

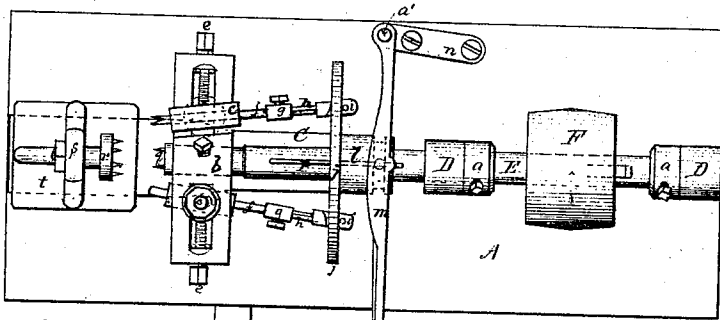
*J. I. Munroe,*

*Bung Cutter.*

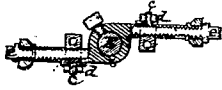
*No. 101,903.*

*Patented Apr. 12, 1870.*

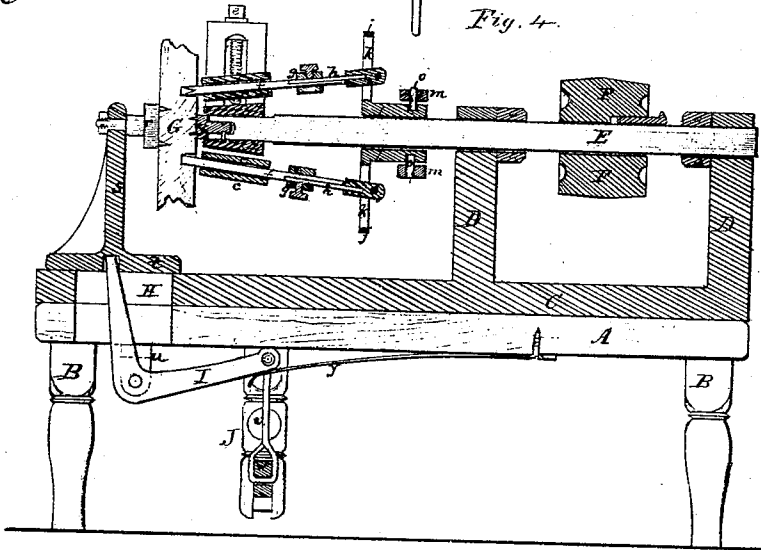
*Fig. 1.*



*Fig. 3.*



*Fig. 4.*



*Witnesses*

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*By T. W. Porter Atty*

# United States Patent Office.

JOHN I. MUNROE, OF WOBURN, MASSACHUSETTS.

Letters Patent No. 101,903, dated April 12, 1870.

## IMPROVEMENT IN BUNG-CUTTER.

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, JOHN I. MUNROE, of Woburn, in the county of Middlesex and State of Massachusetts, have invented a new and useful Bung-Cutting Machine; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to which it appertains to practice it.

This invention relates to a machine for cutting bungs of any desired size, either straight or tapering, and

The invention consists in a device for holding the stock from which the bungs are cut, and in the arrangement of parts by which the machine can be adjusted and employed to cut bungs of different sizes, and also in the device by which the cutters are brought in contact with the stock, for the purpose of cutting the same.

Figure 1 is a top or plan view of the machine;

Figure 2 is a vertical longitudinal section of the same; and

Figure 3 is a longitudinal vertical section of the cutter-head.

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

In the drawings—

A represents a table, supported by legs B B.

C is a bed-plate, having two uprights, D D, formed upon it.

E is a shaft, having its bearings in and revolving freely in uprights D. Motion is imparted to this shaft by means of a belt acting upon pulley F, keyed upon the shaft, as shown.

The collars *a a*, secured by set-screws, as shown, serve to prevent end-play of the shaft.

*b* is a head secured upon the end of shaft E by a set-screw, as shown in fig. 1. This head has two arms, in which are formed longitudinal slots, as shown.

*c c* are T-shaped bolts, through the heads of which pass the cutters *f f*, while the bolt or tail is formed square, to fit the slots in arm *b*, the portion extending through the slot being round, and threaded, as shown at *e*, fig. 3, to receive the screw-nuts *d*.

*e e* are screw-bolts, secured in the end of arm *h*, and which, by reason of their enlarged heads bearing against the ends of the arms, and a pin inserted in the bolts at the outer ends of the slots revolve in the arm without end play. These screw-bolts pass through corresponding threaded holes in the square bolt portion of T pieces *c c*, and consequently, by rotating bolts *e e*, the pieces *c c* are moved toward or from shaft E, as desired.

