

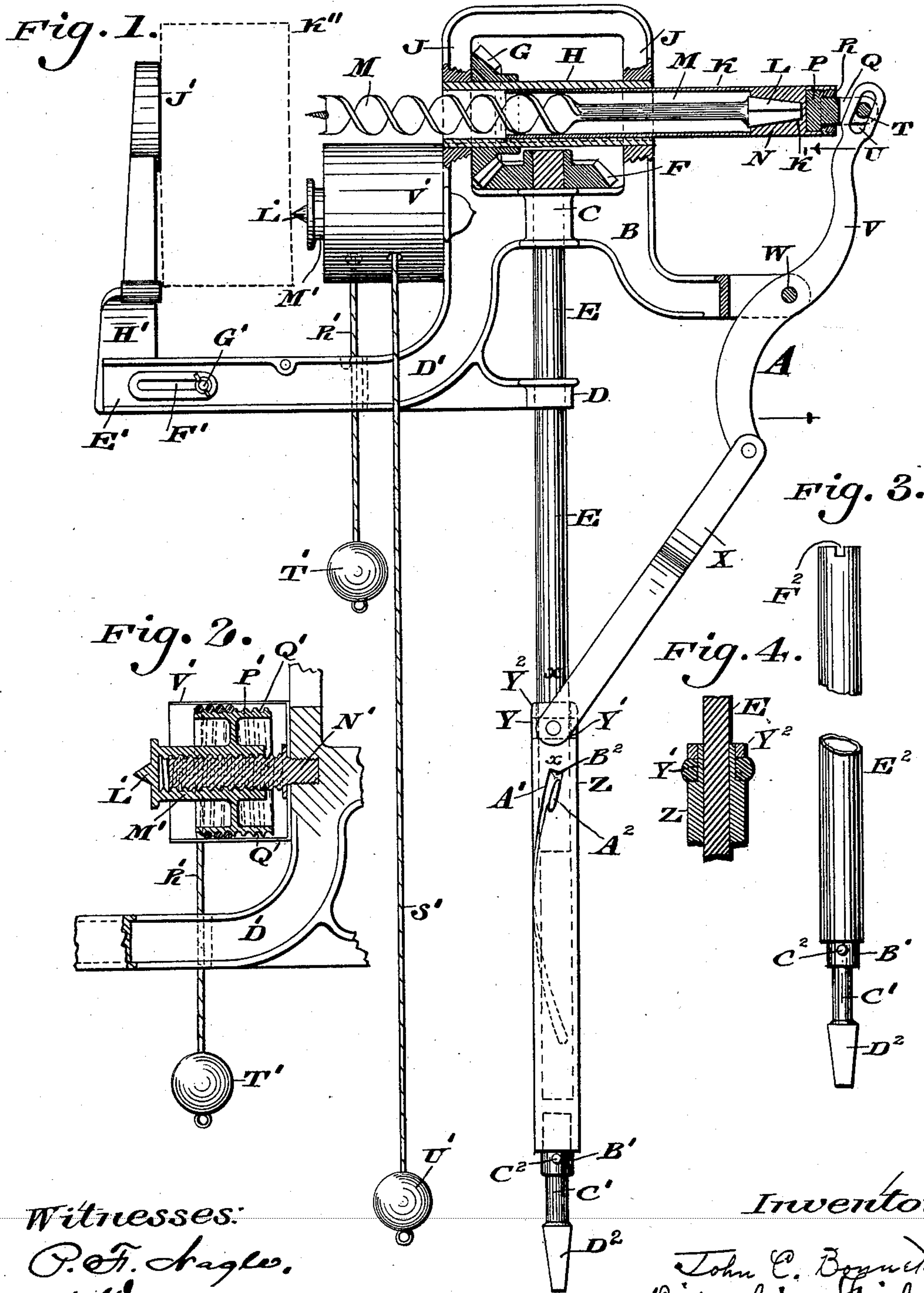
(No Model.)

J. C. BONNETT.

AUTOMATIC OVERHEAD JOIST BORING MACHINE.

No. 596,471.

Patented Jan. 4, 1898.



Witnesses:  
P. H. Nagle,  
C. H. Fairbanks.

Inventor  
John C. Bonnett  
By Wiedersheim & Fairbanks  
Attorneys.



# UNITED STATES PATENT OFFICE.

JOHN C. BONNETT, OF BROOKVILLE, PENNSYLVANIA.

## AUTOMATIC OVERHEAD JOIST-BORING MACHINE.

SPECIFICATION forming part of Letters Patent No. 596,471, dated January 4, 1898.

