

No. 796,023.

PATENTED AUG. 1, 1905.

F. O. WAITE.
LATHE.

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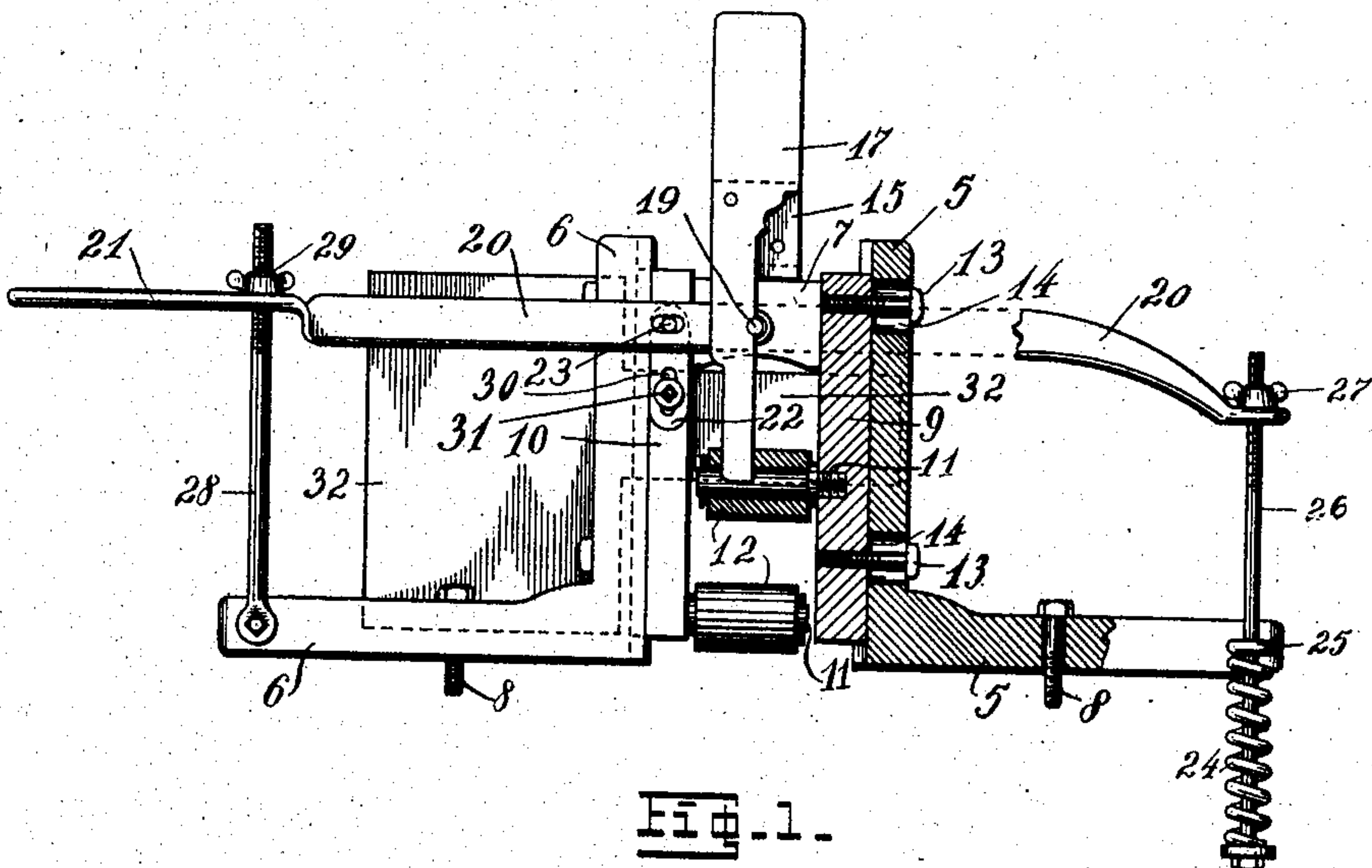


Fig. 1.

