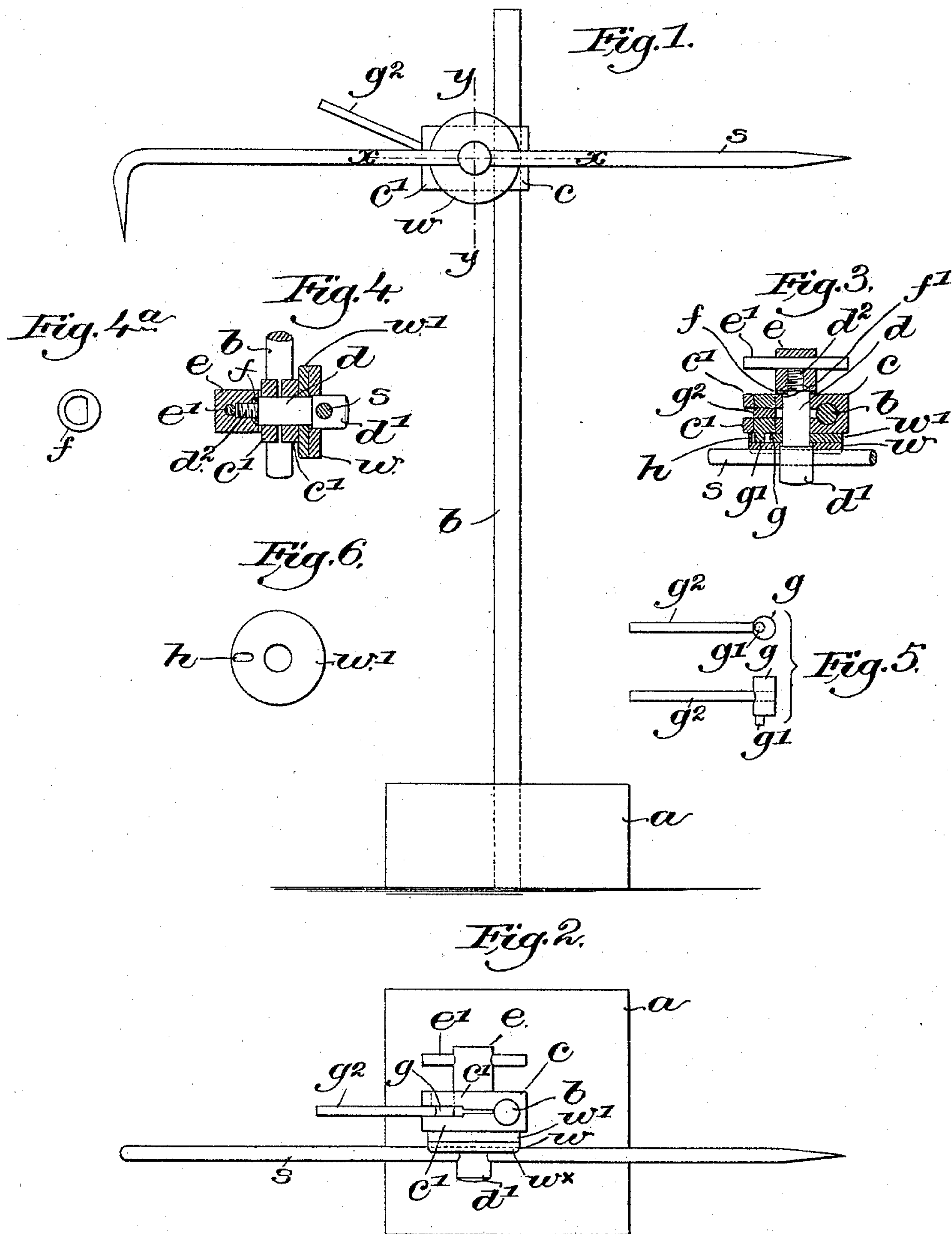


(No Model.)

