A. ATWOOD.

Device for Muffling Railway Rails.

No. 208,880. Patented Oct. 15, 1878.

Fig. II.

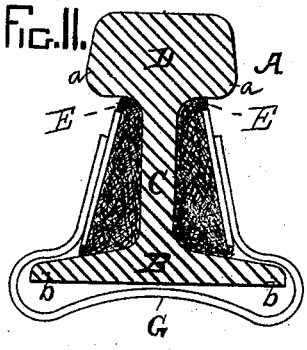


Fig. I

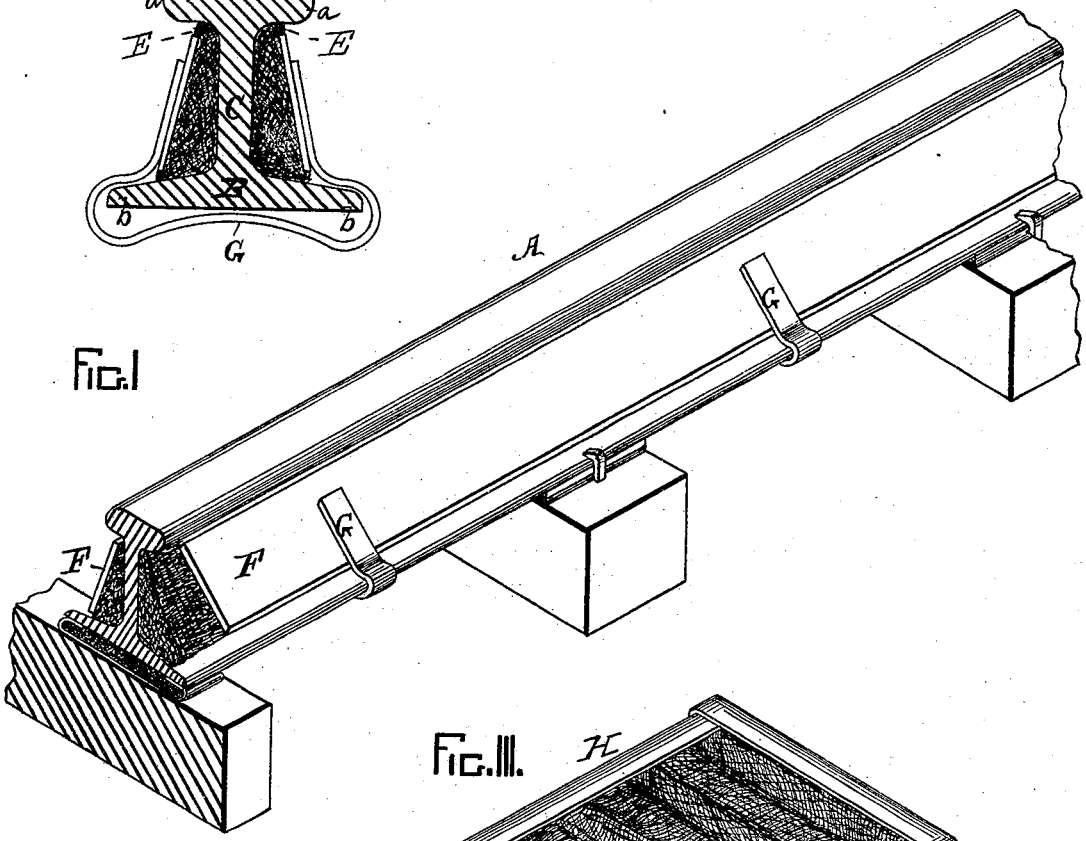


Fig. III.

