2 Sheets—Sheet 1.

E. GÜNTHER.

MACHINE FOR TURNING BUNGS.

No. 171,511. Patented Dec. 28, 1875.

Fig: 1

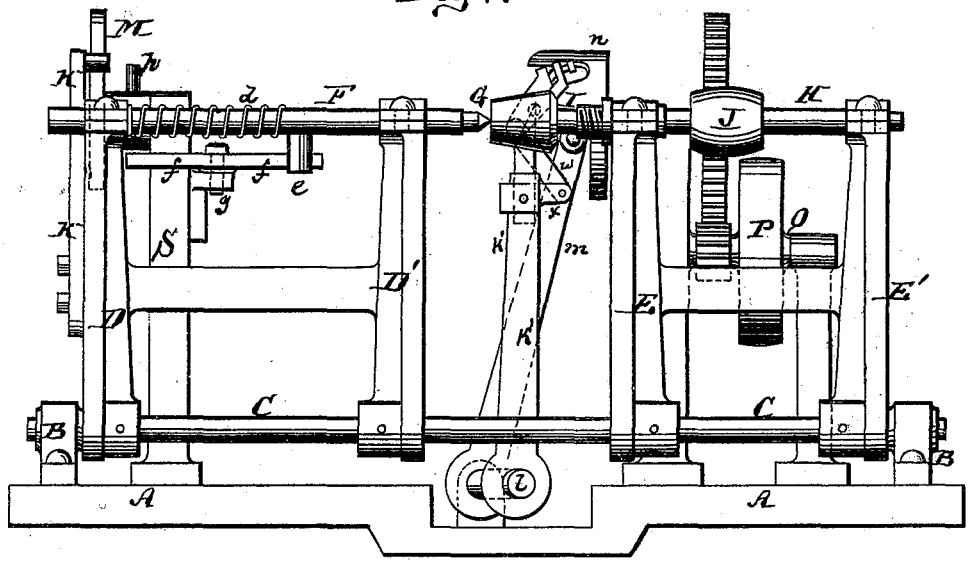
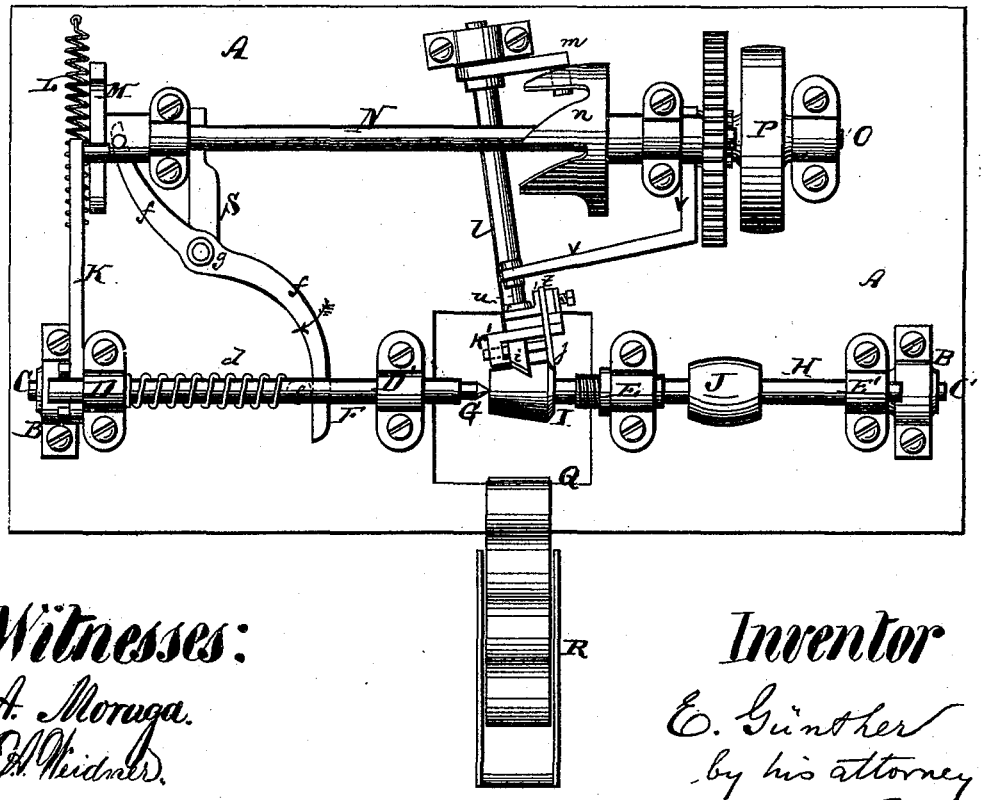


