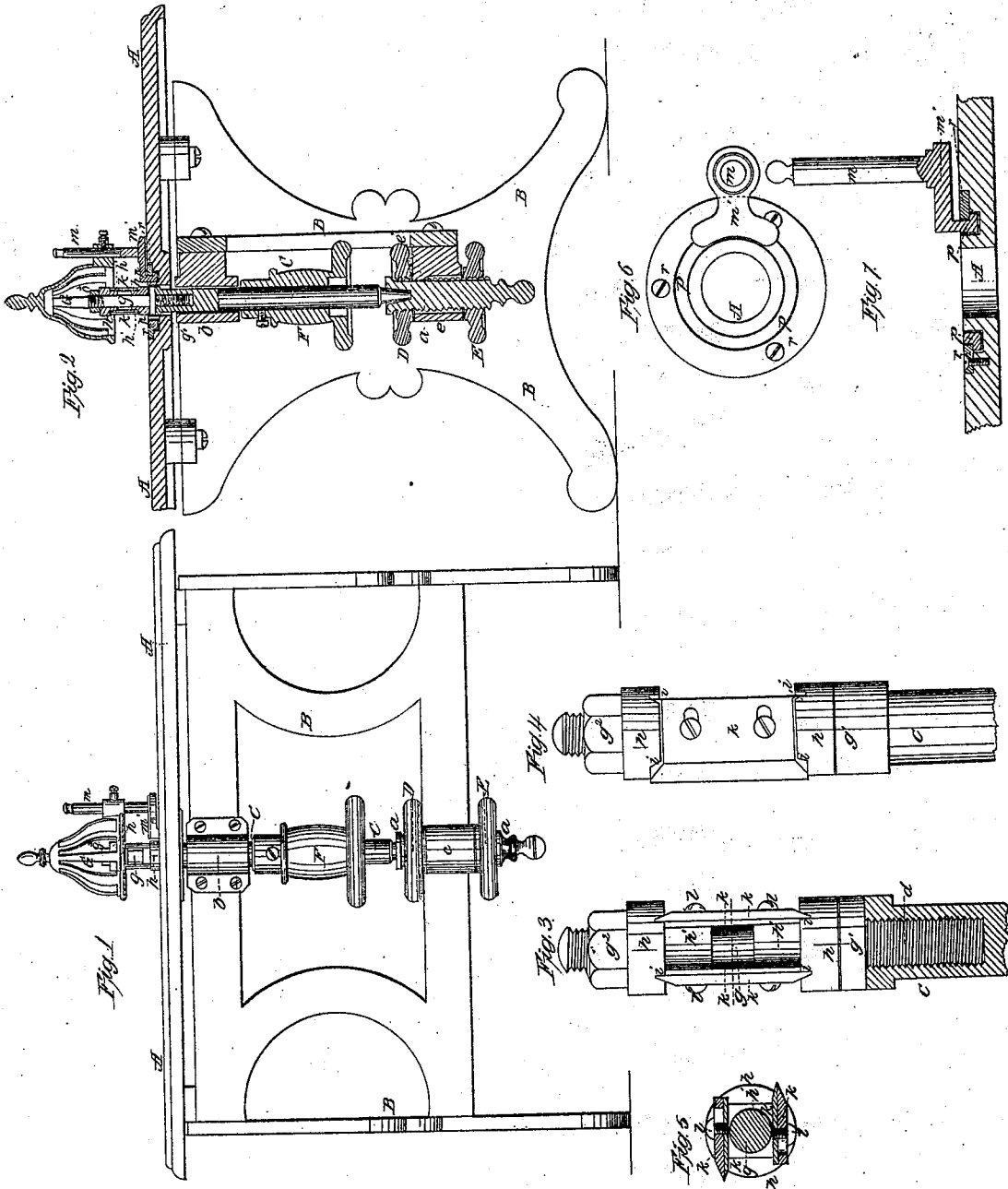


*Doane, Orton & London,
Wood Molding Machine.*

N^o 64,849.

Patented May 21, 1867.



*Witnesses
R. V. Campbell
James L. ...*

*Inventors
W. H. Doane
G. W. Orton
M. E. London
by
Messrs. Kimball & ...*

United States Patent Office.

WILLIAM H. DOANE, GERRITT V. ORTON, AND WILLIAM E. LONDON, OF
CINCINNATI, OHIO, ASSIGNORS TO J. A. FAY & CO.

Letters Patent No. 64,849, dated May 21, 1867.

IMPROVEMENT IN PLANING MACHINES.

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

TO ALL WHOM IT MAY CONCERN:

Be it known that we, WILLIAM H. DOANE, GERRITT V. ORTON, and WILLIAM E. LONDON, of Cincinnati, Hamilton county, State of Ohio, have invented a new and improved Upright Shaping, Cornering, and Moulding Machine; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a front elevation of the machine, complete.

Figure 2 is a transverse section taken in a vertical plane through the centre of the machine.

Figures 3 and 4 are views of the movable cutter-head, applied to the upper end of the spindle.

Figure 5 is a cross-section through the cutter-head.

Figures 6 and 7 are enlarged views showing the movable support for the guard-cage.

