

A. KELLER.
 THREAD TENSIONING DEVICE FOR EMBROIDERY MACHINES.
 APPLICATION FILED JUNE 26, 1912.

1,057,559.

Patented Apr. 1, 1913.
 3 SHEETS—SHEET 1.

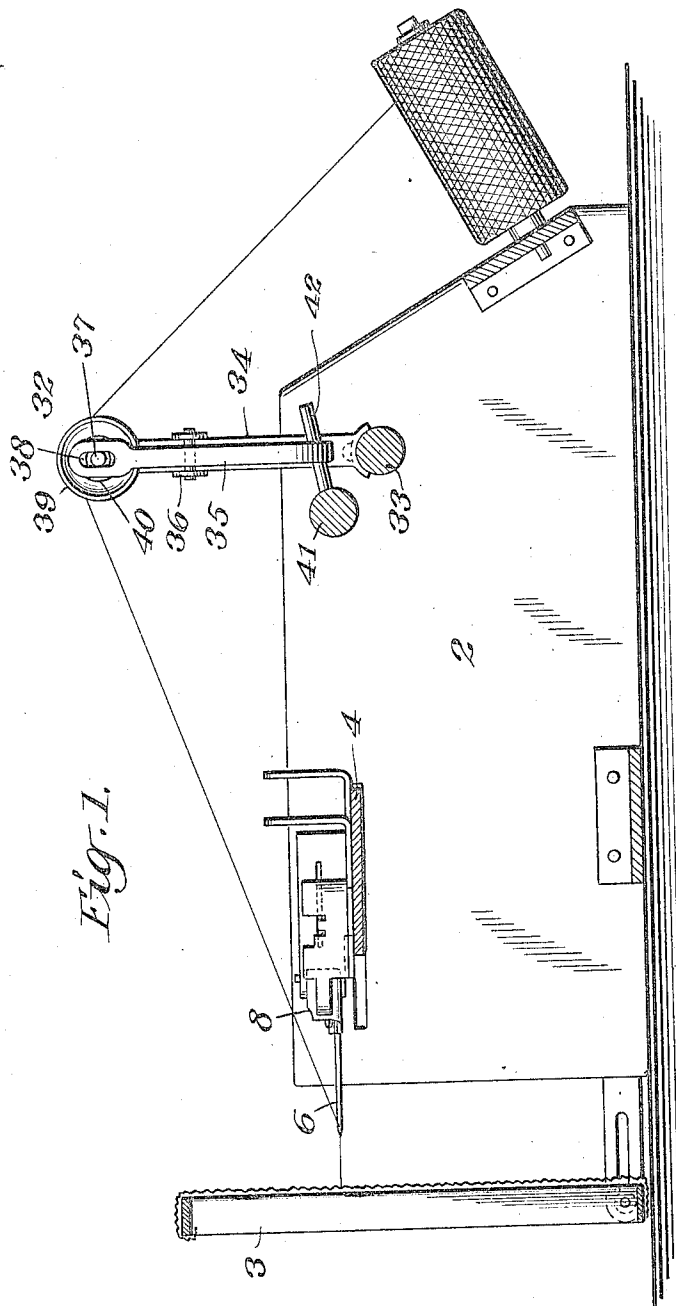


Fig. 1.

