

(Model.)

R. R. PEASE & H. ROBERTS.  
WOVEN WIRE MAT.

No. 407,760.

Patented July 23, 1889.

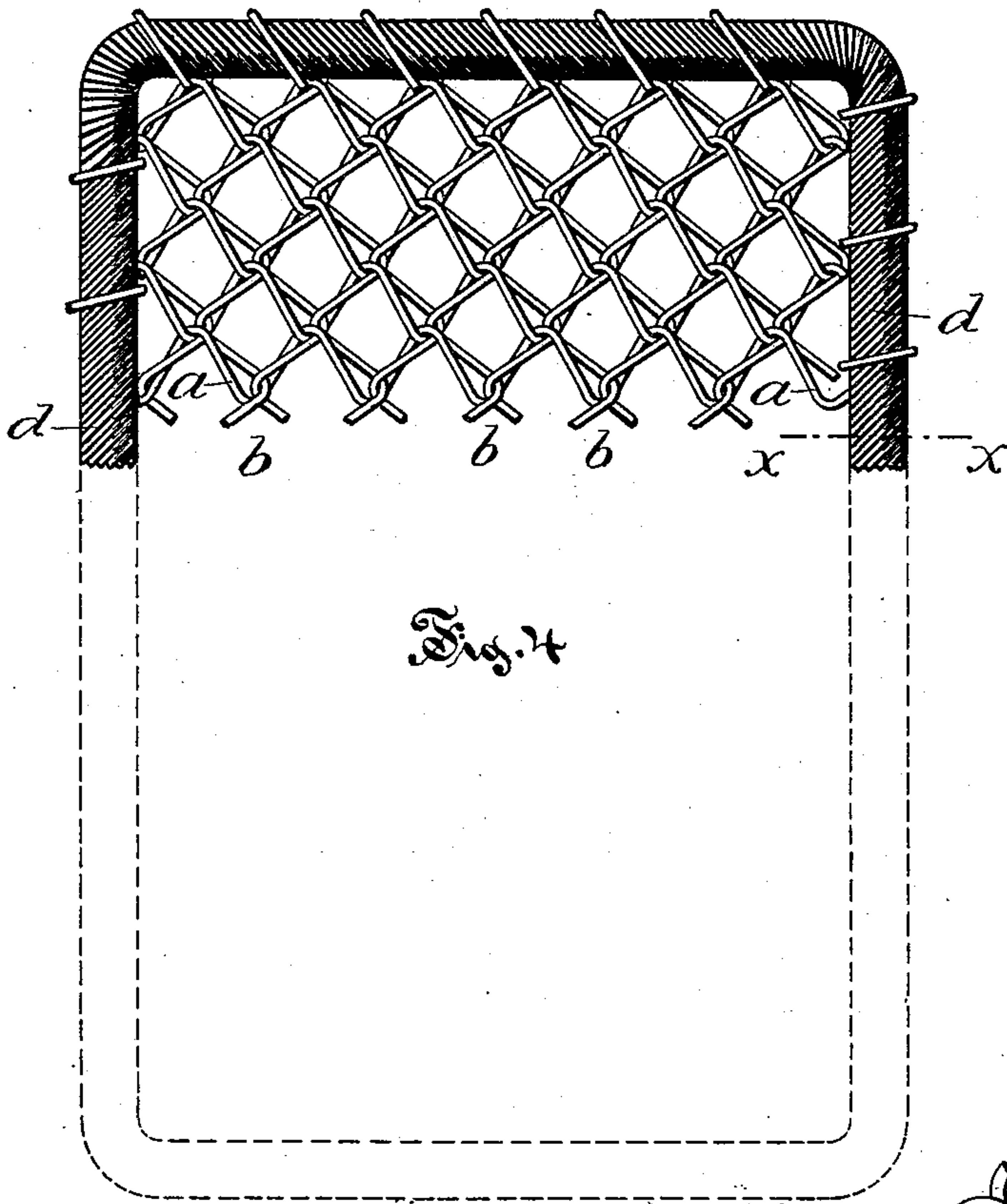


Fig. 4

Fig. 5

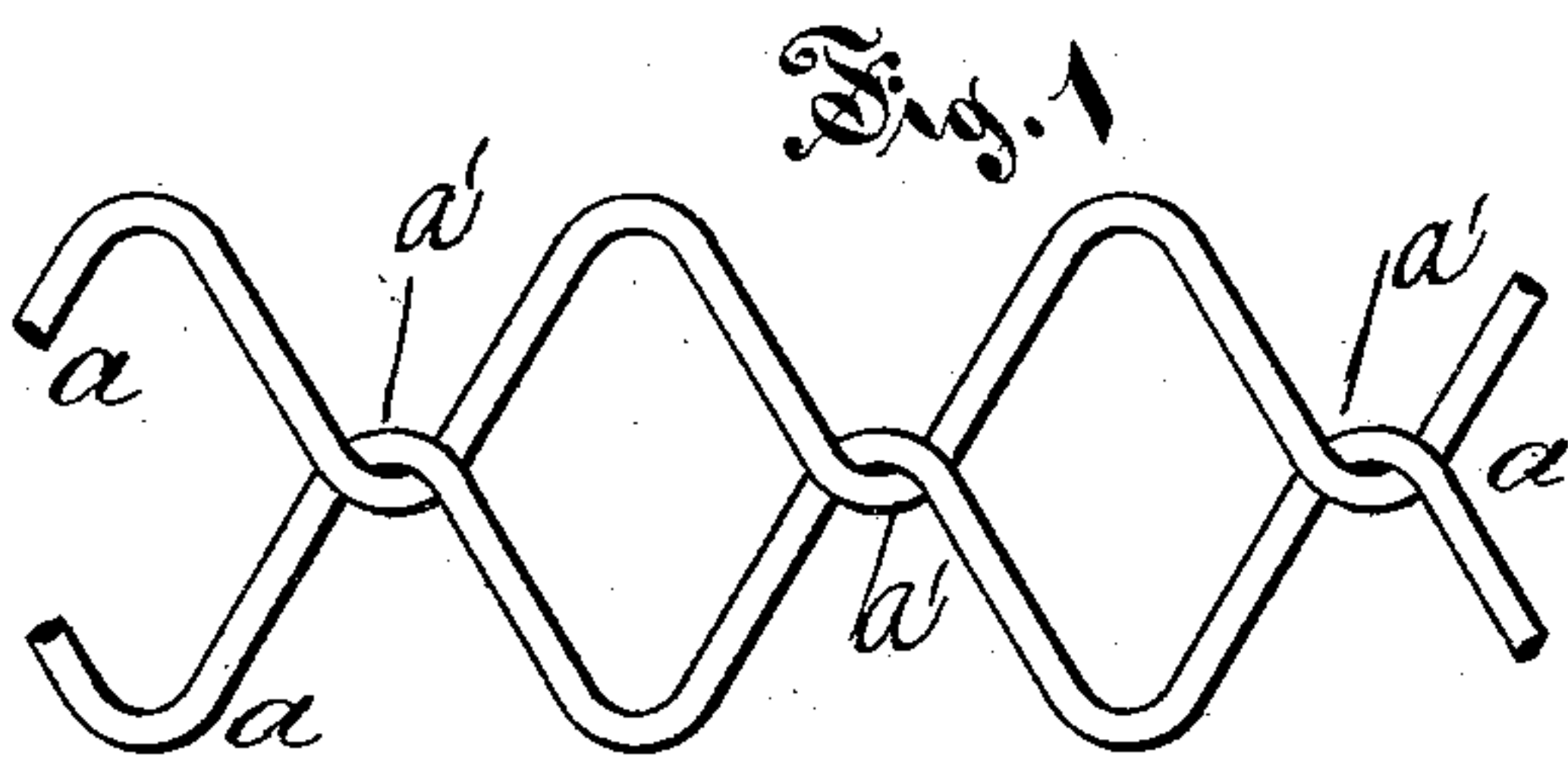


Fig. 1

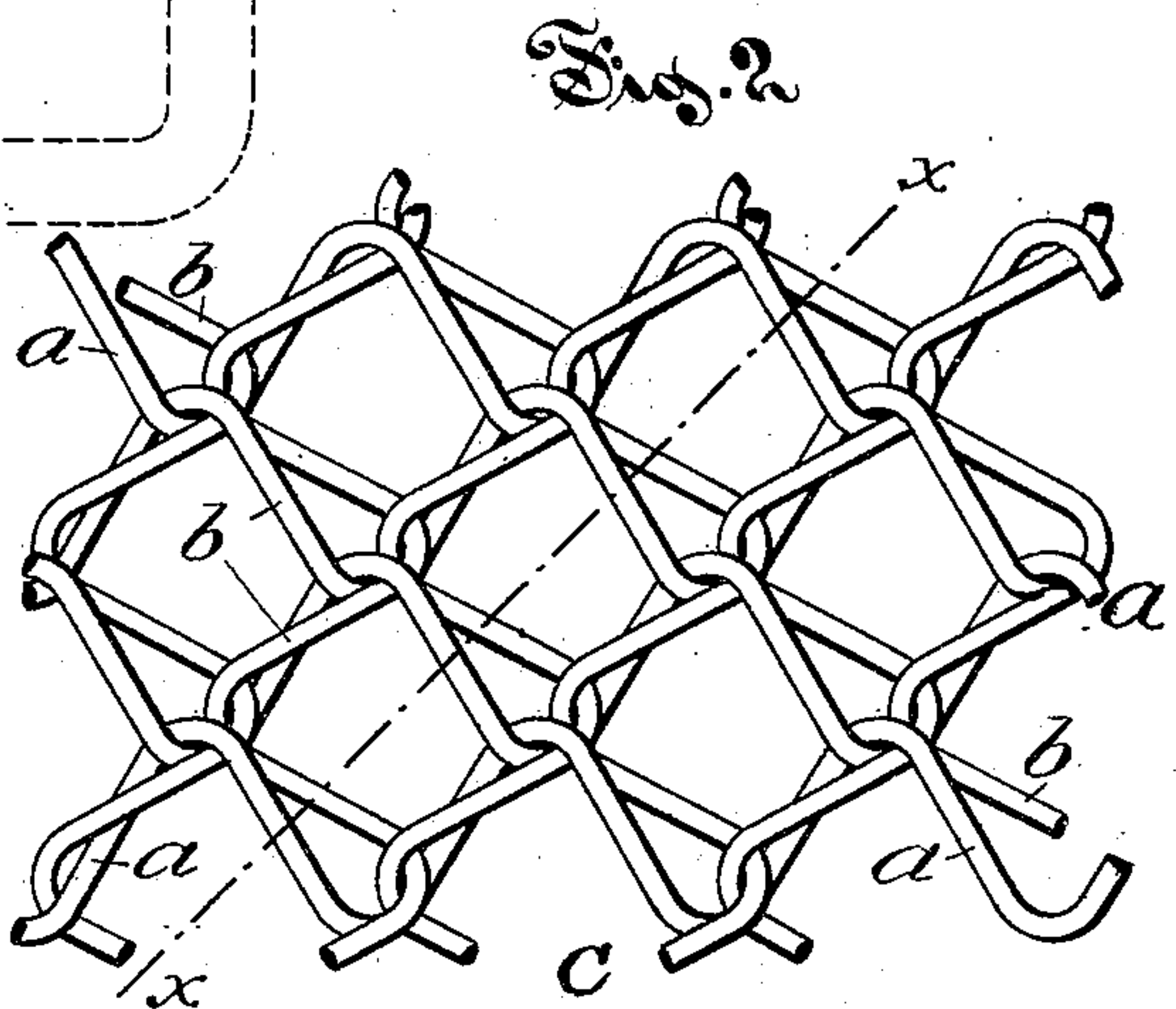


Fig. 2

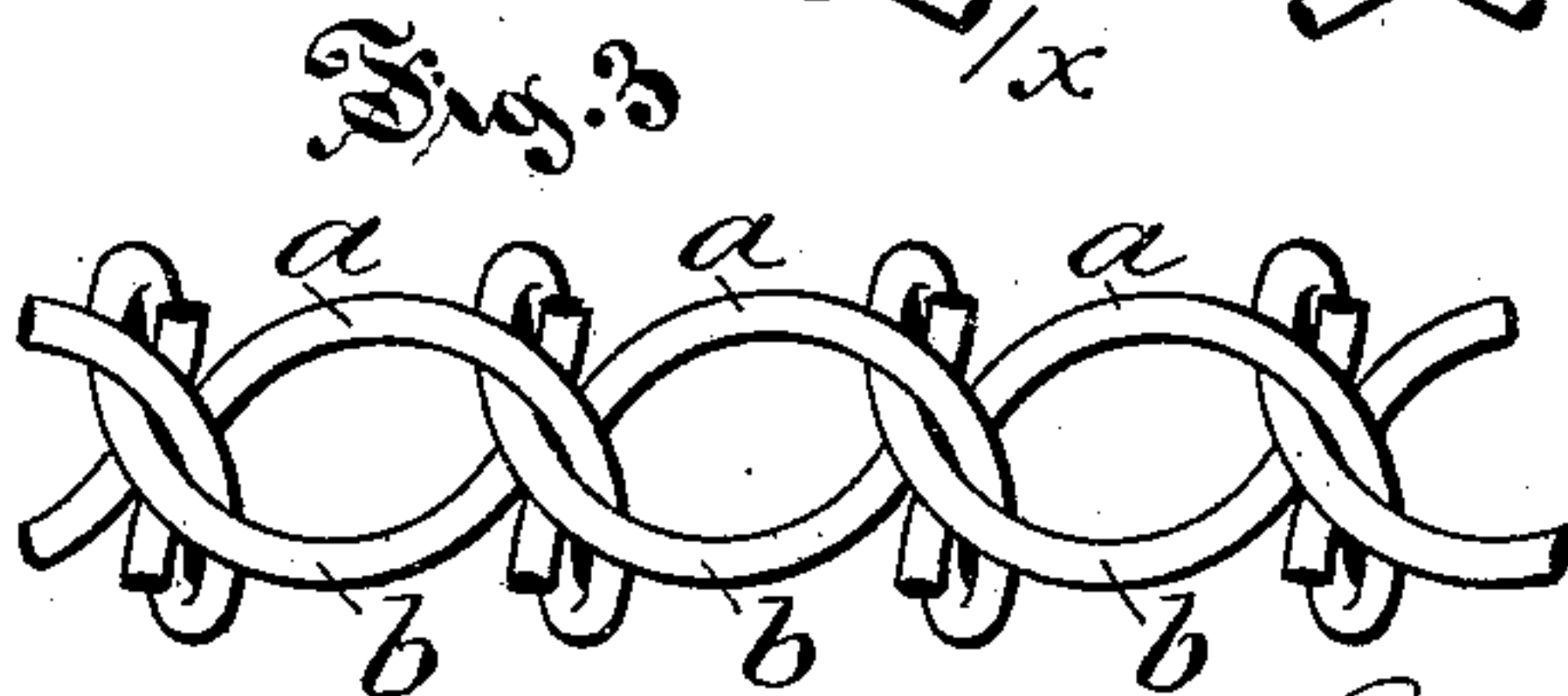


Fig. 3

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# UNITED STATES PATENT OFFICE.

ROBERT R. PEASE AND HENRY ROBERTS, OF HARTFORD, CONNECTICUT.

## WOVEN-WIRE MAT.

SPECIFICATION forming part of Letters Patent No. 407,760, dated July 23, 1889.

Application filed February 7, 1887. Serial No. 226,757. (Model.)

