No. 804,793. PATENTED NOV. 14, 1905.

N. D. CHARD & W. LODGE.

GAGE DEVICE FOR LATHES.

APPLICATION FILED JAN. 3, 1905.

2 SHEETS—SHEET 1.

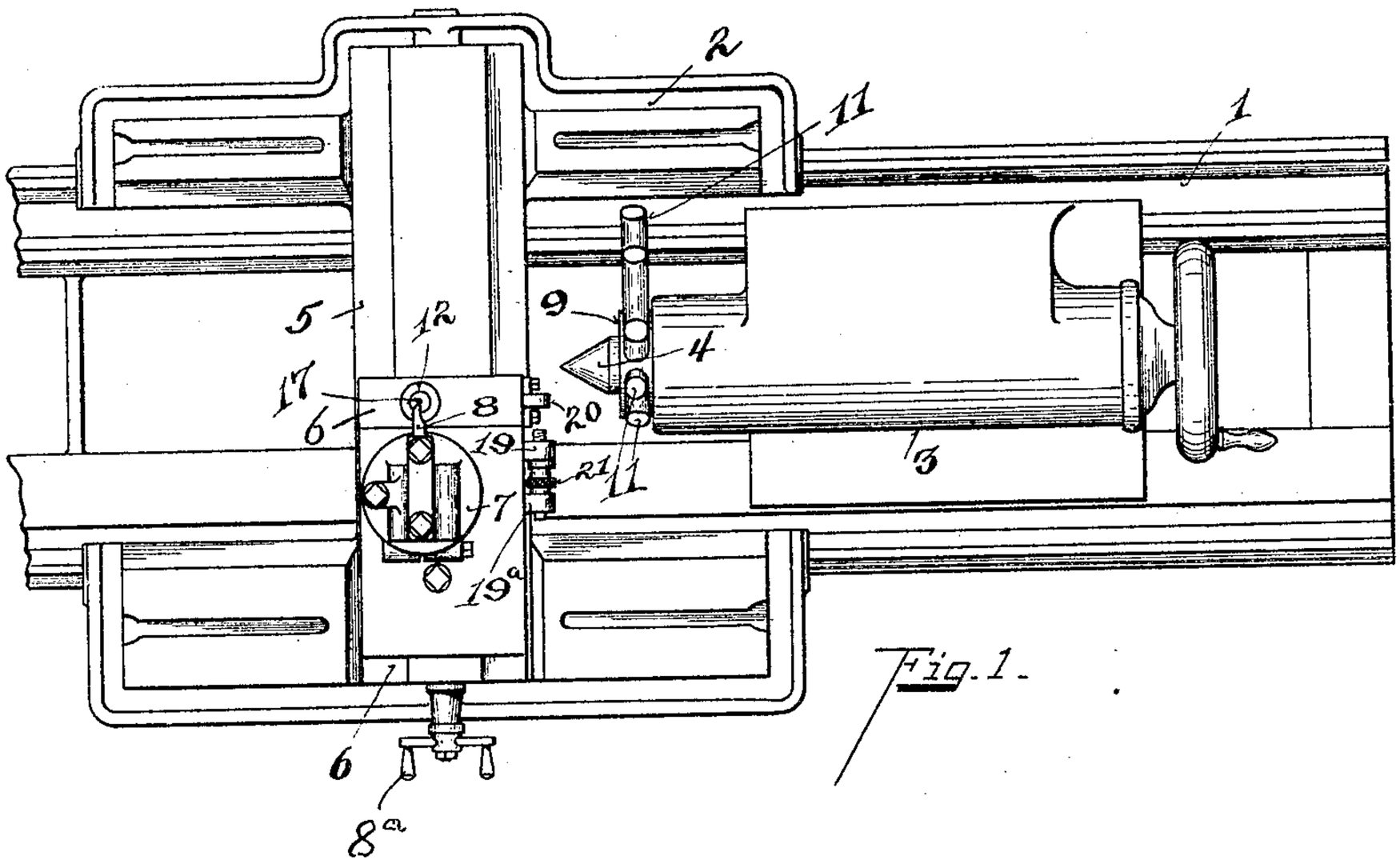

Fig. 1.

