(No Model.)

A. JOHNSON & P. LARSSON.

DOOR MAT.

No. 383,132. Patented May 22, 1888.

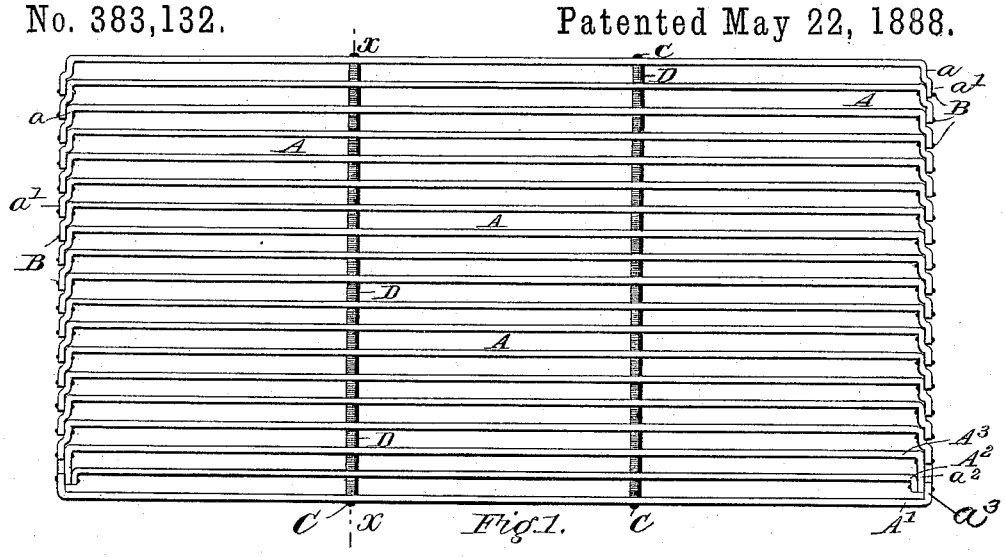


Fig. 1.

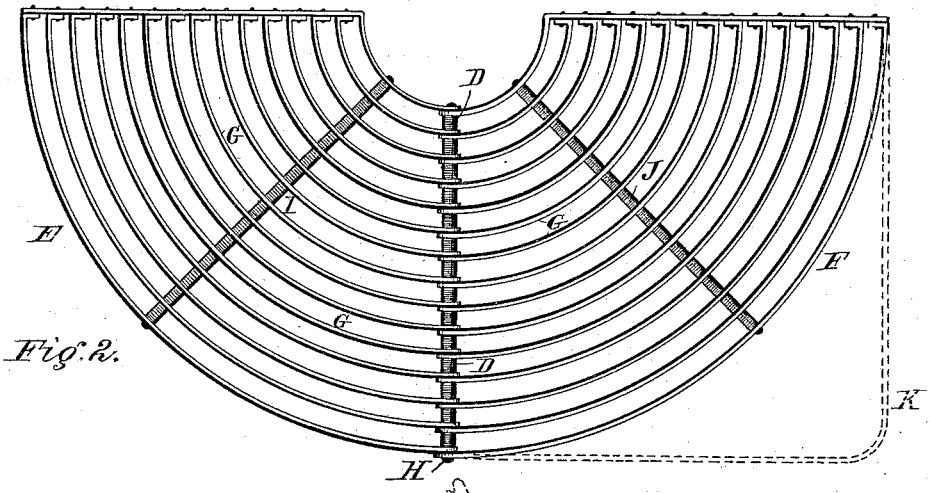


Fig. 2.

Fig. 3.

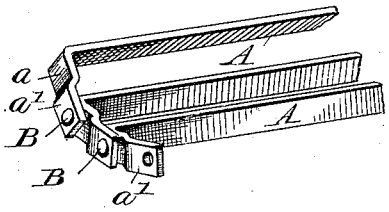


Fig. 4.

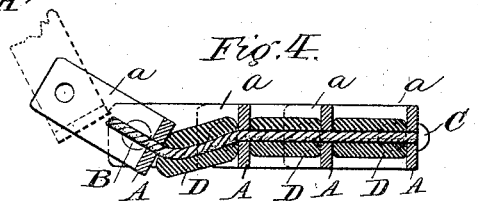
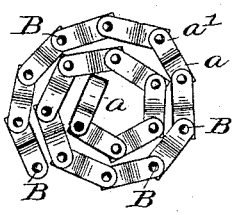


Fig. 5.



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UNITED STATES PATENT OFFICE.

AXEL JOHNSON AND PEHR LARSSON, OF CHICAGO, ILLINOIS.

DOOR-MAT.

SPECIFICATION forming part of Letters Patent No. 383,132, dated May 22, 1888.

Application filed December 20, 1887. Serial No. 258,542. (No model.)

To all whom it may concern:

Be it known that we, AXEL JOHNSON and PEHR LARSSON, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Door-Mat, of which the following is a full, clear, and exact specification.

Our invention relates to that class of door-mats in which a series of bars are arranged parallel to each other, with their upper edges in the same plane and secured together so as to present these edges to the foot to remove mud or other foreign substances therefrom.

The object of our improvements is the production of a door-mat more flexible than the solidly-riveted grating would be, and one capable of being rolled or bundled together for transportation, or for packing away when not in use.

In the drawings accompanying this specification, Figure 1 is a plan view of a rectangular-shaped mat embodying the features of our invention. Fig. 2 is a plan view of a semicircular mat capable of being folded one wing over the other to occupy less space and to facilitate cleaning from under it. Fig. 3 is an end perspective view of parts of three of the bars of the mat shown in Fig. 1 as they appear when the mat is partially rolled. Fig. 4 is a sectional view on line *x x* of Fig. 1, showing the flexible woven wire which binds the bars together and the rubber washers or sleeves which maintain them in their relative positions. Fig. 5 is an end view of the complete mat shown in Fig. 1 rolled ready for transportation or for packing away.

