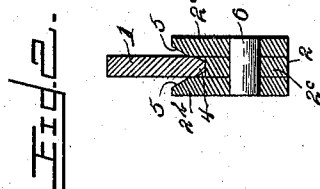
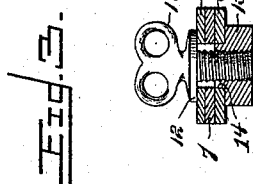
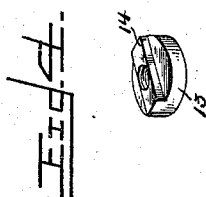
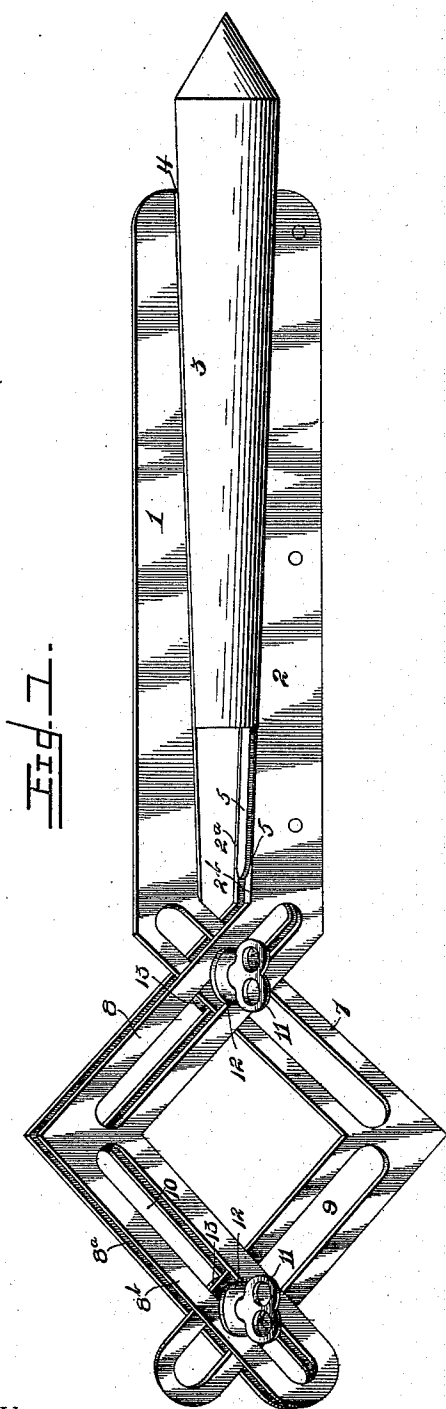


(No Model.)

O. FORBUSH.
GAGE.

No. 573,457.

Patented Dec. 22, 1896.



Witnesses

H. J. Latham.
A. E. Dwyer.

By his Attorneys,

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Inventor
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UNITED STATES PATENT OFFICE.

ORRIN FORBUSH, OF MILLER'S FALLS, MASSACHUSETTS.

GAGE.

SPECIFICATION forming part of Letters Patent No. 573,457, dated December 22, 1896.

Application filed March 31, 1896. Serial No. 585,632. (No model.)

To all whom it may concern:

Be it known that I, ORRIN FORBUSH, a citizen of the United States, residing at Miller's Falls, in the county of Franklin and State of Massachusetts, have invented a new and useful Gage, of which the following is a specification.

My invention relates to a taper-gage designed for the use of machinists in establishing the size and taper of such devices as lathe-centers or chucks; and it has for its object to provide a simple, inexpensive, and efficient construction and arrangement of parts whereby the blades may be arranged at any desired interval and relative inclination and may be locked securely at the desired adjustment.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a view of a gage constructed in accordance with my invention applied in the operative position to a lathe-center. Fig. 2 is a detail transverse section of the blades. Fig. 3 is a similar view through one of the locking screws or clamps. Fig. 4 is a detail view of the nut.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates a single-edged blade which coöperates with a double-edged blade 2 to determine the size and taper of a lathe-center or similar object, such as that shown at 3. The blade 1 consists of a single plate of metal, such as steel, reduced to form a cross-sectionally V-shaped or tapered edge 4, and the blade 2 consists of twin spaced plates 2^a and 2^b, having tapered edges 5, and an interposed spacing-plate 2^c, said parts being secured together by means of rivets 6 or their equivalents. The single bearing edge 4 is adapted, when the gage is clamped, to fit between the edges 5 of the double blade, whereby said edges 4 and 5 are protected when the tool is not in use.

