

F. P. D'ARCY.  
 SPRING HEEL.  
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903,179.

Patented Nov. 10, 1908.

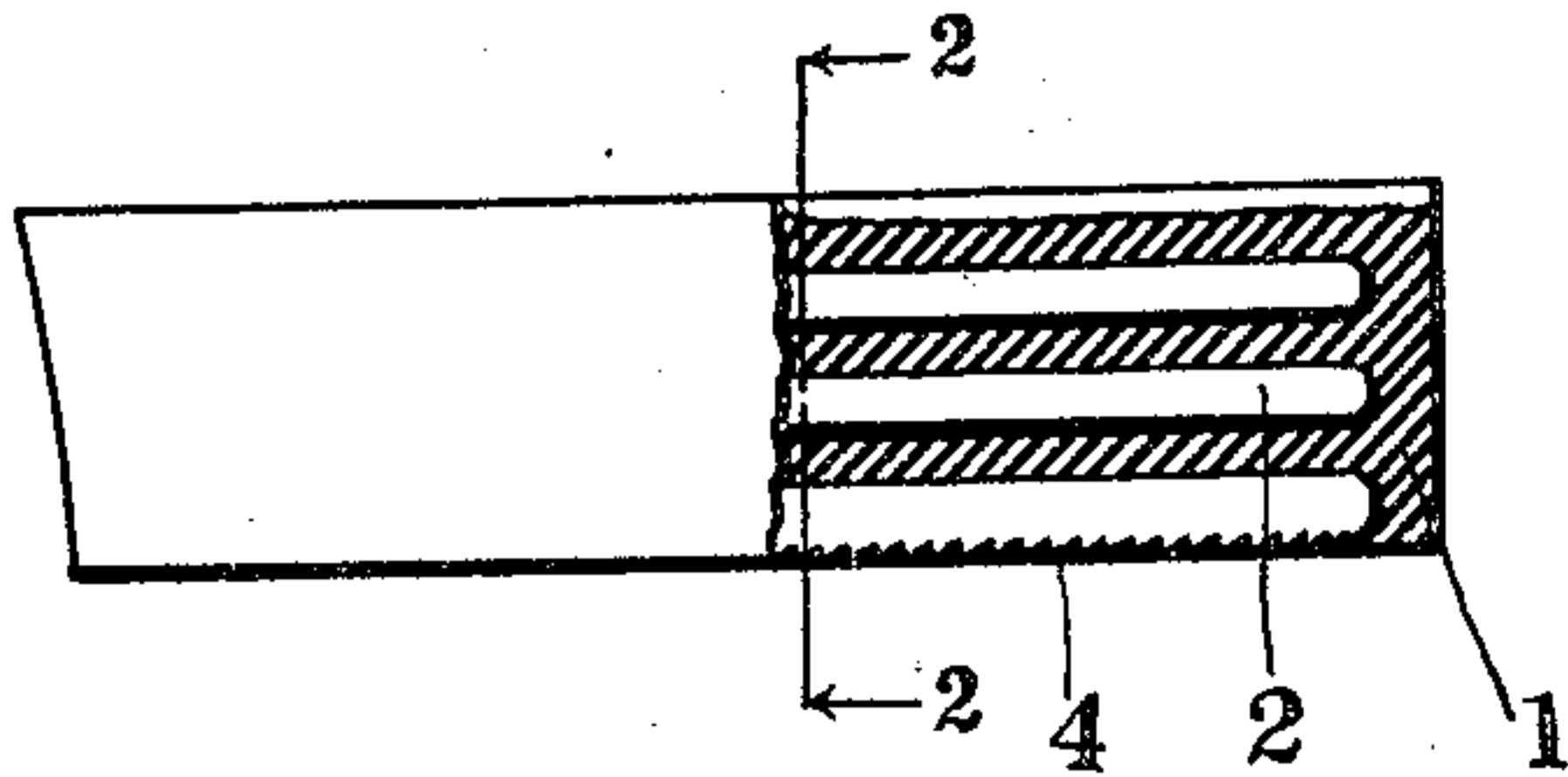


Fig. 1.

