

O. JONES.

Turning and Planing Castings.

No. 107,918.

Fig. 1 Patented Oct. 4, 1870.

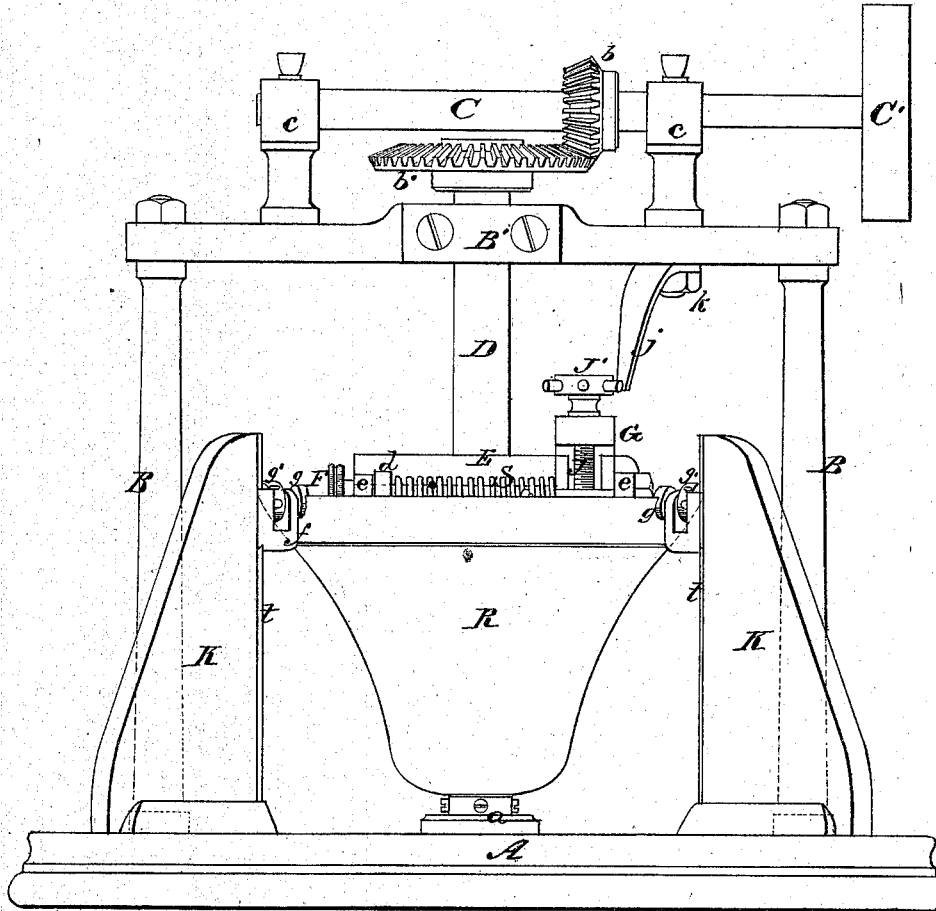


Fig. 2

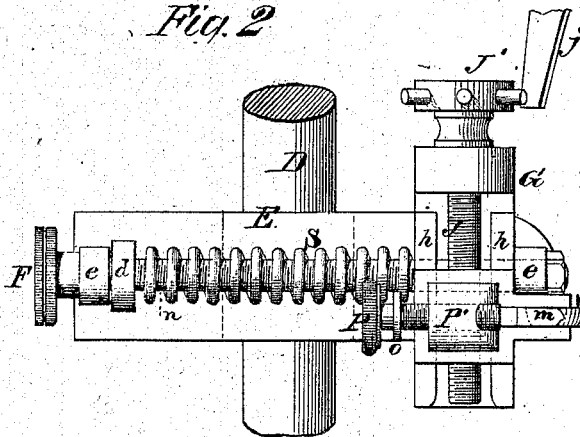
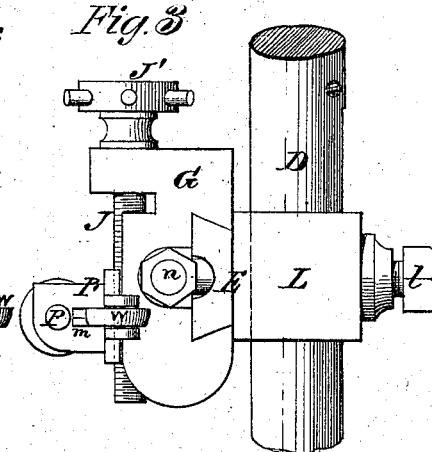


