

(No Model.)

A. E. JOHNSON.

GROOVE CUTTING ATTACHMENT FOR SEWING MACHINES.

No. 412,188.

Patented Oct. 1, 1889.

Fig. 1

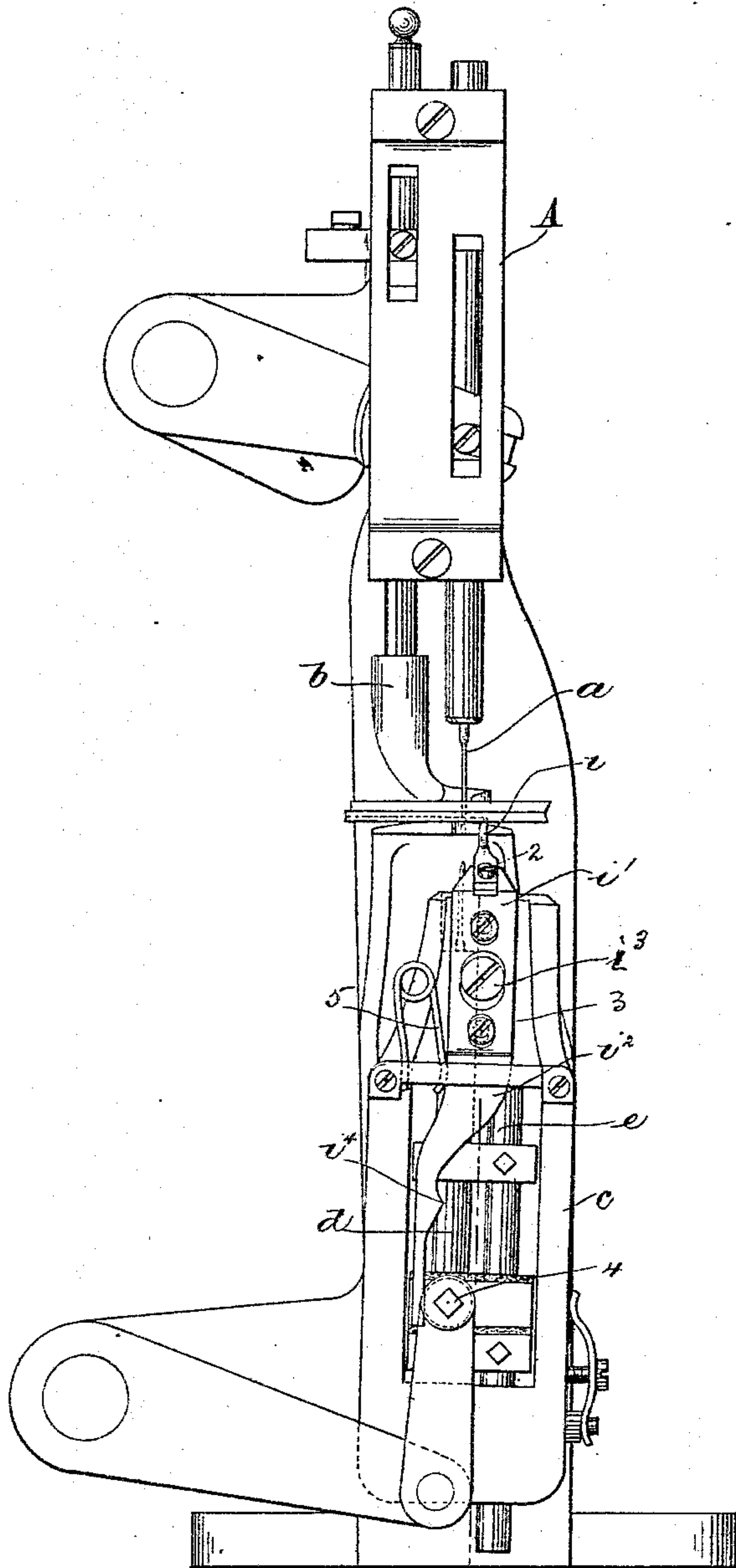
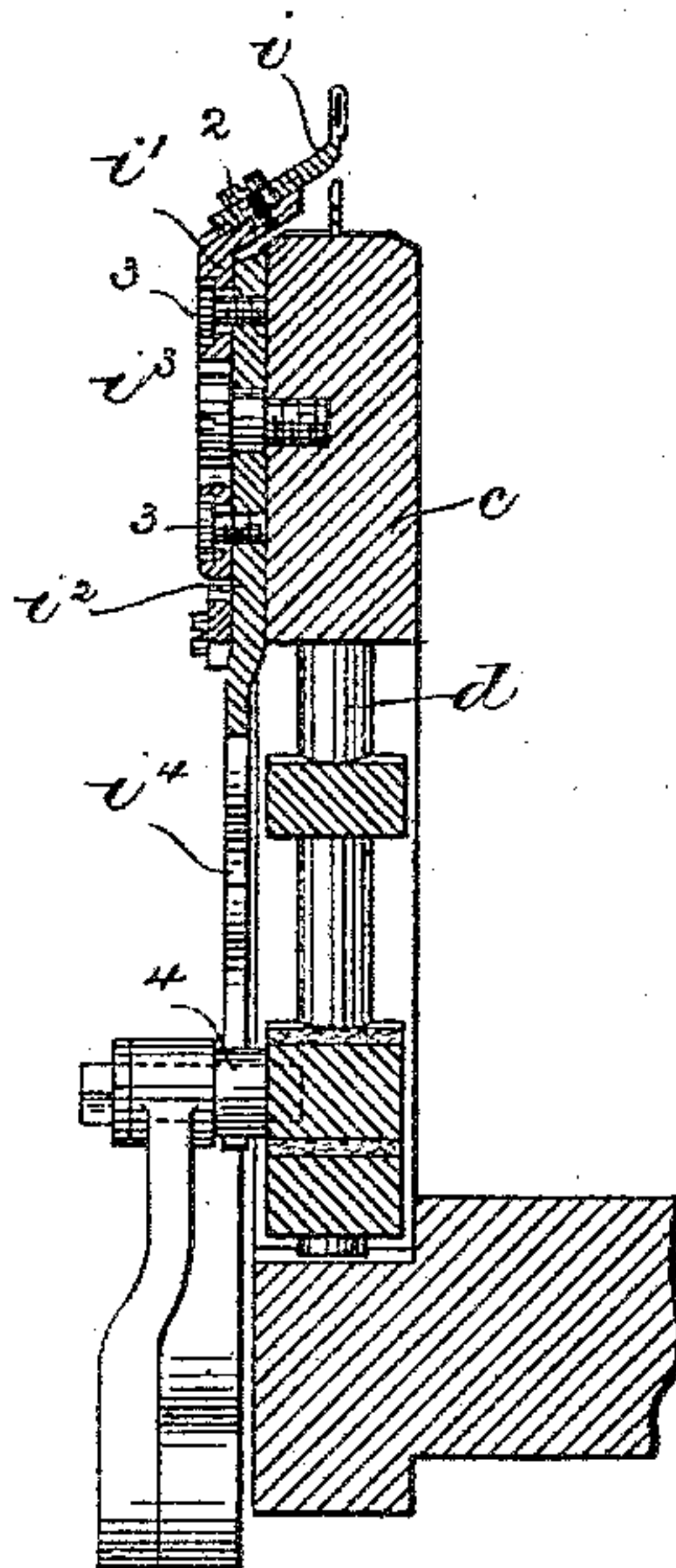


