

(No Model.)

2 Sheets—Sheet 1.

L. F. RUTH.
MATTRESS.

No. 585,834.

Patented July 6, 1897.

FIG. 1.

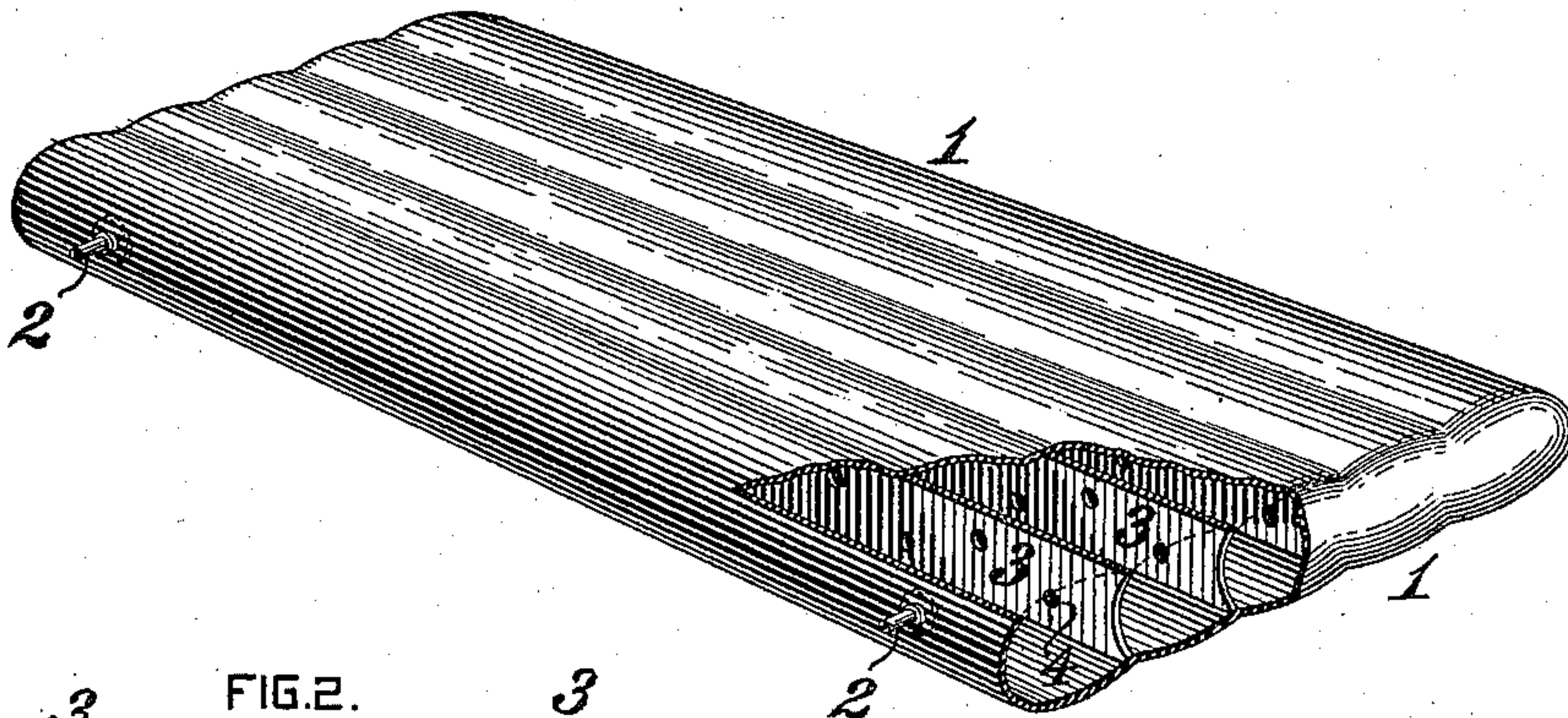


FIG. 2.

