

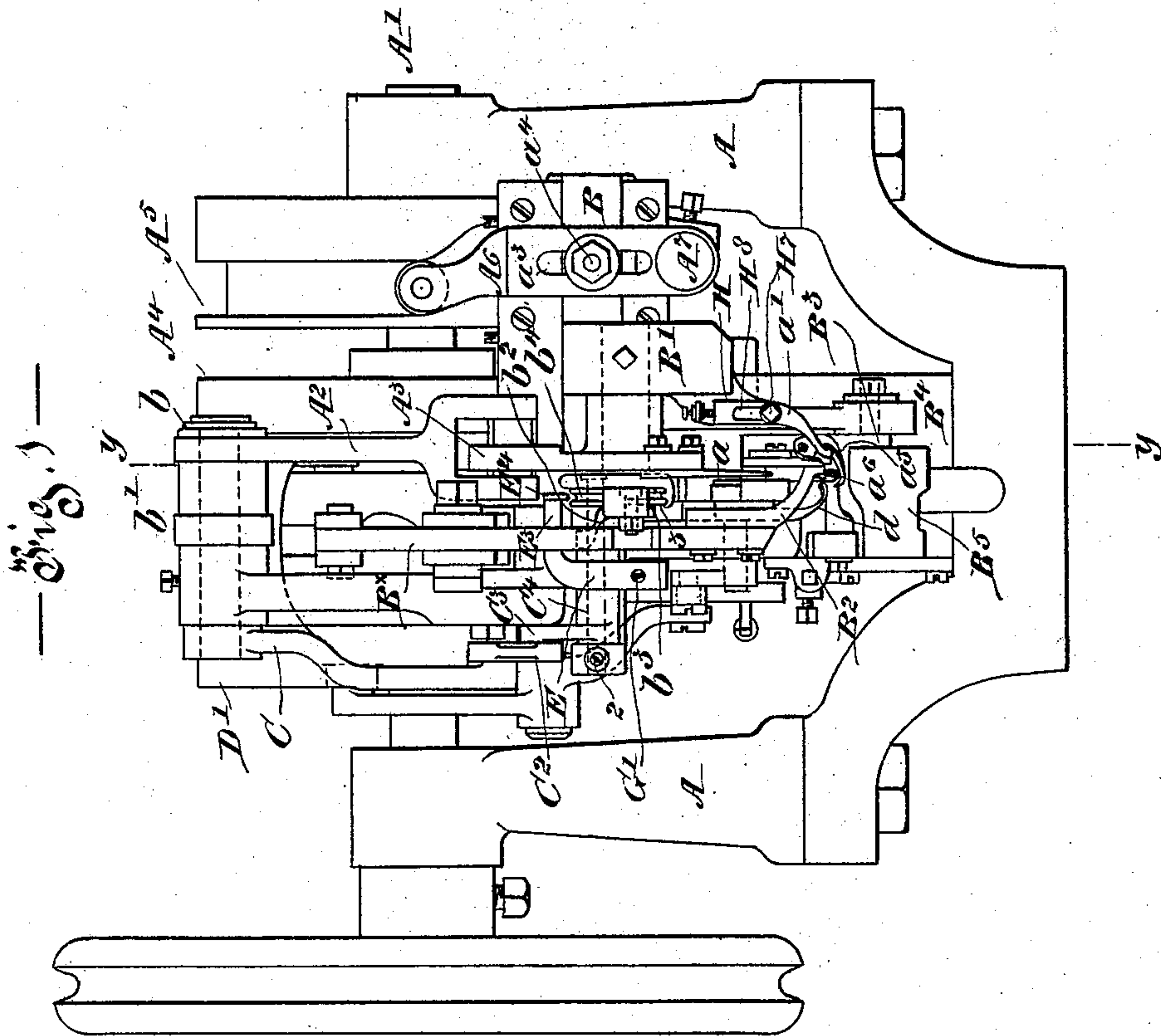
(No Model.)

4 Sheets—Sheet 1.

F. J. FREESE.
SHOE SEWING MACHINE.

No. 507,267.

