

(No Model.)

2 Sheets—Sheet 1.

J. L. McMILLAN.

MACHINE FOR FOLDING THE EDGES OF FABRICS.

No. 278,163.

Patented May 22, 1883.

Fig. 1.

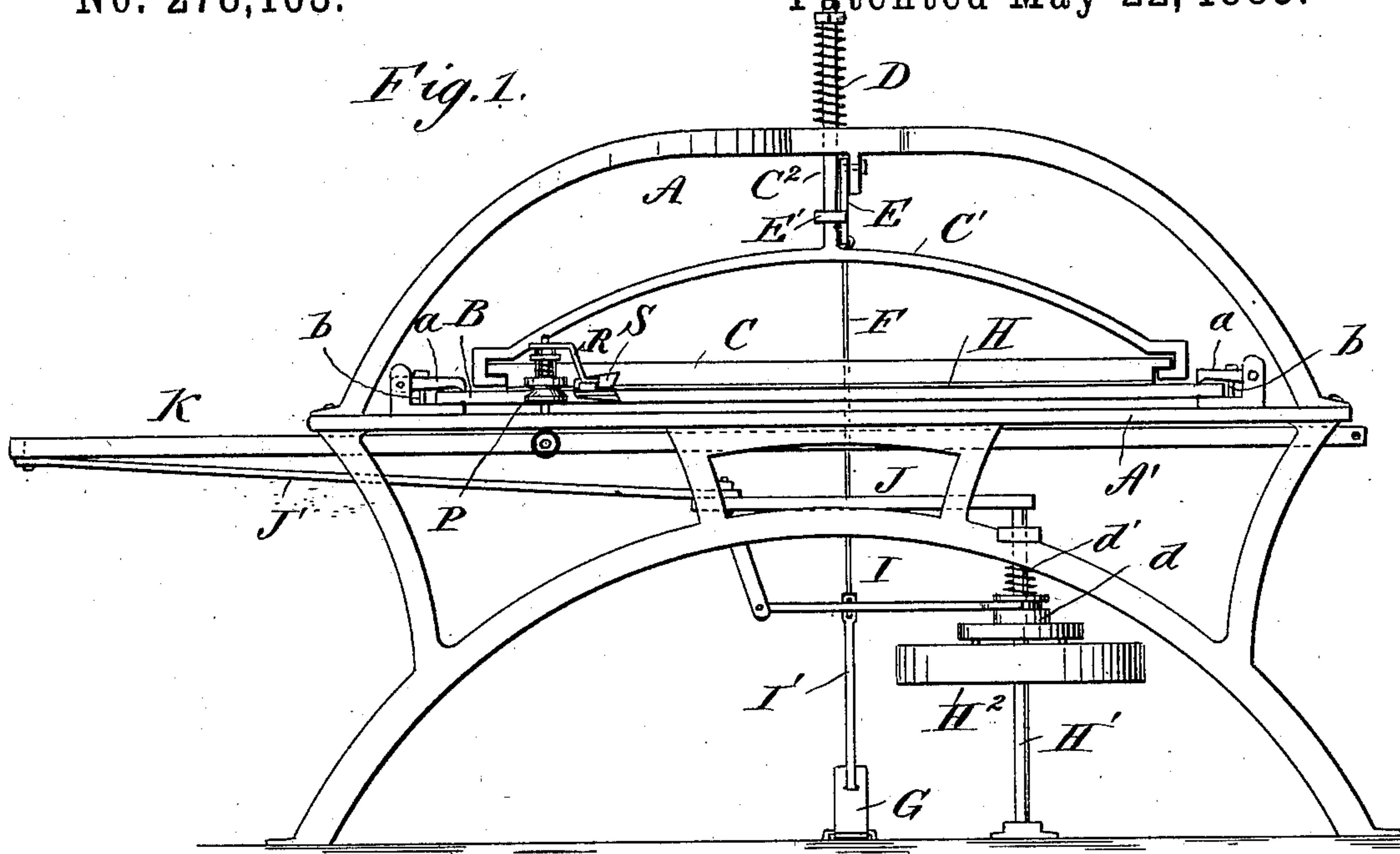
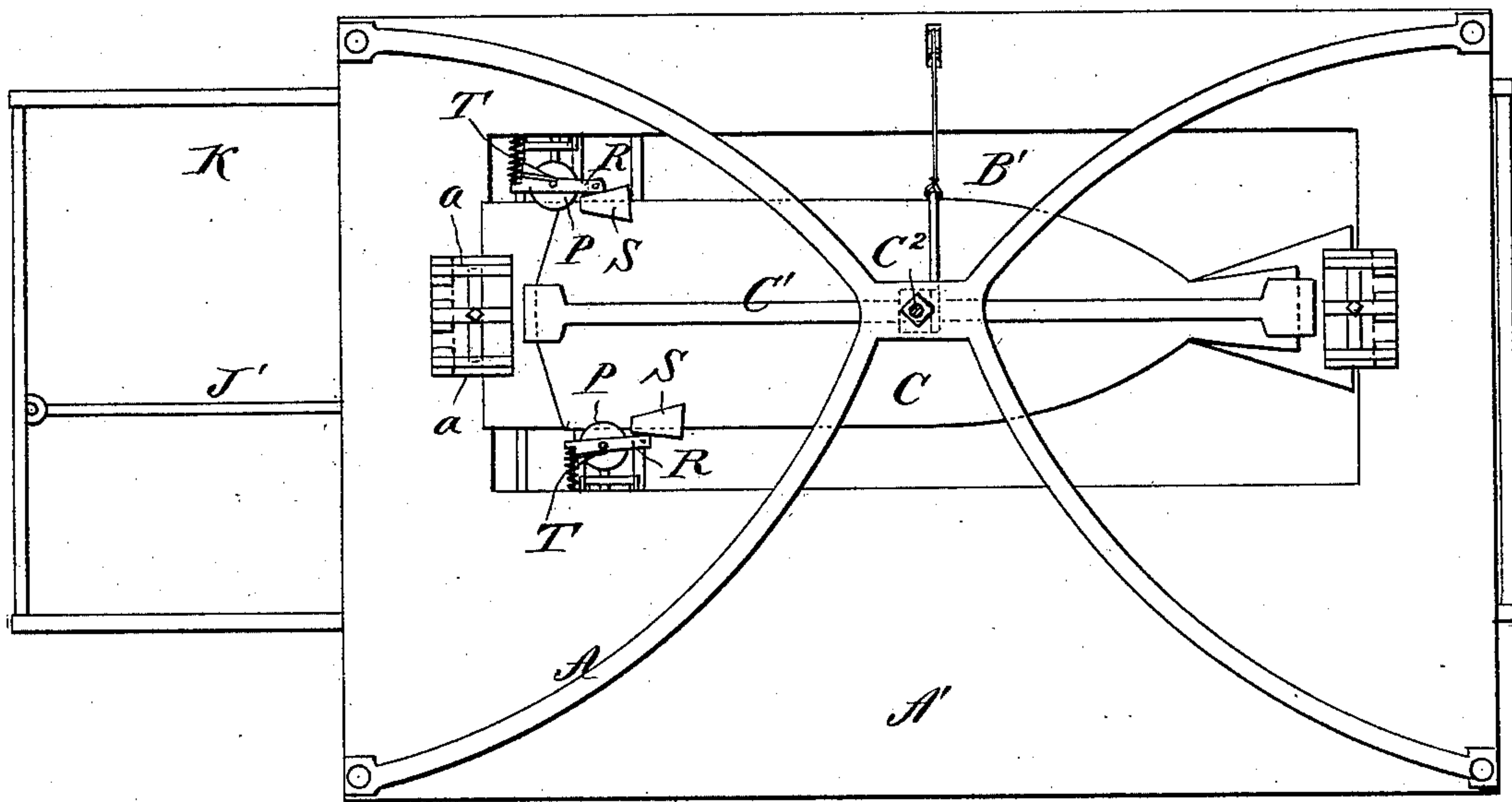