Fig. 3



Witnesses

R. T. Campbell.  
J. A. Campbell.

Inventor

Otho Jones

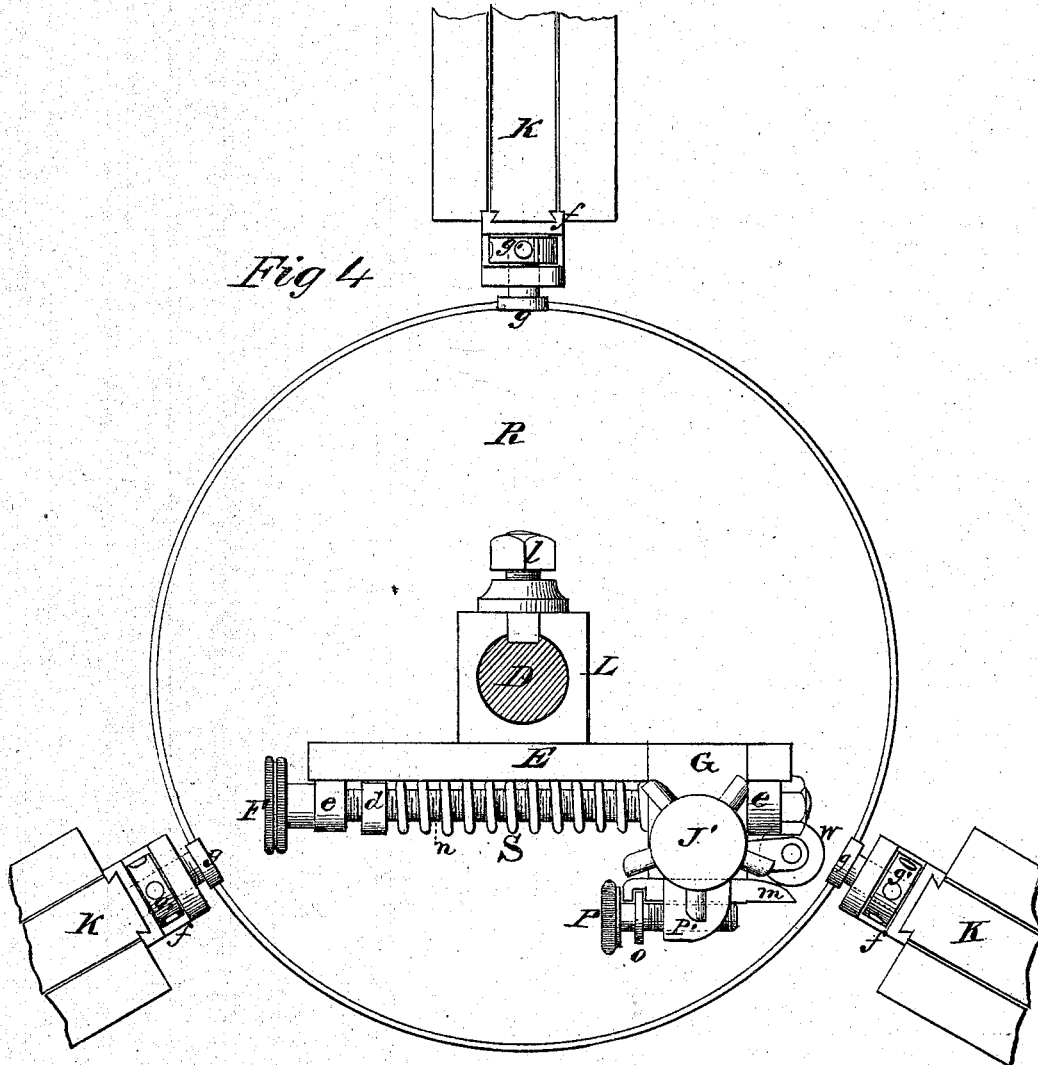
Wm. L. Lawrence.

O. JONES.

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*R. T. Campbell*  
*J. C. Campbell*

*Inventor*

*Octavius Jones*

*Mason Church Hamer.*

# United States Patent Office.

OCTAVOUS JONES, OF TROY, NEW YORK.

Letters Patent No. 107,918. dated October 4, 1870.

## IMPROVEMENT IN MACHINES FOR TURNING OR PLANING THE INSIDE OF BELLS; OR OTHER HOLLOW CASTINGS.

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, OCTAVOUS JONES, of Troy, in the county of Rensselaer and State of New York, have invented an Improved Machine for Turning or Planing the Inside of Bells, or other Hollow Castings; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1, plate 1, is an elevation of a machine adapted for turning bells.

Figure 2, plate 1, is a view of the cutting or turning tool, its pressure-spring, and adjusting devices.

Figure 3 is an end view of fig. 2.

Figure 4, plate 2, is a top view of the chucking and turning devices.

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

The nature of my invention relates to mechanism for guiding, supporting, and operating a turning-tool within a bell, or other hollow casting, and also for centering the bell and sustaining it in position.

The following is a description of one practical mode of carrying my invention into effect:

In the accompanying drawing—

A represents a solid foundation, on which the bell R and its turning devices are sustained.

B B are posts, which rise perpendicularly from the foundation A a suitable height, and have bolted to their upper ends a horizontal piece, B', which, with the posts, constitute a frame for supporting several of the working parts of the machine.

Two short posts, c c, rise from head-piece B', and afford bearings for a horizontal driving-shaft, C, carrying a belt-pulley, C', on one end.

