

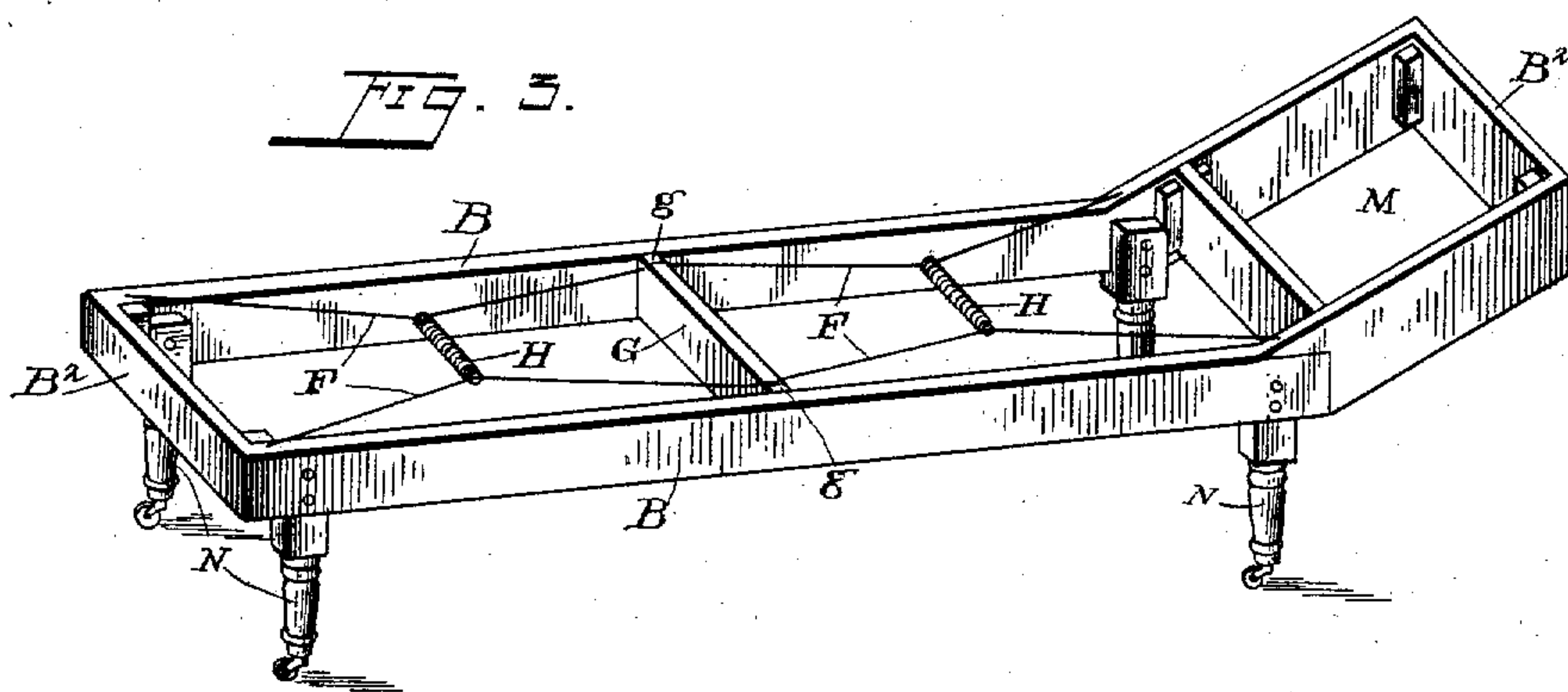
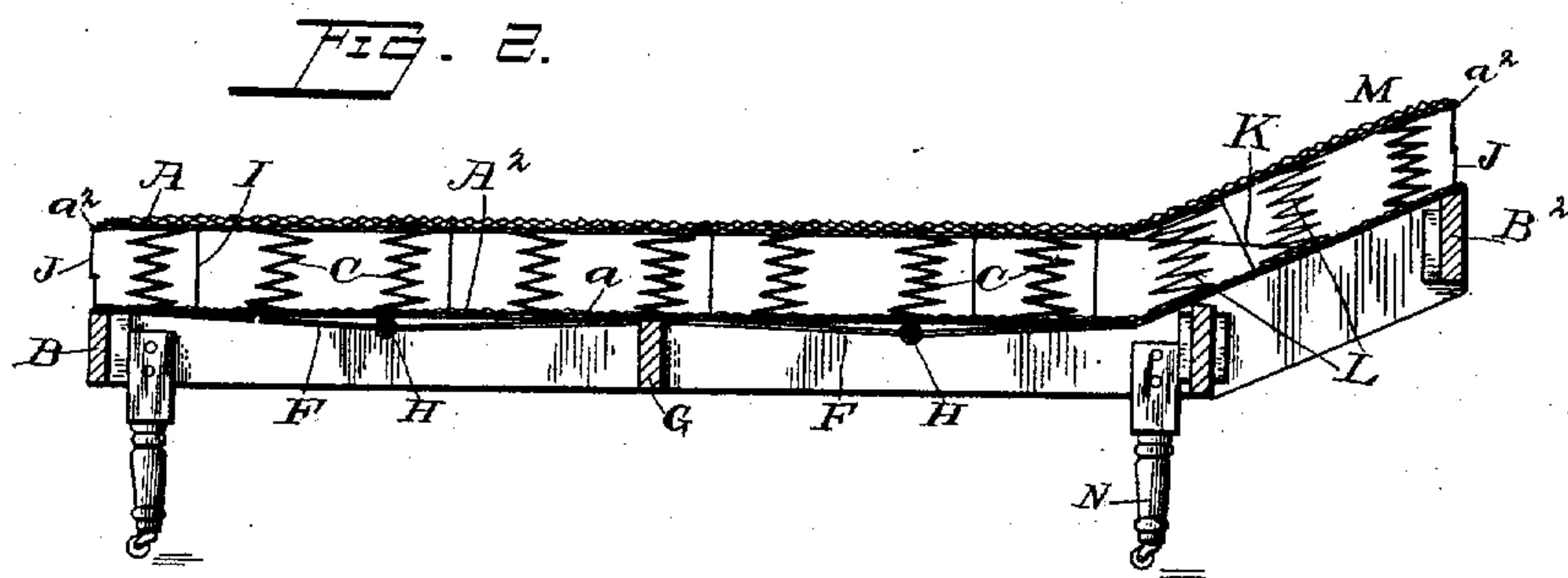