WITNESSES

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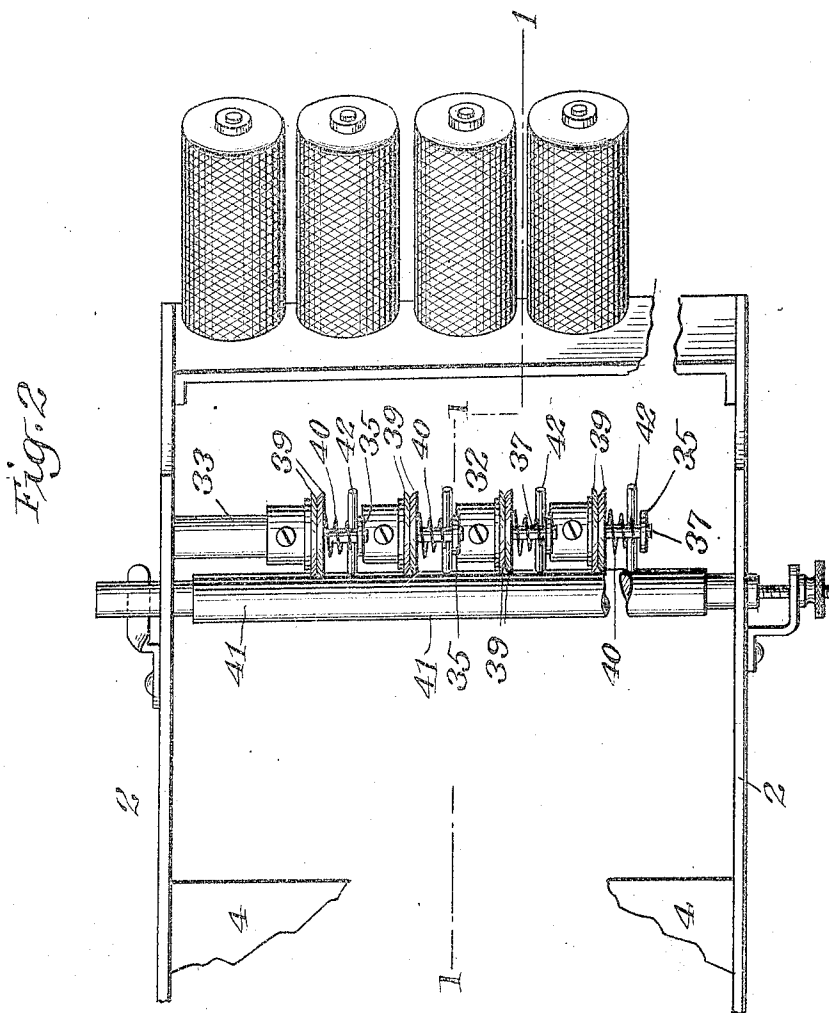
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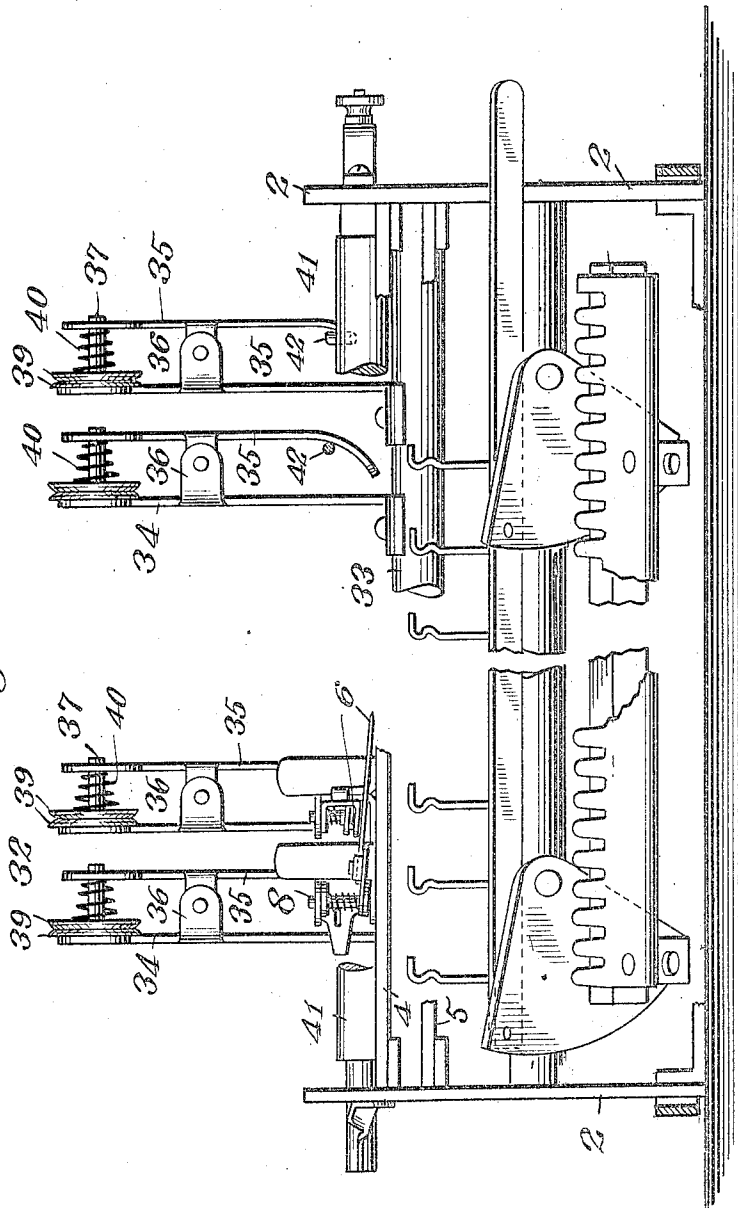
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3 SHEETS—SHEET 3.

