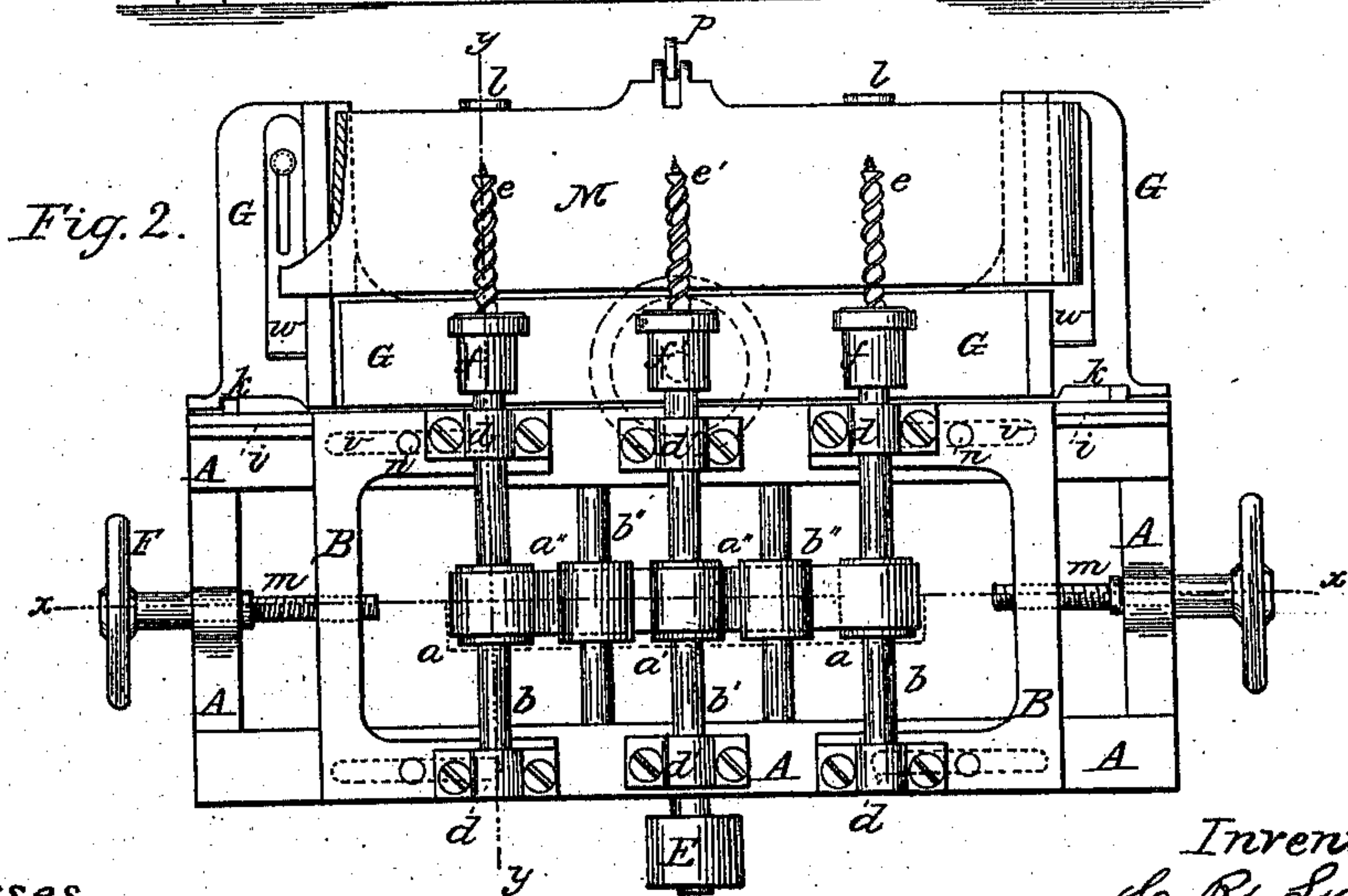
