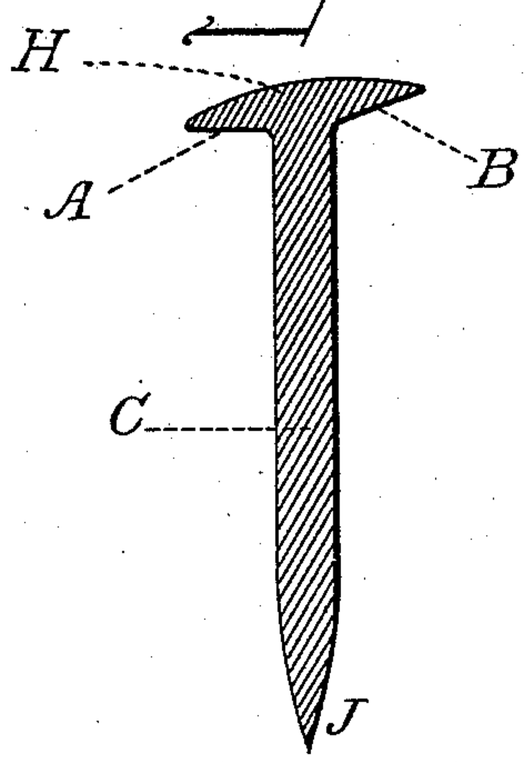
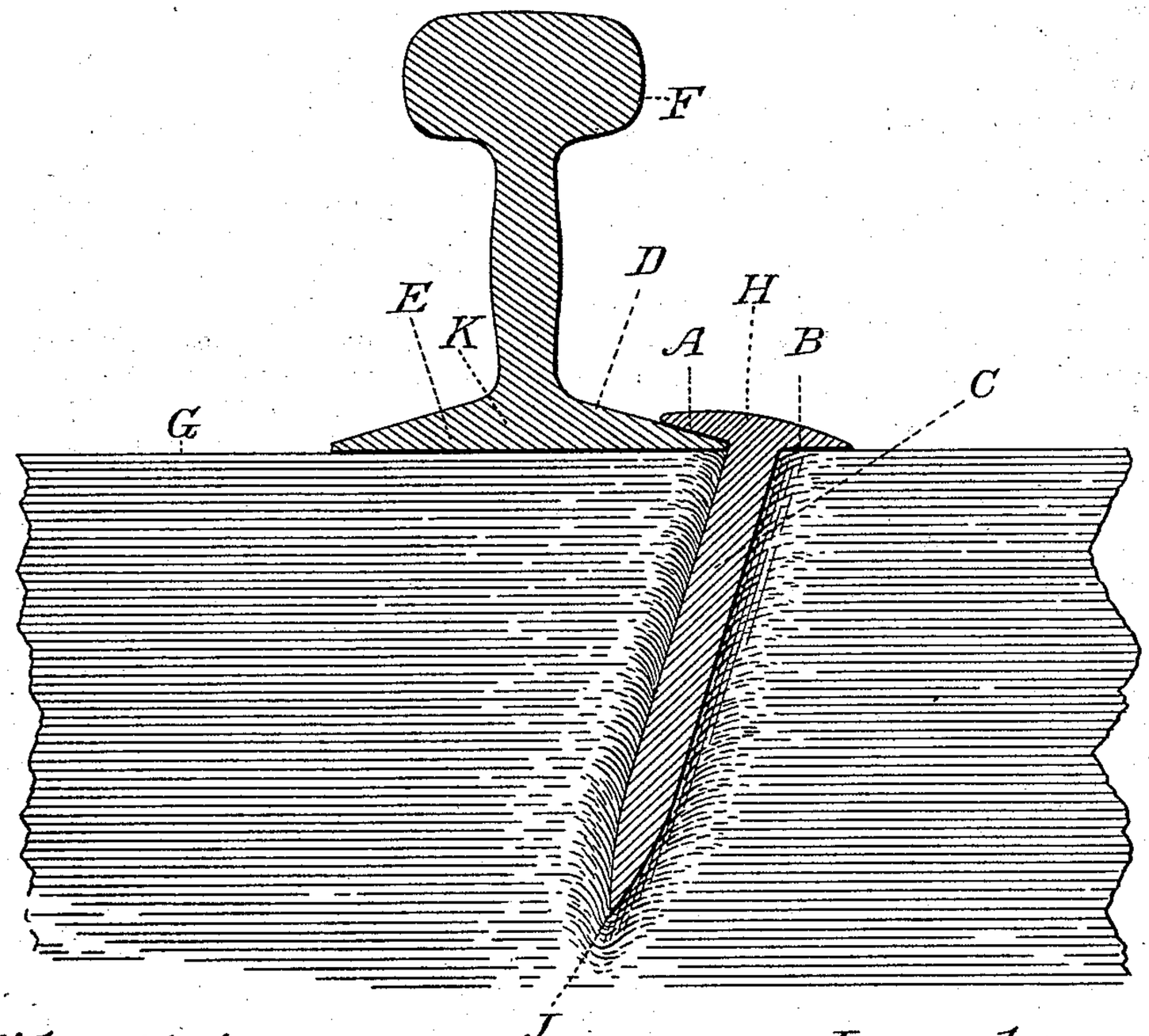


Fig. 2.



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UNITED STATES PATENT OFFICE.

DAVID SERVIS, OF WEEDSPORT, NEW YORK.

RAILWAY-SPIKE.

