2 Sheets—Sheet 1.

R. PENTLARGE.

Machine for Turning Bungs.

No. 201,285. Patented March 12, 1878.

Fig. 1.

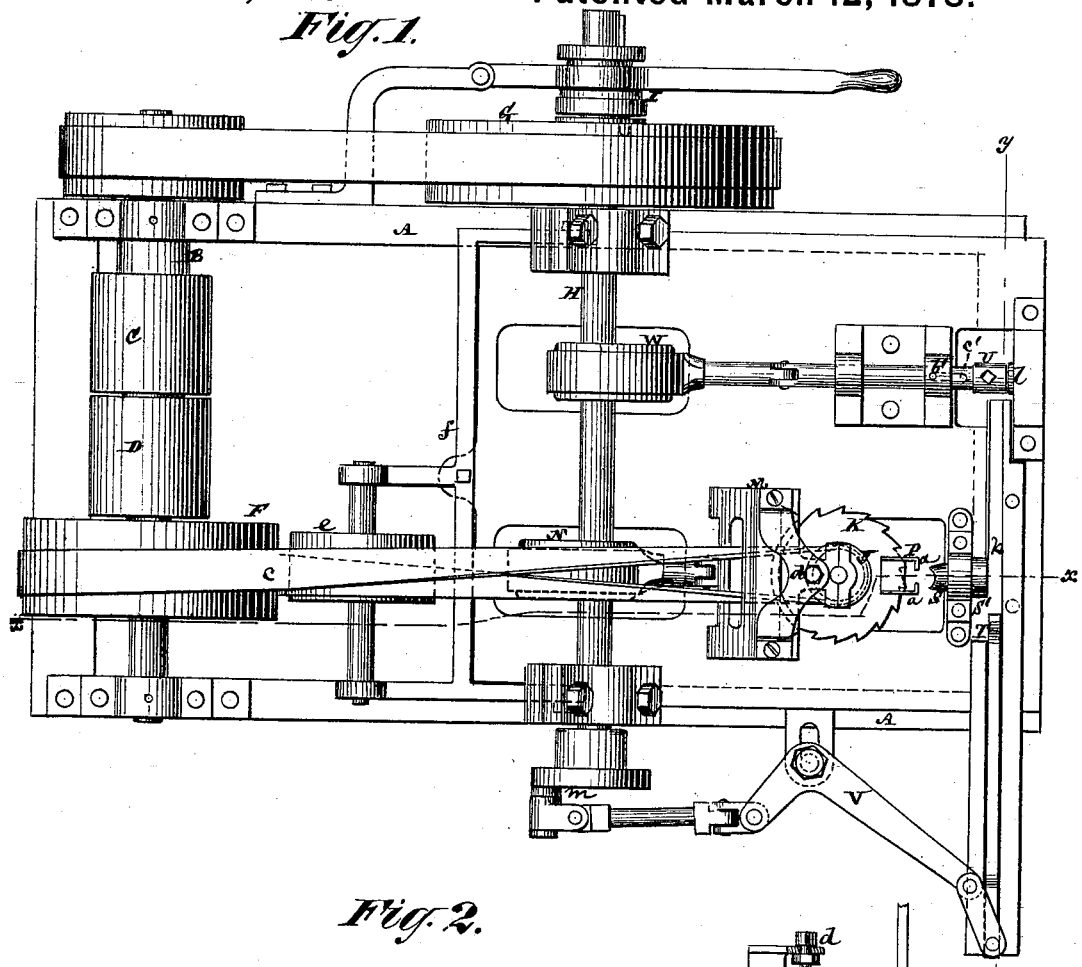
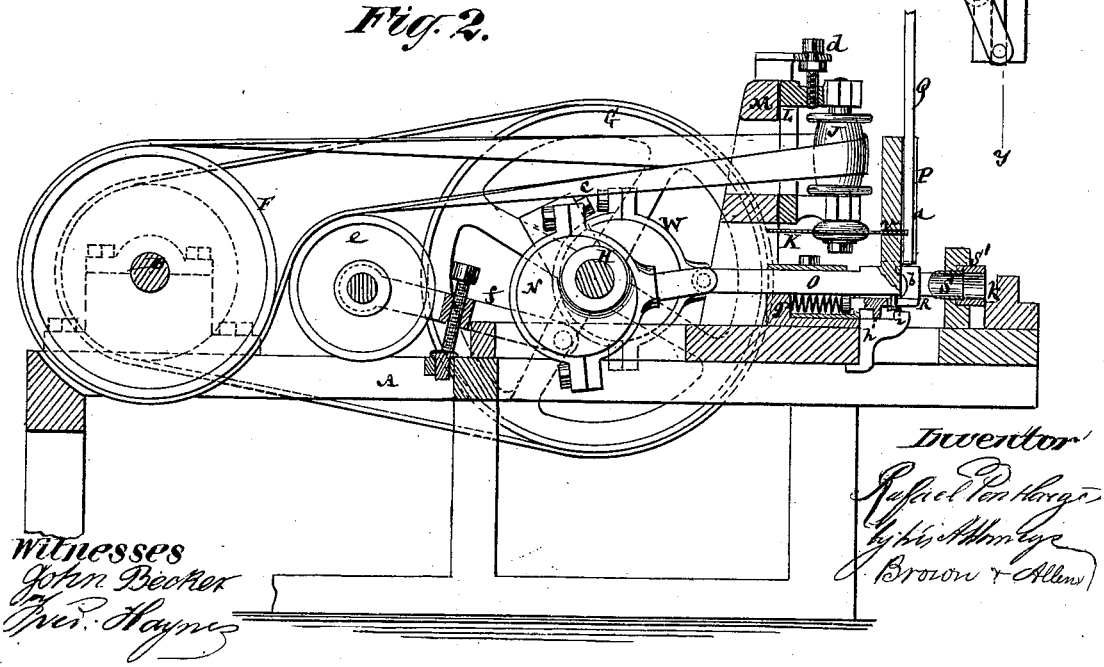