Fig. 2.



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INVENTOR:

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(No Model.)

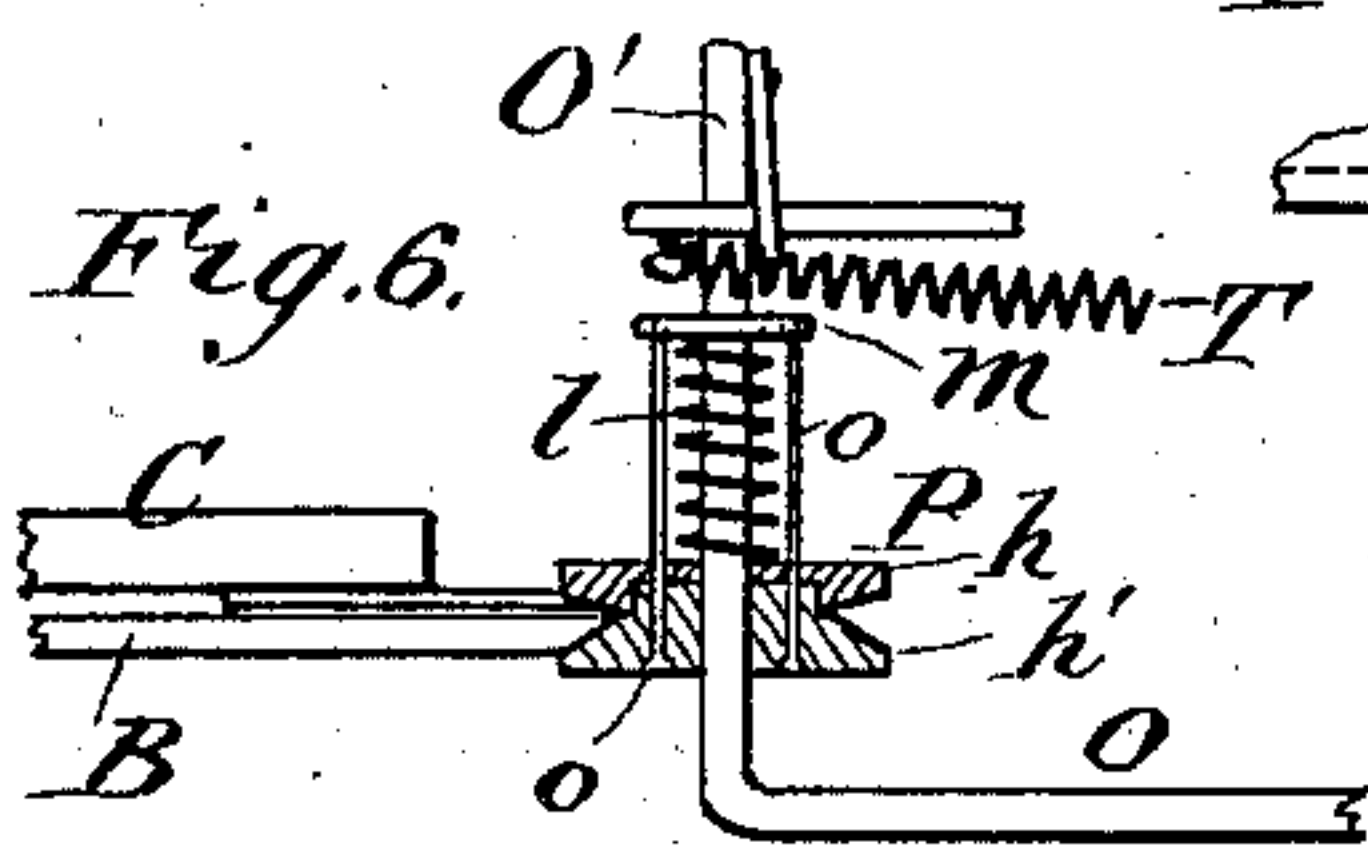
