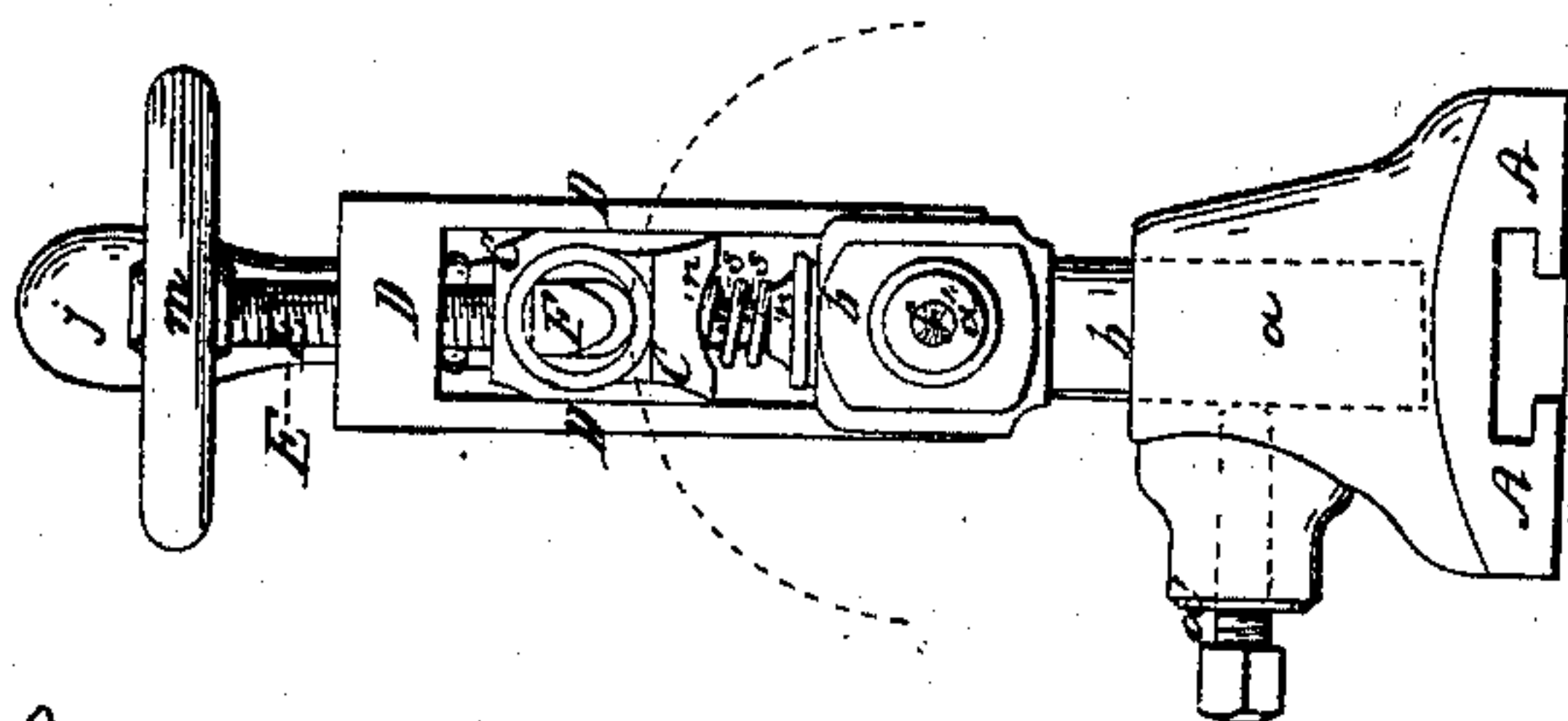
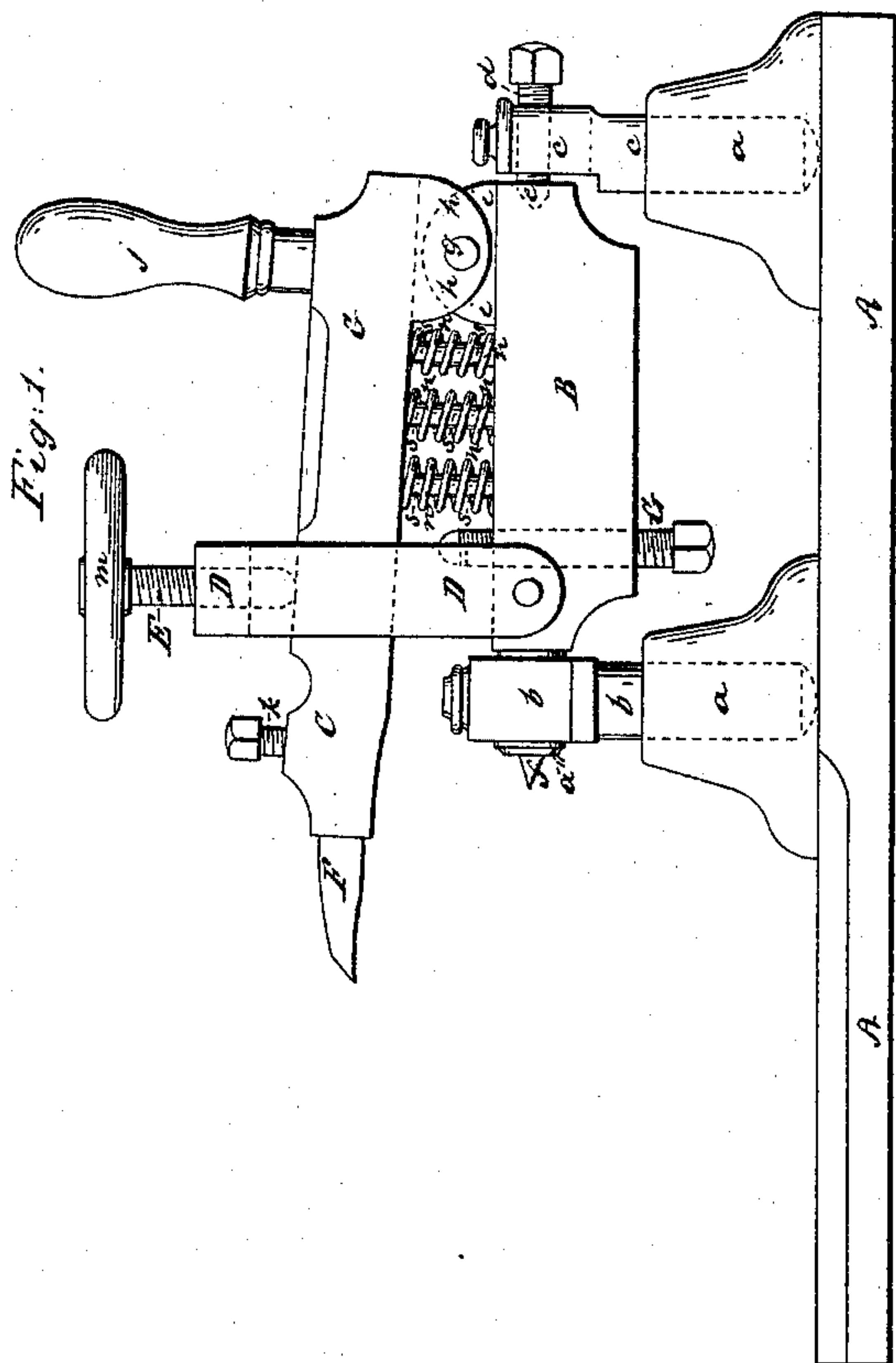