Like letters throughout the several views indicate similar parts.

I am aware that previous to this invention wooden mats have been constructed of bars or slats united together by flexible woven wires, the slats being held apart by rubber washers strung on the wires. It has been the custom to place a set of these wires and washers at each end of the mat, leaving a few inches of each slat to project over. These jagged ends are not only liable to be broken off at the weak point, where the wire passes through the slats, but in addition present teeth-like surfaces, which are apt to injure soft material—such as overshoes are made of—and otherwise offer objectionable features. The wooden mats so constructed, while being superior to many others, are not durable, and the sharp scraping-edges are quickly destroyed, rendering the mat useless. A metallic mat constructed on the same principles as the wooden mat has superior scraping-edges; but the objection to the jagged ends when the mat is made of wood is intensified when the mat is made of metal. The slats being much thinner, sharp knife-like ends are presented. This is not admissible. Mats have sometimes been constructed in which cross-bars were riveted fixedly to the ends. This plan is objectionable, inasmuch as it entirely destroys the elasticity so necessary to a perfect mat, and also renders it incapable of being rolled as desired. In our improved door-mat these defects are overcome and a strong and durable mat produced.

By reference to Fig. 1 it will be seen that the mat consists of parallel metallic bars A A, preferably of about one-tenth inch in thickness. These bars at their ends are turned at approximately right angles and fitted each over the ends of the corresponding bars next to them, a recessed end, *a*, being formed by giving the bent end a double bend, so that when fitted together the ends will all lie in the same straight line. A rivet, B, is inserted at the end of the bent portion *a'* and joins it to its neighbor in such a manner as to allow a free hinging motion between them.

To preserve the proper rectangular contour of the corners of the mat the last bar is reversed and hinged to the outside of the end a^2 of the third bar, A^3, which is not provided with the second outward turn, *a'*, common to the other bars, the bent end a^3 of the bar A' consequently lying in the same line with the ends *a' a'* of the other bars, a square corner being thus formed and the symmetry of the mat maintained. The second bar, A^2, is made shorter than the other bars and pivots on the same rivet common to the bars A' and A^3.

At suitable intervals, in proportion to the length of the mat, through holes drilled or punched in the bars, is passed a flexible fastening, C, preferably of woven wire and riveted or otherwise secured in the outside bars. Upon this wire are strung washers of rubber or other resilient material in such state of compression that they maintain, with the aid of the end fastenings, the bars in a proper up-

right position, at the same time permitting a certain amount of elastic play of the bars, which assists them materially to do effective work, and also prevents, by the disturbance to which the surface of the bars is subject by the springing action, the material scraped from the shoe from clinging to the bars, the bars being in fact self-cleansing.

In Fig. 4 the position of the various parts of the mat will be seen when it is rolled. The washers D are compressed by the bars between which they lie and permit the bars to change their relative position to each other, hinging each on its respective rivet.

The mat, it will be observed by reference to Fig. 5, may be rolled up into a very small compass and there secured in convenient form.

Not infrequently a mat of semicircular form is desired for a special situation. To provide for this we have designed one of the construction shown in Fig. 2, which embodies the principles of our invention as closely as they may possibly be applied to this shaped mat. The mat as here shown is made of two wings, E and F, the semicircular bars G G being in halves hinged to each other at the center by a rigid rod, H, on which are strung the usual spring washers. It will readily be seen that either wing may be laid back on the other and the mat be caused to occupy but one-half the space, while the surface on which the raised wing was lying can be cleaned and the wing then replaced and the other treated in a similar manner. For a mat of several feet in diameter this will be found to be a great convenience and to save considerable labor of handling. If a still further division of the mat is desired, the wings may each be divided upon the brace-rivets I and J. This mat is provided throughout with the usual spring-washer, and has the merit of elasticity due to such washers. The end bars in this case are rigid, the requisite flexibility and capacity for folding being obtained at the joint H or at the joints H, I, and J.

It is obvious that a rectangular shape may be given the mat shown in Fig. 2 by carrying the bars G out, as shown in dotted lines at K, and giving them an approximately right-angle turn instead of the circular shape of the bars G.

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

1. As a new article of manufacture, a door-mat formed of approximately parallel bars, the ends of each bar being integral with the bar and being bent at approximately right angles and pivoted to the ends of its neighboring bar to permit of the mat being rolled, substantially as specified.

2. A door-mat formed of approximately parallel bars, the ends of each bar being bent at approximately right angles to the main bar to form a recess for the ends of its neighboring bar to lie in, and then bent outwardly and again at right angles to the main bar to lie within the recess of the bar next before it, to which it is pivoted, for the purpose of permitting the mat to be rolled while maintaining the ends of all the bars in the same plane, substantially as described.

3. In a door-mat formed of approximately parallel bars, the ends of each bar being bent at approximately right angles and pivoted to the ends of its neighboring bar, substantially as shown, the combination of said bars with one or more flexible fastenings, C, of woven wire or analogous material by which the bars are held together, and washers of resilient material upon the said rivets, whereby the bars are maintained in their position, but permitting the mat to be rolled, substantially as specified.

4. In a door-mat formed of approximately parallel bars, the ends of each bar being bent at approximately right angles to the main bar and pivoted to the ends of its neighboring bar to permit of the mat being rolled, the combination of the bars A', A^2, and A^3, the ends of each being formed as described, and all pivoted to the same rivet, substantially as specified.

In witness whereof we hereunto subscribe our names this 17th day of December, A. D. 1887.

AXEL JOHNSON.
PEHR LARSSON.

Witnesses:
CHAS. L. BARTLETT,
C. W. DAVENPORT.