

N. C. HINSDALE.
PNEUMATIC MATTRESS.
APPLICATION FILED DEC. 12, 1908.

945,234.

Patented Jan. 4, 1910.
2 SHEETS—SHEET 1.

Fig. 1.

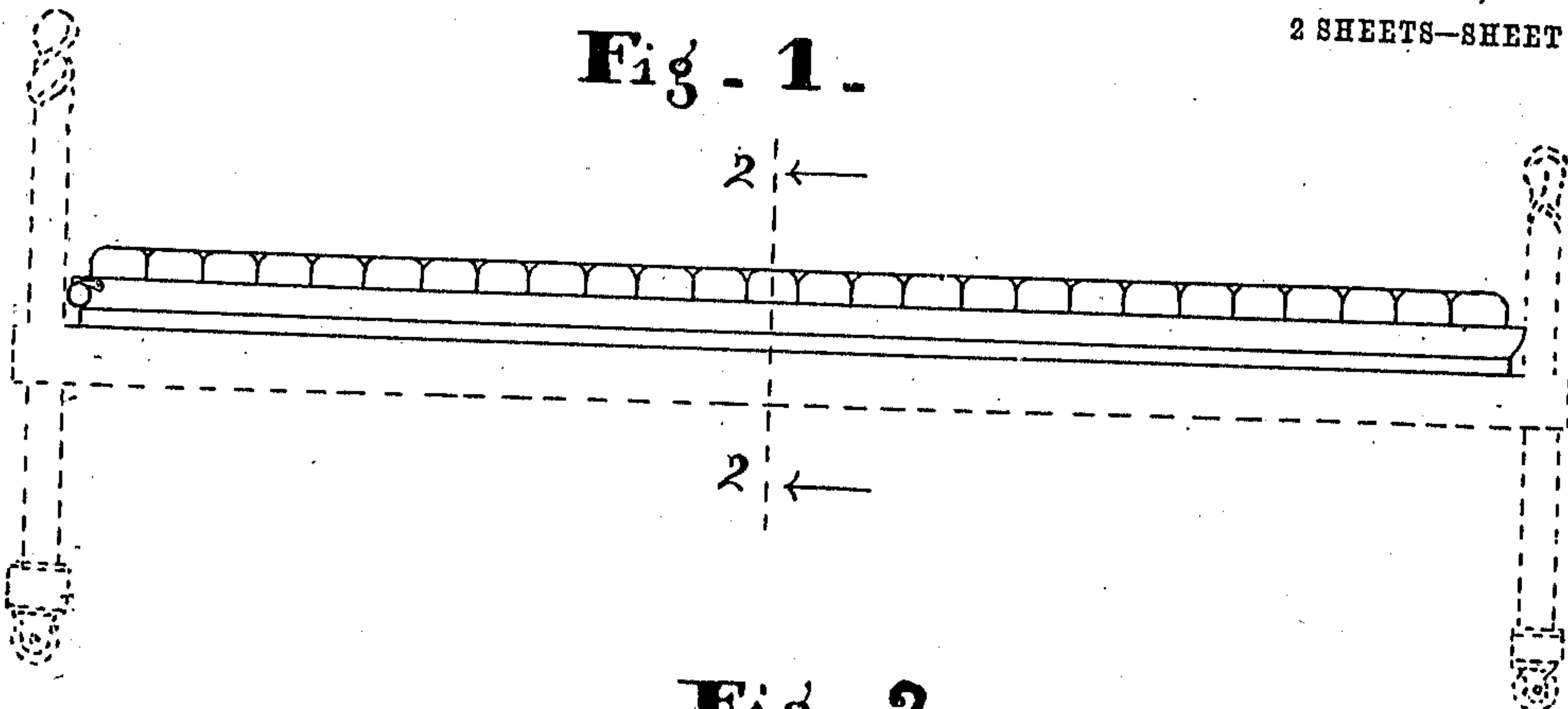


Fig. 2.

