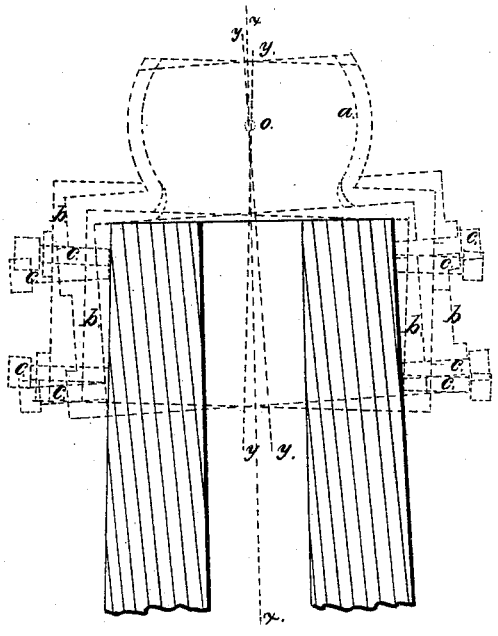
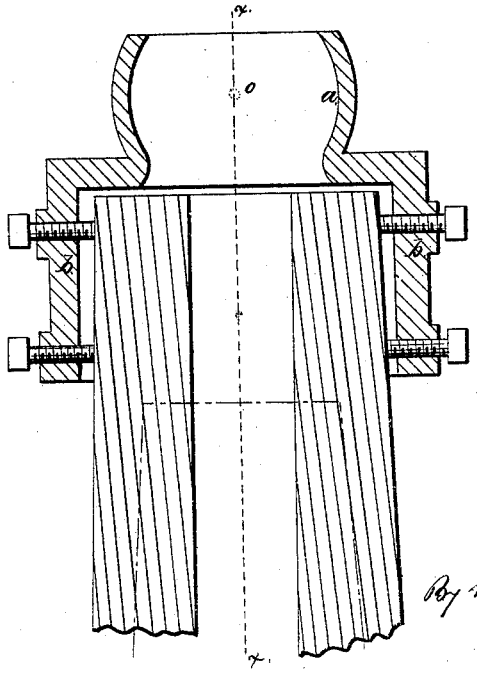
J. S. FRENCH.

CENTERING HEAVY ARTICLES IN LATHES.

No. 41,289. Patented Jan. 19, 1864.





Witnesses:

S. M. M Intire

Wm. A. Gould

Inventor:

John S. French

By his Atty. J. B. Crosby

UNITED STATES PATENT OFFICE.

JOHN S. FRENCH, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN CENTERING HEAVY ARTICLES IN LATHES.

Specification forming part of Letters Patent No. **41,289**, dated January 19, 1864.

To all whom it may concern:

Be it known that I, JOHN S. FRENCH, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved Means for Centering Heavy Articles in Lathes, &c.; and I do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

My invention relates to a means whereby large articles can be conveniently centered, as in a lathe or boring-mill; and it consists in the application of the journal of a spherical bearing to the end of the article to be centered, when said journal is of such construction as to admit not only of movement in its socket, but of lateral adjustment with respect to the article to be turned or bored, so that all the care which has to be exercised in adjustment of said journal is that which is needed to bring the center thereof into the line of the axis of the article to be turned or bored; also, in the construction of the spherical journal, substantially as shown, whereby any article may be centered with reference to its bore, instead of with reference to its outside.

My invention is particularly applicable to the adjustment of the heavy modern ordnance for turning and boring, though it may be used to advantage in centering heavy shafts, &c.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation, referring to its application to the finishing operations performed on the United States fifteen inch guns.

The drawing represents in longitudinal section the rough casting of the muzzle end of a fifteen-inch Rodman gun, with the device embodying my invention attached thereto, the red lines on the drawing showing the finished size of the gun.

The spherical journal *a* is fixed to or forms part of a chuck or collar, *b*, which is provided with adjusting and holding screws *c*, by the manipulation of which the center *o* of the spherical journal is brought into the axial line *x x* of the gun, which adjustment is the only one required, for it may be seen in the diagram forming part of the drawing that the axial line *y y* of the chuck may not coincide with the axial line *x x* of the gun, and yet the center *o* of the spherical journal may be in said line. If the bearing *a* was cylindrical or conical, or in fact any form but spherical, it would be necessary to go through with a long and expensive manipulation of the screws *c*, so as to bring the axis *y y* of the bearing and of the chuck to be coincident with the axis *x x* of the gun. The spherical journal is shown as made with a hollow or bore of greater diameter than the bore of the gun, so that in adjusting the center *o* measurements can be had through the spherical journal, so as to center the gun by its bore and not by its outside.

When the gun is adjusted in the lathe with the center *o* in the line *x x*, the outer portion of the muzzle is finished and the riser-head is cut very nearly off. Then when the gun is removed from the lathe the riser-head is broken from the gun, and this is centered in the boring-mill by that portion of the muzzle turned in the lathe. The proportion of the size of the parts should of course be adapted to the weight and stress to be borne thereby. The smaller the spherical journal is made in diameter the less will be the friction consequent upon rotation.

I claim—

1. The hollow spherical journal, for the purpose set forth.

2. Combining with the spherical journal a means for lateral adjustment of the same, with respect to the article to be turned or bored, substantially as described, for the purpose of bringing the center of the journal into the axial line of the said article, as specified.

In witness whereof I have hereto set my hand this 23d day of October, A. D. 1863.

J. S. FRENCH.

In presence of—
H. B. DARLING,
H. P. LANGLEY.