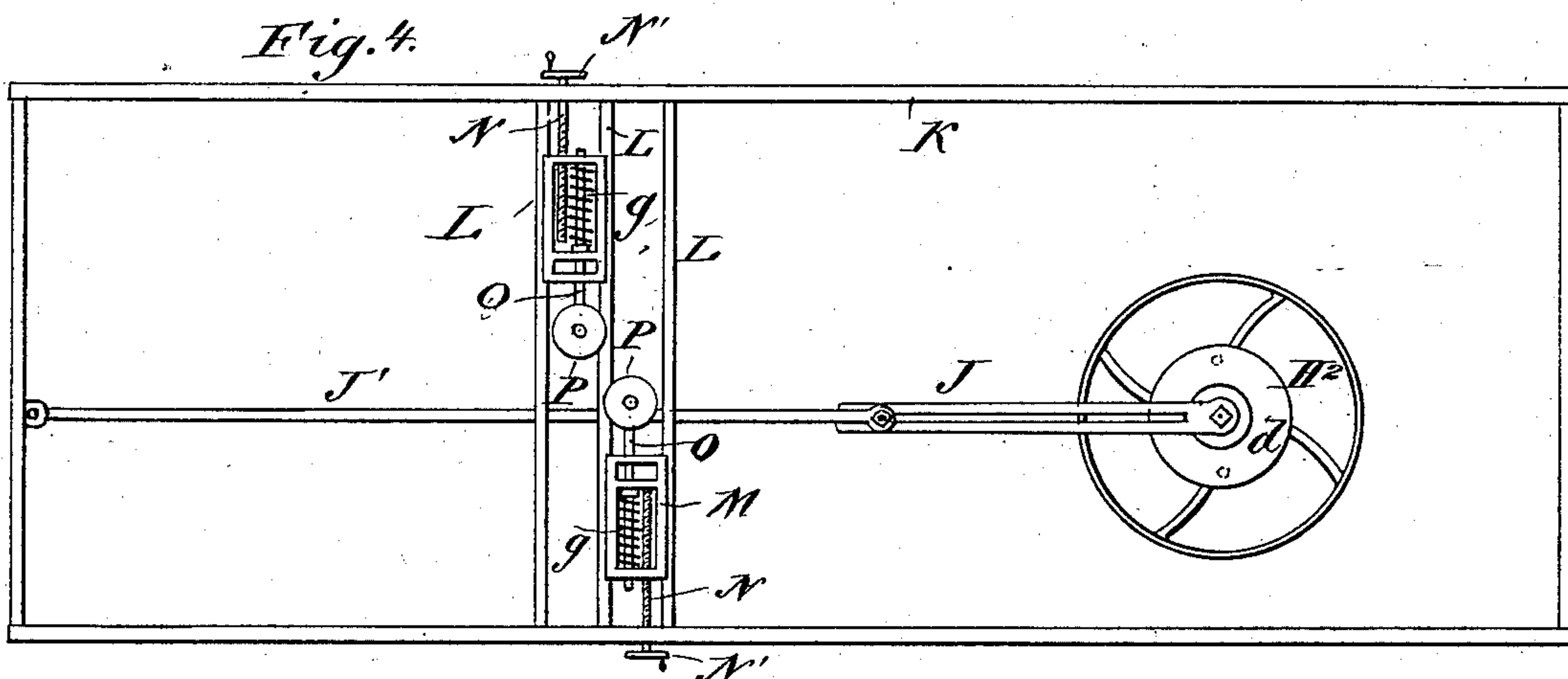
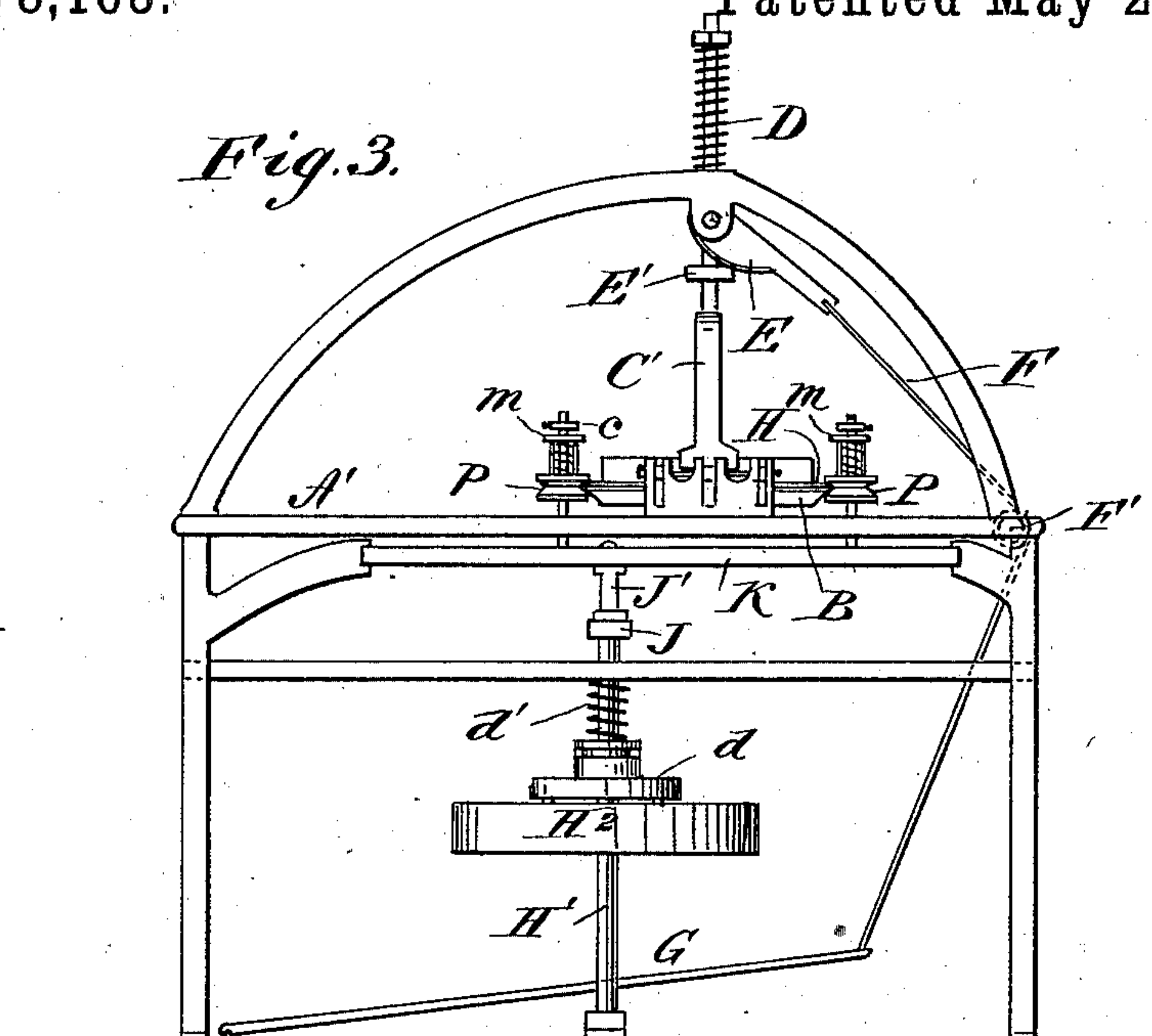
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