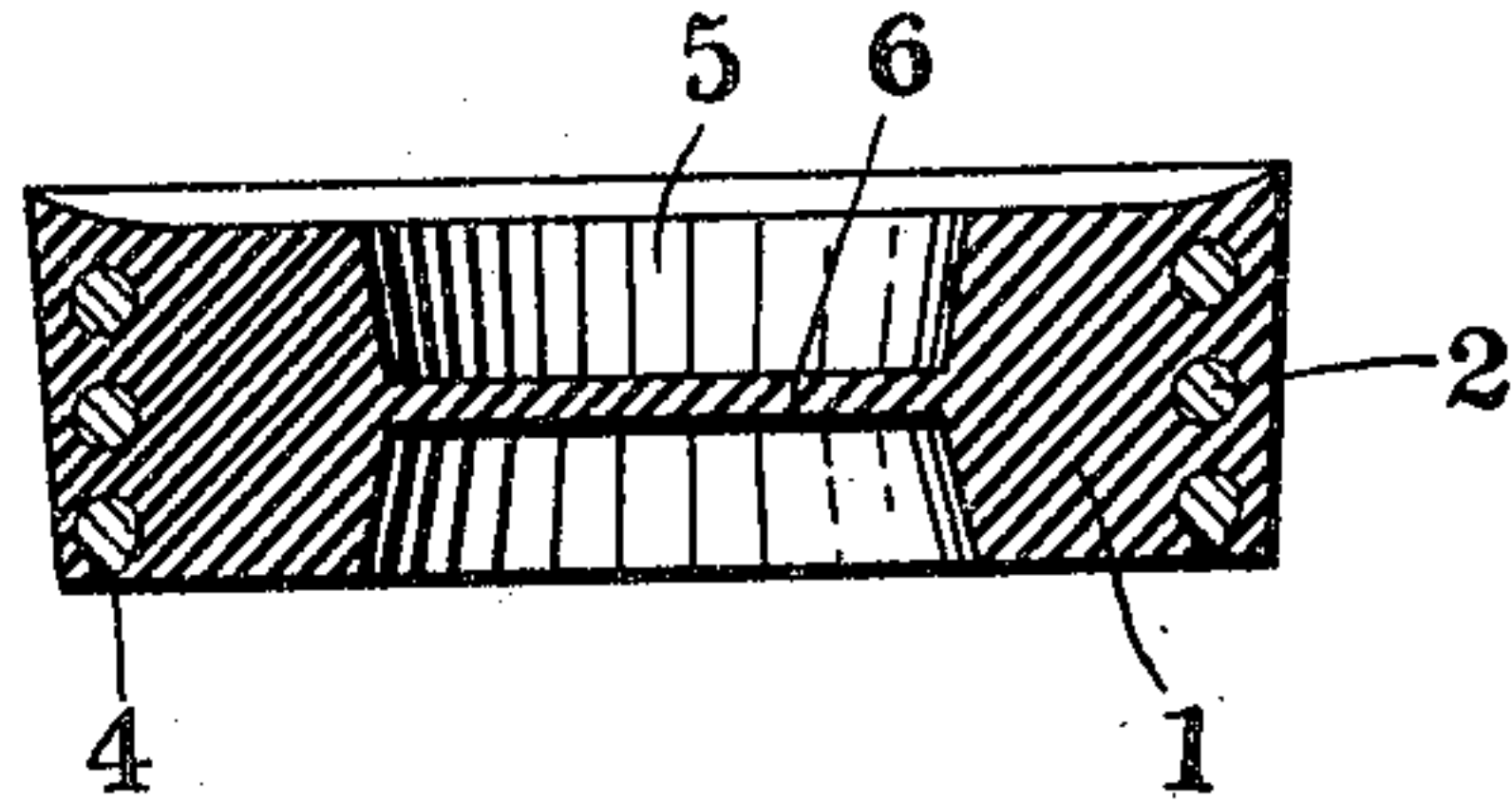


Fig. 2.

