No. 631,551. Patented Aug. 22, 1899.

F. B. WERSEL, JR. & G. N. WERSEL.

MACHINE FOR FORMING TUFTED UPHOLSTER

(Application filed Feb. 17, 1899.)

(No Model.) 2 Sheets—Sheet 1.

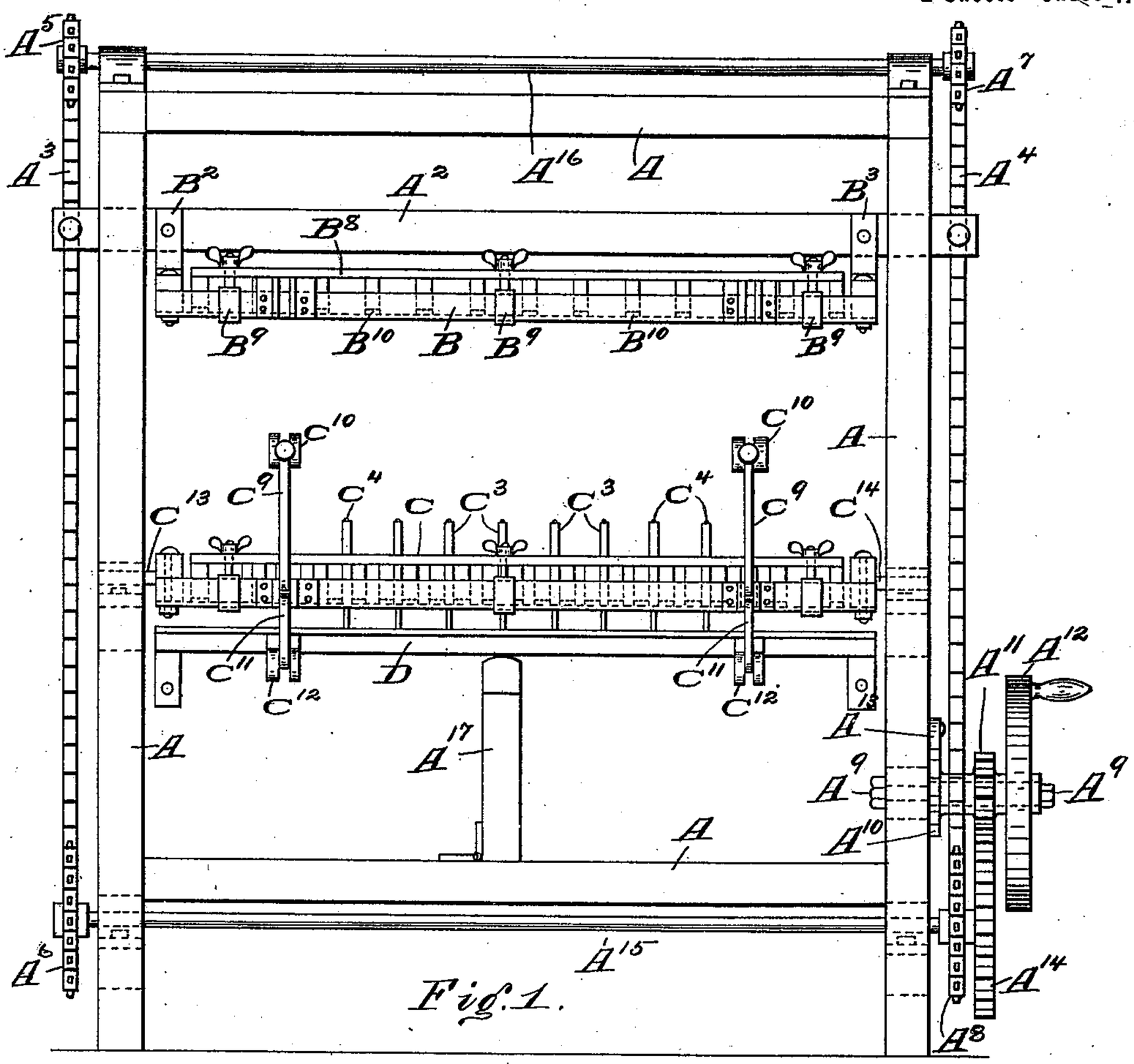

Fig. 1.

