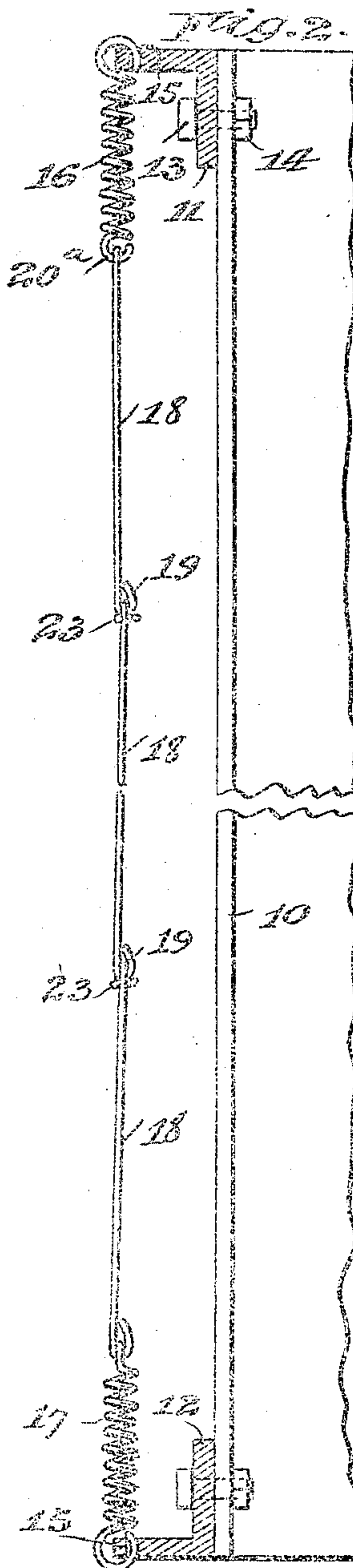
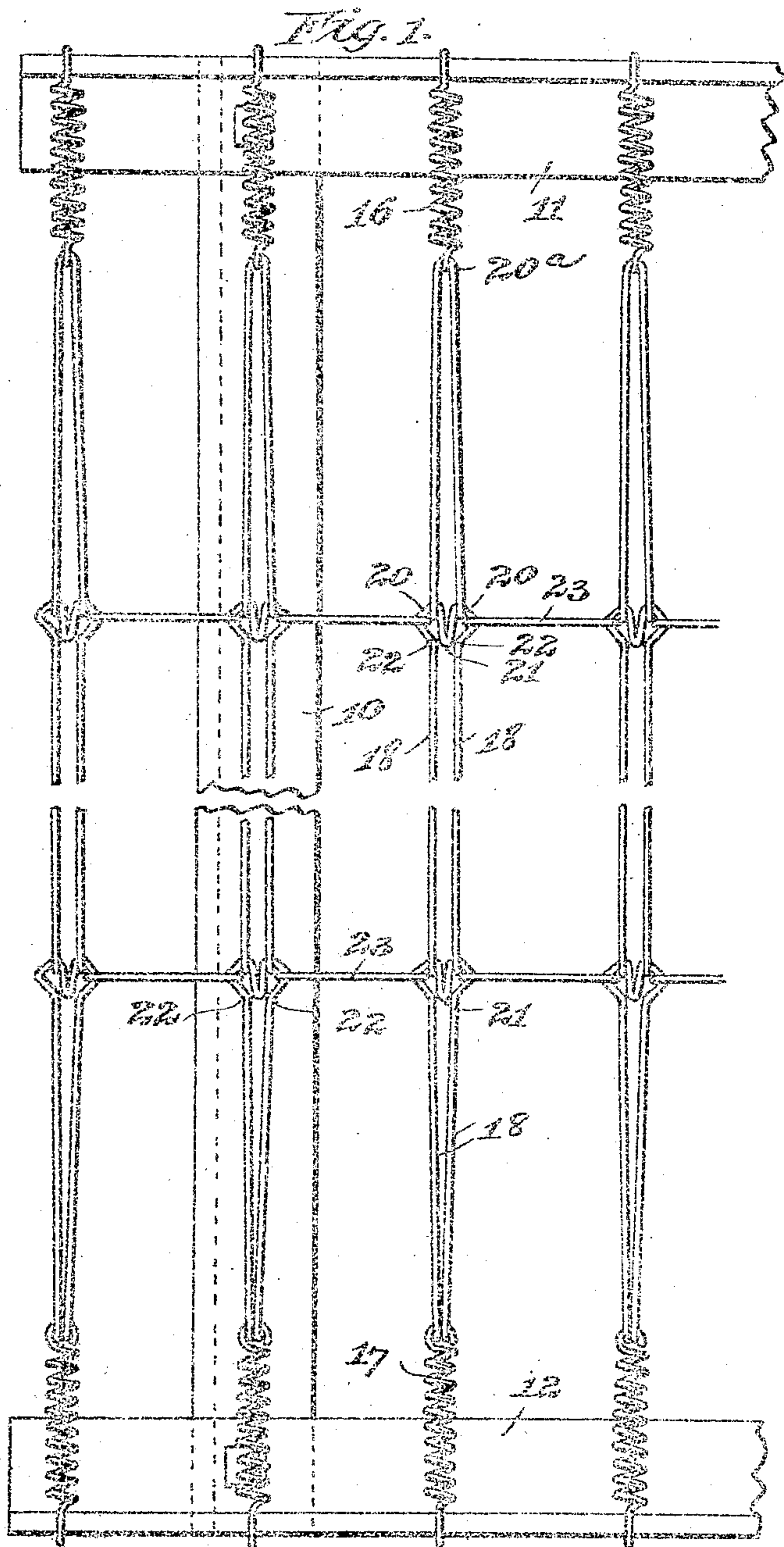