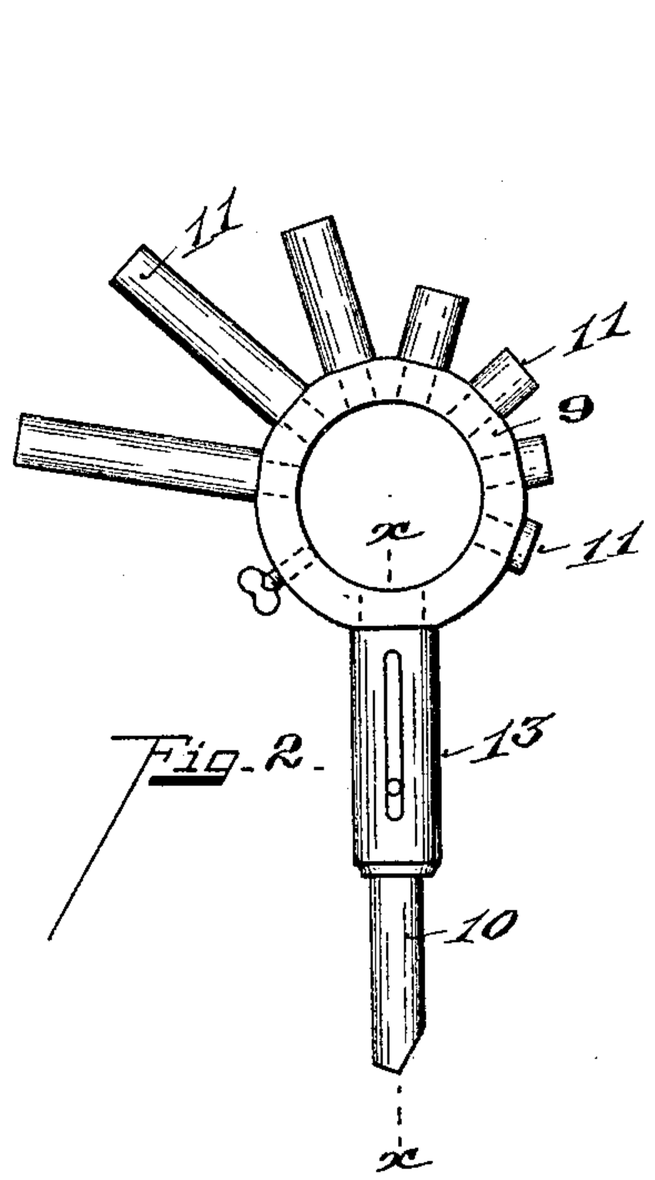

Fig. 2.

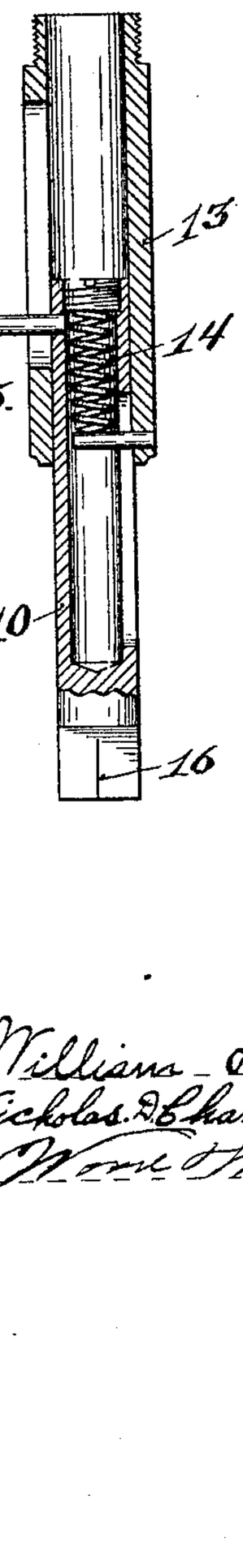

Fig. 3.

