

(No Model.)

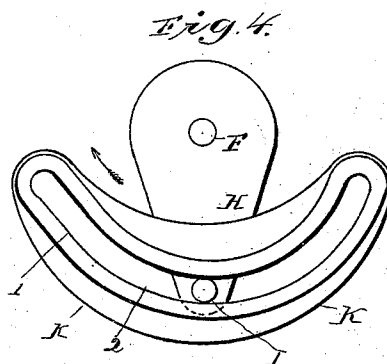
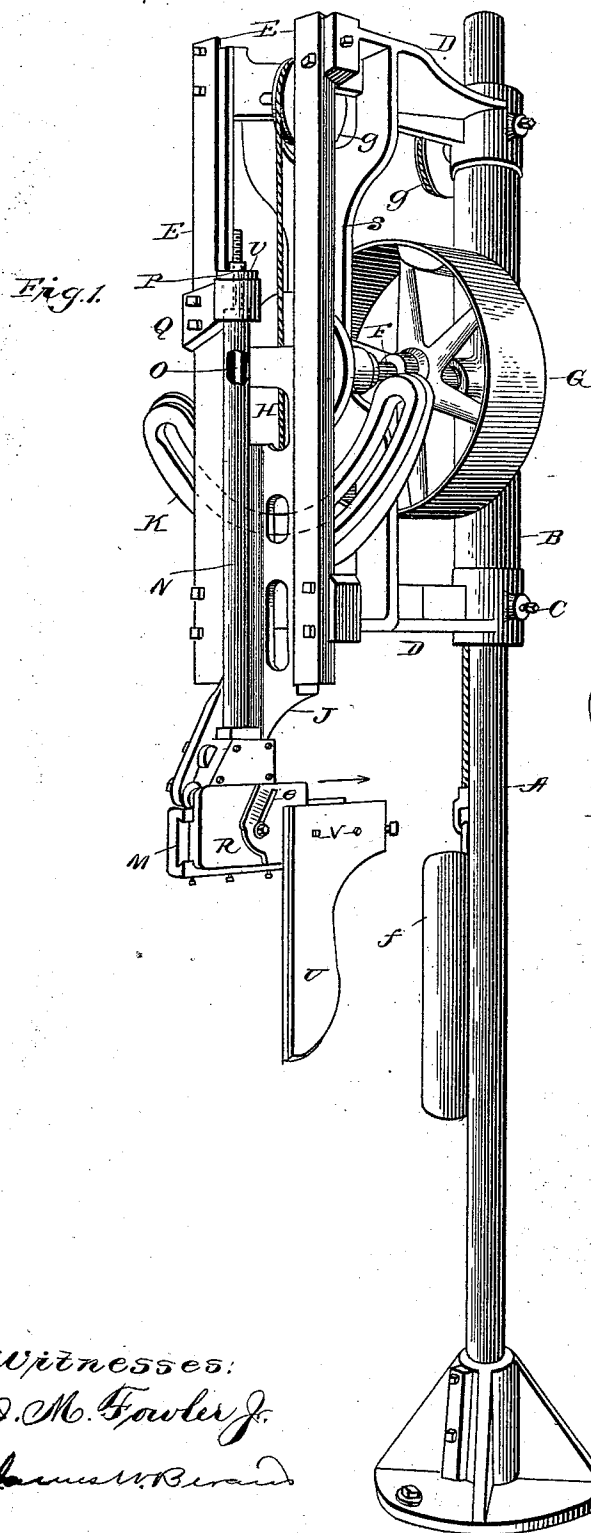
2 Sheets—Sheet 1.

C. C. THOMPSON.

MACHINE FOR FORMING, TURNING, AND SHAPING POTTERY.

No. 534,587.

Patented Feb. 19, 1895.



Witnesses:
J. M. Fowler Jr.
James W. Berard

Inventor:
C. C. Thompson,
by Pattison Nesbit,
Attorneys.