Application filed April 15, 1897. Serial No. 632,262. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN C. BONNETT, a citizen of the United States, residing at Brookville, in the county of Jefferson, State of Pennsylvania, have invented a new and useful Improvement in Automatic Overhead Joist-Boring Machines, which improvement is fully set forth in the following specification and accompanying drawings.

My invention consists of an improved construction of automatic overhead joist-boring machines, which is especially adapted for the use of electric wiremen, provision being made for adjusting the machine to work upon any size of joist and at any distance from the floor.

It further consists of novel means for securing the machine to the joist, whereby the former is held in position during the boring of the latter.

It further consists of novel details of construction, all as will be hereinafter set forth, and fully pointed out in the claims.

Figure 1 represents a side elevation, partly in section, of an overhead joist-boring machine embodying my invention. Fig. 2 represents a detached view showing in section a portion of the supporting means for holding the machine in the desired position relative to the joist during the act of boring the latter. Fig. 3 represents a side elevation of an extension-piece which may be employed. Fig. 4 represents a section on line *xx*, Fig. 1.

Similar letters of reference indicate corresponding parts in the figures.

Referring to the drawings, A designates a joist-boring machine, the same consisting of a suitable frame B, which has the bearings C D, in which the shaft or spindle E is rotatably mounted, the latter having the bevel-gear F attached thereto and adapted to mesh with the bevel-gear G, which is mounted on the sleeve H, which revolves in suitable bearings in the portions J of the frame B.

K designates a shell which is splined to the sleeve H and has one extremity N made solid and provided with a socket or seat K', which is adapted to receive the head L of the bit or auger M, the spline being shown in dotted lines.

Q designates a rod which has a head P on the extremity thereof, said head being adapted

to seat in the solid portion N of the shell K and being held in position by the nut R, as will be understood from the right-hand portion of Fig. 1, it being seen that the head P is thus swiveled in the solid portion N, which latter is therefore freely rotatable.

T designates a pin located in the extremity of the rod Q and adapted to engage the walls of the slot U, which is located at or near the extremity of the lever V, the latter being fulcrumed at W to a suitable fixed point.

X designates links, each having one end pivotally attached to the lower portion of the lever V, while its other extremity is secured to a collar Y, which latter is loosely mounted on the neck or reduced portion Y' of the sleeve Z, and is held in position by the fixed collar Y<sup>2</sup>.

Z designates a sleeve mounted on the lower extremity of the spindle E and having the spiral keyway A' therein, which is engaged by the pin or short feather A<sup>2</sup>, which normally rests in a recess B<sup>2</sup>, adjacent the upper extremity of the keyway proper.

B' designates the head of the shank C', the latter being brazed or otherwise secured to the lower portion of the sleeve Z, its lower extremity being squared for the application of a bit-brace thereto, the same construction being employed as seen in the lower portion of Fig. 3, in which E<sup>2</sup> designates an extension-tube, the same being provided with the notches or recesses F<sup>2</sup> at its upper end, which are adapted to be engaged by the pin C<sup>2</sup> in practice.

The extension-pieces can be of any convenient length, so as to be readily transported, and enough of them can be joined together for any length of ceiling, the cords for operating the supporting or clamping device being of course lengthened, as well as being attached to eyes in the handles T' U'.

E' designates an arm projecting from the portion D' of the frame B and provided with a slot F' therein, said slot having the thumb-screw G' passing therethrough, said thumb-screw being adapted to engage a suitable portion of the base H' of the arm or abutment J', which is adapted to contact with a side of the joist K''.

It will be evident that any desired adjusting device may be employed to hold the base



H' in position, and as I do not desire to be limited to any specific construction any further description or illustration of the same is deemed to be unnecessary.

5 L' designates a spur or center attached to the sleeve M', which is internally threaded and mounted upon the externally-threaded stem or stud N', so as to be rotatable relative thereto, said stud being secured to any fixed point.  
10 as, in the present instance, the frame B.

P' designates a pulley or sheave mounted on the sleeve M' and provided with the helical, spiral, or annular grooves Q', around which passes the cord or connection R', the other  
15 extremity of the latter being indicated by S', the ends of said cord having handles T' U', respectively, attached thereto.

V' designates a casing surrounding the sleeve M' and its adjuncts, said casing having  
20 openings therein for the passage of the cords or connections R' S.