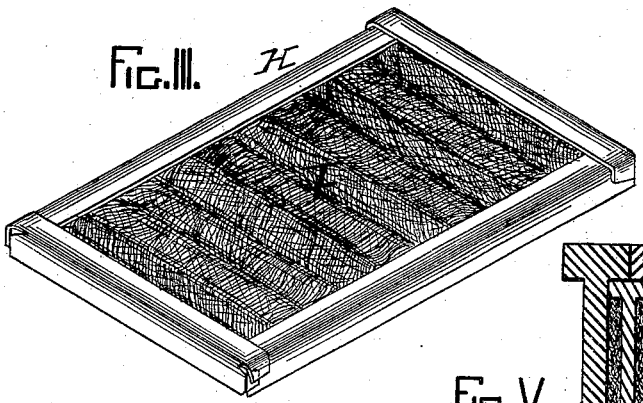


Fig. IV

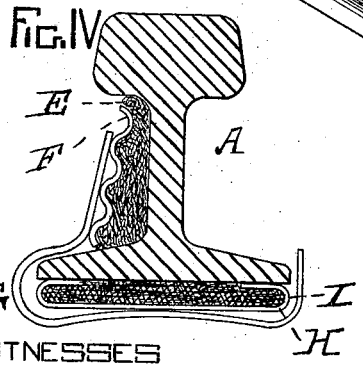
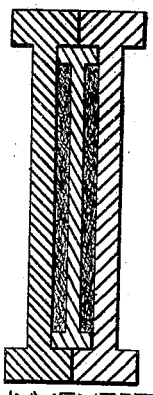


Fig. V.



WITNESSES

Nat. E. Oliphant.
J. T. Burch

INVENTOR

Alson Atwood,
by A. H. McEwen & Co.
Attorneys.

UNITED STATES PATENT OFFICE.

ANSON ATWOOD, OF DUNELLEN, NEW JERSEY.

IMPROVEMENT IN DEVICES FOR MUFFLING RAILWAY-RAILS.

Specification forming part of Letters Patent No. **208,880**, dated October 15, 1878; application filed August 6, 1878.

To all whom it may concern:

Be it known that I, ANSON ATWOOD, of Dunellen, county of Middlesex, State of New Jersey, have invented a new and useful Improvement for Preventing Noise on Elevated Railways, Bridges, and other Railway Structures, of which the following is a specification:

From experience on the New York elevated railways it has been demonstrated that the loud and rattling noise and vibrations produced by the rolling-stock passing over the rails is a constant source of annoyance to the residents along the line of road, and has caused great depreciation in real estate, besides being considered detrimental to the health of those living near said roads. Also, heretofore rubber has been used for muffling the rails of railways; but this material is objectionable, as it is affected by the atmospheric changes, becomes hard, and crumbles in a very short time, thereby rendering it worthless for the purpose intended.

The object of my invention is to overcome these serious objections and difficulties in the present system of elevated railways and other railway structures by removing or lessening the vibration and noise.

My improvement consists in muffling the rails and other portions of the structure with a soft packing of non-conducting fibrous material, deadening the sound and preventing the vibration and noise; also, the providing of suitable means for securing the fibrous material in its place.

My improvement also consists in providing a suitable non-conducting packing that will not become hard or rigid from use or age. For this purpose I use hemp-tow or other non-conducting fibrous material, moistened with vaseline, in the proportion of about one pound of vaseline to four of hemp, which is not affected by the changes of the weather, and the packing material remaining always moist and soft.

My improvement also consists in forming a pad composed of a thin casing of galvanized iron or tin, filled with the improved prepared packing.

The accompanying drawings, to which reference is made, represent my improvements applied to a T-shaped rail.

Figure 1 is a perspective view of a T-rail with my improvement attached. Figs. 2 and 4 are cross-sections. Fig. 3 is a perspective view of a pad or cushion with metallic casing. Fig. 5 is a cross-section of a compound rail or beam with the packing between the parts.

The letter A indicates an ordinary T-shaped rail, consisting of the base B, web C, and tread D, supported upon sleepers or cross-ties; and E indicates the packing; F, a longitudinal plate; G, spring-clamp; H, metallic casing; I, packing in pad.

It is well known to those skilled in the arts that by muffling a bell the ringing is prevented. This being a fact, I avail myself of it by muffling the rails and other parts of elevated railways and bridges for the same purpose—deadening the sound.

Previous to my invention various attempts have been made to use packing at the joints of the rails for the prevention of vibration and noise.

