(No Model.) 2 Sheets—Sheet 1.

H. HOCHREUTENER.

EMBROIDERING MACHINE.

No. 454,737. Patented June 23, 1891.

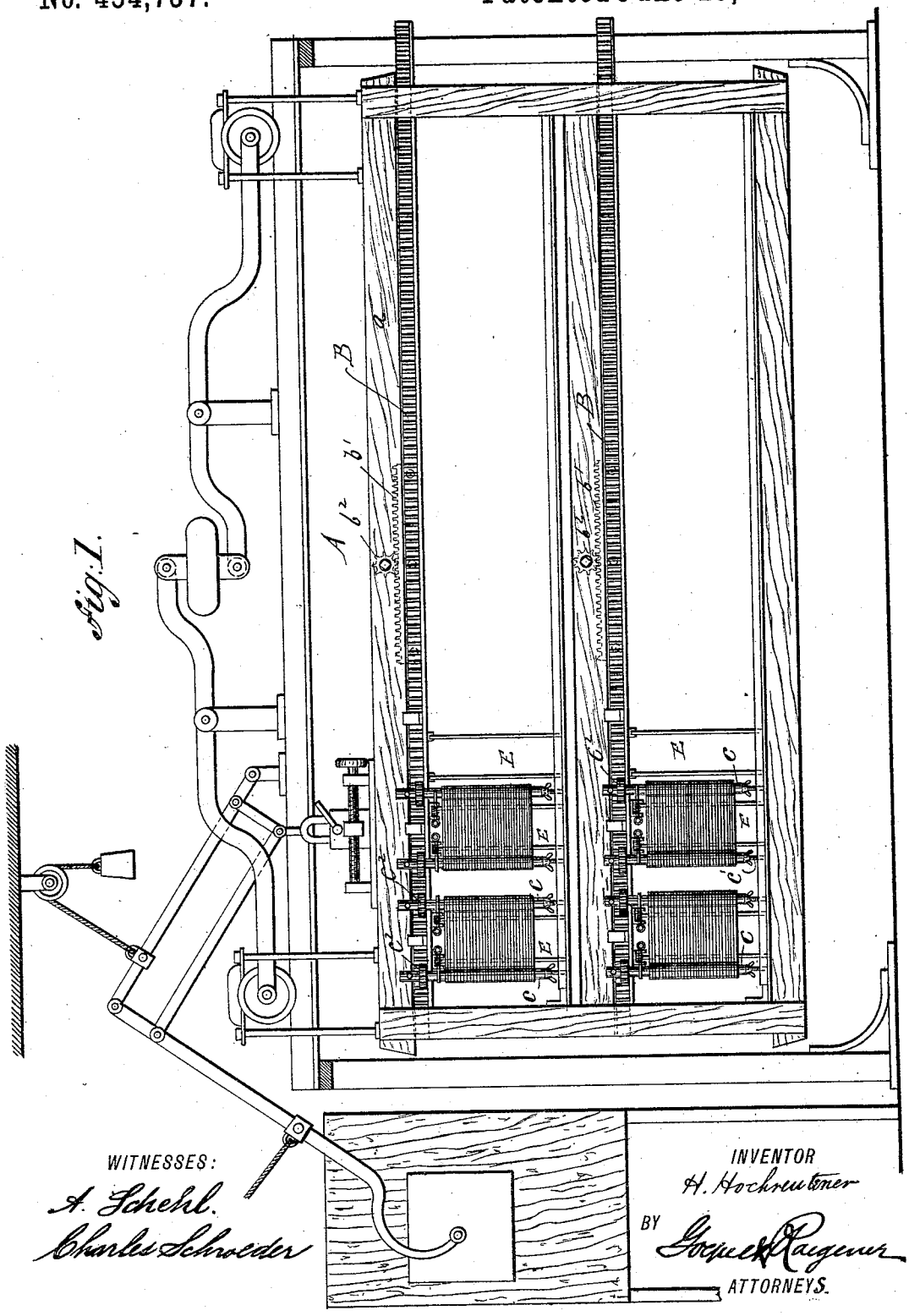


Fig. 1.

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Fig. 2.