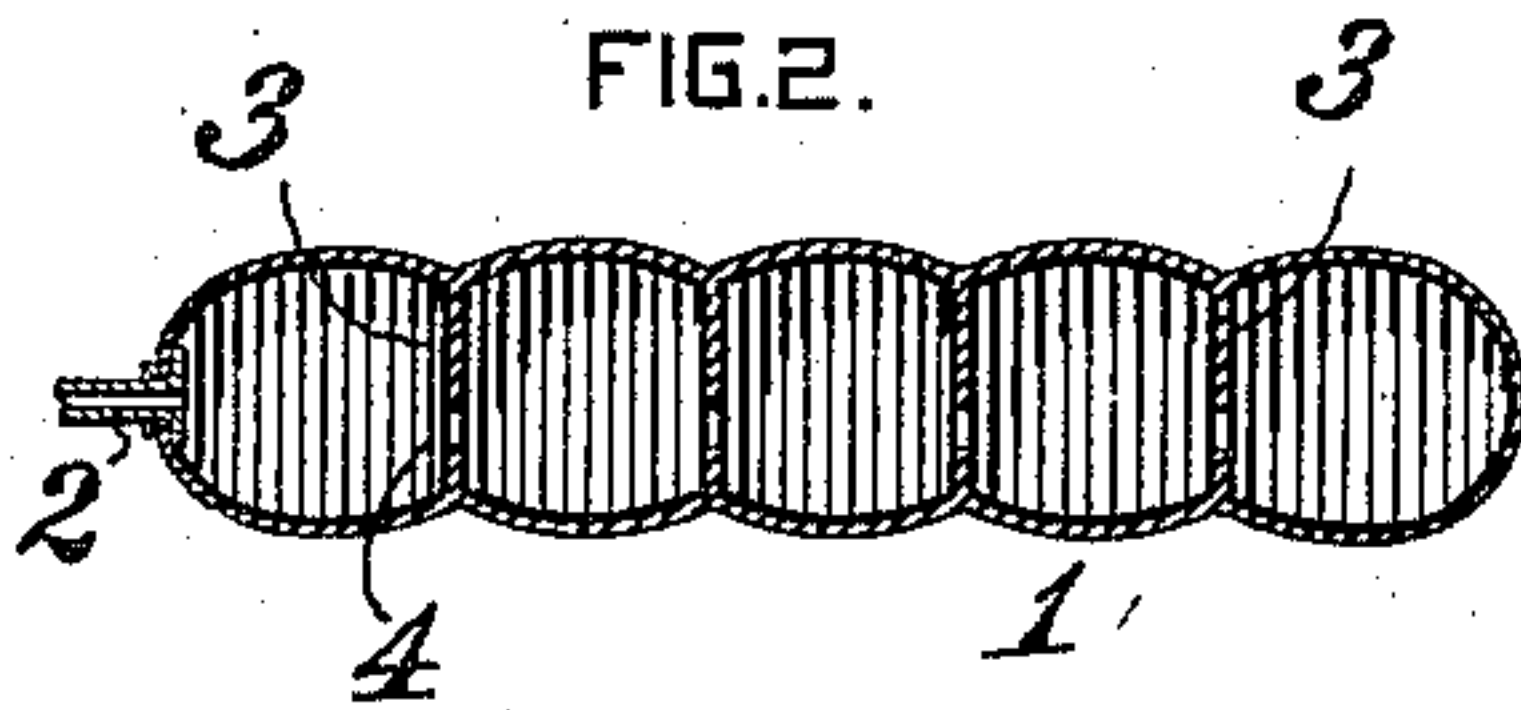


FIG. 5.