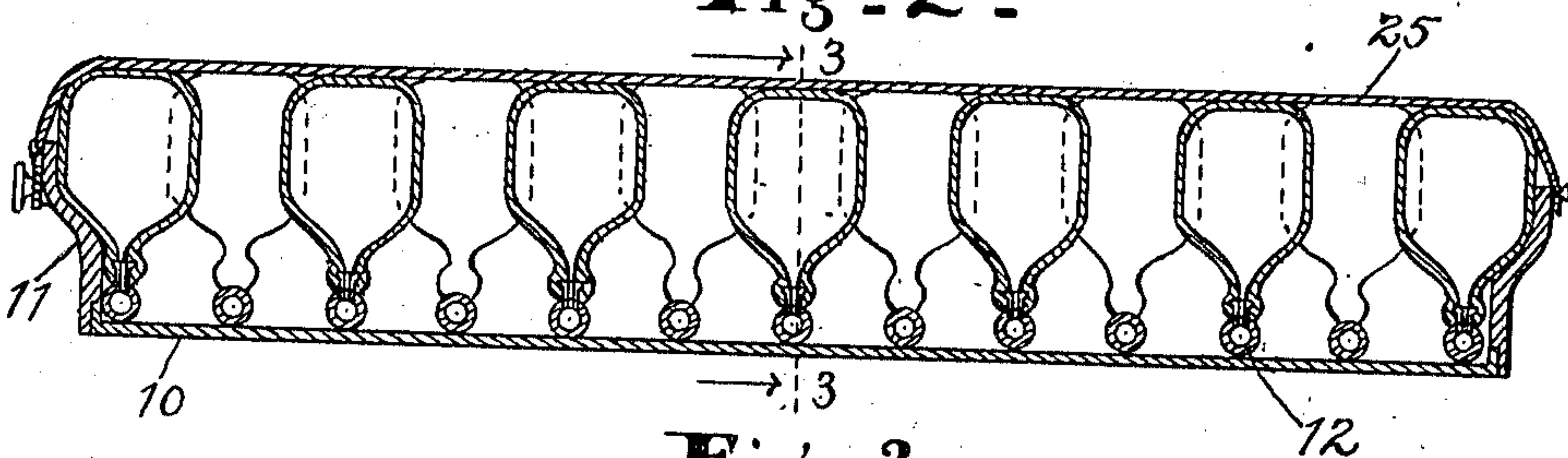


Fig. 3.