Patented Oct. 24, 1893.



Witnesses

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Fred. J. Sears

Inventor

Francis J. Freese
By *his Attorney*
Wm. H. Wane

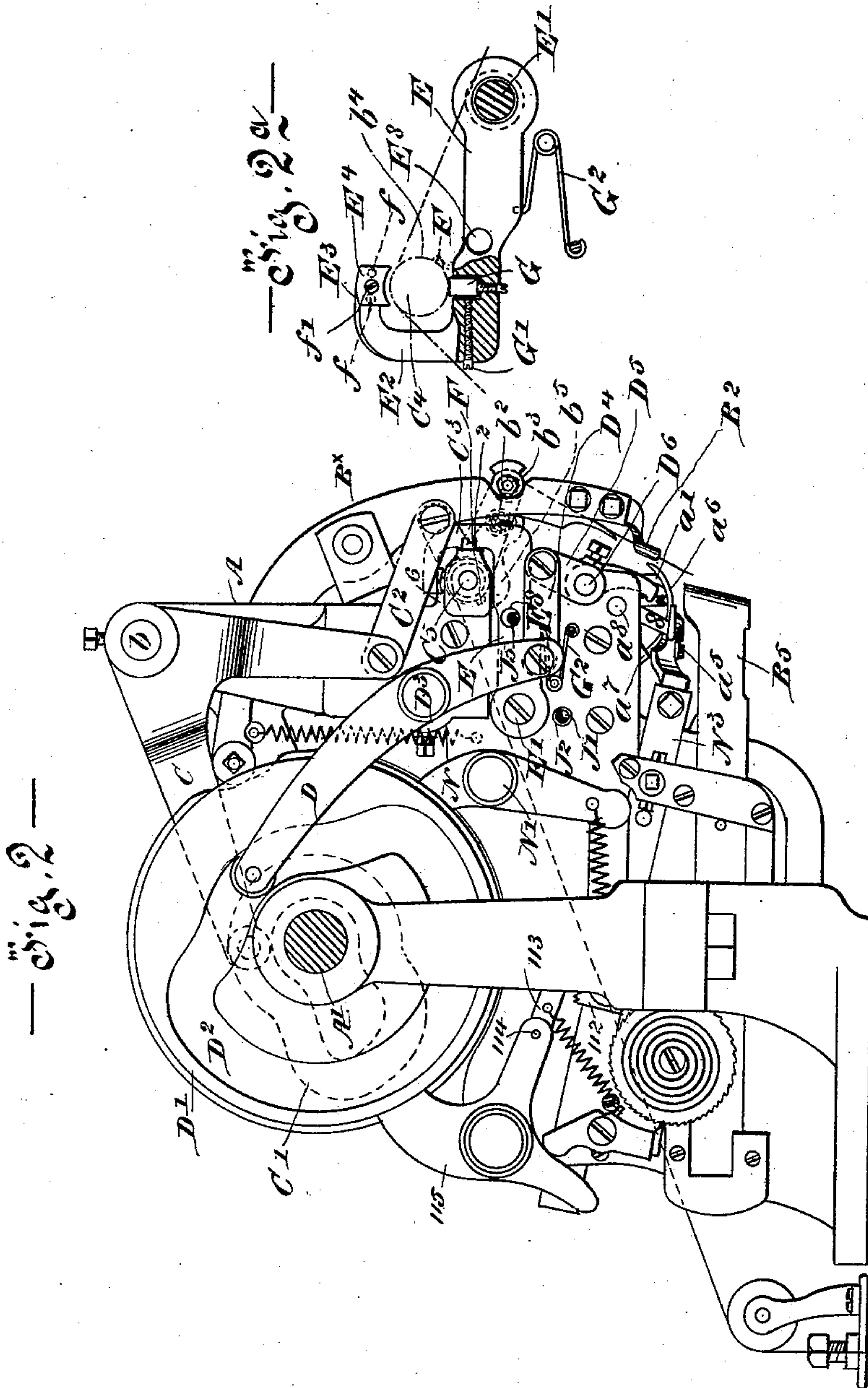
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Witnesses