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WIRE BED BOTTOM FABRIC.  
APPLICATION FILED OCT. 12, 1907.

904,611.

Patented Nov. 24, 1908.  
2 SHEETS—SHEET 1.



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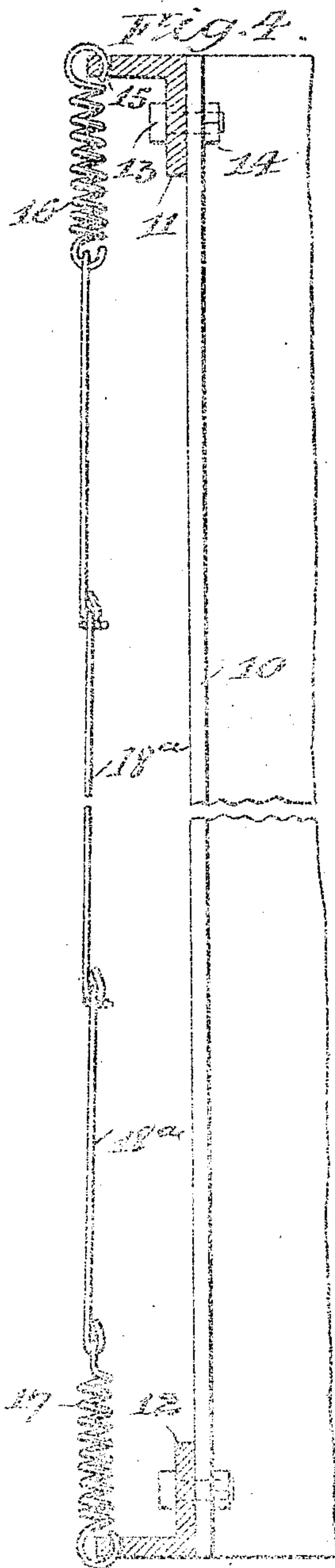
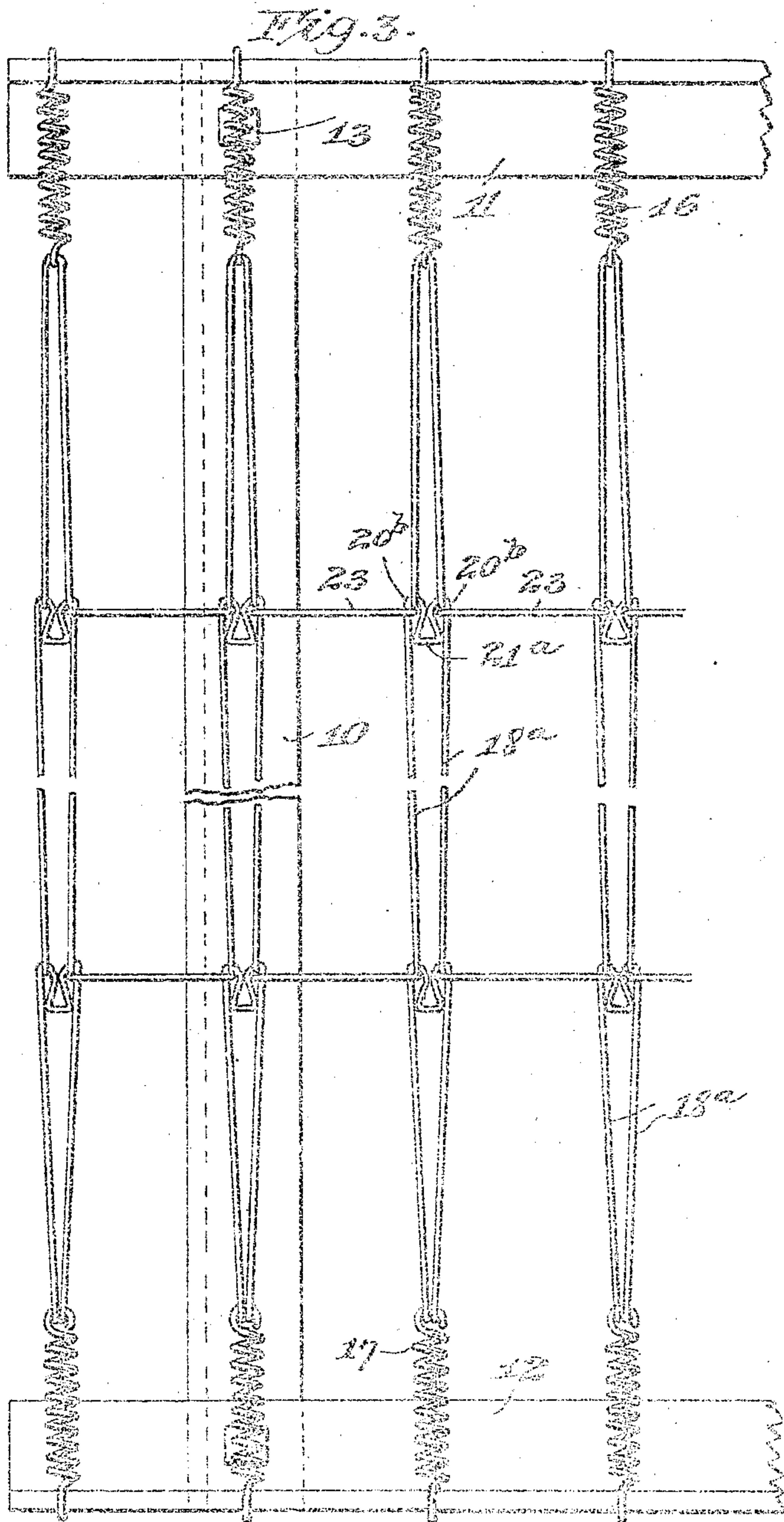
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# UNITED STATES PATENT OFFICE.

