

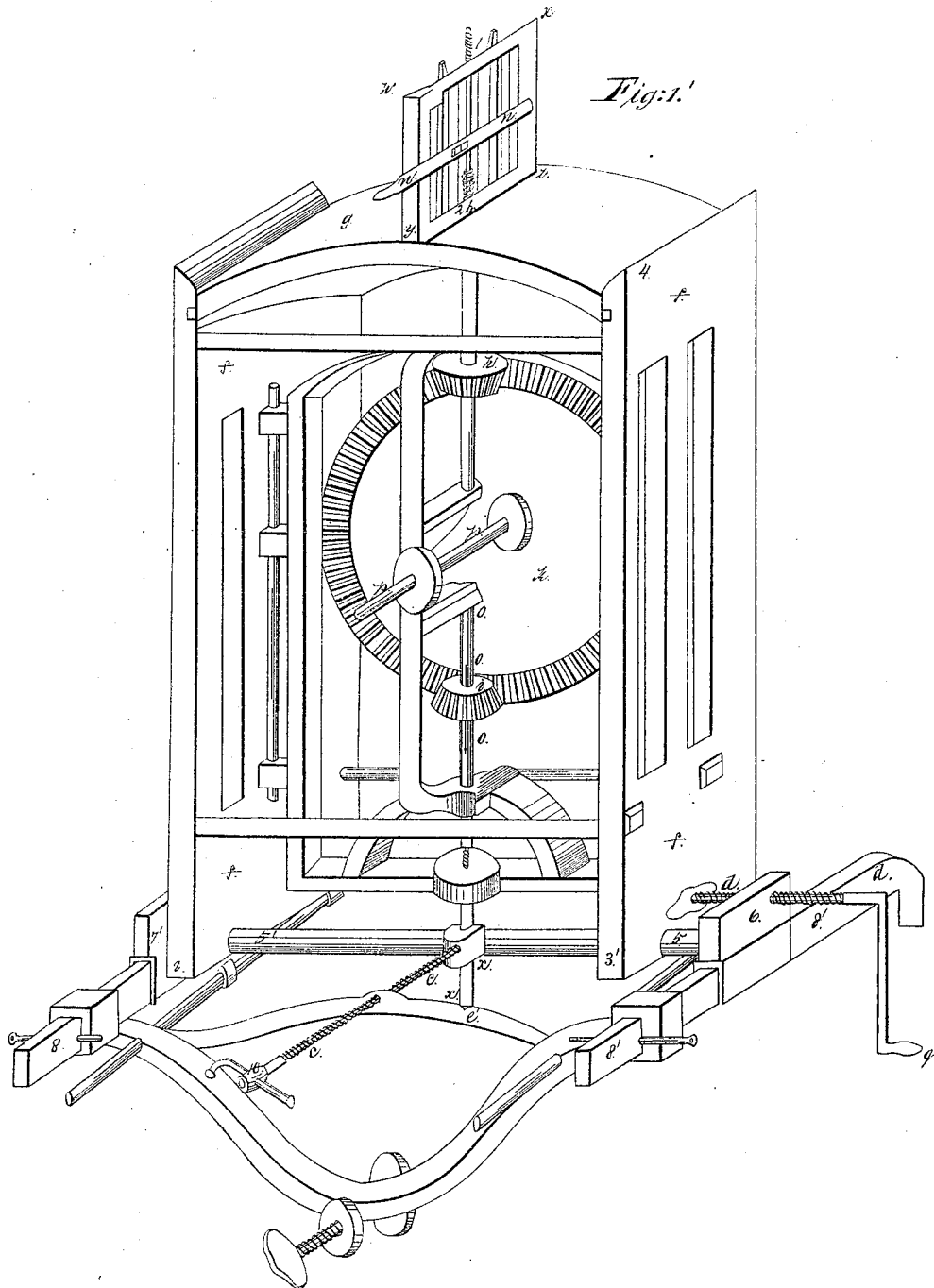
2 Sheets. Sheet 1.

A. Swingle,

Mortising Machine.

N^o 5,661.

