

(No Model.)

3 Sheets—Sheet 1.

C. R. EVITS & G. K. HURLBUT.  
FURNITURE FINISHER.

No. 553,806.

Patented Jan. 28, 1896.

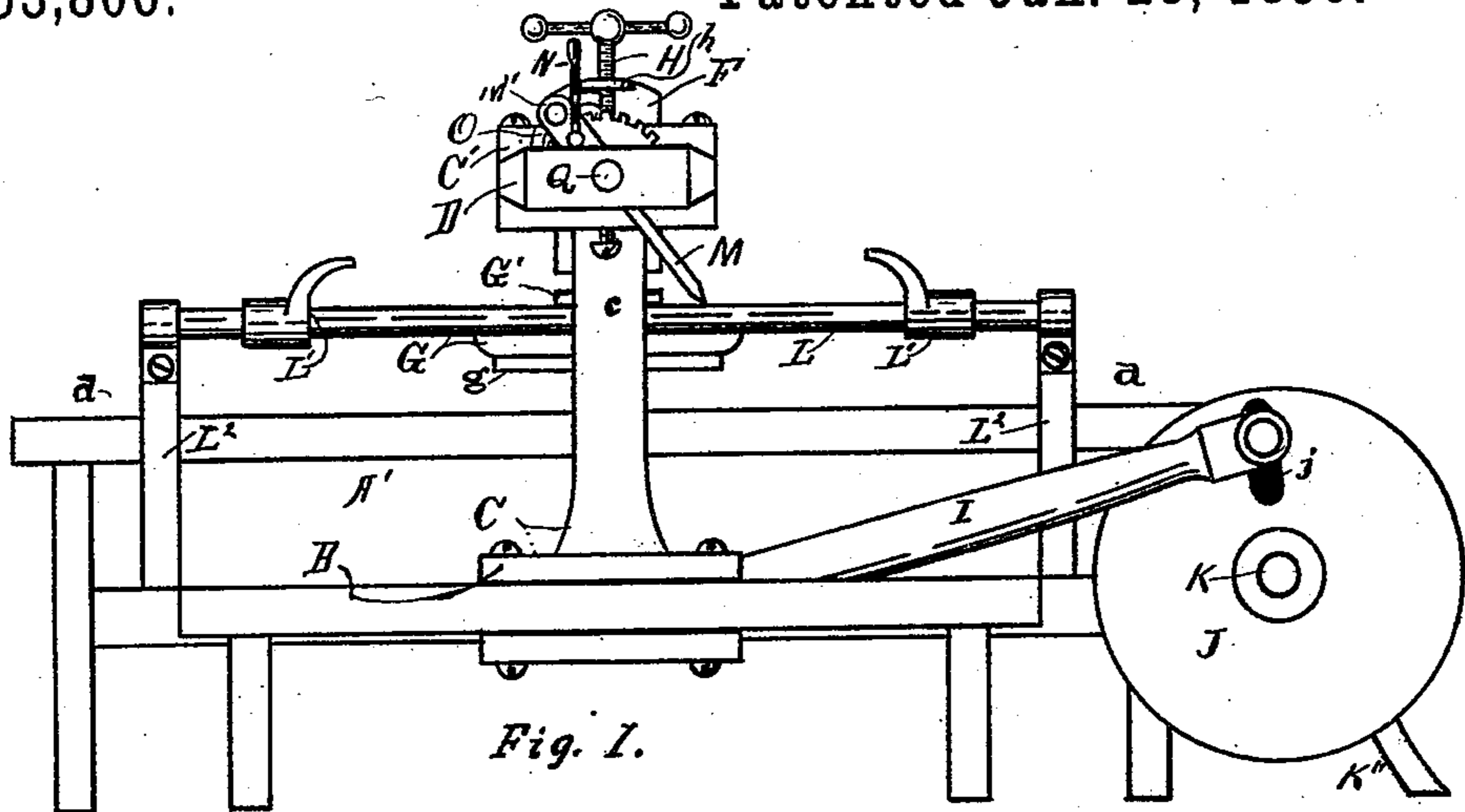


Fig. 1.