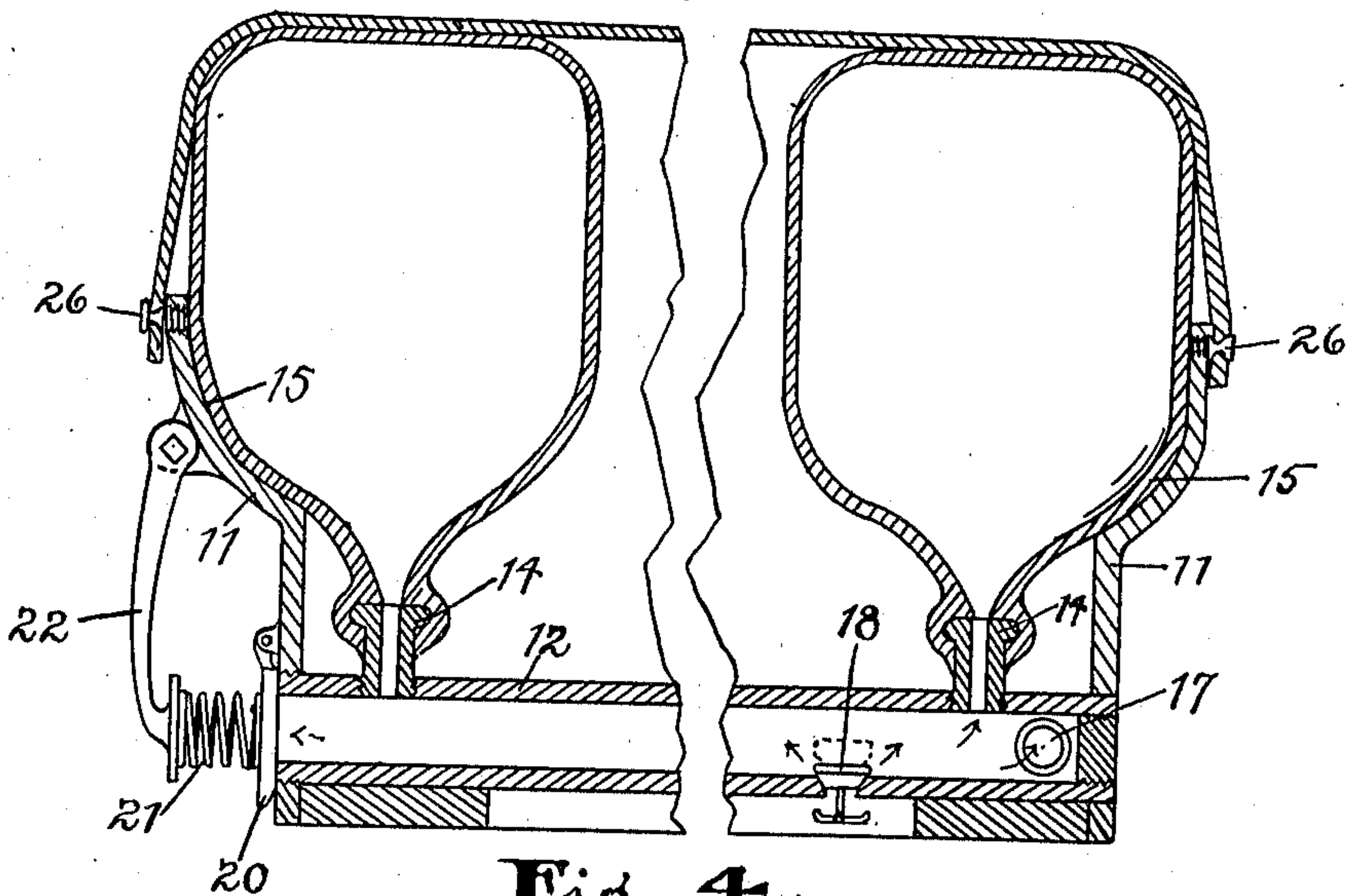
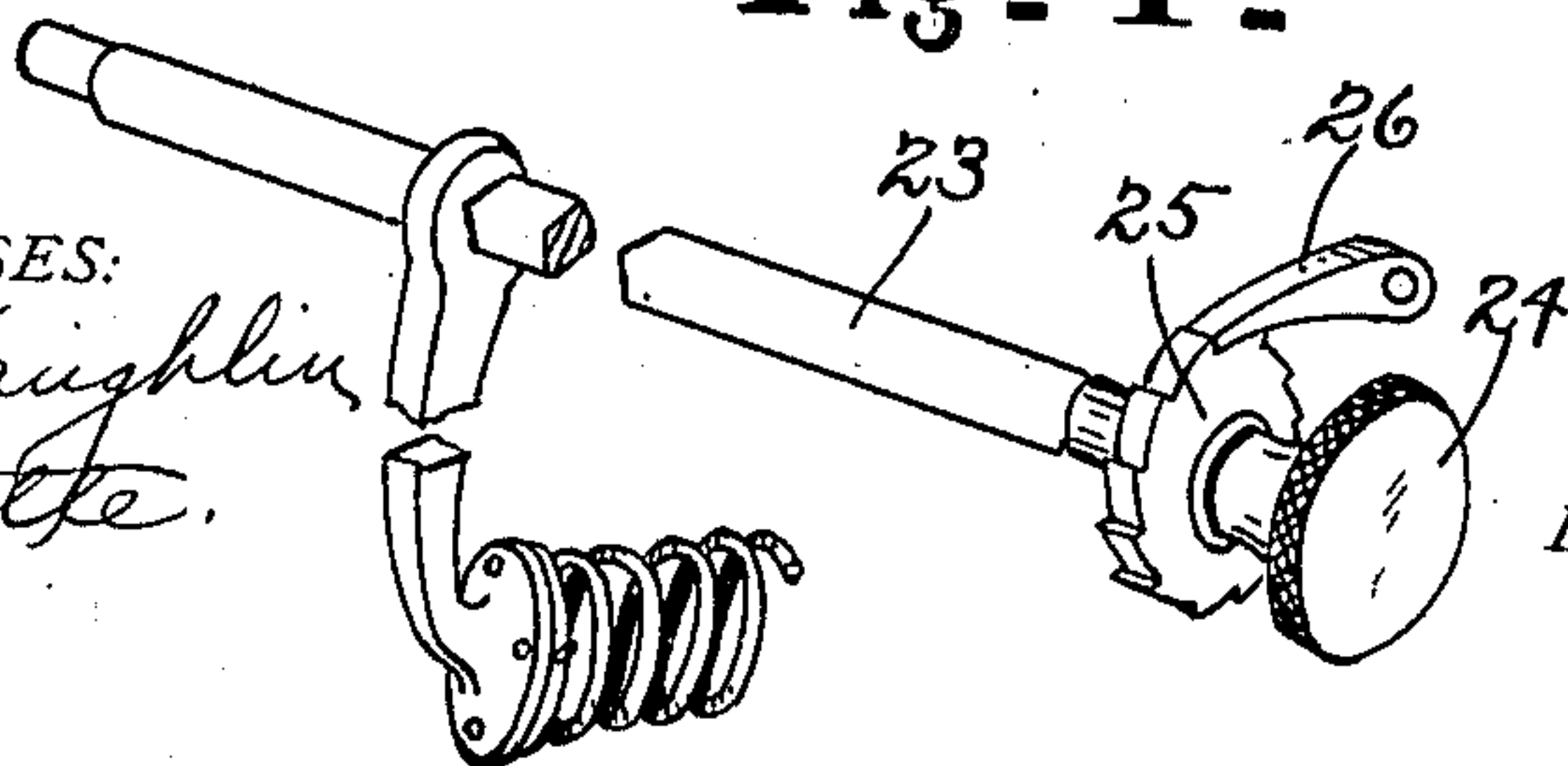