*j* is a thin circular flange, formed upon the hub *l*, which slides freely upon shaft E, a spline, *p*, inserted in the shaft and passing through a corresponding slot

in hub *l*, insuring the rotation of the hub with the shaft.

In flange *j* is formed two radial slots, *k*, in which slide freely the small blocks *i i*, which latter, by reason of shoulders bearing against the front side of the flange and pins upon the back side, are prevented from having end play.

The short rods *h h* are either secured in or formed as part of the heads *i*. Both the cutters *f f* and rods *h h* pass through the couplings *g g*, and are held by set-screws, as is plainly shown in figs. 1 and 2.

*m* is a lever, which passes astride hub *l*, as shown in fig. 2, the ends of the forks being pivoted upon the vertical rod *a'*, which rises from the foot *n*.

In a concentric groove formed in hub *l*, as shown in fig. 2, are fitted two short studs, *o o*, which are pivoted in the arm of lever *m*, as shown, so that, by giving to this lever a horizontal movement, the hub *l* has imparted to it a sliding movement upon shaft E.

In the front end of shaft E is inserted a short stud, *q*, which is held in place by a concentric groove and pin, as shown, or in any other suitable manner, to allow the shaft to rotate while the stud is stationary. This stud is slightly smaller than shaft E, in order that it may revolve freely in head *b*, and in its face are inserted short spurs, as shown, which enter the wood G when being cut, and serve to hold it in position.

*t* is a plate, which slides freely upon bed-plate C, being held thereto by a dovetail slide, or other suitable device.

*s* is an upright formed upon plate *t*. In this upright is secured the stud *r*, provided with spurs, as shown.

I is an angle lever, which is pivoted in the bracket *u*, secured to table A. The vertical end of this lever moves freely in slot H, and its point is inserted in a hole in the under side of plate *t*.

At the end of the horizontal arm of this lever is attached the stirrup *v*, the lower end of which is attached to treadle *w*, which is pivoted in the depending stud J. The spring *y*, bearing under the end of lever I, as shown, serves to hold it in the position shown in fig. 2, when the treadle is released. The practical use of this machine is briefly stated as follows:

The operator places the strip of board, from which bungs are to be cut, between the studs *q* and *r*, when, by actuating treadle *w*, sliding piece *s t* is moved forward until the spurs enter the wood, as shown in fig. 2, when, by drawing toward himself by his right hand, the lever *m*, the hub *l* will be forced toward the head *b*, thereby, through the agency of flange *j*, acting against the shoulders on heads *i*, forcing the cutters in contact with board G, and as these cutters, through the agency before explained are being rapidly rotated, together with shaft E and head *b*, therefore the cutters

will cut a circular groove through the board, leaving the center round and tapering, according to the converging angle of the cutters, and which is then finished for use as a bung.

When the cutters have passed through the wood, they are withdrawn by the reverse action of the lever *m*, when the treadle *w* is released and the spring *y* throws back the stud *r*, releasing the cut bung, when the strip is again placed in position and the operation repeated.

It will be apparent that, by releasing set-nuts *d*, which locks the T pieces *c*, and actuating the screw-rods *e*, the cutters *f* may be moved to any desired distance apart and exactly equidistant from shaft *E*, so as to cut any desired size of bung, and that, as the sliding pieces *T* are fitted square in the slots in head *b*, as before explained, that the angles of cutters *f*, relatively to shaft *E*, are always alike, while by the use of T pieces of varying angles, bungs of any desired angle may be cut with this machine.

By uniting the cutters *f* with the rods *h*, in the manner shown, as the cutters are worn by use they may be extended gradually, so that their points shall remain at the same distance from the flange *j*. The points of the cutters are formed in the usual manner, the one slightly longer being in the V-form for cutting

the sides of the groove, while the other acts as a plow to remove the wood.

Having thus described my invention,

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

1. The holding-device, consisting of the independent spurred stud *q*, held in revolving shaft *E*, stud *r*, reciprocating head *s*, lever *I*, connecting-rod *v*, treadle *w*, spring *y*, or their equivalent actuating devices, when arranged substantially as described and shown.

2. The cutters *f*, in combination with rods *h* and couplings *g*, whereby the cutters may be extended to compensate for wear, substantially as and for the purposes specified.

3. The combination of the slotted head *b*, sliding T pieces *c*, and cutters *f*, substantially as and for the purposes specified.

4. In combination with cutters *f*, extension-rods *h*, T pieces *c*, and head *b*, the slotted sliding flange *j* and actuating lever *m*, substantially as and for the purposes specified.

JOHN I. MUNROE.

Witnesses:

T. W. PORTER,

E. F. HALL.