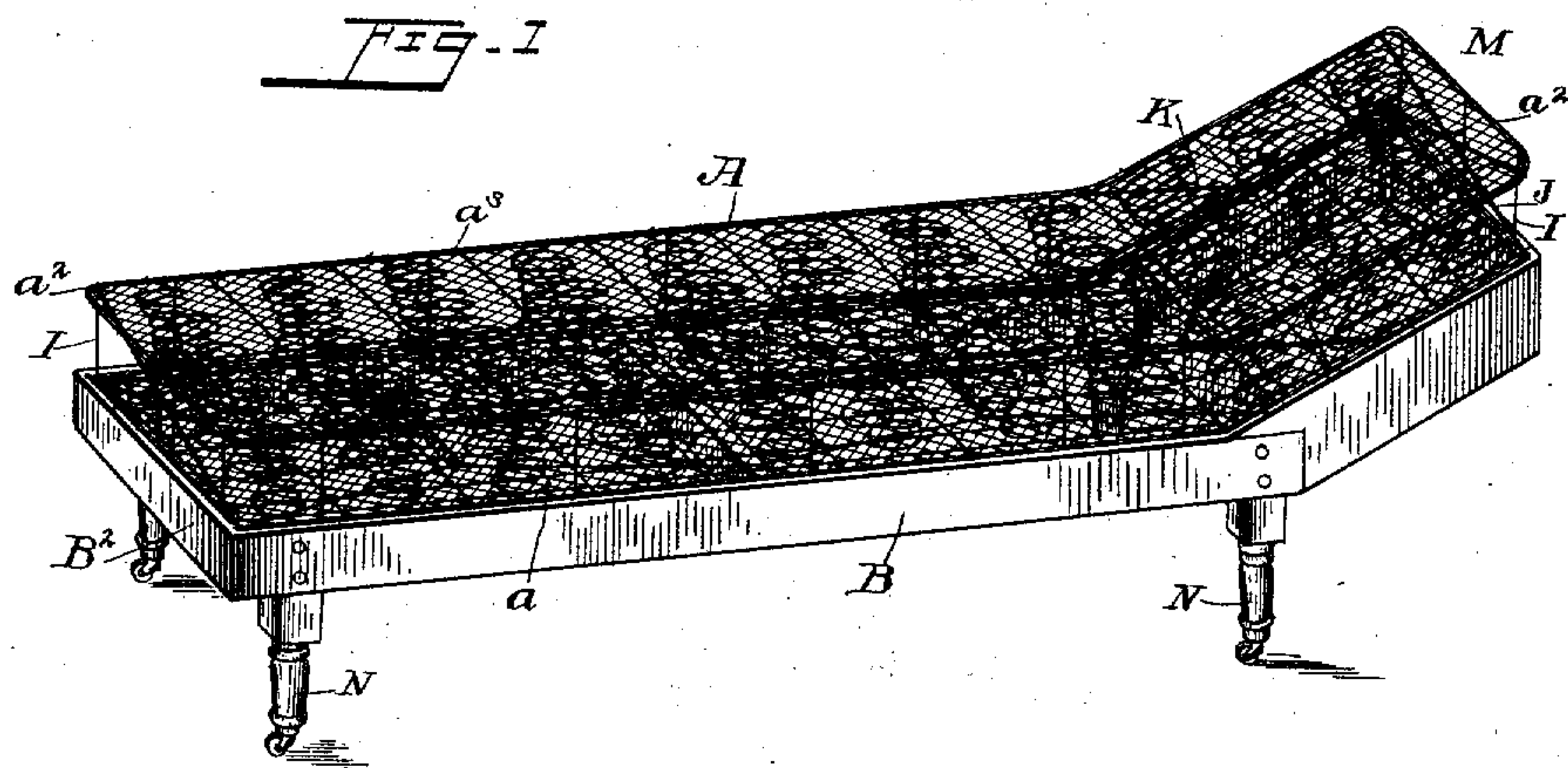
(No Model.)