My improvement consists in muffling the rail along its entire length. On opposite sides of the web C of the rail I arrange a packing, E, extending from end to end of the rail. In other words, it is a continuous fibrous packing, made of hemp, jute, or other fibrous material. For this purpose I prefer to use hemp-tow, on account of its softness, strength, and durability, saturated with vaseline or equivalent substance, having substantially the same properties, that will not render the hemp hard or rigid from use or time.

The side flanges *b* form shoulders or supports for the side packing to rest upon, which assist to retain the packing in position, and the curved side extensions *a* of the tread D afford a protecting shed for the packing from the weather. This packing or cushion is held in contact with the rails on each side, and at the same time from displacement, by means of the longitudinal plates F, extending in the same direction with the rails. These plates or strips may be made flat, as shown in Fig. 2, or corrugated, as shown in Fig. 4, and are intended to be sufficiently wide to hold the packing in its place, but not wide enough to fill the space between the base and tread of the rail. The plates are held in place by means of the spring clamping device G, sub-

stantially as shown in Figs. 1, 2, and 4 of the drawings, thus securing the packing to the sides of the rail.

At suitable intervals upon the upper surface of every support or cross-tie I arrange a cushion or pad of fibrous material saturated with vaseline or its known equivalent, surrounded by a metallic casing of the construction substantially as shown in Fig. 3 of the drawings, for keeping the packing together. This casing prevents the vaseline from being pressed out and leaving the hemp to become hard and rigid. Upon these cushions or pads rest the rails, and are secured in position to the cross-ties in any of the well-known ways—for example, by means of spikes, as shown. This saturated packing is also used in other parts of the structure of railways, which I arrange between the metallic connections—for instance, under the switches and frogs. This cushion or pad should be so arranged or interposed between the parts as to break the metallic connections and the jarring noise of the wood, so to speak, taking up the force of the blow, preventing jar and vibration, annulling, in a great measure, the rattle and noise.

The packing (hemp-tow) I prefer to saturate or moisten with vaseline—say, about one pound of vaseline to four pounds of hemp-tow. The vaseline does not evaporate by the heat of the sun, and, being free from glutinous matter, the packing does not become hard and rigid, but remains soft, and is not affected by the atmospheric changes.

The clamping-spring shown in Fig. 2 of the drawings has to be placed in position before the rail is put down. The spring shown in Fig. 4 is intended for applying the muffling material to the rails, after they are laid or down, by first placing it against the packing on one side and latching against the opposite side of the rail, substantially as shown. The opposite side of the rail is covered in the same manner by reversing the spring.

The pad shown in Fig. 3 can be made long enough to fill the space between the ties, and placed under the rails and held to place by the spring clamping devices, substantially as shown in Fig. 4 of the drawings, thus muffling the entire under surface or base of the rails. It will be observed that, by muffling the rails and other parts of the structure with a non-conducting material, I am enabled to break or deaden the rattling and jarring noise caused by the rolling-stock on the elevated railways.

I am aware that hemp and other fibrous materials have been treated with grease, tar, or pitch; but fibrous materials treated with these substances are objectionable, for the reason that they evaporate at a low degree of heat, and the packing, thereby losing its moisture, becomes hard and solid. The vaseline used in my packing is free from all glutinous matter, does not evaporate under a temperature of 500° of heat, and renders the packing material durable and soft.

What I claim as new, and desire to secure by Letters Patent, is—

1. A composition or product for muffling the vibrations and incident noise on railways, composed of hemp or other fibrous material and vaseline, substantially as described.

2. A railway-rail muffled along its entire length, on its sides and base, with a non-conducting fibrous material treated with a non-volatile substance, for the purpose hereinbefore described.

3. The combination of the spring G, the plate F, and the packing E, as shown in Fig. 2, for the purposes herein set forth.

4. The combination of the spring G, the plate F, the packing E, and the pad H I, as shown in Fig. 4, for the purposes herein set forth.

ANSON ATWOOD.

Witnesses:
HARRY W. BENTON,
S. P. JOHNSON.