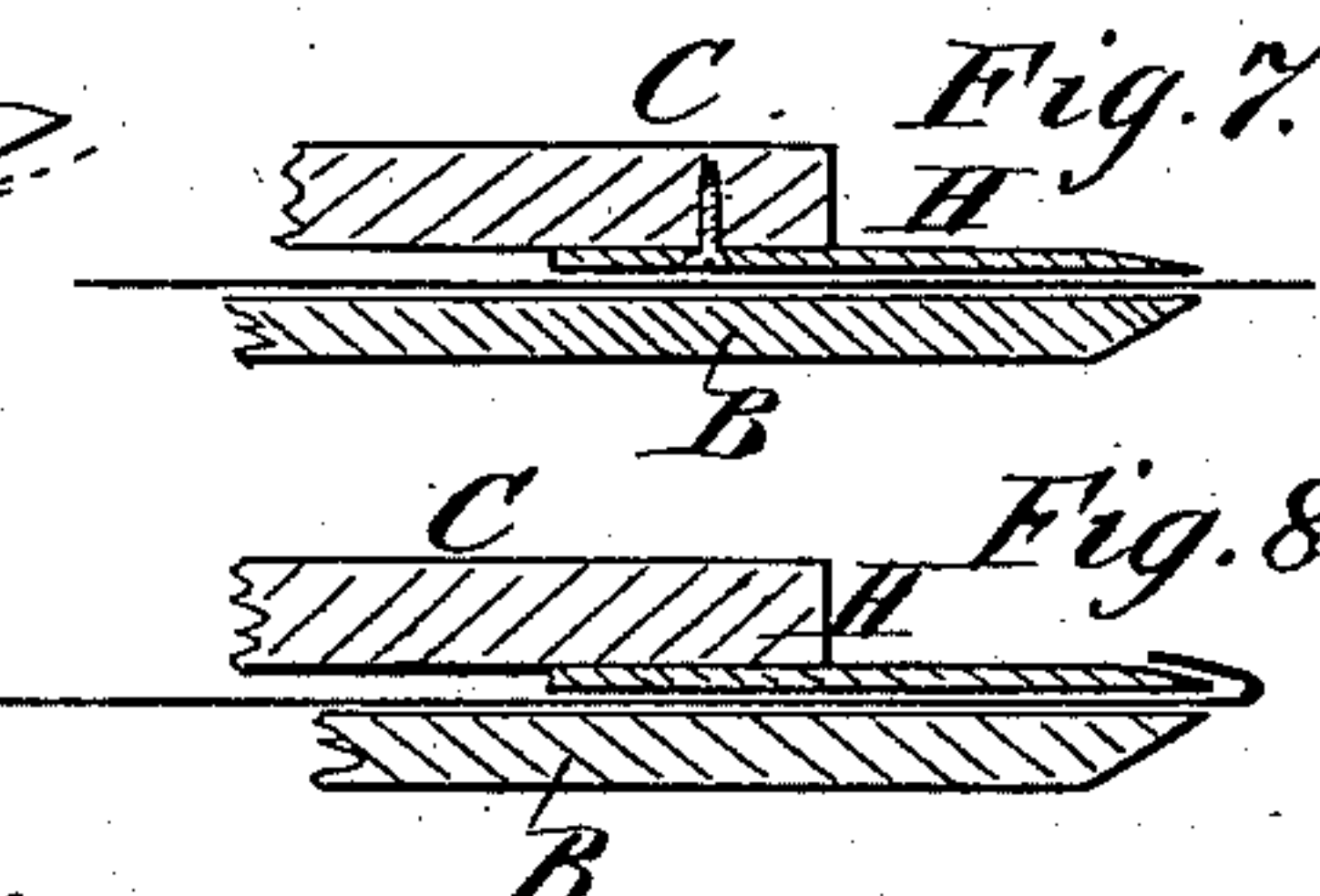
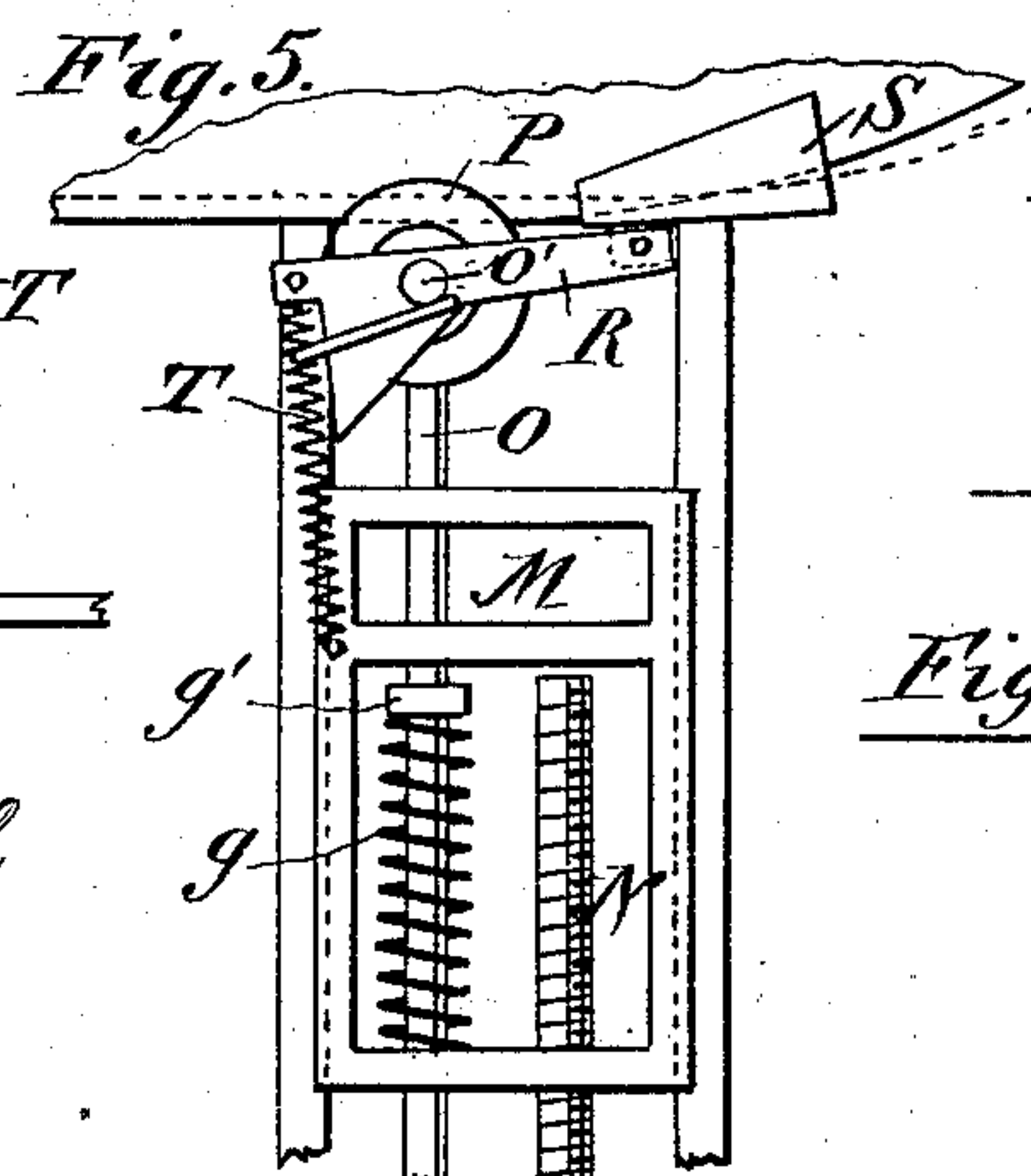


