W. LODGE.

DIAMETER GAGE FOR LATHES.

APPLICATION FILED SEPT. 22, 1909.

985,041.

Patented Feb. 21, 1911.

3 SHEETS—SHEET 1.

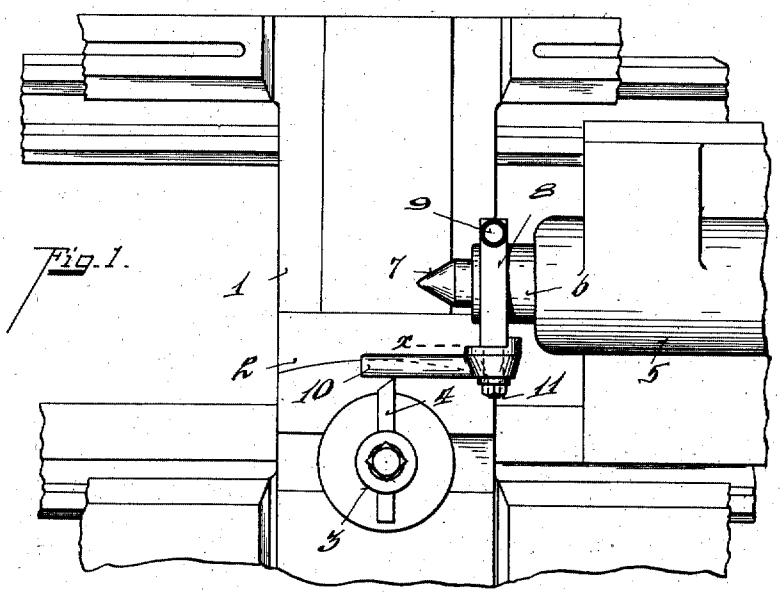

Fig. 1.

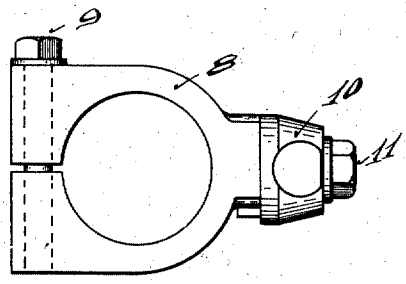

Fig. 2.

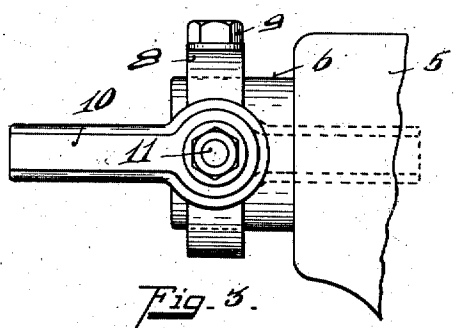

Fig. 3.

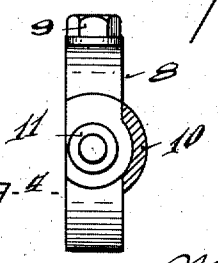

Fig. 4.

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3 SHEETS—SHEET 2.

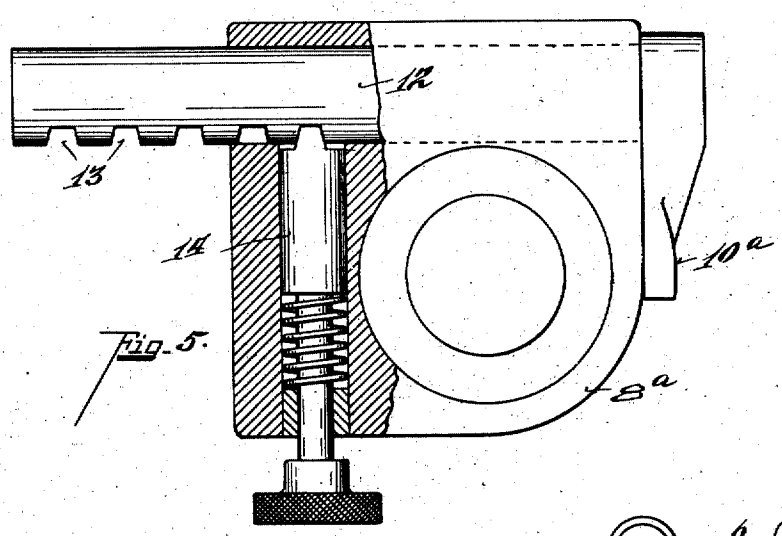

Fig. 5.

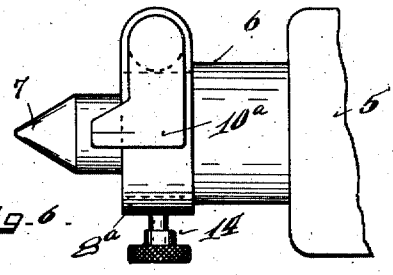

Fig. 6.

