I. H. SPENCER.

TURNING LATHE.

No. 93,492. Patented Aug. 10, 1869.

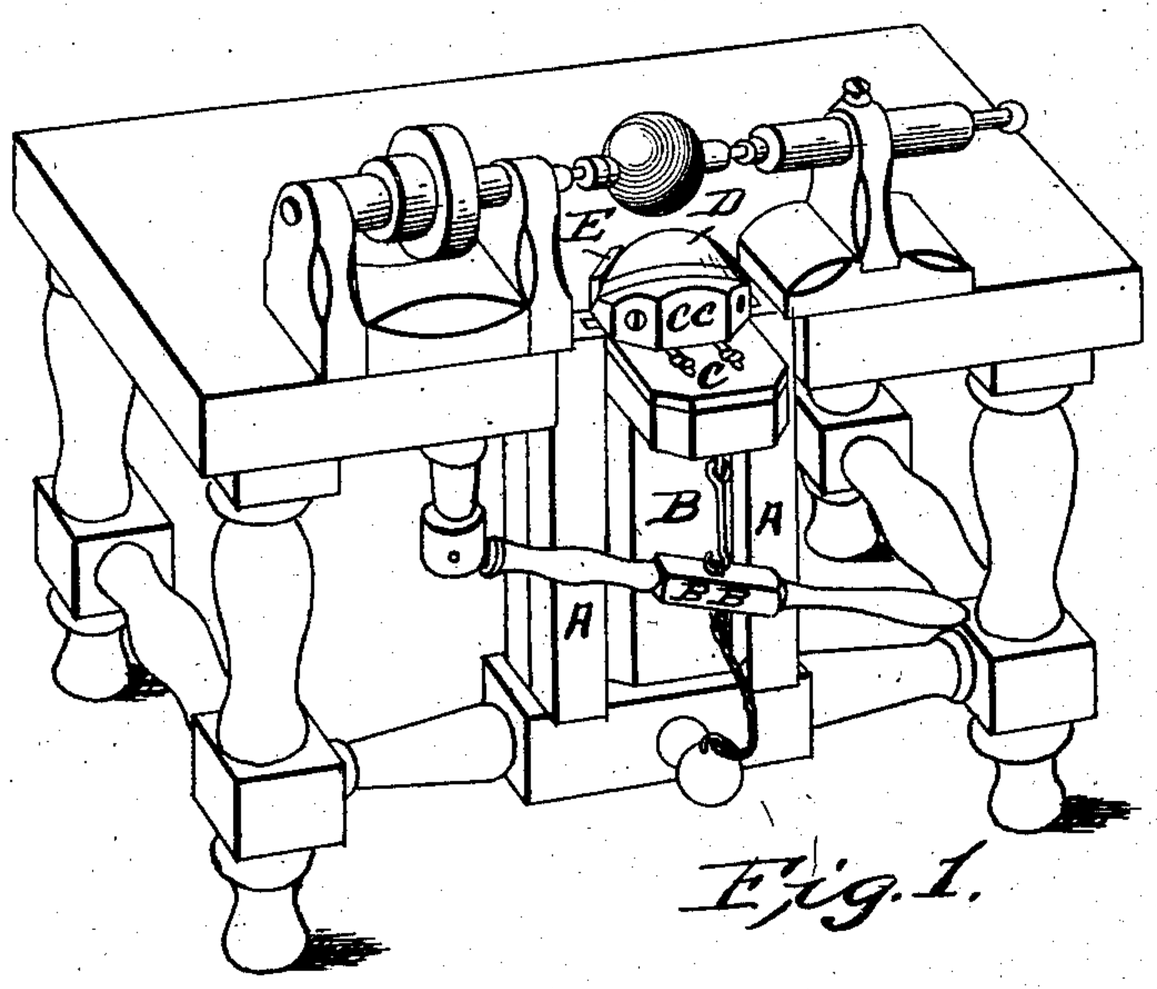
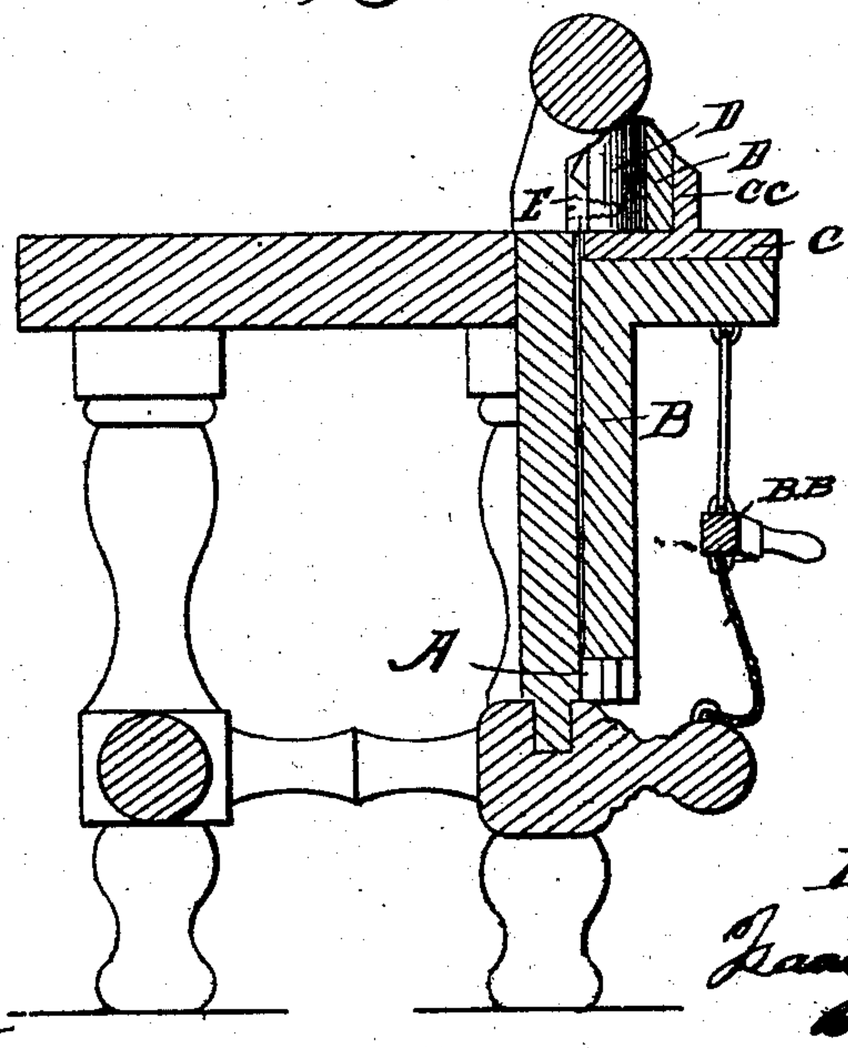