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

First, in a cutter-head formed in two parts independent of the guide-collars *g'*, so as to receive bits of various lengths, and with a rectangular extension to support the cutters and break-irons; secondly, in the use of adjustable break-irons in conjunction with moulding-cutters, which are clamped and held in place upon a stud between movable collars for the purpose of preventing the slivering of the stuff while cutting, and also for regulating the depth of cut, as will be hereinafter described; thirdly, in providing for supporting a vertically adjustable shield or guard upon the surface of the table, and near the cutters, in such manner that this shield shall not be in the way of the stuff during the action of the cutters, and in such manner as to dispense with the use of a frame overhanging for supporting such shield, as will be hereinafter described.

To enable others skilled in the art to understand our invention, we will describe its construction and operation.

The table consists of a horizontal top *A*, upon which the stuff is placed to be cut, and a frame, *B*, which supports said top and also the cutter-spindle. The spindle *C* is supported at its lower conical end upon a step, *a*, and near its upper end by means of a journal-box, *b*, which latter is secured rigidly to the frame or stand *B*. The step *a* is constructed with a male screw-thread upon it for receiving the wheels *D* and *E*, the hubs of which bear against the ends of a box, *c*, through which the screw-step *a* is allowed to move up and down loosely. The hand-wheel *D*, which rests upon the top of the box *c*, is used for raising or lowering the step and its spindle, and the hand-wheel *E* is used for securing the step and the wheel *D* rigidly in place after adjustment. The key-tenon *e'*, which projects from the box *c*, and enters a vertical groove in the screw-step *a*, as shown in fig. 2, prevents the step from turning with the wheel *D*. The wheel *E* serves as a kind of jam-nut for the step and upper wheel, and holds these parts so tight that the rotation of the spindle and jarring of the machine will not allow wheel *D* to become loose. Between the step *a* and upper bearing *b* a belt-drum, *F*, is secured to the spindle *C*, by means of which motion is communicated to the latter from any convenient motor. The upper end of the spindle *C* has a screw-hole made centrally in it for receiving a male-screw, *d*, which is formed on the lower end of the stud *g*. This allows of the use of studs or cutters of different lengths and kinds upon a single spindle, and obviates the necessity of removing the spindle when a cutter-head is to be changed. The stud *g* is constructed with a cylindrical collar or flange, *g'*, upon it, which forms the gauge against which the stuff is held during the cutting operation. On the upper end of the stud *g* a screw-thread is cut for receiving a nut, *g²*. Between this nut *g²* and the gauge-collar *g'*, two loose collars *h h*, constituting an independent cutter-head, formed in two parts, and two cutters *k k*, are confined, as shown in figs. 3 and 4. These two halves, *h*, are made alike, and have each a rectangular extension, *h'*, for lateral support of the cutters, and also two grooves, *i i*, into which the ends of the cutter-blades *k k* fit. These grooves are made slightly tapering so as to cause the tapering or slightly bevelled ends of the blades *k* to fit snugly in their places when the nut *g²* is tightly tied up. Each blade *k* has a break-iron, *k'*, secured to its inner side by means of screws *l l* which pass through oblong slots made through the blade *k*, and enter the break-iron. These caps or break-irons are also supported by being firmly clamped against the rectangular extensions *h'*. Thus the latter can be adjusted and set as may be required. These break-irons have those edges nearest the cutting-edges of blades *k k* bevelled so as to form "double heels," therefore, for breaking the chips and preventing slivering or tearing of the wood. The rectangular

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extensions h' of the collars h serve as side bearings for the cutters, and prevent lateral vibration thereof. The cutters $k k$ can be readily removed by unscrewing the nut g^2 and slipping off the upper collar h , and cutters of different sizes introduced in their places. By having both collars $h h$ removable, others of different sizes can be used in their stead without the necessity of changing the stud which receives said collars. An open-work shield, G , is arranged over the cutters to prevent injury to the hands of the workmen. This shield is connected by means of a sleeve and set-screw to a post, m , and may be raised and lowered and secured at any desired height above the surface of the table-top. The post m is secured to a horizontal bracket, m' , which is formed on a flanged ring, p , that is let into the annular recess which is formed in the table-top A , concentric to the axis of the spindle C . This ring p is held down in place by means of another ring, r , which is also recessed into the table-top, as shown in figs. 2 and 7. The upper surfaces of both rings are flush with the surface of the table-top, so as not to be in the way of the stuff which is presented to the cutters. The inner ends of the raised bracket m' are rounded, as shown in fig. 6, and constitute abutments against which the stuff impinges, so that said bracket, with its ring p , will be moved around in advance of the stuff, and will consequently not be in the way. By this arrangement a safety-shield can be supported upon the table-top without the employment of an auxiliary frame. As hitherto, the shield will always be arranged concentrically over the cutter-stud, and will protect the hands of the operator from contact with the rotary cutters. The machines are constructed with a single spindle, or with two spindles to rotate in opposite directions, to suit the nature of the work to be performed.

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

1. The combination of the adjustable break-ions $h' h'$ with the cutters $k k$, and the removable collars $h h$, all constructed and arranged in the manner and for the purpose described.
2. The application of the shield G to a post, m , which is allowed to revolve around the cutter-head, substantially as described.
3. Sustaining the safety-shield G upon the table-top A , by means which will admit of said shield being moved around the axis of the cutter-head, and also adjusted vertically, substantially as described.

W. H. DOANE,
G. V. ORTON,
W. E. LONDON.

Witnesses:
W. R. HYDE.
WM. S. KELLEY.

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