No. 622,497. Patented Apr. 4, 1899.

FRANK KOONS & FRED KOONS.

WORK HOLDING DIE FOR LATHES.

(Application filed Aug. 2, 1898.)

(No Model.)

Fig. 1.

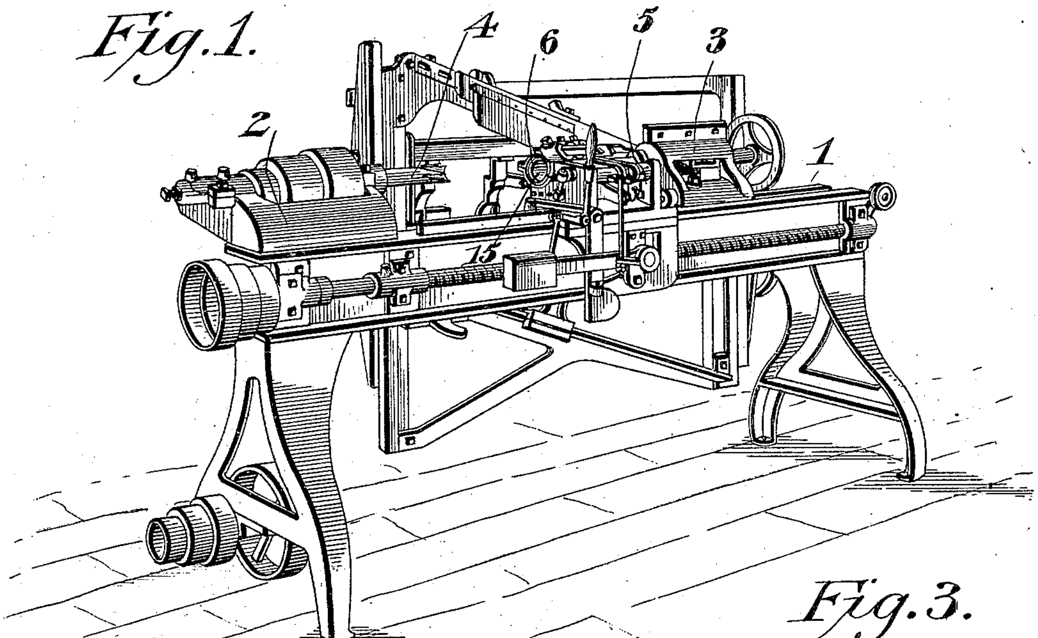


Fig. 2.

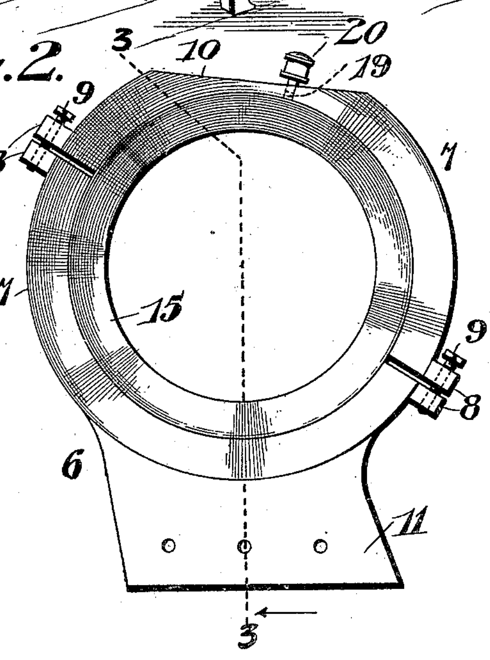
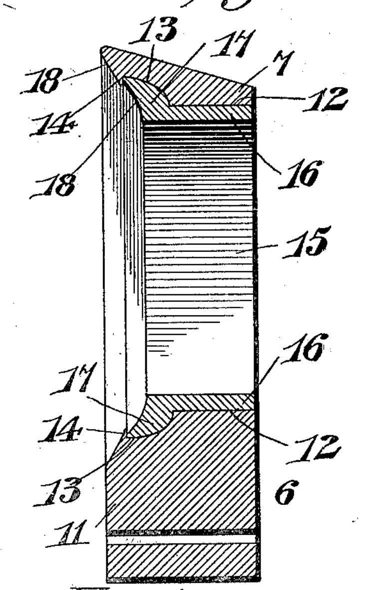


Fig. 3.



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UNITED STATES PATENT OFFICE.

FRANK KOONS AND FRED KOONS, OF EMMONSVILLE, NEW YORK.

WORK-HOLDING DIE FOR LATHES.

SPECIFICATION forming part of Letters Patent No. 622,497, dated April 4, 1899.

Application filed August 2, 1898. Serial No. 687,576. (No model.)

To all whom it may concern:

Be it known that we, FRANK KOONS and FRED KOONS, citizens of the United States, residing at Emmonsville, in the county of Sullivan and State of New York, have invented a new and useful Work-Holding Die for Lathes, of which the following is a specification.

This invention relates to work-holding dies for lathes; and it has for its object to provide an attachment of this character designed to be arranged on the stock or head opposite the live-center of the lathe and providing means for supporting and steadying one end of the stock while the knives are cutting.