Fig: 2



Witnesses:

A. Moruga.

Ed. Weidner.

Inventor

E. Günther

by his attorney

A. v. Briesen.

E. GÜNTHER.

MACHINE FOR TURNING BUNGS.

No. 171,511. Patented Dec. 28, 1875.

Fig: 3

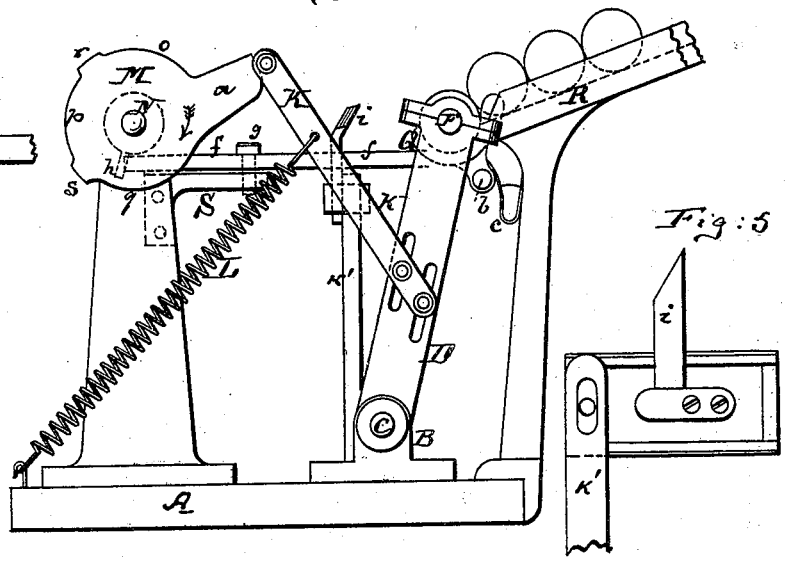


Fig: 4

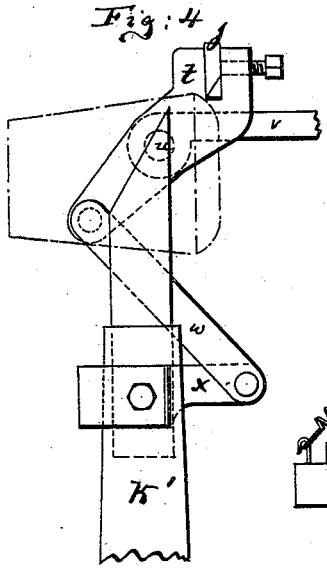


Fig: 5

Witnesses:

A. Moraga.
O. A. Wedtner.

Inventor

E. Günther
by his attorney
A. v. Briesen

UNITED STATES PATENT OFFICE.

EDWARD GÜNTHER, OF NEW YORK, N. Y.

IMPROVEMENT IN MACHINES FOR TURNING BUNGS.

Specification forming part of Letters Patent No. **171,511**, dated December 28, 1875; application filed October 28, 1875.

CASE B.