The means for securing the blades at the desired adjustment includes slotted extensions 7 and 8, carried by and preferably integral with the arms 1 and 2, respectively, the ex-

tension 8 consisting of extensions of the plates 2^a 2^b, while the interposed spacing-plate 2^c is omitted, whereby the extension 7 of the blade 1, which intersects the extension 8 at two points, extends and operates between the planes of and is guided by the parallel cheeks 8^a and 8^b. These extensions or arms 7 and 8 are preferably angular or V-shaped in plan, with their interior or reëntrant angles facing each other, and the slots 9 and 10, formed, respectively, in the extensions 7 and 8, are preferably formed in the sides or straight portions of the angles and terminate short of each other at the apexes of the angles, whereby the slots in different portions of the same arm or extension do not communicate.

In connection with the slotted arms or extensions I employ clamps consisting of thumb-screws 11, having shoulders 12 to bear against the exterior surface of one of the cheeks of the arm 8, and nuts 13, engaged by said screws and bearing against the exterior surface of the other cheek of said arm, said nuts being provided with inwardly-extending guide-lugs 14, which operate in the slots of said arm to prevent rotation of the nuts with the screws.

The advantage in employing duplicate clamping devices arranged at an interval and operating in non-communicating slots, whereby said clamps can never be brought into close relative position, is that by thus securing separate points of engagement the clamps the rigidity of the adjustment of the device is insured. After the clamps have been tightened the gage is practically as rigid as a solid or non-adjustable tool of this class.

The arrangement of the slots in the arms or extensions in the outwardly-convergent positions shown and described, their outer extremities being non-communicating, provides for a wide range of adjustment both as to size and taper, and greatly facilitates the fitting of a part, such as a lathe-center to a lathe. After setting the gage to fit an old center a new center may be readily turned to fit snugly and accurately in the seat, without the fitting or "trying" involved in this operation, without the use of a tool capable of performing the functions described.

Various changes in the form, proportion, and the minor details of construction may be

resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

1. A gage for the purpose described, having relatively-adjustable blades provided with oppositely-extending arms or extensions intersecting each other at a plurality of points, and capable of relative adjustment at each of said points to provide for varying the relative positions of the blades angularly and in parallelism, and means for locking said arms at their points of intersection, substantially as specified.

2. A gage for the purpose described, having relatively-adjustable blades provided with slotted arms or extensions intersecting each other at intervals, and clamps engaging the slots in said arms or extensions at their points of intersection, each clamp consisting of a shouldered thumb-screw, and a nut engaged by the thumb-screw and provided with a lug operating in the slot, substantially as specified.

3. A gage for the purpose described, having relatively-adjustable blades provided with angular or V-shaped arms or extensions intersecting each other at spaced points, said arms or extensions being arranged with their interior or reëntrant angles facing each other, and clamps for engaging the arms or extensions at their points of intersection, substantially as specified.

4. A gage for the purpose described, having relatively-adjustable blades provided with arms or extensions intersecting each other at spaced points, one of the arms or extensions having spaced cheeks between which the other arm or extension operates, and clamps for engaging the arms or extensions at their points of intersection, substantially as specified.

5. A gage for the purpose described, having relatively-adjustable blades provided with interlocking arms or extensions intersecting each other at spaced points and provided, respectively, with intersecting slots, each arm or extension having outwardly-convergent non-communicating slots, and clamps fitting in the slots at their points of intersection to secure the arms or extensions in different relative positions, substantially as specified.

6. A gage for the purpose described having connected blades which are relatively adjustable angularly and in parallelism, one of said blades having a reduced edge and the other being slotted to receive the reduced edge of the first-mentioned blade when arranged in contiguous positions, and means for securing the blades in their different relative positions, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ORRIN FORBUSII.

Witnesses:

GEORGE F. BALL,
JNO. B. MORSE.