May 25, 1926.

1,586,139

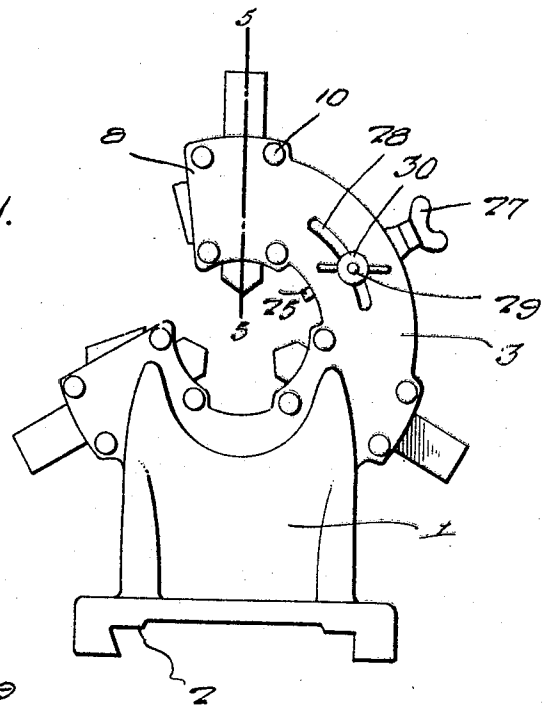
A. BIVINS

LATHE ATTACHMENT

Filed March 10, 1924

2 Sheets-Sheet 1

Fig. 1.



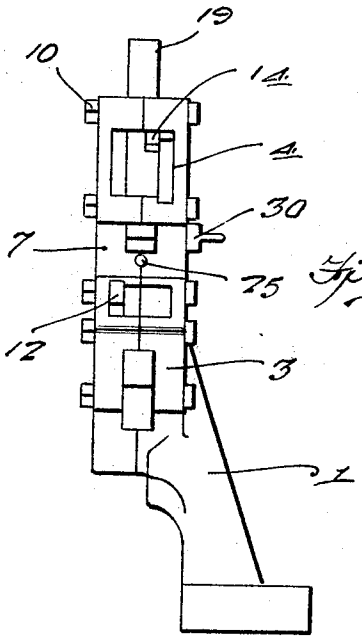


Fig. 2.

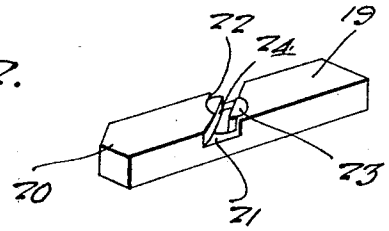


Fig. 6.

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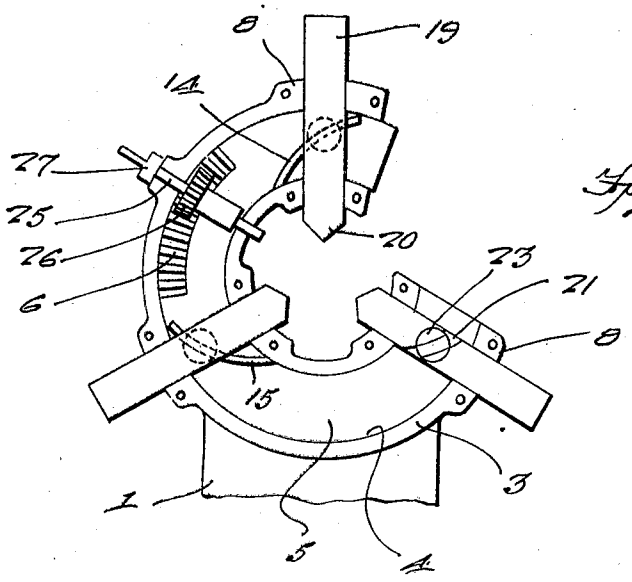


Fig. 3.

Fig. 5.