Fig. 2.



Witnesses
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Fred. Haynes

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Rufus Pentlarge
by his Attorneys
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2 Sheets—Sheet 2.

R. PENTLARGE.

Machine for Turning Bungs.

No. 201,285. **Patented March 12, 1878.**

Fig. 3.

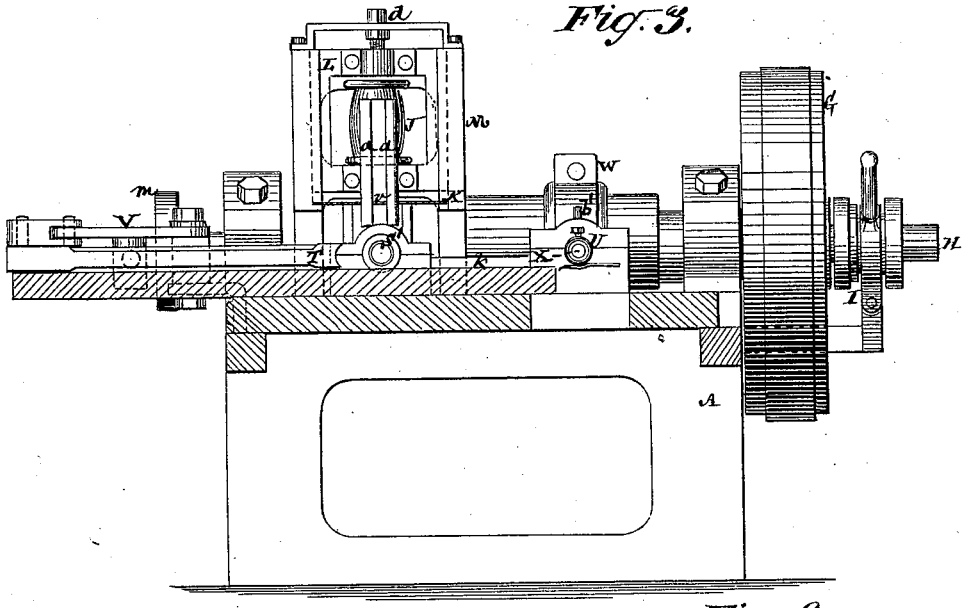


Fig. 6.

