

(No Model.)

3 Sheets—Sheet 1.

W. W. BLACK.
BORING MACHINE.

No. 570,197.

Patented Oct. 27, 1896.

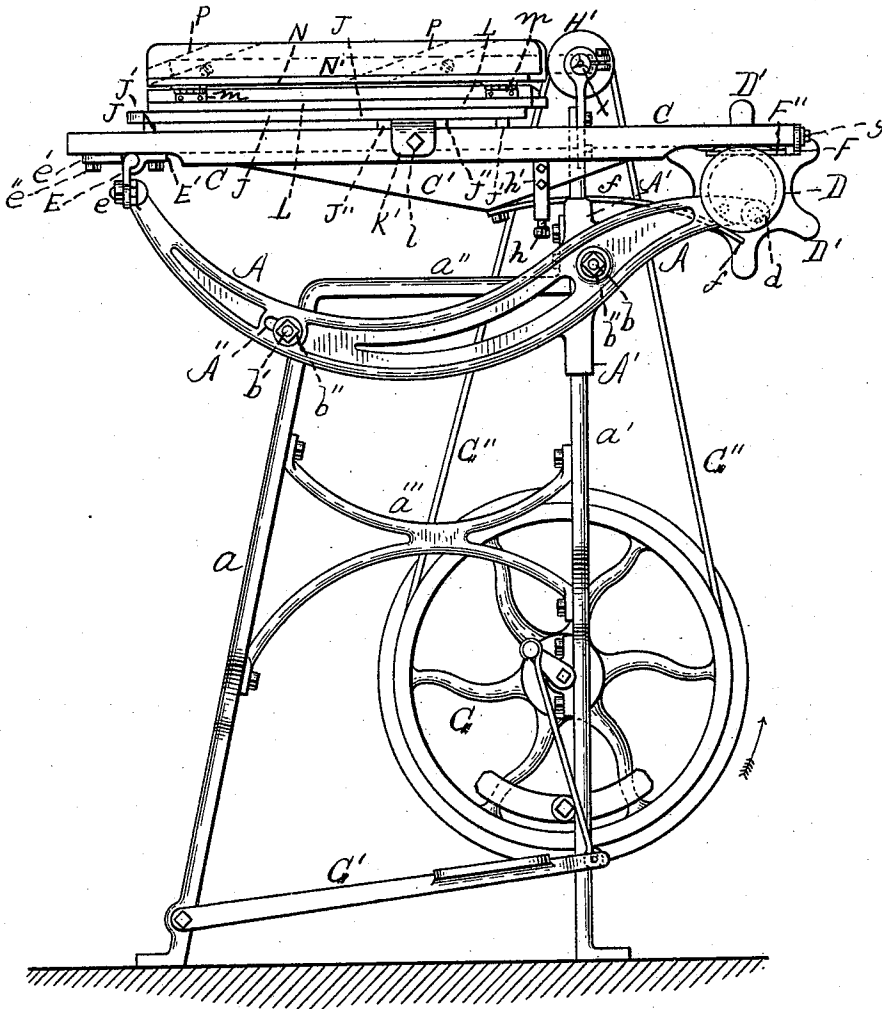


FIG. 1.

WITNESSES

A. A. Poncey.
C. G. Crawford.

INVENTOR

William W. Black,
By his Atty
Sherry Williams

(No Model.)

3 Sheets—Sheet 2.

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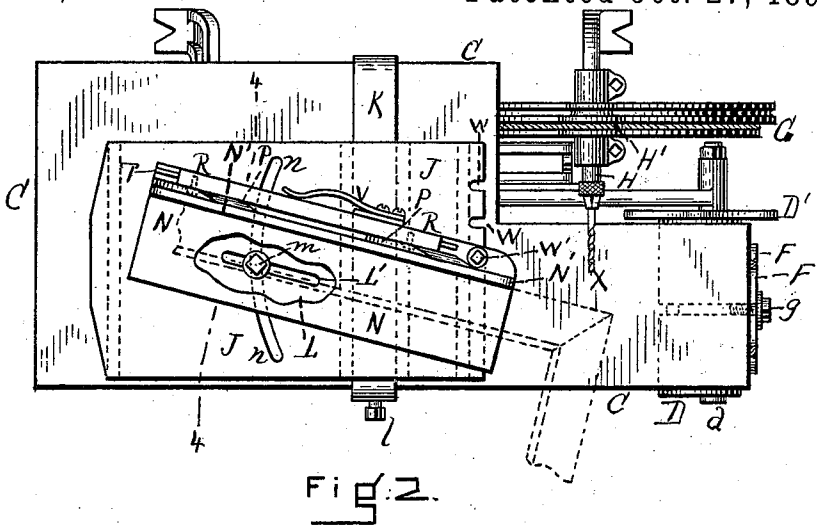


Fig. 2.