Fig. 9.

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UNITED STATES PATENT OFFICE.

JOHN L. McMILLAN, OF CAMBRIDGE, NEW YORK.

MACHINE FOR FOLDING THE EDGES OF FABRICS.

SPECIFICATION forming part of Letters Patent No. 278,163, dated May 22, 1883.

Application filed August 29, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOHN LOUDON McMILLAN, of Cambridge, in the county of Washington and State of New York, have invented a new and Improved Machine for Folding the Edges of Fabrics, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved machine for folding or turning the edges of fabrics used in making shirts, collars, cuffs, &c.

My invention consists in the combination, with a fixed bottom pattern-board, of an adjustable top pattern-board, between which boards the fabric, the edges of which are to be turned, is held.

The invention further consists in devices for pressing the two pattern-boards together.

The invention further consists in providing the lower pattern-board with a beveled edge, and the upper pattern-board with an edge strip, over which the fabric is to be folded.

The invention further consists in the combination, with the above-described pattern-boards, of a longitudinally-movable frame carrying folders and presser-wheels which rest against the edges of the pattern-boards and fold or turn the edges of the fabric over the edge of the edge strip of the said upper pattern-board.

The invention further consists in devices for reciprocating the sliding frame at the same time that the upper pattern-board is depressed.

The invention also consists in the construction of the presser-wheel, and in other parts of construction and combinations of the same, as will be fully described and set forth hereinafter.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a longitudinal sectional elevation of my improved machine for folding the edges of fabrics. Fig. 2 is a plan view of the same. Fig. 3 is a front end elevation of the same. Fig. 4 is a plan view of the sliding carriage. Fig. 5 is a plan view of the slide carrying the folder and the presser-wheels. Fig. 6 is a cross-sectional elevation through the presser-

wheel, showing the arm on which it is mounted. Fig. 7 is a cross-sectional view of the edge of the plates for folding the goods. Fig. 8 is a like elevation, showing the goods folded over the knife-edge. Fig. 9 is a sectional view of the folded fabric.

A is the frame of the machine.

On the bed-plate A' of the machine a pattern board or frame, B, rests, which has the shape of the piece of fabric the edges of which are to be folded. The said pattern-board B is held over a large opening, B', in the bed-plate A' by hinged jaws a, which are held down by bolts b, passed through them and through the bed-plate A'. The outer edge of this bottom pattern-board, B, is beveled inward from the top to the bottom, so that a sharp edge will be formed flush with the upper surface of the board B.

The upper pattern-board, C, is held in a curved bar or frame, C', attached to a rod, C², which passes up through the top cross-piece of the frame A, above the bed-plate A', and is surrounded by a spiral spring, D, which rests against a nut at the upper end of the said rod C², thereby drawing the upper pattern-board, C, upward.