2 Sheets—Sheet 1.

T. E. O'BRIEN.  
COUCH, BED, &c.

No. 564,531.

Patented July 21, 1896.



Witnesses:

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*W. M. Elliott.*

Inventor:

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by *R. S. Dyreforth,*  
his attorney.

(No Model.)

2 Sheets—Sheet 2.

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FIG. 4.

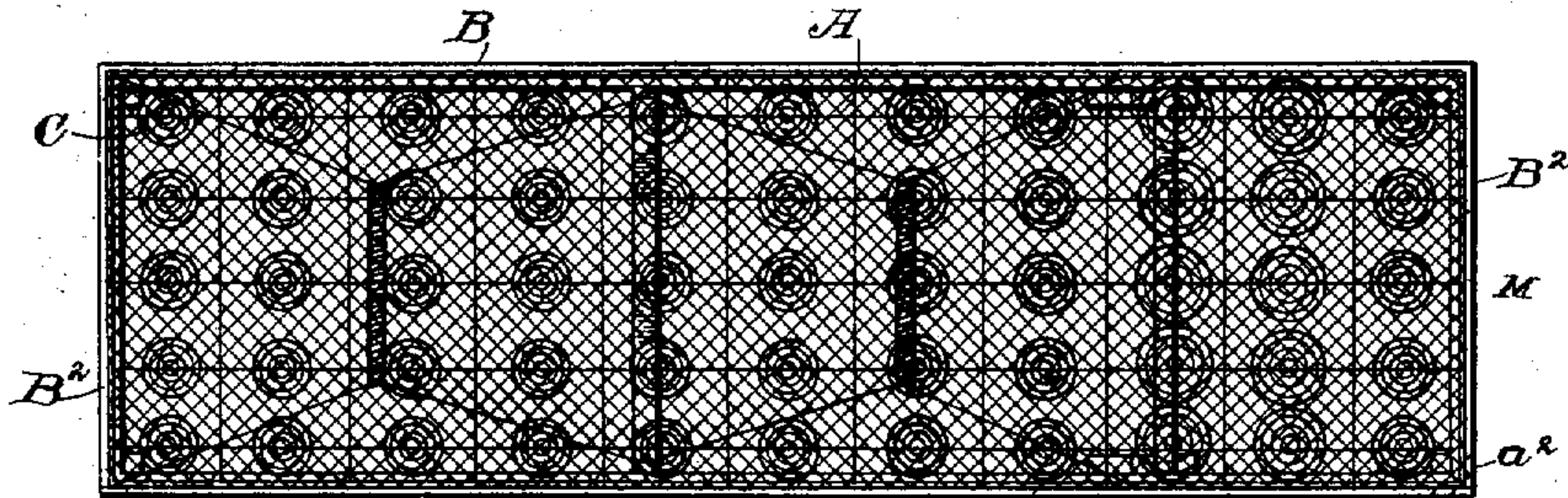


FIG. 5.