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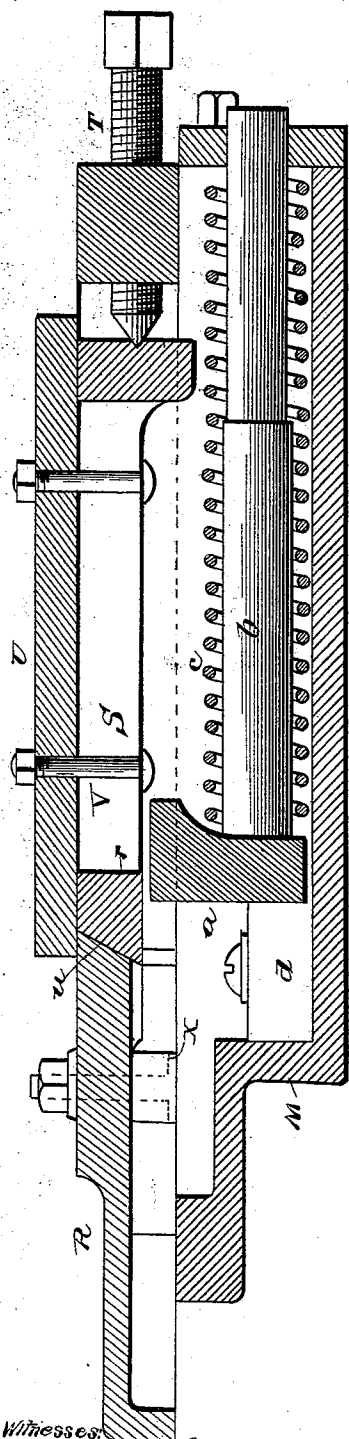


Fig. 2

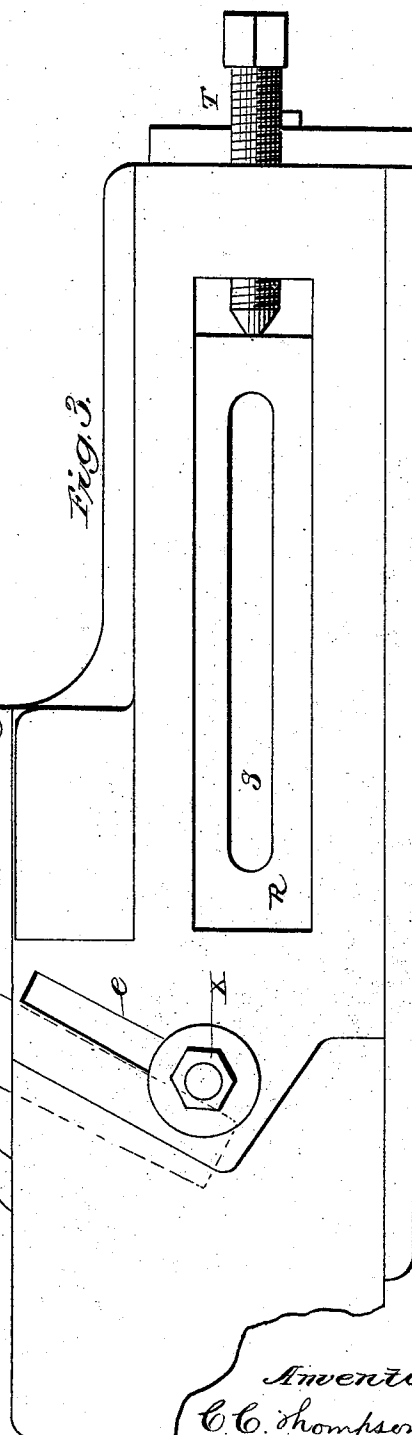


Fig. 3

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UNITED STATES PATENT OFFICE.

CASSIUS C. THOMPSON, OF EAST LIVERPOOL, OHIO.

MACHINE FOR FORMING, TURNING, AND SHAPING POTTERY.

