

(No Model.)

H. S. STERNBERGER.
VENTILATED MATTRESS.

No. 510,490.

Patented Dec. 12, 1893.

Fig. 1.

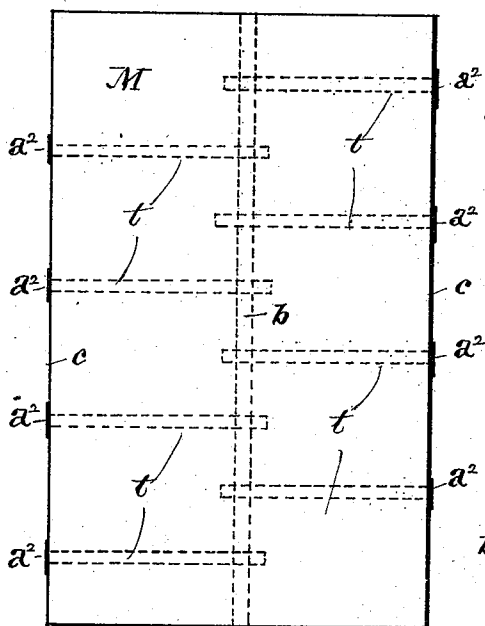


Fig. 2.

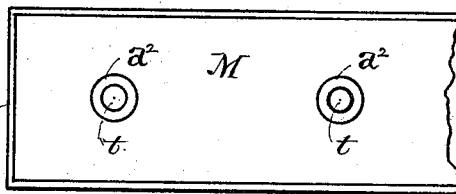


Fig. 3.

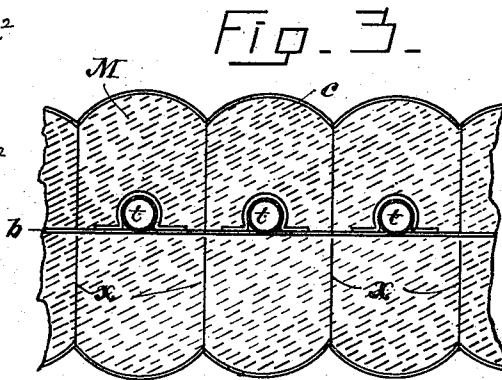


Fig. 4.

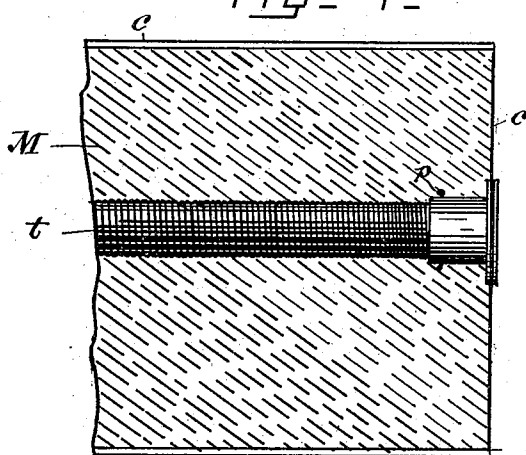
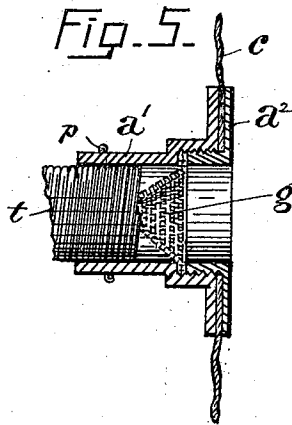


Fig. 5.



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UNITED STATES PATENT OFFICE.

HERMAN S. STERNBERGER, OF PIQUA, OHIO.

VENTILATED MATTRESS.

SPECIFICATION forming part of Letters Patent No. 510,490, dated December 12, 1893.

Application filed May 26, 1893. Serial No. 475,562. (No model.)

To all whom it may concern:

Be it known that I, HERMAN S. STERNBERGER, a citizen of the United States, residing at Piqua, Miami county, Ohio, have invented new and useful Improvements in Ventilated Mattresses, of which the following is a specification.

My invention relates to mattresses, its object being to provide a self-ventilating mattress which shall present also facilities for the convenient introduction of air or fumigating or purifying agent into and throughout the body of the filling material, and also prevent the introduction of dust or vermin.

Various attempts have been heretofore made to produce ventilated mattresses, but they have involved objectionable features to such a degree that such constructions have not come into general use, and are practically unknown to the trade. Without further specifying in detail these objectionable features, my invention is intended to overcome the same and produce a ventilated mattress, economical in first cost, durable, and efficient in use, and present the advantages referred to, with others herein set forth.

My invention is illustrated in the accompanying drawings, in which—

Figure 1, is a plan view of a mattress to which my invention is applied, showing in dotted lines the relative arrangement of the ventilating tubes. Fig. 2, is a partial side elevation of the mattress, showing the mouths of the ventilating tubes. Fig. 3, is a vertical section near the center showing the relative arrangement of the ventilating tubes near their inner ends, and their retaining band. Fig. 5, is an axial section, enlarged, of the mouth piece showing its construction and method of attachment to the ventilating tube and to the ticking or cover for the mattress. Fig. 4, is a detail section of the mattress in the axial line of one of the ventilating tubes.

One of the leading principles of construction embodied in my invention of an improved mattress, is the provision and arrangement of a series of ventilating tubes entering from opposite sides and extending to or a little beyond a median line, and there terminating in a substantially open orifice in the midst of the filling material; thus presenting a number of openings equal to the whole number of tubes

employed, in the central portion of the filling material, with conduits extending thence outwardly. These conduits, while extremely flexible and extensible, are practically incompressible in their diametric planes, so as to maintain an open air-conduit directly into the central mass of the filling.