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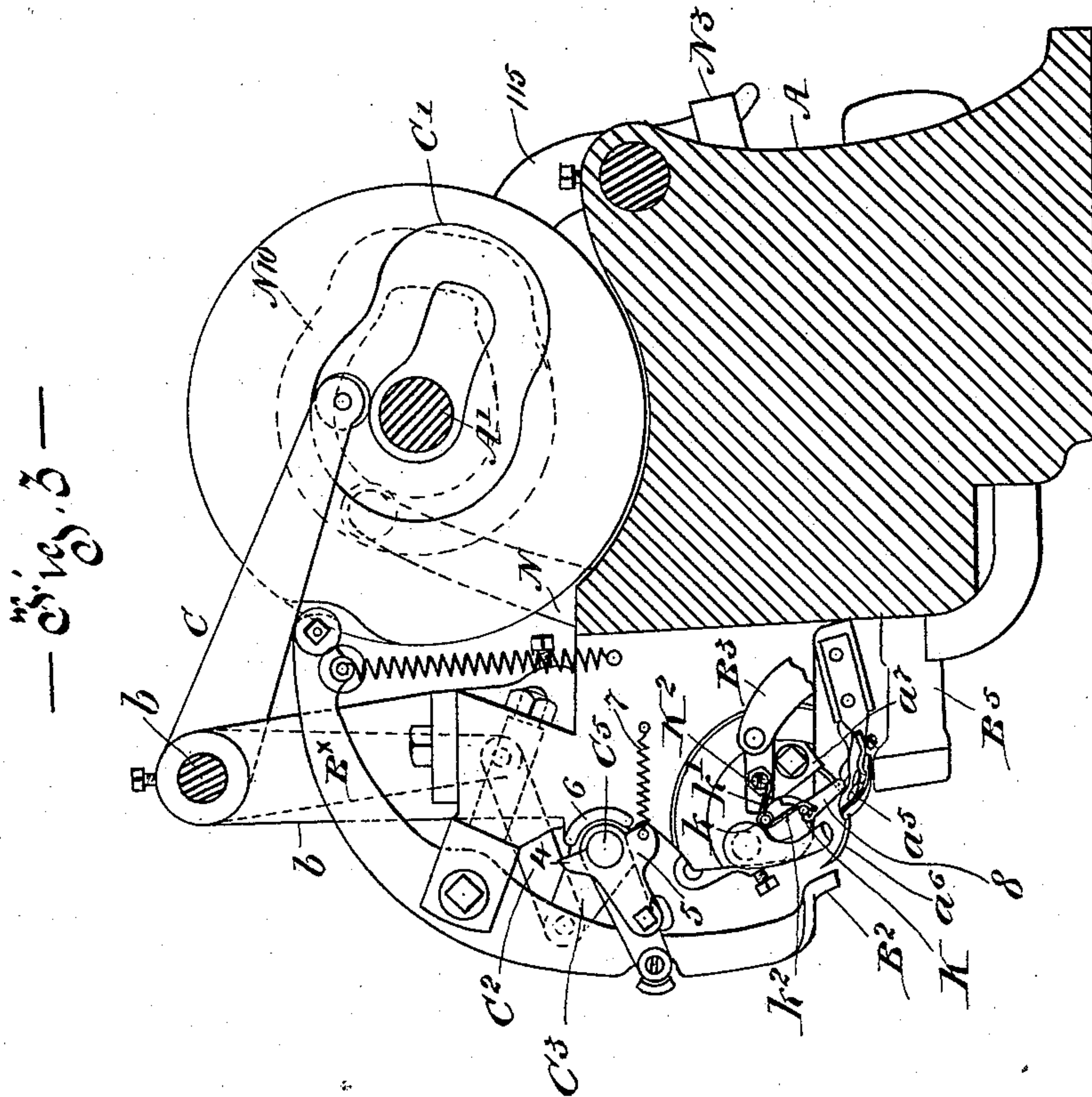
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Witnesses