SPECIFICATION forming part of Letters Patent No. 534,587, dated February 19, 1895.

Application filed August 22, 1894. Serial No. 521,047. (No model.)

To all whom it may concern:

Be it known that I, CASSIUS C. THOMPSON, of East Liverpool, in the county of Columbiana and State of Ohio, have invented certain
5 new and useful Improvements in Machines for Forming, Turning, and Shaping Pottery; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the
10 art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in machines for forming, turning and finishing
15 pottery, and it consists in the combination and arrangement of parts which will be fully described hereinafter and particularly referred to in the claims.

The primary object of my invention is to
20 provide a machine for forming, turning and finishing pottery and other plastic materials, in which the tool may be given either simply an up and down movement, or a compound up and down movement as the operator may desire.
25

Another object of my invention is to so construct the machine that the amount of movement given to the tool laterally or horizontally may be regulated at will.

30 Another object of my invention is to so construct the parts of the machine, that the horizontal movement of the tool can be regulated independently of the amount of vertical throw given the vertically moving operating rod,
35 whereby the wrist pin for accomplishing said horizontal movement will start at the same point always in its slideway no matter what the amount of lateral motion of the tool may be, and whereby the tool moves a short distance in the same time that it moves its longest distance.
40

In the accompanying drawings:—Figure 1 is a perspective view of the machine which embodies my invention complete. Fig. 2 is a longitudinal, horizontal sectional view, through
45 the tool holder, showing the tool held in place thereby. Fig. 3 is a side elevation of the tool holder the bell crank lever being shown in dotted lines. Fig. 4 is a detached view of the
50 slotted plate, the crank, and the roller carried by the crank which moves in said slotted

groove for giving the tool a lateral and up and down movement.

A represents a vertical standard or rod having at its lower end a base adapted to be secured to the floor, and B a tube through which
55 the said standard or rod A passes, and D arms extending laterally from said tube, which arms are provided with set screws C, which engage the standards or rod A for holding
60 the tube and the arms in any desired vertical adjustment.

Attached to the outer end of the arms D, are the guideways E, in which guideways the vertically moving head J slides, which head J
65 carries at its lower end the tool holder as will be fully described later on.

Depending from the upper arms D is a web s in which the outer end of a shaft F is journaled, the inner end of said shaft being suitably journaled against the tube B as clearly
70 shown. A band wheel or pulley G, is rigidly attached to this shaft F, by means of which it is revolved from any desired source of power, and attached to the outer end of the shaft F
75 outside of the depending web s is a crank H carrying a wrist pin I. This wrist pin I is provided with a friction roller or sleeve which moves in the slot of the plate K, which plate is rigidly attached to the inner side of the
80 vertically moving head J. From this it will be seen that as the crank H is revolved, the vertically moving head J is carried up and down thereby. Attached to the lower end of this vertically moving head J is a slide-
85 way M, in which a tool holder R moves and is held by a tongue and groove as clearly shown in Fig. 1. This head J is provided on the outer side with an enlargement N, through which freely passes a rod O, the lower end of
90 this said rod being connected to the upper end of the bell crank lever t, the said bell crank lever being intermediately pivoted to the lower end of the cross head J just above the slideway M.

The upper end of the rod O extends through and beyond the upper end of the portion N of the head J, and is provided with a nut and sleeve T thereon which are capable of vertical
100 adjustment. An arm Q is rigidly connected to one of the slideway E, and extends inward a suitable distance and partially embraces

the portion N, and this arm Q forms a stop for the nut and sleeve T as will be fully described presently.

