(No Model.)

A. N. SILL.

SPIRAL SPRING FOR INDICATORS.

No. 247,700. Patented Sept. 27, 1881.

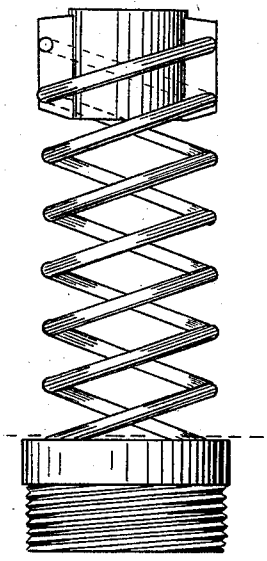

Fig. 1.

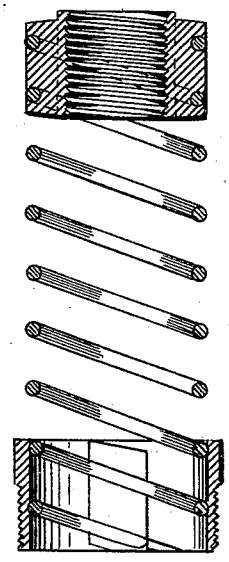

Fig. 2.

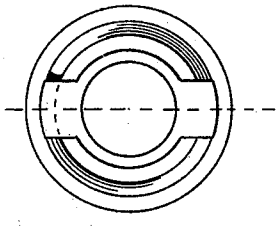

Fig. 3.

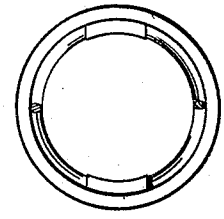

Fig. 4.

WITNESSES.

Chas. A. Moore

Martin Luscomb

INVENTOR.

Allen N. Sill

per Chas. A. Forbes

Attorney

UNITED STATES PATENT OFFICE.

ALLEN N. SILL, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE ASHCROFT MANUFACTURING COMPANY, OF SAME PLACE.

SPIRAL SPRING FOR INDICATORS.

SPECIFICATION forming part of Letters Patent No. 247,700, dated September 27, 1881.

Application filed January 24, 1881. (No model.)

To all whom it may concern:

Be it known that I, ALLEN N. SILL, of the city of Boston, Massachusetts, have invented a new and useful Improvement in Indicator-Springs, of which the following is a specification.

This invention consists in making a spiral spring for steam-engine indicators of two or more separate coils and rigidly connecting the same at their respective ends, said coils being arranged in respect to each other so that a tendency of either to bulge when compressed will be counteracted by the others, and a direct and simultaneous movement of each coil transmitted.

This invention is particularly designed to be used as a retracting-spring for the piston of a steam-engine indicator, wherein a co-operative and simultaneous action of the respective coils is essential to insure precision in the connected recording devices, and avoid the friction of the piston that is occasioned by the bulging of the single coiled spring in common use.

In the accompanying drawings, Figure 1 represents an elevation, Fig. 2 a vertical central section, and Figs. 3 and 4 plan views, of a spring embodying my invention connected at its opposite ends to an indicator-cylinder head or cap and piston-nut, which are constructed with spiral grooves, as shown, to receive the ends of the respective coils, and which may be secured therein by solder or by any other well-known means. This method of connecting the ends of the coils together and to adjacent parts will be found convenient in arranging the coils relatively to each other, the spiral grooves being constructed of corresponding pitch to facilitate the connection.

The respective coils may be formed with a regular or variable pitch or diameter to distribute and equalize their tension to insure uniformity in the same, as now practiced with the ordinary spiral spring, without departing from the spirit of my invention; and, therefore,

Having thus fully described the same, what I claim, and desire to secure by Letters Patent, is—

1. An indicator-spring composed of two separate intervolved coils or helices having their respective ends secured to common rigid abutments or supports adapted for connecting the spring in position for use, substantially as described.

2. In an indicator-spring, the combination, with two separate intervolved coils or helices, of the attached screw-threaded head and nut, substantially as described.

3. In an indicator-spring, the combination, with the two intervolved coils or helices, of the head or nut provided with spiral grooves to receive the ends of said coils or helices, substantially as described.

ALLEN N. SILL.

Witnesses:
F. F. RAYMOND, 2d,
CHAS. W. FORBES.