Fig. 4.



WITNESSES:
O. M. McLaughlin,
W. M. Gault.

INVENTOR,
Nehemiah C. Hinsdale.
BY
V. H. Loomis,
ATTORNEY.

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2 SHEETS—SHEET 2.

Fig-5-

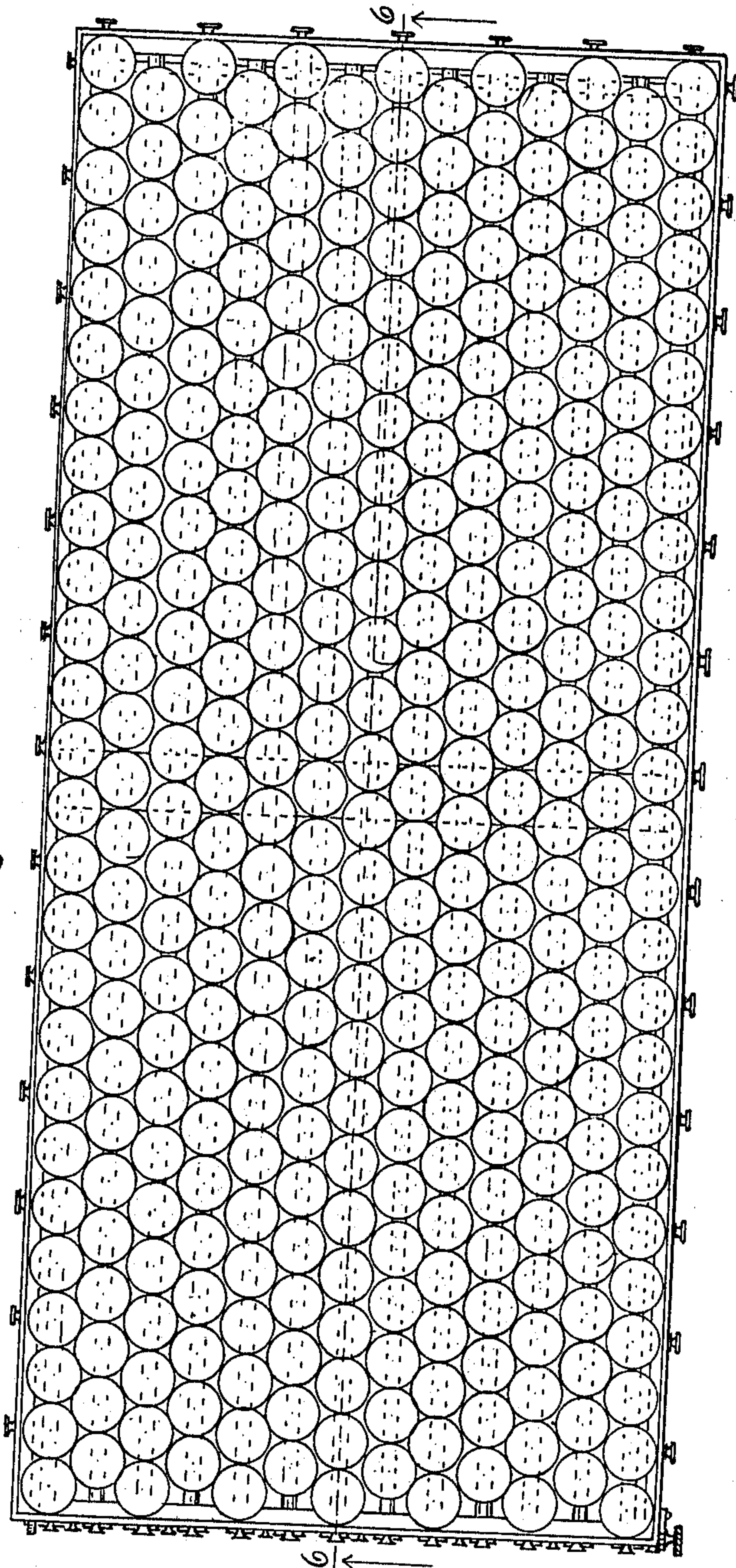
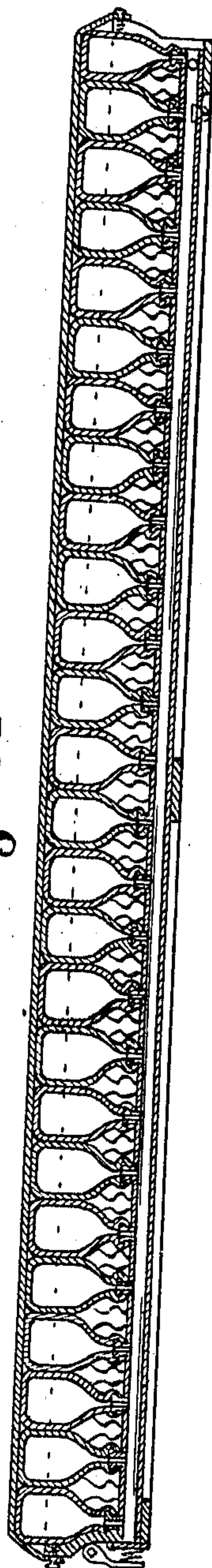