The tool holder R is capable of horizontal movement upon the slideway M, and is provided with a longitudinal slot S through which the bolts V, of the tool U pass and secure the said tool to the holder as clearly shown in Fig. 2. A portion of the tool holder R consists of the slotted plate *r*, through which the said bolts V, pass as just described, and the forward end of this plate *r* is made inclined as shown at *u*, which engages a corresponding incline upon the holder R, and passing through the rear end of the holder is a tightening screw T which engages the opposite end of the slotted plate *r*. By means of this tightening screw P the said slotted plate *r* is moved forward and owing to the incline *u* is drawn inward thus holding the tool U tight against the outer face of the tool holder R and making it much more rigid and firm than would otherwise be the case. Extending laterally from the tool holder R inward and within the slideway M as clearly shown in Fig. 2 is an arm *a*, carrying a gas pipe *b* which gas pipe moves through the opposite end of the slideway M as the tool reciprocates laterally. Placed around this gas pipe *b* is a spring *c* which by its tension normally holds the tool holder forward and the arm *a* against a buffer *d*.

The tool holder R is provided with an inclined slot *e*, through which a bolt X passes, and this bolt is adapted to be engaged by the lower end of the bell crank lever *t* as shown in dotted lines in Fig. 3.

A weight *f* has a rope or chain connected thereto and passing over the sheaves or pulleys *g*, to the upper end of the vertically moving head J, whereby the weight of the said head J and tool holder and tool are substantially counter-balanced thus making the up and down movement of the head and tool holder much easier, and with less jar than would otherwise be the case.

While I here show the frame consisting of the arms D, tube B and the guideways E supported upon a vertical standard A, I do not limit myself to this manner of supporting it for the said frame can be supported directly from the wall as will be readily understood. Neither do I desire to limit myself to a weight for counterbalancing the vertically moving head J and its attachments, for this may be accomplished by means of a spring as will be also readily conceived.

Reference being had to Fig. 4 showing the slotted plate K, attention is directed to the fact that between the points 1 and 2 of said figure the slot is on the arc of a circle of which the shaft F is the center, and from the point 1 out the slot is straighter, and from the point 2 to the other end of the said slotted plate, the slot is formed on the arc of a different circle. The object of this is that as the crank revolves in the direction indicated by

arrow in said figure, and when descending the wrist pin owing to the shape of the slot at the point 2 to the right hand end of said slot forces the tool-holder down, and from the point 2 to the point 1 the tool holder is held quiet as will be readily understood, and when the wrist pin reaches the point 1 the tool holder is moved upward.

The operation of my invention is as follows:—As the vertically moving head J moves downward, and the washer *v* engages the stop Q, any further movement downward of the head J causes an upward pull upon the rod O and through the medium of the bell crank lever connected with the said rod, the tool holder R is moved in the direction indicated by arrow in Fig. 1, by engaging the adjustable bolt X. When the nut and washer V are at their lowest point upon the rod O as shown in Fig. 1, the tool holder R is given its greatest amount of movement, say three inches. When at this adjustment the nut and washer V engage the stop Q just as the wrist pin I moves in the slot of the plate K, so that the tool holder is then depressed a sufficient distance to accomplish the three inch lateral movement of the tool while passing from the right hand end of the slot to the point 2. From this point on to the point 1, as before stated, the tool remains without either being raised or moved laterally, owing to the fact that between the points 1 and 2 the slot is formed on the arc of a circle of which the shaft F is the center. As the wrist pin moves from the point 1 to the left hand end of the slot, the tool holder is forced laterally in the opposite direction by means of the spring *c*, and then the tool by the vertical movement of the head J is moved upward and out of the article being formed.

When it is desired to give the tool holder a limited amount of movement, it is only necessary to move the bolt X upward within the slot *e* and the amount of lateral movement of the tool can be adjusted to the smallest degree.

From this description it will be seen that the vertical movement of the rod O will at all times be uniform and the same distance, no matter what may be the lateral movement of the tool holder and its tool. The lateral movement of said tool holder is regulated by means of the bolt X being moved nearer to or farther from the pivotal point of the bell crank lever *c*.

When it is desired to give the tool only a vertical movement it is only necessary to turn the nut P up to the upper end of the rod O, so that it will not engage the stop Q as the head J moves up and down, which as will readily be understood will prevent any lateral movement being given to the tool, the tool being held normally inward by the spring *c*.

