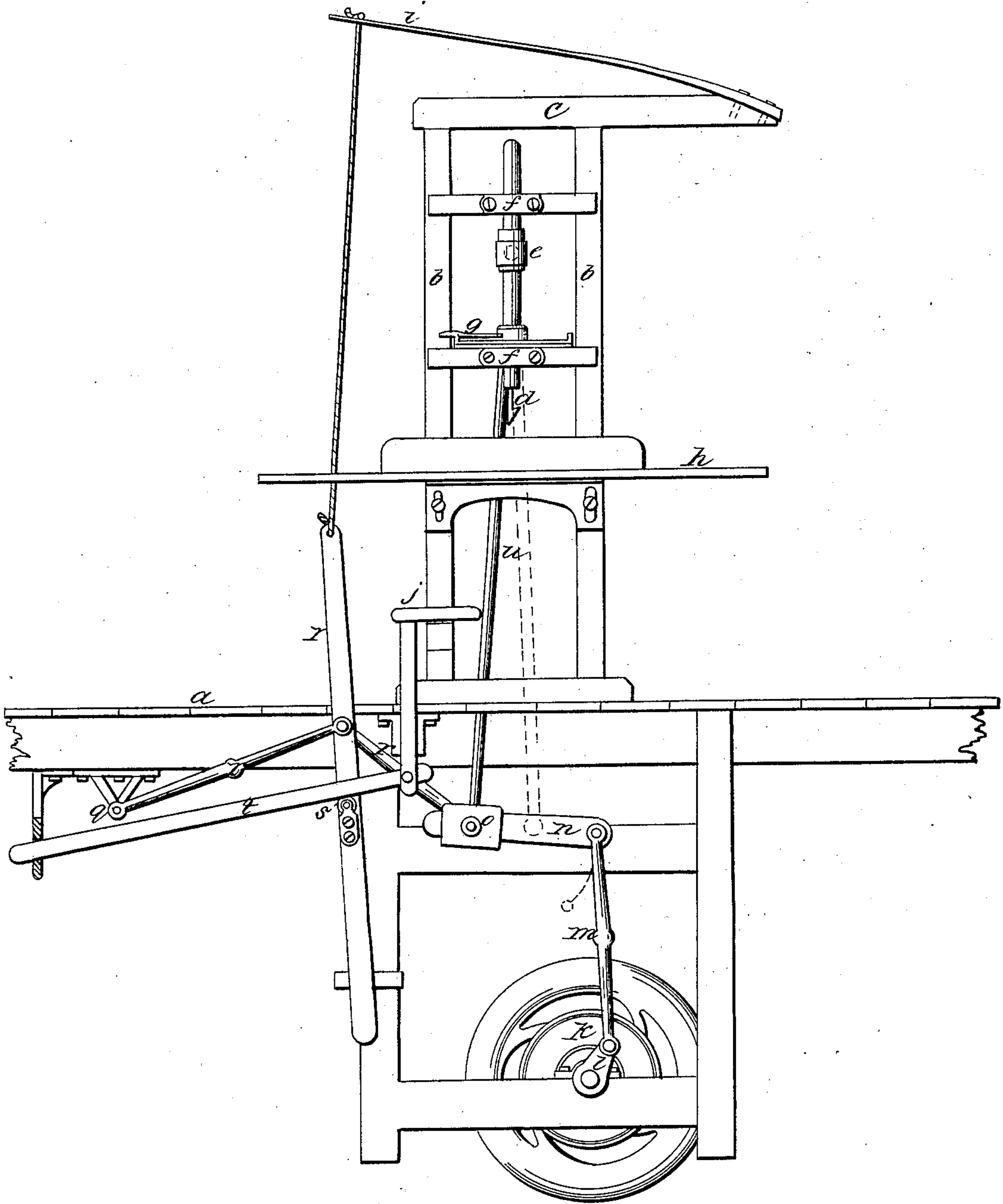


J. Guild,
Mortising Machine,
No 9,431. Patented Nov. 30, 1852.



UNITED STATES PATENT OFFICE.

JOSEPH GUILD, OF CINCINNATI, OHIO.

MORTISING-MACHINE.

Specification forming part of Letters Patent No. 9,431, dated November 30, 1852; Reissued December 11, 1855, No. 333.

To all whom it may concern:

Be it known that I, JOSEPH GUILD, of Cincinnati, Hamilton county, Ohio, have invented new and useful Improvements in Mortising-Machines; and I do hereby declare the following to be a full, clear, and exact description of the nature, construction, and operation of the same, reference being had to the annexed drawing, making part of this specification.

My improvements consist in an arrangement of mechanism in a mortising machine whereby the chisel may be brought into action, its depth of cut be exactly and constantly controlled by the operator, or suspended, without interfering with the driving power.

In the annexed drawing, a machine embodying my improvements is represented in front elevation.

(a) may be considered to represent the floor of a room or factory, containing the machine.