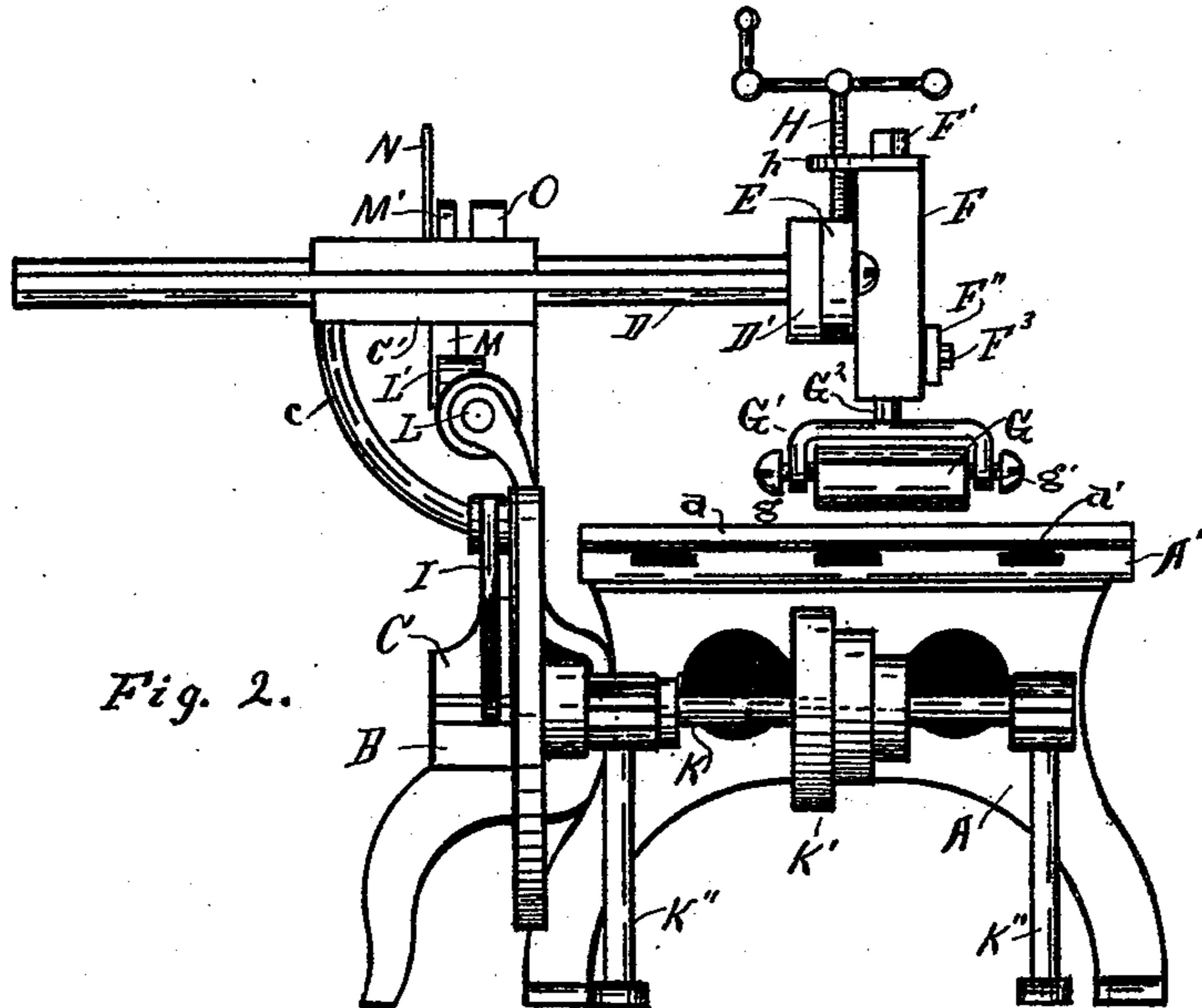


Fig. 2.

