

(No Model.)

T. WILLIAMSON.
TREAD FOR WHEELS.

No. 430,309.

Patented June 17, 1890.

Fig. 1.

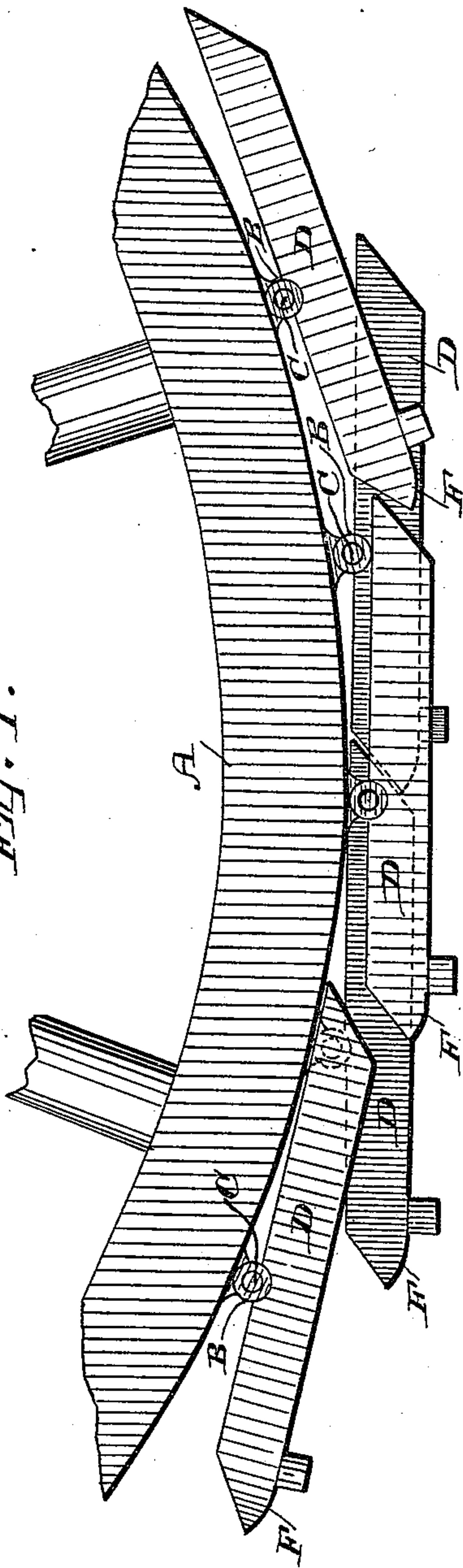


Fig. 2.