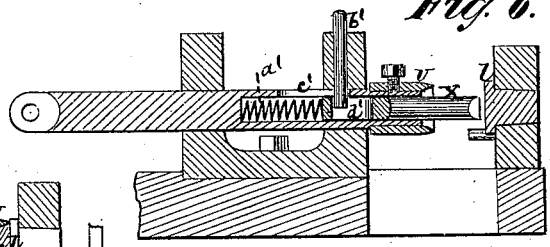


Fig. 8.

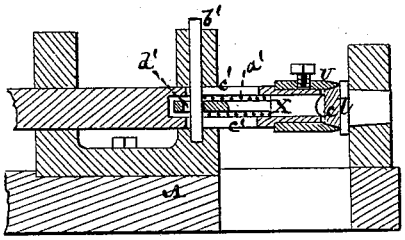


Fig. 7.

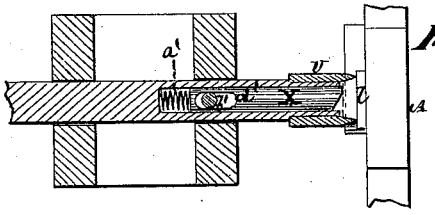


Fig. 5.

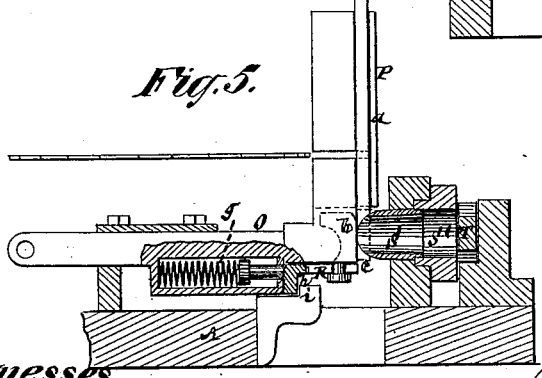
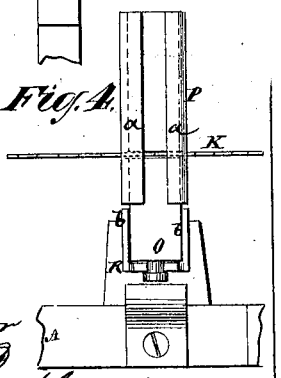


Fig. 4.



Witnesses
John Becker
Fred. Haynes

Inventor
Rufus Pentlarge
by his Attorneys
Brown & Allen

UNITED STATES PATENT OFFICE.

RAFAEL PENTLARGE, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN MACHINES FOR TURNING BUNGS.

Specification forming part of Letters Patent No. **201,285**, dated March 12, 1878; application filed December 10, 1877.

To all whom it may concern:

Be it known that I, RAFAEL PENTLARGE, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Machinery for the Manufacture of Bungs, of which the following is a description, reference being had to the accompanying drawings, forming part of this specification.

This invention more particularly relates to the manufacture of wooden bungs, which have increased solidity given them by compressing them to the required taper; but the invention is also applicable, in part, to the production of circular bung-blanks, which may be cut by any suitable means to their required taper. These circular bung-blanks are produced by first sawing off square blanks from a stick of suitable size, and afterward rounding the blanks by means of a hollow chisel.

The invention consists in various peculiar constructions and combinations of devices for severing the stick into bung-blanks; for feeding each blank, as severed, into or through a hollow chisel, which gives to said blank its required circular form, and for conveying the blank thus rounded to a tapering hollow compressor fitted with a bung holder and ejector; for holding the bung in position while it is receiving its required taper; for tapering it by compression, and for subsequently ejecting the compressed bung from the tapering compressor.