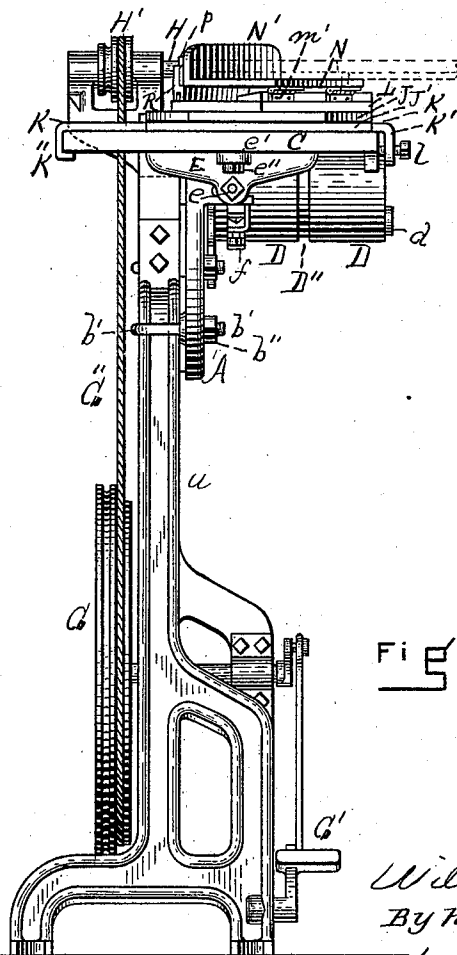


Fig. 3.

WITNESSES.

A. H. Pomeroy.

L. G. Graydon.

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(No Model.)

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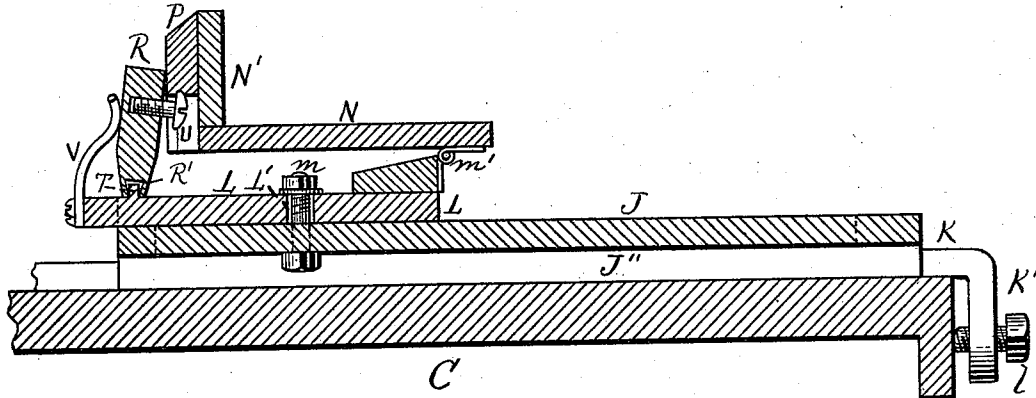


Fig. 4.

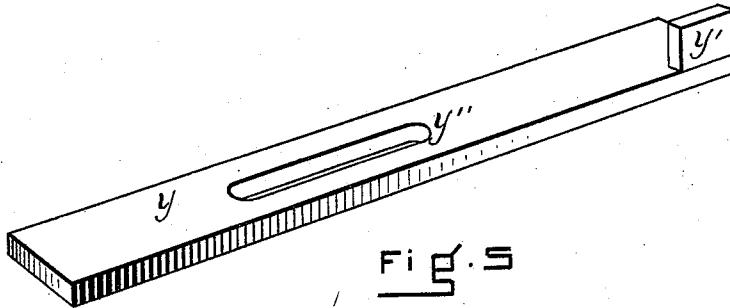


Fig. 5.

WITNESSES
A. A. Poncey
vs G. Graydon.

INVENTOR:
William W. Black
By his Atty
Henry Williams

UNITED STATES PATENT OFFICE.