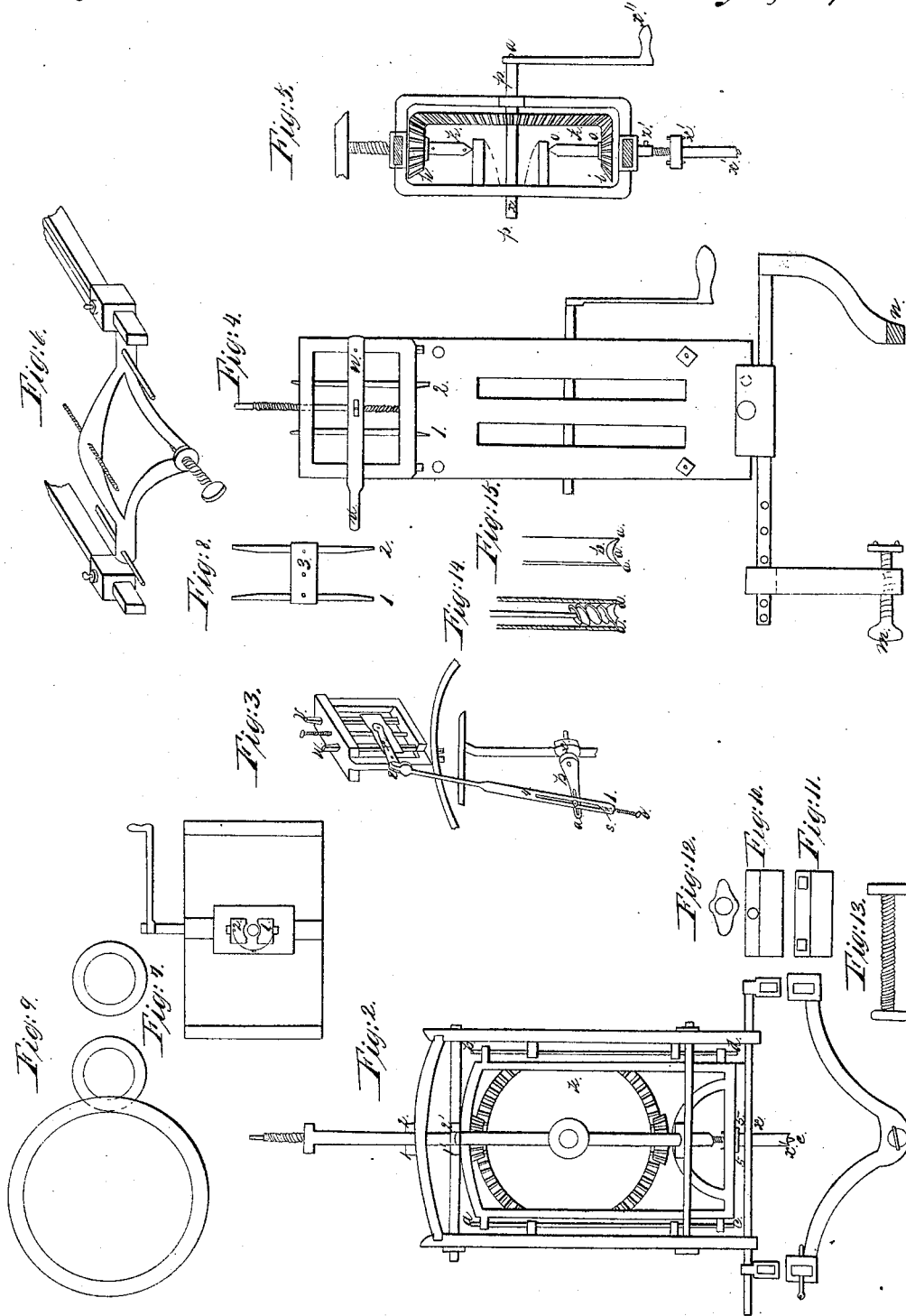
Patented July 11, 1848.



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UNITED STATES PATENT OFFICE.

ALFRED SWINGLE, OF GALVESTON, TEXAS.

BORING AND MORTISING MACHINE.

Specification of Letters Patent No. 5,661, dated July 11, 1848.

To all whom it may concern:

Be it known that I, ALFRED SWINGLE, of the city and county of Galveston and State of Texas, have invented a new and useful Machine for Boring Square Holes and for other Purposes, which is called a "Mortise and Tenon Machine;" and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is perspective view of the machine. Fig. 2 is a view of the sliding frame, the auger and chisel box and clamp bar. Fig. 3 is the pitman and the arm and wrist for reversing the action. Fig. 4 is a side view of the frame, the crank and the lever to change the action by hand. Fig. 5 is a side view of the driving wheel, pinions, screws, auger, chisel and cranks. Fig. 6 is a broken view of the clamp bar to fasten the machine to the timber. Fig. 7 is a view of the top of the machine showing the plate having female screws. Fig. 8 is a view of the wedges and band connecting them to open or close the plates. Fig. 9 is a representation of the exterior line of the driving wheel and pinions. Fig. 10 is a view of the side plates to hold the bars upon which the machine moves laterally. Fig. 11 is a view of the same on the opposite side of the machine. Fig. 12 is a plate on the lower part of the machine through which the tangent screw passes. Fig. 13 is a clamp screw to fasten the clamp bar to the timber. Fig. 14 represents a section of the auger and chisel.