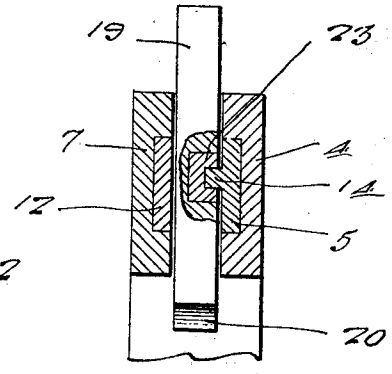
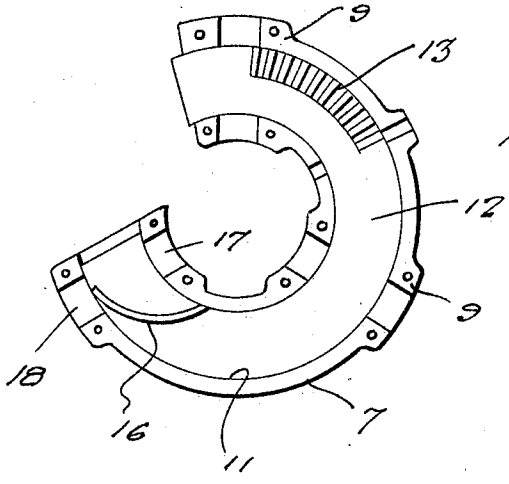


Fig. 4.



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UNITED STATES PATENT OFFICE.

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LATHE ATTACHMENT.

Application filed March 10, 1924. Serial No. 698,256.

This invention relates to new and useful improvements in work holders which are principally adapted to be used on lathes, wherein the same provides a rest for the work on the lathes and also automatically centers the same.

One of the important objects of the presnet invention is to provide a device of the above mentioned character which may be easily and quickly adjusted for use, a plurality of simultaneously operated jaws being provided for engaging and supporting the rod or work on the lathe.

A further object of the present invention is to provide a device of the above mentioned character, which is of such a construction as to enable the several parts thereof to be readily disassembled whenever necessary and whereby considerable time and labor is saved in operating the device.

A further object is to provide a lathe attachment of the above mentioned character, which is simple in construction, inexpensive, strong and durable, and further well adapted for the purposes for which it is designated.

Other objects and advantages of this invention will become apparent during the course of the following description.

In the accompanying drawings forming a part of the specification and in which like numerals designate like parts throughout the same:

Figure 1 is a side elevation of my invention.

Figure 2 is a front end elevation thereof.

Figure 3 is a fragmentary side elevation with one of the segmental sections removed.

Figure 4 is a detailed view of the detached segmental sections.

Figure 5 is a vertical section taken on line 5—5 of Figure 1.

Figure 6 is a detailed perspective view of one of the jaws.

In the drawings wherein for the purpose of illustration is shown the preferred of my invention, the numeral 1 designates a support, the base of which is provided with the cutaway portion 2 for enabling the device to be removably supported on a lathe of the well known construction. Formed on the upper portion of the support 1, is the segmental section 3, the same being provided with the groove or channel 4 which extends from end to end in the inner face of the same. Adapted to fit within the groove 4 provided in the inner face of the segmental section 3 is the segmental plate 5 and the latter is provided with a segmental rack portion 6 in the outer face thereof in the manner as clearly shown in Figure 3 of the drawings, and the purpose of which will be hereinafter more fully described.

A similar section such as is shown at 7 in the drawings is adapted to be detachably secured to the segmental section 3 whereby complementary sections are formed. Each of the segmental sections 3 and 7 respectively, are provided with the enlarged portions 8 and 9 respectively, at spaced intervals, the purpose thereof being to provide a means for receiving the fastening bolts 10. Any number of these fastening bolts are provided for securing the complementary sections in position with respect to each other whereby the objects of the present invention may be properly carried out. The detachable segmental section 7 is also provided with the groove 11 which is formed in the inner face thereof and extends from end to end of the section and adapted to be supported in the groove or channel 11 provided in the section 7 is the segmental plate 12 which is of the same construction as the segmental plate 5 supported in the channel or groove 4 formed on the inner face of the segmental section 3. The last mentioned segmental plate 12 is also provided with the segmental rack portion 13 for cooperation with the segmental rack portion 6 in a manner as will be presently apparent.

