

H. J. KUSEL.  
 SPRING JACK STRUCTURE.  
 APPLICATION FILED NOV. 20, 1905.

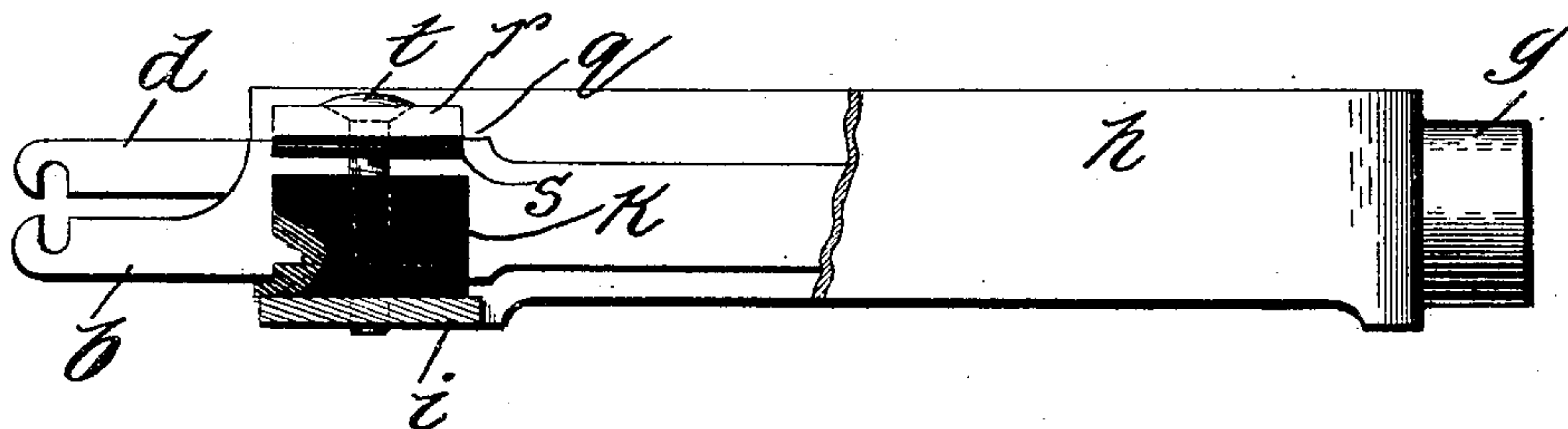
962,847.

Patented June 28, 1910.