A. J. GARDINER, Jr.  
SURFACE GAGE.

No. 497,071.

Patented May 9, 1893.



Witnesses:  
Edward F. Allen.  
Louis N. Howell.

Inventor:  
Andrew J. Gardiner, Jr.  
by Crosby & Gregory  
Attys.



# UNITED STATES PATENT OFFICE.

ANDREW J. GARDINER, JR., OF WATERTOWN, NEW YORK, ASSIGNOR OF  
ONE-HALF TO WALTER B. GARDINER, OF SAME PLACE.

## SURFACE-GAGE.

SPECIFICATION forming part of Letters Patent No. 497,071, dated May 9, 1893.

Application filed January 3 1893. Serial No. 457,096. (No model.)

*To all whom it may concern:*

Be it known that I, ANDREW J. GARDINER, Jr., of Watertown, county of Jefferson, State of New York, have invented an Improvement in Surface-Gages, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object the production of a surface gage, including novel means for clamping and adjusting the scriber thereof whereby the said scriber may be clamped in approximate position and finally adjusted without relaxing the clamp.

In the use of surface gages it is very necessary that the scriber may be rapidly set in its adjusted position and clamped, and in the gages now known to me final clamping of the carrier, scriber or spindle is necessary after the fine adjustment has been made, or else the holding of the carrier, scriber or spindle depends to a certain extent on the fine adjusting device. In the first instance the taking up of the lost motion or looseness necessary to give free movement of the adjusting device frequently changes the adjustment, and in the second instance the spindle or scriber cannot be held rigidly enough to prevent a slight tap or blow thereon from changing their position or adjustment. In order to overcome these objections I have devised means whereby the scriber may be approximately adjusted and clamped, after which the final and exact adjustment can be made without relaxing the clamp in the least.

In accordance therewith my invention consists, in a surface gage composed of a supporting spindle, and a carrier movable thereon, combined with a scriber, a clamp to simultaneously secure the carrier and scriber in adjusted position on the spindle, and independent means to thereafter rotate the clamped scriber for a limited distance, with relation to the carrier, and complete the adjustment, substantially as will be described.

Other features of my invention will be hereinafter described and particularly pointed out in the claims.

Figure 1 in elevation represents a surface

gage embodying my invention. Fig. 2 is a top view thereof. Figs. 3 and 4 are sectional details taken on the lines  $x-x$  and  $y-y$  Fig. 1, respectively. Figs. 4, 4<sup>a</sup>, 5 and 6 are details to be referred to.

As herein shown the surface gage comprises a base or stand  $a$ , an upright spindle  $b$  secured thereto in any convenient manner, a carrier  $c$  movable on the spindle, and a scriber  $s$  supported by the carrier.

I have herein shown the carrier as a block  $c$ , preferably of metal, having a rounded opening in one end thereof to receive the spindle  $b$  snugly therein, the block being slotted from the opening to its other end to leave cheeks or ears  $c'$ ,  $c'$ , which form bearings for a cylindrical stud or pivot  $d$  enlarged at one end to form a head  $d'$  and threaded at its other end as at  $d^2$  to receive thereon a clamping nut  $e$ , said nut, as herein shown, having a rod  $e'$  extended therethrough by which it may be grasped and rotated in one or the other direction, but it is obvious that any usual or well known form of thumb-nut may be used. The stud  $d$  is slotted off adjacent to the threaded portion to form a shoulder  $f'$ , and between the outer face of the block  $c$  and the clamping nut  $e$  I have interposed a washer  $f$ , shown separately in Fig. 4<sup>a</sup>, the interior of the washer corresponding in shape to the shape of the stud, whereby rotation of the latter will carry the washer with it. The head  $d'$  of the stud is provided with a transverse hole to receive the scriber  $s$  therein, and between the scriber and adjacent face of the block  $c$  I have interposed two washers  $w$ ,  $w'$ , the outer face of the washer  $w$  being grooved, as at  $w^x$ , to form a rest or guide for the scriber, the washer  $w'$  having a central opening to receive the part  $d$  of the stud or pivot, while the opening in the washer  $w$  is large enough to receive the head  $d'$ .

