J. BROWN.

Under-Clearer Spring for Cotton-Spinning Machines.

No. 227,609. Patented May 18, 1880.

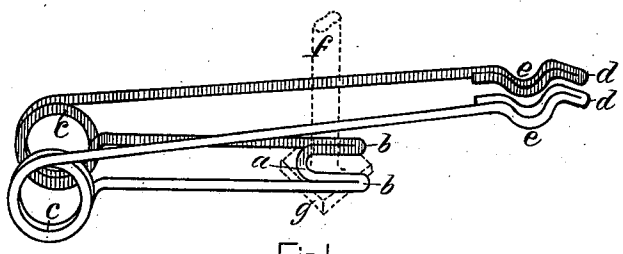

Fig. 1.

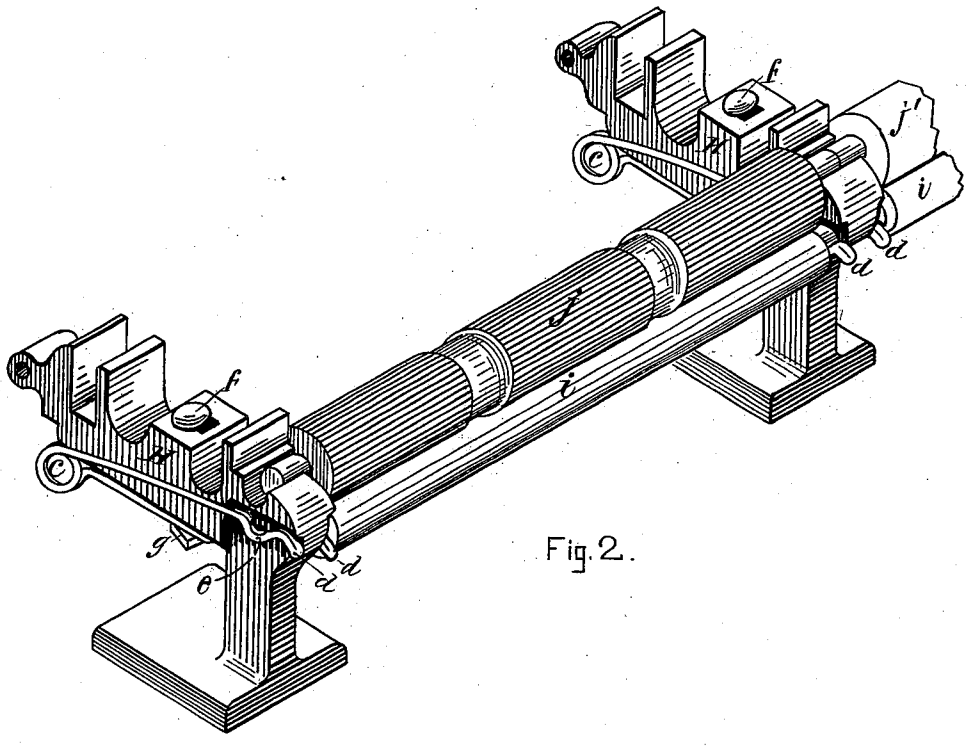

Fig. 2.

Witnesses.

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JAMES BROWN, OF PAWTUCKET, RHODE ISLAND.

UNDER-CLEARER SPRING FOR COTTON-SPINNING MACHINES.

SPECIFICATION forming part of Letters Patent No. 227,609, dated May 18, 1880.

Application filed February 28, 1880.

To all whom it may concern:

Be it known that I, JAMES BROWN, of Pawtucket, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Under-Clearer Springs for Cotton-Spinning Machines, of which the following is a specification.

The object of this invention is to simplify and cheapen the formation of under-clearer springs and to provide an article that may be readily made without expensive dies or presses at any of the shops connected with the mills where such springs are used; and its nature will be readily understood from the following specification and accompanying drawings, of which—

Figure 1 is a perspective view of my improved spring, and Fig. 2 an illustration of its application to a spinning-machine, of which a section is shown.

Under-clearer springs, heretofore almost universally used where levers and weights are dispensed with, have been made of sheet-steel punched out by dies of an elaborate character with much waste of the stock, and subsequently formed into shape and tempered. They are, therefore, very expensive and cannot be produced from time to time as wanted at the mills, but must be obtained where the dies are located.

This improved spring, formed as shown in Fig. 1, of spring-wire, is very elastic, and may be made by any skilled mechanic without difficulty or special tools, and is very much cheaper than those formerly used. A block of wood having projecting vertical and horizontal pins of suitable size around which to bend or coil the wire and a pair of pliers will enable the workman to form these springs with rapidity and uniformity. Other modes of producing them by hand will suggest themselves, or they may be shaped automatically by a suitable machine.

In practice I take a piece of wire of the proper gage and of suitable length, bend it at the middle so as to form a curve, *a*, leaving space sufficient to receive the bolt, indicated in dotted lines in Fig. 1; then bend the wires sharply back at *b b*, and form the spring-coils *c c*. From these coils the wires extend forward the proper distance, the ends being bent abruptly back at *d d* to make a better finish and to give a double width of bearing for the journals of the under-clearer roller at the bends *e e*, which bends may be thus formed with a set and tool or otherwise, and at which point, at the same time, the wires may be slightly flattened, if desired. The manner in which these springs are applied and secured in spinning-machines will be understood from Fig. 2. The part *a b* of the spring is held by the bolt *f* and nut *g* in close contact with the under side of the frame H, leaving the arms of the spring projecting on each side thereof in position to support, by their journals, the wooden under-clearer roller *i* in contact with the fluted metallic roller *j*, which is joined at its end by a suitable coupling with a succession of similar rollers *j'*.

A material advantage of my springs over those stamped from sheet-steel and having closed holes to receive the bolts which hold them in place is that any one of my springs may be removed and replaced by another by simply slackening the nut *g* without disturbing the yarns or any part of the machine.

Having thus described my improved under-clearer springs for cotton-spinning machines, what I claim, and desire to secure by Letters Patent, is—

The under-clearer spring formed of wire in the manner described, and having the seat *a b*, the bends or coils *c c*, and the wire bearings *e e*, substantially as and for the purposes herein set forth.

JAMES BROWN.

Witnesses:

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