Fig-6-



WITNESSES:

O. M. McLaughlin
W. M. Gentile.

INVENTOR.

Mehemiah C. Hinsdale.

BY

V. H. Lockwood

ATTORNEY.

UNITED STATES PATENT OFFICE.

NEHEMIAH C. HINSDALE, OF MARION, INDIANA, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO HINSDALE PNEUMATIC CUSHION AND MATTRESS COMPANY, OF MARION, INDIANA, A CORPORATION OF INDIANA.

PNEUMATIC MATTRESS.

945,234.

Specification of Letters Patent.

Patented Jan. 4, 1910.

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To all whom it may concern:

Be it known that I, NEHEMIAH C. HINSDALE, of Marion, county of Grant, and State of Indiana, have invented a certain new and useful Pneumatic Mattress; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like numerals refer to like parts.

The object of this invention is to improve the construction of air mattresses so that the same will be comfortable to the occupant and durable, and will dispense with charging the same with compressed air.

One feature of the invention consists in making up the mattress with a large number of individual air cushions, located adjacent to each other and having substantially flat tops so that, when covered, they form a satisfactory surface on which to lie. With a large number of air cushions making up the mattress, only those will be used on which the person lies, and they will yield and conform to the surface of the body of the occupant, so as to be comfortable, while the air cushions not in contact with the body of the occupant would not be actuated.

Another feature of the invention consists in dispensing with an air compressing means altogether, and instead, in providing resilient air cushions which will automatically expand and receive air, and means are provided for preventing the escape of the air so as to form air cushions. Along with this idea is the provision of a port controlled by a valve that will admit air but prevent its escape, and also a port closed by a spring held valve that will permit the escape of some air when the pressure becomes so great as to be liable to disrupt the walls of the air chambers. Means is provided for regulating the tension against said valve so that it will protect the walls of the air passages.

Another feature of the invention consists in providing a series of air tubes in communication with each other and a series of upwardly extending air cushions in communication with the tubes so that all air chambers will be in communication with each other, and controlling valves substantially as specified.

Another feature consists in providing a

cover for a number of air cushions, which makes them one mattress, and in detachably connecting the edge of said cover at the side of the frame of said mattress.

The full nature of this invention will be understood from the accompanying drawings and the following descriptions and claims:

In the drawings Figure 1 is a side elevation of the mattress shown in full lines, and a bedstead shown in dotted lines. Fig. 2 is a transverse section of the mattress from the line 2—2 of Fig. 1. Fig. 3 is a vertical longitudinal section through the mattress at the line 3—3 of Fig. 2, the same being shown on an enlarged scale, and also being centrally broken away. Fig. 4 is a perspective view of the valve regulating means, the valve rod being centrally broken away. Fig. 5 is a plan view of the mattress with the cover omitted. Fig. 6 is a section from the line 6—6 with the cover included.