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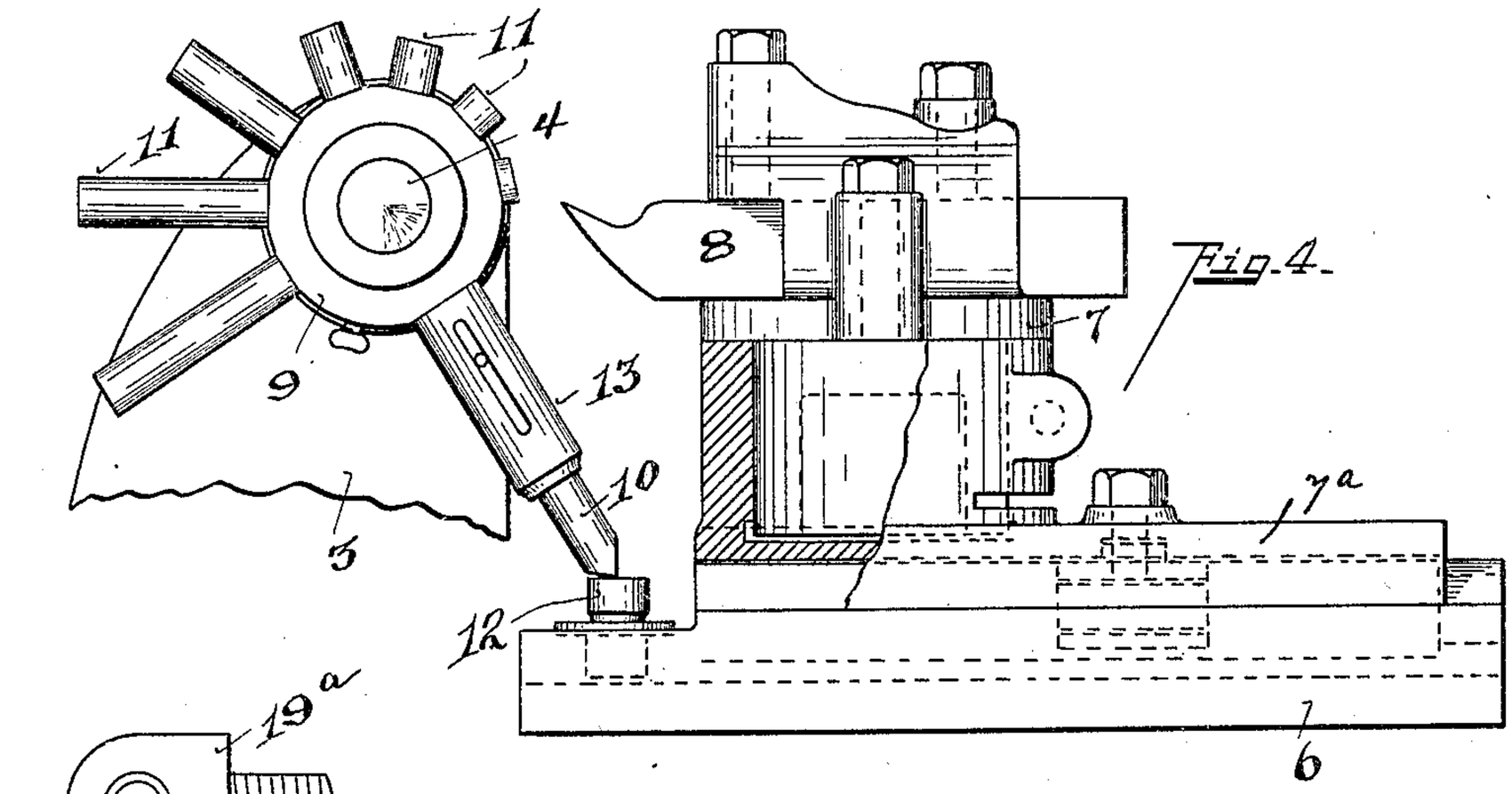

Fig. 4.

