No. 756,331. PATENTED APR. 5, 1904.

M. S. CONNER.

SPRING JACK FOR TELEPHONE SWITCHBOARDS.

APPLICATION FILED JAN. 5, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

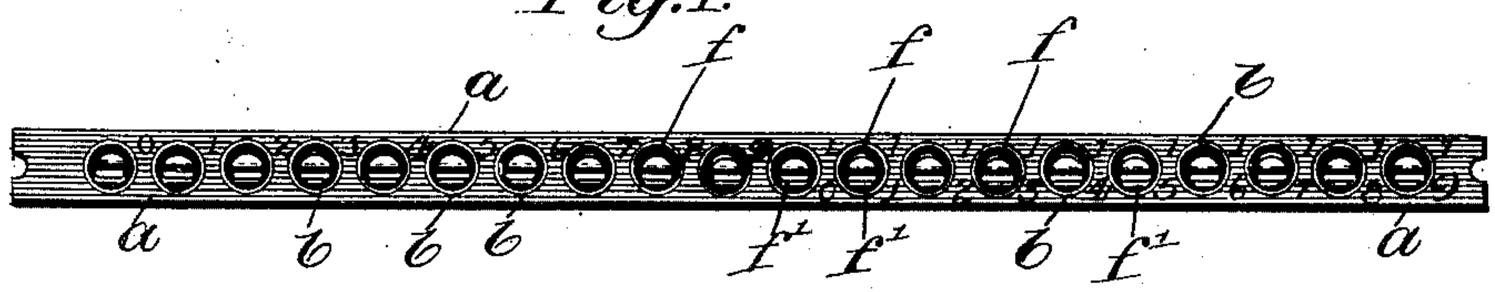

Fig. 2.