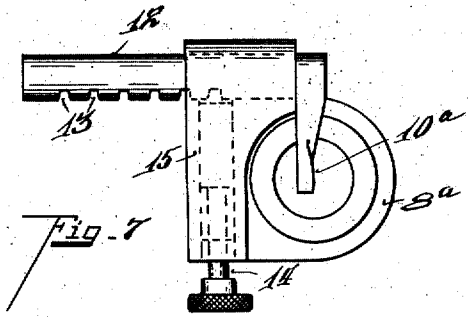

Fig. 7.

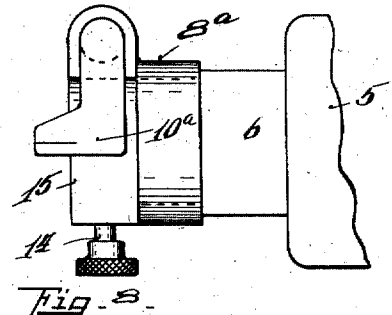

Fig. 8.

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3 SHEETS—SHEET 3.

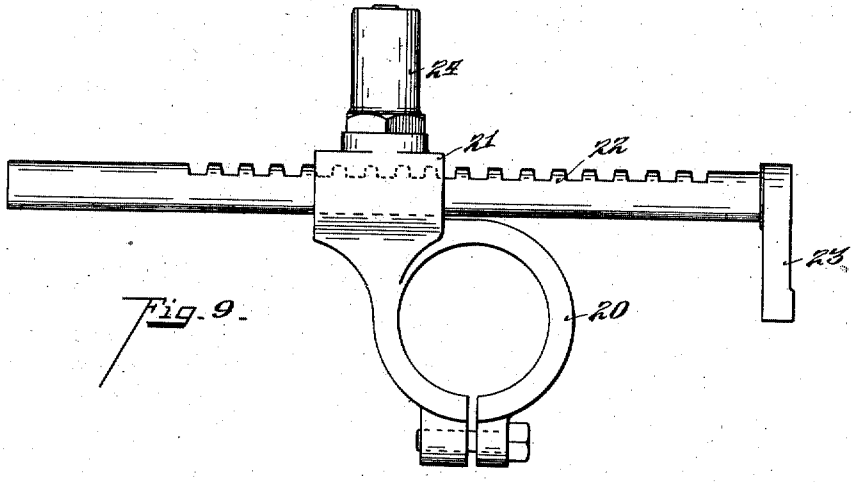

Fig. 9.

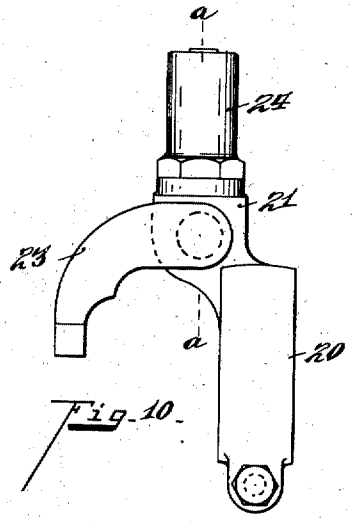

Fig. 10.

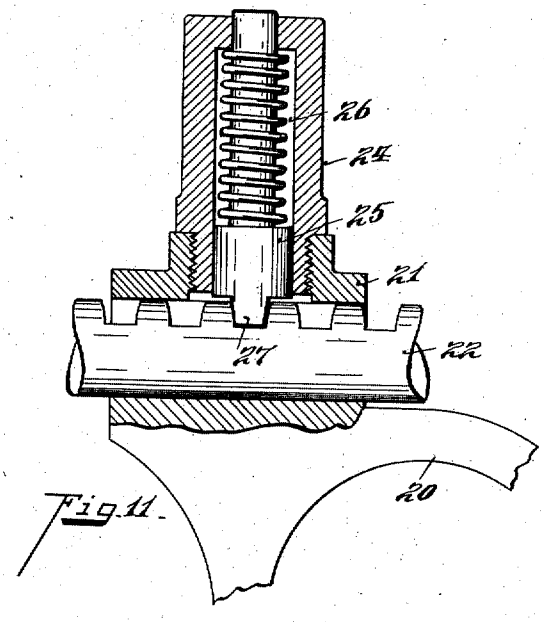

Fig. 11.

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UNITED STATES PATENT OFFICE.

WILLIAM LODGE, OF CINCINNATI, OHIO, ASSIGNOR TO THE LODGE & SHIPLEY MACHINE TOOL CO., OF CINCINNATI, OHIO, A CORPORATION.

DIAMETER-GAGE FOR LATHES.

985,041. Specification of Letters Patent. Patented Feb. 21, 1911.

Application filed September 22, 1909. Serial No. 519,037.

To all whom it may concern:

Be it known that I, WILLIAM LODGE, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Diameter-Gages for Lathes, of which the following is a specification.

My invention relates to a diameter gage for the cutting tool of an engine lathe and other analogous machines.