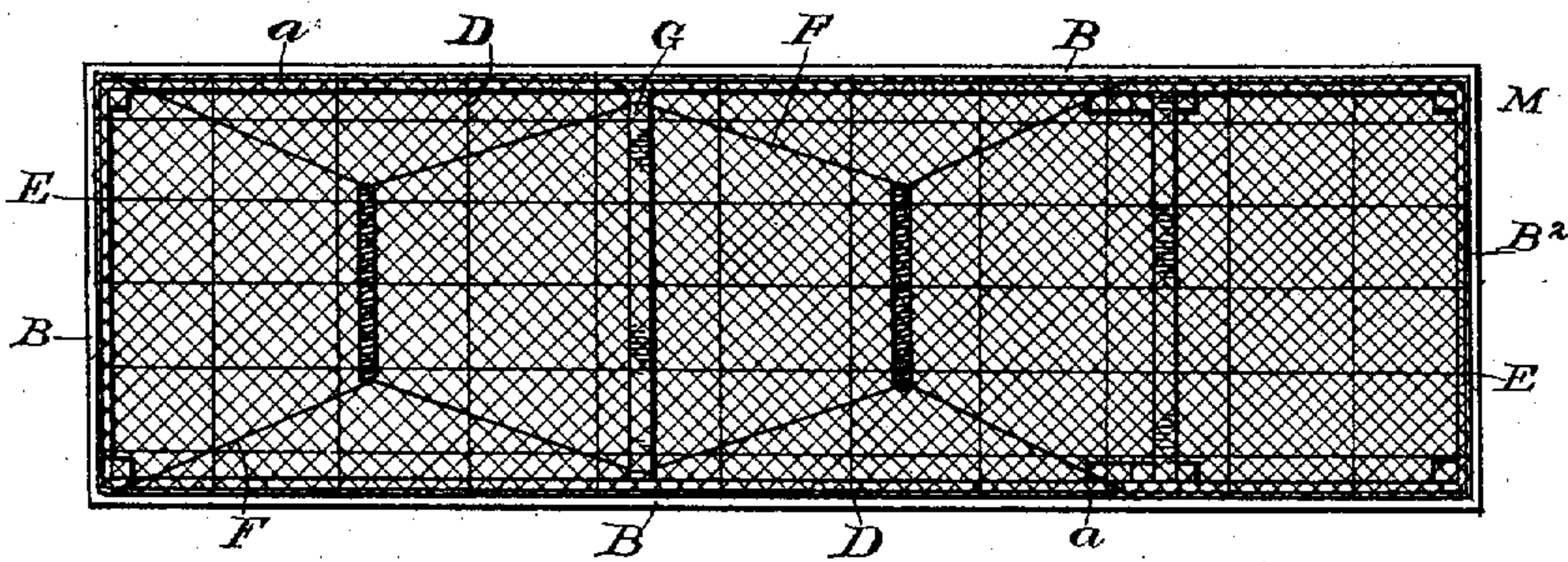
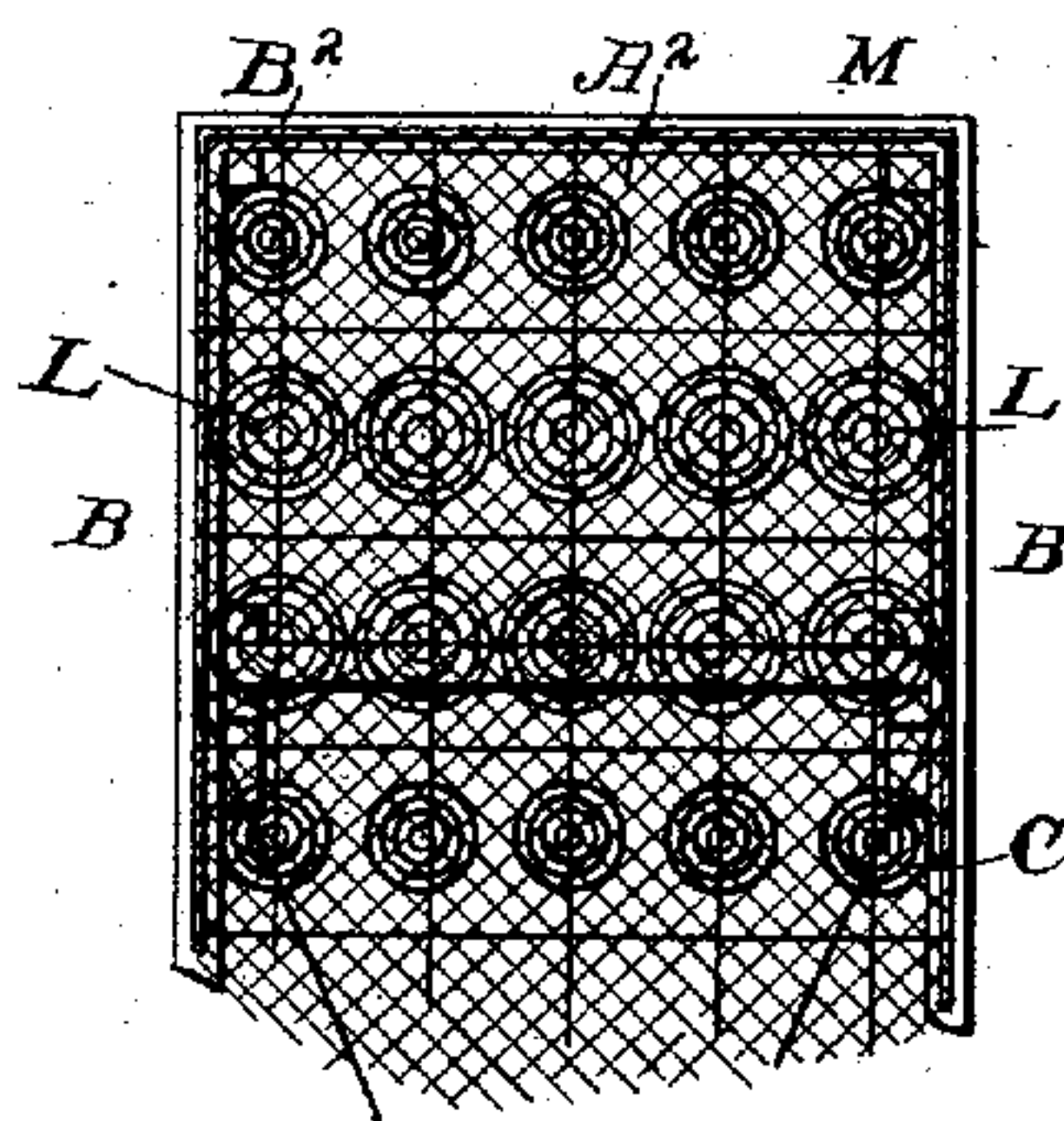


