(No Model.) 2 Sheets—Sheet 1.

F. A. SAWYER.

RUBBER STEP OR CARPET.

No. 348,782. Patented Sept. 7, 1886.

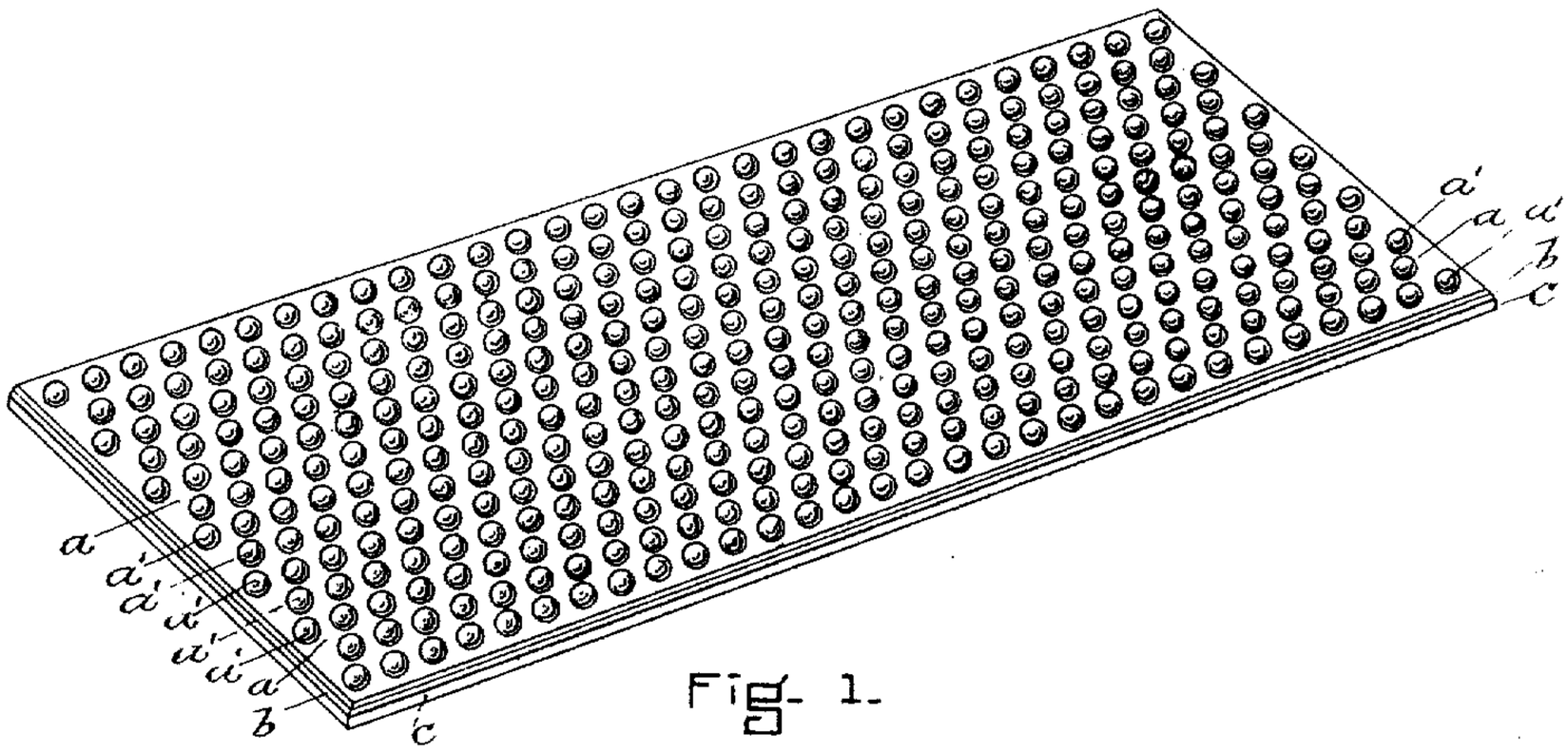

Fig. 1.