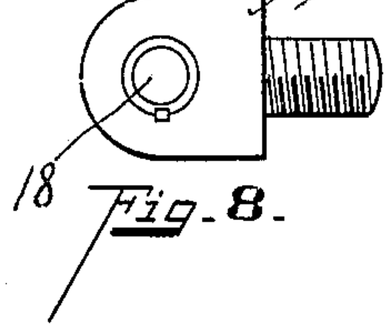

Fig. 8.

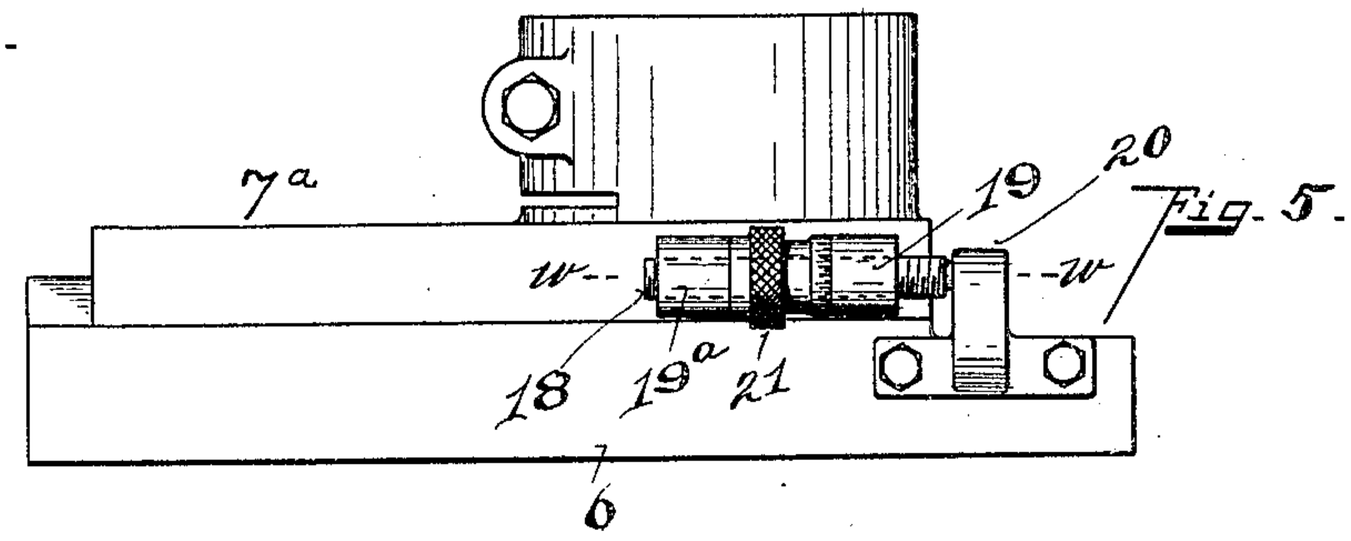

Fig. 5.

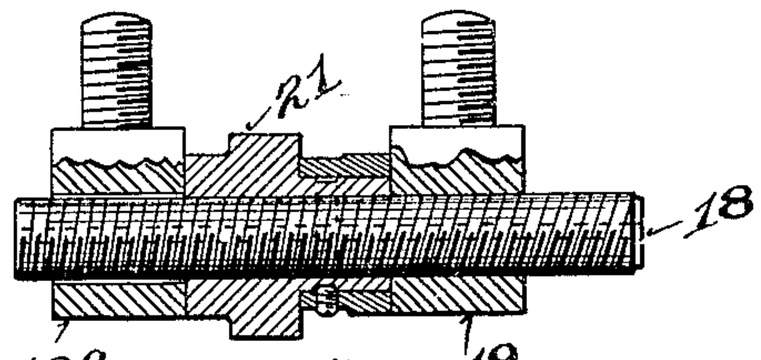

Fig. 7.