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## WIRE BED-BOTTOM FABRIC.

No. 904,611.

Specification of Letters Patent.

Patented Nov. 24, 1908.

Application filed October 12, 1907. Serial No. 397,165.

*To all whom it may concern:*

Be it known that I, CASSIUS H. HALSTEAD, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Wire Bed-Bottom Fabrics, of which the following is a specification.

This invention relates to wire fabrics, and more particularly to that class of fabrics employed for the bottoms of beds, couches, and the like.

Considerations of economy in manufacture as well as simplicity and efficiency in use have brought about a style of bed bottom fabric wherein are employed as elements of the structure a plurality of bent wire units or links of uniform size and form (in some cases slightly modified for connection to the usual helical springs) which units are arranged in straight longitudinal and transverse rows throughout the fabric, the longitudinal rows or strands being connected laterally by simple forms of links that permit of transverse flexibility in the fabric adapting the same to use for folding couches, as well as for convenience in shipment or storage. In a fabric of this character it is desirable to unite, insofar as possible, a variety of of desirable features. The fabric should be as light as possible consistently with the maximum required strength. The fabric should be flexible or foldable both longitudinally and transversely, but without relative displacement of the units or links in such folding operation. The fabric should also be free from what is known as diagonal tension that produces an undesirable inward sagging or bowing of the longitudinal marginal edges of the fabric. For economy of manufacture it is also highly desirable to employ a wire unit of such a form or character that continuous lengths or chains of such units can be produced on a wire-forming machine, thus reducing the time and labor required in the assembling of the fabric into a bed bottom form.

To produce a fabric possessing these and other desirable characteristics is the object of the present invention; and the same will be readily understood from the following description, taken in connection with the accompanying drawings illustrating approved mechanical forms, and wherein,—

Figure 1 is a plan view of a portion of a bed bottom frame and a fabric, the latter be-

ing broken out intermediate its ends. Fig. 2 is an edge view of Fig. 1, with the end bars of the frame shown in cross-section. Fig. 3 is a view similar to Fig. 1 showing a slightly modified form of the unit. Fig. 4 is an edge view of Fig. 3, with the end bars of the frame appearing in cross-section.

Referring to the drawings, 10 designates one of the longitudinal side bars of the bed frame, and 11 and 12 the upper and lower end or cross-bars, respectively, which bars are conveniently and cheaply formed of angle bars and secured by bolts 13 and nuts 14. The cross-bars 11 and 12 have their upstanding flanges apertured as shown at 15 for the reception of the end hooks of the usual series of helical springs 16 and 17 through which the upper and lower ends of the fabric are commonly united with the upper and lower cross-bars of the frame, to furnish the desired resiliency and elasticity.