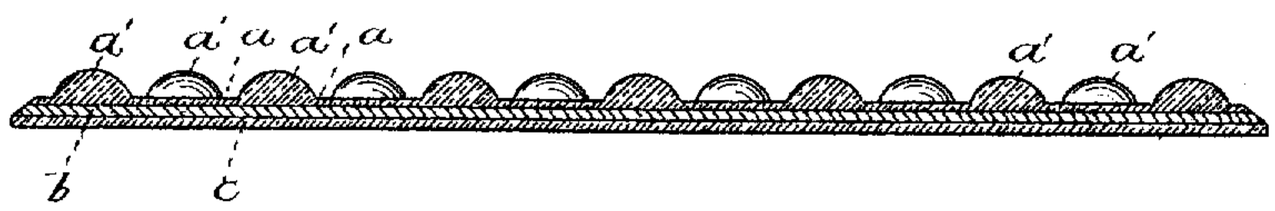

Fig. 2.

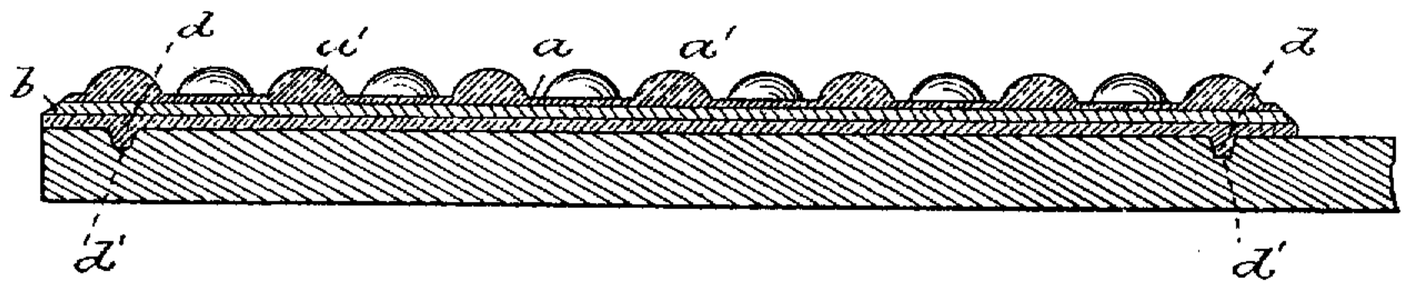

Fig. 3.

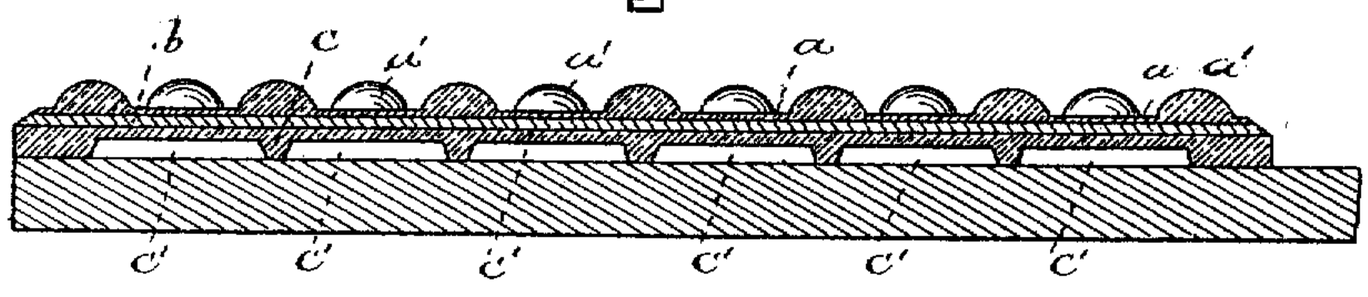

Fig. 4.

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(No Model.) 2 Sheets—Sheet 2.

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RUBBER STEP OR CARPET.