On this shaft C a pinion bevel-wheel, b, is keyed, which engages with a wheel, V, on a vertical shaft, D, and gives rotary motion thereto.

The shaft D has its upper bearing in the head-piece B', and at its lower end it is supported by a step upon the inner side and in the center of the bell R.

This shaft D carries the cutting or turning-tool m, and the devices which keep it to its work of turning out the interior surface of a bell.

The turning-tool m is adjustable endwise, and is thus adjusted by means of a screw, P, which has a collar, o, on it, that enters a notch formed in the shank of the tool m, as shown in fig. 4.

The adjusting-screw P and also the tool m are applied to a vertically-adjustable block, P', which latter is applied to a horizontally-adjustable block, G, which is applied to a vertically-adjustable horizontal rest, E, on the shaft D.

The block P' is connected to block G by dovetail-guides h h, and adjusted by means of a screw, J, car-

rying on its upper end a tappet-wheel, J', which is acted upon, at every revolution of shaft D, by an adjustable striker, j, attached to the head-piece B'.

To the vertically-adjustable block P' a feed-wheel, w, is applied, which rolls against the inside of the bell R during the operation of the machine, and follows the turning-tool, so as to prevent vibration thereof.

The horizontally-adjustable block G is applied to the rest E by means of a dovetailed tenon and groove, so as to slide on said rest in the direction of its length.

This block G is forced outwardly, and the wheel w held against the bell, by means of a spring, S.

This spring is coiled around an adjusting-screw, n, and confined between a movable nut, d, and the block G.

The screw n is supported by and turns freely in bearings e e, on the rest E, and, by means of the thumb-wheel F, this screw n can be turned and the spring S more or less compressed. In this way, and by these means, the tool m and wheel w are held up to their work under any desired degree of pressure.

The rest E is rigidly secured to a block, which is secured to the shaft D by means of a set-screw, l, and a gib. By loosening the screw l the rest E, and all the parts connected to it, can be raised or depressed on the shaft D.

The bell R is centered and held by means of three side chucks and a collar, a.

The chucks g g g are adjusted by means of nuts g', which, with the chucks, are applied to vertically-adjustable blocks f.

These blocks f are connected to radially-adjustable standards k, which are supported by and made adjustable on the foundation A.

Beneath the bell R a collar or step, a, is secured to the foundation A, directly in line with the center of the shaft D, which collar is adapted to receive into it the bell-shank or hub, and it is provided with set-screws for centering and securing the bell down in place.

It will be seen, from the above description, that the centering and chucking devices are adjustable, in order to adapt them to bells of various sizes.

### *Operation*

A bell which is to be toned is inverted, and its shank adjusted into the collar or step a, and confined therein by means of the set-screws, which are applied radially to this collar.

The chuck-blocks and their standards are then adjusted up to the upper margin of the bell, and the chucks g firmly forced against this margin, care being observed that the bell is centered with respect to the axis of the shaft D.

The shaft D is then adjusted into place, and the

rest E loosened on its shaft, and depressed so as to bring the cutting-tool *m* at the proper point to commence work on the bell.

The rest E is then secured fast to the shaft D, the tool *m* is adjusted up to the bell, and the spring S is adjusted so as to keep the tool to its work under the required degree of pressure. Motion is now imparted to the shaft D, and the tool caused to revolve within the bell.

Previous to starting the machine the striker *j* is adjusted so as to give part of a turn to the screw J, at every revolution of the tool, which will feed the tool down to its work.

Having described one practical mode of toning bells by machinery,

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

1. The combination of the rotating cutter-carrying shaft and the fixed journal-bearing, to hold the same in position, and to prevent any lateral or endwise play thereof, the cutting or planing tool *m*, mechanism to impart feed-motion to said tool, to adjust it to describe circles of greater or lesser diameter, and to graduate the depth of the cut, and the spring S, or equivalent device, connected to the tool-holder, or some part connected directly thereto, to force the tool up to its work, and at the same time leave it free to adjust itself, as it traverses the surface of the bell or other

article, to the gradually-increasing or diminishing diameter of the bell or other article.

2. In combination with the cutter *m*, block G, rest E, and shaft D, arranged as described, the vertical screw J, sliding block P', horizontal tappet-head J', striker *j*, substantially in the manner and for the purpose described.

3. In combination with the tool *m*, block P', block G, rest E, and shaft D, the adjusting-screw P *o*, substantially in the manner and for the purpose described.

4. In combination with the tool *m*, block P', block G, rest E, and shaft D, the wheel *w*, (following the cutter,) screw *u*, and spring S, substantially in the manner and for the purpose described.

5. The arrangement of the bell-centering and confining chucks *g*, step *a*, central cutter-carrying shaft D, block G, rest E, and block P', cutter *m*, and wheel *w*, substantially in the manner and for the purpose described.

6. The combination of the base A, adjustable standards K, adjustable holding devices *f g g'*, and step *a*, substantially as described.

7. The improved machine hereinbefore described.

OCTAVOUS JONES.

Witnesses:

F. W. PARMENTER,  
JOHN WILLIAMS.