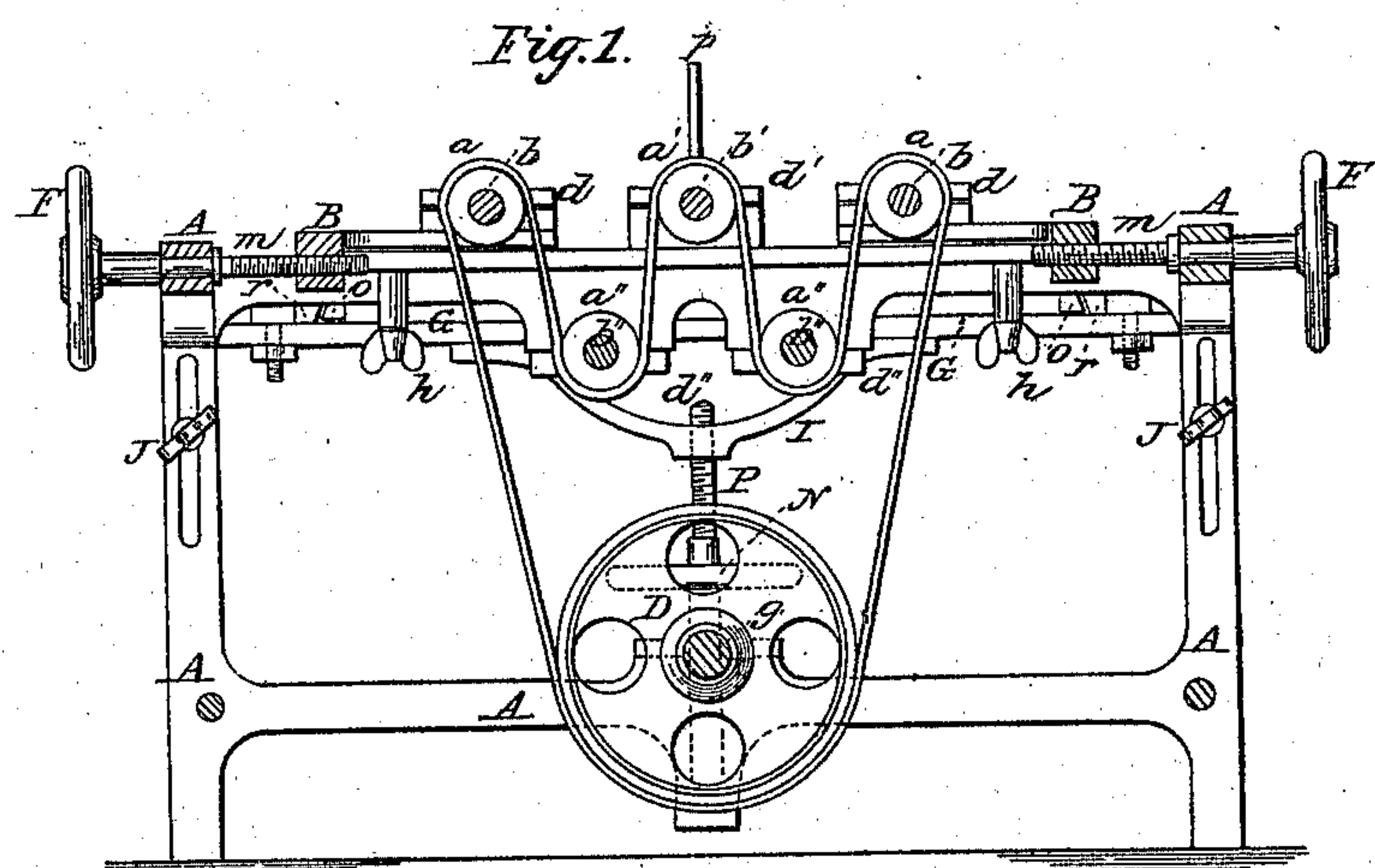