The object of the invention is to produce a device by means of which the point of the cutting tool can be accurately adjusted to a predetermined distance from the center of the lathe spindle, in order to save the time of the operator, and to insure absolute and uniform adjustment of the tool relative to the work.

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 my improved device in position on the tail-stock. Fig. 2 is a detailed end view of the gage holder. Fig. 3 is a side elevation of the sleeve spindle, with the gage in position for setting the tool. Fig. 4 is a section on line *x*, Fig. 1. Fig. 5 is an end view, partly in section, showing a modified form of gage. Fig. 6 is a side elevation of said modified device attached to a spindle sleeve. Fig. 7 is a detailed end view of the gage in its holder, with the spindle removed, showing gage at the exact center. Fig. 8 is a side elevation of the modified structure, shown in Fig. 7. Fig. 9 is a side elevation of a modified view of diameter gage. Fig. 10 is a front elevation thereof. Fig. 11 is an enlarged section on line *a*, *a*, Fig. 10.

1 represents the carriage of an engine lathe. 2 represents the tool slide, 3 the tool post, and 4 the tool. 5 represents the tail-stock, provided with the usual sleeve 6, carrying the dead center 7, detachably secured thereto. These parts are of common construction well-known in the art of metal working. 8 represents a split bracket collar secured on the sleeve 6, and clamped into position by the bolt 9. 10 represents a tool gage swiveled on a boss 11, projected upon the front side of the bracket. This is the simplest embodiment of the invention, which is embraced in the Figs. 1, 2, 3, 4. The gage 10 is swiveled in a plane parallel with the axis of the tail-stock spindle. In Fig. 3 it is shown in full lines in position for operation, and in dotted lines its position for non-use is indicated. As shown in Fig. 1, the gage 10 is forwardly extended and the point of the cutting tool is in engagement therewith. The front face of this gage 10 is, say, three inches exactly away from the center of the spindle. Having adjusted the tool in this position the operator knows precisely the amount of transverse tool feed necessary to produce a given result of metal reduction. He can then properly feed the tool through the agency of the micrometer on the tool slide. If the adjustment is changed or a new tool inserted, or the position of the point of the tool slightly changed by grinding, he can readily bring the point of the tool into engagement with the diameter gage, and he will then know that the cutting edge is precisely three inches from the machine center, irrespective of the change in position of the tool cutting edge, relative to the holder.

In order to give the gage a plurality of fixed adjustments relative to the center, I preferably employ the construction in Fig. 5, in which, 10^a represents the tool gage on the outer end of a rod 12, laterally adjustable in the bracket 8^a. Preferably, this rod 12 has the notches 13, into which engages the point of the spring actuated pin 14, mounted in the bracket 8^a. By this means a variety of fixed adjustments for the cutting edge of the tool is provided. It may be desirable in some cases to adjust the gage in precisely on the axial line to the center of the spindle, so that the cutting edge of the tool may be adjusted inwardly of the exact center. For this purpose, I provide the bracket 8^a of the form shown in Fig. 7, a sleeve fitting the tail-stock and a bearing projection 15, extended therefrom for supporting the gage and adjusting pin, so that by removing the center from its sleeve, the face of the gage may be brought inwardly to the exact center.

In the modification, shown in Figs. 9, 10 and 11, 20 represents a split collar adapted to be clamped to the tail-stock, or its adjustable sleeve. The collar 20 is provided with a transverse sleeve 21, supporting and carrying a rack-bar 22, having the gage arm 23, fixed to one end thereof. 24 represents a

plunger cup fitted into a boss carried by the transverse sleeve 21, within which is slidably mounted a lock pin 25, maintained under tension in one direction of its movement by coil spring 26. The lock pin 25 is provided with a tooth 27, adapted to engage between the teeth of the rack-bar 22, for maintaining said rack-bar and its gage arm in any adjusted position. To adjust the rack-bar 22, it is rocked within the sleeve, which pushes the lock-pin 25 upward against the tension of its spring and bears against the plain portion of the rod 22, which permits it to be moved in either direction freely, to a desired point of adjustment, bringing the gage arm to or away from the axial line of the machine tool center, after which the rod is again turned to permit the tooth of the lock-pin to engage between the teeth at such adjusted position.

Having described my invention, I claim:—

1. In combination with the spindle of a machine of the class described, a bracket secured on the spindle, a bar adjustable transversely to the spindle in said bracket, a tool gage on said bar, and means for securing said bar in its different positions of adjustment, whereby the cutting edge of the tool may be accurately adjusted to one of the several predetermined distances from the center of the spindle.

2. A diameter gage for machine tool comprising a main support provided with means for clamping the same upon the machine tool in an axial line with the tool centers, a gage arm slidably mounted upon said support, means for automatically locking the same in any adjusted position, and manually released by a partial rotation of said gage.

In testimony whereof, I have hereunto set my hand.

WILLIAM LODGE.

Witnesses:
OLIVER B. KAISER,
EMMA SPENER.