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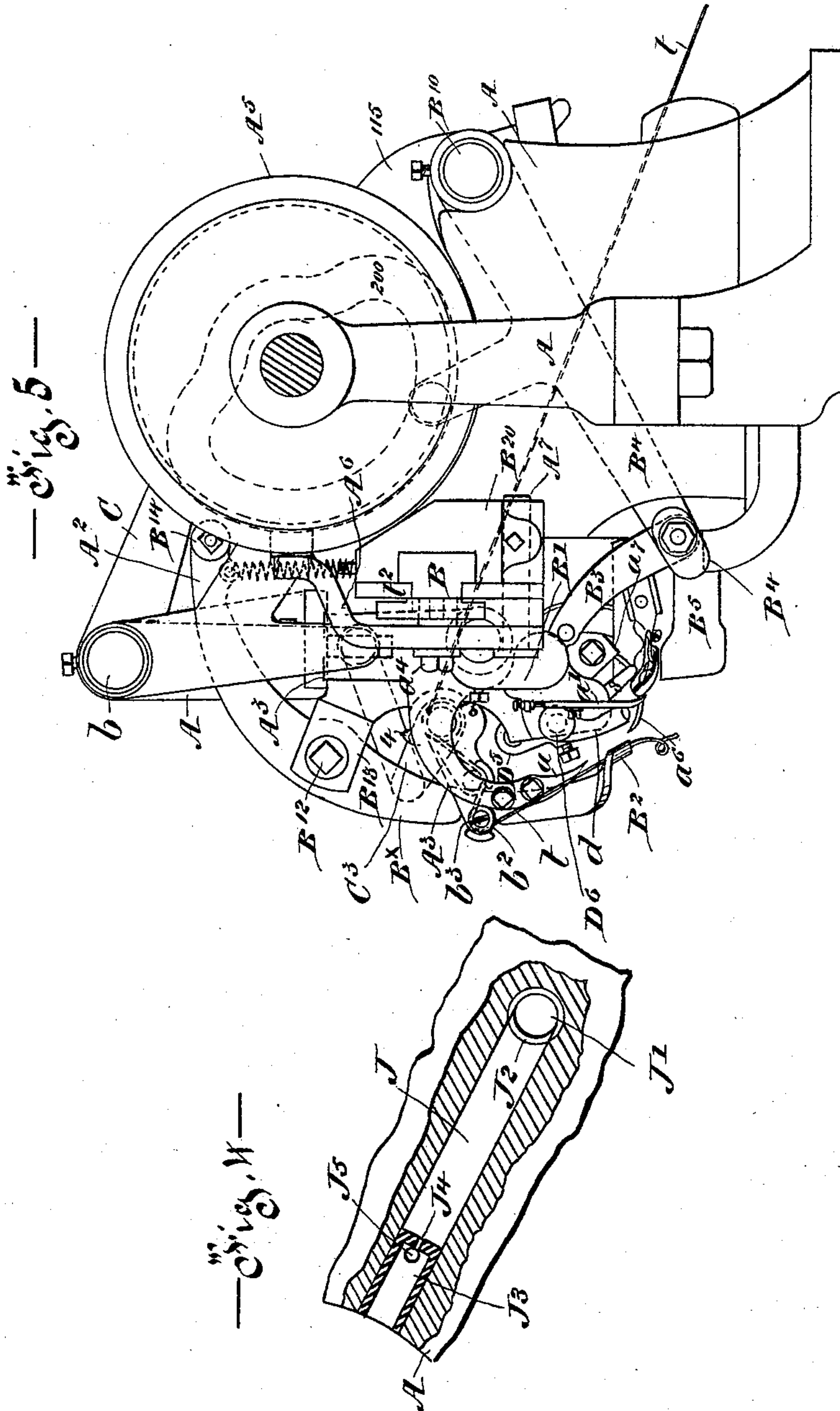
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F. J. FREESE.
SHOE SEWING MACHINE.

No. 507,267.