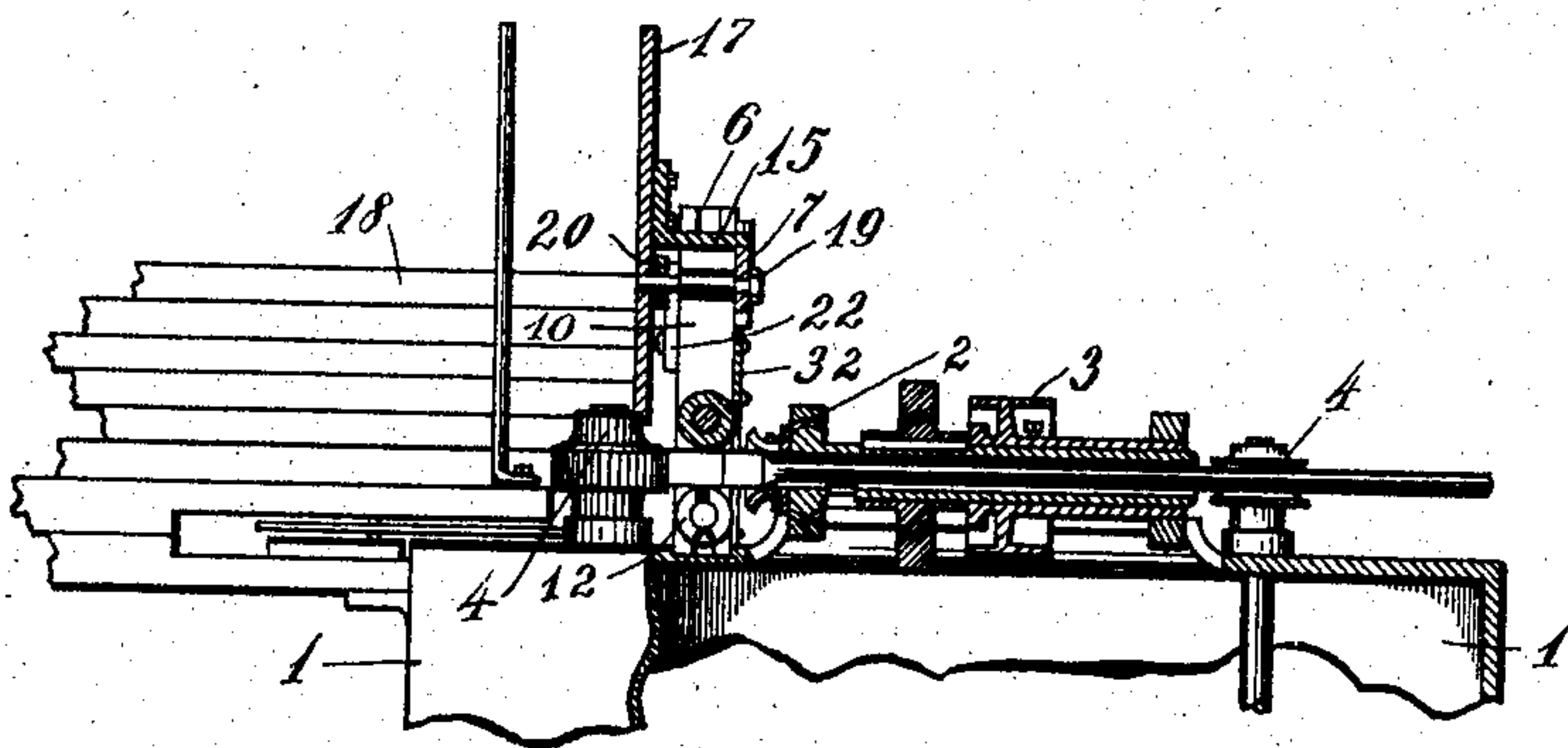


Fig. 2.

WITNESSES:

Bennett West.
Cassie M. Eloy.

Frank O. Waite, INVENTOR,

BY
Fouts & Hull,
ATTORNEYS.

UNITED STATES PATENT OFFICE.

FRANK O. WAITE, OF CHAGRIN FALLS, OHIO, ASSIGNOR TO THE OBER MANUFACTURING COMPANY, OF CHAGRIN FALLS, OHIO.

LATHE.

No. 796,023.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRANK O. WAITE, residing at Chagrin Falls, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Lathes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to an attachment for automatic lathes; and it has for its object the production of simple and effective means for accurately centering the stock or work with respect to the lathe-head or cutters.

In the drawings forming part of this application, Figure 1 is a front view of my invention, some of the parts being shown in section, the same being detached from the machine to which it is to be applied; and Fig. 2 is a central sectional view of my invention, the same being shown as applied to automatic lathes, parts of the latter being shown in section and parts in elevation.

