

(No Model.)

G. H. COBURN & A. W. STONE.

THREAD SPLICING MECHANISM FOR KNITTING MACHINES.

No. 508,205.

Patented Nov. 7, 1893.

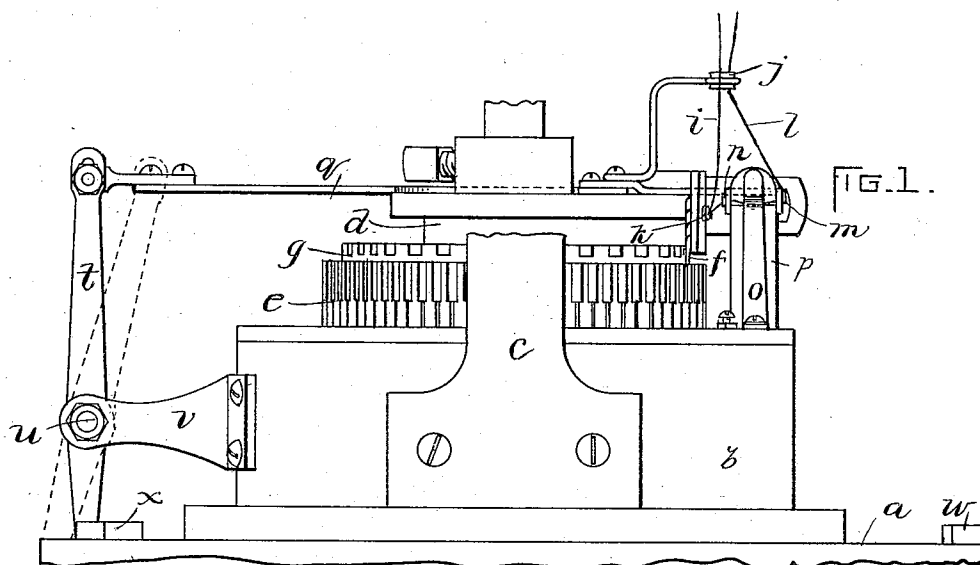
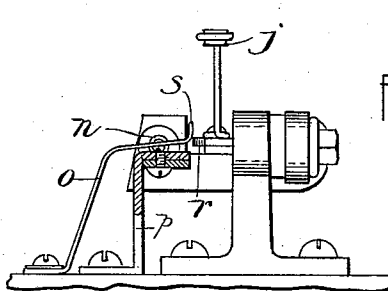
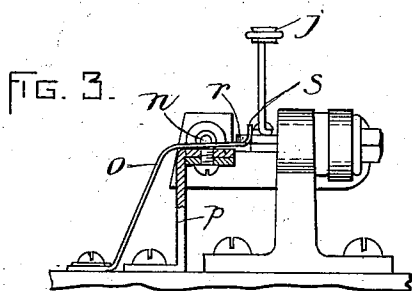
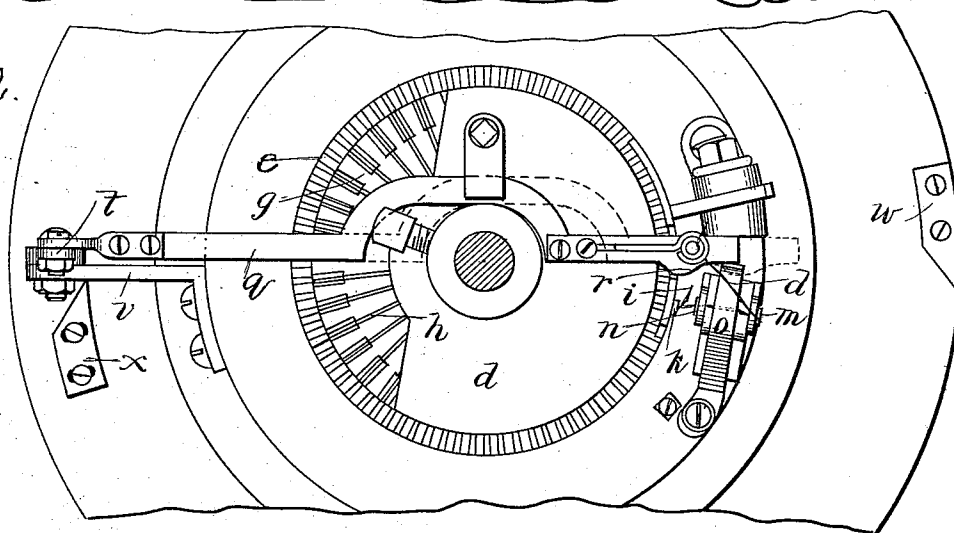


FIG. 2.



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# UNITED STATES PATENT OFFICE.

GEORGE H. COBURN AND ALBERT W. STONE, OF LACONIA, NEW HAMPSHIRE.

## THREAD-SPLICING MECHANISM FOR KNITTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 508,205, dated November 7, 1893.

Application filed March 18, 1893. Serial No. 466,573. (No model.)

*To all whom it may concern:*

Be it known that we, GEORGE H. COBURN and ALBERT W. STONE, of Laconia, in the county of Belknap and State of New Hampshire, have invented certain new and useful Improvements in Thread-Splicing Mechanism for Knitting-Machines, of which the following is a specification.

