No. 617,625. Patented Jan. 10, 1899.

A. S. ALLEN.

MAT.

(Application filed Sept. 29, 1898.)

(No Model.)

Fig: 1.

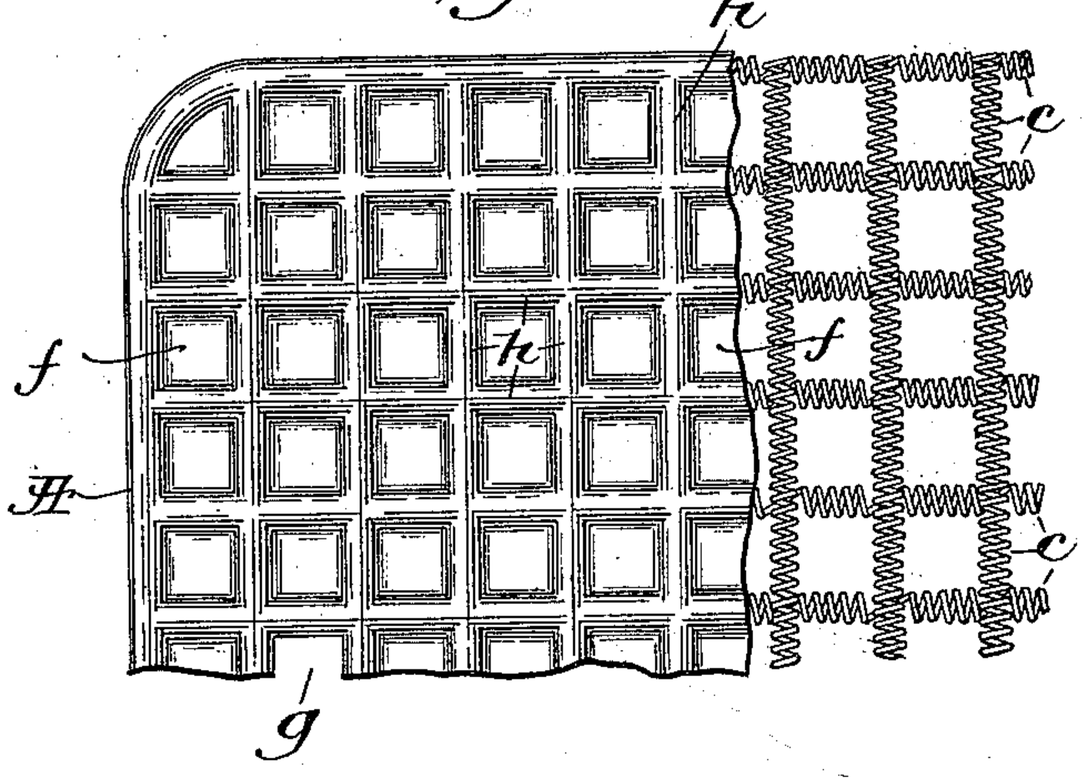


Fig: 2.

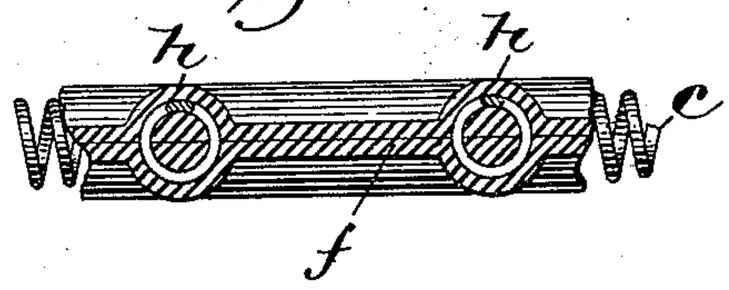


Fig: 3.

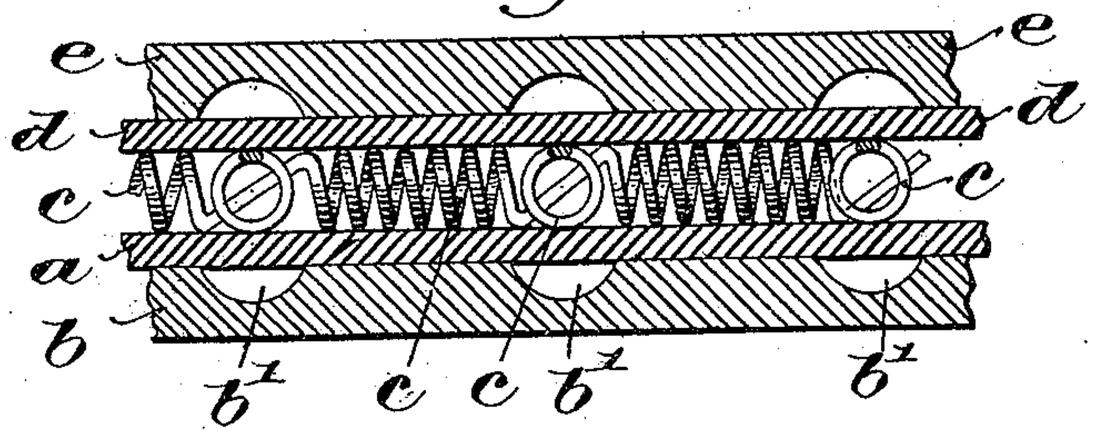


Fig: 5.