Fig. 2



Witnesses:

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UNITED STATES PATENT OFFICE.

ALBERT E. JOHNSON, OF BROCKTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO C. HERBERT PORTER, OF SAME PLACE.

GROOVE-CUTTING ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 412,188, dated October 1, 1889.

Application filed July 8, 1889. Serial No. 316,767. (No model.)

To all whom it may concern:

Be it known that I, ALBERT E. JOHNSON, of Brockton, county of Plymouth, State of Massachusetts, have invented an Improvement in Grooving Attachments for Sewing-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

Sewing-machines designed for what is commonly called "fair" stitching employ grooving-tools for forming a groove to receive the chain or loop of the stitch.

This invention has for its object to simplify and improve this class of machines as to the grooving mechanism; and the invention consists in the combination, with the rocker-arm, needle-bar, and needle, of a grooving-tool and a lever on which it is mounted, and means, substantially as described, to vibrate the said lever as the needle-bar rises. The lever to which the grooving-tool is attached is herein represented as pivoted to the rocker-arm and as having a cam or irregular-surfaced edge which is acted upon by a stud carried by the needle-bar. The lever and plate attached to it to which the grooving-tool is attached are preferably joined together adjustably.

Figure 1 shows an end view of a sewing-machine provided with a grooving-tool embodying this invention. Fig. 2 is a vertical sectional detail of the rocker-arm and grooving-tool, showing means for moving said tool.

I have provided the sewing-machine with a lever i^2 , mounted on a suitable pivot or fulcrum i^3 of the rocker-arm c , and, as shown, I have connected to this lever by screws 3 a plate i' , the said screws passing through slots in the said plate, so as to provide for adjustment, and to the upper end of the said plate i' (herein shown as offset) I have connected in an adjustable manner the grooving-tool i , the connection being by a screw, as 2, to provide for adjustment. The grooving-tool may be of any usual shape.

The cam-shaped edge i^4 of the lever i^2 below its pivot i^3 is kept by the spring 5 normally in the path of movement of a stud 4, carried by or attached to the needle-bar d ,

so that as the needle-bar rises the said stud, by acting on the edge of the lever i^2 , which it does just after the needle penetrates the work, vibrates the said lever while the needle is yet in the work, thereby causing the grooving-tool i to be moved for a short distance in a direction to cut a groove in advance of the stitching. As the stud 4 rises it passes by the cam i^4 and enters a recess above it, thereby permitting the grooving-tool i to retreat a short distance, but shorter than this forward movement, and as the stud 4 resumes its normal position or descends it passes over the cam i^4 and moves the grooving-tool forward again a short distance and retreats to its normal position.

Thus it will be seen that while the needle is in the work, and previous to feeding, the grooving-tool operates to cut the groove for the loop. Vertical adjustment of the grooving-tool is effected by moving it and the plate i' as a whole vertically on the pivoted lever i^2 , and lateral adjustment of the tool is effected by moving the same in the offset portion of the plate i' by means of the screw 2 and the slot, as will be plainly seen in Fig. 2.

I claim—

1. The combination, with the stitch-forming mechanism of a sewing-machine, comprising the awl, needle and cast-off, and the needle-bar and rocker-arm in which it slides, of a laterally and vertically adjustable grooving-tool and an independent carrying-lever loosely connected to the rocker-arm, substantially as described.

2. The combination, with the stitch-forming mechanism of a sewing-machine, comprising the awl, needle and cast-off, the needle-bar, and rocker-arm in which it slides, of an adjustable grooving-tool and an independent lever pivotally connected to the said rocker-arm and provided with a cam-edge, and means, substantially as described, for acting upon said cam-edge and moving the said lever on its pivot while the needle is entering and leaving the work, substantially as described.

3. The combination, with the stitch-forming mechanism of a sewing-machine, comprising the awl, needle and cast-off, the

needle-bar, and rocker-arm, of the grooving-tool and pivoted lever *v*², said grooving-tool being vertically adjustable with the tool-carrier, substantially as described.

- 5 4. The combination, with the stitch-forming mechanism of a sewing-machine, comprising the awl, needle and cast-off, the needle-bar, and rocker-arm, of the grooving-tool and pivoted lever *v*², said grooving-tool

being laterally adjustable on the tool-carrier, so substantially as described.

In testimony whereof I have signed my name to this specification in presence of two subscribing witnesses.

ALBERT E. JOHNSON.

Witnesses:

LUCIUS LEACH,
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