P. KNUPPEN.

SPRING CUSHION.

APPLICATION FILED OCT. 7, 1909.

975,695. Patented Nov. 15, 1910.

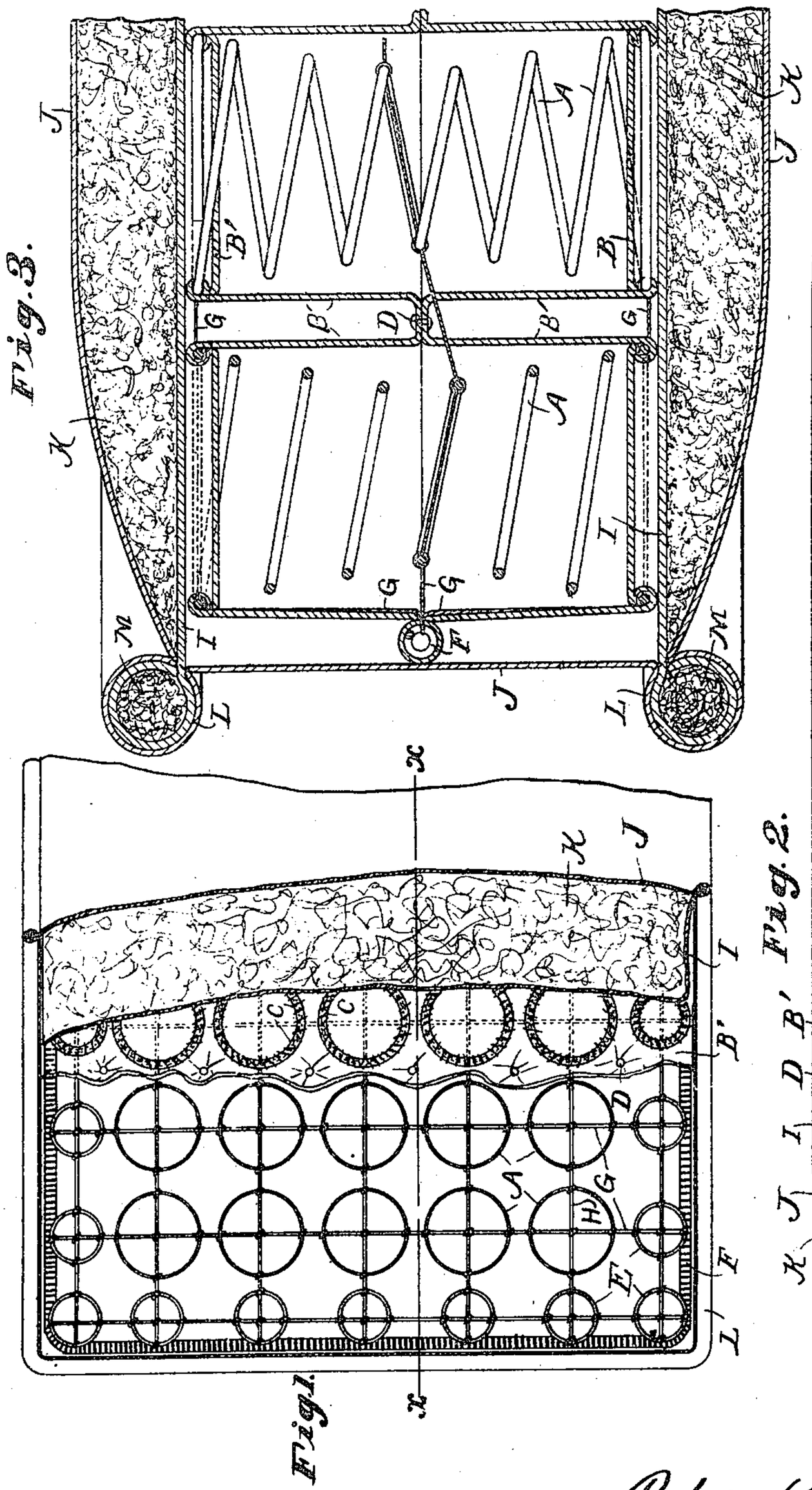

Fig. 3.

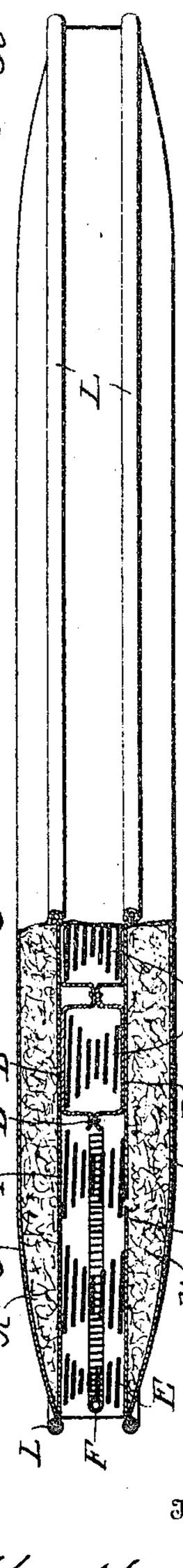

Fig. 2.

Witnesses

J. A. Otto.

L. D. Bremer

Inventor

Peter Knuppen

By Erwin & Wheeler

Attorneys

UNITED STATES PATENT OFFICE.

