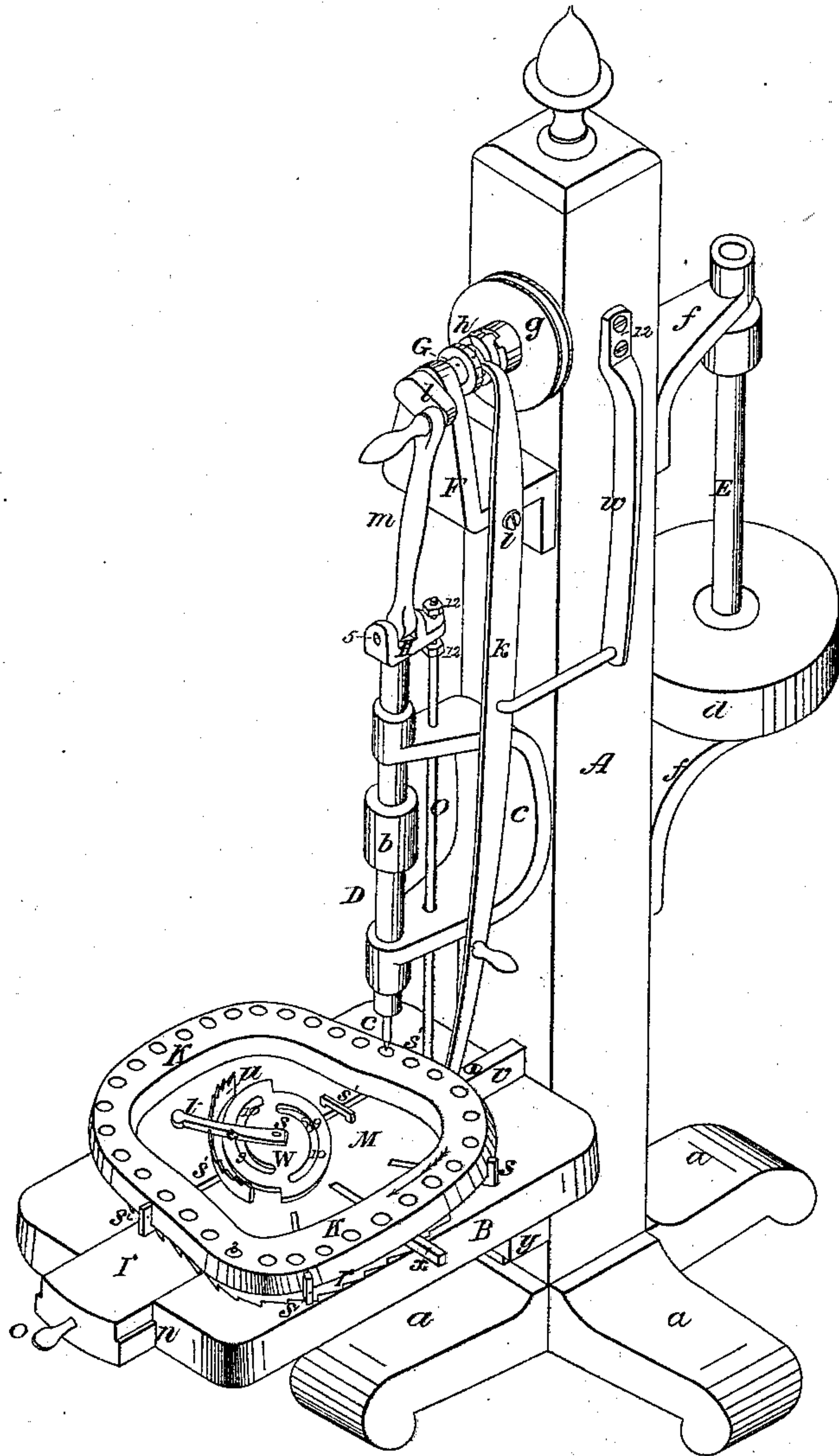


*S. L. Fitts,*  
*Boring Wood.*

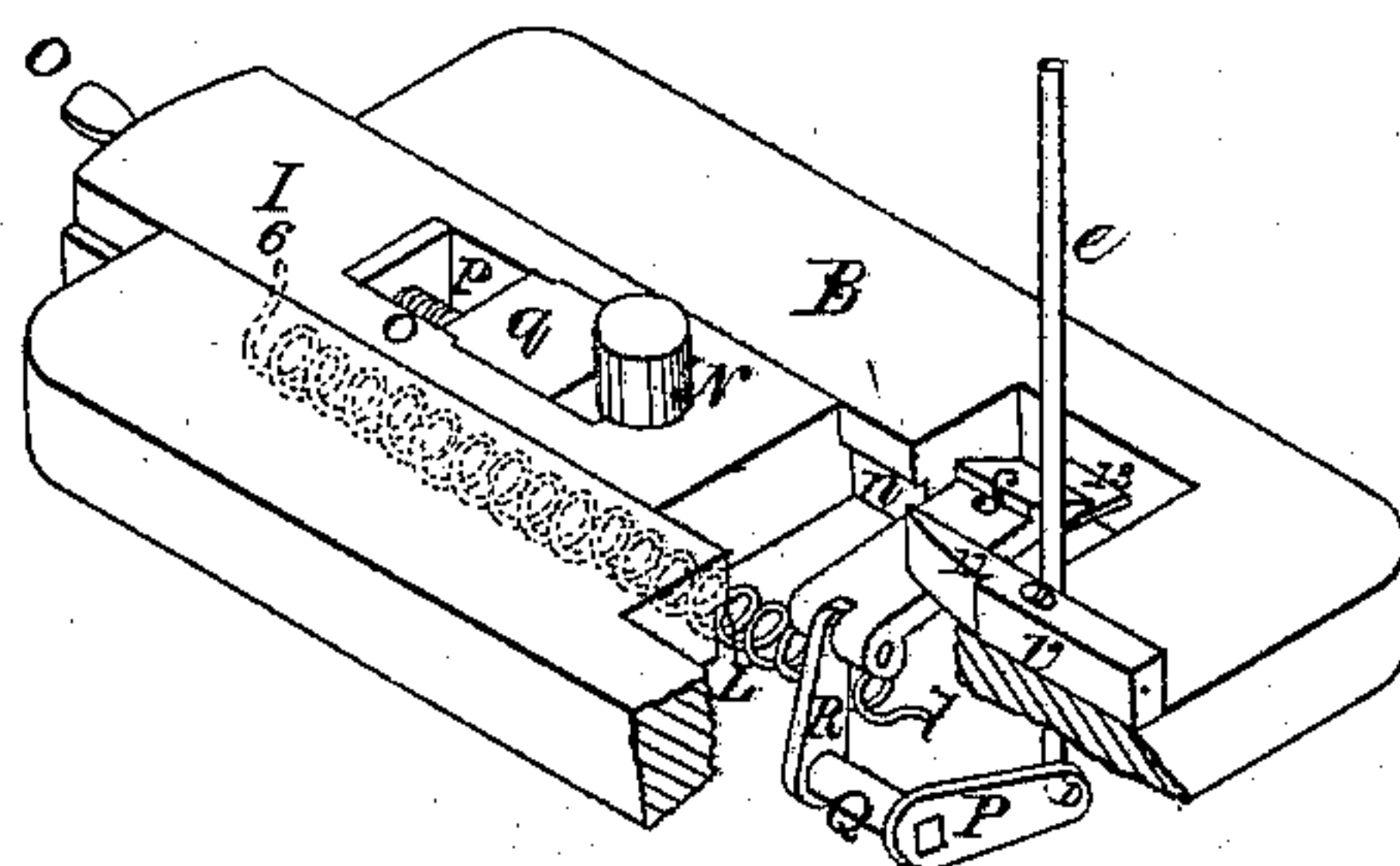
*N<sup>o</sup> 32,550.*

*Patented June 11, 1861.*

*Fig 1*



*Fig 2*



*Witnesses:*

*R. E. Feschmacker*  
*Edmund H. Haddon*

*Inventor:*

*Samuel L. Fitts*  
*by his attorney*  
*Samuel Cooper*  
*per Reach*



# UNITED STATES PATENT OFFICE.

SAMUEL L. FITTS, OF ASHBURNHAM, MASSACHUSETTS, ASSIGNOR TO C. WINCHESTER  
AND G. C. WINCHESTER.

## BORING-MACHINE.

Specification of Letters Patent No. 32,550, dated June 11, 1861.

*To all whom it may concern:*

Be it known that I, SAMUEL L. FITTS, of Ashburnham, in the county of Worcester and State of Massachusetts, have invented an  
5 Improved Machine for Boring a Series of Holes Around the Seats of Cane-Bottomed Chairs, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of  
10 this specification, in which—

Figure 1 is a view of the machine, with a chair bottom secured to the feeding table. Fig. 2 a view of the table a portion of which is broken away to show the parts beneath.

15 Cane bottom chairs have a series of small holes bored at regular intervals around the wooden frame of the seat, to receive the canes; boring these holes by hand is a tedious operation, and from the irregular shape  
20 of the seat, it requires a peculiar arrangement of mechanism to clamp and feed the seat at proper intervals beneath a drill driven by power to bore the holes at equal distances apart around the seat near its edge.

25 My present invention consists first in construction, arrangement, and operation of an organized machine for performing this work; secondly in a peculiar clamp for holding the irregular shaped chair bottom; and thirdly  
30 in a feed arrangement for feeding the chair bottom beneath the drill at proper intervals.

