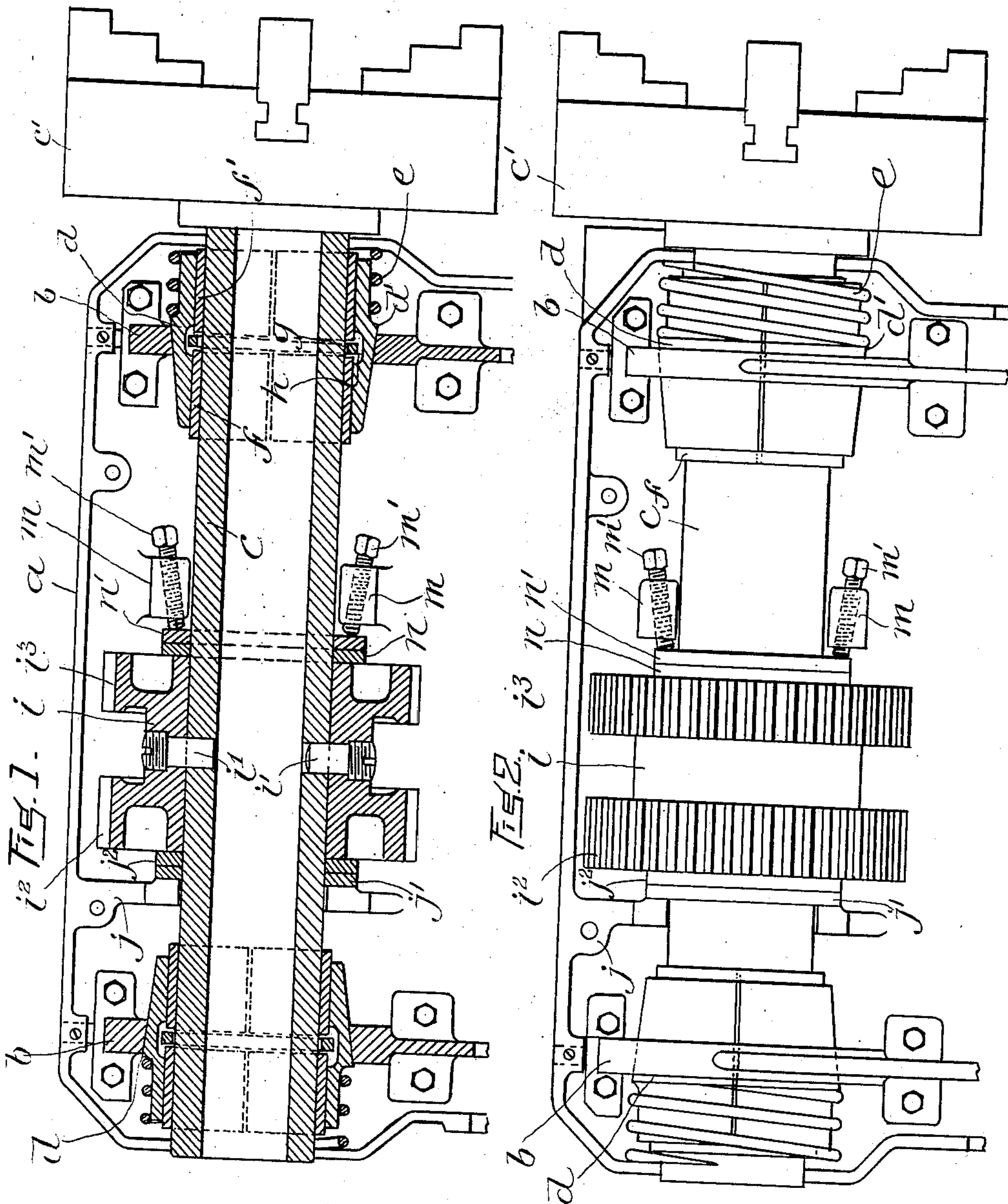


No. 840,322.

PATENTED JAN. 1, 1907.

J. HARTNESS.
LATHE SPINDLE.

APPLICATION FILED MAY 26, 1905.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JAMES HARTNESS, OF SPRINGFIELD, VERMONT.

LATHE-SPINDLE.

No. 840,322.

Specification of Letters Patent.

Patented Jan. 1, 1907.

Original application filed July 27, 1903, Serial No. 167,068. Divided and this application filed May 26, 1905. Serial No. 262,419.

To all whom it may concern:

Be it known that I, JAMES HARTNESS, of Springfield in the county of Windsor and State of Vermont, have invented certain new and useful Improvements in Lathe-Spindles, of which the following is a specification.

This invention has relation to lathe-spindles such as may be employed in connection with the lathe illustrated in application Serial No. 167,068, filed July 27, 1903, of which this is a division.