This invention has relation to knitting machines which are capable of producing a tubular web, in which a splicing or thickening thread is introduced at intervals extending part way or entirely around the web, in order that when the same is made into articles of apparel, as stockings, leggins, &c., the latter may be strengthened or thickened at desired points, as at the knee, heel, bottom of the foot, &c.

It is the object of the invention to provide improvements in means for introducing a splicing thread which shall be at once simple in construction and operation, and efficient in a maximum degree.

To these ends the invention consists of a circular knitting machine comprising in its construction a splicing thread-guide, a spring clamp in proximity to said guide for clamping and releasing the thread, a cam-faced slide for acting upon the said clamp, a lever for actuating the said slide, and an adjustable stop for acting upon the said lever.

Reference is to be had to the annexed drawings and to the letters marked thereon forming a part of this specification, the same letters designating the same parts or features as the case may be, wherever they occur.

Of the drawings—Figure 1 is a side view of a knitting machine head equipped with the improvements, the upper portions of the same being represented as broken away. Fig. 2 is a plan view of the same. Fig. 3 is a sectional detail view showing the splicing thread as clamped and out of operation. Fig. 4 is a similar detail view showing the splicing thread as released, and as adapted to be fed to the needles.

The knitting machine shown in the drawings is a circular dial machine, designed to produce ribbed work, but the invention is not confined to this kind of machines, since it may be applied to plain-web machines as well.

In the drawings *a* designates the stationary bed or base.

*b* is the revolving cam cylinder, in this case provided with a yoke *c* (shown in the drawings as broken away) with which the cam dial *d* is connected so as to be moved in unison with the cam cylinder.

*e* is the needle cylinder equipped with reciprocating needles *f*, and *g* is the needle dial carrying the needles *h*.

*i* is the regular knitting thread or yarn which runs through the guide eye *k* to the needles.

All of the parts mentioned may be of the form shown, or of any other suitable construction and arrangement, and as their functions are so well known to knitting artisans, need not be further described herein.

*l* designates the splicing thread or yarn which is led through the guide eyes *m n*, horizontally arranged, to and through the guide-eye *k* to the needles. The guide eyes *m n* are preferably arranged in a plane above the guide-eye *k*, so that the end of the thread extending from the eye *n* will be guided by gravity toward the eye *k*.

*o* is a spring clamp connected with the cam cylinder, and adapted when in normal position to act upon the splicing thread between the guide eyes *m n* and clamp and hold the said thread between the clamp and a plate or bracket *p* therebelow, as is clearly represented in Fig. 3. The clamp *o* is adapted to be raised off the splicing thread so as to release the same. The means for raising the clamp are herein shown to consist of a slide bar *q* extending across the needle and cam cylinders, and provided at its end adjacent to the clamp *o* with a cam face or incline *r* adapted to act against the upturned end *s* of the clamp, suitable guides being provided to keep the slide-bar in place in its longitudinal movements. The slide-bar, at its end opposite to that acting against the clamp is pivoted upon the upper end of a lever *t* fulcrumed at *u* upon a bracket *v* attached to the cam cylinder. The lever *t* at its lower end is adapted to engage a fixed inclined stop *w* and a movable or adjustable inclined stop *x*, the said stops being so constructed as that one may move the lower end of the lever *t* outward and the other move

it inward, thus moving the slide bar so as to cause its cam end to raise the clamp *o* and release the splicing thread and allow it to run freely through its guide to the needles.

5 The operation of the improvement may be described as follows: Supposing the knitting machine to be in operation, and the regular thread to be fed to the needles until a point is reached at which it is desired to introduce  
10 the splicing thread, the stop *x* will be adjusted in position to act upon the lower end of the lever *t* and move the same outward, which will have the effect of raising the clamp *o* and releasing the splicing thread; when it will be  
15 caught by the needles and knit into the web together with the regular knitting thread until the lower end of the lever shall have reached the stop *w*, which stop acting upon the lower end of said lever will move the same  
20 inward drawing the slide bar *q* backward and releasing the clamp *o* so that it will act upon the thread between the guide-eyes *m n*, and hold the same against running in, when it will be broken by the needles at a point be-  
25 tween the same and the guide-eye *k* and held from being knit into the web until the lever *t* shall again reach the stop *x* and be moved by the latter as before described. In this way the splicing thread will be knit into the  
30 web at each successive run of knitting for but a portion of the way around the fabric until it shall be desired to take the splicing thread out of action, when the stop *x* will be removed or adjusted out of position so that

it will not act upon the lever *t*, and the latter 35 will be moved by the stop *w* so as to clamp the splicing thread and hold the latter out of action so that regular knitting can be proceeded with until a point shall have been reached where it is again desired to introduce 40 the splicing thread.

It will be seen that the improvements are entirely simple in construction, being composed of few parts, none of which are liable to get out of order. 45

Having thus explained the nature of the invention and described a way of constructing and using the same, though without attempting to set forth all of the forms in which it may be made or all of the modes of its use, 50 it is declared that what is claimed is—

A knitting machine comprising in its construction a splicing thread-guide, a spring clamp in proximity to said guide for clamping and releasing the thread, a cam-faced 55 slide for acting upon the said clamp, a lever for actuating the said slide, and an adjustable stop for acting upon the said lever, as set forth.

In testimony whereof we have signed our 60 names to this specification, in the presence of two subscribing witnesses, this 2d day of March, A. D. 1893.

GEORGE H. COBURN.  
ALBERT W. STONE.

Witnesses:

S. S. JEWETT,  
G. S. DAVIS.