No. 711,763. Patented Oct. 21, 1902.

W. C. FOX & C. J. SHAW.

ALINEMENT GAGE FOR LATHES.

(Application filed Jan. 7, 1902.)

(No Model.)

Fig. 1.

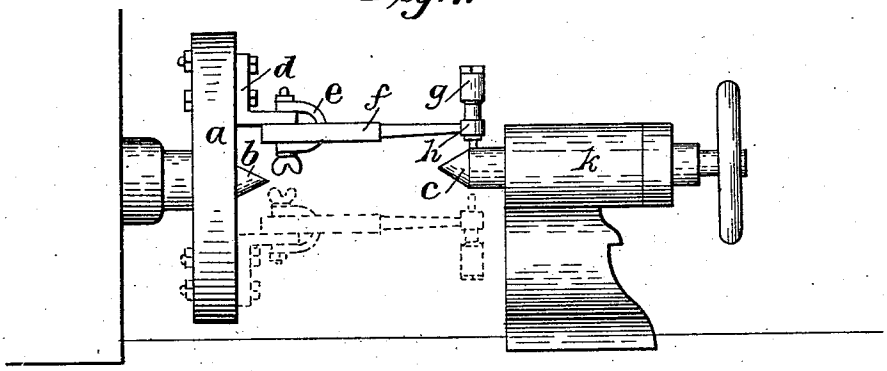


Fig. 2.

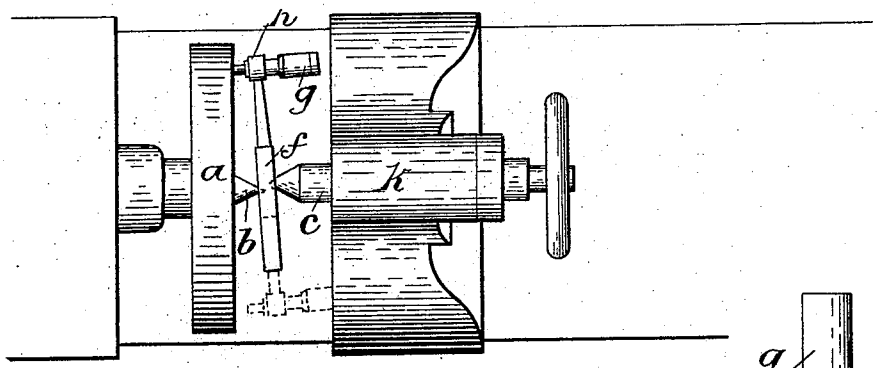


Fig. 3.

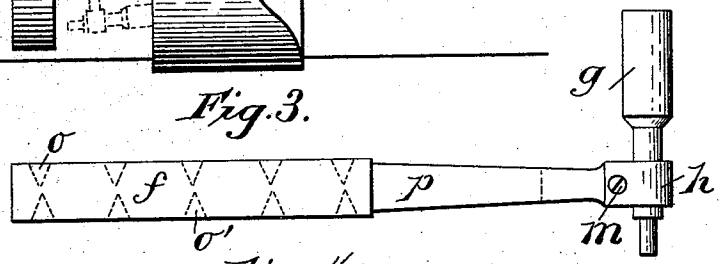
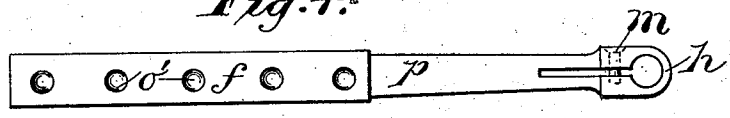


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM C. FOX AND CHESTER J. SHAW, OF WATERLOO, IOWA.

ALINEMENT-GAGE FOR LATHES.

SPECIFICATION forming part of Letters Patent No. 711,763, dated October 21, 1902.

Application filed January 7, 1902. Serial No. 88,743. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM C. FOX and CHESTER J. SHAW, citizens of the United States, residing at Waterloo, in the county of Blackhawk and State of Iowa, have invented certain new and useful Improvements in Alinement-Gages for Lathes, of which the following is a specification.

This invention relates to alinement-gages for lathes and milling-machines; and its object is to provide a tool with which to bring the spindles and face-plates of such machines into true alinement and position when through wear of bearings or other displacement their axes fail to coincide with their proper center of rotation. This object we effect by the means illustrated in the accompanying drawings, in which—

Figure 1 represents a side elevation of a portion of a lathe having our improved alinement-gage so attached as to indicate the degree of aberration of the dead-spindle from the axis of the live-spindle. Fig. 2 is a plan view of part of a lathe, showing our alinement-gage so attached as to indicate incorrect alinement or wrong position of the tail-stock. Fig. 3 is a side elevation of the alinement-gage with a micrometer attached, and Fig. 4 is a plan view of the same without the micrometer.

Similar letters refer to similar parts throughout the several views.

The tool consists, essentially, of a body-piece *f*, on opposite sides of which are conical holes *o* and *o'*. Each of the holes *o* and *o'* is placed, respectively, exactly opposite to another, with their axes coinciding, but not quite meeting. The body-piece *f* has a tapered extension-arm *p*, whose extremity *h* is slotted and bored in order to be used as a clamp. The slot *n* is of a length to afford sufficient elasticity to the sides of the clamp, whose tightness may be regulated by means of the set-screw *m*. Within this clamp a micrometer *g* may be inserted when desired for exact adjustments.

When it becomes necessary to bring a dead-spindle *c* into proper alinement with the live-spindle *b*, an angle-plate *d* may be bolted to the face-plate *a* and the gage attached thereto by means of a clamp *e*. The gage being placed so that it lies parallel to the axis of the spindle *b*, an indicator, such as a micrometer *g*, is set within the clamp *h* and so as to touch the dead-spindle *c*. When the face-plate *a* has been rotated one-half around, the gage will be found in the position indicated by the dotted lines, and if the live-spindle *b* is really displaced from its correct alinement the amount of aberration may be correctly measured by means of an indicator, such as a micrometer, and the live-center so adjusted as to bring both the spindles into line.

When the tail-stock *k* is supposed to be out of line, it is brought forward to such a position as will allow of the points of the spindles *b* and *c* being introduced within a pair of oppositely-placed holes *o* and *o'* in the gage. The micrometer *g* is then set so as to touch the surface of the face-plate *a*. When the face-plate *a* has been rotated one-half around, the tool will be in the position indicated by the dotted lines in Fig. 2, and the space intervening between the micrometer-point and the surface of said face-plate will indicate the degree of displacement of said tail-stock. The tail-stock may then be moved transversely to the extent necessary to place it in proper alinement.

Inside calipers may be used in measuring the distance between the gage and the spindle or gage and face-plate, as the case may be, or any other means suitable for the purpose; but it is believed that measurement by means of the micrometer will generally be preferred, as tending to greater exactitude.

Having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. An alinement-gage for lathes, consisting of a body-piece provided with holes on two of its sides arranged opposite to but not communicating with each other, and of an extension-arm bearing an adjustable clamp.

2. An alinement-gage for lathes, consisting of a body-piece provided with conical holes on two of its sides arranged opposite to but not

communicating with each other, and an extension-arm having an indicator.

3. An alinement-gage for lathes, consisting of a body-piece provided on two sides with holes arranged opposite to but not communicating with each other, and an extension-arm provided with an adjustable clamp, in combination with a micrometer.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM C. FOX.
CHESTER J. SHAW.

Witnesses:
GEO. R. TURNER,
HALCON G. TURNER.