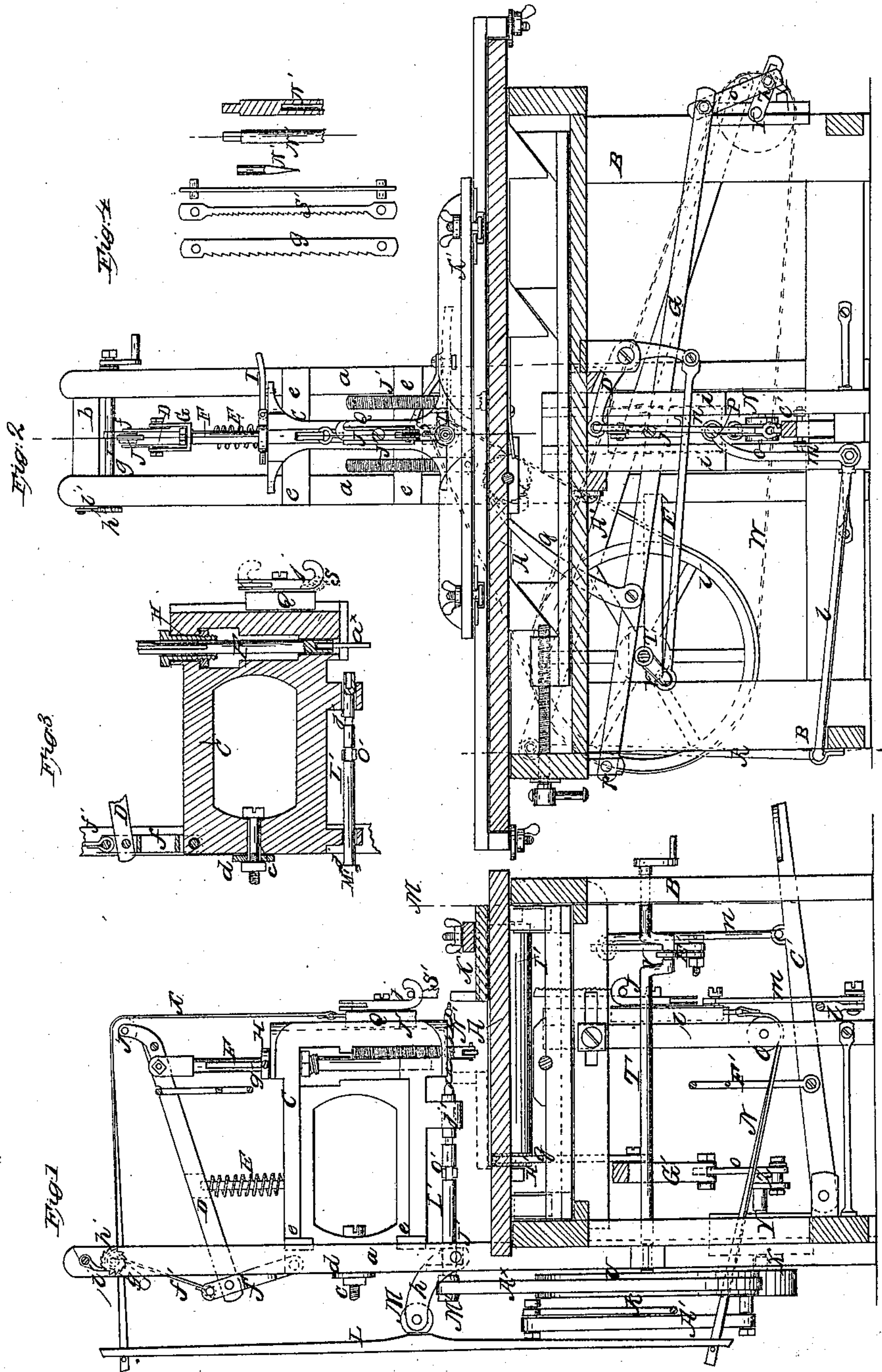


B. Zurn, Jointing Machine.

N^o 36,435.

Patented Sep. 9, 1862.



Witnesses.
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UNITED STATES PATENT OFFICE.

BENJAMIN ZURN, OF NEW YORK, N. Y.

IMPROVED SAWING-MACHINE ADAPTED FOR THE USE OF THE AUGER AND CHISEL.

Specification forming part of Letters Patent No. 36,435, dated September 9, 1862.

To all whom it may concern:

Be it known that I, BENJAMIN ZURN, of the city, county, and State of New York, have invented a new and Improved Sawing-Machine adapted for the Use of the Auger and Chisel; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is an end view of my invention. Fig. 2 is a front view of the same. Fig. 3 is a detached vertical section of a portion of the same, taken in the line *xx*, Fig. 2. Fig. 4 is a detached view of the tools employed with the same.

Similar letters of reference indicate corresponding parts of the several figures.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents a platform or bed, which is supported at a suitable height by a proper framing, B, and *xx* are two uprights, which are attached to the framing B at one side and connected at their upper ends by a cross-bar, *b*, as shown clearly by Fig. 2.

C represents a sliding or adjustable head, which may be of metal and of quadrilateral form, as shown clearly in Fig. 3. This head C is secured to the uprights *aa* at any desired point by a clamp formed of a screw, *c*, passing through the head at one side and through a plate, *d*, which is at the outer sides of the uprights *aa*. By this arrangement it will be seen that the head C may be secured at any desired point within the scope of its adjustment or movement between the uprights *aa*.