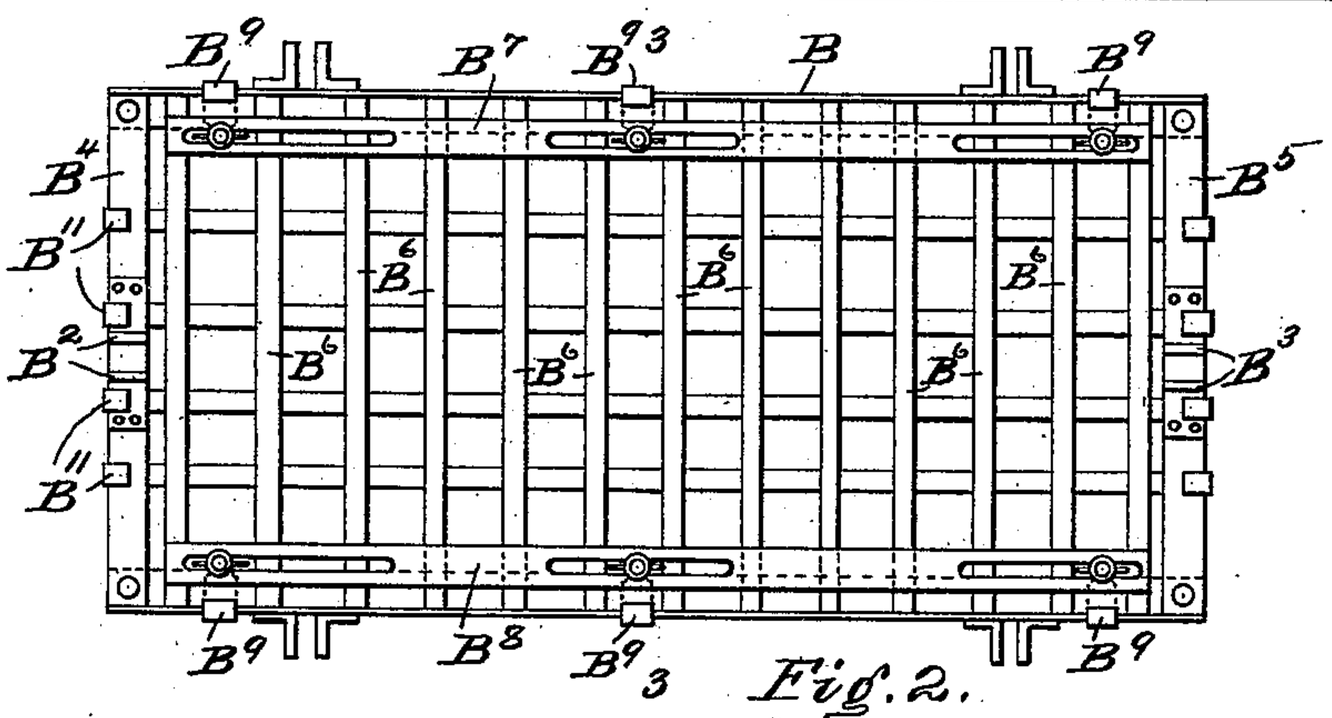

Fig. 2.

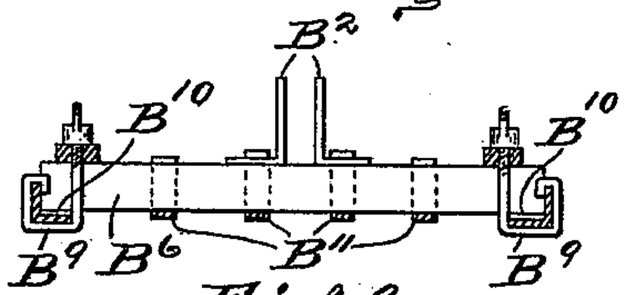

Fig. 3.

Witnesses
L. A. Parker.
George Mesta

Inventors
Frank B. Wersel Jr.
Geo. N. Wersel
by J. C. Lemon
Attorney

No. 631,551. Patented Aug. 22, 1899.