In the accompanying drawings, Figure 1 represents a plan of a machine used in carrying out the invention and embodying the same. Fig. 2 is a longitudinal vertical section of the same on the irregular line *x x*, and Fig. 3 a transverse section thereof on the line *y y*. Figs. 4, 5, 6, 7, and 8 are views upon a larger scale of certain details, Fig. 4 representing a front view, and Fig. 5 a partly-sectional side view, of certain means for holding and guiding the stick, for severing it into bung-blanks, and for forcing the latter to and through a fish-mouthed hollow chisel, Figs. 6 and 7 representing longitudinal, vertical, and horizontal sections of certain means for holding, tapering, and discharging the bung after it has been finished, and Fig. 8 a vertical longitudinal section of a modification of said means.

A is the frame of the machine, which frame may be of any suitable construction. B is a shaft, provided with fast and loose pulleys C D, for receiving motion from a suitable main or counter shaft, and with a pulley, F, which gives motion, by a belt, *c*, to a pulley, J, by which a horizontal circular saw, K, having a fixed axis, is driven. This saw, which serves to sever the stick into bung-blanks, is adjustable up or down by means of a screw, *d*, and sliding frame L within a fixed frame, M, to adapt said saw to cut different thicknesses of blanks. The belt *c* passes around a tightening-pulley or idler, *e*, carried by an adjustable swinging frame, *f*, to insure the action of the saw free from slip.

H is a shaft, which receives motion through its pulley G from a suitable main or counter shaft, and which is furnished with an eccentric, N, by which motion is communicated to a horizontally-sliding plunger, O, arranged beneath the saw in transverse relation with the latter, and carrying at its forward end an upright hollow or slotted stick holder and guide, P, which receives snugly but freely down within it a stick, Q, of an oblong form in its transverse section, corresponding with the diameter and thickness of the bungs to be produced. Said stick, being thus free to move down within the slotted stick holder and guide P, rests at its lower end, subject to the interposition of a bung-blank, upon a sliding gage, R, at the foot of the holder P, which latter has its guiding-strips *a a* cut away in front below for a distance equal to the size of a bung-blank, and the gage R is furnished with cheeks or sides *b b*, to retain the bung-blank *c* within them and on the bottom of the gage. The saw K is arranged to enter a slit, *v*, in the stick holder and guide P, when the sliding plunger O moves backward for the purpose of cutting off the bung-blanks from the stick, the saw K and slit *d* being situated at such a distance above the bottom of the gage R that, after the discharge from said gage of a preliminary bung-blank introduced on starting the machine, each succeeding cut of the saw will sever from the stick a bung-blank, which takes the place in the gage of the previously-discharged blank, and has the stick resting upon it, ready for a succeeding cut, thus keep-

ing up a continuous supply of bung-blanks severed in succession from the stick by the backward action of the sliding plunger O and its attached stick holder and guide P. The stick may be fed down its holder and guide P either by its own gravity, or by a weight or spring-presser or other feeding means applied to it above.

Each blank, in succession, is discharged from the gage R, within which it lies, by the plunger O, in its forward movement, forcing said blank onto or against a tubular fish-mouthed chisel, S, where it is left during the back stroke of said plunger, and ultimately forced by the succeeding blank in the next forward stroke of the plunger into and along the tubular chisel, the repetition of which action causes a series of blanks which have been brought into a circular form by the chisel to be delivered one at a time in rear of the chisel, or of a tubular guide, S′, at the back of the chisel. Each bung-blank, however, is produced or cut into a cylindrical form independently of the other.

To avoid the collection of chips, cuttings, or remnants in the space bounded by the bottom and sides of the gage R by the action of the tubular fish-mouthed chisel S, said gage is fitted to have an independent longitudinal sliding motion in direction of the plunger O, and is held forward by a spring, *g*, with its sides *b b* in line with the guiding-strips *a a* of the stick holder and guide P till a projection, *h*, on the gage strikes a stop, *i*, as the plunger is about completing its advance stroke, which causes the bottom and sides of the gage to retire from and leave the blank forced up to and within the chisel.