Patented Oct. 24, 1893.



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UNITED STATES PATENT OFFICE.

FRANCIS J. FREESE, OF MONTREAL, CANADA.

SHOE-SEWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 507,267, dated October 24, 1893.

Application filed August 9, 1892. Serial No. 442,623. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS JOSEPH FREESE, of the city of Montreal, in the district of Montreal and Province of Quebec, Canada, have invented certain new and useful Improvements in Shoe-Sewing Machines; and I do hereby declare that the following is a full, clear, and exact description of the same.

This invention relates to chain stitch wax thread sewing machines for sewing welted and turned work, my invention being an improvement on machines substantially such as represented in United States Patent No. 412,704, dated October 8, 1889.

My invention relates to means for securing a more even and uniform binding together of the parts to be united and to that end I introduce a clamping device to act upon the thread just before the take up has finished its binding pull upon such parts the effect being to prevent any more thread being drawn from the thread supply or even an extension of the length of thread between the thread supply and the work by reason of the elasticity inherent in all threads, the uniformity of "bind" being due to the fact that the degree of tension to which the thread is subjected between such clamping or locking point and the parts being united is always the same or uniform notwithstanding any variation in the thickness of such parts.

For full comprehension however of the invention reference must be had to the annexed drawings forming a part of this specification in which like symbols indicate corresponding parts and wherein—

Figure 1 is a front elevation of a sufficient portion of a sole sewing machine of the class mentioned with my improvements added to enable my invention to be understood. Fig. 2 is a left hand side elevation of the portion of machine shown in Fig. 1. Fig. 2^a is an enlarged detail view of the clamping device and its operating parts. Fig. 3 is a partial vertical section of the machine on line *y y* Fig. 1; Fig. 4 a detail sectional view of a portion of the head framework showing the burner for heating the thread rolls or sheaves. Fig. 5 is a right hand side elevation of the machine shown in Fig. 1.

The frame-work A of the so-called "head" of the machine, cam shaft A', the awl-actuat-

ing lever A², the awl carrying lever A³, its awl *a*, the channel guide *a'*, the feed cam A⁵, the lever A⁶, actuated thereby and pivoted at A⁷ and slotted at *a*³ to receive a stud *a*⁴ extended outwardly from the horizontally sliding carriage B, having a depending portion B', holding the channel guide (as will be hereinafter described) and the fulcrum for the lever carrying the awl to move them horizontally when the awl is in and so as to feed the shoe for the length of stitch to be made, the welt guide *a*⁵, the thread guide or looper B², the carrying lever B^x to operate it, the hooked needle *a*⁶, its guide 8, the needle segment *a*⁷, pivoted at *a*⁸, the link B³ to connect it with the lever B⁴, to move the needle segment, the said lever deriving its movement from a cam-groove as 200 at the inner side of the cam-disk A⁵, the shape of the said cam being shown by dotted lines in Fig. 5, the sliding gage B⁵, against which the upper on the last is pressed and rests while the stitch is being made, and the locking mechanism for the said sliding gage, are and may be all as common to the sole sewing machine shown in the patent referred to and so need not be herein further described.

The slide bar N³, to which the welt guide *a*⁵ is attached, a slot adjustable link containing a block, an adjusting bolt or device to hold the said block in place, the lever N pivoted at N' and actuated by a suitable groove N¹⁰ at the left hand side of the cam-disk C', and the locking devices consisting of the pawl 113, pivoted to the lever 115 at 114, and the ratchet-block 112, the said lever 115, actuated by a cam-groove (see dotted line Fig. 3) at the inner side of the cam disk; the take up mechanism consisting of the elbow lever C mounted on the stud *b* and actuated by a groove in the cam disk or wheel C', the shape of which is represented by full lines in Fig. 3, this lever, as shown having an ear bored to embrace the fixed stud *b*, so as to prevent the lateral movement of the lever C from the said stud, and the elbow lever C jointed by the link C² with the arm C³ of the short sleeve C⁴ (see Fig. 1) mounted loosely on the stud C⁵ held by the screw 2 (see Fig. 1), the opposite end of the said sleeve having the arm *b*² provided at its outer end with the roll *b*³, which arm *b*² constitutes the take up