F. B. WERSEL, Jr. & G. N. WERSEL.

MACHINE FOR FORMING TUFTED UPHOLSTERY

(Application filed Feb. 17, 1899.)

(No Model.) 2 Sheets—Sheet 2.

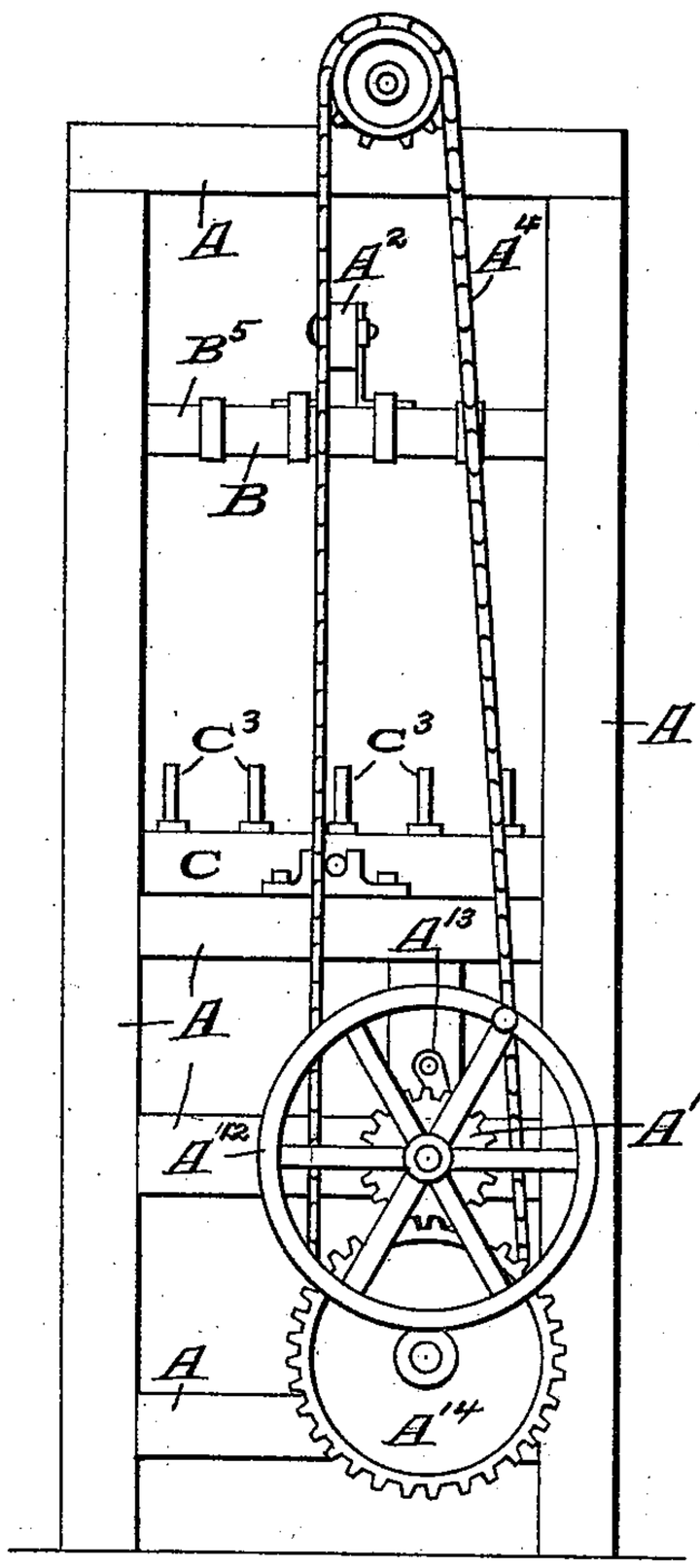

Fig. 4.

