

No. 697,236.

Patented Apr. 8, 1902.

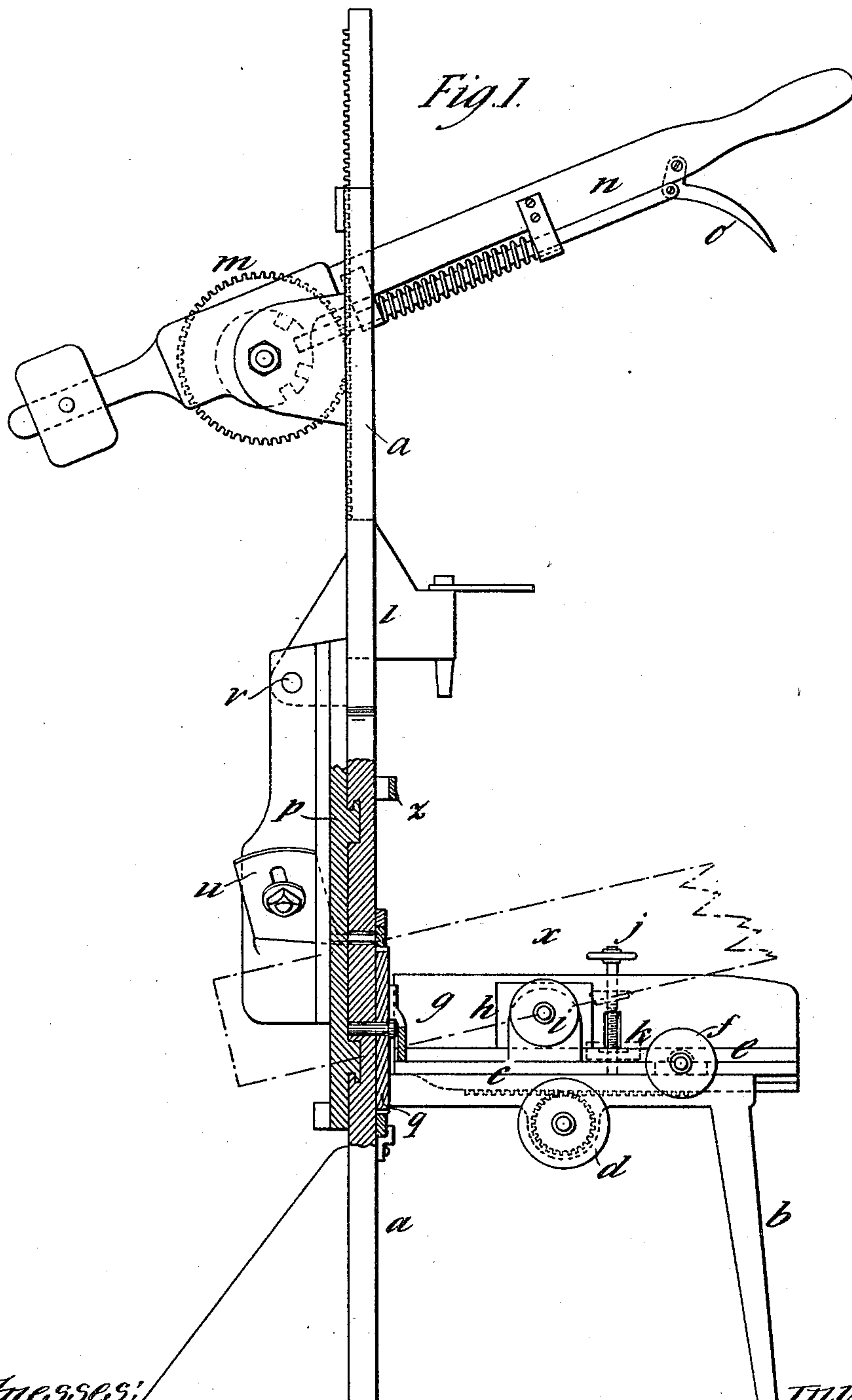
J. CLARKE.

MORTISING, TENONING, AND GROOVING MACHINE.