To all whom it may concern:

Be it known that I, EDWARD GÜNTHER, of the city of New York, in the county of New York and State of New York, have invented an Improvement in Machines for Turning Bungs, of which the following is a specification:

Figure 1 represents a front view of my invention. Fig. 2 is a plan or top view of the same. Fig. 3 is an end view of the same. Fig. 4 is a detached side elevation of the cutting mechanism. Fig. 5 is a side view of a modification.

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

This invention relates to a machine provided with a head and spindle stock, both of which are mounted in a rock-shaft that receives an oscillating motion by a cam and lever or other equivalent means. The cylindrical blanks for the bungs are fed to the machine over an inclined trough provided at its lower end with a curved support, serving to retain the first or lowest blank. When the head-stock and spindle-stock swing out toward the feed-trough, the center, which is fitted in the head-stock, is drawn back against the action of a spring, and at the moment said head and spindle stocks have arrived in line with the center axis of the blank the center of the lathe is released and the blank is automatically centered and fastened between the center and the trident or other device secured to the lathe-spindle. The head and spindle stocks are then moved in, and the blank is exposed to the cutting mechanism, composed principally of two knives, one of which serves to impart to the blank the requisite taper, while the other acts on the large end of the bung, and imparts to the same the desired rounded or convex form. The beveling-knife is carried over the surface of the bung three times in succession, so as to impart to the same the desired finish, and as the beveling-knife moves from the large toward the small end of the bung, the rounding-knife is carried in from the circumference toward the center of the bung.

In the drawing, the letter A designates a bed-plate from which rise two standards, B, that form the bearings for a rock-shaft, C. From this rock-shaft extend four arms, D D′ E E′, Fig. 1. The arms D D′ form the head-stock, carrying a slide, F, which contains the center G, while the arms E E′ form the stock for the spindle H, in the outer end of which is secured the trident or other equivalent device I, and which receives a rapid revolving motion by a belt passing round a pulley, J, that is mounted on said spindle. From the arm D of the head-stock D D′ extends a tappet-arm, K, (best seen in Fig. 3,) the outer end of which is drawn, by means of a spring, L, against the surface of a cam, M. This cam is mounted on the end of an arbor, N, Fig. 2, which is geared together with a shaft, O, Fig. 1, carrying a driving-pulley, P, so that said arbor N revolves slowly. The cam M is provided with a projecting nose, *a*, and as it revolves in the direction of the arrow marked on it in Fig. 3 the rock-shaft C is turned, and the head-stocks D D′ E E′ are carried in the position shown in said figure, bringing the center G and the spindle H in line with the axis of the blank, which rests in a concave support, Q.

The blanks are cut out in the form of cylinders, each of sufficient length for one bung, and they are fed to the machine over an inclined trough, R, to the discharge end of which is secured the concave support Q. This support, however, is not rigid, but it swings on a pivot, *b*, Fig. 3, and is held up by a spring, *c*, so that the same can yield when the blank has been received between the head-stocks, and when said head-stocks recede to expose the blank to the action of the knives.

The blanks are automatically centered, and secured between the two head-stocks in the following manner: Round the center slide F is wound a spring, *d*, which has a tendency to drive the center toward the spindle. From the under side of said center slide extends a stud, *e*, (see Fig. 1 and Fig. 2, in dotted lines,) and against this stud acts a lever, *f*, which has its fulcrum on a pivot, *g*, secured in a standard, S, that rises from the bed-plate. An oscillating motion is imparted to the lever *f* by a stud, *h*, secured in the hub of the cam M, or in any part which is rigidly fastened to the arbor N. As this arbor revolves

