No. 746,299. PATENTED DEC. 8, 1903.

F. P. D'ARCY.

SPRING.

APPLICATION FILED MAR. 24, 1902.

NO MODEL.

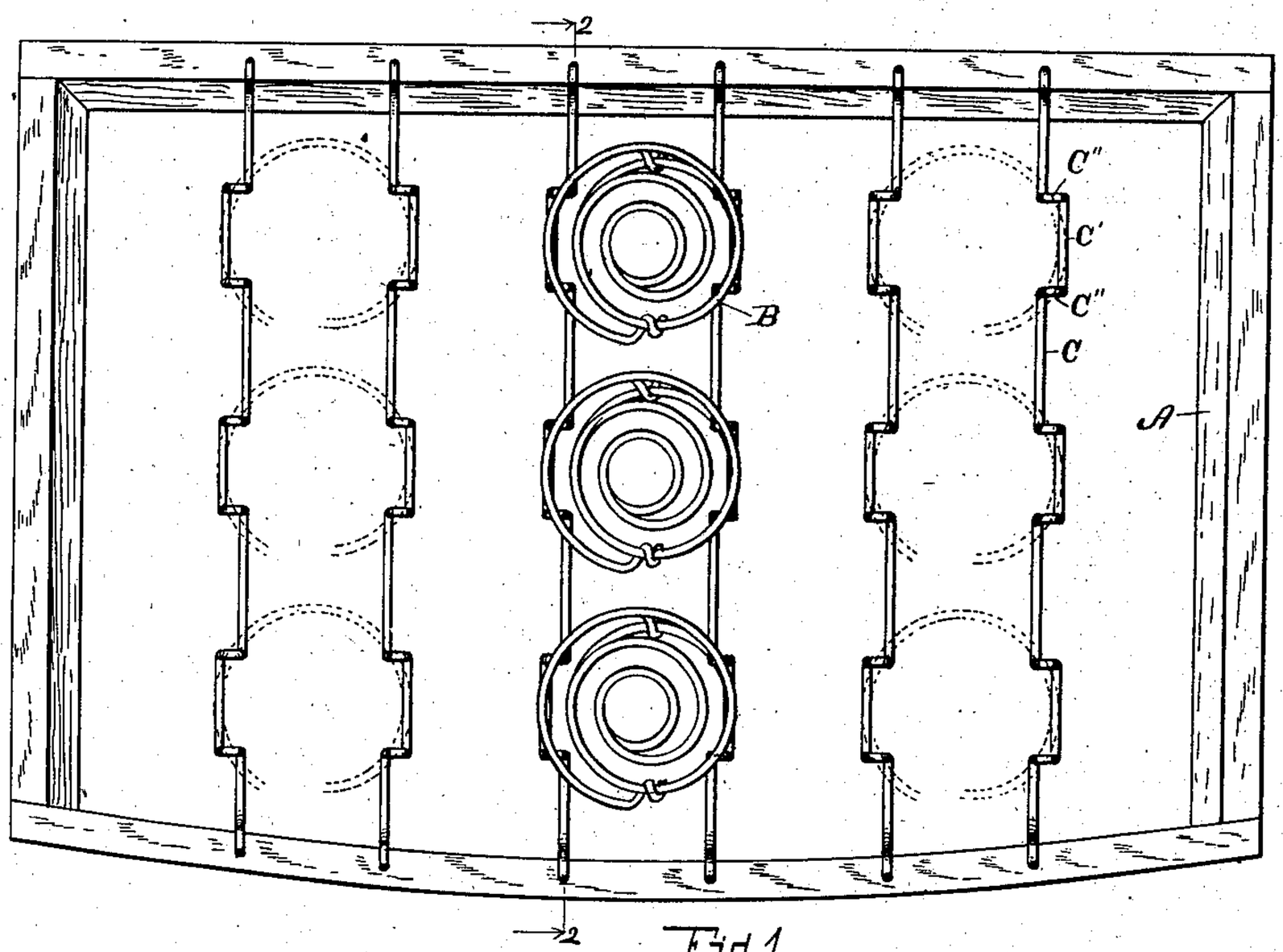

Fig. 1

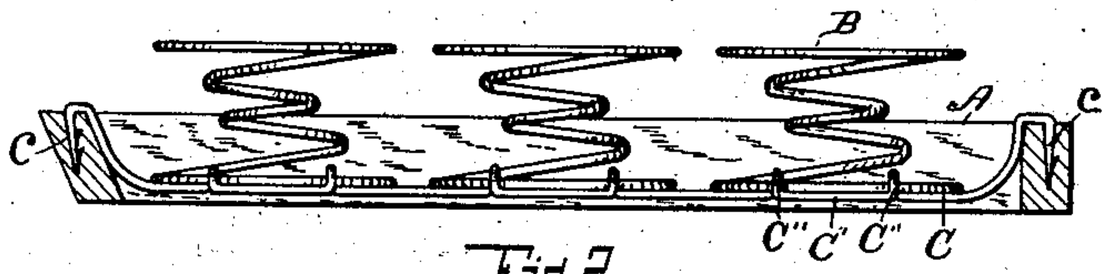

Fig. 2

Fig. 7

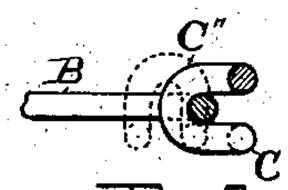

Fig. 6

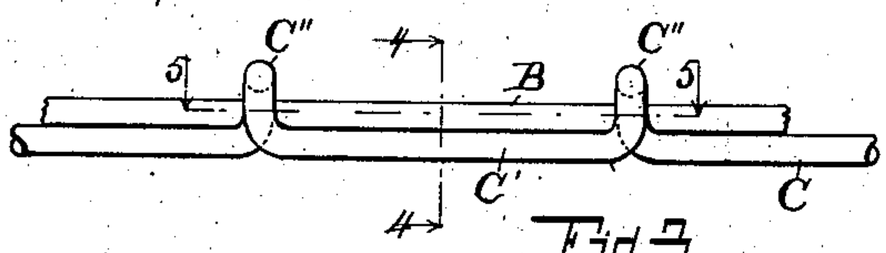

Fig. 3

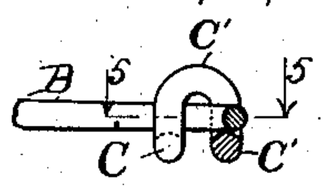

Fig. 4

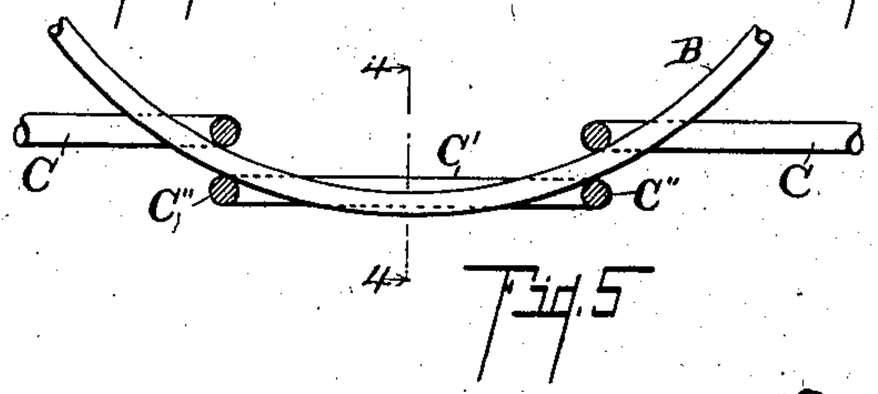

Fig. 5

Witnesses:

Irene Adams

Otis A. Earl

Inventor,

Frank P. D'Arcy

By Fred L. Campbell

Att'y.

No. 746,299. Patented December 8, 1903.

UNITED STATES PATENT OFFICE.

FRANK P. D'ARCY, OF KALAMAZOO, MICHIGAN.

SPRING.

SPECIFICATION forming part of Letters Patent No. 746,299, dated December 8, 1903.

Application filed March 24, 1902. Serial No. 99,780. (No model.)

To all whom it may concern:

Be it known that I, FRANK P. D'ARCY, a citizen of the United States, residing at the city of Kalamazoo, in the county of Kalamazoo and State of Michigan, have invented certain new and useful Improvements in Springs, of which the following is a specification.

This invention relates to improvements in springs for cushions or the like.

The objects of this invention are, first, to provide an improved spring for cushions or the like in which the parts shall be securely retained in position in a simple and effective manner; second, to provide an improved spring for cushions or the like in which the parts may be quickly and easily assembled and in which the parts are simple and economical to manufacture; third, to provide an improved spring for cushions or the like which can be shipped in the knockdown and be quickly and easily assembled by the user.