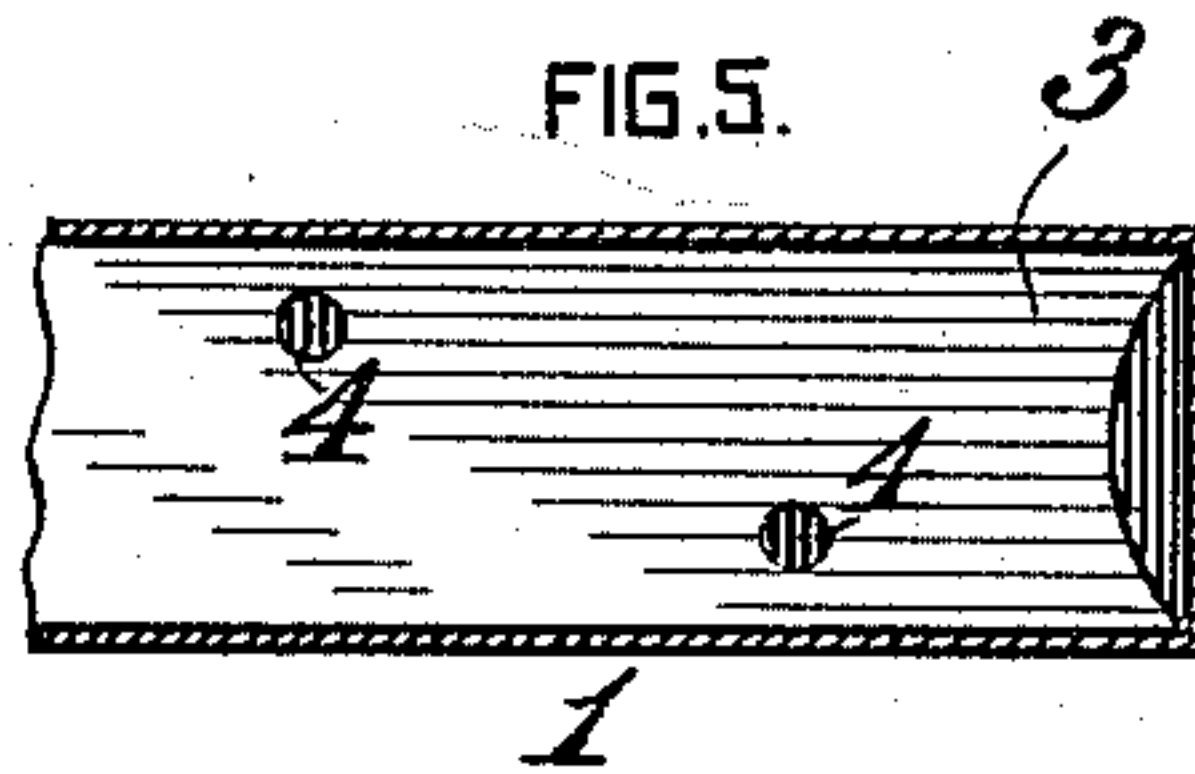


FIG. 3.

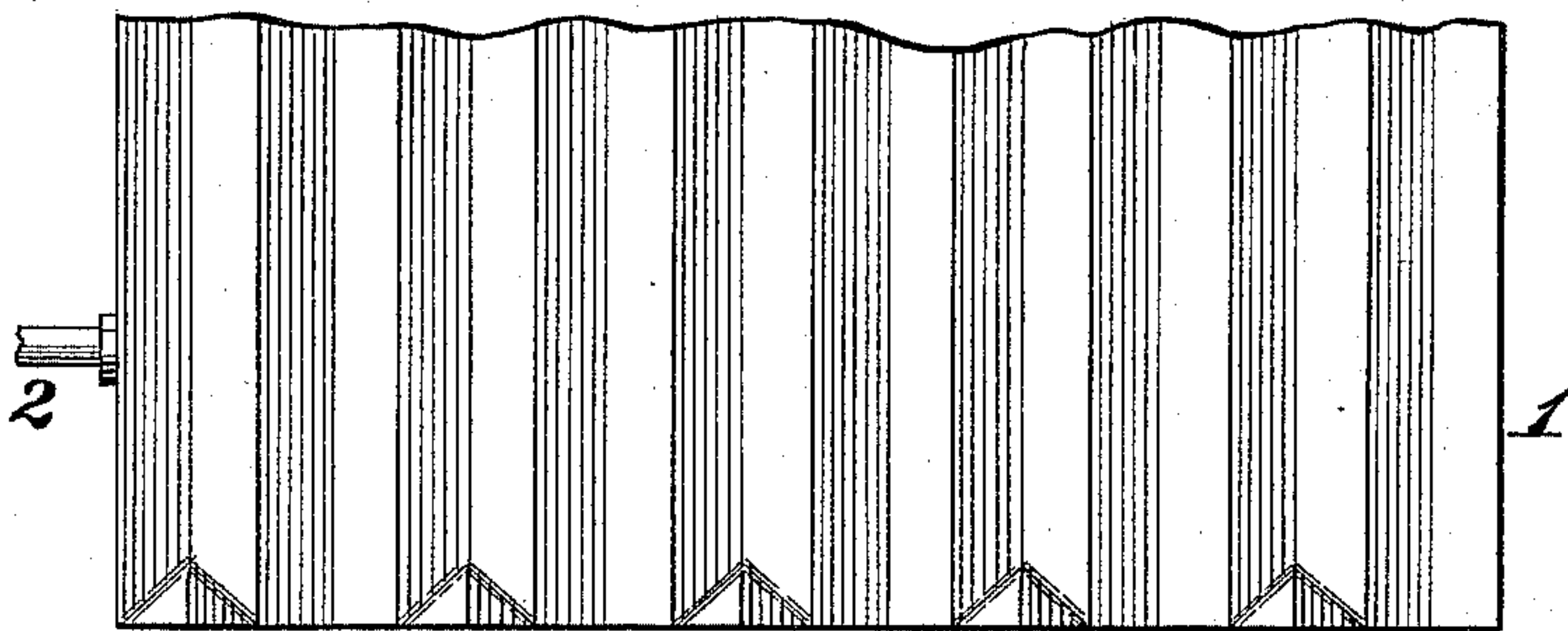


FIG. 4.