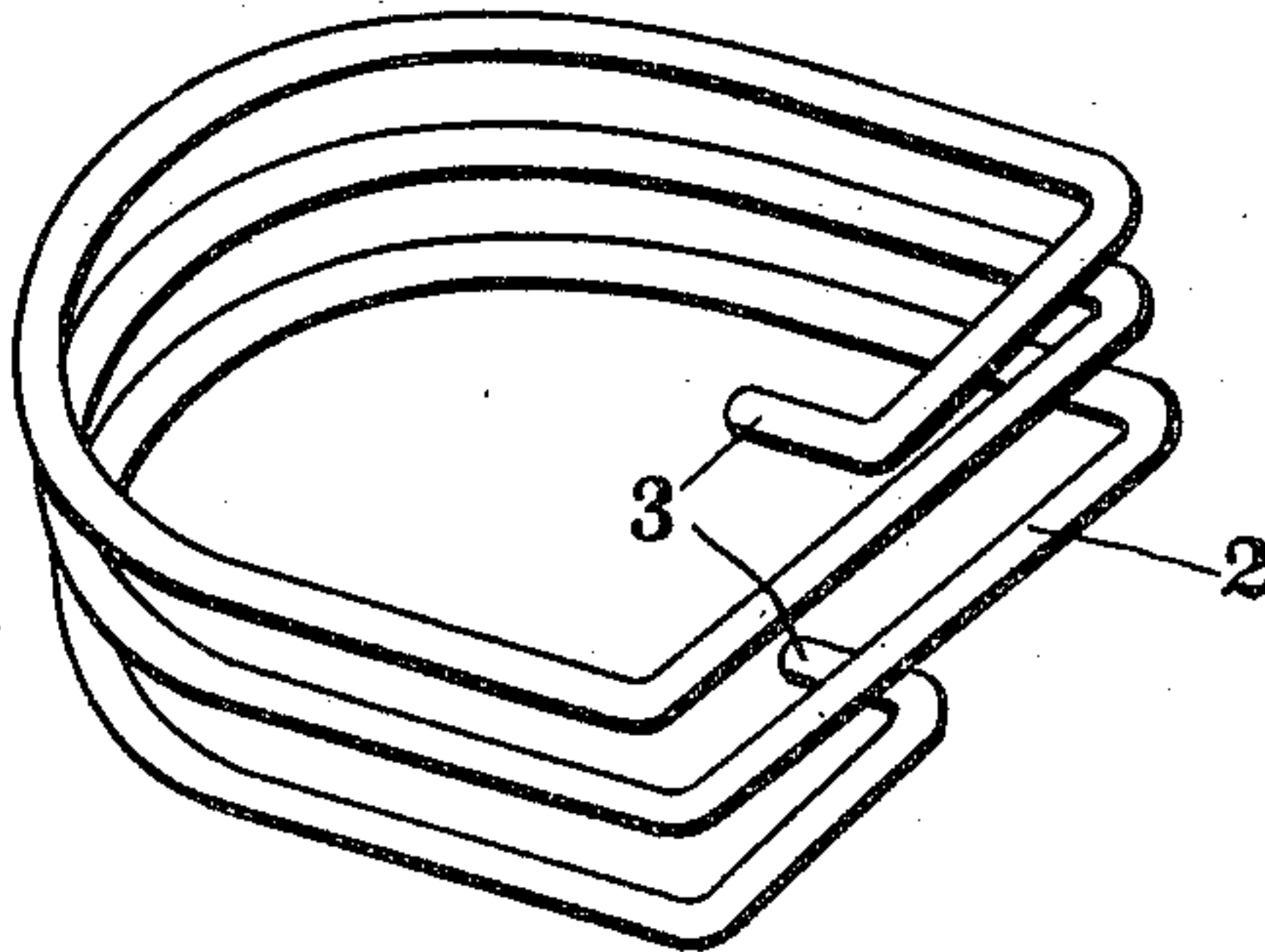


Fig. 3.