C. R. LONG.  
BORING MACHINE.

No. 81,655.

Patented Sept. 1, 1868.



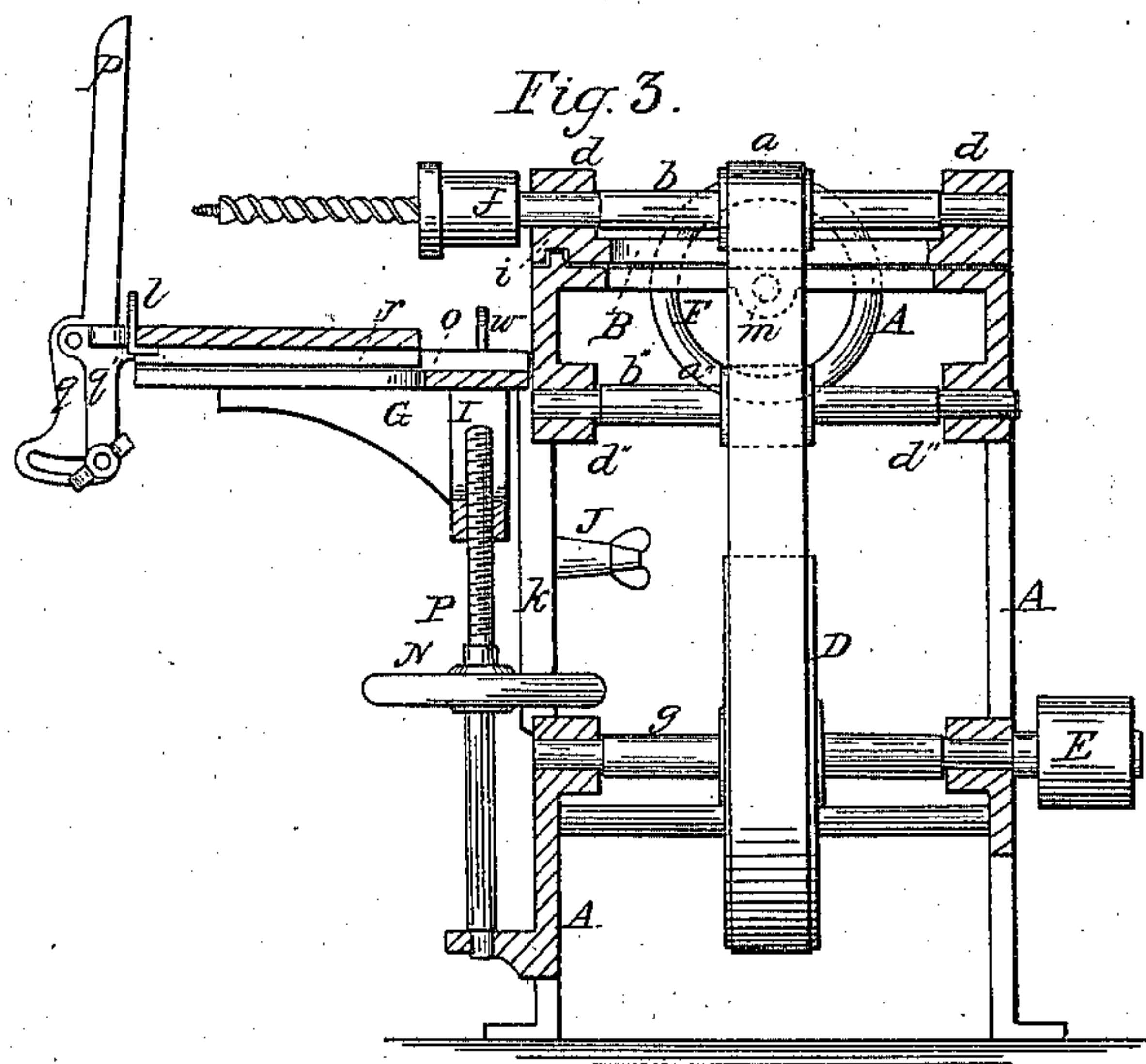
Witnesses.  
H. B. Ashkettle  
J. A. Morgan

Inventor:  
C. R. Long  
per Munnell  
Attorneys

C. R. LONG.  
BORING MACHINE.

No. 81,655.

Patented Sept. 1, 1868.



Witnesses.  
H. C. Ash Kettle  
Wm A. Morgan

Inventor.  
C. R. Long  
per Munniffo  
attorneys



# United States Patent Office.

CHARLES R. LONG, OF LOUISVILLE, KENTUCKY.

Letters Patent No. 81,655, dated September 1, 1868.

## IMPROVEMENT IN BORING-MACHINE.

The Schedule referred to in these Letters Patent and making part of the same.

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, CHARLES R. LONG, of Louisville, in the county of Jefferson, and State of Kentucky, have invented a new and improved Boring-Machine; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

Figure 1 is a transverse vertical section of my machine, through the line *x x*, fig. 2.

Figure 2 is a plan view of the machine.

Figure 3 is a cross-section through the line *y y*, fig. 2.

Similar letters of reference indicate corresponding parts.

This invention is designed more particularly for boring chair-stuff, but is applicable for other purposes, where several holes are to be bored at one operation.