The machine to which my invention is intended to be applied is of the type illustrated in the patent to George H. Ober, granted June 1, 1897, No. 583,505, and reference is made to this patent for a specific disclosure of this machine. In the present application only such portion of the machine is illustrated as will be sufficient to show the connection of my improved centering device therewith.

Referring now to the drawings, in which similar reference characters designate corresponding parts in both views, 1 represents a portion of the frame of an automatic lathe, similar to that shown in the patent above referred to, said lathe being provided with the usual form of cutter-head 2 and driving-pulley 3. Driven feed-rollers 4 are employed for engaging with the work and assisting in feeding the same through the cutter-head. By referring to the Ober patent hereinbefore cited a full understanding of the construction of the lathe can be obtained, so that it is not deemed necessary to describe it more fully herein.

The frame proper for the attachment is preferably cast into parts 5 and 6, said parts being substantially of an L shape with their horizontal portions turned outwardly, the vertical parts of these castings being secured together by a cross-plate 7. The parts 5 and 6 rest within a slight groove or depression in

the bed-plate 1 and are secured in place by bolts 8. The inner faces of the vertical portions of the parts 5 and 6 are grooved to form guides for vertically-movable members 9 and 10, the member 9 being shown in section in Fig. 1. These members carry on their inner faces bolts or studs 11, which form bearings for rollers 12, which guide the work to the cutters. Members 9 and 10 are held in their guide-slots on the parts 5 and 6 by bolts 13, which extend outwardly from the said members through slots 14 in the said parts.

Secured to the cross-plate 7 is an angle iron or plate 15, and to the forward side of this angle-plate is attached a guard-plate 17, against which the rear ends of the stock-pieces 18 abut, said plate serving to prevent the said pieces from being fed into the device except between the rollers 12. This guard-plate also serves to support the forward end of a pivot pin or bolt 19, said bolt being supported at its rear end in the cross-plate 7. Pivoted upon the pin or bolt 19 just at the rear of the guard-plate is a transverse lever 20, said lever being provided at one of its ends with a handpiece 21, as shown in Fig. 1. The members 9 and 10, carrying the guide-rollers, are supported from this lever 20, being secured thereto by plates 22, which have projecting pins 23 working in slots in the lever. As the members 9 and 10 are thus secured to the lever on opposite sides of the pivot-pin 19, it will be apparent that when the lever is rocked the said members will be moved in opposite directions. This movement of the levers carries the guide-rollers 12 toward or from each other. A yielding connection is made between one end of the lever 20 and the outer end of the arm 5 of the casting by means of a rod 26, extending through a lug or eyepiece 25 on the outer end of the arm 5, a spring 24 surrounding the portion of the rod which projects below said lug or eyepiece and bearing against the same and a nut or washer on the lower end of the rod 26. The upper end of the rod 26 projects through the outer end of the lever 20 and is provided with a wing-nut 27. The spring tends to depress the end of the lever to which it is attached, and this causes the member 9 to force its guide-roller against the upper side of the work. The same movement causes the member 10 to press its roller against the lower side of the work, so that this spring causes

the rollers to grip the work both above and below. The tension of the spring 24 can be regulated by the wing-nut 27 on the upper end of the rod 26, which nut bears against the lever 20.

Extending upwardly from the outer end of the casting 6 is a bolt 28, which passes through the lever 20 and holds the same from excessive movement due to the spring 24, said bolt being provided with a wing-nut 29, which also bears against the upper side of the lever. This bolt and nut hold the rollers 12 sufficiently far apart to permit the stock to be fed between them, although said stock will press the rollers apart when it has once been gripped by them, the spring 24 permitting the rollers to yield or spread apart.

From the above description it will be understood that if the rollers 12 are so placed that the point midway between them will be in line with the cutter-head they will maintain this relative position with respect to the cutter-head, as well as the center of the work therebetween, no matter how far apart they may be separated or how closely they may approach to each other, it being understood that the points of attachment of the members 9 and 10 with the lever 20 are equidistant from the pin 19.

In order to adjust the rollers 12 accurately with respect to the cutter-head, the members 9 and 10 are adjustably secured to the plates 22, such adjustment consisting of a slot 30 in each of said plates, through which extends a bolt 31, said bolts screwing into the said members. By loosening these bolts the members, with their rollers, may be set in any desired position and may be secured in such position by simply tightening the bolts.