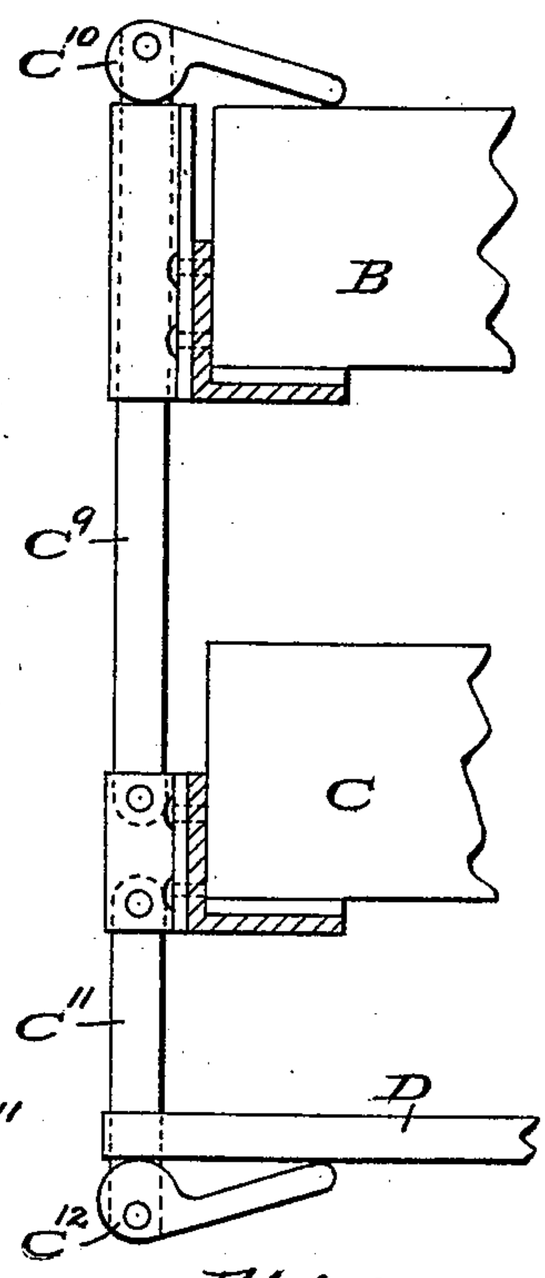

Fig. 8.

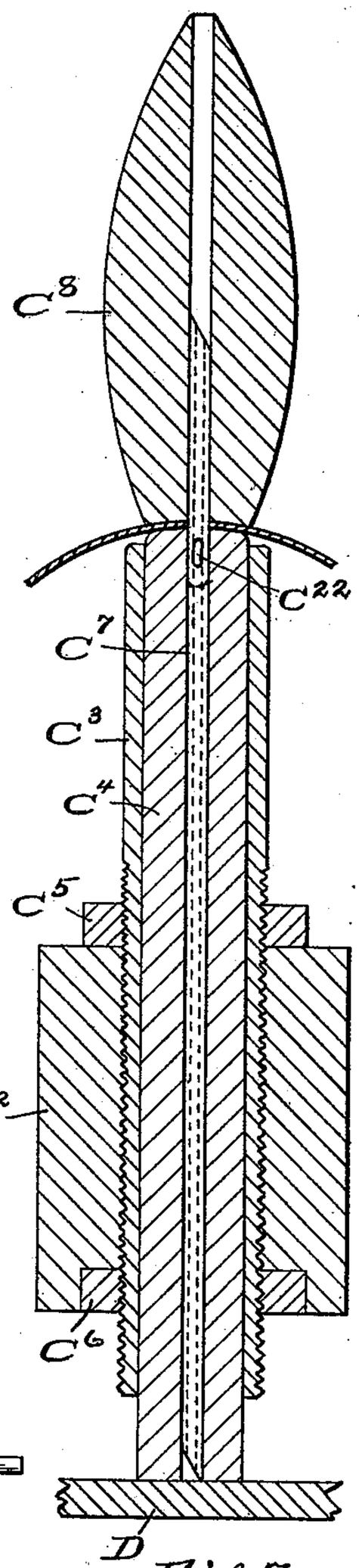

Fig. 7.