Formed on the outer face of the segmental plate 5 adjacent the upper end and the intermediate portion thereof respectively, are the arcuate shaped projections 14 and 15 respectively. These projections form cams for engagement with the jaws, the construction of which will also be hereinafter more fully described. A similar projection 16 is formed on the outer face of the segmental plate 12 which is slidably supported in the segmental section 7 adjacent the lower end thereof in the manner as clearly shown in Figure 4 of the drawings. Formed in the inner opposed faces of the complementary segmental sections 3 and 7 respectively, preferably at the enlarged portions 8 and 9 respectively, thereof, are the transversely extending registering slots 17 and 18 respectively. In the present instance, I have shown

three of such enlarged portions with the slots formed therein for receiving the three gripping jaws now to be presently described.

Each of the jaws comprises an elongated bar 19, the inner end of which is provided with a tapered head 20 which forms a work engaging portion. Each gripping jaw is further provided with the arcuate shaped groove 21 which extends transversely in the wider face of each jaw, the diagonally opposed ends of the transversely extending groove 21 being enlarged as shown at 22 in the drawings for receiving therein the rotatable head 23 which is provided with an arcuate slot 24 for registration with the transversely extending arcuate groove 21 provided in each of the jaws. Normally the rotatable head 23 has its transversely extending arcuate slot 24 in registry with the arcuate groove 21 provided in each of the jaws whereby the arcuate projections formed on the outer faces of the segmental plates will fit therein.

As is more clearly shown in Figure 3 of the drawings, two of the jaws 19 have their arcuate grooves formed therein receiving the arcuate projections 15 and 14 while the remaining jaw has its arcuate shaped slot extending through the outer face thereof to receive the arcuate projection 16 formed on the outer face of the segmental plate 12 which is supported in the channel 11 of the segmental section 7. In this manner it will be readily seen that the pointed heads 20 of each of the jaws extend inwardly with respect to each other and are each equally spaced from one another.

Journalled between the complementary segmental sections 3 and 7 respectively and preferably disposed between the arcuate projections or cams 14 and 15 respectively is the shaft 25. The intermediate portion of the shaft 25 carries thereon the pinion 26 which is adapted to mesh with the inner opposed segmental rack sections 6 and 13 respectively, provided on the segmental plates 5 and 12 respectively, and for the purpose of actuating the shaft 25, I provide on the outer end thereof the handle 27. Formed in the outer face of the segmental section 3 between the upper and intermediate enlarged portions 8 thereof is the arcuate slot 28. A suitable clamping bolt 29 which is carried by the inner face of the segmental plate 5 is adapted to extend through the slot 28 and a thumb nut or the like such as is illustrated at 30, is threaded on the outer end of the bolt 19 whereby the plate 5 will be held against accidental displacement after the same has been properly adjusted in the manner as will be presently described.

With the parts arranged as shown in Figure 1 of the drawings, the operation of the handle 27 on the shaft 25 will cause the pinion 26 to rotate the segmental plates 5 and 12 respectively, through the medium of the segmental rack portions 6 and 13 respectively, in opposite directions and when the jaws 19 are at their outermost positions, the device is placed into engagement with the work supported in the lathes whereby the same may be centered and supported on the lathes, the work being inserted into the work holder between the open ends of the complementary sections. After the work has been set between the jaws, the handle 27 is then rotated in the opposite directions, whereby the rotary movement of the plates 5 and 12 in the opposite directions will cause the arcuate cams carried thereby to ride in the arcuate grooves formed in the gripping jaws 19 and will simultaneously cause an inward radial movement of all of the jaws whereby to engage and hold the work in a centered position in the work holder. After the jaws have been adjusted to engagement with the work, the thumb nut 30 is then tightened so as to prevent any possibility of the jaws from accidently being moved outwardly out of engagement with the work and causing the latter to be moved off center.

The simplicity of my device enables the same to be easily and readily placed in position on a lathe and does not require the use of any complicated tools in order to actuate the several jaws whereby the work may be properly centered and supported on the lathe. When it is not desired to use the work holder, the same may be readily removed from the lathes. Furthermore, the construction of my lathe attachment is such as to enable the several parts to be readily disassembled whenever necessary in order to replace the jaws in case any of the parts should become inoperative.