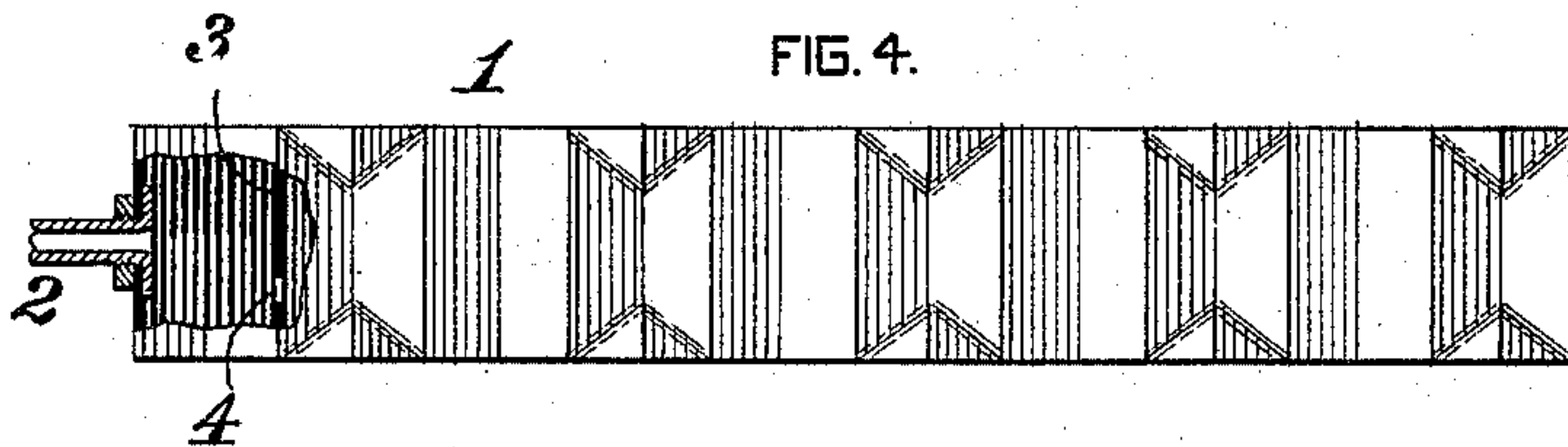


FIG. 6.



WITNESSES:

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INVENTOR,

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Att'y.

(No Model.)

2 Sheets—Sheet 2.

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MATTRESS.

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FIG. 7.

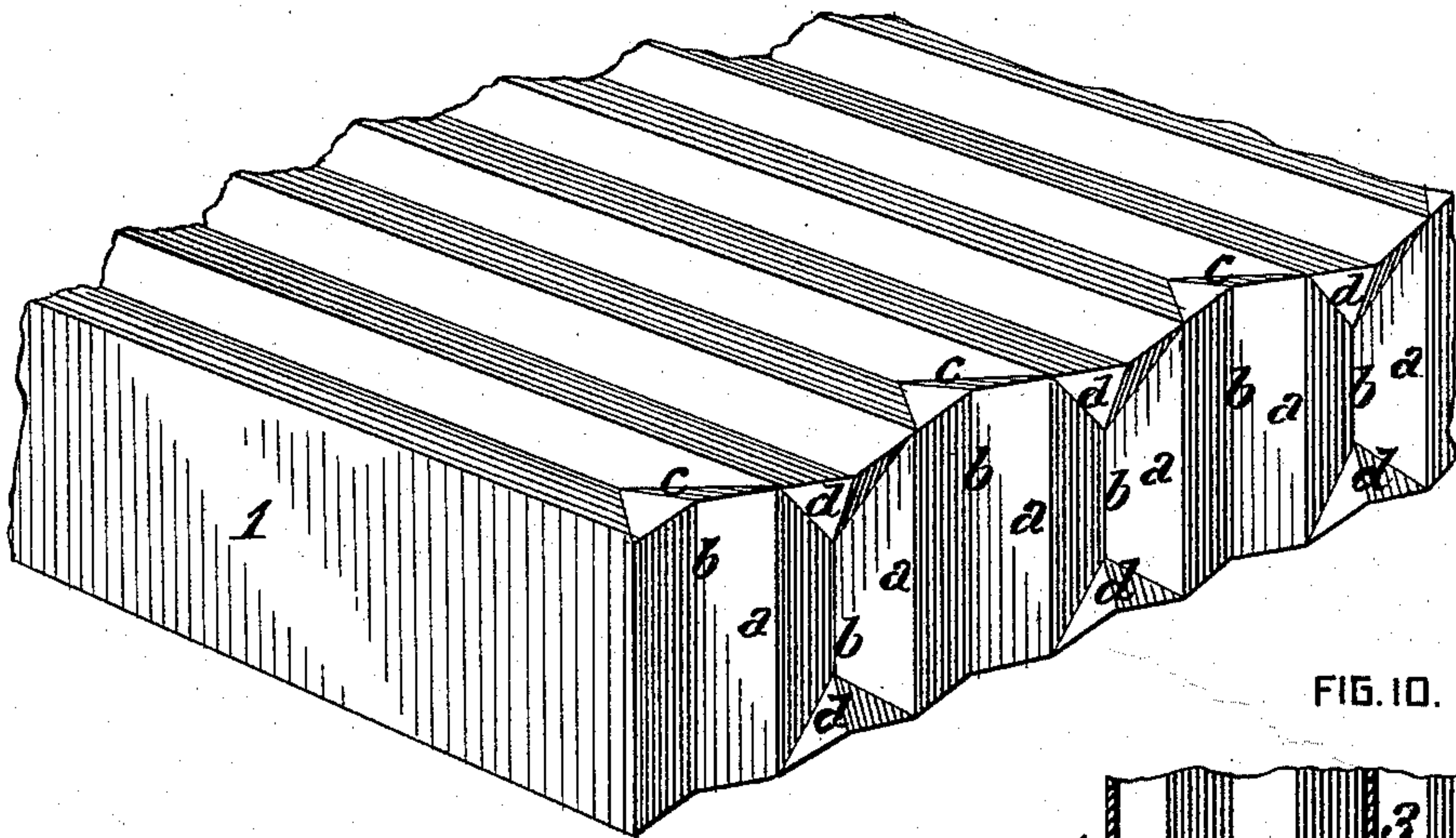


FIG. 10.