the stud *h* imparts to the lever *f* a motion in the direction of the arrow, marked near it in Fig. 2, and the center slide F is forced back against the action of its spring, and when the lever *f* is released by the stud *h* the slide F is driven in toward the spindle H. The position of the stud *h* in relation to the cam M is such that the center slide F is released by the lever *f* just at the moment when the center G and the spindle H have come into line, with the axis of the blank resting on the concave support Q, and as the slide F′ is driven inward by its spring, the center G enters the blank on one end, while the opposite end of said blank is driven into the trident or other equivalent device secured to the spindle H. As soon as the blank has thus been centered and secured between the head-stocks D D′ E E′, the nose of the cam M releases the tappet-arm K, and the head-stocks swing into the position shown in Figs. 1 and 2, thereby exposing the blank to the action of the cutting mechanism. This mechanism consists essentially of a beveling-knife, *i*, and of a rounding-knife, *j*. The beveling-knife is secured to arm K′, which rises from an oblique shaft, *l*, that has its bearings in standards rising from the bed-plate A. (See Figs. 1 and 2.) From this oblique shaft extends an arm, *m*, the upper end of which bears against a cam, *n*, mounted on the arbor N. As this cam revolves, an oscillating motion is imparted to the oblique shaft *l*, and the knife *i* is caused to sweep over the revolving blank, and to impart to the same a beveled shape.

By referring to Fig. 3 it will be seen that the surface of the cam M presents three sections, *o p q*, separated by two ridges, *r s*, and by the nose *a*, and the cam *n* is provided with three projections. (See Fig. 2.) While the end of the tappet-arm K bears on the section *o* of the cam M, the blank is roughed out, then the ridge *r* acts on the tappet-arm K, and the blank is thrown back out of contact with the knife, and at the same time the first projection of the cam *n* releases the arm *m* of the shaft *l*, and as the end of this arm drops between the first and the second projection of said cam, the knife *i* is carried back to the large end of the blank. When the ridge *r* of the cam M has passed the end of the tappet-arm K, said end drops upon the section *p* of the cam M, and since this section is somewhat lower than the section *o* the knife *i* takes a second cut, and finally a third or finishing cut is taken, while the tappet-arm K bears on the lowest section *q* of the cam M. In some cases two cuts may be sufficient to finish the bung. The tappet-arm K can be adjusted for bungs of different bevels. (See Fig. 3.) The rounding-knife *j* is secured in one end of a lever, *t*, which swings on a pivot, *u*, secured in a stationary bracket, *v*, (see Figs. 2 and 4,) and the other end of the lever *t* connects, by a rod, *w*, with a lug, *x*, projecting from the arm K′ which carries the beveling-knife *i*. (Best seen in Fig. 4.) As the beveling-knife is caused to traverse from the large toward the small end of the bung, the lever *t* is turned on its pivot, and the rounding-knife *j* is moved in toward the center of the spindle H, and since the lever *t* describes a section of a circle, the rounding-knife partakes of this motion, and the end of the bung is rounded off. The beveling-knife *i*, instead of being secured directly to the end of the arm K′, may be fastened in a slide-rest, to which a traversing motion is imparted by the arm K′, as indicated in Fig. 5.

I claim as my invention—

1. The center slide F, supported by oscillating head-stocks, in combination with an oscillating lever, *f*, and a cam, M, said parts operating in respect to the spindle H, and stock E, as described, for the purpose of automatically centering and securing the blanks to be operated upon, and to release the same when the head-stocks are in line with the axis of the blank, substantially as herein described.

2. In a machine for turning bungs, the leveler-knife *i* upon the shaft *l* operated by the cam *n*, in combination with the slide F G and spindle H supported upon head-stocks, substantially as and for the purpose specified.

3. In a machine for turning bungs, the combination of a rounding-knife, *j*, with a beveling-knife, *i*, when the same operate upon the bung-blank secured between a slide and a spindle mounted in oscillating stocks D D′ E E′, substantially as and for the purpose described.

4. The cam M, provided with the sections *o p q*, as described, in combination with the tappet-lever K and beveling-knife *i*, substantially as described.

5. The slide F, provided with a reacting spring, *d*, and with a stud, *e*, in combination with the oscillating lever *f* and the stud *h*, as herein shown, for the purpose specified.

E. GÜNTHER.

Witnesses:

ERNEST C. WEBB,

F. V. BRIESEN.