Bottom strips 10 are provided for the mattress with side bars 11 extending upwardly therefrom all around the edge of the mattress, and detachable therefrom. They constitute the frame of the mattress, which is adapted to be placed upon the bedstead. Upon the bottom of the frame 10 a number of metal tubes 12 are placed so as to extend longitudinally of the mattress. In Fig. 2 there are 13 of these tubes. Each tube has an upwardly extending metal nipple 14, as seen in Fig. 3, and upon each nipple an air cushion 15 is secured in the form of a bulb, or inverted jug, the neck of the same at the lower end being fastened to the nipple 14 and the bodies of the same being with substantially flat tops. The cushions are made of rubber or other flexible and resilient material, so that they will expand to their full normal size automatically without forcing compressed air therein. In Figs. 1 and 6 there are 26 of these air cushions fastened to each tube 12. The various longitudinal air tubes 12 are in communication with each other by a transverse tube 17, preferably located at the end of the mattress. One of the tubes 12 is provided with an air inlet port closed with a check valve 18, which seats by gravity and is opened by incoming air. It permits air to enter the air chamber but not to escape therefrom, and it is to be noted that

all of the tubes 12 and 17, and the air cushions 15 are in communication so that they form practically one air chamber.

At regulating valve is provided at one end of each tube 12. It consists of a hinged valve 20 closed by a spring 21 acted on by an arm 22 that is mounted on a rod 23 extending transversely with the mattress and turned by a knurled finger knob 24 and held against return movement by the ratchet 25 and pawl 26 which, as well as the arm 22, is pivoted on one of the side bars 11 of the frame. When too much weight is placed upon the air mattress so that there is danger of bursting the walls of some of the air chambers or cushions, the valves 20 will yield and let the air escape. The tension of the spring 21 can be adjusted by the means explained.

The cover 25 is spread over all the air cushions and the sides thereof hang down, and are provided with button-holes to catch over the buttons 26 that are secured to the side-bars 11 of the frame. This cover not only protects the air cushions but serves to complete the same, and form a smooth top surface therefor.

The metal parts are preferably formed of some non-corrosive metal, or treated so as to be non-corrosive.

The invention is not limited to any particular number of air tubes 12, or air cushions 15, or to any particular form of said air cushions.

What I claim as my invention and desire to secure by Letters Patent is:

1. An air mattress including a plurality of air tubes parallel and in the same plane, a plurality of air cushions formed of resilient material and extending upwardly therefrom so that their tops will be substantially level, and means for preventing the escape of air from said tubes.

2. An air mattress including a plurality of air tubes, air cushions formed of resilient material and extending upwardly from each of said tubes so that their tops will be substantially level, a valve closed port that permits air to enter said tubes and

prevents its escape, and a spring controlled valve for regulating the escape of air from each tube.

3. An air mattress including a plurality of air tubes parallel and in the same plane, a plurality of air cushions formed of resilient material and extending upwardly therefrom so that their tops will be substantially level, means for causing communication between said air tubes and air cushions forming an air chamber, and a valve controlling the inlet port of said air chamber that permits air to enter but prevents its escape.

4. An air mattress including a plurality of air tubes parallel and in the same plane, a plurality of air cushions formed of resilient material and extending upwardly therefrom so that their tops will be substantially level, means for causing communication between said air tubes and air cushions forming an air chamber, a valve for controlling the inlet port of said air chamber that permits air to enter but prevents its escape, and a spring controlled valve for regulating the escape of air from said air chamber.

5. An air mattress including a plurality of air tubes parallel and in the same plane, a plurality of air cushions formed of resilient material and extending upwardly therefrom so that their tops will be substantially level, means for causing communication between said air tubes and air cushions forming an air chamber, a valve for controlling the inlet port of said air chamber that permits air to enter but prevents its escape, and a spring controlled valve for regulating the escape of air from said air chamber, and means for regulating the tension of the spring and controlling said valve.

In witness whereof, I have hereunto affixed my signature in the presence of the witnesses herein named.

NEHEMIAH C. HINSDALE.

Witnesses:

V. H. LOCKWOOD,
O. M. McLAUGHLIN.