WILLIAM W. BLACK, OF MELROSE, MASSACHUSETTS, ASSIGNOR OF ONE-THIRD TO J. HIRAM BLACK, OF SEARLETOWN, CANADA.

BORING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 570,197, dated October 27, 1896.

Application filed March 18, 1896. Serial No. 583,735. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. BLACK, a citizen of the United States, residing in Melrose, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Boring-Machines, of which the following is a specification.

This invention relates to improvements in boring-machines, preferably of the class which are used for boring wood, and my improved machine is particularly useful in boring the holes in the corners of picture-frames, such holes being intended for the reception of the nails or other fastening devices for securing the frame at that point.

The invention consists in the novel construction and arrangement of parts hereinafter described, whereby the operation of the machine is rendered more perfect, the frame or other article operated upon adapted to be placed at any desired angle or in any position, and in certain details of construction fully specified below, and illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of my improved machine. Fig. 2 is a plan view of the same, a small portion being represented as broken out. Fig. 3 is an end elevation. Fig. 4 is an enlarged vertical section taken on line 4, Fig. 2. Fig. 5 is a detail in perspective of a modified carrier or holder adapted for cheap work.

Similar letters of reference indicate corresponding parts.

a a' a'' a''' represent the supporting-frame, of which a' is a substantially vertical leg.

A is the table-support, and is itself supported by the frame by means of the screw-threaded hooks b b' , Figs. 1 and 3, which extend through the table-support and catch around the legs a' and a respectively. These hooks are provided with nuts b'' , and the table-support is provided with a rigid or integral slide A' , which is adapted to move vertically on the leg a' , the slide and the table-support A being held at any height by means of the said nuts b'' and hooks b b' . A suitable slot A'' is provided in the table-support for the hook b'' in order to accommodate the inclination of the leg a .

C is the table. This table is supported at

one end by resting on a roll D , rigid with which is the hand-wheel D' . A pin d extends from one end of the table-support A into a corresponding horizontal hole eccentrically located in the roll D . The other end of the table-support A is bolted at e to a plate E , which forms practically one leaf of a hinge, the other or stationary leaf E' being bolted to the under side of the table and extending under the knuckles of the leaf E . Inasmuch as these two leaves are not connected by a pintle they are held together by a button e' , which is adjustably held against the knuckle of the leaf E by the bolt e'' .

In case it is desired to raise or lower the right end of the table C , so as to change its angle, the hand-wheel D' is turned, thus operating the eccentric D , and when the angle of the table is thus changed its pivot consists of the knuckles of the leaf or plate E . The object of thus raising or lowering the right end of the table is for adjustment in quickly boring the picture-frame. A spring f extends from a bracket C' on the under side of the table C and bears on the periphery of the roll D , thus holding said roll stationary after it has been rotated into the desired position. The tension of this spring is regulated by the screw h , supported by the hanger h' , secured to the bracket C' and bearing against the under side of the spring. A plate F , Figs. 1 and 2, is horizontally slotted at F' , and thus held adjustably horizontally against the edge of the table by the screw g . From this plate a finger F'' extends horizontally inward beneath the table and into an annular groove D'' , Figs. 1 and 3. When it is desired to move the table horizontally, the screw or bolt g is loosened and the button e' loosened or turned. When the desired position has been reached, the said button and bolt are tightened and the finger F'' , extending into the groove D'' , holds said table in position.

G is the driving-wheel actuated by a suitable treadle G' and connected by a belt G'' with the pulley H' on the shaft H , supported by the frame and to which the boring-tool X is secured.

J is a sliding and adjustable bed provided on its under side with supporting strips or cleats J' J' J'' J'' , which rest on the table C .

Between the parallel strips J'' a band K extends and fits, said band being bent downward at the front end at K' and held adjustably at that point against the edge of the table by a set-screw *l*, and having its other end K'' bent downward and under the opposite edge of said table. By this means the bed J is enabled to be moved horizontally at right angles with the movement of the table C and is held in such position by the band K and set-screw *l*.