*To all whom it may concern:*

Be it known that we, ROBERT R. PEASE and HENRY ROBERTS, both of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Woven-Wire Mats and Scrapers, of which the following is a full, clear, and exact description, whereby any one skilled in the art can make and use the same.

Our improvement relates to a fabric composed of a series of coiled wires, known in the art as "woven-wire fabrics;" and the object of our improvement is to produce a fabric of this class that shall be particularly adapted for use as a door-mat and scraper.

To this end our improvement consists in a woven-wire fabric composed of a series of primary coils, in combination with a series of bracing-coils interwoven transversely of the primary fabric, so that the top and bottom surfaces are formed mainly by parts of each turn of the bracing-coils, that lie, therefore, in a position that is hereinafter referred to as being outside of the successive primary coils, with the turns of each bracing-coil passing alternately over and under the successive primary coils; and it further consists in details of the several parts of the device, as more particularly hereinafter described, and pointed out in the claims.

Referring to the drawings, Figure 1 is a top or plan view of a section or short length of a series of so-called "primary coils of wire." Fig. 2 is a like view of this section of the fabric with the locking or bracing strands interwoven. Fig. 3 is a detail view, in section, at right angles to the plane of the fabric and diagonal of the structure, taken on plane denoted by line  $xx$  of Fig. 2. Fig. 4 is a view of part of a mat and scraper with a shape-defining frame. Fig. 5 is a view in cross-section of the frame.