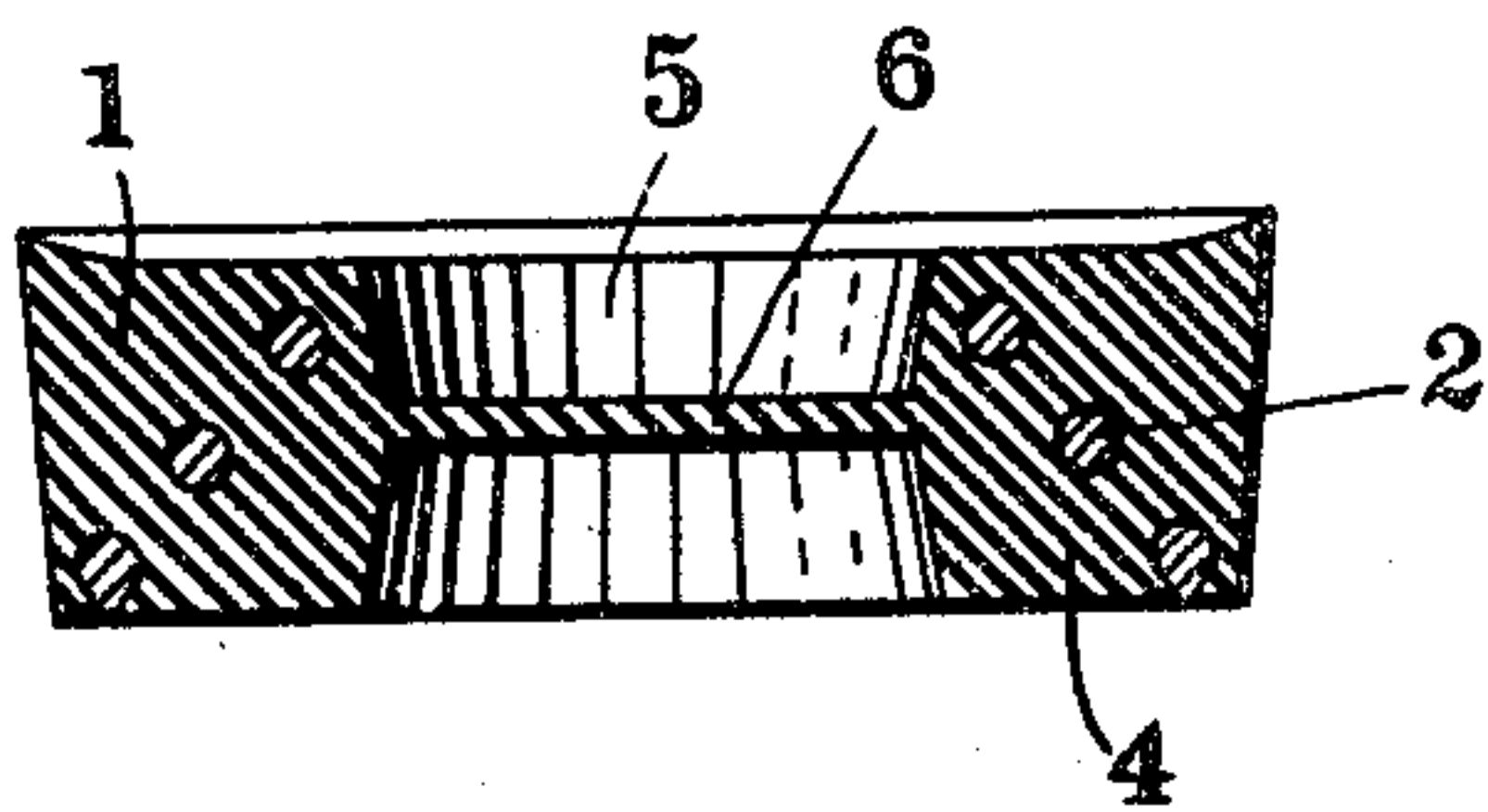


Fig. 4.