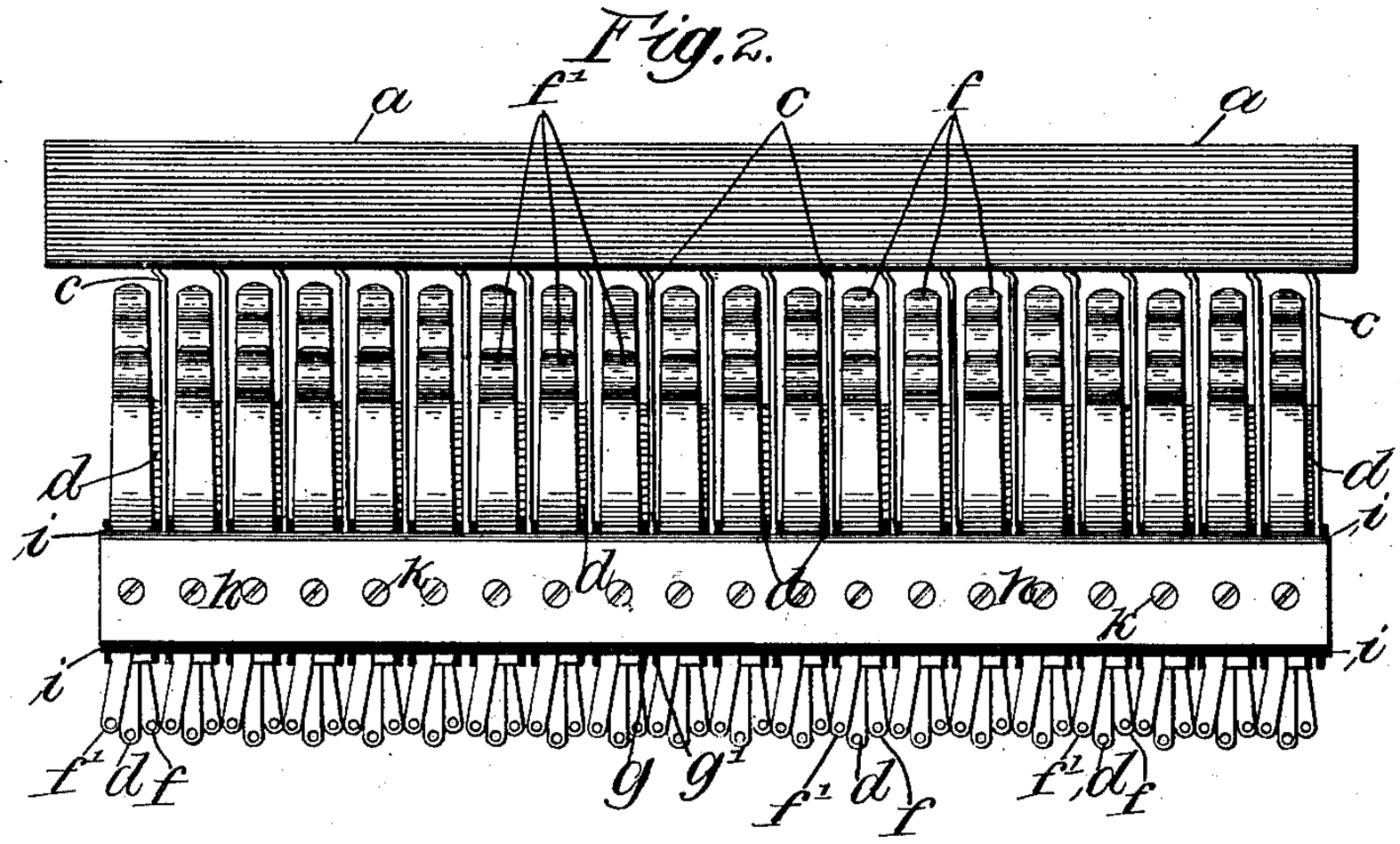

Fig. 3.

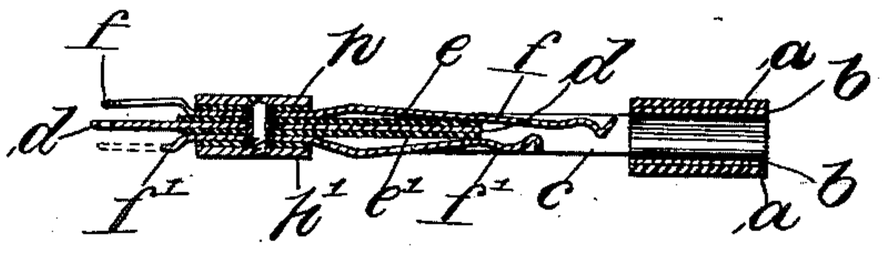

Fig. 7.

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NO MODEL. 2 SHEETS—SHEET 2.