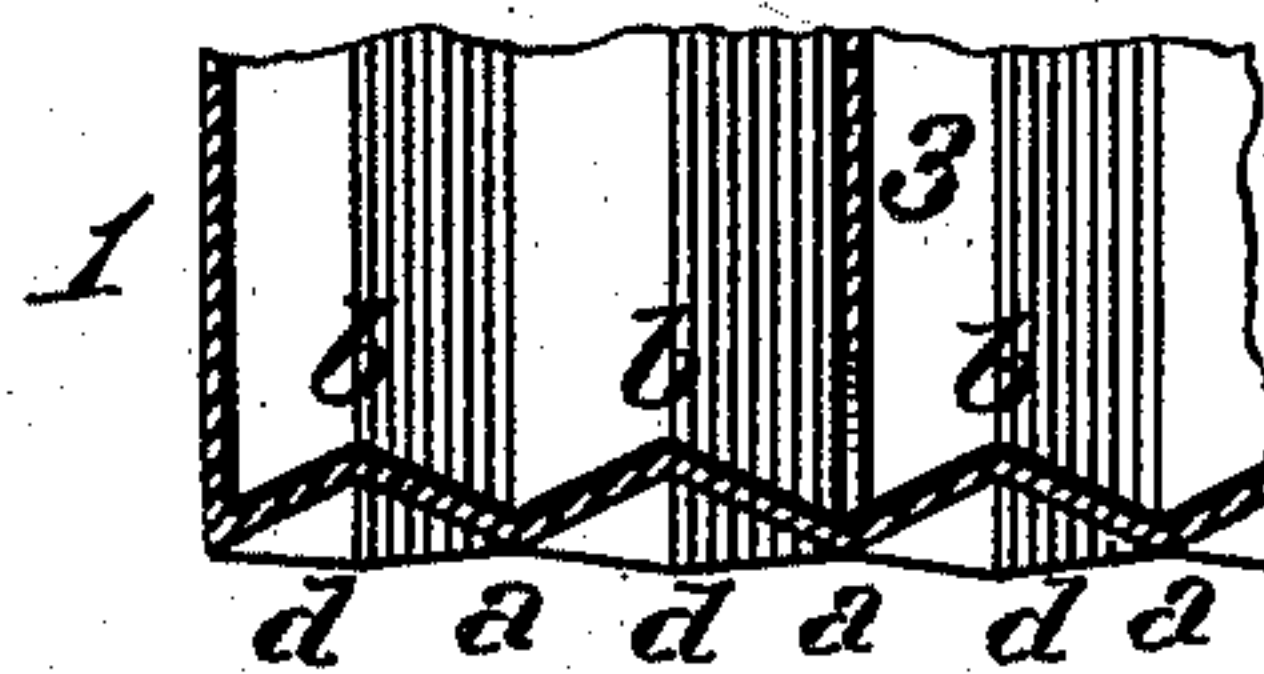


FIG. 8.