Further objects will definitely appear in the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined, and pointed out the claims.

A structure embodying the features of my invention is fully illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a top plan view of a structure embodying the features of my invention, portions being shown in dotted lines to show the relation of the parts. Fig. 2 is a detail cross-sectional view taken on a line 2 2 of Fig. 1, portions being shown in full lines to show the details of construction. Fig. 3 is an enlarged detail view showing the manner of connecting the spiral springs B to the cross-bars C. Fig. 4 is a detail cross-sectional view taken on lines 4 4 of Figs. 3 and 5. Fig. 5 is a detail longitudinal sectional view taken on line 5 5 of Figs. 3 and 4. Fig. 6 is a detail cross-sectional view showing in dotted lines the position the parts assume in uniting the same. Fig. 7 is a detail view of the end of one of the cross-bars C.

In the drawings all of the sectional views are taken looking in the direction of the little arrows at the ends of the sectional lines, and similar letters of reference refer to the similar parts throughout the several views.

Referring to the lettered parts of the drawings, A represents the wood frame of a cushion, which may be of any desired size or shape, that illustrated being adapted for use in a carriage.

B represents spiral springs, which are of the usual construction.

Cross bars or rods C are provided, and these are formed with loops C″ C″ at intervals to form hooks for holding the spiral springs. The loops C″ are preferably of some distance apart, as at C′, as this serves to hold the spring more rigidly in position. The rod is stiffened by the treatment. A pair of these cross bars or rods C are provided for each series of springs and are hooked into the bottom coil of the spring in opposite directions, so that when the bars are fastened to the frame A the ends are bent into hooks, which are driven into the frame. I prefer to form barbs on the ends to assist in retaining the same. If it is desirable, after placing the springs on the cross-bars the loops may be bent down so that it will be impossible to remove the springs, although this is not an essential, as when the same are assembled and secured to the frame the springs are securely retained in position, and it is impossible to remove them without loosening one of the cross-bars. I prefer to form the hooks in the cross-bars as illustrated. I am aware that there are various ways of forming hooks or loops on the cross-bars, however, which would form practical structures. The hooks, however, must be considerably separated to form a base for the attachment of the base or bottom coil of the springs, so that the spring will not yield and tip over in the direction of the length of the rod and will be retained on the top of the base in all directions, and thus effectively supported so that it cannot be displaced in use. This is of the greatest importance in these cushion structures, as it saves the tying of the tops of the springs together and yet retains the springs absolutely in one position, so that they will not by vibration wear into the cushion and so that they will always be in the correct and proper position to secure the best results. I

believe, however, that the form illustrated is the simplest to construct and the most satisfactory in use, although I am aware that it is capable of considerable structural variations without departing from my invention.

The cross-bars C might be easily secured to the frame A by other means than those illustrated. The means illustrated on account of its economy and simplicity and the rapidity with which the parts may be assembled is very superior.

Other variations in structural details will readily appear to those skilled in the art to which my invention appertains.

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

1. In combination, a frame, a plurality of parallel supporting-wires arranged in pairs, a row of springs supported by each pair of wires independently of the adjoining springs, said wires passing beneath the lower coils within the periphery thereof and contacting with each spring at four widely-separated points, said wires having hook-shaped bends engaging the lower coils of the spring intermediate of the points of contact, substantially as described.

2. In a spring structure the combination of a suitable frame: coiled springs: pairs of independent parallel supporting-rods, the opposite ends of which are suitably secured to said frame, the said rods having hooks which are formed intermediate the ends thereof, and extended into and engaging the bottom coils of said springs, thereby retaining them in position, as specified.

3. In a spring structure, the combination of a suitable frame; coiled springs: a series of independent pairs of parallel supporting-rods, the opposite ends of which are suitably secured to the said frame, the said pairs of rods having hooks formed intermediate the ends of said rods extending into and engaging the bottom coils of said springs and retain them in position, as specified.

4. In a spring structure a suitable supporting-frame; a coiled spring; a pair of supporting-rods extending beneath the bottom coil of said spring and having upwardly and outwardly extending hooks formed intermediate of their length engaging the bottom coil of said spring to form an independent support for said spring, as specified.

In witness whereof I have hereunto set my hand and seal in the presence of two witnesses.

FRANK P. D'ARCY. [L. S.]

Witnesses:
TRENT ADAMS,
OTIS A. EARL.