On the accompanying drawings, Figure 1 represents in plan view a portion of a lathe-stock with the cover removed, so as to show the spindle in plan view. Fig. 2 represents a longitudinal section through the same.

On the drawings the head of the lathe is indicated at *a*, and it is constructed substantially as set forth in my copending application and is provided with a removable cover, which is not illustrated. Within this head or casing at the ends are two uprights or supports *b b*, which are bolted or otherwise secured at their lower ends to the bottom of the casing or head. These uprights support the journal-boxes for the various shafts and the spindle, which are arranged in the head.

The spindle is indicated at *c*. It consists of a hollow shaft having a smooth unshouldered periphery or exterior surface and is adapted to be driven, as will be subsequently explained. Upon one end it is provided with a chuck *c'* and at its other end may be equipped with a stock-feeding mechanism, which I have not illustrated. It is journaled in bearing-boxes *d d*, which project in opposite directions, each having a tapering portion which extends into the outwardly-tapering aperture in one of the uprights *b*. The outer end of each box is reduced and is of a cylindrical form to receive a spring *e*, one end of which bears against the end wall of the head or casing and the other bears against the shoulder *d'* on the box, so that the boxes are forced yieldingly toward each other into the tapering apertures in the uprights or supports. Between each box and the shaft are placed bushings *f f'* of suitable material, the adjacent ends being somewhat separated, as shown, to receive between them a loose ring *g*, which is adapted to rotate in a cavity *h* formed in the box. This ring assists in carrying the lubricant which is contained in the cavity to the various parts of the bearings. Each box *d* may be split, and as the spring *e* is

comparatively strong and durable the boxes are adjusted to compensate for wear.

Between its ends there is secured to the spindle a member, which is indicated at *i*. It is secured in place by two screw-pins *i' i'*, which extend into lateral apertures formed in the spindle. This member constitutes the common hub of two gears *i² i³*, by means of either of which power may be transmitted to the spindle for its rotation. On one side of the gear *i²* there is a flange or web *j*, which is cast with the casing or head, and between said flange and the end of the hub or member *i* are two loose washers *j' j²*. On the opposite side of the hub or member *i* the casing or head is provided with two upstanding ears or lugs *m*, between which the spindle passes. Through the upper ends of these ears or lugs are passed set-screws *m'*, the inner ends of which bear against loose washers *n n'*, interposed between them and the end of the hub *i*. By adjusting the screws *m'* the hub or member *i* may be clamped against axial movement and, by reason of its pinned connection with said spindle, holds said spindle against movement longitudinally of its axis.

Except for the contrivance thus described the spindle is free to move longitudinally of the bearing-boxes, which are therefore free from all thrust and strain except that incident to the mere rotation of the spindle.

By withdrawing the screw-pins *i' i'* the spindle may be removed as an entirety from the head by drawing upon the chuck end thereof.

Having thus explained the nature of the invention and described a way of constructing and using the same, although without attempting to set forth all of the forms in which it may be made or all of the modes of its use, I declare that what I claim is—

1. In a lathe, a casing, journal-boxes supported thereby, rigid inwardly-projecting abutments on the interior of said casing between said journal-boxes and independent thereof, a live-spindle journaled in said boxes, and a member fast upon said spindle and held against axial movement by said abutments whereby the journal-boxes are relieved from the end thrust of said spindle.

2. In a lathe, a casing, journal-boxes supported thereby, rigid inwardly-projecting abutments on the interior of said casing between said journal-boxes and independent thereof, a live-spindle journaled in said boxes,

a member fast upon said spindle and held against axial movement by said abutments whereby the journal-boxes are relieved from the end thrust of said spindle, and screws interposed between said members and some of the abutments to compensate for wear.

3. A metal-working machine comprising a head having supports with tapering apertures, externally-tapering journal-boxes in said apertures, springs for maintaining said boxes in said apertures, a live-spindle journaled in said boxes, and means independent of said boxes and located between them for holding said spindle against axial movement.

4. In a metal-working machine, a head having end walls, supports in said head between the said end walls, journal-boxes in said supports, means located between said end walls and said journal-boxes for adjust-

ing said journal-boxes to compensate for wear, a spindle journaled in said boxes, and means independent of the boxes for holding said spindle against axial movement.

5. In a metal-working machine, a live-spindle, a head having bearings for the spindle and having thrust-shoulders independent of the bearings, and a member secured to the spindle and engaged by said shoulders for holding the said spindle against axial movement in combination with automatic compensating journal-boxes in said bearing.

In testimony whereof I have affixed my signature in presence of two witnesses.

JAMES HARTNESS.

Witnesses:

MARTIN J. MEARA,
C. PRENTZLIEU.