PETER KNUPPEN, OF MILWAUKEE, WISCONSIN.

SPRING-CUSHION.

975,695. Specification of Letters Patent. Patented Nov. 15, 1910.

Application filed October 7, 1909. Serial No. 521,610.

To all whom it may concern:

Be it known that I, PETER KNUPPEN, a citizen of the United States, residing at Milwaukee, county of Milwaukee, and State of Wisconsin, have invented new and useful Improvements in Spring-Cushions, of which the following is a specification.

My invention relates to improvements in spring cushions designed especially for mattresses, upholstery cushions and pillows.

The object of my invention is to provide a form of construction in which the springs will be firmly held at their respective ends and prevented from tilting laterally to such an extent as to cause crystallization, said springs however being permitted to yield vertically with the utmost freedom.

In the following description, reference is had to the accompanying drawings, in which—

Figure 1 is a plan view of a mattress embodying my invention. Fig. 2 is a sectional view of the same, drawn on line *x*—*x* of Fig. 1. Fig. 3 is a detail view enlarged, showing two of the springs as they are connected by the connecting coverings and stay cords.

Like parts are identified by the same reference characters throughout the several views.

A series of springs A coiled in the form of a progressive spiral, preferably tapered from each end toward the center, are placed with the axes of the respective coils in a vertical position between flexible covering sheets B and B′ respectively. These covering sheets are then gathered and folded over the top and bottom turns of each coil and secured thereto by stitching the stitches C passing around the wire composing the top or bottom turn of the coil and through the covering. The covering is so stitched to the wire as to leave sufficient slack within the coil to allow the covering to be depressed or pushed into the coil, whereby said coverings afford no resistance to the vertical movements of the spring. Between the coils, the coverings B and B′ are folded inwardly and secured together by suitable fastenings D, thus limiting the reactionary or expanding movements of the springs. The coverings B and B′ preferably consist of burlap.

The outer margins of the cushion are preferably provided with a series of springs E formed in smaller coils than the springs A and constitute a marginal row surrounding the set or series of springs A, and a resilient woven wire cable or coiled spring F extends along the outer surfaces of these coils E and constitutes an outer frame member to which the margins of the coverings B and B′ are stitched.

A series of cords or flexible stays G extend across the cushion from side to side and are secured at their respective ends to the cable F. These cords are arranged in sets, one set passing centrally over the top of each row of springs, another set passing centrally under the bottom of each row, and a third set passing directly through the center of the springs in the row, and each cord is secured, preferably by tying to the wire composing the springs, at all crossing points. Other cords H, similarly arranged in sets and similarly secured to the springs and marginal cable F, extend longitudinally of the cushion and centrally across the longitudinal rows of springs. The upper and lower cords and the coverings B and B′ are covered by a comparatively heavy strip of burlap or other flexible material I, which rests in a flat position upon the covering B′, another sheet of similar material being placed underneath the covering B. All of these parts are then inclosed by suitable ticking J, with an interposed filling of cotton, excelsior, or other suitable material K.

For larger cushions, such as mattresses, I preferably provide a flap L, which is stitched to the covering I and incloses a roll of filling M, which roll is preferably of a finer grade of material than that constituting the filling K and adapted to form a more solid filling, whereby the margins are prevented from sagging. This filling M is retained in position by stitching the flap L in a retaining position after the insertion of the filling.

A mattress or cushion formed as herein described will have no tendency to bulge at the center or to form hollows, and it is therefore not necessary to tuft the ticking or to stitch it in any manner to the other parts of the mattress except at the margins. The filling, however, may be retained in position by suitable stitches connecting it at various points with the covering I.

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

1. In a cushion, a series of metallic coils formed of resilient material, upper and lower flexible coverings folded about, and

secured to, the top and bottom turns of each of said coils, said coverings being folded inwardly between the coils and connected with each other at the sides of the coil, a second covering for said stitched and connecting coverings, a third covering comprising suitable ticking, and a filling of yielding material interposed between the second covering and the third covering.

2. In a cushion, a series of metallic coils formed of resilient material, upper and lower flexible coverings folded about, and secured to, the top and bottom turns of each of said coils, said coverings being folded inwardly between the coils and connected with each other at the sides of the coil, a second covering for said stitched and connecting coverings, a third covering comprising suitable ticking, and a filling of yielding material interposed between the second covering and the third covering, together with a cable extending around said series of resilient coils and secured to the margins of said first mentioned coverings.

3. In a cushion, a series of resilient metallic coils, a flexible covering for the upper and lower ends of said coils loosely gathered into the coils and stitched to the top and bottom turns thereof, and fastenings securing the upper and lower portions of the covering to each other between the coils, said flexible covering being folded inwardly between the coils and brought into substantial contact with each other at the fastening points.

4. In a cushion, the combination of a series of metallic coiled springs, upper and lower flexible coverings folded about and secured to the top and bottom turns of each of said springs, said coverings being folded inwardly between the springs in a position to pocket the springs between the inwardly folded portions of the coverings, a resilient cable extending around the series of springs, a set of stays connected with the cable and with the springs, together with means for holding the folded coverings in position between the springs, an outer covering and a filling of yielding material interposed between the springs and the outer covering.

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

PETER KNUPPEN.

Witnesses:

LEVERETT C. WHEELER,

O. R. ERWIN.