

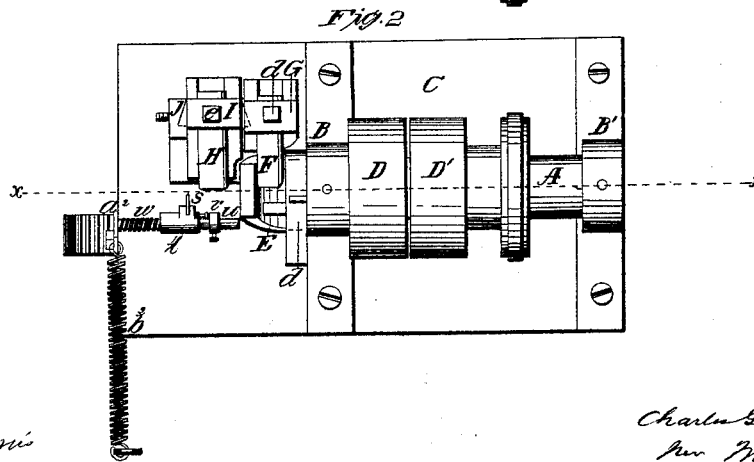
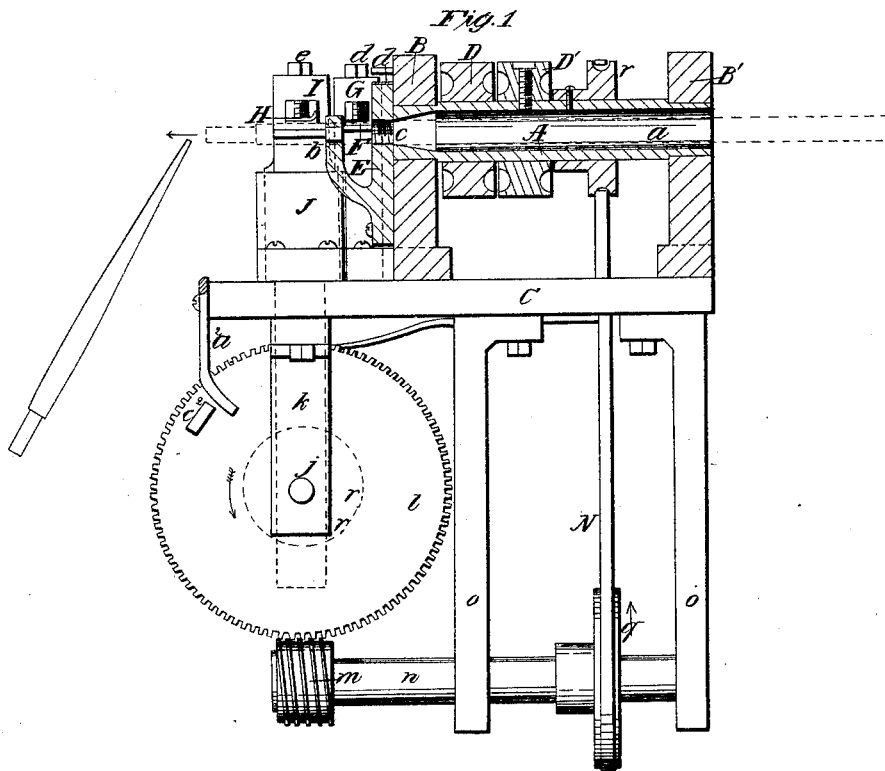
2 Sheets-Sheet 1.

C. G. Bloomer,

Gage Lathe.

N<sup>o</sup> 45,555.

Patented Dec. 20, 1864.



Witnesses:

Henry Morris  
Jas. P. Mc Namara

Inventor:

Charles Bloomer  
per *McNamara*  
att'y

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Fig. 3

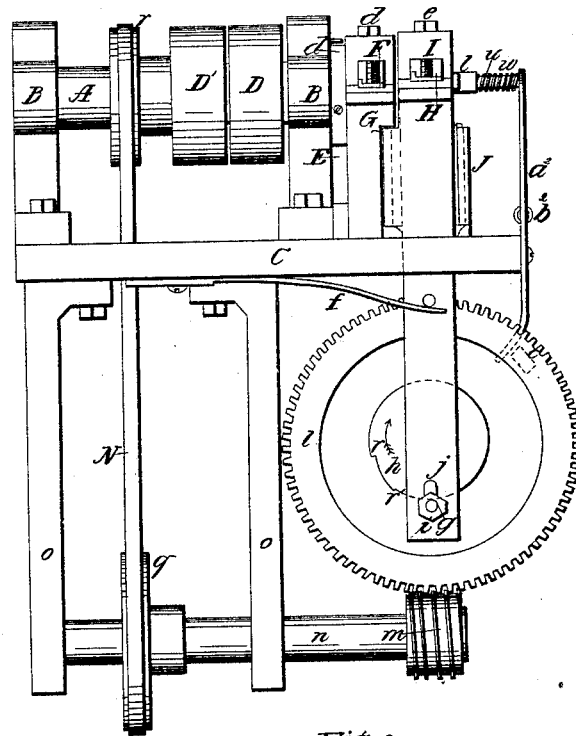


Fig. 4

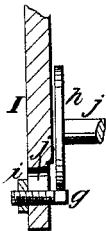


Fig. 5



Fig. 6

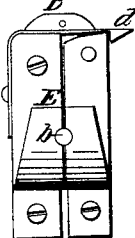


Fig. 7



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# UNITED STATES PATENT OFFICE.

CHARLES G. BLOOMER, OF WICKFORD, RHODE ISLAND, ASSIGNOR TO  
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## IMPROVEMENT IN TURNING-LATHES.

Specification forming part of Letters Patent No. 45,555, dated December 20, 1864.

*To all whom it may concern:*

Be it known that I, CHAS. G. BLOOMER, of Wickford, in the county of Washington and State of Rhode Island, have invented a new and Improved Turning-Machine; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a longitudinal vertical section of this invention taken in the plane indicated by the line *xx*, Fig. 2. Fig. 2 is a plan or top view of the same. Fig. 3 is a front elevation of the same. Figs. 4 to 7 are detached views of various parts of the machine, which will be explained in the following description.

Similar letters of reference indicate corresponding parts.

The object of this invention is an improvement in that class of machines which are intended to turn automatically conical or other articles of a regular or irregular form and of variable diameter.

The invention consists in the application for the purpose of feeding the stuff to be turned of a screw-thread cut in the guide, either in front or behind the roughing-out tool, in such a manner that the stuff, on entering the guide, will work into said screw-thread, and by its action will be fed to the tool for a distance corresponding to the pitch of the thread at each revolution which it makes, and a quick, automatic, and uniform feed is effected.

It consists, further, in the use of a forked guide, made to straddle the roughing-out tool and to swing open in such a manner that the stuff is securely guided on both sides of said tool, and by throwing the jaws of the guide open any impurities lodging in the guide-holes can be readily removed, and when the jaws are closed up on the stuff the feed-screw bites into the surfaces of the same and causes it to be fed without further attention of the operator or attendant.

It consists, further, in the employment of a rotary cam acting on the slide-rest in which the finishing-tool is secured in such a manner that by the action of said rotating cam the motions of the finishing-tool and the shape of the articles to be turned is governed; finally, in se-

curing the cutting-off tool in a sliding head, rendered yielding by the action of a spring in such a manner that said cutting-off tool is enabled to act while the stuff is continually fed along by the action of the feed-screw.

A represents a spindle which has its bearings in two head-blocks, B B', that are rigidly secured at the proper distance apart on the bed-plate C. Said spindle bears a fast and loose pulley, D D', and a suitable belt running on the fast pulley D' imparts to it the desired motion. If the motion is to be stopped, the belt is to be transferred to the loose pulley.

The spindle A is perforated in a longitudinal direction with a round hole, *a*, large enough to let the stuff to be turned pass freely; but the end of said hole next to the cutting-tools is square to fit the stuff to be turned and cause the same to turn with the spindle.

Close before the end of the spindle A, and attached to the outside of the head-block B, is the forked guide E, which straddles the roughing-out tool F. Said guide is perforated with two holes, *b c*, one to fit the stuff before and the other after it has been acted upon by the tool F. The hole *c* next to the head-block is provided with a screw thread, and as the square corners of the stuff to be turned come in contact with this thread they work into it and cause the stuff to feed itself along to the cutters. It is obvious that in order to effect this purpose the hole *c* must be small enough to allow the corners of the stuff to work into the screw-thread. If desired, however, the screw-thread may be cut in the hole *b* in the outer branch of the guide, or in both holes, to render the feed doubly secure.

The guide E is made in two halves, one of which is rigidly attached to the head-block B, while the other half is hinged and held by the action of a spring-catch, *d*, so that by releasing said spring catch it can be turned down to throw open the holes *b c*. By this arrangement the stuff may be passed into the hole with a screw-thread when the guide is open, and by closing it up the points of the threads bite in the stuff and feed the same along without fail as soon as the spindle begins to turn.