A cam-lever, E, pivoted in the upper part of the frame A, rests on a collar or lug, E', of the rod C², and its outer end is attached to a cord or wire, F, which passes over a pulley, F', at the edge of the bed-plate A', and is attached to a treadle, G, whereby by depressing the treadle the upper pattern-board, C, will be pressed downward. The upper pattern-board, C, has a metal strip, H, with an outer beveled edge attached to its lower surface along the edges, which strip H projects from the edges of the pattern-board C to the extreme edges of the lower pattern-board, B, as is shown in Figs. 6 and 7.

A vertical shaft, H', is journaled below the bed-plate A', and on the same a belt-pulley, H², is loosely mounted, and above the same a sliding clutch, d, is mounted on the shaft H', which clutch d is drawn from the wheel H² by a spiral spring, d'.

A lever, I, is pivoted in the frame, below the bed-plate A', and enters a groove of the clutch d, and is connected, by means of a rod, I',

with the treadle G, whereby when the treadle G is depressed the rod I will be moved downward, and will move the clutch downward and cause the same to engage with the wheel H, thereby causing the shaft H' to revolve.

A long longitudinally-slotted crank-arm, J, is mounted on the upper end of the shaft H', and one end of a connecting-rod, J', is adjustably connected with this crank-arm by means of a bolt passing through the slot of the said crank-arm, which connecting-rod J' has its opposite end pivoted to the front or outer end of a frame, K, sliding longitudinally in the frame of the machine directly below the bed-plate A'. The said frame K is provided with three cross-bars, L, on which smaller frames M are adapted to slide, which frames M can be adjusted a greater or less distance from the longitudinal sides of the frame K by means of screws N, passing through the longitudinal side bars of the frame K and through the frames M, and provided at the outer ends with hand-wheels N'.

A rod, O, passes longitudinally and loosely through each frame M, and has the inner end—that is, the end toward the interior of the frame K—bent upward at right angles. A spring, g, surrounding the rod O within the frame M, and resting against a collar, g', on the same, presses the said rod O toward the inner end of the frame M—that is, toward the edges of the pattern-boards B and C, as shown in Fig. 6. On the vertical part O' of the rod O a beveled grooved roller, P, is loosely mounted, which is formed of two beveled disks, h and h', resting on each other, with the beveled edges facing each other to form the beveled groove, the lower disk, h', being provided with a collar entering a recess in the upper disk, h. The two disks h and h' are pressed against each other by a spiral spring, l, surrounding the vertical part O' of the rod O, and resting against the outer surface of the upper disk, h, and against the disk m, held to turn on the part O', and connecting with the disks h and h' by rods o. The beveled grooved wheel P and the disk m are so held on the vertical part O' of the rod O that they can rotate on the same, but will always remain in the same position in relation to the edges of the pattern-boards.

A lever, R, mounted on the upper end of the vertical part O' of the rod O, is provided at one end with a V-shaped folder, S, which is pressed against the edges of the pattern-boards by a spring, T, attached to the opposite end of the lever R and to the frame M.

The pattern-boards can be of any desired shape, and the lap produced on the edges may be increased or decreased by increasing or decreasing the breadth of fabric projecting over the outer edges of the pattern-boards B C.

The operation is as follows: A bottom pattern-board, B, of the desired shape, is secured on the bed-plate A', and the fabric to be folded is placed on the same in such a manner that it overlaps the beveled edges the desired width.

Then a corresponding pattern-board, C, is attached to or held in the bar or frame C', and the treadle G is depressed, whereby the cam-lever E is moved downward and pressed on the collar or projection E', thereby pressing down the frame C' and the board C, whereby the fabric will be clamped and held firmly between the pattern-boards B and C. The edges of the fabric project beyond the edges of the boards, as shown in Fig. 7. By depressing the treadle G the clutch d is brought in contact with the wheel H². Consequently the shaft H' will be rotated with the wheel H², and the crank J will also be rotated, whereby the frame K will be reciprocated longitudinally, or in the direction of its length—that is to say, it is moved along the length of the bed-plate A'. The springs g press the presser-wheels P against the edges of the pattern-boards, and at the same time the springs T press the V-shaped bevel-grooved folders S against the edges of the pattern-boards in advance of the presser-wheels P. The folder S folds the fabric over the strip or plate H, and then the upper disk, h, of the presser-wheel P presses the folded edge of the fabric down firmly on the strip or plate H, the lower disk, h', resting against the beveled edge of the bottom pattern-board, B. The pattern-boards always remain stationary, and only the frame K, carrying the folders and presser-wheels, is reciprocated. According to the width of the pattern-boards the frames M must be adjusted a greater or less distance from the sides of the frame K. The springs g and T cause the folder S and the presser-wheel P to follow all curves and irregularities of the edges of the pattern-boards. If at any part of the edges of the pattern-boards the thickness of the fabric increases, the upper beveled disk, h, of the beveled grooved roller P can give upward, thereby compressing the spring l, which presses the said upper disk, h, downward.