Witnesses:

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*Geo. R. Reeves*

Inventors.

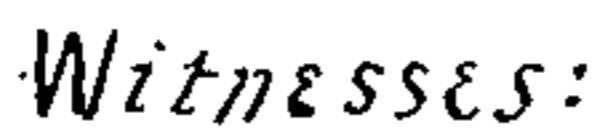
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3 Sheets—Sheet 2.

Patented Jan. 28, 1896.



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(No Model.)

3 Sheets—Sheet 3.

C. R. EVITS & G. K. HURLBUT.  
FURNITURE FINISHER.

No. 553,806.

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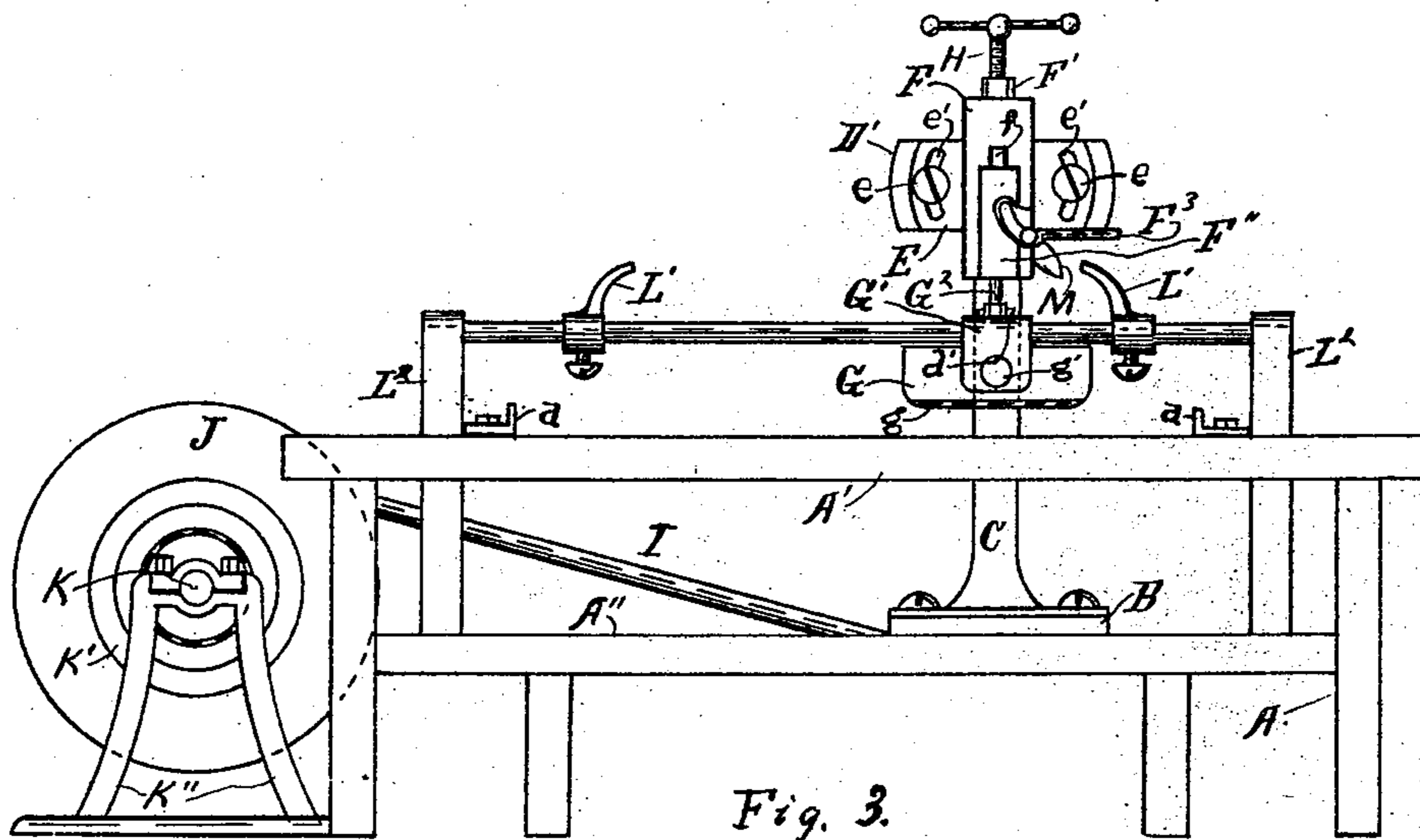