The roughing-out tool F is secured in the rest G, which is rigidly secured to the bed-plate C, and it is adjustable by means of the set-screws *d* in the usual manner.

H is the finishing-tool, which is secured in the slide-rest I by means of a set-screw, *e*, with its point a short distance from the outer edge of the hole *b* in the guide. The slide-rest I moves up and down in suitable guide-ways J, which are firmly connected to the bed-plate C, and it is subjected to the action of a spring, *f*, Fig. 3, which forces the same up until the stop *g* strikes the circumference of the cam *h*. The stop *g* is secured in the lower end of the shank of the slide-rest I by a nut, *l*, and it is adjustable in a slot, *j'*. The cam *h* is mounted on the end of a shaft, *j*, which has its bearings in hangers *k*, suspended from the under surface of the bed-plate C, as clearly shown in Figs. 1, 3, and 4 of the drawings, and the form of said cam determines the shape of the article to be turned, as will be presently explained. The shaft *j* also carries a worm-wheel, *l*, which works into an endless screw, *m*, on the end of a shaft, *n*. This shaft has its bearings in hangers *o*, secured to the under side of the bed-plate C, and rotary motion is imparted to it by a belt, *p*, stretched over a pulley, *q*, on the spindle A and over a corresponding pulley, *r*, on the shaft *n*. As the worm-wheel *l* and cam *h* revolve, the slide-rest I, with the finishing-tool H, is gradually pressed or raised, bringing the cutting-edge of said tool closer to or farther from the center line of the article to be turned, and by these means the desired shape is given to said article.

For the purpose of turning a pen-holder, for instance, the cam is shaped as shown in Figs. 1, 3, and 5 of the drawings. It is provided with two shoulders, *r* *r'*, and while the stop *g* is in contact with that portion of the cam between the two shoulders the tool produces that part of the stick which is to be introduced into the metal part of the holder. When the stop *g* passes the shoulder *r'*, the tool H suddenly rises and the thick portion of the pen-holder is commenced, and this portion slightly increases in thickness for a short distance, and then it tapers off gradually, as shown in Fig. 1, where one of the finished holders is represented in red outlines.

The length of the article to be turned is determined by the speed of the cam *h* in proportion to that of the feed motion of the stuff. The machine represented in the drawings will finish a pen-holder of the ordinary length for every revolution of the cam.

In order to cut off the articles when finished

a cutting-off tool, *s*, is applied. This tool is secured in a head, *t*, which is adjustable on a horizontal rod, *u*, being held in contact with the movable ring *v* by a spring, *w*. (See Fig. 2.) The rod *u* extends from a lever, *a*<sup>2</sup>, which is pivoted to the end of the bed-plate C, and the lower end of which sweeps over the side of the worm-wheel *l*, as shown in Fig. 1, being drawn up against it by a spring, *b*<sup>2</sup>. (Seen in Fig. 2.) If the worm-wheel has completed a full revolution, a cam, *c*<sup>2</sup>, projecting from its sides, forces the lower end of the lever *a*<sup>2</sup> away from said wheel, and the cutting-off tool is thrown in toward the center of the article to be turned. This article being continually fed along in the direction of the arrow marked near it in Fig. 1, carries with it the cutting-off tool against the force of the spring *w*, and by the time the cam *c*<sup>2</sup> passes the lower end of the lever *a*<sup>2</sup>, the article is cut and the tool *s* resumes its original position.

By these means the machine turns out and cuts off the articles required, while the attendant feeds in the stuff at the rear end of the spindle A in long strips, which are of sufficient length to make a number of pen-holders or similar products, as the case may be, each succeeding piece pushing the other through, while a small portion at the rear end of each long strip, as it passes beyond the thread which rotates it, is consequently unfinished, and is rejected or finished by hand.

I claim as new and desire to secure by Letters Patents—

1. The employment or use for the purpose of feeding the stuff to be turned to the tools of a screw-thread cut in the guide, substantially in the manner and for the purpose described.

2. The forked guide E, made in two parts, one of which is hinged and arranged to swing open when desired, the whole being constructed so as to straddle the roughing-out tool, substantially as and for the purpose set forth.

3. The employment of a rotating cam, *h*, applied in combination with the roughing-out tool, in the manner and for the purpose substantially as described.

4. The combination of the yielding head *t* with the cutting-off tool *s*, arranged substantially as and for the purpose specified.

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Witnesses:

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