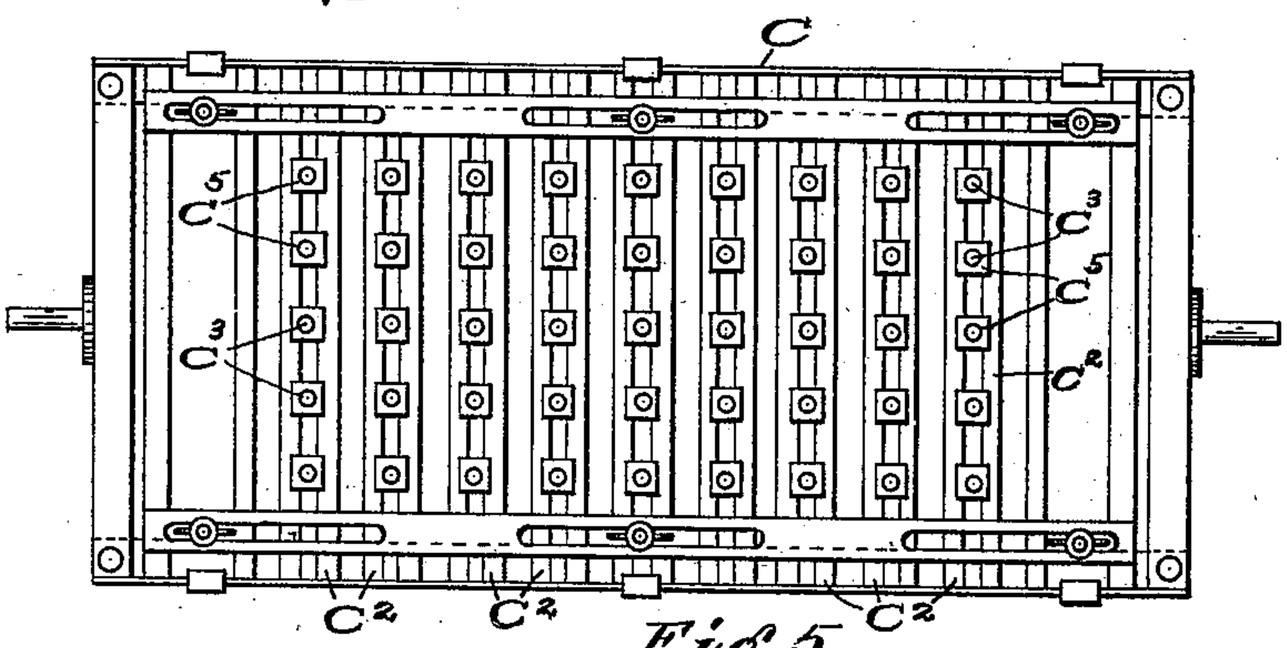

Fig. 5

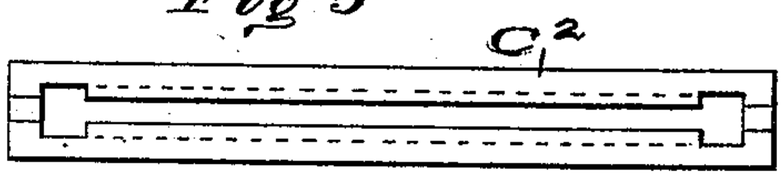

Fig. 6.

Witnesses
L. F. Parker
George Moesta

Inventors
Frank. B. Wersel Jr.
Geo. N. Wersel
J. C. Dyer
Attorney

UNITED STATES PATENT OFFICE.

FRANK B. WERSEL, JR., AND GEORGE N. WERSEL, OF CINCINNATI, OHIO.

MACHINE FOR FORMING TUFTED UPHOLSTERY.

SPECIFICATION forming part of Letters Patent No. 631,551, dated August 22, 1899.

Application filed February 17, 1899. Serial No. 705,765. (No model.)

To all whom it may concern:

Be it known that we, FRANK BERNARD WERSEL, Jr., and GEORGE NICHOLAS WERSEL, citizens of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented an Improvement in Machines for Forming Tufted Upholstery; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

Our invention relates to machines for forming tufted upholstery; and it has for its object the improvement in the construction of such machines, whereby they are simplified and rendered more efficient in action.