Fig. 3.

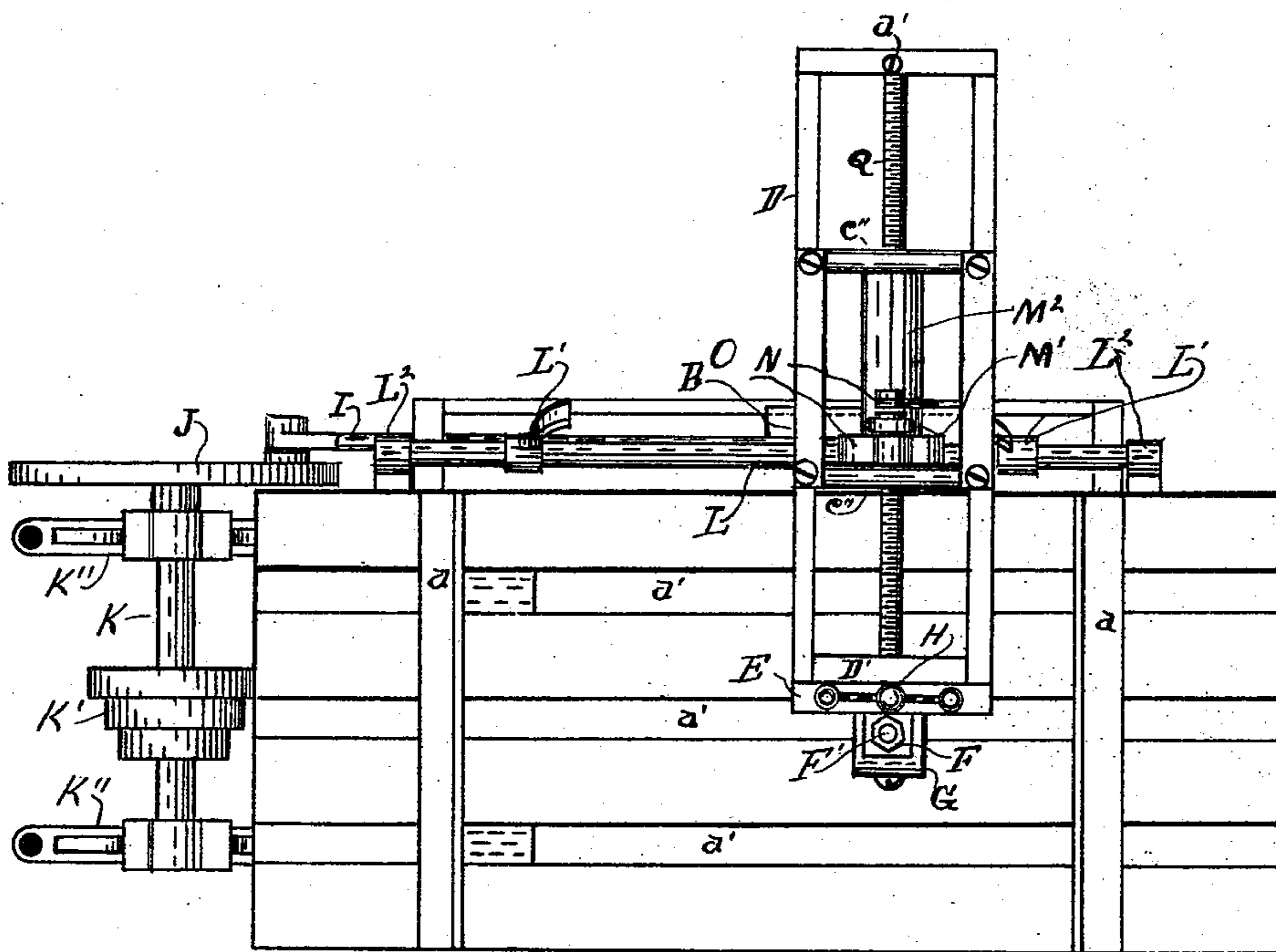


Fig. 4.

Witnesses:

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# UNITED STATES PATENT OFFICE.

CHARLES R. EVITS AND GEORGE K. HURLBUT, OF GRAND RAPIDS, MICHIGAN.

## FURNITURE-FINISHER.

SPECIFICATION forming part of Letters Patent No. 553,806, dated January 28, 1896.

Application filed April 14, 1893. Serial No. 470,365. (No model.)

*To all whom it may concern:*

Be it known that we, CHARLES R. EVITS and GEORGE K. HURLBUT, citizens of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented a new and useful Machine for Finishing Furniture, of which the following is a specification.

Our invention relates to improvements in machines for sanding dressed lumber; and its objects are, first, to provide a machine for finishing furniture with which the head is readily adjusted vertically, longitudinally, and laterally to bear upon the surface of the material being finished, and, second, to provide for adjusting both the longitudinal and the lateral motion of the head by means of stops and pawls. We attain these results by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a back elevation of our device. Fig. 2 is an end elevation, and Fig. 3 is a front elevation, of the same. Fig. 4 is a plan of the same. Fig. 5 is an elevation and a transverse vertical section of the rubber-head. Fig. 6 is an elevation of the pawl and ratchet-wheel and its operating-levers. Fig. 7 is a vertical section of the sander-block. Fig. 8 is a transverse vertical section of the ratchet-wheel and its attachments. Fig. 9 is a detached elevation of the lever that operates the pawl. Fig. 10 is a plan of the adjustable plate that supports the head; and Fig. 11 is a section of the sander or finishing block with an oil-cup, necessary in finishing, attached to conduct oil to the finishing-pad.

Similar letters refer to similar parts throughout the several views.

Our appliance is supported upon any suitable form of frame, as A, provided with a bed A' fitted to receive clamps *a a* to support the stock when being worked. To the back of the frame we secure tracks or carriage-ways B for the support and free adjustment of the carriage C, which is fitted with ways arranged to engage with the tracks and hold the carriage steady. This carriage is driven by a crank J through the medium of the pitman I, said crank being arranged, by means of the slot *j* or other suitable means, to adjust the length of the stroke of the carriage, and is driven upon a shaft K, the speed being ad-

justable by the use of the cone-pulley K' in the usual manner. The carriage C extends upward above the top of the frame and terminates in a guideway C' for the transverse carriage D. This carriage has a broad end D' for the support of the adjusting-block E, and is provided with a screw Q secured at one end into the end D' of the carriage and at the other end into the back cross-bar *d'* thereof, and passes through the end girts *c'' c''* of the carriage-ways C'.