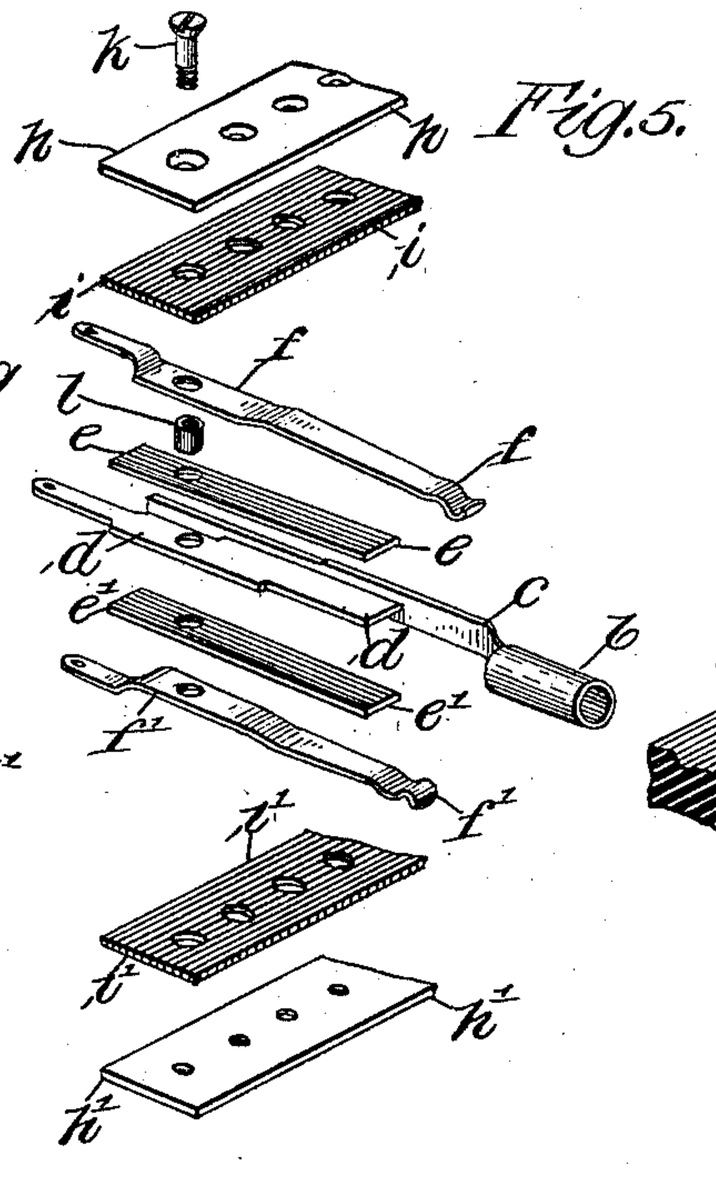


Fig. 5.

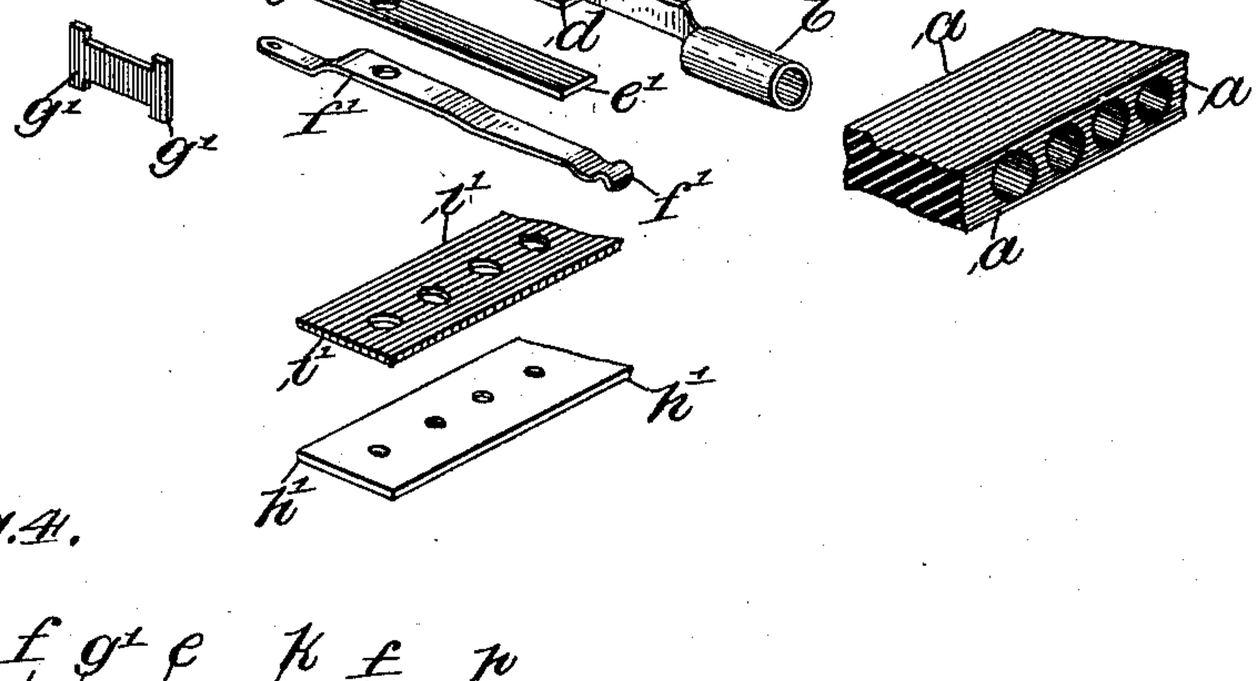


Fig. 4.