While I have shown the preferred embodiment of my invention, it is to be understood that various changes in the size, shape and arrangement of parts may be resorted to without departing from the spirit of the invention and the scope of the appended claims.

Having thus described my invention, what I claim is:

1. A device of the class described comprising complementary segmental sections, segmental rack members supported in said sections, a plurality of jaws slidably supported between said sections and between said rack members therein, means on said segmental rack members for moving the jaws radially with respect to said sections, and a pinion operable between said rack members for actuating the latter in opposite directions in said sections.

2. A device of the class described comprising a pair of complementary segmental sections, segmental plates supported therein, a plurality of jaws slidably supported be-

tween said sections and the plates supported therein, means on said segmental plates for moving the jaws radially with respect to said sections, and means for actuating said plates in opposite directions whereby said jaws may be moved inwardly and outwardly.

3. A device of the class described comprising a pair of complementary segmental sections, said sections having a groove formed in the inner faces thereof, segmental plates slidably supported in said grooves, a plurality of jaws slidably supported between said sections and disposed between the inner opposed sections of said segmental plates, means associated with said segmental plates for actuating the same in opposite directions, means on said segmental plates for moving the gripping jaws radially with respect to said sections simultaneously, and means for holding said plates and jaws in adjusted positions.

4. A device of the class described comprising a pair of complementary segmental sections being channeled in cross section, segmental plates fitting in said channel-shaped sections, a plurality of jaws slidably supported between said sections and disposed between the inner opposing faces of said segmental plates, segmental rack portions formed on the inner opposed faces of said segmental plates, a pinion supported between said sections and adapted to cooperate with the segmental rack portions of said plates for rotating the latter in opposite directions, and means on said segmental plates for cooperation with said jaws for moving the latter radially with respect to said sections simultaneously.

5. A device of the class described comprising a pair of complementary segmental sections being channeled in cross section, segmental plates fitting in said channel sections, a plurality of jaws slidably supported between said sections and disposed between the inner opposing faces of said segmental plates, segmental rack portions formed on the inner opposed faces of said segmental plates, a pinion supported between said sections and adapted to cooperate with the segmental rack portions of said plates for rotating the latter in opposite directions, means on said segmental plates for cooperation with said jaws for moving the latter radially with respect to said sections simultaneously, and locking means for holding said plates and jaws in adjusted positions.

6. A device of the class described comprising a pair of complemental segmental sections detachably fastened together, said sections being channeled in cross section, segmental plates receivable in said channeled sections, segmental rack portions formed on the inner opposed faces of said segmental plates, jaws slidably supported between said sections and disposed between the inner opposed faces of said segmental plates, a shaft journalled between said sections, a pinion on said shaft adapted to mesh with the opposed segmental rack sections formed on said segmental plates for actuating said plates in opposite directions, arcuate shaped cams formed on the inner faces of said plates and adapted to operate in the arcuate shaped grooves formed in said jaws whereby the latter may be moved radially with respect to said sections simultaneously upon the rotation of said segmental plates in opposite directions.

7. A device of the class described comprising a pair of complemental segmental sections detachably fastened together, said sections being channel-shaped in cross section, segmental plates receivable in said channeled sections, segmental rack portions formed on the inner opposed faces of said segmental plates, jaws slidably supported between said sections and disposed between the inner opposed faces of said segmental plates, a shaft journalled between said sections, a pinion on said shaft adapted to mesh with the opposed segmental rack sections formed on said segmental plates for actuating said plates in opposite directions, arcuate shaped cams formed on the inner faces of said plates and adapted to operate the arcuate shaped grooves formed in said jaws whereby the latter may be moved radially with respect to said sections simultaneously upon the rotation of said segmental plates in opposite directions, and a clamping member associated with one of said plates and extending through the respective section therefor for holding the plates and jaws in adjusted positions.

In testimony whereof I affix my signature.

ABRAHAM BIVINS.