FIG. 6.



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# UNITED STATES PATENT OFFICE.

THOMAS E. O'BRIEN, OF CHICAGO, ILLINOIS.

## COUCH, BED, &c.

SPECIFICATION forming part of Letters Patent No. 564,531, dated July 21, 1896.

Application filed April 27, 1896. Serial No. 589,313. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS E. O'BRIEN, 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 Couches, Beds, &c.; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to couches, beds, &c.

The object is to produce a couch or bed having its supporting-surface constructed of woven wire associated with the couch or bed frame in such manner as to present the highest attainable resiliency with the greatest possible durability in service, and in which the parts shall be so constructed, arranged, and combined as to withstand successfully any tendency to sagging from long-continued use; furthermore, to provide a woven-wire supporting-surface in which those parts subjected to greatest strain and wear will be reinforced in such manner as to distribute the strain over the entire structure and thereby prevent the centralizing of strain at any particular point; furthermore, to provide a woven-wire supporting-surface wherein two woven fabrics separated by helical or coiled springs are employed, in which the coiled springs are so retained in place as to prevent absolutely any puncturing of the material with which the surface may finally be covered, and in which the employment of twine or webbing for holding the coiled springs in place is rendered entirely unnecessary, thereby also presenting a smooth and even surface upon which the hair or other filling employed may be spread.