*J. C. Wybell,
Lathe Tool,*

N^o 57,054.

Patented Aug. 7, 1866.



Witnesses.

*J. M. Coombs,
G. W. Reed*

Inventor

*J. C. Wybell
Per Brown, Coombs
attys*

UNITED STATES PATENT OFFICE.

J. C. WYBELL, OF WEST MERIDEN, CONNECTICUT, ASSIGNOR TO HIMSELF
AND F. N. BIXBY, OF SAME PLACE.

IMPROVEMENT IN TURNING-LATHES.

Specification forming part of Letters Patent No. 57,054, dated August 7, 1866.

To all whom it may concern:

Be it known that I, J. C. WYBELL, of West Meriden, in the county of New Haven and State of Connecticut, have invented a new and Improved Attachment for Lathes for Turning Spheres; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side elevation of my invention. Fig. 2 is an end elevation of the same.

Similar letters of reference indicate corresponding parts in both figures.

This invention is designed to be applied to any ordinary or suitable turning-lathe; and it consists in an attachment whereby spheres—such, for instance, as billiard and croquet balls—may be turned upon such ordinary lathes with great facility and cheapness and in a very superior manner, such attachment being applicable to different lathes or lathes with centers of various heights.

To enable others to understand the construction and operation of my invention, I will proceed to describe it with reference to the drawings.