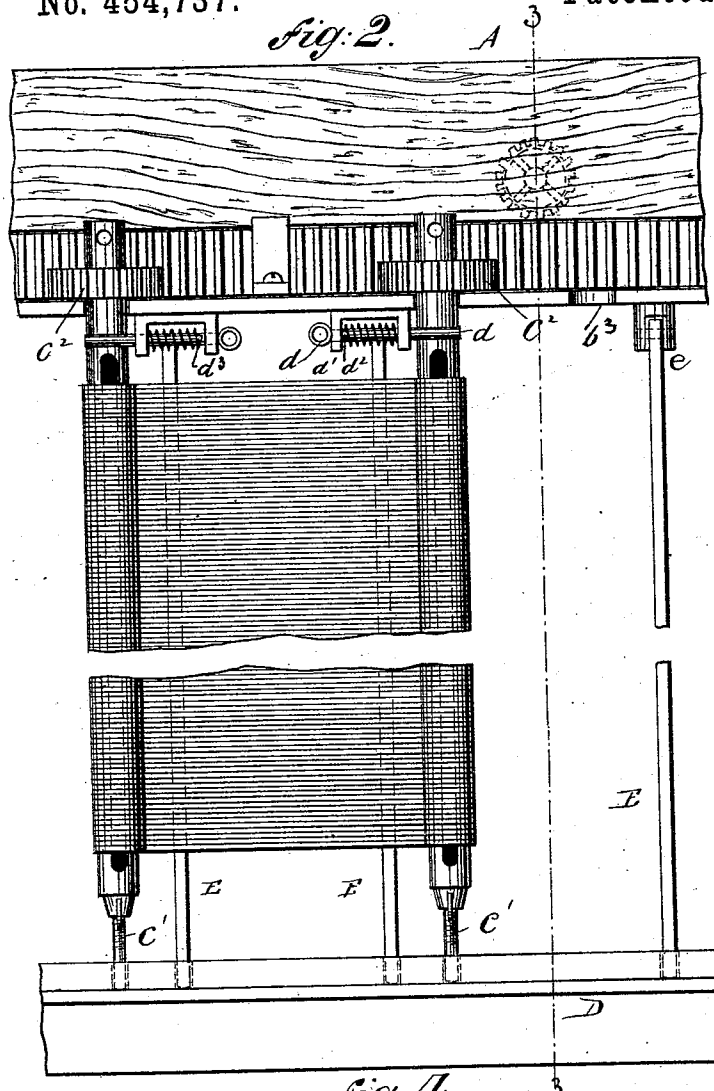


Fig. 3.

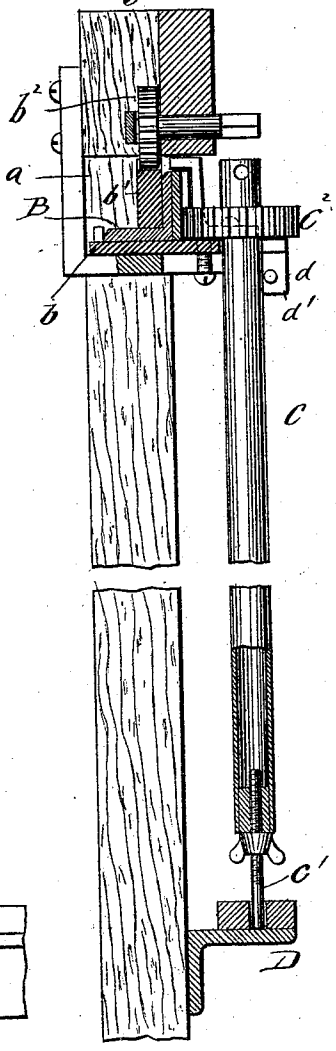
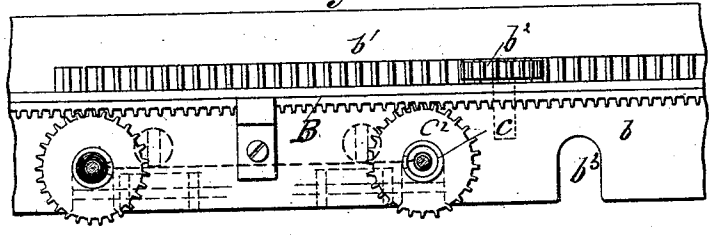


Fig. 4.



