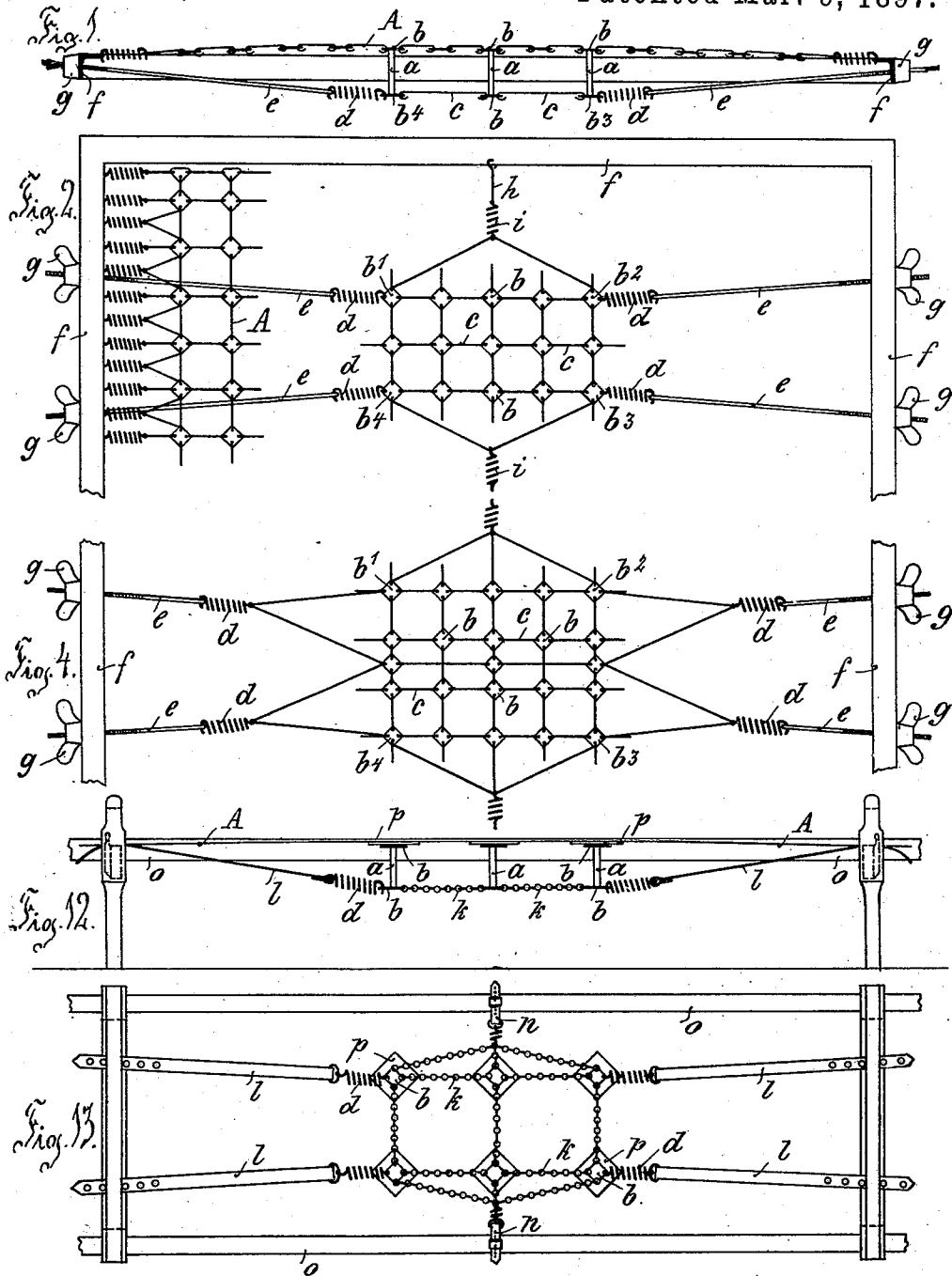


T. V. SVANE.
MATTRESS OF STEEL WIRE.

No. 578,473.

Patented Mar. 9, 1897.



Witnesses:

Otto Munk
E. A. Scott

Inventor:

T. V. Svane.

By *Richardson*
Attorneys

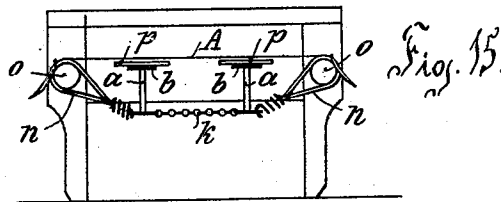
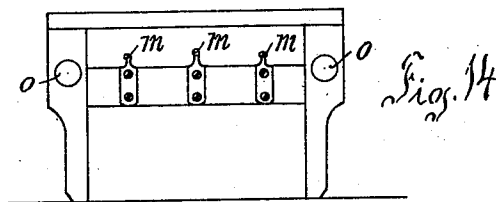
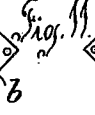
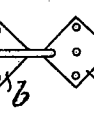
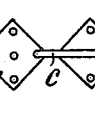
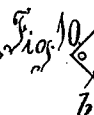
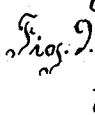
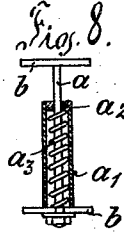
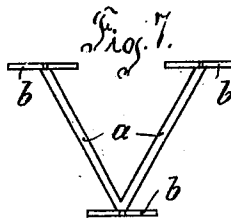
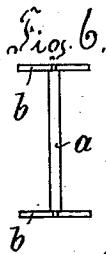
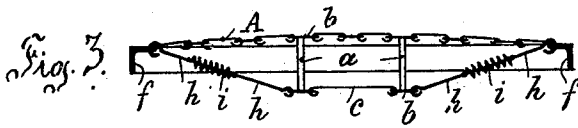
(No Model.)

