(No Model.) 2 Sheets—Sheet 1.

N. C. HANSEN.

LATHE FOR TURNING OVAL OBJECTS.

No. 487,525. Patented Dec. 6, 1892.

Fig: 1.

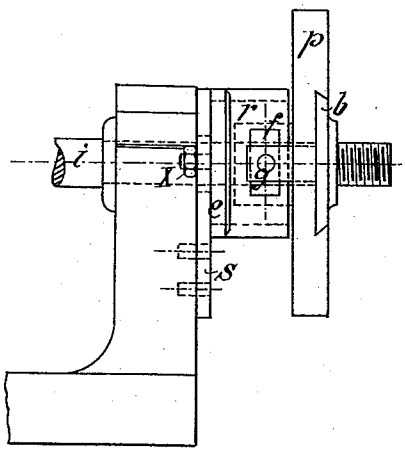


Fig: 2.

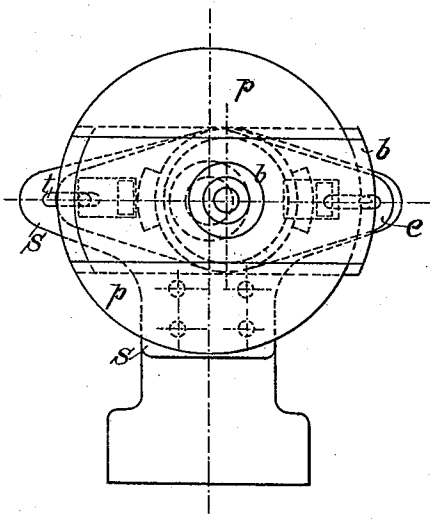


Fig: 4.

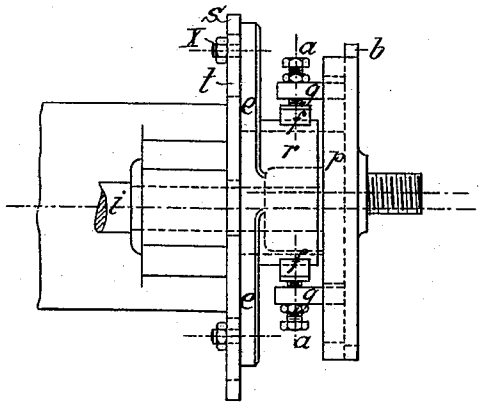
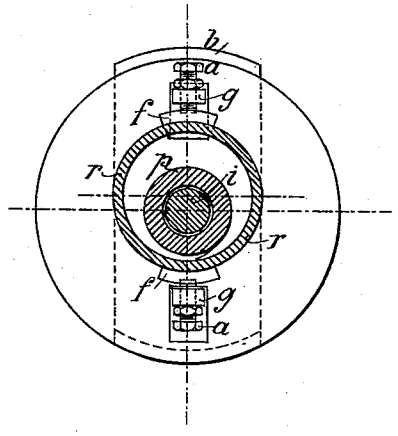


Fig: 3.



Witnesses:
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Inventor: Niels Chr. Hansen
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Attorney

(No Model.) 2 Sheets—Sheet 2.

N. C. HANSEN.

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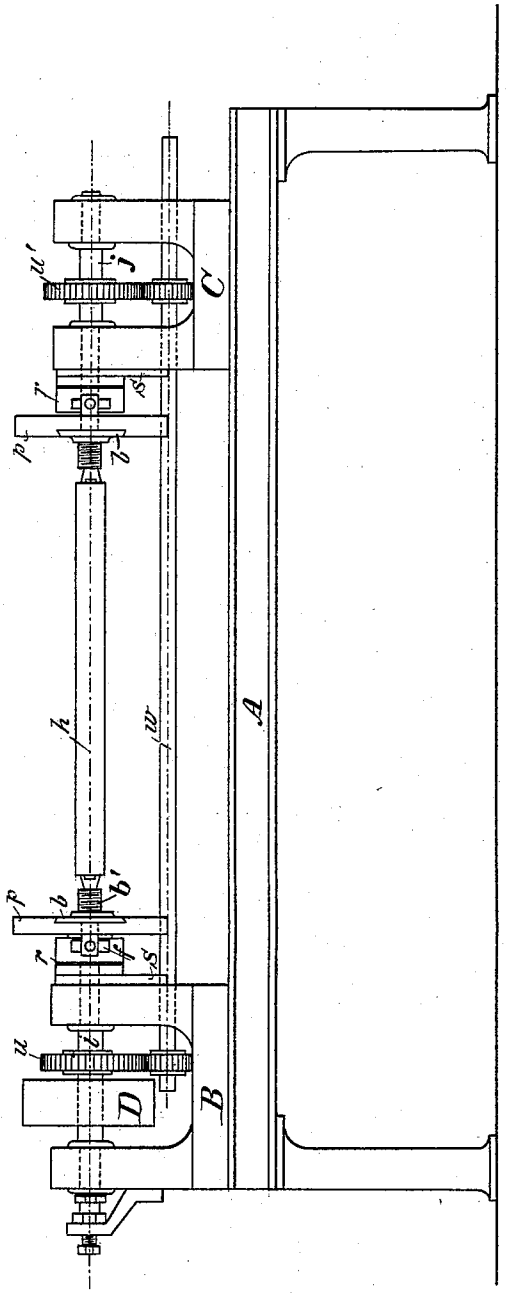
Fig. 5.