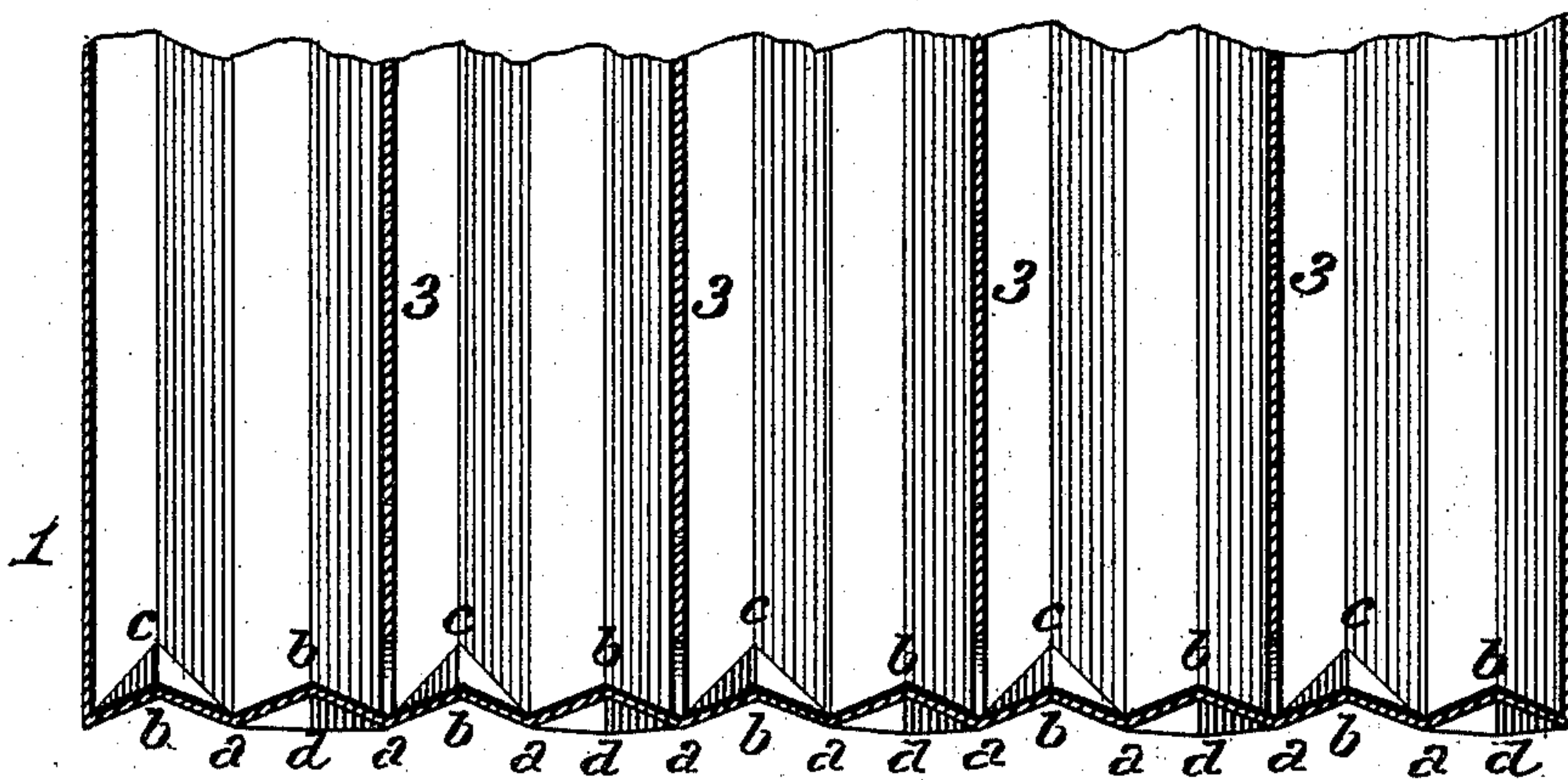
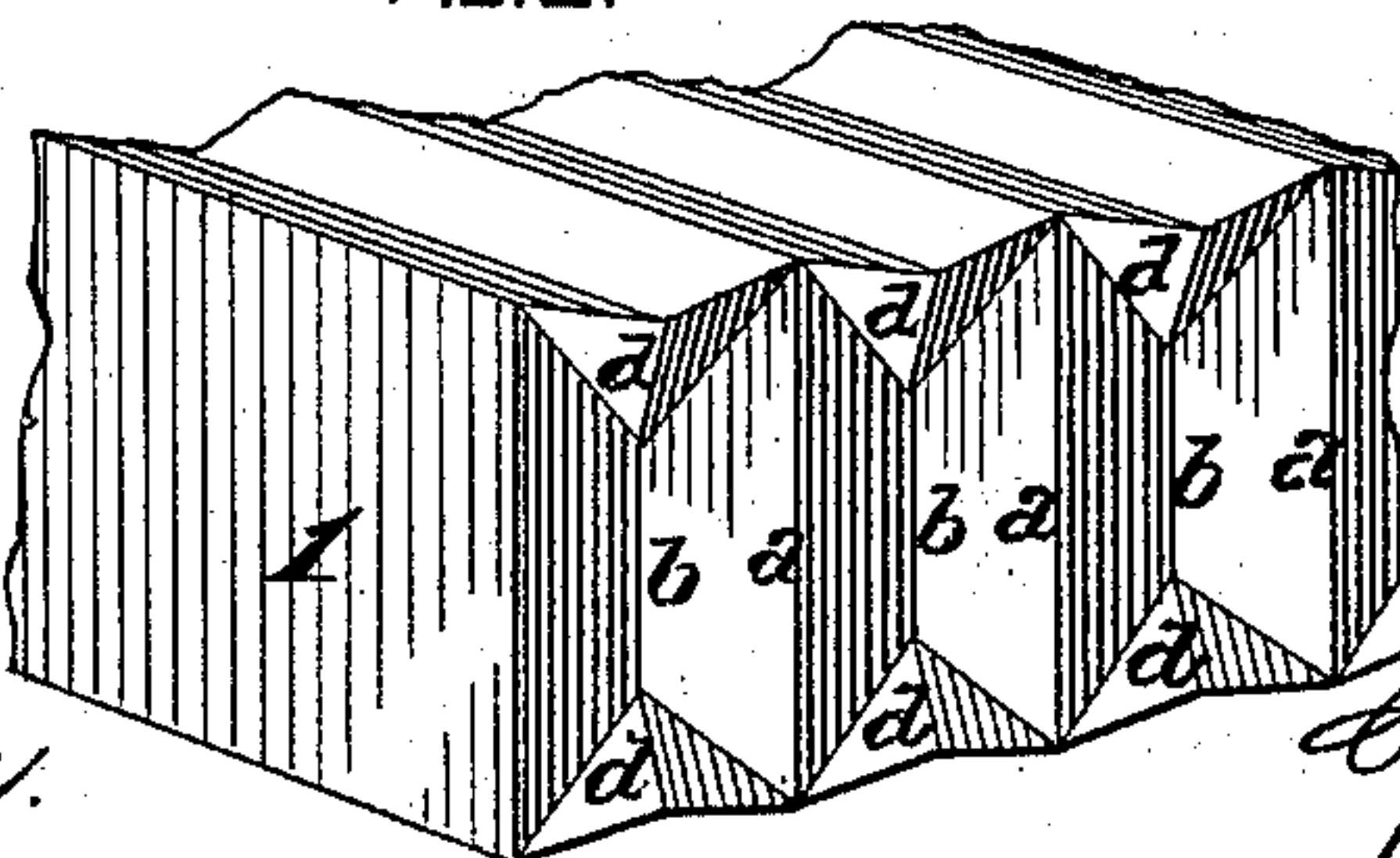