Fig. 1.

Fig. 2.



Witnesses:

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Letters Patent No. 93,492, *dated August* 10, 1869.

IMPROVEMENT IN TURNING-LATHES.

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, ISAAC H. SPENCER, of the town of North Providence, in the county of Providence, and State of Rhode Island, have invented certain new and useful Improvements in Turning-Lathes, peculiarly adapted to the turning of wooden balls, &c.

The novel features of my invention consist in the form of the cutter and the arrangement of its auxiliary parts, by means of which wooden spheres, &c., can be rapidly turned, requiring but little mechanical skill in the operation, the cutters having first been properly set, and the lathe put in motion.

And I do hereby declare that the following specification, taken in connection with the drawings furnished and forming a part of the same, is a true, clear, and accurate description thereof.

Figure 1 represents in perspective, a lathe, to which my improvements are attached.

The frame of the lathe, the lathe-head, and centre, may be of any of the well-known forms in general use, provided they are strongly built.

The cutters, with their auxiliary parts, being the subjects of my invention, are only marked and specifically described.

A and A represent vertical slides, attached to the front of the lathe.

B represents a carriage, fitted to move vertically in the slides A, and is actuated by the lever B B, which may be attached in any of the well-known modes.

C represents a cutter-bed, and is so constructed that it rests truly upon the top of the carriage B, and is capable of a lateral movement, by means of slots, and is secured, when desired, in position by means of set-screws.

C C represent that portion of the cutter-bed which receives and holds the cutter.

D represents the cutter proper. It is made of steel, in the form of a turner's gouge, with its bevelled edge circular in its outline, it being much higher in the centre than at the outer edges.

This cutter is semicircular in its form, and should be nearly equal to half the circumference of the balls to be turned, for it is by the form of the cutter that uniformity in the size of the balls is maintained.

It will be observed that by elevating the lever B B, the carriage B is raised, bringing the top of the cutter to a point above the centres of the lathe.

The movement of the carriage may be confined within certain required limits, by means of pins and slots, or by cords applied in an obvious manner.

Figure 2 represents in vertical section the carriage B, with the cutter D, and auxiliary parts, lettered as in fig. 1.

E represents an auxiliary cutter or cleaner. One of these is attached to each of the outer edges of the cutter D, by means of set-screws passing through them, and entering the flat-edge of the cutter. They could as well be secured to the cutter-bed C in case that should be deemed desirable.

The operation of turning wooden balls, with my improvement, is as follows:

Blanks, of sufficient circumference, and a little longer than the diameter of the balls required, are roughly blocked out by hand, in the usual way, or by use of a tool fitted for that purpose, and centred in the lathe as for any ordinary turning.

The cutter, forming a part of the periphery of a circle of the required size, is adjusted in the cutter-holder, and so set that the distance between the edge of the cutter and the line of centres shall be just one-half the required diameter.

The lathe is then set in motion, turning, as usual, toward the cutter, which is slowly raised by means of the lever.

The highest portion of the cutter engages first with the work, and when elevated to a point equal to the line of the centres, will have completed the outline of the circumference of the ball. Meantime the lower portion of the edge will have become engaged, producing a smooth drawing cut toward the centre.

When nearly through the work, by means of elevation, the auxiliary cutter or clearers become engaged, and finish a cutting stroke, nearly to the centre of the material being turned. The lever is then depressed, and the ball taken from the lathe, having a but remaining at each end, which should be sawed off, and the ball finished up by hand, or in a ball-chuck.

The cutting operation in the lathe will have so far perfected its spherical form as to render it a simple matter to finish the ends.

It will be observed that after passing the line of the centres, the highest portion of the edge of the cutter D ceases to act upon the ball as a cutter, but serves as a means for securing the retention of the ball in the lathe, until the operation of cutting is completed.

Having thus described my invention,

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

1. The semicircular cutter D, in combination with the cutter-bed C and the vertical carriage B, or their equivalents, when constructed and operating substantially as described.

2. The auxiliary cutters E, in combination with the cutter D, when arranged to operate substantially as described, for the purposes specified.

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