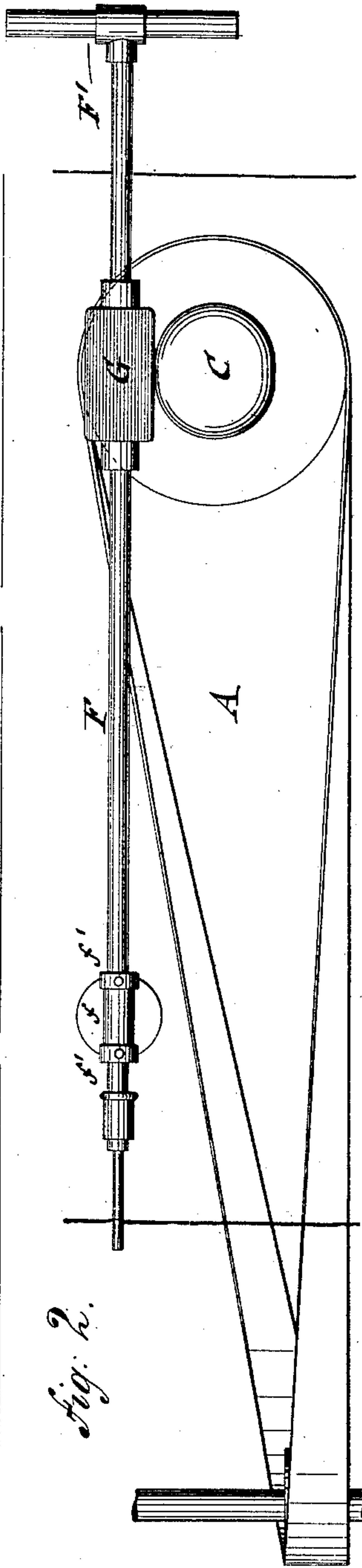


2 Sheets—Sheet 1.

# MACHINE FOR FINISHING HATS.

Patented Jan. 5, 1886.



INVENTOR

INVENTOR  
*Jacob Surerus*  
By his Attorneys  
*Georg & Raegenar*

(No Model.)

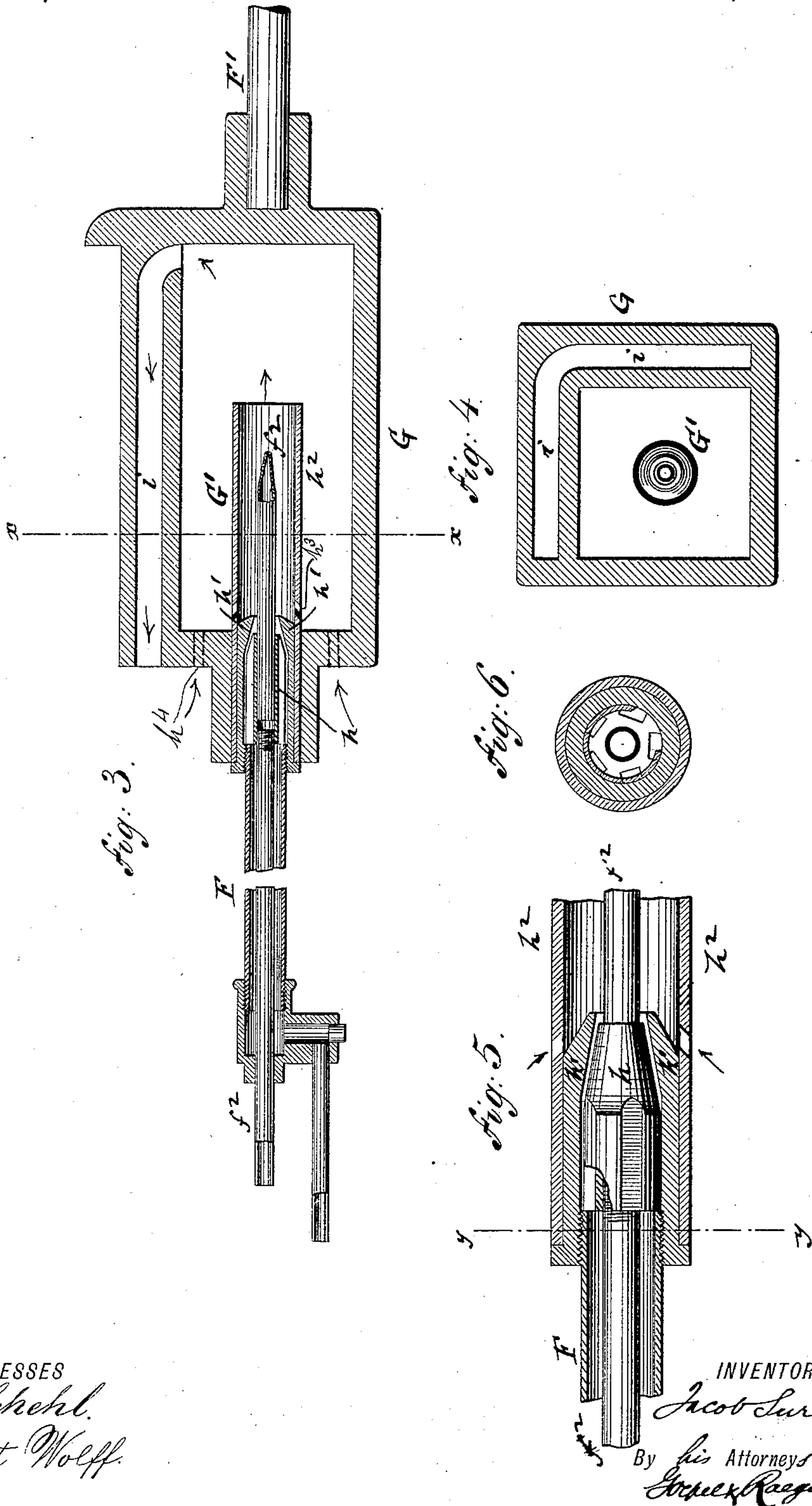
2 Sheets—Sheet 2.

