

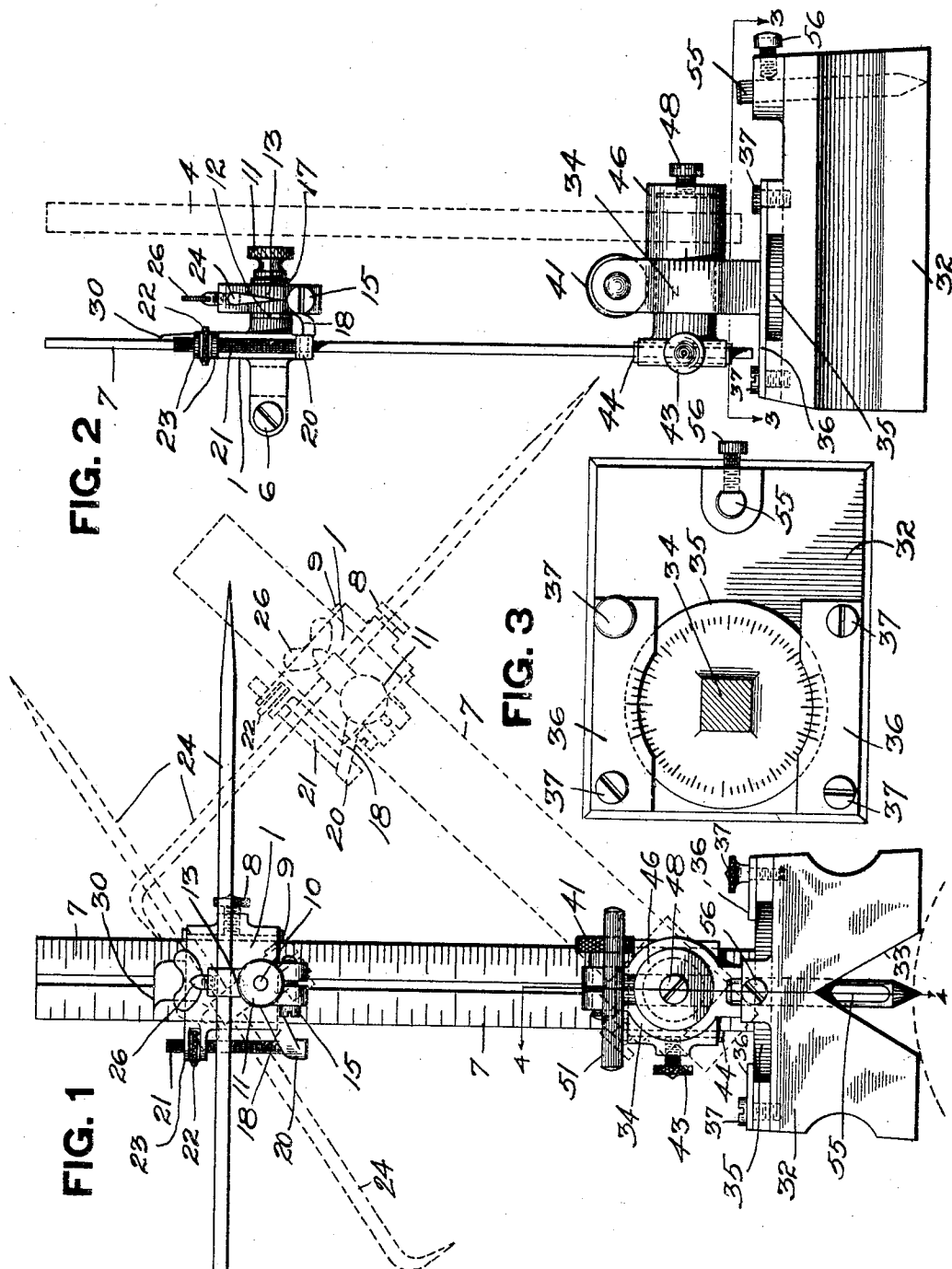
No. 784,903.