It will be readily understood that the amount of lateral movement given to the tool holder R could be regulated by the nut P, and I have constructed a machine upon this prin-

ciple. This is however objectionable in that when the movement of the rod O is adjusted, the wrist pin I begins to operate upon the slide K at various points according to the adjustment of the said nut P, and the tool is moved its adjusted distance quickly. By making the adjustment of the tool holder as just described through the medium of bolt X, the tool though adjusted to move but half an inch will move that half inch in the same time that it moves three inches owing to the fact that the rod O is given the same amount of vertical movement no matter what the lateral movement of the tool holder may be. It will be seen that this lateral movement may be regulated by the nut P as well as by the bolt X, and I do not desire to limit myself to either particular construction.

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

1. A pottery forming, turning and shaping machine comprising a frame having a rear extension, parallel arms extending from opposite ends of the said extension, the said arms having their outer ends bifurcated or diverging, guideways secured to ends of the bifurcated arms, a web s having its ends connected with the said outwardly extending arms between their ends, a driving shaft having its inner end journaled in the inner extension of the frame, its outer end journaled in the said web, a head for a tool, moving upon the said guideways, substantially as shown and described.

2. A forming, turning, shaping and finishing machine comprising a vertically moving head, a laterally moving tool holder at its lower end, a spring carried by said head, for normally holding the holder in one position, and a means carried by the head for moving the holder in the opposite direction, substantially as specified.

3. A forming, turning, shaping and finishing machine comprising a vertically moving head, a laterally moving tool holder at its lower end, a means carried by the said head for moving the tool holder laterally, and a stop which engages the said tool operating device, substantially as described.

4. A forming, turning, shaping and finishing machine comprising a vertically moving head, a laterally moving tool holder at its lower end, an independently movable rod carried by the said movable head, a stop which engages the said rod, and a connection at the lower end of the rod for moving the tool holder laterally, substantially as set forth.

5. A forming, turning, shaping and finish-

ing machine comprising a vertically moving head, a laterally movable tool holder at its lower end, a vertically moving rod carried by the said head, a stop adapted to engage the said rod, a bell crank lever having one end connected to the said rod, and its opposite end adapted to move the tool holder laterally, substantially as specified.

6. A forming, turning, shaping and finishing machine comprising a vertically movable head, a tool holder at the lower end of the head, a vertically moving rod adapted to operate said tool holder laterally, and a movable stop carried by the said rod whereby it can be thrown out of motion for the purpose specified.

7. A forming, turning, shaping and finishing machine comprising a vertically movable head, a laterally movable tool holder at its lower end, a means carried by the said head for moving the tool laterally, and an adjustable device carried by the tool holder and adapted to engage the said operating means for regulating the lateral movement of the tool holder, substantially as specified.

8. A forming, turning, shaping and finishing machine comprising a vertically movable head, a laterally movable tool holder at its lower end, a vertically moving rod adapted to operate the tool holder laterally, and an adjustable means carried by the tool holder for regulating the amount of lateral movement given to the tool holder, substantially as set forth.

9. A forming, turning, shaping and finishing machine comprising a vertically moving head, a laterally movable tool holder at its lower end, a bell crank lever carried by the movable head, a means for operating the bell crank lever, and an adjustable device carried by the tool holder adapted to engage the bell crank lever at various points for the purpose of regulating the lateral movement of the tool holder, substantially as described.

10. A tool holder for forming, turning, shaping and finishing machines, comprising a slideway, a movable tool holder upon said slideway, a slotted plate adapted to carry the tool, one end of the plate being inclined, and a set screw for forcing the plate endwise and wedging it inward by the said incline, substantially as shown.

In testimony whereof I affix my signature in presence of two witnesses.

CASSIUS C. THOMPSON.

Witnesses:

A. S. PATTISON,
JAMES W. BERANS.