The herein-described machine is to be used for turning and folding the edges of fabrics for making shirts, collars, cuffs, &c., preparatory to stitching them.

I do not limit myself to the precise construction of the several parts herein described. I may substitute other devices for operating the machine.

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

1. A machine for folding or turning the edges of fabrics, made substantially as herein shown and described, and consisting of pattern-boards for holding the fabric, and of a longitudinally-movable frame carrying the folders and presser-wheels, as set forth.

2. In a machine for folding or turning the edges of fabrics, the combination, with a fixed bottom pattern-board and a movable upper pattern-board, of a longitudinally-movable frame carrying folders and presser-wheels, substantially as herein shown and described, and for the purpose set forth.

3. In a machine for folding or turning the edges of fabrics, the combination, with a fixed pattern-board and a vertically-movable pattern-board, of devices for pressing the vertically-movable pattern-board on the fixed bottom pattern-board and on the fabric between the two boards, and of a longitudinally-movable frame carrying folders and presser-wheels, substantially as herein shown and described, and for the purpose set forth.

4. In a machine for folding or turning the edges of fabrics, the combination, with the bottom pattern-board, B, having its outer edge beveled, and the upper pattern-board, C, having a beveled edge plate, H, at its edge, of devices for pressing the two boards together, and of devices for folding the edges of the fabric held between the two boards, substantially as herein shown and described, and for the purpose set forth.

5. In a machine for folding or turning the edges of fabrics, the combination, with the fixed pattern-board B, of the vertically-movable pattern-board C, the frame C', the rod C², the collar or projection E', the spring D, the cam-lever E, the cord F, and the treadle G, substantially as herein shown and described, and for the purpose set forth.

6. In a machine for folding or turning the edges of fabrics, the combination, with the bed-plate A', of the bottom pattern-board, B, the hinged jaws a, and the bolts b, substantially as and for the purpose set forth.

7. In a machine for folding or turning the edges of fabrics, the combination, with a fixed bottom pattern-board, of a vertically-adjustable upper pattern-board, devices for lowering the upper pattern-board, a vertical shaft provided with a crank connected with a sliding frame carrying folders and presser-wheels, a belt-pulley mounted on the said shaft, a clutch mounted on the same shaft, and a lever connected with the treadle for engaging the clutch with the belt-pulley at the same time that the upper pattern-board is lowered, substantially as herein shown and described, and for the purpose set forth.

8. In a machine for folding or turning the edges of fabrics, the combination, with the bottom pattern-board, B, and the vertically-movable upper pattern-board, C, of the frame K, sliding below the bed-plate of the machine, the connecting-rod J', and the longitudinally-slotted crank J on the upper end of the vertical shaft H', substantially as herein shown and described, and for the purpose set forth.

9. In a machine for folding or turning the edges of fabrics, the combination, with the two pattern-boards B and C, of the sliding

frame K, containing the transversely-adjustable frames M, holding the rods O, on each of which a folder and presser-wheel are held, substantially as herein shown described, and for the purpose set forth.

10. In a machine for folding or turning the edges of fabrics, the combination, with the two pattern-boards B and C, of the sliding frame K, containing the transversely-adjustable frames M, holding the rods O, the springs g, the folders S, and presser-wheels P, held on the ends of the rods O, substantially as herein shown and described, and for the purpose set forth.

11. In a machine for folding or turning the edges of fabrics, the combination, with the two pattern-boards B and C, of the sliding frame K, containing the transversely-adjustable frames M, holding the rods O, to each of which a folder and a presser-wheel are attached, and of the screws N for adjusting the frames M, substantially as herein shown and described, and for the purpose set forth.

12. In a machine for folding or turning the edges of fabrics, the combination, with the two pattern-boards B and C, of the sliding frame K, containing the transversely adjustable frames M, holding the rods O, each carrying a presser-wheel, P, and a lever, R, to which a folder, S, is attached, and of the springs T for pressing the folders against the edges of the pattern-boards, substantially as herein shown and described, and for the purpose set forth.

13. In a machine for folding or turning the edges of fabrics, the combination, with the two pattern-boards B and C, of the sliding frame K, provided with transverse bars L, on which the adjustable frames M are held, which frames contain the rods O, to each of which a folder and presser-wheel are attached, substantially as herein shown and described, and for the purpose set forth.

14. In a machine for folding or turning the edges of fabrics, the presser-wheel P, made of two beveled disks, h and h', substantially as herein shown and described, and for the purpose set forth.

15. In a presser-wheel for machines for folding the edges of fabrics, the combination, with the bottom disk, h', and the top disk, h, of the disk m, the rods o, and the spring l for pressing the disk h on the disk h', substantially as herein shown and described, and for the purpose set forth.

JOHN L. McMILLAN.

Witnesses:

HIRAM H. PARRISH,
CHARLES F. CROSBY.