proper—all these as well as the auxiliary take up mechanism consisting of the sheave b^4 mounted loosely on the stud C^5 near its inner end, the auxiliary take up lever proper b^5 having at its forward end the roll 3 cut away or notched at its rear end to leave a projection, as 4 and 5, the fixed stop 6, the upper projection 4 striking against the stop and limiting the upward movement of the auxiliary take up when lifted by the strain upon it of the thread t , passed over the roll b^3 and the under projection 5 normally kept against the stop 6 by a suitable spring 7, the lever D , the cam D' having the cam-groove D^2 (see Fig. 2) to actuate it, the said lever D pivoted at D^3 and connected by the link D^4 with the arm D^5 of the short rock shaft D^6 , carrying the thread holder d on its inner end, are and may be substantially as in United States Patent No. 412,704, before referred to. In addition to these parts and in combination therewith I arrange the clamping device to act upon the thread at a point between the tension device and the take up and such clamping device consists of an arm E (see Figs. 1, 2 and 2^a) which is bored as at E^8 to allow of the passage of air to the inlet J^5 , and pivoted by stud E' to the framework head, projects forward under the sleeve C^4 , carried by the stud or rock shaft C^5 , has an upward bend or vertical portion E^2 and a horizontal inwardly projecting free end E^3 extending over said sleeve C^4 and carries a steel clamping piece E^4 upon its end directly over the sheave b^4 , such clamping piece being preferably secured in place by two dowel pins $f f$ and a screw f' , and having its bottom edge curved to correspond with the periphery of such sheave.

A short stud or pin F with beveled outer end is set in the under side of the sleeve C^4 immediately over the main length of the arm E and the arm has a vertical boring in line with the axis of said sleeve to accommodate an adjustment pin or screw G the lower half of which is screwed to work in a screw thread formed in a contracted part of said boring, and the upper half left smooth to receive the bearing end of a set screw G' working in the arm at right angles to the pin G . Just before the take up arm b^2 has finished its upward binding throw as shown in Fig. 2, the projecting pin F in sleeve C^4 makes contact with the adjusting pin G in the arm E and thereby depresses such arm (it being held up normally by spring G^2) and causes the clamping piece to hold the thread firmly between it and the sheave b^4 until the take up lever has passed the same point on its return or downward movement thus preventing any further thread being drawn from the supply, or the extension of such thread by stretching as before mentioned, as it reduces the length of thread free to be stretched.

To accommodate varying thicknesses or sizes of thread the extent of depression of the clamping piece is made variable by means of the adjustment pin G being given a greater

or less projection when larger or smaller thread is used, for while it is necessary to firmly lock the thread it is essential to avoid crushing or weakening it in any way by too great a degree of pressure.

To heat the thread sheaves or rolls $b^3 b^4$ and 3 I construct what might properly be termed a Bunsen burner in the framework head A so that the flame from it will impinge upon the sleeve C^4 , arm b^2 and auxiliary take up b^5 , and through such parts heat such sheaves or rolls which are carried thereby. To construct such burner I bore a passage J in the framework head from a point in the front of same immediately behind and below the sleeve and other parts mentioned and meet the inner end of said passage with another boring or passage J' extending from the side of the framework head and from this latter passage a small section of gas pipe J^2 can project to receive any desired connection from a gas supply. A section of tubing J^3 having its inner end contracted to a very small opening J^4 is inserted in the outer end of the passage J and forms the burner proper, an air inlet J^5 being bored from the side of the framework head into the tubing J^3 just above the small opening J^4 .

Prior to my invention herein described a wax thread sewing machine using a hooked needle to make a chain stitch has never been provided with a locking or clamping device between the tension device and the take up.

Such novel features as I have herein shown but not claimed I reserve the right to make application for Letters Patent upon.