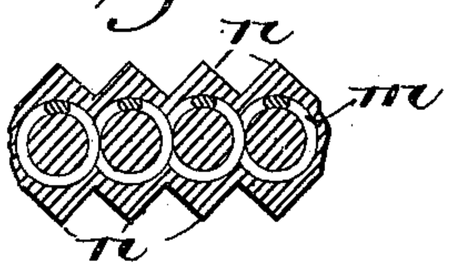
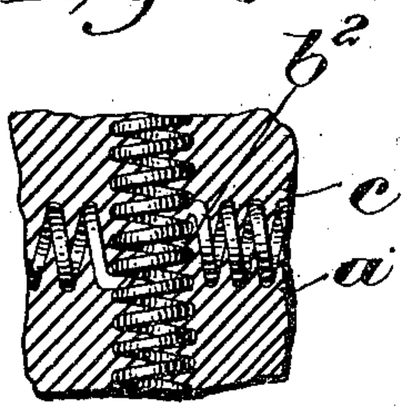


Fig: 4.



Witnesses,
Edward F. Allen.

James M. Urquhart.

Inventor;
Arthur S. Allen,
by Crosby Gregory
Atty's.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ARTHUR S. ALLEN, OF BOSTON, MASSACHUSETTS.

MAT.

SPECIFICATION forming part of Letters Patent No. 617,625, dated January 10, 1899.

Application filed September 29, 1898. Serial No. 692,221. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR S. ALLEN, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Mats, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

Door-mats are now commonly made from india-rubber of the proper thickness punched through in designs and also of wire. The indoor rubber mats are very expensive and soon rot and wear out. Wire mats are of various forms and construction and in use they soon rust and get out of shape. Wire mats are laid chiefly outside a door, because they are so hard as to scratch and damage a floor, and they are very heavy and cumbersome to handle.

I have provided a mat combining the qualities of both of the mats referred to without any of their disadvantages.

My novel mat is composed of wire bent in a form to make it flexible and elastic, and the wire so bent is embedded in a compound of india-rubber or other equivalent elastic vulcanizable compound or substance. In practice I prefer to twist and turn the wires used to form of them spring-coils, and I lay the said coils in such position one with relation to another that they will extend substantially throughout the body of the mat, said coils lying more or less close together, as may be desired. Preferably the coils will be laid to cross one the other, and thereafter the india-rubber compound, preferably in sheet form, will be applied to one or both sides of said coils, and by pressure and heat said compound is made to incase or embed or substantially conceal the spring-coils.

If it is desired to have the mat show holes from bottom to top, some of the compound used to embed and contain the spring-coils may be punched through between the adjacent spring-coils.

It will be understood that my invention is not limited to the particular shape in which the wire is bent or coiled to impart to it elasticity or enable it to have a springy action under the foot. The elastic compound may be applied in sheet form or in a more or less plastic condition to one or both sides of the spring-coils, and the spring-coils may extend or cross each other in any desired direction. The compound having been applied to the coils, it is subjected to pressure and heat, the compound being more or less cured, and it stands in the turns of the spring-coils, bracing them up.

A mat such as herein provided for will be soft to the foot, thus resembling the india-rubber mat. It will be noiseless and flexible. The springs will be strengthened by the compound bracing them up, and the springs will yield to any heavy pressure in a direction transversely to the length of the spring-coils. The rubber adds great strength and durability to the mat, and the wire prevents the rubber from being broken or cracked.

Figure 1 in plan view shows part of a mat embodying my invention, some of the compound being omitted to show one arrangement of coils. Fig. 2 is a detail in section showing the covered coils. Fig. 3 shows the parts assembled in a mold ready to be compressed together preparatory to being cured. Fig. 4 is an enlarged detail showing the crossing-point of two coils and some of the compound inclosing the same, and Fig. 5 shows a modified mat.

My improved mat A may be made as follows: I may take a sheet of india-rubber or other elastic or vulcanized compound *a*, lay it on a plate *b*, forming part of a mold, said plate having, it may be, a series of grooves *b'*, one for each coil or piece of wire *c*. The coils may be laid on the compound *a* above the grooves *b'*, as in Fig. 3. Where the coils cross one another, one of the coils may be slightly stretched (see Fig. 4) to leave a space b^2 for the reception of the other coil. A second sheet of compound *d* may be laid on the coils, and thereafter a plate or mold *e*, having, preferably, a series of grooves, one for each coil, said grooves being arranged according to the direction in which said coils may run. This mold may be made to descend on the compound and coils and force the sheet material or compound into and so as to fill the interstices between the coils, so as to embed the coils therein and unite the two sheets, and with heat and pressure the said compound may be cured more or less, leaving the mat shown in Figs. 1 and 2.

The upper side of the mat shows a series of depressions *f* between the adjacent coils. The size of these depressions and their shape may be varied according to different arrangements of the spring-coils or the closeness with which they are laid together. The depressions will contain dirt or dust wiped from the bottoms of shoes. The mat shown may be used either side up. If desired, the mold may be so made as to leave one or both sides of the mat substantially smooth and even. If desired, the depressions *f* may be punched through from top to bottom, as at *g*, Fig. 1, leaving entirely open free spaces.

The part *h* of the compound covering the spring-coils constitutes a series of corrugations or projections, which greatly aid in detaching mud from a boot or shoe, and it will be understood that this invention is not limited to the exact shape of the face of the mat, as the rubber may be differently shaped or corrugated or roughened by the action of the plates *e* and *a* of the mold, thereby leaving a series of projections of greater or less size or closeness. For instance, in Fig. 5 I have shown a series of spring-coils *m* laid side by side, somewhat interlocked, and these coils are embedded in the compound, and the compound is shown as being molded to present a series of ridges *n*.

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

1. A door-mat composed of wire having twists or turns to enable it to yield, said wire being embedded in elastic material, substantially as described.

2. A door-mat composed of a series of metallic spring-coils embedded in elastic material, substantially as described.

3. A door-mat composed of a series of spring-coils crossing each other and embedded in elastic material, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ARTHUR S. ALLEN.

Witnesses:

GEO. W. GREGORY,

EMMA J. BENNETT.