(Application filed Jan. 25, 1902.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses:

W. B. Keefe
Philip N. Childs

Inventor

John Clarke
By *James L. Norris*
Atty

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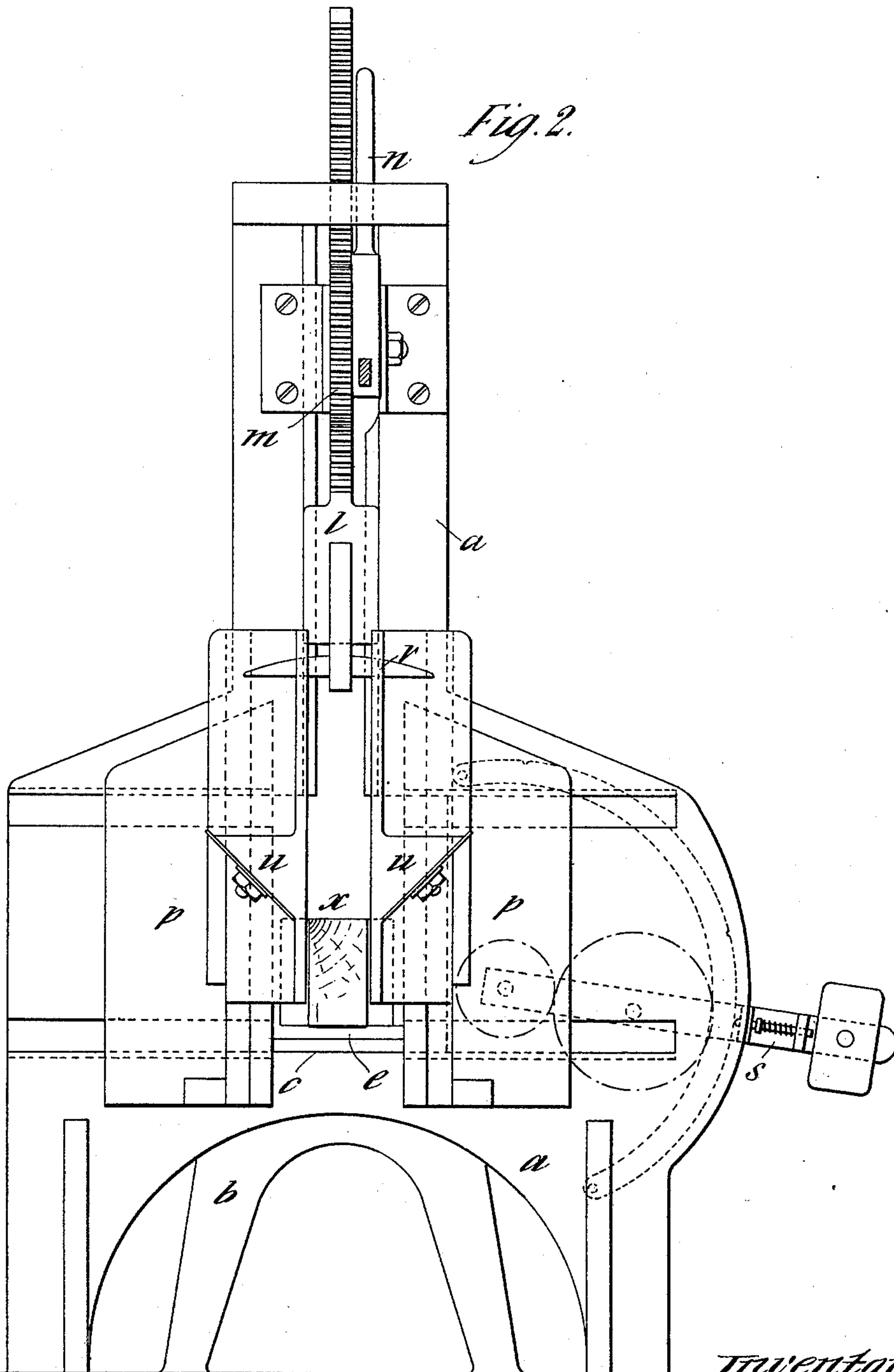
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3 Sheets—Sheet 2.