FIG. 9.



WITNESSES:

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UNITED STATES PATENT OFFICE.

LINFORD F. RUTH, OF CONNELLSVILLE, PENNSYLVANIA.

MATTRESS.

SPECIFICATION forming part of Letters Patent No. 585,834, dated July 6, 1897.

Application filed July 24, 1895. Serial No. 556,970. (No model.)

To all whom it may concern:

Be it known that I, LINFORD F. RUTH, a citizen of the United States, residing at Con-
5 nellsville, in the county of Fayette and State
of Pennsylvania, have invented or discovered
a certain new and useful Improvement in Mat-
tresses, of which improvement the following
is a specification.

The object of my invention is to provide a
10 mattress which, while more particularly de-
signed for application in vehicles or vessels
for the transportation of passengers, shall be
likewise desirably adaptable to the require-
ments of domestic, hospital, camping, and
15 other uses and which shall embody the ad-
vantages of easy and comfortable support,
cleanliness, freedom from sanitary objections,
coolness, lightness, and capability of compact
stowage when not in use.

20 To this end my invention, generally stated,
consists in the combination of an expansible
and collapsible air-tight mattress-casing hav-
ing its end portions bent or creased, so as to
fold inwardly when collapsed and to form
25 substantially unbroken surfaces when ex-
tended, and a series of sheet or plate stays
connecting the upper and lower walls thereof.

The improvement claimed is hereinafter
fully set forth.

30 In the accompanying drawings, Figure 1 is
a view in perspective of a mattress embody-
ing my invention shown as expanded for use
and with a portion of its top and one of its
ends broken away; Fig. 2, a vertical trans-
35 verse section through the same when expand-
ed; Fig. 3, a partial plan or top view; Fig.
4, an end view, partly in section; Fig. 5, a
partial vertical longitudinal section; Fig. 6,
a vertical transverse section when partially
40 collapsed; Fig. 7, an enlarged view in per-
spective showing one corner and the adja-
cent portions when partially collapsed and
the end folds; Fig. 8, a partial horizontal
section with the parts in the same position;
45 Fig. 9, a view similar to Fig. 7, but showing
a modification of the end folding; and Fig.
10 a partial horizontal section through the
construction of Fig. 9.

50 My improved mattress, which may be of
any desired dimensions suited to the location
in which it is to be used, consists of the top
and bottom pieces or sheets *a*, the end walls

b, and the side walls *c*. These parts or por-
tions of the mattress, which may be of tick-
ing or other suitable fabric, lined with rub- 55
ber, so as to be impervious to air, or may be
made entirely of rubber, are secured together
along the edges, so as to form a box-like struc-
ture having its walls *b* and *c* at or approxi-
mately at right angles to the top and bottom. 60
To permit a compact stowage of the mattress
when not in use, I provide for a transverse
or longitudinal collapsing thereof, as distin-
guished from rolling it into a bundle of con-
siderable bulk, as has been the practice in 65
this class or kind of beds. In order to effect
a regular transverse or longitudinal collaps-
ing, the top and bottom are creased trans-
versely or longitudinally, as shown at *e* in
Figs. 1, 3, 7, and 9, and the ends or sides are 70
creased or bent in the manner, generally
speaking, of an accordion, so as, when the
mattress is inflated, to present a practically
unbroken surface and when it is collapsed
to lie in a series of closely-adjacent folds, 75
thus enabling the mattress to be compactly
closed up in a comparatively small space
when not in use. Two forms of end folding
are illustrated in the drawings, but any other
suitable and preferred style of end folding 80
may be adopted.