2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

THEODOR VILHELM SVANE, OF FASTNINGEN, CHRISTIANIA, NORWAY.

MATTRESS OF STEEL WIRE.

SPECIFICATION forming part of Letters Patent No. 578,473, dated March 9, 1897.

Application filed August 26, 1896. Serial No. 603,982. (No model.)

To all whom it may concern:

Be it known that I, THEODOR VILHELM SVANE, engineer, a subject of the King of Sweden and Norway, and a resident of Fastningen, Christiania, Norway, have invented certain new and useful Improvements in Mattresses of Steel Wire, of which the following is a specification.

My invention relates to improvements in or connected with spring-mattresses, canvas stretchers, and the like, and has for its object to provide means whereby the surface of the mattress or stretcher is caused to preserve its convex form, so that the sinking of the same, which is very disadvantageous, especially for surgical purposes, and which results from the use of the central part of the mattress or stretcher, will be avoided.

According to my invention I provide an arrangement of bars, spiral springs, screwed rods, and straps which may have their tension regulated as desired by any suitable means, such as nuts.

In the accompanying drawings, Figure 1 is a sectional side elevation of a spring-mattress having my improvements applied thereto. Fig. 2 is a plan and Fig. 3 is an end view of the same. Fig. 4 is a plan showing a slightly-modified form of my invention designed more especially for use with broader mattresses. Fig. 5 is an end view of the same. Figs. 6, 7, and 8 are views of details. Figs. 9, 10, and 11 are plans of the details shown in Figs. 6, 7, and 8, respectively. Fig. 12 is a side view of a stretcher with my improvements. Fig. 13 is an under side view of the same. Figs. 14 and 15 are end views of the same.

A is the mattress or stretcher, and, as above described, it is the object of my invention to preserve the convexity of the surface of the mattress. To the central part of this mattress A is fixed a number of bars or supports *a*, Figs. 1, 2, and 3, each provided at the top and bottom with a small plate *b*. Each of these plates *b*, which are preferably square, is provided with a hole in each corner, so that the upper plates can be connected by wires, and thus form a part of the mattress A. The lower plates are also connected together by means of wires *c*. The outermost or corner plates *b*¹ *b*² *b*³ *b*⁴ of the bottom series are se-

cured to spiral springs *d*, preferably at their corners, as shown in Fig. 2. These springs are connected to bars *e*, the outer ends of which project beyond the frame *f* of the mattress and are screw-threaded and provided with nuts *g*.

The spiral springs *d* and the bars *e* are advantageously arranged longitudinally with respect to the mattress, and it will be obvious that the spiral springs *d* will be put more or less in tension by screwing or unscrewing the nuts *g*, and this will cause the rods *a* to act on the bottom of the mattress with a greater or less pressure, so that the said-bottom A can be raised to the desired extent should it become sunk through use. Side bars *h*, with spiral springs *i*, Figs. 2 and 3, serve to keep the arrangement in position laterally and also assist the mattress to support heavy loads. The spiral springs *d* and *i* serve, consequently, to give the requisite elasticity to the arrangement.

Figs. 6 and 9 show a support *a* with plates *b*. When the mattress is of more than the usual breadth, I provide central angular supports *a*, Fig. 7, with one lower plate and two upper plates, the said supports being connected with the other supports, as above mentioned and as shown in Figs. 4, 5, 7, and 10.

Figs. 8 and 11 show a special form of support *a*, by means of which greater elasticity is obtained. The support *a* with its upper plate *b* can in this case move up and down in a sleeve *a*¹, fixed to the lower plate *b*. The support *a*, which passes through the lower plate *b*, has a collar *a*², and between this collar and the lower plate *b* a spiral spring *a*³ is arranged. Pressure on the bottom of the mattress will cause the spring to move downward, even if the spiral springs *d* or *i* are not affected thereby.

In stretchers, Figs. 12, 13, 14, and 15, the bottom A is usually formed of canvas which is not elastic in itself and which will naturally sink in the center even if not used. My invention therefore can be very advantageously applied to such stretchers.

In the arrangement shown for convenience of packing the wires *c* are replaced by chains *k*, and instead of the bars *e* and nuts *g* I use straps *l*, provided with holes, and the arrangement is regulated by stretching the straps *l*.

more or less tightly over the hooks *m*, to which hooks the canvas bottom is also fixed. The side straps *n* are attached, as shown in Fig. 15, to the side bars *o* of the stretcher. The upper plates *b* are provided on the top with large leather disks or plates *p*, which are advantageously connected together by means of leather or other straps.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. A mattress comprising the frame, a series of upright pins or supports, the flat plates at the upper and lower ends of the supports and adjustable strainer means connected with the lower plates, each of said plates extending laterally around the end of the support and each plate being independent of those of the other pins substantially as described.

2. A mattress comprising a frame, a series

of upright pins or supports, having perforated plates at their upper and lower ends, straining means connecting the lower perforated plates with the frame, and connecting means between the upper perforated plates, said upper perforated plates forming parts of the mattress-top substantially as described.

3. A mattress comprising a frame, the angular supporting-piece having divergent arms with plates on the upper ends thereof and with the lower perforated plate and straining means connected with the lower perforated plate, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 8th day of July, 1896.

THEODOR VILHELM SVANE.

Witnesses:

AXEL GOTTFRIED GRÖNN LAHN,
YOSEFINE YOHNSEN.