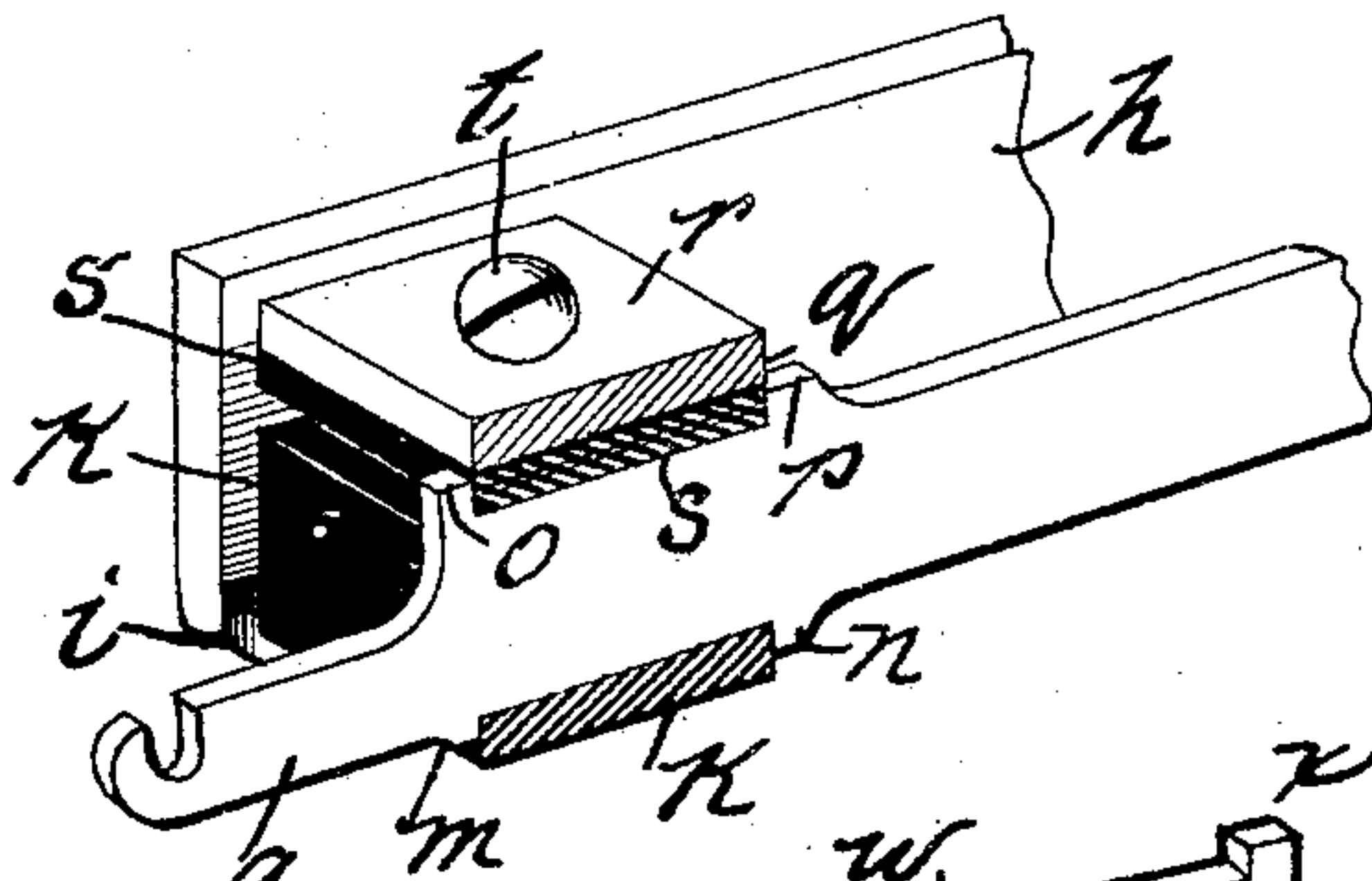
*Fig. 1*



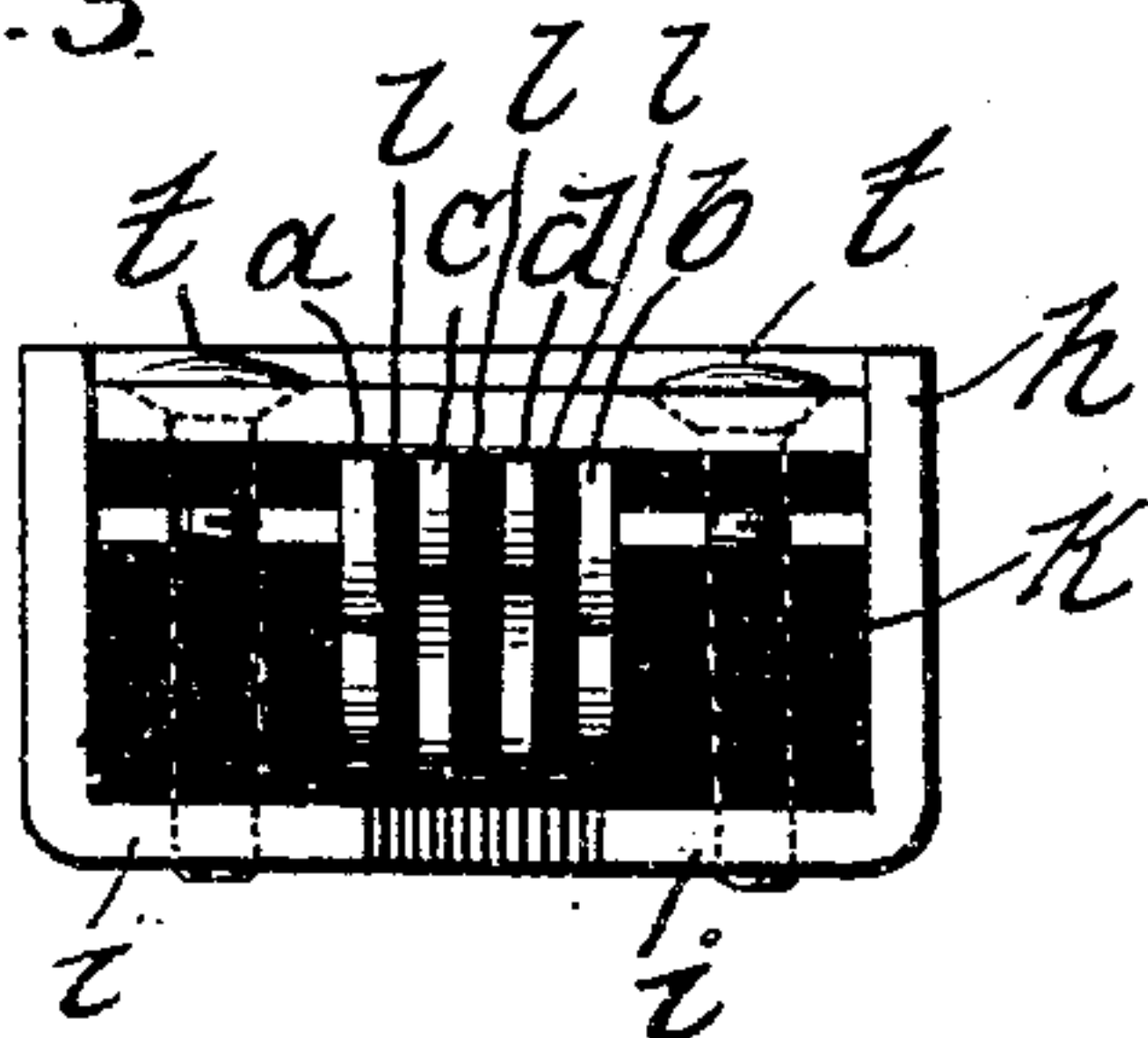
*Fig. 2.*



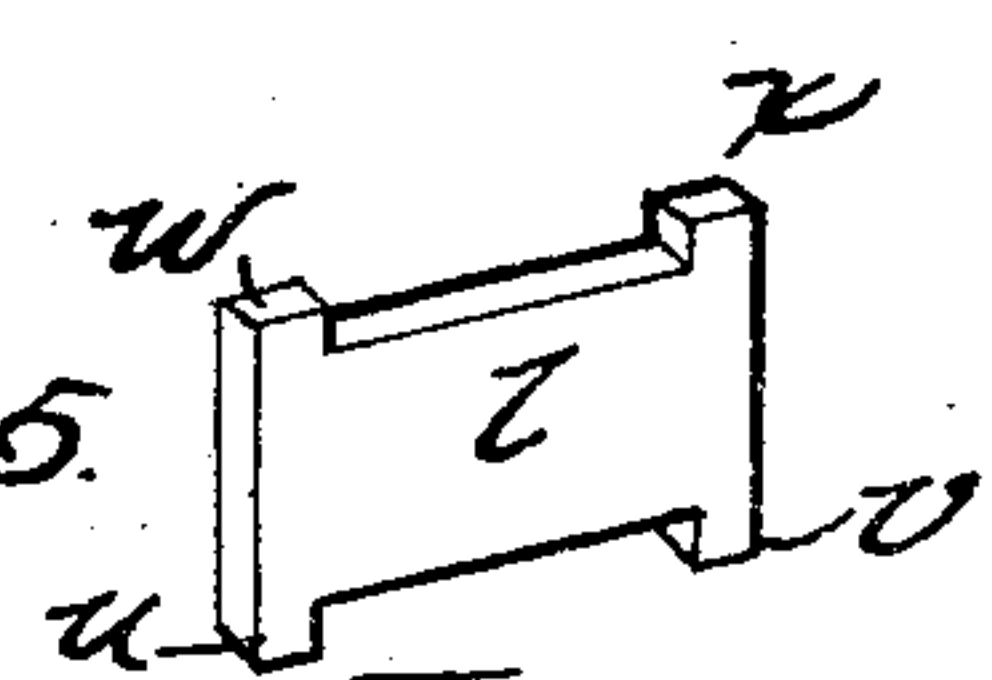
*Fig. 4.*



*Fig. 3.*



*Fig. 5.*



Witnesses:

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# UNITED STATES PATENT OFFICE.

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## SPRING-JACK STRUCTURE.

962,847.

Specification of Letters Patent. Patented June 28, 1910.

Application filed November 20, 1905. Serial No. 288,120.

*To all whom it may concern:*

Be it known that I, HARRY J. KUSEL, citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Spring-Jack Structures, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to spring jack structures, and has a number of objects and advantages.