From an inspection of Figs. 1 to 4 inclusive it will be evident that the carrier  $c$  and scriber  $s$  may be firmly clamped upon the spindle  $b$  by the stud and clamping-nut  $e$ , rotation of the latter upon the threaded nut  $d^2$  of the stud pressing the scriber into the guide or rest  $w^x$  in the washer  $w$ , and at the same time



pressing the ears or cheeks  $c'$ ,  $c'$ , together to tighten and hold the block upon the spindle. The more tightly the clamping-nut is screwed onto the stud the more firmly will the parts  
5 be drawn together, as described.

The cheeks  $c'$  of the block  $c$  are bored out to receive therein a rotatable plug  $g$  having an eccentric projection  $g'$  at one end thereof, as clearly shown in Figs. 3 and 5, the said pro-  
10 jection extending beyond the outer face of the block  $c$  and entering a recess or slot  $h$  in the washer  $w'$ , said plug having an operating handle  $g^2$  secured thereto, by which the plug  
15 dle, as shown in Figs. 1 and 2, extending beyond the cheeks of the blocks  $c$  so that it may be readily grasped by the operator.

The operation of the device is as follows:

The clamping-nut is relaxed sufficiently to  
20 move the carrier block upon the spindle, and also to permit the scriber to be rotated with relation to the carrier until it has been brought into its approximate position when the nut is tightened and both carrier and scriber rigidly  
25 clamped to the spindle. To complete the adjustment of the scriber, the handle  $g^2$  is moved up or down to raise or lower the end of the scriber, rotation of the plug  $g$  turning the washer  $w'$  slightly on the stud  $d$ , the friction  
30 between the adjacent faces of the washers  $w$ ,  $w'$ , being sufficient to move the scriber by rotating the stud and scriber for a slight distance. No matter how tightly the parts are clamped, the spindle and its clamping-nut and  
35 washer  $f$  turn with the scriber, the interposition of the washer  $f$  between the clamping-nut and the face of the block  $c$  preventing the clamping-nut being loosened on the stud.

I do not desire to restrict my invention to  
40 the exact construction and arrangement of parts as herein shown and described, as the same may be varied without departing from my invention, the gist of which consists in providing means for giving the scriber a lim-

ited movement while clamped with relation 45 to the spindle.

I claim—

1. In a surface gage, a supporting spindle, and a carrier movable thereon, combined with a scriber, a clamp to simultaneously secure 50 the carrier and scriber in adjusted position on the spindle, and independent means to thereafter rotate the clamped scriber for a limited distance, with relation to the carrier, and complete the adjustment, substantially 55 as described.

2. In a surface gage, a base or stand, a spindle thereon, a carrier movable on the spindle, and a scriber, combined with a clamp to se- 60 cure the carrier and scriber upon the spindle, and an eccentric to rotate the clamped scriber for a limited distance, substantially as described.

3. In a surface gage, a supporting spindle, and a carrier movable thereon, combined with 65 a scriber, a clamping stud rotatable in the carrier and supporting the scriber, whereby the carrier and scriber may be clamped to the spindle, and means to rotate the clamped stud and scriber, substantially as described. 70

4. In a surface gage, a spindle, a split block to form a carrier, a stud and a cam supported thereby, and a scriber carried by the stud, combined with a washer on said stud between 75 the scriber and carrier, a slot in one and a projection on the other connecting said washer and cam, and a clamp-nut for the stud to hold said block and scriber clamped upon the spindle, rotation of the cam thereafter rotat- 80 ing the washer and scriber while clamped, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ANDREW J. GARDINER, JR.

Witnesses:

A. J. GARDINER,

W. B. GARDINER.