The novelty of our invention consists in the combination and subcombination of the parts, as will be hereinafter set forth, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a front elevation of a machine for forming tufted upholstery embodying our invention. Fig. 2 is a plan view of the top pressure-frame. Fig. 3 is a section on line 3 3 of Fig. 2. Fig. 4 is an end elevation of Fig. 1, looking toward the left. Fig. 5 is a plan view of the lower pressure-frame with clamping device removed. Fig. 6 is a detail showing a plan view of a cross-bar of lower pressure-frame. Fig. 7 is a vertical section through cross-bar of lower pressure-frame, tucking-tube, quill-holder, and filling guard-finger, the quill showing in side elevation. Fig. 8 shows a side elevation of the clamping device.

Similar letters of reference indicate like parts throughout the several views of the drawings.

The frame which supports the mechanism of my device comprises the four vertical posts and longitudinal and transverse framing A, the exact construction of which frame is immaterial so long as it is sufficiently strong and rigid to stand the strain which it will be called upon to bear. Attached to the upper transverse pieces of the frame is a shaft A^{16}, supplied with proper bearings. The outer ends of the shaft have secured to them sprocket-wheels. The lower transverse pieces of the frame have also attached to them a piece of shafting A^{15}, supplied with proper bearings and having sprocket-wheels attached to the ends, so that they will be in line with the sprocket-wheels on the upper shaft A^{16}. Passing around the sprocket-wheels attached to the shafting A^{16} and A^{15} are sprocket-chains A^3 and A^4, and secured to these sprocket-chains is a cross-bar A^2, so that when the sprocket-wheels which are attached to the above-mentioned shafting are revolved by means of the hand-wheel A^{12} they cause the aforesaid cross-bar to ascend or descend, owing to the direction in which the hand-wheel A^{12} is turned. Attached to the stud on which the hand-wheel A^{12} is secured is a pinion A^{11}, which transmits power and motion to the gear A^{14}, the gear A^{14} being attached to the lower shaft A^{15}, to which the sprocket-wheels are attached that transmit motion, through the sprocket-chains, to the upper shaft A^{16}. Attached to the stud A^9, in addition to the hand-wheel A^{12} and pinion A^{11}, are a ratchet-wheel A^{10} and a pawl A^{13}, the ratchet-wheel and pawl being for the purpose of holding the hand-wheel A^{12} in any position desired. The upper pressure-frame B is arranged so as to readily be attached to or detached from the cross-bar A^2. The lower pressure-frame C is attached to the frame A by two gudgeons, which project from the end of the center of the frame, the gudgeons revolving in suitable bearings which are attached to the frame A.

The upper pressure-frame is constructed as follows: The two side bars are made of angle-iron of any suitable size, provided with cross-bars B^4 and B^5, bolted to the angle-iron at the ends. The cross-bars B^6 are adjustable and when placed in the position desired for the class of work that the operator may desire to do are held in position by means of the longitudinal slotted pieces B^7 and B^8, which are held firmly against the cross-bars B^6 by the clamps B^9. To further aid in holding the cross-bars B^6 in position the under sides of both ends of the bars B^6 have a piece of rubber B^{10} attached to them. Running lengthwise with the upper pressure-frame are adjustable thin strips B^{11}, of any desirable material and also any suitable width. The strips B^{11} are bent up and over the end pieces B^4 and B^5, and the spaces between the cross-bars B^6 and strips B^{11} can be made any size desired within the limit of the frame.

The lower pressure-frame is constructed the

same as the upper pressure-frame except that the lower pressure-frame has no longitudinal thin strips and the adjustable cross-bars C^2 are made as shown in Figs. 6 and 7. The gaining out of the lower side of the cross-bar C^2, as shown, is for the purpose of providing a recess for the nut C^6, which prevents the nut from turning.

Attached to the sides of the lower pressure-frame are arms C^9 and C^{11}. The arms C^{11} have eccentrics C^{12} attached to their lower ends, which are used for clamping the quill-support board D to the lower pressure-frame. The upper ends of arms C^{11} are pivoted to the sides of the lower pressure-frame. The lower ends of arms C^9 are pivoted to the sides of the lower pressure-frame and have eccentrics C^{10} attached to their upper ends for clamping the upper pressure-frame to the lower pressure-frame.