In practicing my invention the springs or contact strips of a spring jack are provided with a block support that is recessed throughout a considerable portion of the depth of the block. The contact strips are provided with shoulders longitudinally disposed along the strips, the distance between the coöperating shoulders on a strip desirably equaling the width of the block, an intact portion of the aforesaid block being interposed between the coöperating shoulders on each strip for the purpose of preventing longitudinal movement of the strips with respect to the block. Each contact strip is also desirably provided with two more shoulders between which a clamping plate or member is disposed, the clamping plate being screwed or otherwise secured to the block, whereby said plate and block are relatively fixed, and as these screws are placed along side of the spring jack strips and extend in planes substantially parallel with the planes of the strips but not coincident with said planes, the spring jack strips are firmly united without the necessity of providing screw holes therethrough. I desirably employ, as above indicated, four shoulders for each spring jack strip, two for direct coöperation with the block of insulating material, as specified, and two for coöperation with the plate or clamping member, that serves to prevent the vertical displacement of the spring jack strips from the block. By the provision of four such shoulders for each strip and the other characteristics of the construction noted, a very compact organization is secured, the component parts of which may be quickly and easily assembled.

The structure of my invention desirably

includes a frame work mechanically fixed with respect to the spring jack structure where the contact strips are anchored and extending forwardly and there provided with a thimble adapted for the reception of a connecting plug. By this feature of construction a unitary spring jack structure may be formed wherein the contact strips or springs and the spring jack thimble are properly and securely related.

I will explain my invention more fully by reference to the accompanying drawing, showing the preferred embodiment thereof, in which—

Figure 1 indicates a plan view of a structure made in accordance with the invention, the thimble portion of the structure being slightly broken away to reveal its formation. Fig. 2 is a side elevation of the structure shown in Fig. 1, certain parts being broken away to reveal details of formation. Fig. 3 is a rear end view of the structure shown in Fig. 1. Fig. 4 is a view in perspective showing the manner in which one of the contact strips is held in place. Fig. 5 is a perspective view showing the construction of the leaves or liners of insulating material that are to separate the strips of the jack.

Like parts are indicated by similar characters of reference throughout the different figures.

The type of spring jack structure shown is one wherein my invention finds a useful embodiment and includes a long spring *a*, a short spring *b*, which usually constitute the line contact terminals or strips of the jack, a back contact strip *c* normally adapted for connection with the strip *a*, another back contact strip *d* normally adapted for connection with the strip *b*, and contacts *e—f* desirably carried by the elements *a—b* to bring about the normal connection of the strips *a—c* and the strips *b—d*. Generally, the strips *c—d* constitute terminals of a suitable signaling device, which signaling terminals are separated from the line terminals *a—b* upon the insertion of an answering or connecting plug. A thimble *g* serves to direct the plug between the curved or kinked free ends of the springs *a—b*, and, in order that a unitary jack structure may be formed in which the parts are properly disposed and permanently fixed in rel-



ative positions, I provide the thimble *g* upon a frame work *h*, that is desirably rectangular in general contour, the thimble *g* and the frame work *h* being preferably both  
 5 formed out of metal. The frame work *h* includes two lower supporting leaves *i* upon which a block *k* is desirably disposed, this block *k* being preferably made of insulating material, said block serving to carry the  
 10 strips *a—b—c—d*. The block *k* is desirably made in one integral piece and has a recess cut therein, into which the contact strips *a—b—c—d* are disposed. Leaves or liners of insulating material *l* are employed to sepa-  
 15 rate the said contact strips. Each contact strip is desirably provided with four shoulders, as indicated most clearly in Fig. 4, one pair of shoulders *m—n* cooperating with the bottom of the slot in the block *k*  
 20 to prevent longitudinal movement of the strips, while the other pair of shoulders *o—p* of each strip cooperates with the clamping element *q* also to prevent longitudinal movement of the strips. The clamp *q*  
 25 desirably includes a plate of metal *r* and liners of insulating material *s*, screws *t* being passed through the elements *r—s—k—i* for the purpose of holding the strips *a—b—c—d* in position, the direct function  
 30 of the screws and the cooperating clamping plate being to prevent vertical displacement of the spring jack strips with reference to the block *k*. The adjacent contact strips of the spring jack are separated by liners *l*,  
 35 desirably shaped as shown in Fig. 5, and provided with four shoulders *u—v—w—x* that cooperate with the block *k* and the clamping device, as do the shoulders *m—n—o—p*. As the screws *t* are passed  
 40 through the block *k* in planes substantially parallel to the planes in which the contact strips lie, and as the block *k* and the clamp *q* cooperate with the shoulders *m—n—o—p* and the shoulders *u—v—w—x* in the man-  
 45 ner that has been specified, no holes need be formed in the contact strips or the liners *l*, whereby the manufacture and construction of spring jacks is greatly improved.