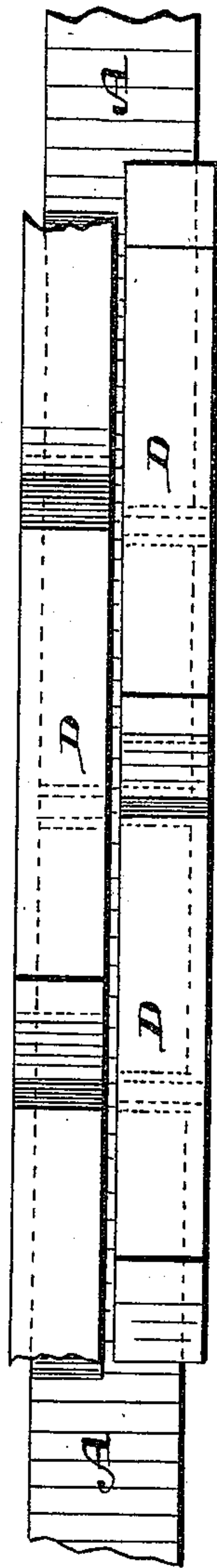
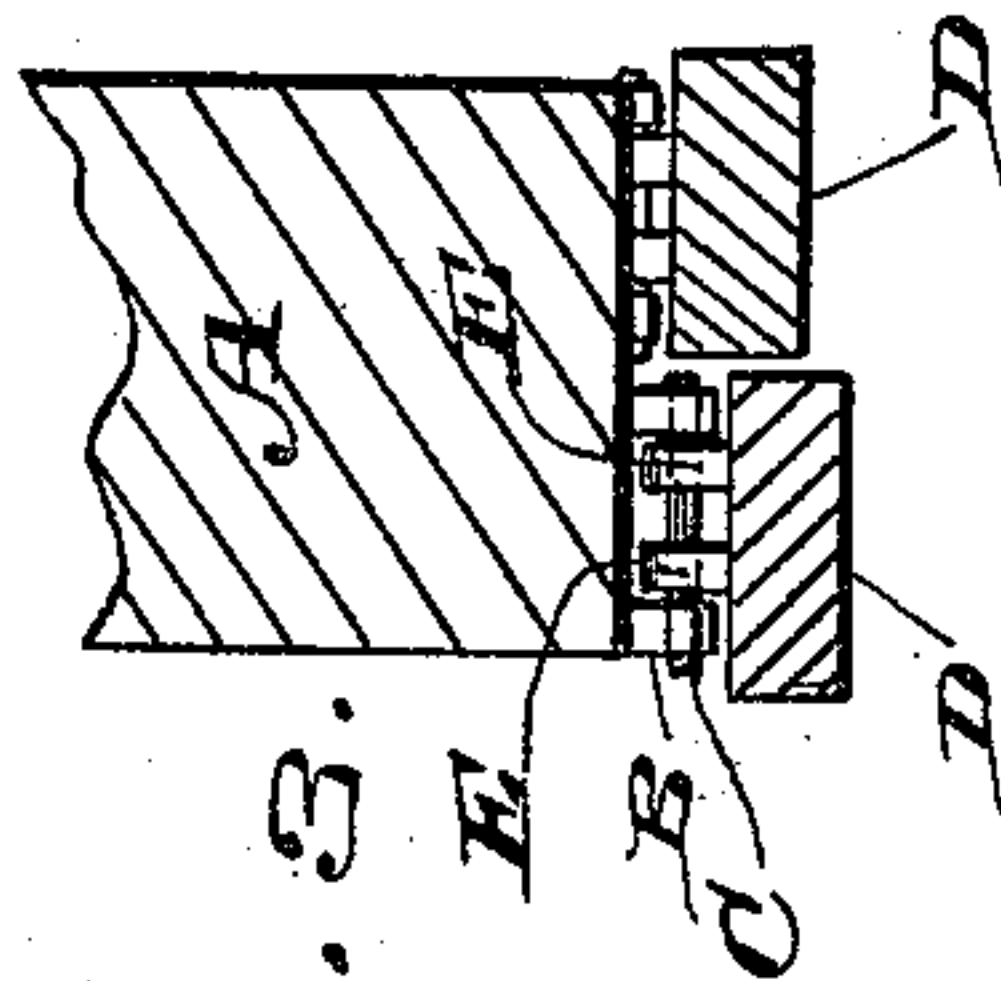


Fig. 3.



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UNITED STATES PATENT OFFICE.

THOMAS WILLIAMSON, OF COLLEGEVILLE, CALIFORNIA.

TREAD FOR WHEELS.

SPECIFICATION forming part of Letters Patent No. 430,309, dated June 17, 1890.

Application filed January 2, 1890. Serial No. 335,636. (No model.)

To all whom it may concern:

Be it known that I, THOMAS WILLIAMSON, a citizen of the United States, residing at Collegeville, San Joaquin county, State of California, have invented an Improvement in Treads for Wheels; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a device which I call a "tread for wheels." It is especially intended to give a broad support for wheels upon soft ground, said support being made flexible and yielding, so that the sections of it will take successively the position of a horizontal or flat platform beneath the convex portion of the wheel and the surface of the ground, as the successive portions of the wheel-rim are brought to that point.

It consists of a series of short platforms hinged to the wheel-rim, having the adjacent ends beveled, so that they will fit together when brought into bearing position, and having the rear ends curved upwardly to prevent digging into the earth when the wheel is moved backwardly.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a side elevation of a portion of a wheel-rim with my attachment. Fig. 2 is a plan view showing the relative arrangement of the shoes. Fig. 3 is a section showing the manner of hinging the shoes alternately upon opposite sides of the wheel-rim.

A is the rim or felly of a wheel, which may be of any suitable or desired diameter and width of tread to suit it to the work to be done.

Upon the wheel-rim are fixed the journals B for the hinge-pins C, by which the shoes are attached to it. These journals alternate upon opposite sides, so that when the shoes are in place the center of a shoe upon one side of the wheel will stand opposite the joint or meeting point between the two adjacent shoes upon the opposite side. Each of these shoes D has a corresponding journal or socket E for the hinge-pin, which is passed through these sockets and those upon the wheel-rim, so that the shoes D are hinged to the wheel-rim and have a certain amount of motion about their journal-pins. These pins are of a diameter depending upon the diameter and

curve of the wheel-rim and the length of the shoes, so that the two adjacent shoes upon which the weight of the wheel-rim may rest at any one time will stand in nearly or quite a straight line. These shoes may be made of any suitable size, depending upon the weight of the wheels and the character of the ground over which they are to travel.

