

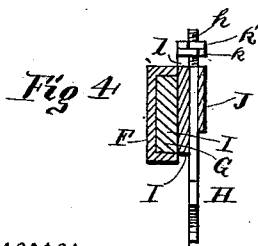
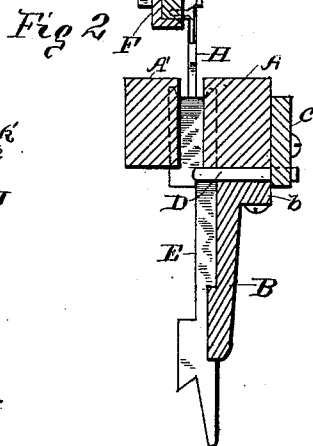
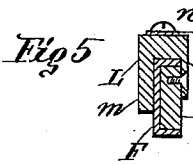
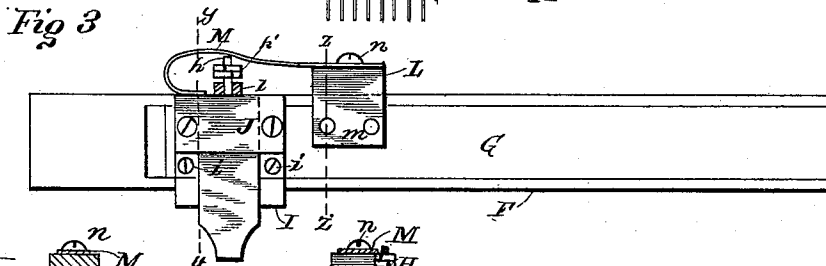
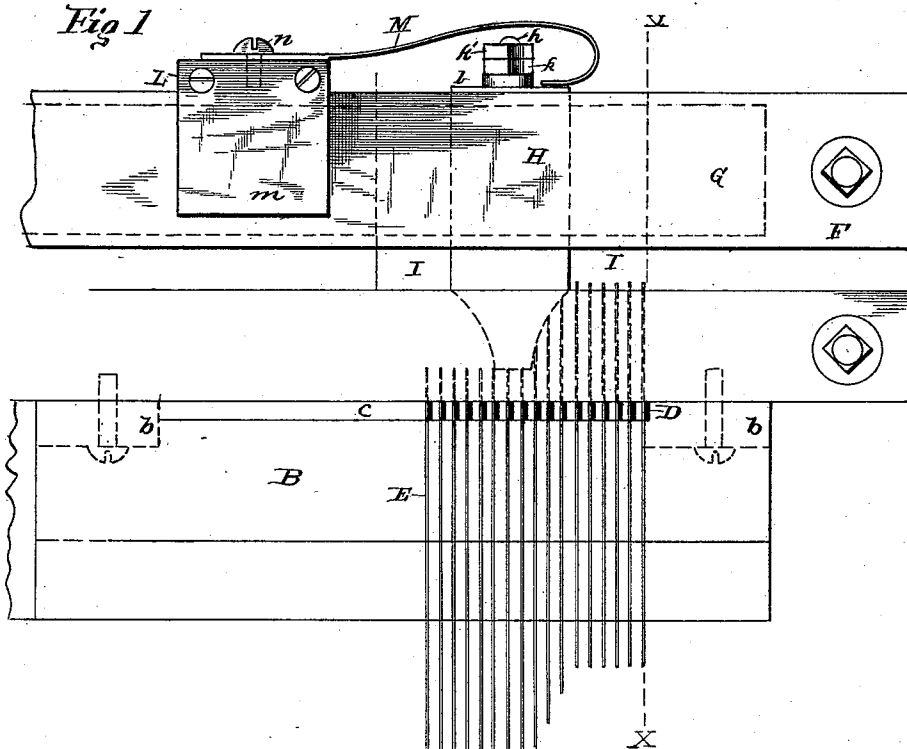
(No Model.)

D. HURLEY.

SINKER SPRING FOR STRAIGHT KNITTING MACHINES.

No. 465,374.

Patented Dec. 15, 1891.



Witnesses
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DANIEL HURLEY, OF BENNINGTON, VERMONT, ASSIGNOR TO CHARLES COOPER, OF SAME PLACE.

SINKER-SPRING FOR STRAIGHT-KNITTING MACHINES.

SPECIFICATION forming part of Letters Patent No. 465,374, dated December 15, 1891.

Application filed June 11, 1890. Serial No. 355,092. (No model.)

To all whom it may concern:

Be it known that I, DANIEL HURLEY, a citizen of the United States, residing at Bennington, in the county of Bennington and State of Vermont, have invented certain new and useful Improvements in Sinker-Springs for Straight-Knitting Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form part of this specification.

This invention relates to straight-knitting machines, and especially to the construction of the sinkers and to the manner of applying the sinker-springs. Heretofore the sinkers have usually been made of such length that their upper ends projected above the sinker-bar a sufficient distance to afford a bearing for the sinker-springs, by which they are held in elevated position when not supported by the operating mechanism, and the projecting ends were slotted or bifurcated to form two vertical arms or prongs between which the slur-cock passed in its reciprocations. In this construction and arrangement when the parts become worn or loose, permitting a lateral movement of the sinkers or slur-cock, the latter frequently catches the arms or prongs of the sinkers and bends or breaks them off, thereby disabling the machine and necessitating a stoppage for repairs.