In a couch, bed, or the like, characterized by my invention, I employ two woven-wire or reticulated fabrics separated and held at a suitable distance apart by helical or coiled metallic springs, the ends of which are intercoiled with the woven fabrics in such manner as to present a smooth and even surface upon which hair or other filling may be placed, when such material is employed, or to an ordinary hair mattress or other bedding, when such is used. Passing through the coils of the fabric, which will be the under one in

use, is a series of longitudinal and transverse wires or strips which cross each other, preferably at right angles, beneath the points where the bases of the coiled springs are intercoiled with the under fabric, thereby reinforcing the latter fabric against any tendency to sagging, and also serving as additional supports to the bases of the coiled springs. The ends of the longitudinal and transverse wires are secured to the border-wire, one of which passes entirely around each fabric, the border-wire of the lower fabric being, by preference, rigidly attached by staples to the upper edges of the sides and ends of the frame. The border-wire of the upper fabric is held against lateral spreading by transversely-disposed wires which pass through the coils of the upper fabric and are secured at their ends to this upper border-wire by being turned around the same. In order to hold the upper fabric down while the couch is being upholstered, I employ cords, which are secured to the upper border-wire and to the frame of the couch by means of nails or staples, or, if preferred, to the lower border-wire, end cross-cords being employed to prevent too much lateral movement of the top fabric and longitudinally-disposed cords to prevent too free endwise movement of the same.

As a matter of further and specific improvement I provide an additional reinforcing attachment, consisting of wires or strips attached at or near the corners of the frame and held apart by a centrally-arranged brace, helical springs hooked onto the said wires or strips serving to give greater resiliency to the attachment, the reinforcing device being located beneath the under fabric and the longitudinally and transversely arranged wires.

Further and more specific details of construction will hereinafter be fully described.

In the accompanying drawings, forming part of this specification, and in which like letters of reference indicate corresponding parts, I have illustrated one form of embodiment of my invention, although other forms of embodiment thereof may be employed without departing from the spirit of the same, and in the drawings—

Figure 1 is a perspective view looking from above. Fig. 2 is a vertical longitudinal sec-



tional view. Fig. 3 is a perspective view of the frame and reinforcing device, both fabrics being removed. Fig. 4 is a top plan view of the structure. Fig. 5 is a top plan view of the structure with the upper fabric and springs removed. Fig. 6 is a detail view in plan, showing the disposition of the springs at the head of the couch.

Referring to the drawings, A and A<sup>2</sup> designate, respectively, the upper and lower fabrics of the structure, the same being constructed of any suitable woven or reticulated fabric, preferably the former. The under fabric is secured to a border-wire *a*, which extends entirely around the fabric and is secured in this instance by staples or the like to the upper edges of the side and end pieces B and B<sup>2</sup>, respectively, constituting the frame of the structure.

Arranged between the two fabrics and serving to hold them at the proper distance apart is a series of helical coiled metallic springs C, the free ends of which are intercoiled with the coils of the fabrics A and A<sup>2</sup> in such manner as to present a smooth and even surface upon which hair or other filling may be placed, when the employment of the same is desired, or to a mattress or other bedding. By intercoiling the ends of the helical springs with the coils of the fabric the said ends are effectually prevented from puncturing any material placed upon the upper fabric, or of wearing out the same from attrition caused by the movement of the ends of the springs when the structure is in use.

Extending through the coils of the under fabric is a series of transversely and longitudinally arranged wires or strips D and E, the ends of which are secured to the border-wire *a* of the under fabric. The wires D and E cross each other immediately beneath the bases of the coiled springs, thereby further supporting the coiled springs and bracing the lower fabric from sagging, and also serving to distribute the strain when the structure is in use.

In order to support the under fabric and also to impart additional resiliency thereto, I employ wires or strips F, which are each constructed of a single piece of wire or the like, purposely cut longer than the base of the frame, and about an inch of each of the ends of these wires is bent at right angles and driven into the woodwork of the frame at opposite ends, the center portion of the wires being held apart on a brace G, which is provided with recesses *g* for this purpose. The slack of these wires is taken up by hooking on helical springs H, which serve not only to impart resiliency to the "reinforcing attachment," by which name I designate the wires F and springs H, but also operate to hold the wires under such tension as to keep the lower fabric in a substantially horizontal plane.