When the lathe is new and the bearings for the cutter-head unworn, the guide-rollers will be adjusted so that the work will be fed properly thereto. If, however, these bearings should become worn, the belt passing over the driving-pulley 3 will lift the cutter-head as far as their bearings will permit, which will bring it out of line with the guide-rollers. If it is not then possible to adjust said rollers with respect to the cutter-head, the work will be improperly fed thereto, and if a perfect handle is produced a larger piece of stock will have to be employed. With my invention, however, the guide-rollers may then be accurately adjusted with respect to the cutter-head. The automatic and equal movement of the guides relatively to the center of the stock permits me to employ therewith stock that tapers from end to end to produce a correspondingly-tapered finished article without the removal of an unnecessary amount of stock.

In order to prevent the chips from flying in front of the centering device, I attach to the castings 5 and 6 a plate 32, which extends from one casting to the other below the cross-plate

7 and then is enlarged so as to almost fill the angle in the casting 6.

While I have illustrated and described my preferred form of construction, it will be evident that this construction may be varied without departing from the spirit of my invention, and I desire it to be understood, therefore, that the following claims are not limited any further than their express terms or the prior state of the art renders necessary.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a lathe, the combination of a cutter-head, a frame adjacent to and extending transversely of said head, said frame having a pair of spaced guideways therein, a roller-carrying member mounted in each of said guideways, a guide-roller carried by each of said members, a lever extending across said guideways and pivoted intermediate thereof, said lever being connected on opposite sides of its pivot and equidistant therefrom to said members, means operating upon said lever on one side of said pivot to move said members in a direction to bring the guide-rollers toward each other and an adjustable stop for limiting such movement of the lever, substantially as specified.

2. In a lathe, the combination of a cutter-head, a frame adjacent to and extending transversely of said cutter-head, said frame having a pair of spaced guideways therein, a roller-carrying member mounted in each of said guideways, a guide-roller carried by each of said members, a lever extending across said guideways and pivoted intermediate thereof, said lever being connected on opposite sides of its pivot and equidistant therefrom to said members, a spring operatively connecting one arm of said lever with said frame, and a rod extending between said frame and the other arm of said lever and adjustably connected therewith, substantially as specified.

3. In a lathe, the combination of a cutter-head, a frame adjacent to and extending transversely of said head, said frame having a pair of spaced guideways therein, a single roller-carrying member slidably mounted in each of said guideways, a guide-roller carried by each of said members, a lever pivoted intermediate of said members and connected thereto equidistant from its pivot, means connected with said lever for forcing the rollers toward each other, and a stop for limiting the movement of said lever by said means, substantially as specified.

4. In a lathe, the combination of a cutter-head, a frame adjacent to and extending transversely of said head, said frame having a pair of spaced guideways therein, a single roller-carrying member slidably mounted in each of said guideways, a guide-roller carried by each of said members, a lever pivoted intermediate of said members and equidistant therefrom,

an adjustable connection between each of said members and said lever, means connected with said lever for forcing the rollers toward each, and a stop for limiting the movement of said lever by said means, substantially as specified.

5. In a lathe, the combination of a cutter-head, a frame adjacent to and extending transversely thereof, said frame having therein a pair of spaced guideways, a roller-carrying member slidably mounted in each of said guideways, a lever extending across said guideways and members and pivoted therebetween, said lever being provided with a slot opposite each of said members, a plate adjustably secured to each of said members and having a pin projecting into the corresponding lever-slot, said pins being equidistant from the pivot of the lever, and means connected with said lever for forcing said rollers toward each other, substantially as specified.

6. In a lathe, the combination of a cutter-head, a frame comprising a pair of angular members each having a vertical arm and a horizontal arm, said vertical arms being spaced apart and each provided with a guideway, a guide-roller carrier slidably mounted in each of said guideways, a lever extending across

said vertical arms and pivoted therebetween, said lever being connected with said carriers equidistant from the pivot thereof, a spring connection between one arm of said lever and one of the horizontal arms of an angular member, and an adjustable connection between the other of said lever-arms and the longitudinal arm of the other angular member, substantially as specified.

7. In a lathe, the combination of a cutter-head, a frame adjacent to and extending transversely thereof, said frame having oppositely-located guideways therein, a roller-carrying member slidably mounted in each of said guideways, a roller carried by each of said members, a cross-plate uniting said guideways, a vertical guard-plate, a lever extending transversely across said guideways and connected to said members, and a pin extending through said cross and guard plates and said lever, substantially as specified.

In testimony whereof I affix my signature in the presence of two witnesses.

FRANK O. WAITE.

Witnesses:

E. ACKLAND,

J. W. SARGENT.