Our appliance for moving the transverse carriage D longitudinally, so as to give the sander-block G a lateral motion to traverse the width of the stock to be finished, consists of a lever M, provided with a long hub M' fitted with an aperture through it longitudinally, as *m'*, to fit over the screw Q and allow it to pass through freely, a reversible ratchet-wheel P having an aperture *m* through it longitudinally and provided with a screw-thread arranged to mesh freely with the screw-thread on the screw Q, so that the turning of the ratchet-wheel will cause the screw, and with it the carriage, to travel lengthwise in either direction desired. At the upper end of the lever M we form an arm M' that extends above the ratchet-wheel P far enough to receive the rocking pawl O, which is pivoted thereto, as at O', in position so that either end may be thrown in position to mesh with the teeth on the periphery of the ratchet-wheel.

Our appliance for manipulating the pawl O consists, in this instance, of a lever N attached to a shaft N' that passes through the arm M' of the lever, and is provided at the opposite end with two spring-arms O<sup>2</sup>, arranged to bear upon the lower side of the pawl to throw it in either direction, and the pin O' projects beyond the surface of the arm, as in Fig. 8, far enough so that the lever N will spring back of it, as in Figs. 6 and 8, and will hold the pawl to one side, as shown in Fig. 6, though we do not restrict ourselves to this particular construction, as any construction in ordinary use for performing this office will answer equally as well. It is evident that to reverse the motion of the ratchet-wheel it is simply necessary to spring the lever N out, as indicated by the dotted lines in Fig. 8, and carry it to the opposite side of the pin O',

when the opposite arm of the pawl will be thrown in position to engage with the teeth on the opposite side of the arm M'. This lever, ratchet-wheel, and pawl are supported upon the screw Q between the bearings  $c'' c''$  of the carriage-way C', the hub P' being intended to pass through and form a bearing in the front bearing  $c''$ .

The supporting-block E is pivoted to the front surface of the end D' of the carriage D, and is held in place by the screws or bolts  $e$ , and is made adjustable by means of the slots  $e'$ , the front surface thereof being provided with a dovetailed bearing  $h''$ , fitted to receive the dovetailed rib  $h'$  on the back surface of the head F, and its upper surface has an aperture  $h^3$  to receive the end of the adjusting-screw H. When designing this block for adjustment, as indicated in Fig. 3, we form a pivotal hub E' upon its back surface designed to engage with a corresponding depression in the front surface of the end D' of the carriage D.

The head F is provided upon its back surface with a dovetailed rib  $h'$ , adjusted to work freely in the dovetailed bearing  $h''$  in the supporting-block E, the upper end of which projects back and forms a screw-bearing  $h$  with the adjusting-screw H. The lower end of this screw is supported in the aperture  $h^3$  in the block, so that the head may be readily raised and lowered by its use in the usual way. We form an aperture through the entire length of this head, the upper end of which is fitted to receive the adjusting-bolt F' and the lower end to receive the shaft G<sup>2</sup> and the spring S. We also form a slot  $f$  from this aperture through the front of the head at the lower end for the reception and free action of the slide F'', the outer portion of which slide projects over the surface of the head, as shown in Figs. 3 and 5, and is provided with a notch F<sup>4</sup> for the reception of the corresponding bearing on the end of the lever F<sup>3</sup>, this lever being pivoted to the surface of the head, as at  $f^5$ , so that by throwing the upper end over to the position indicated by the dotted lines F''' the plate F'', and with it the sanding or finishing block, will be raised, as indicated by the dotted lines in Fig. 5. The finishing-block G is held down and adjusted to the surface of the material being worked by means of the spring S acting upon the shaft G<sup>2</sup>, the tension of said spring being regulated by means of the adjusting-bolt F', which is made with an aperture through it longitudinally for the reception and free action of the upper end of the shaft G<sup>2</sup>.

To the lower end of the shaft G<sup>2</sup> we attach a supporting clamp or head G', pivoted to provide for the lateral adjustment of the finishing-block to the surface of the material by means of the pivot-pin  $d$ .