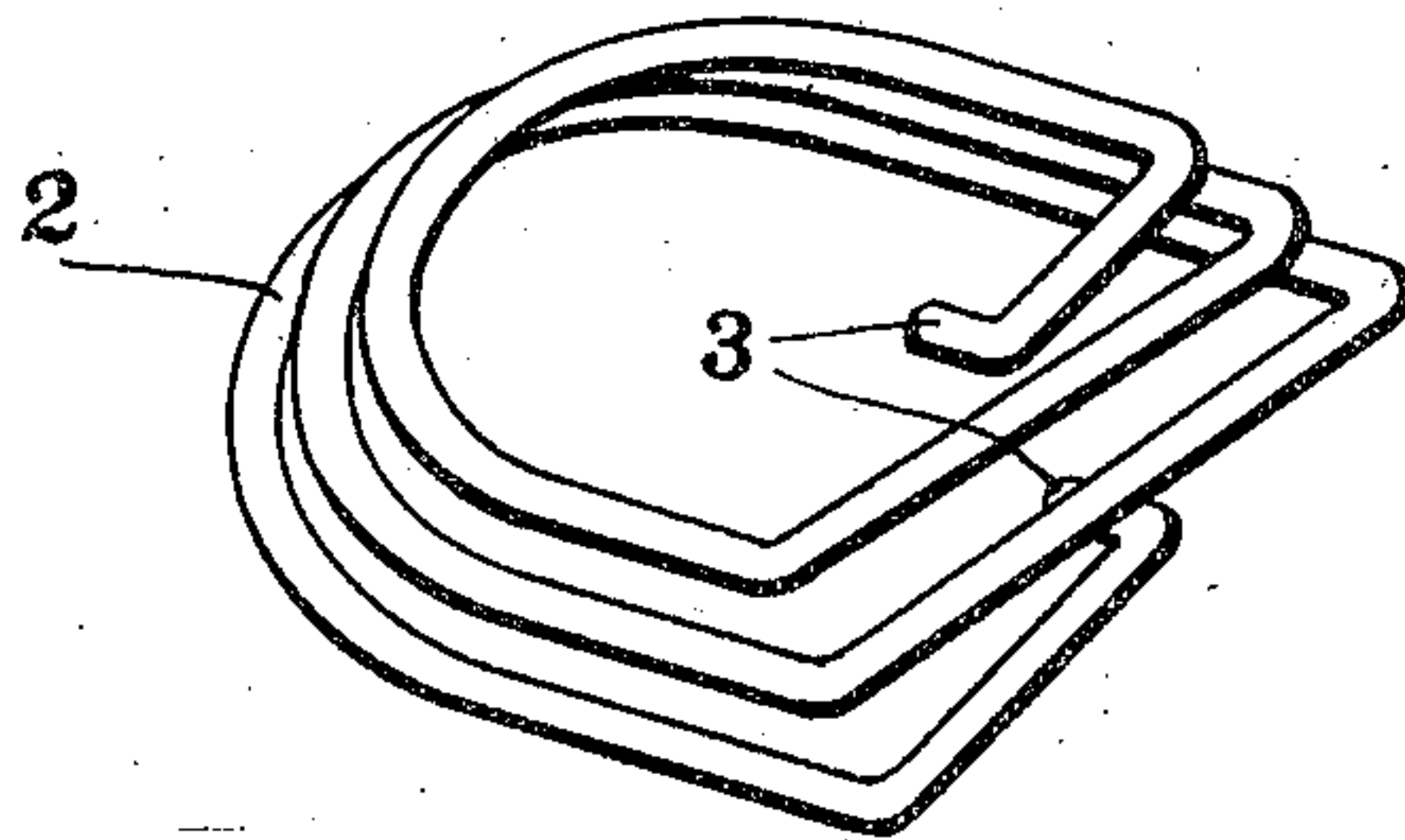


Fig. 5.

Witnesses

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# UNITED STATES PATENT OFFICE.

FRANK P. D'ARCY, OF KALAMAZOO, MICHIGAN

## SPRING-HEEL.

No. 903,179.

Specification of Letters Patent.

Patented Nov. 10, 1908.

Application filed March 4, 1908. Serial No. 419,149.

*To all whom it may concern:*

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

This invention relates to improvements in spring heels.