J. SURERUS.

MACHINE FOR FINISHING HATS.

No. 333,694.

Patented Jan. 5, 1886.



WITNESSES  
*A. Schehl.*  
*Ernst Wolff.*

INVENTOR  
*Jacob Surerus*  
By his Attorneys  
*Greene & Raegner*



# UNITED STATES PATENT OFFICE.

JACOB SURERUS, OF NEWARK, NEW JERSEY.

## MACHINE FOR FINISHING HATS.

SPECIFICATION forming part of Letters Patent No. 333,694, dated January 5, 1886.

Application filed May 8, 1885. Serial No. 164,752. (No model.)

*To all whom it may concern:*

Be it known that I, JACOB SURERUS, of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Machines for Finishing Hats, of which the following is a specification.

This invention has reference to an improved machine for finishing hats in a quick and convenient manner without requiring skilled hands; and the invention consists of a hat-finishing machine, the block of which is supported on a vertical rotating shaft, alongside of which the finishing-iron is applied to a tubular handle-rod that is supported by a vertically-sliding and spring-cushioned arm in a fixed upright pillar, said tube being supported on a strong spiral spring that balances the weight of the finishing-iron, so that the same can be readily raised or lowered. The finishing-iron is heated by means of an interior gas-burner, to which gas and air are supplied by separate tubes through the hollow handle-rod. The handle-rod turns axially in a sleeve of the vertical arm, said sleeve being retained by fixed collars on the handle-rod.

In the accompanying drawings, Figure 1 represents a sectional side elevation of my improved finishing-machine for hats, showing the supporting-table and pillars in vertical transverse section. Fig. 2 is a plan of the same. Fig. 3 is a vertical longitudinal section of the finishing-iron and its interior gas-heating burner. Fig. 4 is a vertical transverse section of the same on line *xx*, Fig. 3; and Figs. 5 and 6 are a vertical longitudinal section and a transverse section on line *yy*, Fig. 5, of the burner for heating the iron, both figures being drawn on a larger scale.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the supporting-table of my improved machine for finishing hats. A vertical shaft, B, is supported in a step-bearing, *b*, and a neck-bearing, *b'*, of the table A, said shaft carrying at the upper end a block, C, on which the hat to be ironed is placed. The shaft B is rotated by a pulley-and-belt transmission from a suitable counter-shaft. At the rear part of the table A is arranged a vertical pillar, D, that