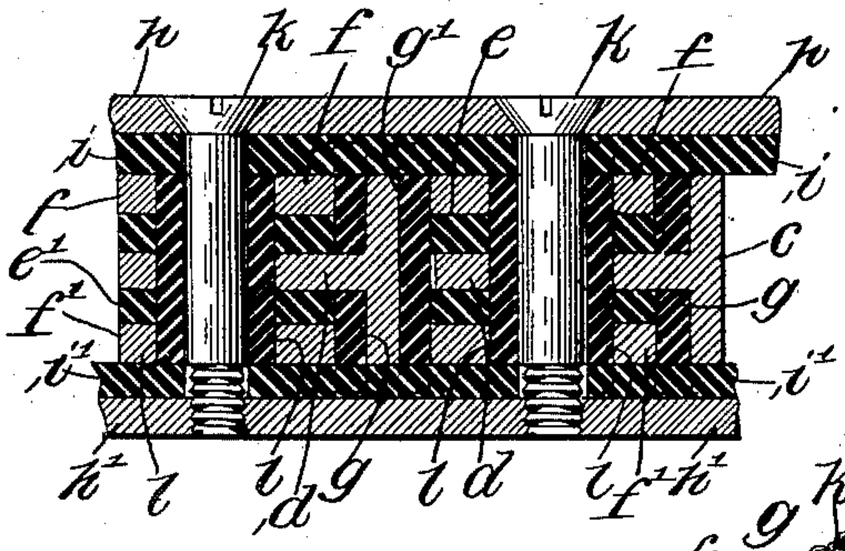
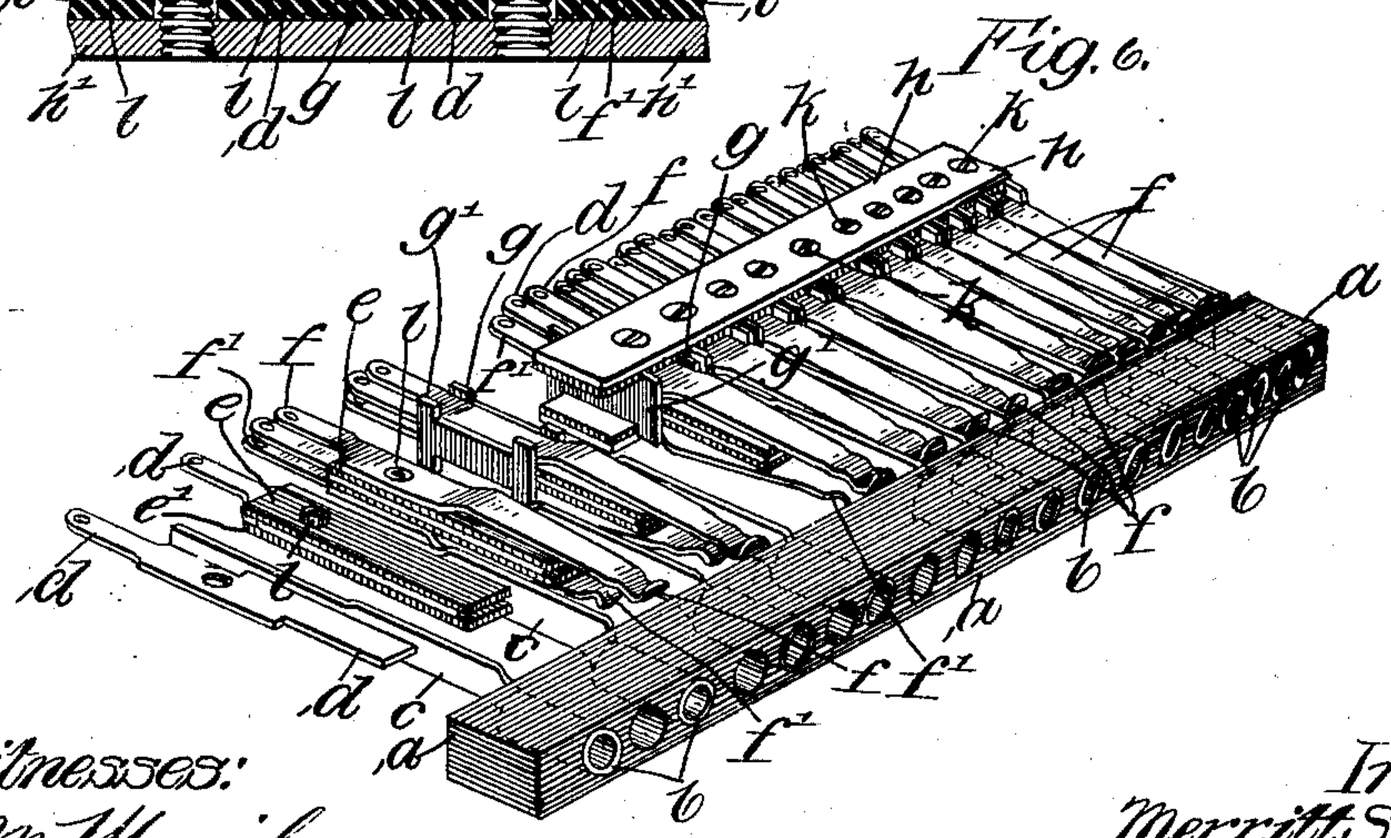