The machine is constructed in a sliding frame (*a b c d*, Fig. 2) supported by the right and left screw (*a b*, Fig. 1,) and is moved in a longitudinal or lateral direction by the screws *c* and *d*, Fig. 1, so as to place the auger (*e*, Figs. 1 and 2,) at any required point. The two sides (*f*, Fig. 1,) of the frame are of iron or metallic, and are connected at the top *g*, Fig. 1, by a metallic convex surface. A frame work supports the pinions *h*, *i*, Fig. 1, and the driving wheel *k*, Figs. 1 and 2, of the machine. A shaft *o*, Fig. 1, runs through the upper pinion *h*, Fig. 1, and the frame work (*e*, Fig. 2,) upon the top of the sliding frame (*a b c d*, Fig. 2). Near the upper end of this shaft *o*, Fig. 1, is a right and left screw (*a* and *b*, Fig. 1) which secure a vertical motion. Where these screws *a* and *b*, Fig. 1, pass through the upper and lower plates *w x* and

y z, Fig. 1, of a vertical frame, *w x y z*, Fig. 1, are two small plates in each as 1 and 2, Fig. 7, connected in pairs by a spring as *o o o*, Fig. 7, and containing female screws. Outside of these screw plates 1 and 2 and 1' and 2', Figs. 2 and 7, and through *w x* and *y z*, Fig. 1, of the vertical frame *w x y z*, are two wedges 1 and 2, Figs. 4 and 8, connected near the middle by a band 3, Fig. 8, and when by a certain motion the wedges move simultaneously and close one valve or aperture between the small plates 1 and 2, Fig. 2, the other valve, 1' and 2', Fig. 2, or aperture is opened.

The shaft *p p*, Figs. 1 and 5, of the driving wheel is supported by the sliding frame *a b c d*, Fig. 2, and projects beyond it, upon one end of which as at *a*, Fig. 5, the power is applied to produce motion, and to the other end of the shaft at *x*, Fig. 3, and *n*, Fig. 5, is attached a regulating pitman 1, 2, Fig. 3, which by its construction and connection regulates the penetration of the auger *e*, Figs. 1 and 2, since by the wrist *a b*, Fig. 3, on the crank attached to the driving wheel *k*, Fig. 1, and a set screw *c*, Fig. 3, on the lower end of the pitman 1, 2, Fig. 3, and an open groove or slot 4, 5, Fig. 3, admitting the wrist *a b*, Fig. 3, and running until the change is accomplished.

A pinion *i*, Figs. 1 and 5, is attached to the second or lower shaft *o o*, Figs. 1 and 5, near the lower part of the sliding frame, which frame supports the shafts *o o*, Figs. 1 and 5. Both pinions *i* and *h*, Figs. 1 and 5, are put in motion by the driving wheel *k*, Figs. 1 and 5. To the lower part of this bottom shaft *o o*, Figs. 1 and 5, the auger is attached or fastened. This auger *e*, Figs. 1, 2, and 5, passes through a square tube *x'*, Figs. 1, 2 and 5, which is permanently attached to the sliding frame, *a b c d*, Fig. 2, and consequently moves with it. The lower edges of this tube *n'*, Figs. 1, 2 and 5, are beveled, as in Fig. 14 and *a b a*, Fig. 15. The edges of the end thus sharpened are slightly scolloped as *a a a* Fig. 15, so as to permit the lips of the auger (as *a a*, Fig. 14) to descend to, without touching, them, thus making the largest circle in the smallest square. The machine or sliding frame is moved up and down by a motion of the driving wheel *k*, Fig. 5, and is supported, as well as the permanent frame 1' 2' 3' 4', Fig. 1, by two parallel bars one seen at 5', Fig. 1, which rest upon a plate 6' and 7',

Fig. 1, at each end said bars, they being supported by two other bars 8', Fig. 1, at right angles to the two first. By the application of screws or levers 9' and 10', Fig. 1, the position of the auger is readily fixed and regulated.

This machine is intended as a substitute for the common chisel in forming mortise and tenon, and the consequent saving of labor.