It consists of the mechanism now to be described, by reference to the drawings, in which the general frame of the machine is shown at A. The three pulleys, *a a' a*, are mounted on shafts, *b b' b*, which have bearings in journals *d d' d*, as shown. The journals *d'* are rigidly affixed to the top of the frame A, as shown; but the journals *d d* are affixed firmly to movable beds, B B, as shown, the said beds sliding on the top of the frame A, and guided by a raised bead or rib, *i*, on which the beds B fit with finished contact of a groove in its under side. Adjusting-screws *m*, having bearings in the frame, as shown, work each in a hollow thread formed in the end of its respective bed B, as shown, and serve to adjust the lateral bits or augers *e* to or from the middle bit *e'*, by moving the said beds to or fro on the top of the frame A of the machine. These screws are turned by means of the wheels F keyed on them. The bits are held in sockets, *f f' f*, affixed to or forming part of the pulley-shaft *b b' b* respectively.

Counter-pulleys *a'' a''* are mounted on countershafts *b'' b''*, having bearings *d'' d''* in the under part of the top of the frame, as shown. These pulleys are located under the space between the upper pulleys, as shown, and are for the purpose of obtaining the rotation of the upper pulleys in the same direction, and in a simple and effective manner, and also to enable the lateral pulleys *a a* with their bits *e e*, to be adjusted to or fro within any reasonable limit, without materially tightening or loosening the belt, which passes in contact with all the pulleys, including the large pulley, D, located on a shaft, *g*, which has bearings in the lower middle part of the frame A, as shown.

The shaft *g* of the lower pulley projects beyond the frame, as shown, and upon the said projecting part is keyed a pulley, E, by which a belt from the power drives the machine.

The beds B are clamped firmly at any point of their travel by clamp-screws *h*, as shown, which are hollow screws working upon screws *n*, projecting from the beds downward, through slots in the beds, as shown at *v*.

On the front of the frame A are two guides, *k*, on which the apron-frame G works, by means of grooves, as shown. This apron-frame is raised or lowered by the wheel and screw N and P respectively, the latter working in a hollow thread in the yoke I, affixed to the apron-frame G, as shown.

Clamp-screws, J, similar to those shown at J, work on screws passing through slots in the frame A, serving to clamp the apron-frame firmly at the desired height.

An apron, M, is provided on its under side with guides, *o*, which fit with smooth contact against the similar guides, *r*, forming part of the apron-frame G. This apron is for the purpose of holding the chair-stuff or other material to be bored, and is provided with lugs *l*, as shown, for the purpose of holding the wood firmly while the apron is moved up to the bits, for the said apron is movable to and from the bits by means of the guides *o* and *r* aforesaid. Adjustable plates, *w*, limit the forward movement of the apron. A staff, *p*, is pivoted as shown, and its lower end terminates in the slotted segmental plate *q*, whereby it may be clamped firmly to the arm, *q''*, projecting from the apron M. This device applies more particularly to the boring of certain parts of chairs, as the two front legs and the two back legs, which must be bored at a certain angle, the front legs being, as generally made, wider apart than the back legs, so that when the front legs are driven together on the front rounds,

they are rested upon the apron and against and crosswise of the staff *p*, which must be set forward or at an acute angle, the apron supporting the leg which is being bored. The holes will then be formed so as to correspond with the greater width of the front legs.

The staff must be set a corresponding distance backward, or at an obtuse angle with the apron, when the back legs are being bored. This device enables the holes to be bored with precision and uniformity, whereby the parts can be driven together without difficulty or the springing of the rounds, as is frequently the case when the holes are bored separately, as heretofore. I have had this machine in practical use for many months, and it has been proven to possess the following advantages:

First, in the manufacture of chairs, it will accomplish at least three times more work, and with more accuracy, than the boring-machines heretofore used.

Second, the work can be driven together with double the rapidity of that bored by other machines.

Third, it is adapted to all kinds of boring, where the holes are to be in line with each other, and sufficiently approximated.

Fourth, it can be attended by unskilled operators, thereby dispensing with higher-priced labor than is required by other machines.

Fifth, it is simple, cheap, and not liable to get out of order.

The number of bits may be increased by the addition of two or four more bit-shafts and pulleys, and also the corresponding counter-pulleys, without objection. If desired, the upper pulleys may not be in the same horizontal line.

I claim as new, and desire to secure by Letters Patent—

1. The arrangement of the sliding beds B B, adjusted with relation to the fixed central shaft *b'* and its pulley, from opposite ends of the frame A, by means of the screws *m*, constructed to operate as herein described, for the purpose specified.

2. The staff *p*, constructed and operating substantially as shown and described, in combination with the apron M of a boring-machine, all as and for the purpose set forth.

CHARLES R. LONG.

Witnesses:

I. N. Long,

W. C. Long.