The adjustable cross-bars C^2 of the lower pressure-frame have tucking-tubes C^3 secured to them by nuts C^5 and C^6. To hold the quill C^7 central in the tucking-tube C^3, we have a quill-support C^4. The quill C^7 is prevented from falling through the quill-support C^4 by the quill-support board D. All the tools used for the different classes of upholstering which can be made on our machine are attached to the adjustable cross-bars C^2 of the lower pressure-frame C.

When it is necessary to change the position of the tucking-tubes C^3 to suit the different sizes of tufts, the upper nut C^5 is loosened, and then the tucking-tube can be slid along the bar C^2 to any desired position, when the nut C^5 is tightened down onto the bar C^2, holding the tucking-tube securely in position.

When it is desirable to sew the buttons on leather upholstering work, it is accomplished in the following manner: The quills are provided with eyes, as shown in Fig. 7. Through the eye of the quill twine is passed with a button attached to it. The quill in passing up through the leather carries the twine with it, so that the button can be pulled up solid and the twine secured to the back of the cushion. When buttons are attached to the cushion with twine, it is not necessary to turn the lower pressure-frame over.

The operation of our machine as generally used is as follows: The quill-holders are placed in the tucking-tubes, when the leather or other material (which has been previously marked off for the class of work desired) is placed over the tucking-tubes and the quills pushed through the leather at the points where the buttons are to be placed. Then the quills are pushed down through the openings in the quill-supports until the quills' lower ends rest on the quill-support board, the quills being long enough to still project above the tops of the tucking-tubes. The filling guard-fingers C^8 are now placed over the quills, the filling is placed in the spaces between the filling guard-fingers to the desired depth, the filling guard-fingers are removed, and the backing is placed over the filling. The upper pressure-frame is now lowered by means of the gearing and sprocket chain and pressed down tightly until the backing is resting on the tucking-tubes, the quills projecting above.

The clamping device (shown in Fig. 8) is now placed in position and the upper pressure-frame clamped to the lower pressure-frame. The upper pressure-frame is now detached from the cross-bar A^2 and the bar raised up again out of the way. The support A^{17} is turned down to allow the revolving of the work, which places the quill-support board D on top. The clamps which hold the quill-support board D in position are removed and the quill-support board raised out of place by lowering the cross-bar A^2, attaching the board to the bar A^2, and raising it up high enough so that it will not interfere with the operator working over the frames. The quill-supports are removed, leaving the quills still in position. The tangs of the buttons are inserted in the quills, when the quills are pushed down through the tucking-tubes with the buttons still in them. After the buttons have entered the tucking-tubes the drill-supports are placed against the buttons and the buttons are pushed through the tucking-tubes until the quill-holders are in the same position they were before being removed from the tucking-tubes. The quill-support board is now lowered and clamped in position as it was originally, the quills falling to the floor. The work is now revolved back to its original position, the tin backs placed on the buttons, the tangs fastened down, and the upper pressure-frame removed. The completed work is now removed, and the machine is in position for the operator to proceed with another piece of work.

With our machine it is possible, on account of the adjustive feature of the pressure-frames, to do several pieces of work of different-sized tufts at the same time.

What we claim as our invention, and desire to secure by Letters Patent of the United States, is—

1. In an upholstering-machine, the combination of a frame A, cross-bar A^2, sprocket-chains carried by sprocket-wheels and having the cross-bar A^2 secured thereto, an upper pressure-frame detachably connected to cross-bar A^2 and a lower pressure-frame pivoted to the frame A, substantially as set forth.

2. In an upholstering-machine, the combination of a frame A, cross-bar A^2, sprocket-chains carried by sprocket-wheels, and having the cross-bar A^2 secured thereto, an upper pressure-frame detachably connected to cross-bar A^2, and a lower pressure-frame pivoted to the frame A, the lower pressure-frame provided with adjustable cross-bars C^2, substantially as set forth.