While I have herein shown and particu-  
 50 larly described the preferred embodiment of my invention, I do not wish to be limited to the particular construction shown, but,

Having thus described my invention, I claim as new and desire to secure by Letters-  
 55 Patent:

1. A spring jack structure including in its formation a frame; a thimble carried there-  
 by at one end of the frame; contact strips;  
 60 a leaf formation *i* at the other end of the frame; a block upon the leaf formation for supporting the contact strips and provided with a recess receiving said strips; a clamp-  
 ing plate holding said strips from vertical displacement, screws passing through said  
 65 clamping plate, said block and the leaf for-

mation of the frame in planes substantially parallel to the planes of the contact strips; said contact strips being disposed between said screws and having shoulders which co-  
 operate to prevent longitudinal displace- 70  
 ment of the contact strips, and a leaf or leaves of insulating material also disposed in the recess in said block and separating the contact strips and having shoulders to prevent longitudinal displacement thereof, 75  
 the block and the clamping plate serving to prevent the vertical displacement thereof.

2. A spring jack structure including in its formation a frame; a thimble carried there-  
 by at one end of the frame; contact strips; a 80  
 leaf formation *i* at the other end of the frame; a block upon the leaf formation for supporting the contact strips and provided with a recess receiving said strips; a clamp-  
 ing plate holding said strips from vertical 85  
 displacement; fastening mechanisms passing through said clamping plate, said block and the leaf formation of the frame sub-  
 stantially parallel to the planes of the con- 90  
 tact strips; said contact strips being disposed between said fastening mechanisms and having shoulders which cooperate to prevent longitudinal displacement of the  
 contact strips, and a leaf or leaves of insu- 95  
 lating material also disposed in the recess in said block and separating the contact strips and having shoulders to prevent longitudinal displacement thereof, the block and the  
 clamping plate serving to prevent the verti- 100  
 cal displacement thereof.

3. A spring jack structure including in its formation a frame; a thimble carried there-  
 by at one end of the frame; contact strips; a 105  
 leaf formation *i* at the other end of the frame; a block carried by the leaf formation for supporting the contact strips and provided with a recess receiving said strips; a  
 clamping plate holding said strips from ver- 110  
 tical displacement; and screws passing through said clamping plate, said block and the leaf formation of the frame in planes  
 substantially parallel to the planes of the 115  
 contact strips, said contact strips being disposed between said screws and having shoulders which cooperate to prevent longitudinal displacement of the contact strips.

4. A spring jack structure including in its formation a frame; a thimble carried there-  
 by at one end of the frame; contact strips; a 120  
 leaf formation *i* at the other end of the frame; a block upon the leaf formation for supporting the contact strips and provided with a recess receiving said strips; a clamp-  
 ing plate holding said strips from vertical 125  
 displacement; and fastening mechanisms passing through said clamping plate, said block and the leaf formation of the frame  
 substantially parallel to the planes of the 130  
 contact strips, said contact strips being disposed between said fastening mechanisms



and having shoulders which coöperate to prevent longitudinal displacement of the contact strips.

5 5. A spring jack structure including in its formation a frame; a thimble carried thereby at one end of the frame; contact strips; a leaf formation *i* at the other end of the frame; a block upon the leaf formation for supporting the contact strips and provided  
10 with a recess receiving said strips; a clamping plate holding said strips from vertical displacement; and screws passing through said clamping plate, said block and the leaf formation in planes substantially parallel to  
15 the planes of the contact strips, said contact strips being disposed between said screws.

6. A spring jack structure including in its formation a frame; a thimble carried thereby at one end of the frame; contact strips; a

leaf formation *i* at the other end of the 20 frame; a block upon the leaf formation for supporting the contact strips and provided with a recess receiving said strips; a clamping plate holding said strips from vertical displacement; and fastening mechanisms 25 passing through said clamping plate, said block and the leaf formation of the frame substantially parallel to the planes of the contact strips, said contact strips being disposed between said fastening mechanisms. 30

In witness whereof, I hereunto subscribe my name this 17th day of November A. D., 1905.

HARRY J. KUSEL.

Witnesses:

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