PATENTED MAR. 14, 1905.

F. J. STEMMRICH.
COMBINATION GAGE.

APPLICATION FILED APR. 18, 1904.

2 SHEETS—SHEET 1.



WITNESSES.

J. R. Keller
G. C. Raymond

INVENTOR.

Fred J. Stemrich
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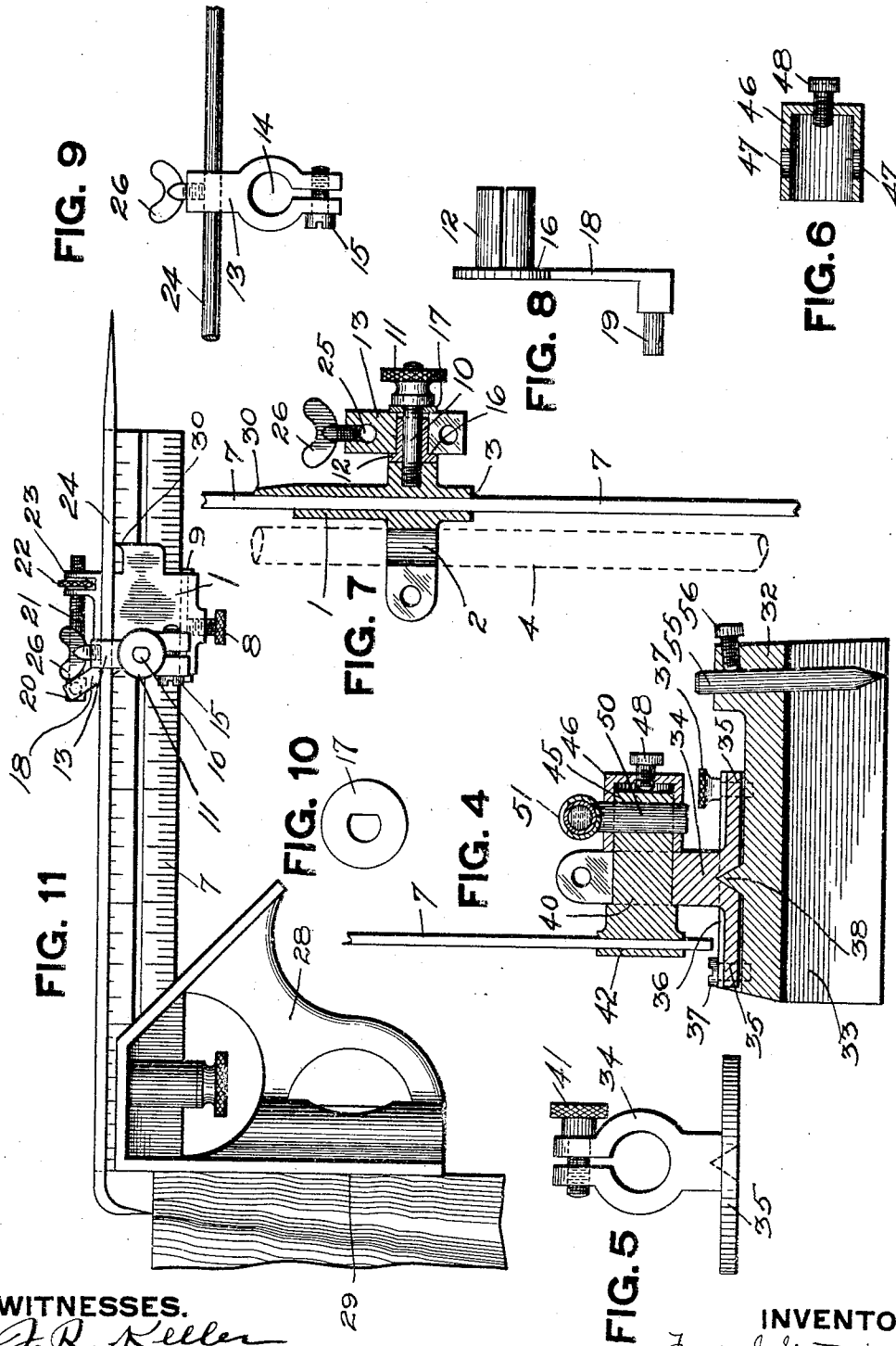
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UNITED STATES PATENT OFFICE.