Fig. 6.



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UNITED STATES PATENT OFFICE.

MERRITT S. CONNER, OF CHICAGO, ILLINOIS.

SPRING-JACK FOR TELEPHONE-SWITCHBOARDS.

SPECIFICATION forming part of Letters Patent No. 756,331, dated April 5, 1904.

Application filed January 5, 1903. Serial No. 137,840. (No model.)

To all whom it may concern:

Be it known that I, MERRITT S. CONNER, a 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-Jacks for Telephone-Switchboards, of which the following is a full, clear, concise, and exact description.

My invention relates to spring-jacks for telephone-switchboards; and its object is in general to provide an improved structure by which a large number of spring-jacks or individual circuit-terminals may be grouped together in very small space without an undue sacrifice of strength, durability, or proper insulation of the several parts and at small cost.

It has been usual heretofore to make the spring-jacks in strips of, say, twenty jacks each and to build up the switchboard by piling up these strips one on top of another in a suitable framework. Each strip of jacks has been made up of a block or strip of insulating material, as hard rubber, with grooves or slots therein in which the switch-springs and interposed insulating-tongues are held, holes being provided in the front of the strip in alinement with the switch-springs for the reception of the test-thimbles. The front of the strip containing the test-thimbles and the rear portion holding the switch-springs have heretofore been united by a web or plate—in some instances a separate metal plate, upon which the front and rear portions were mounted; but usually the front and rear portions and the web are formed integrally from a single piece of hard rubber.

By my present invention I can dispense with the plate uniting the front and rear portions of the strip of jacks and support the rear portion directly by the tongues or rearward extensions of the test-thimbles, which are held in holes in the front strip. These rearwardly-extending tongues are provided with angular stiffening-webs, whereby sufficient rigidity is imparted to the structure, and these webs also serve to support the switch-springs and their insulating parts. The whole rear body portion of the jack may be built up of punchings held together by suitable binding means instead of necessitating a grooved frame or block to hold the switching parts. The resulting structure is light, extremely compact, and cheap to manufacture, while having ample strength and good insulation of the conducting parts.