Referring to Figs. 1, 3, and 4, of the drawings, the position and relative arrangement of the tubes, *t*, in the mattress, *M*, will be clearly understood. The tubes, *t*, are parallel and enter at a common central plane alternately through the opposite sides of the mattress cover, *c*, extending thence a little beyond the center, where they are preferably secured by and to a band, *b*, extending from end to end of the mattress and secured at opposite ends to the cover, *c*.

The construction of the tubes, *t*, is as follows:—I prefer to employ a tube of closely-coiled wire as shown in Fig. 4, which, for this purpose, may be of comparatively small gage, and coiled in close contact. This construction presents the following advantages: First it is substantially impervious to the filling material, such as hair, which in an open coil, in time finds its way into the tube and may clog it; second it is substantially incompressible in cross planes and therefore cannot be clogged by mere compression, as is the case with a rubber tube. The tube is secured at its outer end to the covering of the mattress through the medium of a mouth piece, *A*, having the following construction: The mouth piece, *A*, consists of two portions, a short flanged tube, *a'*, to which the end of the coiled tube *t* is fastened, and an outer cap-piece, *a''*, by which the whole is secured to the mattress covering. The part, *a'*, is countersunk and threaded from the flanged mouth inward sufficiently to receive the flanged annular cap or collar, *a''*. The cover, *c*, is clamped between the flanges of the parts, *a'* and, *a''*, and thus forms a packing and an airtight joint. The coiled tube, *t*, is by preference inserted within the tube, *a'*, and held by a pin, *p*, which also passes through a cup-shaped screen of wire gauze, *g*, placed over the end of the coiled tube. The screen, *g*, may however, be secured to the tube by forming it with a radial flange extended over the shoulder of the countersunk portion of the

tube and secured by the collar when the latter is screwed home, as shown in detail in Fig. 5. In the mattress thus constructed, there is formed a skeleton system of ventilating tubes extending inward from the sides and presenting a series of air-distributing openings in the central portion of the filling, where, ordinarily, it is most difficult to introduce air. The tubes being incompressible vertically, yet perfectly elastic in respect to bending and to longitudinal extension, and being all confined to the same horizontal plane, they do not constitute any impediment or obstruction to the generally elastic body of the mattress. This desirable condition is further secured by arranging the upholstering cords, *a*, at opposite sides of the tubes, whereby the filling is practically divided into resilient cushions over the lines of the tubes as indicated in Figs. 1 and 3, and the general resiliency of the mattress thus perfectly preserved. Moreover, by alternate arrangement of the tubes at opposite sides, each terminating independently in the central portion of the mattress, the series at one side is independent of the series at the opposite side, so that the compression, bending, or lateral extension of the mattress by the weight or movements of the occupant, at either side, cannot displace, elongate, or injure the tubes, whose inner ends are practically free within the filling. Again, the free and open ends of the several tubes constitute foci within the filling to or from which air is distributed in all directions.

In case, for example, it is desired to aerate or fumigate the mattress, a forced blast is introduced at the mouth of each tube in succession and the air or gas under pressure will find partial egress radially from the tube in all directions, and particularly at the inner end of the tube into the pores or interstices of the filling in the central parts of the mattress, thus penetrating all parts of the filling.

The invention is particularly useful in mattresses having a closely woven cover such as is commonly used in the better class of work as a protection against dust and vermin, and also for durability. The alternate compression and elastic expansion of parts of the mattress in use, induces a free circulation of air, which by the described construction and arrangement of the tubing, is uniformly distributed throughout.

A further object of the particular construction herein described, has reference, first, to the convenience of introducing the filling in the process of manufacture; and second, to

the ready removal of the cover, *c*, upon occasion when renovation or packing is required. It will readily be seen that the skeleton of tubes as a system, is readily secured in proper position at the inner ends by attaching the band, *b*, to the ends of the mattress; and the outer ends by securing the caps to the mouth pieces with the cover, *c*, intervening. When the skeleton of tubing is thus secured, the filling of the bag or cover is readily effected without loss of time or any inconvenience. In removing the cover, the system is as readily detached by the same means used in reverse.

In some cases, when the filling is of a particularly open character, the distributing tubes may be omitted and the mouth-pieces alone used, in which case, an increased number may be employed. I prefer to construct the mouth-pieces of hard rubber or similar material which is unaffected by moisture and is light and durable.

I claim as my invention and desire to secure by Letters Patent of the United States—

1. In a mattress, a system of horizontal elastic ventilating tubes entering through and secured in parallel relations to opposite sides or "borders" of the mattress and in opposite alternating relations—each tube terminating at or near a central line within the filling, in combination with means for retaining the ends of the tubes in said relations, substantially as set forth.

2. In a mattress, a ventilating system consisting of a parallel series of short elastic tubes entering through and secured at their outer ends to the cover at two opposite sides and extending thence in opposite alternating relations to a common median line, and connected by a flexible strip extending along said median line and connected to the remaining opposite sides of the cover, substantially as set forth.

3. In a mattress, in combination with its cover and filling, a series of tubes composed of wire coiled in constant contact, provided with suitable mouth-pieces extending through the outer cover, and extended from opposite sides independently of each other to the central median line of the filling, substantially as set forth.

In testimony whereof I have hereunto set my hand in the presence of the two subscribing witnesses.

HERMAN S. STERNBERGER.

Witnesses:

L. M. HOSEA,
LONDON FREYBLER.