FREDERICK J. STEMMRICH, OF TURTLECREEK, PENNSYLVANIA.

COMBINATION-GAGE.

SPECIFICATION forming part of Letters Patent No. 784,903, dated March 14, 1905.

Application filed April 18, 1904. Serial No. 203,773.

To all whom it may concern:

Be it known that I, FREDERICK J. STEMMRICH, a resident of Turtlecreek, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Combination-Gages; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to combination-gages; and the object is to provide a gage which has combined in one instrument a surface-gage, a scratch-gage, a depth-gage, a key-seat rule, besides being adapted for laying off miscellaneous kinds of work.

There are at present upon the market a number of surface-gages having almost universal adjustment and which may also be used as depth-gages; but with all prior devices of this kind it is necessary when transferring from one side to the other to move or turn the base. In doing this dust or other matter is liable to get under the base, and thus absolute accurate measurements cannot be secured.

One of the objects of my invention is to overcome this and to provide a surface-gage in which the base need not be moved when transferring from one side to the other.

A further object of my invention is to so construct the sliding block, scriber, and scriber-clasp that they may be applied to an ordinary try or combination square and when so applied can serve either as a surface-gage, a scratch-gage, or a depth-gage, thus making it unnecessary for a workman to keep a separate base and post for the surface-gage and also dispensing with the necessity of having a separate scratch-gage or depth-gage.

My invention also consists in certain details of construction, which will be hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a front elevation of the preferred form of my device. Fig. 2 is a side elevation of the same. Fig. 3 is a horizontal section on the line 3-3, Fig. 2. Fig. 4 is a vertical section on the line 4-4, Fig. 1. Fig. 5 is a detail view of the swivel-head on the base. Fig. 6 is a sectional view of the locking means therefor. Fig. 7 is a detail sectional view through the sliding block and scriber-clasp. Fig. 8 is a detail view

of the adjustable head carrying the scriber-clasp. Fig. 9 is a detail view of the scriber-clasp. Fig. 10 is a face view of the locking-washer therefor, and Fig. 11 is a side view of a combination-square having my improvements applied thereto.

My surface-gage comprises a base, a post, a block slidably mounted on the post, and a scriber carried by the block and having both angular and longitudinal adjustments thereon. All of these parts, broadly considered, are found in prior surface-gages. My invention relates to the details of construction thereof, so as to adapt the same to more universal use than prior instruments.

My improved block is shown at 1, and this is provided with openings 2 and 3 there-through. The opening 2 is circular, so that the block may be applied to the round post of an ordinary surface-gage, this post being indicated in dotted lines at 4 in Fig. 7. The block 1 is split from the opening 2 to its edge, and through the ears is passed a clamping-screw 6, by means of which the block can be clamped onto the circular post. The opening 3 in the block is rectangular in cross-section, so as to adapt the block to slide on an ordinary rule or scale 7, and the block can be clamped onto said scale by means of an adjusting-screw 8, bearing against a shoe 9, which presses against the edge of the rule. The block therefore is adapted for use with either a round post or an ordinary scale, such as used by all machinists.

Projecting from one side of the block is a stud 10, threaded on its outer end to receive a milled nut 11. On this stud is rotatably mounted a sleeve 12, which acts as a carrier for the scriber-clasp 13. The latter is provided with a circular opening 14, which will slip over the sleeve 12 and is split from said opening to its edge. A clamping-screw 15 is passed through the ears thereof, so that thereby the clasp may be made to closely fit the sleeve 12. The clasp is clamped to the free sleeve, so as to move therewith, by means of the milled nut 11 pressing said clasp against a shoulder 16 on the sleeve 12. To prevent the clasp from rotating with the milled nut, a non-rotatable washer 17 is interposed be-

tween the milled nut and said clasp, this washer being provided with a flat-sided opening, as shown in Fig. 10, and the stud 10 having a flat side thereon which fits the flat side of the opening in the washer. In this manner the desired pressure against the clasp may be secured, but without danger of rotating the same.