3. In an upholstering-machine, the combination of a frame A, cross-bar A^2, sprocket-chain carried by sprocket-wheels and having the cross-bar A^2 secured thereto, an upper

pressure-frame detachably connected to cross-bar A^2 and a lower pressure-frame pivoted to the frame A, the lower pressure-frame provided with adjustable cross-bars C^2, and adjustable tucking-tubes C^3, substantially as set forth.

4. In an upholstering-machine the combination of a frame A, cross-bar A^2 sprocket-chain carried by sprocket-wheels, and having the cross-bar A^2 secured thereto, an upper pressure-frame detachably connected to cross-bar A^2 and a lower pressure-frame pivoted to the frame A, the lower pressure-frame provided with adjustable cross-bars C^2, and adjustable tucking-tubes C^3, provided with quill-holders C^4, substantially as set forth.

5. In an upholstering-machine, the combination of a frame, A, cross-bar A^2, sprocket-chain carried by sprocket-wheels and having the cross-bar A^2 secured thereto, an upper pressure-frame detachably connected to cross-bar A^2, and a lower pressure-frame pivoted to the frame A, the lower pressure-frame provided with adjustable cross-bars C^2 and adjustable tucking-tubes C^3, provided with quill-holders C^4, and quills C^7, substantially as set forth.

6. In an upholstering-machine the combination of a frame A, cross-bar A^2, sprocket-chain carried by sprocket-wheels and having the cross-bar A^2 secured thereto, an upper pressure-frame detachably connected to cross-bar A^2, the upper pressure-frame having adjustable cross-bars B^6 and adjustable longitudinal strips B^{11}, and a lower pressure-frame pivoted to the frame A, the lower pressure-frame provided with adjustable cross-bars C^2, and adjustable tucking-tubes C^3, provided with quill-holders C^4, quills C^7, and filling guard-fingers C^8, substantially as set forth.

7. In an upholstering-machine, the combination of a frame A, cross-bar A^2, sprocket-chain carried by sprocket-wheels and having the cross-bar A^2 secured thereto, an upper pressure-frame detachably connected to cross-bar A^2, the upper pressure-frame having adjustable cross-bars B^6, and adjustable longitudinal strips B^{11} and a lower pressure-frame pivoted to the frame A, the lower pressure-frame provided with adjustable cross-bars C^2, and adjustable tucking-tubes C^3, provided with quill-holders C^4, quills C^7, having an eye C^{22}, and filling guard-fingers C^8, substantially as set forth.

8. In an upholstering-machine, the combination of a frame A, cross-bar A^2, sprocket-chains carried by sprocket-wheels, and having the cross-bar A^2 secured thereto, a ratchet-wheel and pawl for holding the bar A^2 in any desired position, an upper pressure-frame detachably connected to cross-bar A^2, the upper pressure-frame having adjustable cross-bars B^6, and adjustable longitudinal strips B^{11}, and a lower pressure-frame pivoted to the frame A, the lower pressure-frame provided with adjustable cross-bars C^2, and adjustable tucking-tubes C^8, provided with quill-holders C^4, quills C^7, having an eye C^{22}, and filling guard-finger C^8, substantially as set forth.

9. In an upholstering-machine, the combination of a frame A, cross-bar A^2, sprocket-chains carried by sprocket-wheels and having the cross-bars A^2 secured thereto, a ratchet-wheel and pawl for holding the bar A^2 in any desired position, an upper pressure-frame detachably connected to cross-bar A^2, the upper pressure-frame having adjustable cross-bars B^6, and adjustable longitudinal strips B^{11}, and a lower pressure-frame pivoted to the frame A, the lower pressure-frame provided with adjustable cross-bars C^2, and adjustable tucking-tubes C^3, provided with quill-holders C^4, quills C^7, having an eye C^{22}, and filling guard-fingers C^8, also clamp C^9 to clamp the upper pressure-frame B to the lower pressure-frame C, and clamp C^{11} to clamp the quill-support board D to the lower pressure-frame, substantially as set forth.

FRANK B. WERSEL, JR.
GEORGE N. WERSEL.

Witnesses:
L. A. HASKER,
WM. L. HARTMAN.