A. B. DAVIS.

COILED-SPRING.

No. 190,291. Patented May 1, 1877.

Fig. 2.

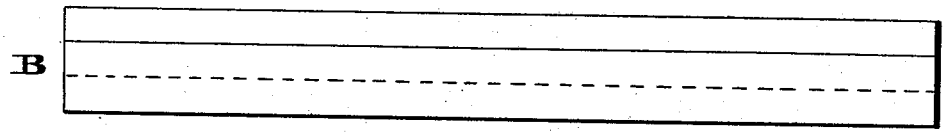


Fig. 1.

Fig. 3.

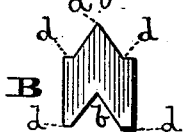


Fig. 8.

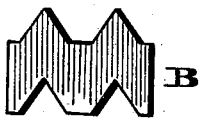
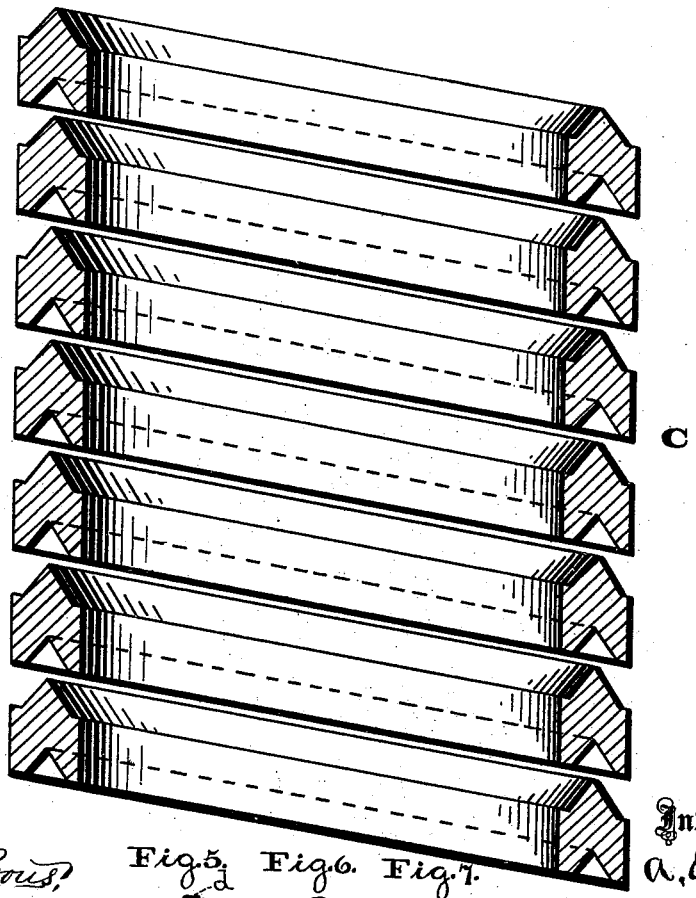


Fig. 4.



Witnesses:

Louis F. Bouis.

A. P. Grant.

Fig. 5.

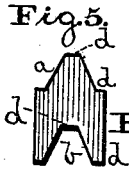


Fig. 6.

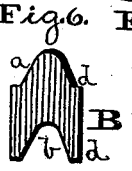


Fig. 7.

Inventor:

A. B. Davis.

by John A. Wiedersheim

Attorney.

UNITED STATES PATENT OFFICE.

AUGUSTUS B. DAVIS, OF PHILADELPHIA, PA., ASSIGNOR OF ONE-THIRD OF HIS RIGHT TO JOHN B. QUIRK, OF SAME PLACE.

IMPROVEMENT IN COILED SPRINGS.

Specification forming part of Letters Patent No. **190,291**, dated May 1, 1877; application filed February 14, 1877.

To all whom it may concern:

Be it known that I, AUGUSTUS B. DAVIS, of the city and county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Cylindrical Coiled Springs, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is an end view of a bar of metal from which the blank for the spring will be made. Fig. 2 is a side view of the blank. Fig. 3 is an end view thereof. Fig. 4 is a vertical section of the spring. Figs. 5, 6, 7, and 8 are end views of modifications.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists of the formation of a spring from a bar which has a centrally coincident tongue and groove, or projection and depression, and coincident shoulders on opposite edges, thus increasing the depth and surface of the bar without additional weight, whereby the resilient power of the spring will be increased, and the vertical compass of the spring decreased; and when the spring is compressed or loaded the tongue and grooves on opposite faces of the convolutions will register, or engage and interlock, the tongues being supported on both sides by the grooves, thus preventing lateral displacement of the convolutions or bulge of the spring, and fracture or spreading of the grooved or depressed portion of the spring.

Referring to the drawings, A represents a bar of metal, which is of quadrilateral form in cross-section; it is rolled or otherwise wrought into a blank, B, which has a tongue, *a*, and groove *b*, centrally coincident on opposite edges, and which has also coincident shoulders or bearing-faces *d* on opposite edges, as more readily seen in Fig. 3, or the modifications, Figs. 5, 6, 7, and 8.

The blank B will be coiled so as to form a cylindrical-shaped spring, C, in which the tongue and groove at opposite faces of the convolutions will be in position to register or engage, or the tongue enter the groove, when the spring is compressed, as seen in Fig. 4.

It will be seen that by the formation of the blank B from the bar A, said blank has a greater depth and surface than the bar; consequently, as the resilient power of a spring is proportionate to the depth and surface of the bar or blank of which it is constructed, the spring constructed of a blank, as herein described, will have its resilient power vastly increased, and it will also possess great strength.

Moreover, when the spring is compressed or loaded, the tongues and grooves of adjacent faces of the convolutions register, or the tongues play in the grooves, interlocking and providing a lateral brace or confine for the convolutions inside and outside, one upon the other, so that the spring will not swell or bulge laterally, whereby the shape, action, strength, and power of the spring are preserved during service, at times when such characteristics are most required, the adjacent shoulders or faces *d* coming in contact, thus restraining the motion of the coils, and preventing fracture or spreading of the grooved or depressed portion of the spring.

It will also be seen that the vertical compass of the spring is decreased, owing to the fact that the convolutions enter the space of each other, the elevation of the spring being thereby reduced, without, however, interfering with the power and service of the spring.

The shape of the tongues and grooves may be angular or curved, or both, and the blank may be constructed of two or more tongues and grooves; but the operation will be the same as that stated, excepting that duplication or multiplication of tongues and grooves will still further increase the resilient power of the spring.

The spring, as constructed, may be inclosed by or inclose other springs.

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

1. The spring having the opposite faces of each convolution formed with a centrally-coincident projection and depression, and coincident shoulders or bearing-faces, substantially as and for the purpose set forth.

2. A spring having upon its respective faces a projection and a depression, and bearing-shoulders upon each face, whereby the face of each convolution enters the face of the adjacent convolution, and is supported therein on both sides and restrained by the bearing-shoulders, substantially as and for the purpose set forth.

A. B. DAVIS.

Witnesses:
JOHN A. WIEDERSHEIM,
A. P. GRANT.