The machine is first placed in position relative to the joist, as indicated in Fig. 1, the abutment J' having been adjusted by the  
25 proper manipulation of the screw G'. The center or spur L' is next advanced and forced into the joist by a pull being exerted on the proper cord or connection R', the machine being thus firmly held in position during the  
30 act of boring, and it will of course be evident that it can be readily and expeditiously adjusted, so as to perforate the joint at any desired point. The rotation of the bit or auger M is effected by rotating the shaft E, whereby  
35 the gears F G, sleeve A, and shell K are rotated, it being noted that any upward pressure on the sleeve Z will cause the loose collar Y to move upwardly, thereby moving the lever V, as indicated by the arrows at the right  
40 of Fig. 1, whereby the bit or auger M will be caused to move to the left and enter the joist. The spiral keyway A' is preferably designed so as to make one-half a revolution in four inches of the sleeve movement, it being evi-  
45 dent that when a rotary motion is applied to the sleeve Z the latter as it turns will allow the pin or feather A<sup>2</sup> to enter the spiral keyway, at which period the feeding begins, the same being effected by said feather creeping  
50 down into the spiral as the sleeve Z rotates, it being apparent that the reversing of this rotation will cause the withdrawal of the bit and the feather will again ascend, or, in other words, the sleeve will descend, thus withdrawing the bit and restoring the feather again  
55 to the recess B<sup>2</sup>, as indicated in the drawings, when the machine will be ready to be shifted into a new position.

It will be seen from the foregoing that the  
60 machine can be readily placed in position and has a readily-regulated positive feed of any desired speed. The machine is dependent only upon the joist which is being operated for its support and can be used at any  
65 height from the floor or upon any size of joist, it being noted that the feeding is done by the forward motion, and the withdrawal

of the bit or auger is effected by a reverse motion through the medium of the spiral keyway in the lower sleeve.

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

1. In an automatic overhead joist-boring machine, a frame having mechanism con- 75 nected therewith for securing it to a suitable support, a sleeve journaled in said frame, a shell splined to said sleeve and adapted to have attached thereto a tool, a rotatable spindle journaled in said frame and having a 80 bevel-gear thereon meshing with a bevel-gear on the sleeve, and mechanism connected with said spindle and said shell for advancing the latter.

2. An automatic overhead boring-machine 85 having a frame, an abutment laterally adjustable on said frame, a threaded stud on said frame, a sleeve provided with threads engaging said stud, a grooved pulley connected with said sleeve and a rope passing around said 90 pulley and provided with handles.

3. In an overhead joist-boring machine, a frame, means connected therewith for secur- ing it in a depending position to an overhead joist, a sleeve journaled in said frame, a shell 95 splined to said sleeve, a spindle mounted in said frame, meshing bevel-gearing on said sleeve and spindle, a lever pivoted to said frame, a rod swiveled to said shell and pivotally connected with one end of said lever, 100 a collar on said spindle, and a link connected with said collar and lever.

4. In an overhead joist-boring machine, a frame, a sleeve mounted therein, a shell 105 splined to said sleeve and adapted to have a tool connected therewith, a lever pivoted to said frame, a rod having one end swiveled in said shell and the other provided with pins engaging in slots in said lever, a spindle hav- ing gearing meshing with gearing on said 110 sleeve, a collar on said spindle having a spiral keyway engaged by a pin on said spindle, and a collar on a neck on said slotted collar having a link connection with said lever.

5. In an overhead joist-boring machine, a 115 frame having the sleeve H mounted therein, the shell K splined to said sleeve and having the recess K' in a solid portion thereof, the lever V pivoted to said frame, the rod Q swiveled to said shell and pivotally connected with 120 said lever, the spindle E mounted in said frame and having gearing connected therewith meshing with gearing on said sleeve H, the sleeve Z having the keyway A' engaged by the pin A<sup>2</sup> on the said spindle E, the loose 125 collar Y on the neck Y' of said sleeve Z, the fast collar Y<sup>2</sup> and the links X secured to said lever V and to said collar Y.

6. An automatic overhead joist-boring ma- 130 chine consisting of a frame, mechanism connected with said frame for securing it to an overhead joist, a shell adapted to carry a boring-tool mounted in said frame, a spindle with connected sleeve, mechanism connected with



said sleeve and spindle for rotating the same in unison, and mechanism connected with said sleeve and shell for moving the latter in longitudinal direction.

- 5 7. An automatic overhead joist-boring machine having a frame with a tool-carrying device and a spindle mounted therein, mechanism connected with said device and spindle for rotating the same in unison, and mechanism  
10 connected with said tool-carrying device

and spindle for moving said tool-carrying device longitudinally during the rotation of the same, said latter mechanism including an extensible sleeve adapted to have connected therewith a bit.

JOHN C. BONNETT.

Witnesses:

JOHN MILLS,  
H. H. BROSIUS.