Fig. 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

ANTON KELLER, OF NEW YORK, N. Y., ASSIGNOR TO IMPROVED SCHIFFLI MACHINE COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

THREAD-TENSIONING DEVICE FOR EMBROIDERY-MACHINES.

1,057,559.

Specification of Letters Patent.

Patented Apr. 1, 1913.

Original application filed February 16, 1912, Serial No. 677,895. Divided and this application filed June 26, 1912. Serial No. 705,913.

To all whom it may concern:

Be it known that I, ANTON KELLER, a subject of the Emperor of Austria-Hungary, residing at New York, borough of the Bronx, in the county of New York and State of New York, have invented certain new and useful Improvements in Thread-Tensioning Devices for Embroidery-Machines, of which the following is a specification.

This invention relates to improvements in shuttle embroidery machines, and has for its object the provision of improved mechanism for facilitating the embroidering of the work in an effective and comparatively simple manner, it more particularly relating to the means for supplying the thread to the needles, whereby the tension on the several threads may be simultaneously increased or decreased as occasion may require, the present application being a division of my contemporaneously pending application, Serial No. 677,895, filed February 16, 1912.

Shuttle embroidery machines are frequently about ten yards long and have a series of reciprocating borerers equally spaced apart throughout the entire length of the machine and a series of reciprocating needles also equally spaced apart throughout the entire length of the machine, and the borerers are located in sections carried by bars.

In embroidery machines frequently marketed the thread tension consists of a roller around which the thread is wound, which roller is located intermediate the spools and the needles, but in this construction of machine it is not possible to increase or decrease the tension on all of the threads simultaneously.

In the drawings accompanying and forming part of this specification, Figure 1 is a cross-sectional view taken in line 1-1 of Fig. 2, looking toward the left; Fig. 2 is a top plan view of a portion of the machine illustrating this improved tension mechanism; and Fig. 3 is what may be considered a front view of the embroidery mechanism looking toward the right hand in Fig. 2 and illustrating this improved tension mechanism.

Similar characters of reference indicate corresponding parts throughout the drawings.

In the present embodiment the frame-

work 2 of the machine may be of any suitable construction usual to machines of this class, as may also be the means 3 for supporting the work to be embroidered. This frame-work supports a needle-carrying bar 4 and a borer-carrying bar 5, see Fig. 3, the latter shown located below the needle-carrying bar and both of which are shiftable by the usual means provided for this purpose. Each of the needles 6 is secured in a suitable carrier 8, which carriers are substantially similar to each other.

The tensioning means in the present instance comprises a series of tensioning devices 32, one for each needle, carried by a suitable support 33 on the frame-work of the machine. Each of these tensioning devices comprises a rigid upstanding member 34 and a pivotally supported member 35 pivotally supported intermediate its ends on a pair of laterally extending ears 36 of the rigid member. The rigid upstanding member is provided with a laterally extending pin 37 projecting into an opening 38 of the swinging member, and on this pin is located a pair of thread-engaging disks 39 between which the thread passes. On this pin and between these disks and the upper end of the swinging member is a spring 40. Located in the frame-work of the machine and extending throughout the entire length thereof is a shiftable rod or bar 41 carrying at intervals along the same a series of projecting pins 42, one for each tension device, and it projects between the swinging and the rigid members of the tension device, whereby on the shifting of this bar the pins will engage the lower end of each swinging member, which is preferably bent toward the rigid member for this purpose, and so shift the upper end of the swinging member toward or from the thread-engaging disks and thus increase or decrease the tension on the thread in a manner which will be readily understood. If the tension is too tight the rod will be shifted in one direction and so release the tension a predetermined amount. If it is too loose, by shifting the rod in the opposite direction the lower end of each swinging member will be moved away from its rigid member, while its upper end will compress its spring and so increase the tension upon the disks and therefore upon the

thread. Suitable means will of course be provided for locking the tension shifting rod in its adjusted positions.