SPECIFICATION forming part of Letters Patent No. 455,362, dated July 7, 1891.

Application filed July 29, 1890. Serial No. 361,391. (No model.)

To all whom it may concern:

Be it known that I, DAVID SERVIS, a citizen of the United States, residing at Weedsport, in the county of Cayuga and State of New York, have invented new and useful Improvements in Railway-Spikes, of which the following is a specification.

My invention relates to that form and class of railway-spikes such as are in general use for the purpose of securing the rails of railways to the ties thereof upon which they are carried, and has for its several objects, first, the aim to prevent the tendency of the railway-spike being crowded back or away from the edge of the base of the rail by any irregular or constant lateral pressure exerted against it by the rail; second, to provide for the support of the edges of the bases of the rails, so they may not wear or cut by attrition into the surfaces of the ties to which they are spiked, and thus provide against any tendency of the rails to tip or cant; third, to provide against the lifting or loosening of the spikes in the ties by the edges of the bases of the rails caused from the side-thrusts of the same. The said forms of derangement to the permanent stability of the rails upon the ties and to the fixity of the railway-spikes holding the same thereon are engendered not only from the jar of the rolling-stock passing on the rails and to imperfect placement of the ties in the road-bed, but principally to the side strokes, lateral pressure, or thrustings of the flanges of the car-wheels against the inner edges of the rails, which said forms of derangement it is the aim of the several objects of my invention, as already stated, to counteract and overcome, and thus provide against any tendency of the rails to spread, cant, or otherwise become disarranged to the endangering of the rolling-stock passing thereon.

My invention, so far as its mechanical aspects are concerned, is confined principally to a peculiar formation of the under surface of the head of the railway-spike, the said formation having relation to the driving of the said railway-spike into the tie in a diagonal direction or at an angle therein tending under the rail and toward a vertical line drawn through the center of said rail.

The invention is fully illustrated in the accompanying sheet of drawings, comprising two figures, in which—.

Figure 1 is a perpendicular side view of the spike in section, and Fig. 2 is a sectional end elevation of a rail and a longitudinal section of the tie, to which it is shown secured at one edge of its base by my improved spike.

Similar letters refer to similar parts throughout the two views.

Referring to the drawings, A, Figs. 1 and 2, is the under side of the inner part of the head H of the spike next to the rail F, and is formed approximately at a right angle to the body C of the spike.

B is the under side of the outer part of the head H of the spike farthest from the rail F, and is formed at an angle more or less obtuse to the body C of the said spike, as shown. A flattened point J is formed on the lower end of the body C of the spike, which is at right angles to an imaginary horizontal line drawn through the center of the head H from its inner edge next to the rail F to its outer edge.

D E are the upper surfaces of the base K of the rail F, and G is the railway-tie.

In driving the spike C the operator regulates the adaptation of the under side of the inner part A of the spike-head H to the varying angles of the upper surfaces D E of the base K of the rail F by sinking the under side of the outer part B of the spike-head H into the tie G a greater or less distance, as may be found necessary to bring the under side of the inner part A of the spike-head H into place. Under this procedure it will be perceived that the compression of the wood fiber of the tie G under the under side of the outer part B of the spike-head H serves to assist in giving a much firmer support thereto.

It will be apparent by the above arrangement of the spike in the tie G, with reference to the rail F and the contact-points of the under surfaces of the head with the surface of the base of the rail and with the surface of the tie, that the lateral strain exerted on the body of the spike is resisted by the surface of the tie bearing against the under surface B of the spike-head H instead of by the mutilated fibrous ends forming the walls made by the driving of the spike into the tie. By this

resistance afforded against any lateral movement of the spike the fibrous matter of the tie, where the spike is driven, is prevented from wear and the hole formed by the spike from enlargement, and consequently the spike is prevented from being lifted or loosened by the rail, and its holding-power uniformly maintained.

The tendency of the rail to cant from the side-thrusts against its inner edge of the flanges of the car-wheels passing thereon is met and overcome as follows: The body of the spike being driven into the tie at an inclination under the center of the rail, as already described, will receive the vertical or downward pressure of the outer edge of the base of the rail, and at the same time receive support from the bearing of the under surface B of the head H on the surface of the tie G. This arrangement tends to the prevention of the sinking and consequent wearing of the thin edge of the base of the rail into the surface of the tie, thus preventing the loosening and canting of the rail.

Where the railway-rails are jointed by angle-plates, my improvement comes into special use. In ordinary practice the spikes on such occasion are re-enforced by having wedges driven back of them. It will be at once evident that the use of wedges becomes unnecessary where my spike is used, as the under surface B of the head H and the diagonal driving of the spike into the tie preserves the integrity of the spike in position and its holding-power at all times, as has been already described, and thus renders the use of spike-wedges, rail-braces, tie wear-plates, and other like appliances superfluous.

Having thus described my invention, its several parts, its utility, and the workings thereof, what I claim, and desire to secure by Letters Patent of the United States, is—

As an article of manufacture, a railway-spike having a head projecting from the back of the spike C, and the under face B of said head made at an upwardly-inclined angle to the body of the said spike C, and also having a head projecting from the front of the spike C, with the under face A of said head made at a right angle to the body of said spike C, the whole constructed and combined for joint operation substantially as herein described and specified.

In testimony whereof I have hereunto set my hand, this 23d day of July, A. D. 1890, at Auburn, county of Cayuga, and State of New York.

DAVID SERVIS.

In presence of—
H. B. FAY,
H. N. LEMMON.