Witnesses:
John B. Keefe
Philip H. Tilden

Inventor
John Clarke
By *James L. Norvig*
Atty

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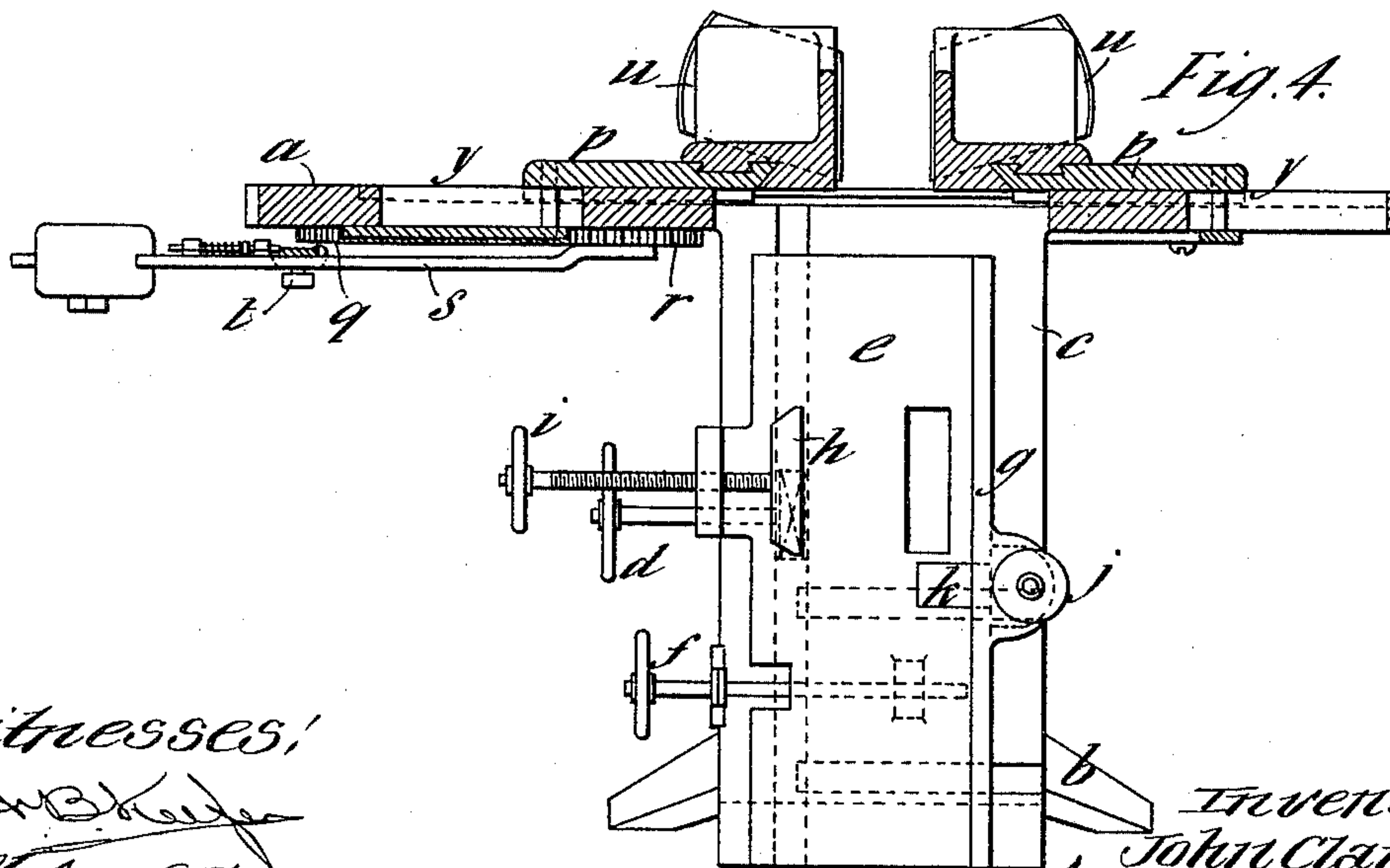
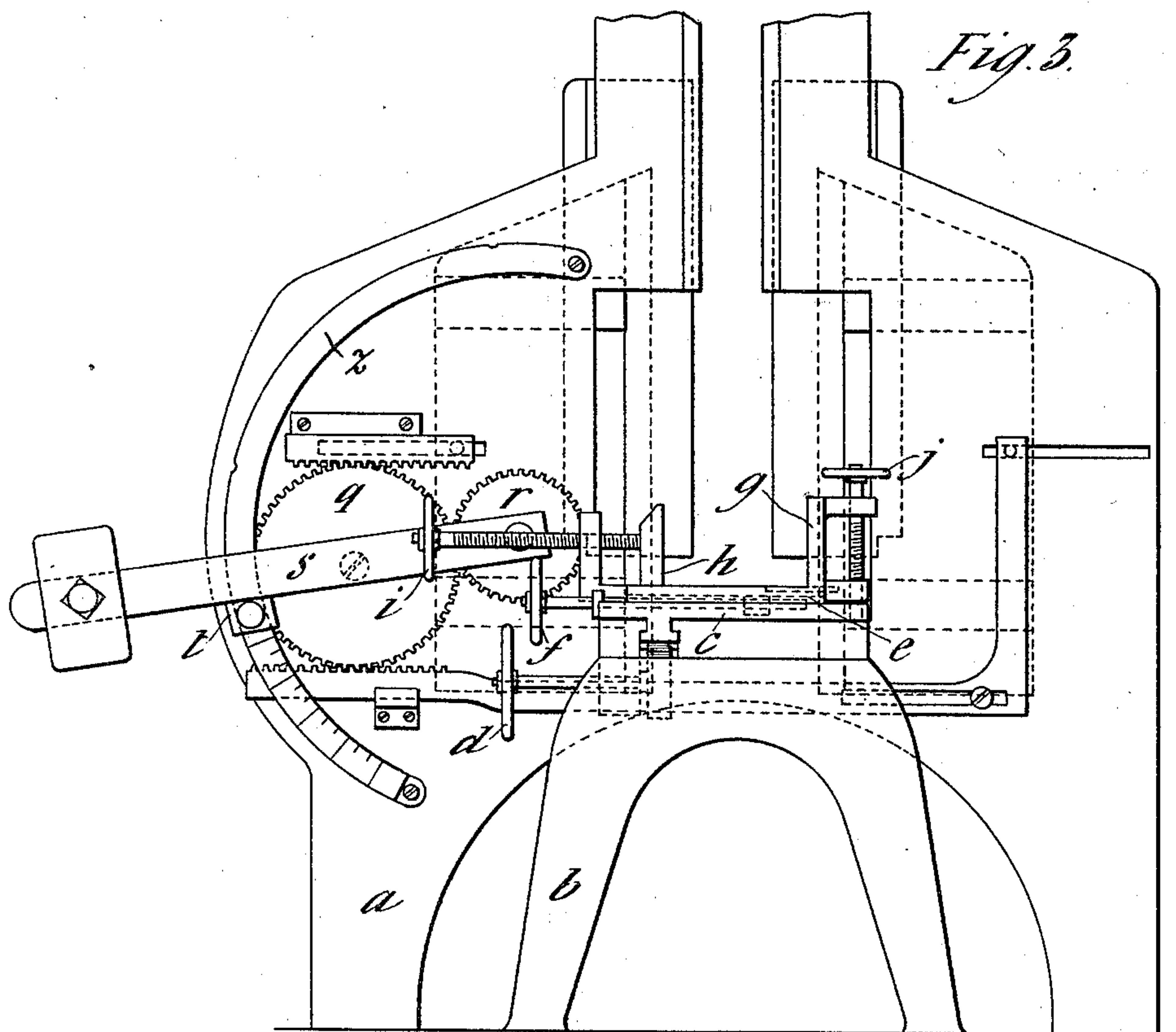
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3 Sheets—Sheet 3.