The border-wire *a*<sup>2</sup> of the upper fabric is held against lateral spreading in use by

transversely-disposed wires *a*<sup>3</sup>, which are passed through the coils of the fabric and secured to the border-wire *a*<sup>2</sup> by being turned one or more times about the same. To hold the upper fabric down while being upholstered, cords I are employed, which are secured to the upper border-wire and to the frame of the couch or bed-frame by staples or the like, or, if preferred, these cords may be secured to the border-wire of the under fabric. Cross-cords J may also be employed to prevent too much lateral movement of the upper fabric, and cords K to prevent too much horizontal movement of the same.

The springs C may be all of one size—that is to say, of equal strength for resisting pressure; but as a matter of specific improvement I prefer, when the woven fabrics are applied to a couch-frame, to have those springs which will be under the shoulders of a person reclining on the couch of less resisting power than those at the head of the couch, by which arrangement the fabric will yield to the shoulders without lowering the head of the person on the couch, thereby adding greatly to the comfort of the person and rendering the use of a pillow or other head-rest unnecessary. These lighter springs are shown clearly at L in Fig. 6, and are, in this instance, in two rows, although it is to be understood that a greater number of rows may be employed, if desired.

As here shown, the frame of the structure is provided with a raised end portion M to present a comfortable and attractive form of couch-frame; but it is to be understood that the sides and ends may all occupy the same plane to constitute a mattress for use in connection with a bed. In this latter use the legs N will be omitted.

By intercoiling the ends of the coiled springs with the fabric the employment of twine or webbing for holding the springs in place is rendered unnecessary, thereby cheapening the production of the structure and presenting a smooth and even surface for use.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A couch, bed, or the like, comprising a frame an upper and an under woven fabric, coiled springs interposed between the fabrics, and having their ends intercoiled therewith, longitudinally and transversely arranged wires passing through the coils of the under fabric and beneath the coiled springs, and a reinforcing device arranged beneath the under fabric, comprising strips or wires, secured to the frame of the structure and coiled springs hooked onto the strips or wires and operating to keep them under tension, substantially as described.

2. A bed, couch, or the like, comprising a frame, an upper and an under woven-wire fabric, the latter fabric being secured to a border-wire fixed at its sides and ends to the frame, coiled springs interposed between the



fabrics, and having their ends intercoiled therewith, longitudinally and transversely arranged wires passing through the coils of the under fabric and beneath the coiled springs, 5 and a reinforcing device arranged beneath the under fabric, comprising strips or wires secured to the frame of the structure and coiled springs hooked onto the strips or wires and operating to keep the same under ten- 10 sion, substantially as described.

3. A bed, couch, or the like, comprising a frame an upper and an under fabric, a border-wire passing entirely around each fabric and secured thereto, helical springs connect- 15 ing the fabrics, transversely-disposed wires passing through the fabrics and secured to the border-wires to prevent lateral spreading thereof, and a reinforcing device arranged beneath the under fabric, comprising strips 20 or wires secured to the frame of the structure and coiled springs hooked onto the strips or wires and operating to keep the same under tension, substantially as described.

4. A couch or bed frame comprising side 25 and end pieces and a central brace, a reinforcing device consisting of wires secured at their ends to the frame and intermediately held separated by the brace, coiled springs hooked onto the wires to keep them under 30 tension, and a woven fabric secured to the

frame and bearing upon the reinforcing device, substantially as described.

5. A bed or couch frame having a raised end portion, in combination with an upper and an under woven-wire fabric, the latter 35 fabric being secured to the frame, and helical springs arranged between the fabrics and having their ends intercoiled therewith, a number of the springs located at the raised portion of the couch being of less resisting 40 power than the remainder of the springs, substantially as described and for the purpose specified.

6. A bed or couch frame having a raised end portion, in combination with an upper 45 and an under woven-wire fabric, the latter fabric being secured to the frame, helical springs arranged between the fabrics and having their ends intercoiled therewith, a number of the springs located at the raised 50 portion of the couch being of less resisting power than the remainder of the springs, and a reinforcing device arranged beneath the under fabric, substantially as described.

In testimony whereof I affix my signature 55 in presence of two witnesses.

THOMAS E. O'BRIEN.

Witnesses:

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WENDELL GLASSER.