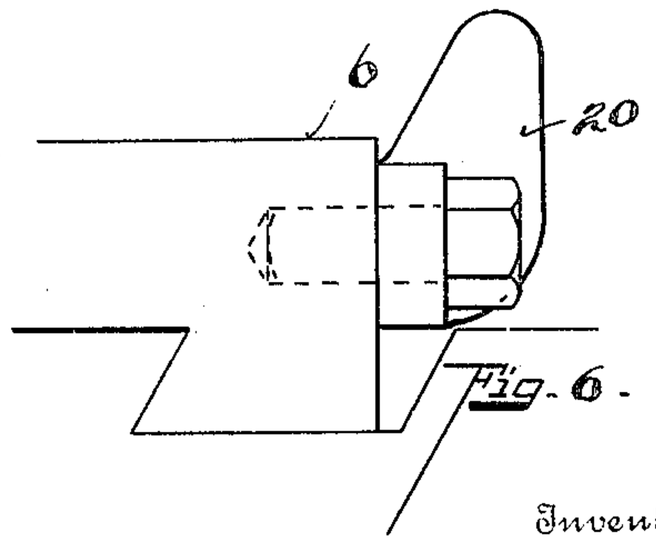

Fig. 6.

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UNITED STATES PATENT OFFICE.

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GAGE DEVICE FOR LATHES.

No. 804,793. Specification of Letters Patent. Patented Nov. 14, 1905.

Application filed January 3, 1905. Serial No. 239,492.

To all whom it may concern:

Be it known that we, NICHOLAS D. CHARD and WILLIAM LODGE, citizens of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Gage Devices for Lathes, of which the following is a specification.

Our invention relates to gage devices for the work-tool of an engine-lathe.

One of the objects of the invention is to provide means for accurately setting or alining the tool relative to the tool-post, so that the tool may be fed into the work with precision at a predetermined point, the cutting edge of the tool being presented correctly.

Another object of the invention is to provide means for positively limiting the inward travel of the tool-post when it has reached a predetermined diameter relative to the work clamped between the spindles.

The features of the invention are more fully set forth in the description of the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a top plan view of a lathe-bed, tail-stock, and carriage with our improvement in position. Fig. 2 is an enlarged plan view of the diameter-gage. Fig. 3 is a section on line *x x*, Fig. 2. Fig. 4 is an enlarged side elevation of tool-post, partly in section, upper portion of tail-stock with diameter-gage in position of centering. Fig. 5 is a side elevation of stop mechanism mounted on the tool compound rest. Fig. 6 is an enlarged front elevation of the stop shown in Fig. 5. Fig. 7 is a section on line *w w*, Fig. 5. Fig. 8 is a front elevation of one of the journal-brackets of the stop mechanism shown in section Fig. 7.

1 represents a longitudinal bedway. 2 represents the carriage thereon. 3 represents the tail-stock thereon.

4 represents the spindle or dead-center of the tail-stock.

5 represents the cross-rail of the carriage.

6 represents the base of an ordinary compound rest engaging the cross-rail 5, and 7 represents the tool-holder, having the base 7ª, which has a sliding gibway engagement with the upper face of the base 6.

8 represents the tool.

8ª represents the hand-wheel for reciprocating the tool-holder 7 upon the base 6. (See Figs. 1 and 4.)

The cross-feed-screw mechanism for reciprocating the base on the cross-rail 5 is not shown.

9 represents a collar adjustable rotatively upon the spindle of the tail-stock. It is provided with a radial alining-finger 10 and with a series of radial diameter-gage pins 11.