What I claim is as follows:

1. In a chain stitch wax thread sewing machine, the following instrumentalities, viz: a channel guide; a hooked needle; the needle segment; feeding mechanism; actuating means for the said needle segment to force the needle with a loop upon its shank into the stock and out through the inner channel of the sole and there hold the needle temporarily substantially at rest while the stitch is being set; a thread-guide, means to actuate it to supply the hooked needle with thread; and a take-up, as b^2 , a cam as C' , and connecting devices intermediate the said cam and the said take-up, the said cam through the said connecting devices actuating the said take-up to pull upon the loop of needle thread about the shank of the needle while the needle is in the stock and holds the said loop upon its shank, the said take up drawing the said loop about the shank of the needle as described, to set the last stitch of which the said loop forms a part without straining the between substance, the said stitch being set before the loop to form the next stitch is drawn through it, a positively operated thread clamping device disconnected from said take up and adapted to act upon and firmly lock the thread only after the said take-up has pulled the loop of needle thread about the shank of the needle, held said loop upon such shank and commenced to draw said loop about the

shank of the needle as described and just before it has finished setting the stitch; and means other than the thread itself for positively actuating such clamping device, substantially as described.

2. In a chain stitch wax thread sewing machine; a channel guide, a hooked needle; the needle segment; feeding mechanism; actuating means for the said needle segment; a thread guide with means to actuate it; a take-up with actuating means; and a positively operated thread clamp disconnected from said take up and consisting of a pivoted arm, as E, carrying a clamping piece adapted to bear upon a thread sheave and effect a positive locking of the thread at a point between the tension device and the take up only after the said take up has pulled the loop of needle thread about the shank of the needle held said loop upon such shank and commenced to draw said loop about the shank of the needle as described and just before it has finished setting the stitch, and means other than the thread itself for positively operating said clamping device to firmly lock the thread substantially as described.

3. In a wax thread sewing machine; the combination with the channel guide; the hooked needle; the needle segment; feeding mechanism; actuating means for the said needle segment; the thread guide with means to actuate it; the take-up, for setting the stitch, with actuating means, including the stud or rock-shaft C⁵ and sleeve C⁴; a positively operated thread clamp, adapted to bear upon a thread sheave and effect a positive locking of the thread, at a point between the tension device and the take-up, just before the take-up has finished setting the stitch; a spring normally holding said clamp free from its work and a projection from the under side of said sleeve adapted to intermittently bear upon said clamp to depress same upon the thread sheave and the thread so as to positively lock or hold the latter as and for the purposes set forth.

4. In a wax thread sewing machine; the combination with the channel guide; the

hooked needle; the needle segment; feeding mechanism; actuating means for the said needle segment; the thread guide with means to actuate it; the take-up for setting the stitch, with actuating means, including the stud or rock-shaft C⁵ and sleeve C⁴; a positively operated thread clamp consisting of an arm, as E, pivoted to the side of the frame-work head, projecting forward of same under said sleeve, having an upward bend or vertical portion, and a horizontal inwardly projecting free end carrying a clamping piece adapted to bear upon a thread sheave and effect a positive locking of the thread, at a point between the tension device and the take-up, just before the take-up has finished setting the stitch; a spring normally sustaining or elevating said arm to hold the clamping piece free from its work, and a projection from the under side of said sleeve adapted to intermittently bear upon the main length of said arm to depress same and cause said clamping piece to positively lock or hold the thread as and for the purpose set forth.

5. In a wax thread sewing machine, the combination with the thread clamping arm, as E, of an adjustment device carried by it and receiving the impact or pressure of the actuating means normally out of contact with such adjustment device as and for the purpose set forth.

6. In a chain stitch wax thread sewing machine, the combination with feeding mechanism, means for producing a chain stitch with a single thread and a take up with actuating means,—of a positively operated thread clamping device disconnected from said take up and adapted to firmly lock the thread by pressure applied directly to it at a point between the tension device and said take up; and means, other than the thread itself, normally out of contact with said clamping device for positively actuating same to clamp the thread as described.

FRANCIS J. FREESE.

Witnesses:

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