As shown in Figs. 3, 4, 6, 7, and 8, the end
pieces of the mattress-casing 1 are creased or
bent on lines perpendicular to its top and
bottom, so as, when the mattress is partially 85
collapsed, to present alternate projecting folds
on lines of junction *a* and depressed folds
on lines of junction *b*, the projecting folds
being at their ends connected alternately by
folds *c*, projecting outwardly on the top and 90
bottom of the casing, and by end folds *d*,
projecting outwardly and downwardly on the
end of the casing. The top, bottom, and ends
or sides are folded or bent in the manner
stated and clamped in such position. The 95
edges of the several parts are then secured to-
gether and the mattress cured in the man-
ner known in the art. It results from the
curing of the mattress with the folds or bends
clamped together in the position which they 100
should assume when the mattress is collapsed
that a set is given to the folds, so that they
will have a normal tendency to close together
when the air is permitted to escape. In other

words, the collapsing or folding action of the mattress is automatic, as the folds or bends are resilient and have a constant tendency to assume a folded condition, and will remain in such position until forced apart by a pull on the ends or sides or internal fluid-pressure.

Figs. 9 and 10 illustrate a modification in which the top and bottom folds *c* are omitted and the alternate projecting folds on the lines *a* are connected at their ends by the intermediate end folds *d*.

The mattress thus constructed is provided with one or more openings or passages 2 for the admission and discharge of air in expanding or inflating the mattress into form adapted for use and collapsing or closing it up into small compass for stowage when not in use. The passages 2 are each controlled by a suitable cock or valve, and where separate inlet and outlet passages are employed the inlet-passage is adapted, as by a screw-thread or other well-known means, to be connected with and disconnected from an air-supply pipe, through which air is delivered from a pump or reservoir into the mattress. While two of these passages are shown in the drawings, it will be obvious that their number and location are merely matters of convenience in expanding and collapsing the mattress and are within the discretion of the constructor. In many instances a single passage will serve both purposes, while in others it may be found desirable to provide one or more inlet-passages and one or more independent outlet-passages.

The top and bottom surfaces of the mattress-casing 1 are connected one to the other independently of their end connections by a series of stays 3, which are preferably formed of sheets, strips, or plates of fabric of suitable strength and extend in parallel planes substantially the entire distance from one end or side of the mattress to the opposite end or side. The stays are shown in the drawings as extending longitudinally in the casing, which will ordinarily be found more desirable in practice than if located transversely, although they may be so located if preferred.

The function of the stays 3 is to form, by their connection in parallel lines to the top and bottom of the casing, a generally undulated surface made up of a series of adjoining curved surfaces on the top and bottom of the mattress when the same is expanded and to prevent bulging or distortion by the application of weight to any particular portion. They also serve to prevent an unduly rapid

displacement of air from any portion of the mattress which would otherwise cause it to change its form to an objectionable extent.

Openings or perforations 4 are made at intervals in the stays 3 to admit of the passage of air between the several compartments or chambers formed within the casing by the stays, and their ends are recessed or cut away to form passages between them and the ends of the casing for the same purpose, as shown in Figs. 1 and 5. While ordinarily and preferably the stays extend continuously throughout the length or width, as the case may be, of the mattress, it is not essential that they should be single or unbroken strips or that they should be equal in length to the full length or width of the mattress, as each stay might, if desired, be made of a series of separate pieces, and these might be separated one from the other for short distances.

I claim herein as my invention—

1. An expansible and collapsible air-tight mattress-casing having its top, bottom and ends or sides formed by alternate inward and outward resilient folds having a normal tendency to close together, substantially as set forth.

2. An expansible and collapsible air-tight mattress-casing having its sides and ends at or approximately at right angles to the top and bottom, and having its top, bottom and ends or sides formed by alternate inward and outward resilient folds having a normal tendency to close together, substantially as set forth.

3. An expansible and collapsible air-tight mattress-casing, having its upper and lower walls connected by a plurality of sheet or plate stays, and having its end portions bent or creased between said stays, as distinguished from seamed or jointed, the folds so formed being resilient and having a normal tendency to close together, substantially as set forth, whereby, when distended, to form practically continuous or unbroken surfaces, and when collapsed or drawn together in the longitudinal plane of the casing, the faces of the stays shall be brought together, and the end folds (determined by the previously-made creases) shall all be inward and inside the general contour of the mattress-casing.

In testimony whereof I have hereunto set my hand.

LINFORD F. RUTH.

Witnesses:

J. SNOWDEN BELL,
F. E. GAITHER.