In the accompanying drawings, the letter  $a$  denotes each primary coil, of which there may be any convenient number, that are made of wire in the form of an elongated spiral in a manner and by the machine common in the art of making woven-wire fabrics. These primary coils interlock at certain points along their length, as shown at  $a'$  in Fig. 1 of the drawings. After having in this manner woven

together any desired number of primary coils of a length depending upon the contemplated size of the finished fabric the primary coils are locked together by a series of bracing-coils that are woven directly into and transversely of the primary coils.

The series of locking-coils  $b$  are woven crosswise of the primary fabric, and, owing to the locking together of these bracing-coils with the primary system of coils, the whole structure is made extremely rigid and inelastic to a degree that causes each coil to exert a strong resistance against crushing over or upsetting, as the greater portions of the coils that lie next the upper and lower surface of the fabric are braced at their points of contact by lying for a part of their length alongside of the turns or coils of the primary fabric in crossing the latter, as shown in Fig. 3 of the drawings. The locking-coils  $b$  are not only interlocked or woven through and transversely of the primary coils, but they interlock also with each other, so that, in fact, two systems of what may be called a "simple weave" are formed together and interwoven transversely of each other, each system of primary coils  $a$  and bracing-coils  $b$  being, however, formed so that they cannot be moved depthwise of each other. In the view shown in Fig. 2 the primary coils  $a$  extend from right to left across the figure, while the locking-coils  $b$  extend crosswise of the fabric—that is, up and down—as shown in Fig. 2. These locking-coils are made with a greater number of turns to the foot or unit of length than are the primary coils, the difference in distance between any two of the adjacent turns of the coil being, however, so slight that the difference does not interfere with the rapid weaving of the locking-coils into the previously-woven series of fabric made up of the primary coils. Each locking-coil in its course across the primary fabric passes alternately over and under the successive coils in said primary fabric, and for this reason binds the two systems of coils together depthwise.

The edge of the fabric may be finished in any desirable manner; but it is preferable to use a shape-defining frame, as  $d$ , and the latter may be composed of a number of coils of wire woven together, so as to make up a sub-



stantially solid coil, as shown in Fig. 4 of the drawings, and such a frame is of advantage, as it gives to the shape-defining frame a flexibility that is desirable, and is a feature of the fabric as a whole.

It is possible to use such a flexible frame (although one of rigid material may be used, if preferred) with our improved fabric, owing to the fact that the fabric is of such a peculiarly rigid nature that it does not have to be held extended or stretched between the opposite sides of a rigid frame in order to keep the coils in the proper upright position that is required to enable the fabric to be used as a scraper and mat, as is the case in some prior mats of wire fabric.

We do not limit ourselves to a fabric of this class with the primary coils formed of a single wire or with the secondary coils formed of a single wire, as it is possible to use a plural number in forming each strand; but we prefer to make the fabric of the systems of one primary and one locking strand, and of wire of the gage substantially as shown in Figs. 1 to 3 of the drawings.

We do not herein claim the method of making the within-described fabric, as that forms the subject-matter of and is claimed in our application for a patent therefor that was filed February 7, 1887, Serial No. 226,758.

In a fabric of woven wire made prior to our invention a series of simple primary coils is first formed and afterward a series of similar coils has been woven diagonally across

or transversely across the first and interlocking with each other, but in such a manner that the finished fabric was not at all braced by reason of this peculiar interweaving of the coils, but a fabric formed that might be appropriately termed one having two plies or two series being united depthwise of each other, and for that reason differing substantially from our within-described improvement. In another wire fabric formed of a series of primary coils and of crosswise coils they are not so interwoven as to deprive the structure of lengthwise elasticity, nor to make it sufficiently rigid to answer the purposes of our structure without additional bracing.

We claim as our improvement—

In combination, in an interwoven wire fabric, a series of interlocking primary coils *a*, a series of transverse and interlocking bracing-coils *b*, the turns of the latter coils lying outside of the successive primary coils *a*, whereby the several coils of the primary and secondary fabrics are held against depthwise movement on each other, and a flexible shape-defining frame attached to the edge of the fabric and extending around it, all substantially as described, and for the purpose specified.

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