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UNITED STATES PATENT OFFICE.

HENRY HOCHREUTENER, OF NEW YORK, N. Y.

EMBROIDERING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 454,737, dated June 23, 1891.

Application filed March 24, 1891. Serial No. 386,279. (No model.)

To all whom it may concern:

Be it known that I, HENRY HOCHREUTENER, of the city, county, and State of New York, a citizen of the United States, have invented certain new and useful Improvements in Embroidering-Machines, of which the following is a specification.

This invention relates to improvements in the well-known Swiss embroidering-machines, so that continuous pieces of fabric of considerable length can be embroidered in a quick and effective manner by a comparatively simple attachment without removing the pieces from the tambour-frame of the embroidering-machine; and the invention consists of an embroidering-machine in which the tambour-frame is suspended in the usual manner and provided with longitudinal ways and sliding racks adjusted by a pinion and auxiliary rack, said sliding rack-bar meshing with pinions on the rollers on which the fabric to be embroidered is wound up. The rollers for the fabric are made hollow and mounted in socket-shaped step-bearings at their lower ends and retained at their upper ends in recesses of the guide-rail of the rack-bar by means of retaining-pins that are guided in suitable brackets. Intermediately between the fabric-rollers are arranged vertical strips that are set into socket-holes at the lower ends and retained by locking devices at the upper ends, said strips serving to keep the fabric at a uniform tension as the same is unwound from one roller and wound up on the other roller by the action of the sliding rack-bar and the pinions at the upper end of the rollers.

In the accompanying drawings, Figure 1 represents a side elevation of my improved fabric-stretching frame for embroidering-machines, showing the arrangement of the same in the tambour-frame. Fig. 2 is a front elevation of one of the fabric-stretching devices, drawn on a larger scale. Fig. 3 is a vertical transverse section on line 3 3, Fig. 2, part being broken off; and Fig. 4 is a top view of Fig. 2, the top rail being removed.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the tambour-frame of a Swiss embroidering-machine, which frame is suspended in the usual manner. The tambour-frame is provided with longitudinal ways *a*, in which is guided a sliding rack-bar B, which is made of rectangular cross-section and which is provided with rack-teeth in its vertical portion, while the horizontal portion is guided along the guide-rail *b*, so as to keep the sliding rack-bar in position in the guideways of the tambour-frame. To the middle part of the sliding rack-bar B is applied a short toothed bar b', which meshes with the pinion b^2, arranged midway of the tambour-frame, said pinion being provided with a forwardly-extending shaft having a square head for applying a key or a wrench thereto. By turning the pinion with a key the sliding rack-bar is moved lengthwise in the tambour-frame for a certain distance, as required. The guide-rail *b* is provided with a number of recesses b^3, which form the bearings for the upper ends of a number of fabric-stretching rollers C. These rollers are arranged in pairs at such distance from each other that the fabric stretched between the same can be embroidered for a certain width. Each roller carries at its upper end a pinion C^2, adapted to engage the teeth on the rack-bar B. The lower ends of the rollers are provided with screw-spindles C', that are capable of adjustment in the lower ends of the fabric-stretching rollers C by means of thumb-nuts and fixed end pieces, so that the position of the fabric is readily adjusted within certain limits into the required position. The spindles C' are supported in socket-bearings of a longitudinal bracket-rail D of the tambour-frame. The rollers are made hollow and provided with a slot for inserting the fabric, the ends of which are placed around a strip of wood and then basted. The end strips are placed into a pair of stretching-rollers C, the fabric being wound up upon one roller when the embroidering is started.