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UNITED STATES PATENT OFFICE.

NIELS CHRISTIAN HANSEN, OF FLENSBURG, GERMANY.

LATHE FOR TURNING OVAL OBJECTS.

SPECIFICATION forming part of Letters Patent No. 487,525, dated December 6, 1892.

Application filed May 19, 1891. Serial No. 393,370. (No model.)

To all whom it may concern:

Be it known that I, NIELS CHRISTIAN HANSEN, of Flensburg, Germany, have invented certain new and useful Improvements in Lathes for Turning Oval Objects, of which the following is a specification.

My invention has relation to lathes for turning articles of wood having an elliptical shape in cross-section and is especially intended to furnish devices which can be readily applied to the ordinary lathe and when so applied shall be susceptible of adjustment, so that the relation to the major and minor diameters of the ellipse may be varied at will, or the lathe may be used for turning cylindrical forms, if desired. With such objects in view my invention consists in the improved construction, arrangements, and combination of parts, which I shall now proceed to fully describe, and afterward particularly point out in the subjoined claim.

Figure 1 is a view in side elevation of one end of the head-stock and spindle broken off and removed from the way, the face-plate and pattern-ring being also shown. Fig. 2 is a front elevation of the same parts. Fig. 3 is a top plan view thereof. Fig. 4 is a vertical section through the pattern-ring and spindle on the line *y y* of Figs. 1 and 3, looking to the right or toward the rear of the face-plate. Fig. 5 is a side elevation of a lathe complete with my invention applied thereto.

Like letters of reference mark the same parts wherever they appear in the various figures of the drawings.

Referring to the drawings by letters, A shows the ways of the lathe, upon which are mounted the head-stock B and tail-stock C. The ordinary live-spindle *i* is mounted in the head-stock, and a spindle *j*, which may be either a live or dead spindle, as desired, is mounted in the tail-stock C. Upon the spindle *i* is the ordinary belt-pulley D, by which it is driven, and when it is intended that the spindle *j* shall be a live-spindle it is connected to the spindle *i* by means of the gear-wheels *u u'* on the two spindles and the shaft *w*, having pinions to engage said gear-wheels.

On the head-stock B is bolted a plate *s*, which has a central opening, through which the spindle *i* passes, and is provided with two slots *t*, extending horizontally in the same line. A plate *e*, having projecting from the front thereof a short cylinder or ring *r*, is secured adjustably to the plate *s* by means of bolts *x*, passing through the slots *t* in said plate *e*, as shown. The spindle *i* passes through the plate *e* and its ring *r* and has the face-plate *p* secured to its outer end. In the front of the face-plate is a diametrically-placed dove-tail groove, in which is moving a sliding head *b*, which carries the lathe-center *b'*. From the rear face of the sliding head *b* project two lugs *g*, which pass through openings *o* in the face-plate *p* and have screw-threaded holes, through which pass bolts *a*, carrying blocks *f*, fitted to the surface of the ring-pattern *r*.

The operation of my invention may be described as follows: It being desired to turn a cylindrical form, the plate *e* and ring *r* are adjusted on plate *s* so that the spindle *i* will be exactly in the center of the ring, when the lathe-center *b'* will be in exact line with the spindles. When, however, elliptical forms are to be turned, the plate *e* is adjusted so that it will be eccentric in its relation to the spindle, the result of which will be that as the spindle turns the lathe-center *b'*, and with it the work *h*, (see Fig. 5,) will not only be rotated, but will also have a diametric movement with relation to the face-plate and will be turned in elliptic form, the tool being held or fixed, if desired, in any ordinary tool-rest (not shown) and the variation of the two diameters of the elliptical cross-section depending upon the adjustment of the ring *r* to or from its concentric position with relation to the spindle. The sidewise travel of the slide *b* and lathe-center *b'* is effected through the medium of the projections *g*, bolts *a*, blocks *f*, and ring *r*, as will be readily understood from an inspection of the drawings. I can throw the center *b'* more or less out of the middle of the slide *b* by screwing one of the bolts *a* farther into the corresponding lug *g* than the opposite bolt, which is of advantage for centering the piece of work in its original irregular form, so as to lose as little of the material as possible.

The mechanisms described as attached to the head-stock are also attached to the tail-stock C and move in unison with those on the

head-stock, such motion being transmitted through the gears u u' and shaft w, with its pinions, although when very short work is being turned the two spindles need not be geared together, the slide and center in the tail-stock being caused to follow the motions of those in the head-stock by the work itself.

It will of course be well understood that a chuck may be attached to the center b', and short articles held therein may be turned without the use of the tail-stock or dead-center.

Having thus fully described the invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

In combination, the head-stock, the live-spindle, the face-plate secured thereto, the plate s, bolted to the head-stock, the plate e, carrying ring r, adjustably secured to plate s, the sliding head b, carrying lathe-center b', the lugs g, projecting from the rear of the sliding head b through openings in the face-plate, the bolts a, passing through the lugs g, and the blocks f, carried by said bolts and bearing upon the periphery of the ring r, as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

NIELS CHRISTIAN HANSEN.

Witnesses:

W. ALSINA,

G. HERMES.