In the said drawings A. is a standard supported on feet *a*. A table B. is attached to and projects from one side of the standard  
35 A. It is supported on a suitable bracket; above this is a double bracket C. which serves as bearings for a vertical shaft D. which carries a pulley *b*. and a drill or bit *c*. for boring the holes; this shaft D. is revolved  
40 rapidly by a belt (not shown in the drawings) from a pulley *d*. on a shaft E. supported in the brackets *f*. at the back of the standard A. This shaft is driven by any convenient power. The shaft D. is raised and lowered  
45 in the following manner: A bracket F. attached to the side of the standard A. serves as one of the bearings for a short horizontal shaft G. the other bearing of the shaft being in the standard A. This shaft carries  
50 a loose pulley *g*. to be driven by any convenient power, and a clutch *h*. attached to the shaft and operated by a shipping lever *k*. pivoted at *i*. to the bracket F. A crank *l*. on the end of the shaft G. is connected by  
55 a rod *m*. to a block H. to which this rod is

pivoted at 5. and in which the head of the shaft D. revolves freely although it is connected by an enlarged head or rivet to the block; thus each revolution of the shaft G. raises and lowers the shaft D.

I will now describe the manner in which the chair bottom K. is clamped and fed.

The table B. has in it a sliding carriage I. which runs in dovetail grooves *n*. and is held up toward the standard A. by a spring  
60 L. fastened at 6. to the carriage I. and at 7. to the table B. The carriage I. has a slot *p*. in the middle of it, in which slides a block *q*. moved by a set screw *o*. A revolving carriage M. is secured to the top of a short shaft  
70 N. Fig. 2; this shaft has its bearings half in the sliding carriage I, and half in the block *q*. and has on its lower end a head or collar which prevents it from rising after the block *q*. has been set up against it by the screw *o*.  
75 The revolving carriage M. which is of a form nearly corresponding with the chair bottom K. has a ratchet *r*. attached to its under side, and hooks or clamps *s*. let into its top side. Two of these clamps *s*. are  
80 made permanent, and two others *s'*. slide in and out in grooves cut on the top of the carriage, and are drawn up to clasp and hold the chair bottom K. by a cam W. This cam  
85 is pivoted in the center of the carriage at 8. and is revolved by a handle *t*. which is retained when set by a curved ratchet *u*. on the top of the carriage, a pin 9. on the end of each clamp *s'*. enters an eccentric  
90 curved slot 10. in the cam W. As the cam is revolved these clamps *s'*. are drawn in, or thrust out. As the spring L. bears the carriage M. toward the standard A. the face of the ratchet *r*. bears against a stop *v*. Fig.  
95 2, attached to the table B.; this stop also has a shoulder 11. over which the lower end of the shipping lever *k*. is caught. A spring *w*. secured at 12. to the standard A. retracts this lever and unships the clutch *h*. from the  
100 pulley *g*. when the carriage M. has made a complete revolution, and a bar *x*. attached to the carriage strikes the lever *k*. and throws it out from the shoulder 11 of the stop *v*. A rod O. is attached by adjustable nuts at  
105 12. to the block H. and at its lower end is pivoted to an arm P. attached to a short shaft Q. hung in a block *y*. pendent from the lower side of the table B.; another arm R. is attached to this same shaft to which is pivoted a dog S. which engages with the ratchet  
110



*r.* and is held up to it by a spring 13. attached to the table B.

The following is the operation of the above described machine: The chair bottom K. is clamped to the revolving carriage M., the shaft D. is revolved rapidly by a belt as described, the lever *h.* is thrown over till it catches on the shoulder 11. of the stop *v.* This clutches the shaft G. to the pulley *g.* which is being revolved by a band from some driving power; the revolution of the shaft G. raises and lowers the shaft D. and its drill *c.* As the shaft D. is raised the rod O. vibrates the short shaft Q. and causes the dog S. to feed the ratchet *r.* one notch ready for the next descent of the drill. The holes 3. are thus bored at regular intervals around the edge of the chair bottom K. in an accurate and expeditious manner; when the carriage M. has made a complete revolution in the direction of its arrow, the bar *x.* attached to it strikes the foot of the lever *h.* and knocks it off from the shoulder 11. of the stop *v.* When the spring *w.* draws it toward the standard A. and throws the clutch *h.* off from the pulley *g.* and the operation of boring ceases although the shaft D. may continue to be revolved.

I have described the above machine as used

for boring chair bottoms, but it is evident that it may be used for boring holes around the edge of any other shaped article, the form of the carriage M. and its ratchet *r.* being made to accord with the form of the article; and the distance of the teeth of the ratchet apart and the throw of the dog S. being made to correspond with the required distance apart of the holes 3. The throw of the dog S. is varied by altering the nuts 12. which connect the rod O. with the blocks H.

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

1. The construction of an automatic machine for boring holes around the edge of an irregular shaped article when arranged and operating substantially as set forth.

2. The ratchet *r.*, and feed mechanism O. P. Q. R. S. in combination with the revolving boring or drill shaft D. operating substantially as described.

3. The sliding carriage I. and spring L. for holding the carriage M. up to the stop *v.* or its equivalent, operating substantially in the manner set forth.

SAMUEL L. FITTS.

Witnesses:

GEORGE W. EDDY,  
C. F. JOHNSON.