The object of my invention is to avoid the expense and loss of time incident to these breakages; and to this end the invention consists in the construction hereinafter fully described, and more particularly pointed out in the claims.

In the accompanying drawings, in which like letters of reference refer to corresponding parts in each figure, Figure 1 is a front elevation of a section of the sinker-bar, sinker-guide, and sinkers, and the sinker-operating devices. Fig. 2 is a vertical transverse section on the line *xx*, Fig. 1, looking to the left, the spring *M* being broken away. Fig. 3 is a rear elevation of the slur-cock, the slide which carries the latter, and the frame in which the slide moves. Fig. 4 is a vertical transverse section on the line *yy* of Fig. 3. Fig. 5 is a

similar section on the line *zz* of Fig. 3. Fig. 6 is a side elevation of my improved sinker, showing in broken lines the form of sinkers heretofore used.

AA' are the sinker-bars, which extend transversely across the machine in the same horizontal plane and parallel to each other. These bars are arranged a distance apart, so that the space between them is somewhat less than the width of the upper ends of the sinkers. Both bars are provided at proper intervals with vertical grooves or channels oppositely arranged for the reception of the edges of the sinkers, which grooves form guides in which the sinkers move up and down, as usual in machines of this class.

B designates the sinker-guide, which consists of a flat bar shaped in cross-section substantially as represented in Fig. 2, and provided at its ends with horizontal flanges *b*, through which it is bolted against the under side of the sinker-bar *A*. At its lower part it is provided with vertical grooves or channels coinciding with those in the bars *AA'*, and forming guides for the lower ends of the sinkers.

C designates the spring-bar, which comprises a straight flat bar bolted against the rear face of the sinker-bar *A*, with its lower edge depending below the same, as represented in Figs. 1 and 2. In the lower depending edge of the bar *C* at intervals corresponding with the intervals between the sinkers are formed transverse notches, which receive and hold flat springs *D*, which project forward under the bar *A*, and bear laterally against the flat sides of the sinkers *E* with sufficient force to hold them in any position in which they may be left by the operating mechanism when the latter is out of action.

In order to provide room for the springs *D*, the upper edge of the bar *B* is cut away between the fastening-flanges *b* to form a space *c* between the bars *A* and *B*, through which space the springs project. Should great rigidity be required, the flanges *b* may extend the whole length of the bar *B*, whereby the latter will be made stiffer and will form a more rigid support for the sinkers.

Heretofore the springs *D* have usually been arranged above the sinker-bar *A*, and in order

to afford them a bearing against the sinkers the latter have been provided with vertical arms or prongs, as indicated by broken lines in Fig. 6, the said arms of the series of sinkers forming between them a channel for the passage of the slur-cock in its reciprocating movements. In this old construction when the slur-cock strikes the prongs of any of the sinkers they are bent or broken and the machine is rendered inoperative, and especially when the prong against which the spring D bears is broken off the sinker is freed from the action of its spring and will drop down when not supported by the lifting-bar. This defect necessitates stoppage and repair and involves both expense and loss of time. By my construction and arrangement these difficulties are entirely overcome, and herein will be seen the utility and importance of the invention.

Vertically above the sinker-bars A A', and parallel thereto, is a bar F, grooved or channeled on one side for the reception of a reciprocating bar G, which carries the slur-cock H, as seen in Figs. 2, 3, and 4. The slur-cock is seated in a vertical channel in the face of a block I, which is rigidly attached by screws or bolts *i* to the reciprocating bar G, and is capable of vertical movement in said channel. The slur-cock is secured in place by a holding-plate J, which is screwed or bolted against the face of the block I, and has projecting vertically from its upper end a screw stem *h*, which is fitted with a nut *k*, that rests upon a short stud *l*, rising from the upper end of block I, said nut being for the purpose of adjusting the cam vertically, and *k'* is a jam-nut for holding the nut *k*.

L is a cap or saddle provided with two depending legs *m*, which straddle the bars F G. One of the legs is attached to the bar G at one side of and a short distance from the block I.

This cap carries a flat spring M, shaped substantially as represented in Fig. 3. The free end of the spring rests upon the cam H to hold the latter down with a yielding pressure which is regulated by the screw *n*, whereby the spring is secured to the cap L.

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

1. The combination, with the sinker-bars, sinkers, and sinker-guide, of flat sinker-springs secured to the sinker-bar A and projecting forward beneath said bar in engagement with the sides of the sinkers, substantially as shown and described.

2. The combination, with the sinker-bar and sinkers, of the sinker-guide secured to the under side of the sinker-bar with a space between the two, and the sinker-springs projecting through said space into engagement with the sinkers below the sinker-bar and bearing laterally against the sides of the sinkers, substantially as shown, and for the purpose described.

3. The combination, with the sinker-bar and sinkers, of the sinker-guide secured to the under side of the sinker-bar with a space between the two, the spring-bar C, bolted against the rear face of the sinker-bar and depending below the same, and the sinker-springs held by said spring-bar and projecting through the space between the sinker-bar and sinker-guide into engagement with the flat sides of the sinkers, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

DANIEL HURLEY.

Witnesses:

E. A. BOOTH,
J. HARRIS.