The upper ends of the rollers C are retained in the recesses of the guide-rail *b* by means of locking-pins *d*, which are supported in small guide-brackets d' and retained in position by a spiral spring d^3, that is interposed between a small pin d^2 attached to the locking-pin at one end, and one end of the guide-bracket d', as shown clearly in Fig. 2. By withdrawing the locking-pins *d* the upper end of the roll-

ers C can be removed from the recess of the guide-rail, so as to be out of mesh with the sliding rack-bar B. Intermediately between each pair of rollers are arranged two vertical tension-strips E, the lower ends of which are inserted into sockets of the supporting-bracket, while the upper ends are applied by locking-pins to recessed studs *e*, as shown in Fig. 2. The vertical tension-strips are arranged parallel with the rollers and serve to exert on that part of the fabric located between the same a stretching action, so as to keep it at the proper tension whether a greater or smaller length of fabric is wound upon the rollers. The tension-strips hold the fabric located between the same in stretched position ready for the action of the embroidering-needles, and form an essential feature of my improved tambour-frame.

When the longitudinal pieces of the fabric that are to be embroidered are mounted on the rollers applied to both ends of the same and properly stretched over the tension-strips, the embroidering of the first section of all the strips is commenced. When the embroidering of the design is completed, the longitudinally-sliding rack-bar of each section of the tambour-frame is operated by turning the pinion b^2, so that simultaneously all the rollers C of the strips to be embroidered are turned on their axes and the embroidered section of the strip wound upon one roller C, while the unembroidered section is unwound from the roller C, the motion of the rack-bar being sufficient to bring the next unembroidered section of all the strips in position between the tension-strips, so that the embroidering action can be continued without showing any breaks in the embroidered design. When the next section of all the strips is embroidered, the rack-bar is again moved forward for the required distance, and thereby the next portion of the strips exposed to the embroidering action, and so on until the entire strips are embroidered with the proper designs. Whenever the rack-bar is moved sufficiently from the left to the right, so that it will not mesh with the pinions C^2 of the rollers at the right-hand end of the tambour-frame, the pinions of all the rollers are moved out of mesh with the rack-bar, so that the same can be returned to its initial position, after which the pinions C^2 are placed into mesh again with the rack-bar and the rollers locked in their proper positions, upon which the embroidering action is continued, as the rack-bar can now actuate all the fabric-stretching rollers again.

My improved construction of tambour-frame is especially adapted for embroidering long narrow pieces of fabrics such as are used for ladies' trimmings and miscellaneous applications.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In an embroidering-machine, the combination, with the tambour-frame having longitudinal guideways and guide-rails, of a sliding rack-bar, means for moving said rack-bar forward in said ways, fabric-stretching rollers turning in bearings of the tambour-frame and meshing by pinions with the rack-bar, and tension-strips arranged intermediately between the stretching-rollers for stretching the fabrics, passing over the same as they are unwound from one roller and wound upon the other roller, substantially as set forth.

2. The combination, in an embroidering-machine, of a tambour-frame having longitudinal guideways and guide-strips with recesses, a sliding rack-bar guided in said ways, means for intermittently moving said rack-bar, fabric-stretching rollers provided with pinions and supported in the recesses of the guide-rail and in socket-bearings at their lower ends, and means for retaining the rollers in the recesses of the guide-rail, substantially as set forth.

3. The combination, with a tambour-frame, of a number of fabric-stretching rollers provided with pinions and arranged in pairs and supported in neck and step bearings of the tambour-frame, a sliding rack-bar guided in ways of the frame and meshing with the pinions on the rollers, so as to move all the rollers at the same time and feed the fabric mounted on each pair of rollers forward for exposing the next adjoining section of the fabric to the action of the embroidering-needles, substantially as set forth.

4. The combination of a tambour-frame having longitudinal guideways, a sliding rack-bar guided in said ways, fabric-stretching rollers arranged in pairs and provided with pinions meshing with said rack-bar, step-bearings for spindles in the lower ends of the rollers, and retaining devices at the upper ends of the rollers, substantially as set forth.

5. The combination, with a tambour-frame having longitudinal guideways, of a sliding rack-bar guided in said ways, means for intermittently moving said rack-bar forward, fabric-stretching rollers mounted in neck and step bearings of the frame, and detachable tension-strips arranged intermediately between each pair of rollers, so as to keep the fabric passing over the same always in proper position for the embroidering-needles, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

HENRY HOCHREUTENER.

Witnesses:

PAUL GOEPEL,

CHARLES SCHROEDER.