To the back end of the head C, between the uprights *aa*, there is attached a link, *f*, the upper end of which is connected to the back end of a bar, D, which rests or bears on a spiral spring, E, on the upper part of head C, said spring having a tendency to keep the bar D in an upward position, as will be fully understood by referring to Fig. 1. To the front part of the bar D there is connected a vertical arbor, F, which is fitted in the front part of the head C and allowed to work freely up and down therein. The arbor F is connected to the bar D by a swivel-joint, G, and the upper part of the arbor is provided with a feather, *g*, which is fitted in a groove in a collar, H,

that is allowed to turn freely in the head C. This collar H admits of the arbor F rising and falling freely within it, and at the same time admits of the arbor F being turned by means of a lever, I. (See Figs. 2 and 3.)

On the front end of the bar D there is placed a roller, J, over which a strap, K, passes. This strap K is attached at its back end to the upper end of a spring, L, which is secured at its center to a small rock-shaft, M, fitted between bearings *hh*, attached to the uprights *aa*. The lower end of the spring L has a strap, N, attached, which strap passes under a roller, O, in the frame B, and is connected to a slide, P, which is fitted between vertical guides *ii*. The end of the strap K is also attached to a slide, Q, which is fitted in a vertical groove in the front end of the head C. Each slide P Q has a reversible hook, *j*, attached for the purpose of connecting saws S S' to the slides, the saw S being a slitting-saw and having its cutting-plane parallel with the sides of the platform A, and the saw S' being a scroll-saw and having its cutting plane at right angles to that of the saw S. The ends of the hooks *j* have reverse positions, in order to admit of this different adjustment of the saws.

In the framing B, near one end, there is placed a driving-shaft, T, which has a pulley, U, at one end and a crank, V, near its opposite end. The pulley U is connected by a band, W, with a crank-pulley, X, on a shaft, Y, the latter having a crank, Z, at its inner end.

A' is a connecting-rod, which is attached at one end to the pulley X and at the opposite end to the upper part of an arm, *k*, which is connected to a rock-shaft, B', in the lower part of the framing B. The rock-shaft B' has an arm, *l*, at its front end, the two arms *kl* being at right angles to each other, and the latter connected by a link, *m*, with the lower slide, P.

C' is a treadle, which is placed in the lower part of the framing B, and is connected by a link, *u*, with a bent lever, D', attached to the upper part of framing, said lever D' being connected by a rod, E', with the crank V of the driving-shaft T.

F' is a wire or strap, which connects bar D with the treadle C'.

G' is a rod, which is attached at one end by a link to the crank Z of shaft Y. The opposite end of G' is connected by a joint, *p*, to the framing B. To the rod G' there is attached a

pawl, q , which engages with a ratchet, H' , on one end of a roller, I' , the upper surface of which projects a short distance above the surface of the platform A , the roller I' being at right angles with the sides of the platform A .

$J' J'$ are screw-rods, which pass vertically through the lower part of the head C at its front part and serve to keep the work in proper position. The link f has a strap, f' , attached to its upper end, said strap being connected to a shaft, g' , having a ratchet, h' , at one end, into which a pawl, i' , catches. By turning shaft g' the link f' may be more or less elevated, as occasion may require. (See more particularly Fig. 1.)

K' is an adjustable gage, which is placed on the platform A parallel with its sides. This gage may be constructed and arranged in the usual way, and therefore does not require a minute description.

L' is an arbor, which is placed in suitable bearings, j' , at the bottom of head C . The arbor L' has a horizontal position, and a pulley, M' , on its outer end, and said arbor is allowed to slide freely in its bearings j' .

The operation of the machine is as follows: When the implement is used as a boring device, the gage K' is removed from the platform A , and the saw is detached from the slides $P Q$, the belt or band W being cast off from the pulleys $U X$, and a belt or band, A^x , put on the pulley U and pulley M' of arbor L' . By turning shaft T it will be seen that the arbor L' will be rotated, and articles may be bored by placing drills or bits N in the outer end of the arbor, the latter being moved longitudinally by a lever, O' .

When the implement is used as a slitting de-

vice, the saw S is employed, and also the gage K' , the belt or band A^x being cast off, and the belt or band W being placed on its pulleys $U X$. A reciprocating motion is given the saw S through the medium of the rod A' , arms $k l$ of shaft B' , and link m . The spring L strains the saw S , keeping it at a proper tension, and the roller I feeds the stuff along to the saw, the roller being moved by the action of the pawl q and ratchet.

When the implement is used as a scroll-sawing machine, the saw S' is employed, the gage K' being removed.

When the implement is used as a mortising-machine, the chisel a^x is inserted in the lower end of the arbor F and the belt or bands $W A^x$ cast off from their respective pulleys, and the wire or strap F' applied to the bar D and the treadle C' . By operating the treadle C' with the foot the bar D will be vibrated and the arbor F moved up and down, the chisel a^x acting upon the work in the usual way. By adjusting the head C higher or lower saws of different lengths may be used.

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

The adjustable or sliding head C , in combination with the bar D and the spring L , connected to the saw-slides $P Q$, the saw being driven from the shaft T , substantially as described, and all arranged to operate as and the purpose set forth.

BENJAMIN ZURN.

Witnesses:

JAMES LAIRD,
G. W. REED.