For illustration, each shoe may be made about one foot in length and six inches in width, the inner edges of the shoes on the opposite sides of the wheel-rim lying close together, and as the shoes alternate, as before described, it will be manifest that when the wheel rests upon the meeting point between the ends of two of the shoes on one side it will rest upon the full length of the corresponding shoe upon the opposite side, which is intermediate between these two. Thus if the shoes are one foot by six inches there will be a support equal to two feet in length upon one side and one foot upon the other, and a breadth equal to one foot in the central portion, which will be nearly or quite flat upon the ground, while the next adjacent shoes will also have a certain amount of bearing upon the ground, so that the whole wheel will be supported and prevented from sinking into the ground. In order to cause these shoes to fit closely together at their ends, I have shown the overlapping ends of the successive adjacent shoes formed upon an incline or bevel, which may be altered to suit the diameter of the wheel to which the shoes are applied. In the present case I have shown this angle as being about forty-five degrees. It will be manifest that when the ends of two adjacent shoes are brought together by the weight of the wheel upon that portion they will overlap so as to form a continuous surface equal to the length of the shoe, and as the wheel rolls along each successive pair of shoes is brought into this position so as to produce a continuous flat surface upon which the wheel is supported. The outer faces of the shoes may be made smooth, corrugated, or provided with transverse bars or ridges, which are serviceable when the wheels are to be used for traction-engines or similar purposes.

When the engine is to be backed, it will be manifest that the acute angle of each of the

shoes will be first brought down upon the ground, and if the bottom of the shoe is made straight for the entire length this angle will tend to dig into the ground and lift up the dirt between the ends of the shoes. In order to prevent this, I have rounded up these acute angles, as shown at F, forming them into a curve or upward incline of greater or less degree, depending, as before stated, upon the diameter of the wheel, and by reason of this incline or curvature when the points of the shoes strike the ground these curved or inclined ends will press upon the ground and force the shoes into their proper relative position without any tendency to dig up the ground.

The height or diameter of the hinges, which are placed centrally upon each of the shoes, should be so proportioned to the diameter of the wheel and the length of the shoe that when the wheel rests upon the abutting or meeting ends of two successive shoes these shoes will stand nearly or quite in a straight line, the meeting ends supporting the lowest portion of the curvature of the wheel, and the hinge-pins, which are in the center of the shoes, quite supporting that portion of the wheel-rim which is about these points, thus giving three points of support for the wheel-rim, which insures the shoes remaining in their proper position. As the wheel rotates, these shoes take successively a horizontal position upon the ground, first supporting the rim of the wheel upon the central hinge on one side of the wheel, while upon the opposite side it is being supported by the three points, and then as the wheel continues to revolve the support upon the first set will be, as before described, upon the ends and centers, while upon the other side it will be transferred to the center of the next shoe upon that side, thus preserving at all times a full bearing over the wheel.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A tread or support for wheels, consisting of the flat blocks or plates having their cen-

ters hinged successively around a wheel-rim and their ends abutting, so as to form a successive and continuous flat surface of support beneath the wheel-rim, substantially as herein described. 50

2. A support or tread for wheel-rims, consisting of the flat shoes or plates having their centers hinged transversely across the wheel-rim, their ends beveled and overlapping at their point of meeting, substantially as herein described. 55

3. A support or tread for wheel-rims consisting of the shoes or plates hinged in a double row, side by side around the wheel-rim, with the ends of the successive plates meeting or overlapping, as shown, and the plates upon opposite sides of the wheel breaking joints or standing intermediate with each other, substantially as herein described. 60 65

4. A support or tread for wheel-rims, consisting of the flat shoes or plates having a central portion provided with transverse hinge sockets or journals fixed upon the wheel-rim, and pins connecting these journals, so that the shoes may oscillate about them, said pins having a height or diameter in proportion to the length of the shoe and the curvature of the rim, so that the weight of the wheel may be supported successively upon the adjacent pins and the meeting ends of the shoes, and each two adjacent shoes stand in line with each other while the wheel is passing over their points of junction, substantially as herein described. 70 75 80

5. A wheel support or tread consisting of the plates or shoes with transverse hinges, by which they are united to the wheel-rim and about which they have a limited oscillation, beveled or overlapping ends at the meeting ends of the shoes, and the upturned portion F at the heel or acute angle of each of the shoes, substantially as herein described. 85 90

In witness whereof I have hereunto set my hand.

THOMAS WILLIAMSON.

Witnesses:

S. H. NOURSE,
H. C. LEE.