The operation of the machine is as follows: A sliding frame *a b c d*, Fig. 2, in which is suspended a driving wheel *k*, Figs. 1, 2 and 5, and two pinions, *h, i*, Figs. 1 and 5, the shafts *o*, Figs. 1 and 5, of the pinions *h, i*, Figs. 1 and 5, are vertical, the upper shaft having at one end a right hand screw *a*, Fig. 1, and a left hand screw *b*, Fig. 1, running in dies as 1 and 2, Fig. 7, the left hand screw *b*, Fig. 1, for the purpose of driving the sliding frame downward when set in motion by means of a crank *x''*, Fig. 5, on the shaft of the driving wheel *k*, Fig. 5, and the right hand screw for the reverse motion. This change is made as follows: When in motion the feather spring *o o o*, Fig. 7, being attached to the moving dies 1 and 2, Fig. 2 (at top), throws them from the screw *a*, Fig. 1. Upon the descent of the slides or wedges 1 and 2, Fig. 4, permitting it (the screw) to pass freely until the dies are closed by means of the slides 1 and 2, Fig. 4, moved by lever *x*, Fig. 4. The set screw 9, Fig. 1, moves the machine to either side. The lever *x*, Fig. 4, and *n*, Fig. 1, is operated upon by the pitman 1, 2, Fig. 3, (when the machine is moved by steam or other motive power), which is attached to a sliding crank *a b x*, Fig. 3, upon the shaft *p p*, Fig. 1. The pitman is regulated (so as to give it any required depth) by the wrist *a b*, Fig. 3, on the crank attached to the driving wheel *k*, Figs. 1 and 5, and a set screw *c*, Fig. 3, on the lower end of the pitman 1, 2, Fig. 3, and an open groove 5, 4, Fig. 3, admitting the wrist of *a b*, Fig. 3, and running until the change is accomplished. The pitman in ordinary cases is detached and the lever *h*, Fig. 1, and *x*, Fig. 4, worked by hand. A pinion *h*, Fig. 1, is attached to and near the lower end of the upper shaft *o*, Fig. 1, and put in motion by the driving wheel *k*, Fig. 1, and this shaft *o*, Fig. 1, contains two screws *a* and *b*, Fig. 1, (one at the bottom and one at the top) passing through the plates 1 and 2, Fig. 1, which secures a perpendicular motion. A pinion *i*, Fig. 1, is attached to the lower shaft *o o*, Fig. 1, and is put in motion by the driving wheel *k*, Figs. 1 and 2, turning the auger which is attached to it by a screw as *x'*, Fig. 5, the auger *e*, Figs. 1, 2, and 5, running

through a square tube *x'*, Figs. 1 and 2, which is secured on the lower side of the sliding frame, as at 5, Fig. 2, the tube *x'*, Figs. 1 and 2, being sharpened at the lower end and beveled as at *a a*, Fig. 14, on the inside; the edges of the end thus sharpened are slightly scalloped, as at *a b a*, Fig. 15, so as to permit the lips of the auger to descend to the bottom of the scallop without touching them—thus making the largest circle in the smallest square.

The whole machinery is put in motion by the crank *x''*, Fig. 5, attached to shaft *p*, Fig. 5, and the whole frame is moved by means of the wheel *k*, Figs. 1, 2, and 5, and shaft *p*, Fig. 1, and the machine is secured to the timber by the screw *m*, Fig. 4, and a clamp bar *n*, Fig. 4, on the opposite side of the timber. When the auger has penetrated to the required depth the motion is reversed by the pin (*i*, Fig. 3,) in the slots of the elbow and pitman coming in contact with the regulating screw (*c*, 5, Fig. 3,) which passes through the lower end of the pitman and up into the slot of the same. This pin (*i*, Fig. 3,) forces the pitman (1, 2, Fig. 3,) down, which acting upon the lever (*x'*, Fig. 3,) at its upper extremity this lever (*x'*, Fig. 3,) forces the wedges (*u, v*, Fig. 3,) upward, which opens the lower dies (1 and 2, Fig. 7,) and closes the upper so that the latter now press upon the right hand screw and thus change the motion. When the auger has been sufficiently withdrawn the downward motion is produced by the pin (*i*, Fig. 3,) passing through the slot of the elbow and pitman striking the pitman at the upper end of its slot (4, Fig. 3,) thus forcing the pitman upward and by its action on the lever (*x'*, Fig. 3,) forcing the wedges (*u* and *v*, Fig. 3,) downward, thus opening the upper dies (which clasp the right hand screw) and closing the lower ones. In this way the mortising is regulated for the application of machinery to the machine.

What I claim as my invention and desire to secure by Letters Patent is—

The combining of a driving and two spur wheels with the auger and square chisel, the whole being portable and moving in a sliding frame, in combination with the arrangement of the pitman with a slot and regulating screw at its lower end with a lever and right and left hand screw at its upper end by which to regulate the depth of the bore; the whole being constructed, combined and operating substantially as is herein set forth.

ALFRED SWINGLE.

Witnesses:

GEO. C. THOMAS,
JOHN L. SMITH.