The finishing-block G is provided with a central body or support G<sup>4</sup>, that projects slightly below the lower edges of the sides and is fitted for the reception of the sandpa-

per or rubbing material  $g$ . It has at each end a shaft or drum  $g^3$ , upon which to wind the sandpaper, &c., and is so arranged that a long sheet of this material may be stored thereon, as indicated in Fig. 7, and held rigidly to place by means of the pawls and ratchets G<sup>3</sup>. This block is secured in the clamp G' by means of the bolt or screw  $g'$ , upon which it is pivoted so as to allow of its endwise adjustment upon the surface of the material being finished, said material being presumed to be held to place upon the bed A' by means of the guides  $a$ .

To provide for automatically operating the lever M we place a stop L' at proper points or positions, so that the lower end of the lever will come in contact therewith at each end of the stroke of the carriage C and throw it to the opposite side, thus throwing the pawl O in contact with the teeth on the ratchet-wheel and turning the same on the screw Q at one end of the stroke, and carrying it back to engage with another of said teeth at the other end of the stroke in the usual way, thus moving the transverse carriage D longitudinally to traverse the width of the bed at the same time that the main carriage C is traveling longitudinally of the bed, as set forth.

When rubbing varnished furniture, instead of "hand-rubbing" oil may be applied directly to the material being rubbed, or it may be stored in any convenient form of oiler attached to the machine to feed the oil automatically, as at R in Fig. 11.

In some instances we find it necessary to remove the bed A' and the front girt A'' of the frame to make room for large pieces of furniture that cannot be placed between the bed and the rubber or sander head.

To hold the lever F<sup>3</sup> to position when thrown over to F''' we provide an ordinary spring-catch and lever  $f'$ , pivoted to the main lever at  $f^4$  and having a point  $f^3$  to engage with the aperture  $f'''$  in the head and a spring  $f^2$  in common use.

The stops L' may be adjusted to the stroke of the pitman I by sliding them in the desired direction upon their supporting-rod L, which is secured by the standards L<sup>2</sup>.

We do not desire to restrict ourselves to the precise construction described and shown, as each of the several parts of our device may be considerably modified without departing from the spirit of our invention; but

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

1. The combination in a furniture-finisher of a supporting-frame and bed, a carriage and driving mechanism for operating the same; with a transverse carriage, a screw, a lever, a pawl and a ratchet-wheel, and stops for operating the transverse carriage, an adjustable supporting-block, and an adjustable finishing-head, substantially as shown and described.

2. The combination, in a furniture-finisher, of a supporting-frame and bed, a direct-acting carriage, and mechanism for operating the

same, a transverse carriage and mechanism for operating the same and a finishing-head; with an adjusting-screw, an adjusting-bolt, an adjusting-spring, an adjustable supporting-bolt, a slide, and an adjusting-lever connected with said head, and a finishing-block, substantially as shown.

3. The combination in a furniture-finisher, of a supporting-frame and bed, a direct-acting, and a transverse carriage and mechanism for operating them, an adjustable head, an adjustable supporting-shaft, and a spring and lever for operating the same; with a clamp pivoted to the lower end of said shaft adjustable laterally, and a finishing-block pivoted into said clamp, with longitudinal adjustment, substantially as and for the purpose set forth.

4. The combination in a furniture-finisher of a supporting-frame and bed, a direct-acting, and a transverse carriage, and mechanism

for operating the same, an adjustable head, and an adjustable supporting-shaft; with a finishing-block having storage-drums, ratchets, and pawls, substantially as specified.

5. The combination in a furniture-finisher, of a supporting-frame; with a direct-acting carriage, a transverse carriage, mechanism for operating each carriage, and an adjustable supporting-block; with an adjustable head, an adjustable supporting-shaft, a hollow adjusting-bolt, a slide, a lever and a spring for adjusting the shaft, and a finishing-block, substantially as and for the purpose set forth.

Signed at Grand Rapids, Michigan, this 8th day of April, 1893.

CHARLES R. EVITS.  
GEORGE K. HURLBUT.

In presence of—

C. CHESTER DAVIDSON,  
ITHIEL J. CILLEY.