To this end the invention primarily contemplates the provision of a work-holding die specially useful in connection with the "back-knife" variety of wood-turning lathes, but also applicable for use with other forms of wood-turning lathes having oppositely-located centers between which the work or stock is supported, said work-holding die having a member which receives the stock and freely rotates therewith, thereby avoiding the objections to the fixed non-rotatable work-holding dies or centers which produce such an amount of friction as to seriously interfere with the action of the machine and also at times burn or blacken the corners of the stock being turned. By obviating these objections the present invention provides for the running of the lathe with a less expenditure of power, while at the same time keeping the work or stock in good condition.

With these and other objects in view, which will readily appear as the nature of the invention is better understood, the same consists in the novel combination, construction, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

In the drawings, Figure 1 is a general view of a wood-turning lathe, showing the applied position of the work-holding die contemplated by the present invention. Fig. 2 is a front view of the work-holding die removed from the lathe. Fig. 3 is a vertical sectional view thereof on the line 3 3 of Fig. 2.

Referring to the accompanying drawings, the numeral 1 designates the bed of an ordinary wood-turning lathe, which supports the usual head and tail stocks 2 and 3, respectively, the head-stock supporting the live spindle or center 4 and the tail-stock 3 carrying the dead-center or holder for the stock or work rotated by the live-center, and in some types of lathes this dead-center or holder for the stock or work is in the form of tubular die to receive the stock and permit the same to rotate therein while being operated upon by the cutters or knives arranged adjacent thereto. Such a type of lathe is illustrated in Fig. 1 of the drawings and ordinarily is provided with a tubular work-holding die which is non-rotatable, but is designed to have one end of the stock rotate therein; and the present invention contemplates substituting for this non-rotatable die a die having a member which will freely rotate with the stock or work.

The die forming the subject-matter of the present invention is employed in connection with the slide-carriage 5 and the tail-stock 3 in the same position as the ordinary non-rotatable die for which it is substituted and is provided with a bearing-support 6. The bearing-support 6 of the improved work-holding die essentially comprises a collar 7, made in separate alined sections provided at their contiguous ends with opposing flanges 8, which are connected together by the set screws or bolts 9, said set screws or bolts 9 serving not only to couple the two sections of the bearing-collars together, but also to provide for the relative adjustment thereof to take up wear. At its upper side the collar 7 of the bearing-support is provided with a flattened portion 10 to provide clearance for the knives or cutters of the carriage 5, and at the lower side of the sectional or two-part collar the support 6 is formed with an attaching-foot 11, which is designed to be bolted to the movable stock of the lathe in the same position as the ordinary non-rotatable tubular die previously referred to.

The collar 7 of the bearing-support is formed with a smooth interior straight bearing-bore 12, at the front end of which is formed a rounded enlarged annular bearing-groove 13, offset from the main bore 12 and formed at its front edge with an inwardly-projecting retaining-shoulder 14 to provide for properly retaining in place the rotatable or revoluble work-holding ring 15. The rotatable or revoluble work-holding ring 15 has a straight exterior flange portion 16, which registers in

the main bore 12 of the bearing-collar 7, and at its front edge the said ring is further provided with an offset annular rounded bead 17, which registers in the annular bearing-groove 13 of the collar, and the front edge of which bead engages in rear of the retaining-shoulder 14 of the collar. The front edges of both said collar and the ring incline in the same direction, as at 18, to provide a flaring mouth or front end for the die to facilitate inserting the work or stock, while at the same time leaving a clearance for the untrimmed corners of square stock contiguous to the trimmed end fitting within the revoluble ring 15 to prevent burning or blackening of the corners while being turned.

To provide for a proper lubrication of the ring 15, a suitably-arranged oiling-hole 19 is formed in one of the collar-sections and has fitted therein an ordinary oil-cup 20.

The work-holding ring 15 is designed to receive either a round or square stock of the material, and when a square stock or piece of work is to be turned in the lathe the knife is set to trim the corners of the stock sufficiently to permit the latter to evenly and tightly fit the said ring 15, which will therefore necessarily rotate with the stock during the action of the knives or cutters.

Changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. A work-holding die for lathes, comprising a bearing-support having a collar, and a revoluble ring loosely mounted within the said collar, the front edges of both the collar and the ring being beveled in the same direction to provide a flaring mouth for the die, substantially as set forth.

2. A work-holding die for lathes, comprising a bearing-support having a collar provided at one end of its bore with an annular groove, and a revoluble ring loosely registering within said collar and formed at one end with an exterior bead engaging in said groove, the front edges of both the collar and the ring being beveled in the same direction to provide a flaring mouth for the dies, substantially as set forth.

3. A work-holding die for lathes, comprising a bearing-support having a collar formed with a straight bearing-bore, and at the front end of the latter with an enlarged interior annular bearing-groove, the front wall of which groove forms a short inwardly-projecting retaining-shoulder, and a revoluble ring having a straight cylindrical portion loosely registering in the straight bore of the collar and provided at one end with an exterior offset annular bead registering in said annular bearing-groove and engaging against the inwardly-projecting retaining-shoulder, substantially as set forth.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

FRANK KOONS.
FRED KOONS.

Witnesses:
JACOB M. MAYBEE,
PETER B. AKINS.