The objects of this invention are: First, to provide an improved spring heel of yielding material, such as rubber, which shall have the desired resilient qualities and at the same time be very durable. Second, to provide an improved spring heel which shall be practically anti-slipping.

Further objects, and objects relating to structural details, will definitely appear from 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 in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawing, forming a part of this specification, in which:

Figure 1 is a side elevation of my improved spring heel, portions being broken away to show structural details. Fig. 2 is a cross section, taken on a line corresponding to line 2—2 of Fig. 1, looking in the direction of the little arrows at the ends of the section lines. Fig. 3 is a perspective view of the spring 2 which is embedded in the yielding body portion. Fig. 4 is a cross section corresponding to that of Fig. 2, of a modified construction, the spring being conical in form. Fig. 5 is a perspective view of the conical spring, which is embedded in the body of the modified construction shown in Fig. 4.

In the drawing, similar reference numerals refer to similar parts throughout the several views.

Referring to the drawing, the body 1 is made of suitable yielding material, preferably rubber, and, in forming the same, it is molded into the desired shape. In the body, I embed a coiled spring 2. This spring is preferably coiled into the form of the heel, so that its several coils lie adjacent to the periphery of the heel. The ends of the coils 3 are preferably turned inwardly, as illustrated, to more firmly secure the same in the body, and to strengthen and support the body. The lower coil of the spring is arranged so

that its lower edge lies in substantially the same plane as the bottom of the heel, so that it is adapted to receive the wear in use. I preferably serrate this lower coil, as clearly appears at 4 in Fig. 1; so as to afford a better foot-hold.

The body is provided with a central cavity 5 opening at the lower end, and this cavity is provided with a horizontally-arranged partition or diaphragm 6, this partition or diaphragm being preferably formed of the same material or integrally with the body portion. The object of this is to provide a holding or anti-slipping means. When in use, the heel is pressed down upon the walk or ground, and the diaphragm yielding slightly, forms a slight suction to assist in holding the heel to the ground. A further advantage is that this cavity lightens the heel and reduces the amount of material used. The spring supports the body so that the heel is not materially weakened by providing the central cavity, and, further, the spring receives the wear so that the heel keeps its shape for a long period of time. It is found in practice that heels formed of rubber, while they possess quite satisfactory resilient qualities, are likely to soon round off at the edges, which renders them objectionable in that the user is likely to slip,—that is, the heels do not have a firm hold upon the ground.

In the modified construction shown in Fig. 4, the spring 2 is helically coiled. This arrangement has a slight advantage in that the several coils of the spring are so located that they do not detract quite so much from the resiliency of the yieldable body, as is the case in the construction shown in Figs. 1, 2 and 3. However, it is found that heels formed as there illustrated possess the required spring quality, and the structure is very economical to produce, and at the same time, are durable and very satisfactory in use.

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

1. A heel consisting of a body portion of yielding material having a central cavity therein open at the bottom, said cavity having a horizontally-arranged diaphragm or partition across the same; and a coiled spring embedded in said body, said spring being arranged so that its lower coil lies ad-



adjacent to the periphery of the body, the lower edge of the lower coil lying substantially in the same plane as the bottom of the heel.

5 2. A heel consisting of a body portion of yielding material; and a coiled spring embedded in said body, said spring being arranged so that its lower coil lies adjacent to the periphery of the body, the lower edge of  
10 the lower coil being serrated and lying substantially in the same plane as the bottom of the heel.

3. A heel consisting of a body portion of yielding material; and a coiled spring em-  
15 bedded in said body, said spring being arranged so that its lower coil lies adjacent to the periphery of the body, the lower edge of

the lower coil lying substantially in the same plane as the bottom of the heel.

4. A heel consisting of a body portion of 20 yielding material having a central cavity therein open at the bottom, said cavity having a horizontally-arranged yieldable diaphragm or partition across the same; and a coiled spring embedded in said body about 21 said cavity.

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

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

Witnesses:

LUELLA G. GREENFIELD,  
GERTRUDE TALLMAN.