The sleeve 12 is provided with an arm 18, ending in a projecting circular stud 19. This stud projects into an opening in a head 20, formed on the lower end of the adjusting-screw 21. A nut 22 works on this screw and is held against longitudinal movement between ears 23, formed on the block 1. By turning the nut 22 the screw 21 will be raised and lowered and through the arm 18 rotates the sleeve 12, and thereby imparts angular movement to the scriber-clasp 13.

The scriber 24 is of the ordinary type, having a straight point at one end and a bent point at its opposite end and passing through an opening 25 in the scriber-clasp and being clamped therein by means of an ordinary thumb-screw 26, so that the scriber can be adjusted longitudinally in the clasp. The vertical adjustment of the scriber is gotten by moving the block 1 up and down the post and clamping it thereon by means of the clamping-screws described. The nut 22 and screw 21 serve to give the fine adjustment to the scriber.

The block and scriber just described may be used with either a round post or a flat rule. In Fig. 11 it is shown applied to an ordinary combination-square, the rule 7 in this case serving as the blade of the square. The head 28 of the square serves as the base and may be set up in a vertical position and the block and scriber used in conjunction therewith in the manner of an ordinary surface-gage. It may also be used as a scratch-gage, as shown clearly in Fig. 11, or may also be used as a depth-gage. When used as a depth-gage, the flat face 29 of the head will rest upon the supporting-surface and the scriber will be fixed in the clasp, and then by moving the clasp up and down the depth can be readily read from the pointer 30 on the block in connection with the graduations on the scale. For heavy work, however, I provide the special base 32. (Shown in Figs. 1 to 4.) This base has a flat lower supporting-face, which preferably is provided with a V-shaped groove 33, so that it may be used on shafts and other circular bodies as well as on plain surfaces. A head 34 is mounted on this base so as to rotate about a vertical axis. This head is provided at its lower end with a disk 35 and is held from rising from the base by means of plates 36, held by screws 37 and which plates project over the disk 35. The lower face of the head 34 is provided with a conical seat for receiving a conical projection 38, formed on the upper face of the base 32, so that even if

wear occurs the head 34 will always be accurately centered on the base. The clamping-plates 36 merely serve to hold the head from lifting off the base, but do not prevent the free rotation of the head.

The head is provided with a circular horizontal opening extending therethrough, in which is rotatably mounted a support 40 for the lower end of the post. This support is freely rotatable in the head 34, but may be clamped therein in any angular position by suitable means, such as a clamping-screw 41, passing through ears on opposite sides of a cleft extending from the top of the head into the opening therein. The support 40 is provided with a rectangular opening 42 for receiving the lower end of the scale 7, the latter being fixed in said opening by an ordinary set-screw 43, passing through the walls surrounding said opening and serving to press a shoe 44 against the edge of the scale. The support 40 is also provided with a circular opening 45 for receiving the circular post 4. Fitting over the end of the support 40 is a cup 46, which is provided with oppositely-aligning openings 47, adapted to register with the opening 45 in the support. A set-screw 48 is passed through the head of the cup and bears against the end of the support, so that thereby the cup will serve to clamp the post 4 in the opening 45. This opening 45 is also adapted for receiving the stud 50 of an ordinary spirit-level 51, which will aid in the adjustment of the support 40 in the head 34 in order to get the post 7 in a true vertical position when the base 32 is resting on a surface which is not level.