Witnesses:

W.B. Keifer
Philip A. Tilden

 Inventor
John Clarke
By James L. Morris
Atty

UNITED STATES PATENT OFFICE.

JOHN CLARKE, OF LONDON, ENGLAND.

MORTISING, TENONING, AND GROOVING MACHINE.

SPECIFICATION forming part of Letters Patent No. 697,236, dated April 8, 1902.

Application filed January 25, 1902. Serial No. 91,237. (No model.)

To all whom it may concern:

Be it known that I, JOHN CLARKE, a citizen of England, residing at 13 Wych street, Strand, London, England, have invented a certain
5 new and useful Hand Mortising, Tenoning, and Grooving Machine, (for which I have applied for a patent in Great Britain, dated June 28, 1901, No. 13,196,) of which the following is a specification.

10 My invention relates to a machine for conveniently effecting the several operations of mortising, tenoning, and grooving pieces of wood for joiner-work, as I shall describe, referring to the accompanying drawings.

15 Figure 1 is a vertical longitudinal section. Fig. 2 is a front view. Fig. 3 is a back view with upper part broken off. Fig. 4 is a sectional plan.

On a front frame *a* and back frame *b* is supported a table *c*, which by means of a pinion gearing with a rack on the table and turned by a hand-wheel *d* can be moved to and fro. On the table *c* an upper table *e* can be slid transversely by means of a screw turned by a
25 hand-wheel *f*. The table *e* has an upwardly-projecting side *g*, between which and a clamping-block *h* the piece of wood to be operated on can be firmly clamped by means of a screw turned by a hand-wheel *i*. Also by means
30 of a screw turned by a hand-wheel *j* a flap forming part of the table *e* can be raised above the general level of the table, so as to tilt the piece of wood to be operated on to a greater or less inclination.

35 In guides on the upper part of the front frame *a* is fitted to slide a piece *l*, attached to a rack gearing with a wheel *m*, that can be caused to reciprocate by moving up and down a hand-lever *n*, the piece *l* being thus caused
40 to move up and down. The lever *n* can, when desired, be disconnected from the wheel *m* by pressing the trigger *o*, and thus withdrawing in opposition to a spring a catch which engages one of several notches in the boss of the
45 wheel, this catch being then, if desired, engaged in another of the notches, the limits of the stroke of the piece *l* being thus varied when required. On the rear of the piece *l* is a tool-holder for holding a mortising-chisel.

50 On the front of the frame *a* are fitted to slide transversely in guides two plane-holders *p p*, each of them having attached to it a rack,

both of which racks gear with a toothed wheel *q*. This wheel gears with a smaller wheel *r*, on which is fixed a loaded lever *s*, by the descent of which down to an adjustable stop *t*
55 the two holders *p* are made to approach toward each other. The plane-holders *p* have vertical dovetail guides in which planes *u* are fitted to slide, these, by the advance of
60 the holders *p*, being made to engage with a cross-head *v*, forming part of the piece *l*. The lever *s* can be held by a catch at various points of a guide-arc *z*.

The apparatus operates as follows: The
65 piece of wood *x* to be operated on being clamped in proper position on the table—inclined, if necessary, as indicated by the dotted lines in Fig. 1—can be mortised by a tool fixed in the rear part of the slide *l*, moved up
70 and down by working the lever *n* and at the same time advancing the table *c* by turning the hand-wheel *d*. At this time the lever *s* is high up, disengaging the planes from the cross-head *v*. A tenon can then be formed
75 on the front end of the wood by moving down the lever *s* until the planes are engaged with the cross-head *v* and then moving up and down the lever *n* and so reciprocating the
80 planes *u*, which, being made to advance toward each other by the descent of the loaded lever *s*, plane material from the two sides of the piece of wood till a tenon is left in the middle, the cutting of the planes ceasing when
85 the lever *s* reaches the stop *t*, which is set so as to determine the depth cut by the planes, and consequently the thickness of the tenon. In a similar manner grooves can be cut in the sides of the piece of wood by planes of suitable
90 form and width operating like the planes *u*.

Sometimes it is desired that the shoulders of a tenon should be slightly undercut, so that when it is inserted in a mortise the outer edges of these shoulders may make a very close fit to the sides of the mortise. This can
95 be done by making the faces *y*, along which the slides *p* are moved, not in one plane, but both slightly inclined, so that the planes cut the shoulders of the tenon to a corresponding slight inclination.
100

Having thus described the nature of this invention and the best means I know of carrying the same into practical effect, I claim—

A hand mortising, tenoning and grooving

machine comprising a table adjustable transversely and movable longitudinally by hand, provided with means of tilting and clamping the wood operated on, a hand-lever toothed
5 wheel and rack for vertically reciprocating a piece adapted to hold a mortising-tool, a pair of transversely-sliding plane-holders with racks and gear worked by a loaded lever descending to an adjustable stop, and a pair of

planes guided to reciprocate vertically, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN CLARKE.

Witnesses:

GERALD L. SMITH,
EDWARD GARDNER.