is rigidly secured to the floor, said pillar serving to guide a vertical arm, E, which is guided in a metal-lined opening of the table, and which rests by a fixed collar, *e*, on a strong spiral spring, D', that is interposed between the collar and the base-socket *e'* of the pillar D, as shown in Fig. 1. To the upper end of the spring-supporting arm E is attached at right angles a fixed guide-sleeve, *f*, through which passes a horizontal handle-tube, F, which is prevented from moving longitudinally in the sleeve by means of two collars, *f'*, which are clamped to the tube E, but which are capable of axial motion in the sleeve *f*. The horizontal tube F extends in forward direction and sidewise of the rotating hat-supporting block C, and is provided with a finishing-iron, G, and in front of the same with a transverse handle, F', for operating the iron. Through the interior of the tube F extends an air-supply tube, *f*<sup>2</sup>, of smaller diameter than the tube F, the air-tube passing through a burner, G', to the interior of the finishing-iron. The rear ends of the horizontal tube F and interior air-tube, *f*<sup>2</sup>, are connected, respectively, by flexible tubes to the gas and air supply pipes in the usual manner in hat-finishing machines. The burner G' passes through the rear wall of the finishing-iron G into the same, and is constructed of a conically-tapering head, *h*, having side channels for the passage of the gas, said head being surrounded by an inclosing-sleeve, *h'*, having a conical front end. The air-tube *f*<sup>2</sup> passes through the head *h* and terminates in front of the same. A cylindrical sleeve, *h*<sup>2</sup>, extends around the head of the burner G' and the air-tube *f*<sup>2</sup>, and is provided with perforations *h*<sup>3</sup>, for conducting air to the flame, which air is drawn in through holes *h*<sup>4</sup> in the rear wall of the finishing-iron. The air in the air-tube *f*<sup>2</sup> is thereby heated so as to produce the perfect combustion of the gas at the end of the sleeve *h*<sup>2</sup>, with little or no sediment at the interior walls of the finishing-iron. The products of combustion pass through channels *i* along both sides of the iron to the outside. The iron is thus heated in a quick and superior manner. Owing to the balancing of the iron and the handle-tube by the strong spiral spring D', the iron can be easily handled and placed in any position relatively to the block



by the up-and-down motion imparted by the spring, and the axial motion of which the tube is capable in the sleeve at the upper end of the vertical arm E. Either side of the iron 5 may thus be used for ironing the body and crown of the hat, as it can be readily turned by the tubular handle-rod.

The machine requires no skilled hands to attend it, and can be operated with great facility, so as to finish the hats in a quick and reliable manner, owing to the uniform heating of the iron and the facility of its application to the hat on the block.

Having thus described my invention, I claim 15 as new and desire to secure by Letters Patent—

1. The combination of a vertical rotating shaft carrying the hat-block, a fixed tubular guide-pillar, a vertically-sliding and spring-cushioned arm having a sleeve at the upper 20 end, a tubular handle-rod turning axially in said sleeve, and a finishing-iron attached to said handle-rod, substantially as set forth.

2. The combination of a supporting-table, a vertical rotating shaft supported in step and 25 neck bearings, a hat-forming block at the upper end of the shaft, a fixed tubular pillar, a vertical arm guided on said pillar, an adjustable collar on said arm, a spiral spring interposed between the collar and the base of the 30 pillar, a horizontal handle-rod turning axially in a sleeve of the vertically-movable arm, col-

lars for retaining the handle-rod on the sleeve, and a finishing-iron attached to the handle-rod, substantially as set forth.

3. The combination of a tubular handle-rod, 35 a finishing-iron attached to said handle-rod, a vertical arm connected by a sleeve and stop-collars to the handle-rod, a fixed guide-pillar, and a spiral balancing-spring interposed between a collar of the arm and the base of the 40 pillar, substantially as set forth.

4. In a hat-finishing machine, the combination of the finishing-iron having air-inlet holes and outlet-channels for the products of combustion, a tubular handle-rod attached to the 45 iron, an interior air-tube passing through the tubular rod, gas and air supply pipes connected to the tubular rod and interior air-tube, and a gas-burner extending into the iron, said burner being composed of a head having 50 longitudinal channels, a sleeve inclosing said head, and a cylindrical sleeve having air-holes and surrounding the inner end of the air-supply tube, substantially as set forth.

In testimony that I claim the foregoing as 55 my invention I have signed my name in presence of two subscribing witnesses.

JACOB SURERUS.

Witnesses:

PAUL GOEPEL,  
SIDNEY MANN.