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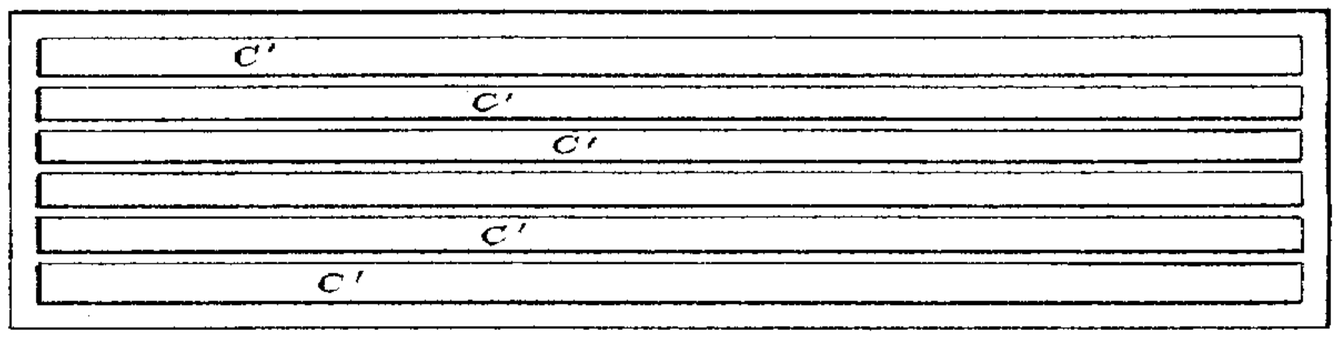

Fig. 5.

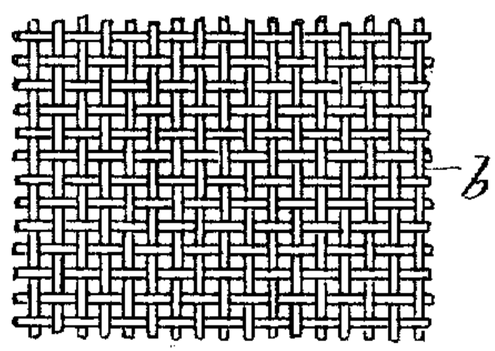

Fig. 6.

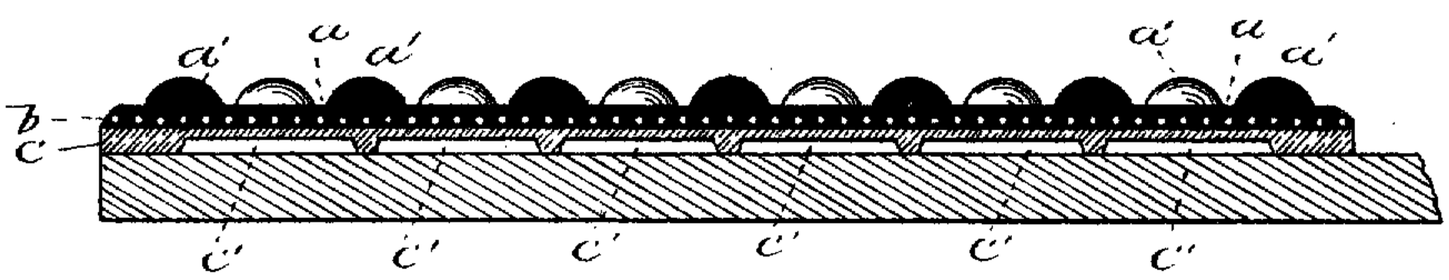

Fig. 7.

WITNESSES.

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UNITED STATES PATENT OFFICE.

FRANCIS A. SAWYER, OF BOSTON, MASSACHUSETTS.

RUBBER STEP OR CARPET.

SPECIFICATION forming part of Letters Patent No. 348,782, dated September 7, 1886.

Application filed January 2, 1886. Serial No. 187,507. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS A. SAWYER, of Boston, in the county of Suffolk and State of Massachusetts, a citizen of the United States, have invented a new and useful Improvement in Rubber Steps or Carpets, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

It is desirable in rubber steps, carpets, and other like articles made of rubber, adapted for use upon steps, either stationary or of vehicles, or for use upon floors, that the treading or upper surface of said step or carpet should be so made as to lie flatly upon the surface to which it is secured, and so remain unaffected by the influences of the weather. It is also desirable that the step or carpet be provided with means whereby it may be firmly fastened in place and held so fastened. It is also essential that these elements be combined in the step or carpet in a cheap and durable form. The wearing-surface of the step or carpet must be a resilient surface. For resiliency it is necessary to use a fair grade of rubber stock, and consequently it is desirable to use as little of this stock in the manufacture of the step or carpet as possible; consequently this better grade of stock is used for the upper surface of the step or carpet; and I have ascertained that by forming this upper surface with projections, preferably in the form of short isolated knobs arranged closely together, the stock is best disposed to resist wear, and at the same time provides the best form of wearing-surface and requires the least amount of the best grade of stock.