12 represents a stud secured to the base 6 under the projecting end of the tool 8. The stud 12 is provided with a center point 17. The finger 10 is provided with a center line 16. (See Figs. 1 and 3.) The finger 10 telescopes in the casing 13, projected from the collar 9, (see Fig. 3,) there being a spring 14 between the finger and casing holding the latter normally retracted. Finger 10 is provided with a handle 15, projecting through a slot in the casing 13, for manipulating the extensible finger 10.

On the side of the base 7ª of the tool-holder are brackets 19 19ª, (see Fig. 5,) in which are mounted an adjusting-screw 18, having the manipulating-knurl 21.

20 represents a stop secured to the base 6 of the compound rest adapted to coöperate with the projecting end of the screw 18 to arrest the travel of the tool-holder upon the base of the compound rest at a predetermined point.

Bracket 19ª is provided with the key 22, sliding within a groove formed longitudinally in the screw 18 to hold the screw against rotation, so that it may be longitudinally adjusted by manipulating the knurl 21.

Mode of operation.—The carriage is moved over toward the tail-stock and adjusted longitudinally of the bed until the line 16 of finger 10 registers exactly with the point 17 of stud 12, when the extensible finger 10 is brought into alining position. The collar 9 is then rotated and the finger 10 manipulated to bring the end of the finger opposite the tool. The tool is then adjusted in its seat until its cutting edge is alined with the line 16 of finger 10. As the line 16 also indicates the center of the gage-pins 11, it is obvious that by this process the tool is not only alined substantially at right angles relative to the lathe-axes, but that it is also alined relative to the gage-pins, so that the transverse position of the edge of the tool can be properly gaged by

these pins. Next, the pin of the desired gage of work is selected and by the rotation of collar 9 is presented opposite the cutting edge of the tool. The hand-wheel 8[a] is then manipulated to feed the tool-holder in until the edge of the tool just engages the selected gage-pin. At this point the knurl 21 is rotated to bring the end of the screw 18 into engagement with the stop 20. The tool-holder can then be fed backward on the base 6, the carriage moved opposite to its point of work, and the tool-holder fed in. Obviously the tool will then enter the work at the proper position, and the feed of the tool-holder will be automatically stopped when the work has been reduced to the selected diameter. It is obvious that this stop mechanism might be placed between a tool-holder and the cross-rail of the carriage if a simple rest were used instead of a compound, it being the function of this rest to stop the traverse of the tool-holder on the carriage at a predetermined point.

Having described our invention, we claim—

1. In an engine-lathe, the bed, carriage, tail-stock, spindle, and tool-holder transversely slidable on the carriage, a rotatably-adjustable collar on the spindle provided with a plurality of different-lengthed gage-pins, an adjustable screw on the tool-holder, and a coöperating stop adapted to be engaged by the end of the screw, to stop the traverse of the tool-holder at a selected point, substantially as described.

2. In an engine-lathe, the bed, carriage, tail-stock, spindle, and tool-holder transversely slidable on the carriage, a rotatably-adjustable collar on the spindle provided with an extensible alining-finger, an alining-stud on the tool-holder under the projecting edge of the tool, adapted to coöperate with the alining-finger for setting the edge of the tool, and means for clamping the tool on its holder, substantially as described.

3. In an engine-lathe, the bed, carriage, tail-stock, spindle, and tool-holder transversely slidable on the carriage, a rotatably-adjustable collar on the spindle provided with a plurality of different-gaged pins, an adjustable screw on the tool-holder, a coöperating stop adapted to be engaged by the end of the screw to stop the traverse of the tool-holder at a selected point, an extensible alining-finger also projected from said collar, an alining-stud on the tool-holder under the projecting end of the tool, adapted to coöperate with the alining-finger for setting the edge of the tool relative to the holder, and also relative to the gage-pin, and means for clamping the tool in its holder, substantially as described.

In testimony whereof we have hereunto set our hands.

NICHOLAS D. CHARD.
WILLIAM LODGE.

Witnesses:
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