With the base 32 the instrument can be used as a surface-gage in the manner that ordinary surface-gages are used. When transferring from one side to the other, it will not be necessary to move the base 32 at all; but after the scriber has been properly set the transfer can be made by merely rotating the head 34 on the base, thus leaving the latter entirely undisturbed and preventing any danger of dust or other foreign substance getting under said base, and thus destroying the accuracy of the measurement. With the base 32 the device will also be capable of use as a depth-gage. For this purpose the block 1 will merely be slipped off the rule or scale 7 and placed on it in the reverse position—that is, with the scriber-clasp on the side opposite to that on which it is shown in Fig. 2. In this position the scriber will clear the end of the base 32 and can be projected downwardly below the lower surface of said base to serve as the indicator for the depth-gage.

The disk 35 and the base 32 are marked with graduations, as indicated in Fig. 3, so that the device may be used to measure or lay out angular work in a horizontal plane. So, too, the post-support 40 and head 34 are also marked with graduations, as indicated in Fig. 2, so

that angular measurements in a vertical plane may be made. Passing through the base 32 and intersecting the apex of the V-groove 33 is a pin 55, having a flat side and held by means of a screw 56 from dropping out. This pin may be used to mark a center point on a shaft or other circular body, as indicated in Fig. 1, when it is desired to form a key seat or opening in said shaft. When working from shafts or other circular bodies, the head 1 may be placed on the blade of an ordinary center square, the head of the latter serving to position the instrument on the shaft.

It will be gathered from the foregoing description that my combination-gage serves not only as a surface-gage, but also as a depth-gage and for marking a key-seat or the like on shafts or circular bodies. Furthermore, when a base, such as shown in Fig. 11, is used the device may also be used as a scratch-gage. With the form of base shown in Figs. 1 to 4 absolute accuracy of measurement when used as a surface-gage is insured, because the base itself need not be moved. The device is also adapted for laying off work angularly, both in horizontal and vertical planes, and may therefore be used for laying off many miscellaneous jobs for which at present no gage is available.

What I claim is—

1. In a combination-gage, the combination of a block, a scriber-carrier rotatably mounted on said block, an arm connected to said scriber-carrier, a screw-rod hinged to said arm, a rotatable nut engaging said screw-rod and held against movement longitudinally of said rod and serving to adjust said scriber-carrier angularly, and a scriber mounted on said scriber-carrier.

2. In a combination-gage, the combination of a block, a stud projecting therefrom, a sleeve rotatable on said stud, an arm on said sleeve, a screw engaging said arm to adjust the same, a scriber-clasp mounted on said sleeve, and a scriber secured in said clasp.

3. In a combination-gage, the combination of a block, a stud projecting therefrom, a

sleeve rotatably mounted on said stud and provided with a shoulder, a scriber-clasp mounted on said sleeve, means for adjusting said sleeve angularly, and a nut for clamping said scriber-clasp against the shoulder on said sleeve.

4. In a combination-gage, the combination of a block, a stud projecting therefrom, a sleeve rotatably mounted on said stud and provided with a shoulder, means for adjusting said sleeve angularly on said stud, a scriber-clasp mounted on said sleeve, a nut on the end of said stud and serving to clamp the scriber-clasp against the shoulder on the sleeve, and a non-rotatable washer between said nut and the scriber-clasp.

5. In a combination-gage, the combination of a base, a head mounted thereon to rotate on a vertical axis, a post carried by said head, a block slidably mounted on said post and vertically adjustable thereon, and a scriber carried by said block and projecting outwardly with reference to said post.

6. In a combination-gage, the combination of a base provided with graduations, a head mounted thereon to rotate on a vertical axis and also provided with graduations, a post secured to said head, a block slidably mounted on said post and vertically adjustable thereon, and a scriber carried by said block and projecting outwardly with reference to said post.

7. In a combination-gage, the combination of a base, a head mounted on said base to rotate on a vertical axis, a post, a support for the post mounted in the head on a horizontal axis and adjustable therein, a block slidably mounted on said post and adjustable vertically thereon, and a scriber carried by said block and projecting outwardly with reference to said post.

In testimony whereof I, the said FRED. J. STEMMRICH, have hereunto set my hand.

FRED. J. STEMMRICH.

Witnesses:

G. H. RANKIN,
G. C. RAYMOND.