To give the steps stability, I use below the surfacing above described a layer of canvas, duck, gunny-cloth, or other suitable fibrous material, and to the under surface of this section there is secured a lower section of cheap rubber stock, or stock containing a considerable amount of fiber, which may be continuous in thickness or may be paneled, as hereinafter described.

Referring to the drawings, Figure 1 is a view in perspective of a car-step having the features of my invention. Fig. 2 is a cross-section of the step. Fig. 3 is a cross-section of the step, representing a modification and as applied to a car-step. Fig. 4 is a cross-section illustrating another modification. Fig. 5 is a view inverted of the step shown in Fig. 4. Fig. 6 illustrates in plan a material used in the manufacture of the step. Fig. 7 is a vertical section of a step having said material employed or used in its construction.

The continuous upper surface, *a*, of the step is made up of a very thin layer or film of rubber stock of good quality, from which rise the projections, knobs, or protuberances *a'*, of stock of similar quality. These protuberances form the wearing-surface of the tread or carpet. *b* is the layer of canvas, duck, gunny-cloth, or other fibrous material, upon which the upper surface is vulcanized and united by pressure. To the under surface of this fibrous section is secured by pressure and vulcanization the base or lower section, *c*, which is of rubber stock containing considerable fiber and much less resilient and less expensive than the surfacing of the tread or carpet. It may be of uniform thickness throughout; but for most uses it will be desirable to provide it with panels *c'*, as by so doing a saving in stock is obtained and the resiliency of the mat or carpet increased. When used for a car-step or any other exposed step, it will be desirable to form upon its under surface, slightly removed from the edge, a V-shaped or rounded rib or projection, *d*, which is adapted to enter a V-shaped or rounded recess, *d'*, of corresponding size in the step-support, and act as a joint in preventing water, dirt, &c., from getting under the step.

It will be seen that a step or carpet made in this way has all its parts arranged to do special service and at the same time provide a cheap or economical construction. The principal surfacing of good stock arranged in the form of projections provides the best form of wearing-surface. The canvas, duck, or other fibrous material immediately beneath it gives the step strength and provides means whereby it can be fastened firmly in place. The lower section of cheap vulcanizable stock gives sufficient thickness to the step and adds to its stability and protects the intermediate canvas section from moisture and other destroying influences. The intermediate fibrous

section may have a "friction-surface," or it may be of coarsely or loosely woven material, in which case the rubber will be by pressure thoroughly incorporated with its threads and fiber.

The step or carpet may be formed or shaped in molds or by rolling.

It will be seen that by providing the step with the panels e' not only is less stock employed, but the resiliency of the step is increased, as the wearing projections are not then supported by a continuous support, so that a yielding effect is obtained, not only due to the resiliency of the projections, but also to the construction of the step.

Having thus fully described my invention, I I claim and desire to secure by Letters Patent of the United States—

1. In rubber steps, carpets, and other like rubber goods, the combination of a surfacing of resilient stock arranged in the form of a thin film or body and projections, as described, an intermediate fibrous section from which said projections extend, and covered between the projections by the thin film or surfacing of rubber, and the lower or base section of rubber or fibrous rubber stock, all substantially as described.

2. As an improved article of manufacture, the rubber step or step material, carpeting, or other like rubber goods, comprising the surfacing of resilient rubber stock arranged in the form of projections, the intermediate fibrous section from which the projections extend, and covered between the projections with a thin film or surfacing of rubber, and the base or lower section of vulcanizable fibrous stock, all united by vulcanization and pressure, substantially as described.

3. The combination, in a step, step material, or carpeting, of surfacing of resilient rubber stock arranged in the form of projections, the fibrous central or intermediate section, and a lower section of vulcanizable fibrous stock having panels in its under surface, all substantially as described.

4. The step or step material having a resilient upper surface and a downward-projecting narrow V-shaped rib upon the under surface, near the outer edge thereof, substantially as described.

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Witnesses:
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