Referring now to the fabric itself, in which the novel features of the present invention more particularly reside, this fabric is made up of a series of parallel longitudinal strands each formed of duplicate or substantially duplicate bent wire units connected end to end, in association with space-filling and connecting members that laterally and flexibly unite adjacent strands at intervals.

Referring first to the invention as illustrated in Figs. 1 and 2, and describing the form and construction of the individual units of the fabric, it will be seen that these are each made from a single length of wire of suitable gage, according to the load to be sustained, which wire is so bent as to form a pair of longitudinal limbs 18 constituting the main body-portion of the unit having hooks 19 at their free ends, and at the other ends of said longitudinal limbs twin loops 20 that are formed by a central reëntrant portion 21 of the wire coöperating with the laterally bent upper end portions of the longitudinal limbs 18. It will be observed that the reëntrant portion 21 lies wholly in the plane of the limbs 18, and said reëntrant portion is extended inwardly to or approximately to the points 22, at which the upper ends of the limbs are bent outwardly to form the outer sides of the loops, thereby producing substantially closed loops with which are engaged the hooked ends of cross-links 23 that connect the adjacent longitudinal strands, whereby said cross-links are prevented from

slipping downwardly on the longitudinal limbs of the units and thereby becoming displaced from normal position. In the case of the upper transverse row of units which are directly engaged with the upper row of helicals 16, I preferably form the upper end of the unit with a simple U-shaped end 20<sup>a</sup> for direct engagement with the hook of the helical; but this special construction can be omitted, if desired, and the same form of unit employed throughout the fabric utilized by connecting the helical onto either of the twin loops 20 or carrying the hook horizontally beneath or above the reëtrant member 21. In the case of the lower transverse row of units, the hooks 19 at their ends are both directly engaged with the horizontally disposed inner hooks of the lower row of helicals 17.

Figs. 3 and 4 show a slight modification in the formation of the upper end or head of the unit, the longitudinal limbs 18<sup>a</sup> in this case being extended straight past the inner sides of the loops formed by the reëtrant portion 21<sup>a</sup>, the inner end of which latter is widened, as shown, to substantially engage the limbs 18<sup>a</sup>, thereby forming, as in the case of the fabric shown in Figs. 1 and 2, a pair of twin loops 20<sup>b</sup> substantially closed so as to prevent displacement of the cross-links 23, but which loops lie wholly internally of the unit and between the longitudinal limbs thereof, whereas in the construction previously described the loops 20 project somewhat laterally of the longitudinal limbs.

In both forms of the invention the longitudinal limbs 18 and 18<sup>a</sup> of the units are straight non-extensible members that directly receive and resist the strains imposed on the longitudinal strands by reason of the imposed load when in service, as likewise the tension of the end helicals. In both forms of the invention the twin longitudinal limbs of each unit are parallel or approximately so, and the strain is divided equally between them. By causing the reëtrant members to lie wholly in the plane of the longitudinal limbs, the most perfect and efficient closure of the loops is secured with a minimum length of wire. The units are capable of being turned out in continuous chain form

by a suitable wire-forming machine, thus reducing the labor of assembling the fabric on a bed bottom to the selection of the proper lengths of longitudinal strands, their connection to the end helicals, and the application of the cross-links. The fabric as a whole presents a smooth and uniform upper surface free from hooks, knots, or other projections liable to injure the mattress, and is flexible so as to be capable of being folded both longitudinally and transversely.

By the terms "reëtrant members", "reëtrant portion" and "reëtrant bend" as used herein, I mean portions of the wire unit extending inwardly from the extreme end of the latter and lying wholly in the plane of the unit.

I claim:

1. A bent-wire unit for a bed-bottom fabric, comprising two longitudinal limbs provided at one end with hooks and at the other end with two substantially closed cross-link loops formed and separated from each other by a reëtrant bend in the center of the continuous wire of which the two limbs aforesaid are the component parts.

2. A bed-bottom fabric comprising lines of bent-wire units extending from end to end of the fabric, each unit consisting of two longitudinal limbs having at one end hooks and at the other substantially closed end loops formed by a reëtrant portion of the wire and engaged respectively by the two hooks of the next adjacent unit, together with cross-links connecting the said lines of units at intervals and engaging the aforesaid loops of the respective units.

3. A bed-bottom fabric composed of bent-wire links, each link having two longitudinal limbs formed with hooks at one end and with substantially closed loops at the other end formed by a reëtrant bend in the wire, and separated by a distance substantially equal to the width of the reëtrant portion, together with cross-links engaging the aforesaid loops of two parallel units.

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