This action is repeated in regular succession for the several blanks as severed from the stick, and said blanks, as they issue one by one from the guide S′, are caught by a reciprocating bar or conveyer, T, and passed sidewise along a channel, *k*, to a position in front of a tapering hollow compressor, U, and with its larger end over or against a resistance-plate, *l*, which may have impressed on the face of it whatever inscription it may be necessary or desirable to have appear on the larger end of the bung.

The tapering hollow compressor U is arranged to reciprocate in parallel relation with the plunger O, and in inverse order with it, and the reciprocating conveyer T moves forward to carry a bung-blank in front of the tapering hollow compressor as the plunger O completes its advance stroke, and while the compressor U is retiring.

The necessary motion may be communicated to the conveyer T by means of a bell-crank, V, actuated by a crank, *m*, on the shaft H.

The hollow compressor U, which is of a tapering construction internally at its mouth, corresponding with the taper form of the bung to be produced, is reciprocated within suitable guides backward and forward relatively to the plate *l* by means of an eccentric, W, on the shaft H. Said compressor, or the hollow mandrel which carries it, is fitted internally with a longitudinally-sliding bung holder and ejector, X, the face end of which is beveled off, as shown in Fig. 7, to facilitate reception between it and the plate *l* of the bung-blank as the latter is fed by the conveyer T to a position in front of the hollow tapering compressor. This bung holder and ejector X is controlled by a spring and stop to control its functions in proper relation with the tapering compressor. Thus, as shown in Figs. 6 and 7, said holder and ejector X is urged forward by a spring, *a′*, at its back, and remains in a forward position, subject to the control of a stop, *b′*, during the greater part of the backward and forward movement of the compressor, but slightly yielding to hold and admit of the bung-blank in between it and the plate *l*, while the compressor U advances to press the blank into a taper form, after which, and as the compressor retires, the holder and ejector X operates to strip or clear the pressed bung from out of the compressor, ready for delivery through its displacement by a succeeding blank as fed forward by the conveyer T.

The stop *b′* is a simple fixed pin, which enters slots *c′ d′* in the mandrel, which carries the compressor, and in the holder and ejector X within the compressor. A similar construction is shown in Fig. 8; but instead of the spring *a′* bearing at its back against the hollow mandrel, as in Figs. 6 and 7, it bears against the stop *b′*, and the holder or ejector V is positively held by the stop *b′*, when forced in by the bung, from moving too far back, or from moving back beyond a certain distance, so that in case of the bung sticking within the compressor, it is positively discharged therefrom as the compressor moves backward, by reason of the bung holder and ejector being restrained in its back movement by the stop *b′*.

Instead of the circular saw K being arranged to run horizontally, it might be disposed to run vertically, the feeding devices being, of course, changed to correspond.

I claim—

1. The combination of a saw for cutting square bung-blanks from a stick, and a hollow chisel for cutting such blanks to a circular form, of a reciprocating stick guide or carrier, which, arranged between the said saw and cutter, by its movement in one direction, presents the stick to the saw for the sawing off of the square blanks, and by its movement in the other direction carries and presents the squared blanks to the chisel, substantially as herein described.

2. The combination of the stick guide and holder P, the reciprocating bar or plunger O, carrying the same, and a saw arranged to enter within or intersect said guide and holder during or by the reciprocating stroke of the plunger, essentially as described.

3. The spring-gage R, in combination with

the stick guide and holder P, the plunger O, and the hollow chisel S, substantially as specified.

4. The reciprocating bung-blank conveyer T, in combination with the hollow chisel S and the hollow tapering compressor U, essentially as described.

5. The combination of the bung holder and ejector X, controlled by spring and stop, with the hollow tapering compressor U and the plate or resistance-surface *l*, substantially as specified.

6. The combination of the reciprocating bung-blank conveyer T, the hollow chisel S, the plunger O, the hollow tapering compressor U, and the bung holder and ejector X, essentially as described.

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Witnesses:
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