A represents a cast-iron plate or bed, which may constitute a portion of the lathe-rest, and upon the upper side of which are formed two knobs or bosses, *a*, into which are fitted short adjustable upright posts or standards *b* and *c*.

B is a horizontal rock-shaft, which is placed longitudinally between the upper ends of the posts *b* *c*, and pivoted therein by having its forward end made cylindrical in shape and fitted into a bearing formed in the upper end of the post *b*, as shown at *a'*, while the rearmost end of the said rock-shaft is sustained by the inner end of a screw, *d*, which passes through the upper end of the post *c* and has its inner extremity made conical in form and fitted in a socket of corresponding shape formed in the rearmost end of the said rock-shaft B, as shown in dotted lines at *e* in Fig. 1, the rock-shaft B being thus capable of turning upon a longitudinal horizontal axis. The said axis is indicated by a point, *f*, formed upon the forward extremity of the said rock-shaft B.

C is a tool-stock, which has its rearmost end

pivoted to the rearmost end of the rock-shaft B by means of a transverse pin or pivot, *g*, which passes through downwardly-projecting lugs *h*, formed upon the tool-stock C, and through a corresponding upwardly-projecting lug, *i*, upon the rock-shaft B, as shown in Fig. 1.

D is a vertical strap or guide, which is placed over the forward portion of the tool-stock C, and has its lower ends fixed upon the opposite sides of the rock-shaft B, as shown more clearly in Fig. 2, and the office of which is to prevent the lateral displacement of the tool-stock during the operation of the apparatus, as will be hereinafter further explained. Situated in the top of this strap D is a screw, *E*, the lower or inner end of which presses upon the upper side of the tool-stock C, and upon the upper end of which is a suitable hand-wheel, *m*. Projecting upward from the upper side of the tool-stock C is a handle, *j*, while formed longitudinally in the front end of the said tool-stock is a suitable socket, which receives the shank of the tool F, and is provided with a set-screw, *k*, by means of which the said shank is firmly held in the socket.

G is a set-screw that passes up through the rock-shaft B in such manner that by turning the said screw in or out its inner end will act as a stop or gage to limit the inward movement of the tool-stock in such manner as to prevent the tool from being forced too far inward in finishing the sphere. At the same time, by turning the said screws in or out, as may be required, the distance of the tool from the axis of the rock-shaft B may be adjusted at pleasure, as required, for turning spheres or balls of different sizes.

n are spiral springs placed between the tool-stock C and the rock-shaft B to force the tool-holder against the inner end of the screw E when the said screw is turned outward.

Situated within the spiral springs *n* are short cylindrical rods *s*, the ends of which are placed in suitable recesses in the inner sides or surfaces of the rock-shaft B and tool-stock C, and which serve to prevent the springs from bulging out sidewise when compressed.

The wood, metal, or other material from which the spheres are to be turned is centered in the lathe in the ordinary way, and the base A of the attachment is screwed to the frame of

the lathe by any suitable means in such manner that the point *f* is on exactly the same level as the centers of the lathe, or, in other words, so that the axis of the rock-shaft B is exactly upon a level with the axis of the piece of material from which the sphere is to be turned, the said axis of the rock-shaft B being placed at right angles to that of the said material supported between the centers of the lathe, as just set forth, the height of the said rock-shaft being adjusted to the height of the centers of the lathe, and securing them firmly in place by means of the set-screws *a'*, as hereinbefore explained. The usual rotary movement being then communicated to the material by the movement of the lathe, the tool or cutter F is brought in contact therewith by turning the feeding-screw E inward, and thus bringing it down upon the said material. The tool-stock is then swung from side to side around the axis of the rock-shaft B by means of the handle *j*, thus causing the tool F to traverse the arc of a circle at right angles to that described by the rotation of the material, and

consequently enabling it to cut or turn the material into perfectly spherical shape, the said tool being fed to the work during the operation by turning the screw E downward, as just mentioned, and the upper end of the set-screw G serving as a stop or gage to prevent the tool from being forced too far inward in finishing the sphere, thus insuring the turning of the said sphere to the exact size required.

In case the axis of the rock-shaft B should be placed above or below the axis of the material to be turned, the said material would be turned into spheroidal instead of spherical shape.

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

The lathe attachment constructed, arranged, and operated substantially as and for the purposes set forth.

JOSEPH C. WYBELL.

Witnesses:

GEORGE COUCH,
HIRAM FOSTER.