From the foregoing it will be observed that the tension on all of the threads may be equally increased or decreased simultaneously throughout the entire length of the machine by one operation.

I claim as my invention:

1. In a shuttle embroidery machine, the combination of a reciprocatory needle bar carrying a series of needles, independent tensioning devices one for each of the needle threads, each of said tensioning devices including a fixed member and a movable member, and a lengthwise shiftable rod having pins projecting therefrom and corresponding in number with the number of tensioning devices and one engaging the movable member of each tensioning device whereby on the shifting of said rod the tension of all of the tensioning devices may be simultaneously increased or decreased.

2. In a shuttle embroidery machine, the combination of a reciprocatory needle bar carrying a series of needles, independent tensioning devices one for each of the needle threads, each of said tensioning devices including a fixed upstanding member and a spring-pressed pivotally supported member, and a shiftable rod having pins corresponding in number with the number of tensioning devices and one engaging the pivotally supported member of each tensioning device whereby on the shifting of said rod the tension of all of the tensioning devices may be simultaneously increased or decreased.

3. In a shuttle embroidery machine, the combination of a series of needles, independent tensioning devices one for each of the needle threads and each including a swinging member, and lengthwise shiftable means simultaneously cooperating with each of the tensioning devices thereby to change the tension on the threads.

4. In a shuttle embroidery machine, the combination of a series of needles, independent tensioning devices one for each of the needle threads, each of said tensioning devices including a fixed member and a pivotally supported member, and lengthwise shiftable means for engaging the pivotally supported member of each of said tensioning devices thereby to change the tension on all of the tensioning devices simultaneously.

5. In a shuttle embroidery machine, the combination of a series of needles, independent tensioning devices one for each of the needle threads, each of said devices including a fixed member and a spring pressed pivotally supported member, and a shiftable member having means corresponding in number with the number of tensioning devices and one engaging the pivotally supported member of each of said tensioning

devices below the pivot thereof whereby on the shifting thereof the tension on each of said tensioning devices will be simultaneously changed.

6. In a shuttle embroidery machine, the combination of a series of needles, independent tensioning devices one for each of the needle threads and each including a swinging member, and a lengthwise shiftable rod having a series of members cooperating one with each of said tension devices whereby on the shifting of said rod the tension on all of said tensioning devices will be simultaneously changed and all of them maintained under a permanent constant tension.

7. In a shuttle embroidery machine the combination of a series of needles, independent tensioning devices, one for each of the needle threads, each of said devices comprising a fixed upstanding member having a laterally projecting pin, a pair of thread engaging disks mounted on said pin, a member pivotally supported on said upstanding member and having a part receiving said pin and a part projecting below its pivotal support, a spring mounted on said pin between said disks and the pivoted member, a shiftable rod, and means carried thereby for engaging that part of the pivoted member extending below its pivotal support whereby all of said pivoted members may be shifted simultaneously to increase or decrease the tension on the threads.

8. In a shuttle embroidery machine, the combination of a series of needles, independent tensioning devices, one for each of the needle threads, each of said tensioning devices comprising a fixed upstanding member, spring pressed thread engaging devices carried thereby, a pivotally supported member cooperating with said spring to press or release the same, and means for simultaneously shifting all of said pivotally supported members whereby the tension on the threads may be simultaneously increased or decreased.

9. In a shuttle embroidery machine, the combination of a series of needles, a series of tensioning devices, one for each needle thread, each comprising a supporting member, spring controlled thread engaging means carried thereby, a pivotally supported member effective to press or release the spring, and lengthwise shiftable means cooperating with all of said pivotally supported members for swinging the same thereby to simultaneously increase or decrease the tension on all of the threads.

10. In a shuttle embroidery machine, the combination of a series of needles, a series of tensioning devices, one for each needle thread, each comprising a supporting member, spring controlled thread engaging means carried thereby, a pivotally supported member effective to press or release the

spring and having a bent lower end, a
lengthwise shiftable rod and pins carried
thereby each projecting into position to en-
gage the bent lower end of a pivoted member
5 whereby on shifting the rod the tension on
the threads will be simultaneously increased
or decreased.

Signed at 1821 Park Row Building, New
York, N. Y., this 21st day of June, 1912.

ANTON KELLER.

Witnesses:

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J. B. McGuire.