L is the base of the carrier, provided with the longitudinal slot L'. This base is connected with the bed by a pin *m*, which extends from the slot L' into the arc-shaped slot *n* in said bed. By this means the carrier can be moved on an arc with relation to the bed and can also be swung upon a center, the pin *m* acting as a pivot. To this base L is hinged at *m'* the swinging portion of the carrier, such portion consisting of the main part N and the part N', extending up from the free edge of said main portion and at right angles therewith. The work—such as a picture-frame, as indicated by broken lines S, Figs. 2 and 3—is placed upon the substantially horizontal portion N of the swinging part of the carrier and rests against the portion N', which serves as a gage. The outer side of the portion N' is provided with two inclined lifting cleats or ways P. (Indicated in full lines in Figs. 2, 3, and 4 and in broken lines in Fig. 1.) A slide R is grooved on its under edge at R', Fig. 4, to embrace a horizontal longitudinal rib T, integral with the portion L of the carrier. Screws or other suitable projections U extend from the slide R under the inclined bottoms of the ways P, said slide being held in such position by suitable springs V.

It will thus be seen that the movement and relation of the portion N of the carrier supporting the work is produced and is the effect of the following movements and adjustments: first, the vertical adjustment of the table produced by the movement of the slide A' and table-support A upon the frame *a a'*; second, the horizontal adjustment of the table rendered possible by the loosening of the bolt *g* and button *e'*; third, the vertical swing of the table produced by the eccentric-roll D; fourth, the horizontal adjustment of the bed J at right angles with the horizontal adjustment of the table by means of the clamping-strap K; fifth, the curvilinear and pivotal adjustments of the carrier by means of the pin *m* and slots L' *n*; sixth, the swinging adjustment of the carrier on a vertical plane which is at right angles to the plane of the swinging adjustment of the table by means of the inclined ways P and lifting-slide R. Notches W are found at suitable intervals in the forward edge of the bed J, and a suitable screw or bolt W' extends from the portion L of the carrier into any one of said notches. By tightening said screw or bolt W' and the

bolt or screw *m* the carrier is held firmly in the desired position with relation to the bed.

The work can be fed up to the tool by sliding the bed J on the guiding-strap K.

For cheap work the carrier may be replaced by the simple construction illustrated in Fig. 5, in which Y is the base, Y' the gage, and Y'' a slot adapted to be engaged by the bolt *m*.

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

1. In a machine of the character described, the combination of the frame; the table-support A provided with the slide A' whereby it is moved vertically upon the frame; the table C provided on its under side near one end, with the stationary plate or leaf E'; the swinging leaf E secured to the corresponding end of the table-support and engaged by means of its knuckle with said stationary leaf, whereby the two said leaves constitute a hinge without a pintle; the button *e'* secured to the table and adapted to hold the knuckle of the leaf E in engagement with the socket of the leaf E'; the roll D supporting the opposite end of the table and provided with the peripheral groove E'', said roll being connected with the corresponding end of the table-support by the eccentric-pin *d*; and the horizontally-adjustable plate F secured to the table and provided with a finger which extends into said groove; whereby said table is swung vertically and adapted to be moved and adjusted horizontally, substantially as described.

2. In a machine of the character described, in combination, the table C; the bed J provided on its under side with the cleats or guide-strips J''; the guiding-band K secured to said table and extending between said guide-strips, said bed being provided with the curved slot *n* and the notches W; the carrier L provided with the longitudinal slot L'; a bolt extending from said carrier to said bed by means of the said longitudinal and curved slots; and a bolt extending from the carrier into one of the notches in the bed, substantially as set forth.

3. In a machine of the character described, the carrier, comprising the substantially horizontal base L adapted to be adjustably secured to the bed, the portion N for supporting the work, said portion being hinged at one edge to the base L, and the gage or side portion N' extending up substantially at right angles with and from the portion N; the blocks or cleats P secured to the rear side of the portion N' and with their under edges formed on an incline; and a slide moving longitudinally on the base of the carrier and engaging the under side of said blocks or cleats; whereby the hinged portion N for sustaining the work is swung up from a horizontal position by the movement of said slide, substantially as described.

4. In a machine of the character described, the carrier comprising the substantially hori-

zontal base L adjustably secured to the bed,
the portion N for supporting the work hinged
at one end to said base, and the gage or slide
portion N' extending up from the portion N;
5 the blocks or cleats P secured to the rear side
of said portion N and with their under edges
formed on an incline; the slide R engaged by
and moving longitudinally on the base L: pro-
jections U extending from said slide and en-

gaging the inclined under edges of said blocks 10
or cleats; and springs bearing against the
slides and pressing them into engagement
with said blocks or cleats, substantially as
set forth.

WILLIAM W. BLACK.

Witnesses:

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A. N. BONNEY.