The stanchions (b), cap rail (c), chisel (d), chisel-mandrel (e), mandrel bearings (f), reversing handle (g), and bench (h), are of the construction usual both in power and foot mortising machines; the spring (i) and treadle (j) are also similar to those employed in foot mortising machines but are not attached directly to the mandrel as they are in the foot mortising machine, in which the office of the spring is simply to abstract the chisel from the mortise, preparatory to another stroke of the chisel, by means of the treadle, the forces of the spring and treadle being thus opposite and alternating in their action. In my machine they are also opposite and alternating but their duties are essentially different, the duty of the treadle being confined to the initiation and graduation of the cutting action, all the force of said cutting action being derived from the motive power, and the duty of the spring being to reduce the range of the cutter, or even to cause a cessation of its motion, according as the pressure is lessened or altogether withdrawn from the treadle. By this means, the prompt action and accurate graduation of the foot machine are combined with the labor saving character of the power machine.

The motion originates in this machine with the pulley (k) which may be of the fast and loose kind, but such arrangement is

not employed in my machine to suspend or resume the action of the chisel between the cutting of two separate mortises. A crank (l) on the shaft of the pulley (k) connects by pitman (m) with a vibrating arm (n) attached to a rock-shaft; fitted to this arm is a block (o) which I term the mandrel pitman head and which traverses along the arm. To this block is pivoted the free extremity of a toggle (p) having a fixed center at (q); to the knuckle of this toggle is pivoted a vertical rod (r) capable of longitudinal motion. This rod carries a roller (s) upon which bears the lever (t) of the treadle (j); the top of the rod (r) is connected to the spring (i) whose contracting power holds the rod and the knuckle to the highest points of their range when the pressure on the treadle is withdrawn. The sliding block (o), before spoken of connects by pitman (u) with the chisel mandrel (e) and is so arranged that when the toggle is bent to its full range of retraction, the block is exactly concentric with the center of motion of the vibrating arm (n), and in this position, having no vertical play whatever, none is communicated to the chisel mandrel. If, now, the treadle be slightly depressed, the toggle will push the block (o) somewhat along the arm (n) and instantly the motion or range of the arm at that point to which the block is pushed will be communicated to the mandrel; with a further descent of the treadle, the block will traverse a longer arc and an increased plunge of the chisel will result. Let now the pressure be removed from the treadle and the apparatus being abandoned to the action of the spring will instantly revert to its normal position, and the block at the same time becoming concentric with the center of vibration of the arm, the motion of the chisel will suddenly cease although the arm continues to vibrate.

Should a mortise or a number of mortises be required not to exceed a given depth, blocks or pins may be so placed as to limit the descent of the treadle.

The easy manipulation, prompt action and nice graduation of cut attained by means of my improvement in the construction of this staple machine are of material value for the following reasons: In the commencement of a mortise, for the first few cuts the chisel can penetrate only a part of the depth without binding in the substance

of the wood, or strain accompanied by jar-
ring of the machinery and sometimes tear-
ing or injuring the surface of the stuff, or
breaking the tool; but in my machine the
5 first few cuts may be made gently and at
the midlength of the mortise, and as the tool
retreats toward either end (by the wood be-
ing passed under it), it may plunge deeper
and deeper, until after a few cuts it just
10 passes the half thickness of the stuff and
continues that depth till one end of the
length of the mortise is reached; the tool
being then reversed the action is repeated at
full stroke in the other direction, and this
15 process being repeated on the other side of
the piece the mortise will be clearly and
easily effected. This is for mortises which
pass clear through the stuff. This gradu-
ated commencement is a result hitherto un-
20 attained in power mortising machines so far
as I am aware.

When not in use, and in the short inter-
vals between each mortise or section of a
mortise, (as above described,) the chisel in
25 my machine of itself becomes quiescent, and
only commences work as the foot is applied
to the treadle, and that to any desired ex-
tent; the fast and loose pulleys and like de-
vices hitherto in use in power mortising ma-
30 chines are not susceptible of either the in-
stantaneous action or the automatic cessa-
tion which characterizes my arrangement.

In a sash, blind and door factory such as
worked by me, where many thousand pieces
35 have to be mortised in a single week, this
facility is of very essential value, as the
work in that case consists of a large number

of small mortises the intervals between the
formation of which require perfect inaction
of the chisel. 40

Though I have represented the machine
as one in which the driving gear is beneath
the floor of the factory, yet the machine may
be made in a portable form, and as it is
merely a question of form and proportion, 45
I shall not enter into the details of its adap-
tation to different localities. A common
form of it will be, a portable machine driven
by unskilled manual labor, and with a fly-
wheel like a lathe, the workman who attends 50
to the mortising being fully occupied in that
department which is carried on with far
greater rapidity than in machines of the
common construction.

Having thus fully, clearly and exactly de- 55
scribed the nature, construction and opera-
tion of my improvement in mortising ma-
chines, what I claim as new and desire to
secure by Letters Patent, is—

The sliding wrist O connected with the 60
chisel and also with the driving power in
the manner described, in combination with
the mechanism described, or its equivalent,
for sliding said wrist, so that the operator
can during the motion of the machine vary 65
the depth of cut of the chisel or cause it to
be suspended without disconnecting the
driving power.

In testimony whereof, I have hereunto set
my hand before two subscribing witnesses. 70

JOSEPH GUILD.

Witnesses:

GEO. H. KNIGHT,

EDWARD H. KNIGHT.