I will describe my invention by reference to the accompanying drawings, wherein—

Figure 1 is a view in front elevation of a strip of spring-jacks constructed in the preferred manner. Fig. 2 is a view thereof from below. Fig. 3 is a sectional view taken longitudinally through one of the jacks of the strip. Fig. 4 is an enlarged longitudinal sectional view of a portion of the strip, taken transversely through the individual jacks. Fig. 5 is a view of the several parts which go to make up one section of the strip of jacks, showing said parts in the relative positions in which they are assembled. Fig. 6 is a perspective view of a portion of the strip of jacks, showing at different sections the different stages in the assembly of the several parts which go to make up a section or individual jack; and Fig. 7 shows the type of plug intended to be used with the spring-jack.

The same letters of reference are used to designate the same parts wherever they are shown.

The front strip *a* of hard rubber is bored with holes, as usual, for the reception of the test-thimbles *b b* of the jacks. The tongues or extensions *c c* of said test-thimbles project rearwardly and are disposed edgewise in parallel vertical planes like the teeth of a comb. The rear portion of each tongue is provided with an angular stiffening-web *d*, which in the structure shown is riveted at its edge along the center line of the tongue and projects laterally in the space between said tongue and its neighbor. The switch-springs and insulating parts, all made of thin punchings, are now packed in the spaces between the tongues, being supported by the horizontal webs *d*, the rear body portion of the strip of jacks being thus built up. The insulating-strips *e e'* lie upon the top and bottom sides of the web *d*. Next come the

line-springs *f f'*, the longer one on top of strip *e* and the shorter one against the lower strip *e'*. Wedges or punchings *g g'* are now forced in edgewise between the edges of the switch-springs and the sides of the tongues *c*, the whole space from one tongue to the next being thus completely filled. The punching *g* is slotted, as shown, to fit over the web *d*, while the other punching, *g'*, is interposed between the edge of the web *d* and the side of the neighboring tongue *c*. Finally, the metal binding-strips *h h'* are placed above and below the rear portion of the strip of jacks, with insulating binding-strips *i i'* interposed between them, and the switch-springs and the several parts fastened together by screws *k k*, which are passed through the switch-springs, webs, and insulating-strips from one binding-strip *h* to the other, *h'*. A rubber bushing *l* is provided to insulate each screw from the web and switch-springs through which it passes.

By adopting the construction above set forth I have been able in practice to mount three-point spring-jacks in strips five-sixteenths of an inch thick with a distance of five-sixteenths of an inch from center to center of each jack. A multiple switchboard having twenty thousand line-terminals within the reach of a single operator is thus made practicable.

I claim—

1. A strip of spring-jacks comprising an insulating front strip *a* having plug-holes therein, test-thimbles held in said holes and having rearwardly-extending tongues disposed edgewise in parallel vertical planes, a horizontal stiffening-web carried by each tongue and projecting laterally therefrom toward the neighboring tongue, switch-springs and their insulating-strips supported by said webs, insulating-pieces *g g'* interposed between the edges of the switch-springs and the sides of the said tongues, said switch-springs, insulating strips and pieces completely filling the spaces between the tongues at the rear body portion of the strip of jacks, binding-strips extending across the row of spring-jacks thus formed, and screws holding the several parts together.

2. A strip of spring-jacks comprising the front supporting-strip *a* having plug-holes therein, test-thimbles *b* held in said holes and having rearwardly-extending tongues *c*, an angular stiffening-web *d* carried by and forming a part of each tongue, switch-springs with suitable insulating parts supported by said stiffening-webs, and means for binding the parts together, substantially as described.

3. A strip of spring-jacks comprising a supporting-strip *a* having holes therein, thimbles *b* mounted in said holes having rearwardly-extending tongues *c*, switch-springs and their insulating parts mounted upon and supported entirely by said tongues and otherwise independent of the strip *a*, the rear body portion of the strip being built up of the tongues and springs and their insulating parts into a solid continuous structure and means for binding the parts together.

In witness whereof I hereunto subscribe my name this 29th day of December, A. D. 1902.

MERRITT S. CONNER.

Witnesses:

DE WITT C. TANNER,

EDWIN H. SMYTHE.