No. 730,742. PATENTED JUNE 9, 1903.

J. J. BYRNE.

MEASURING INSTRUMENT.

APPLICATION FILED JAN. 26, 1903.

NO MODEL.

Fig. 1.

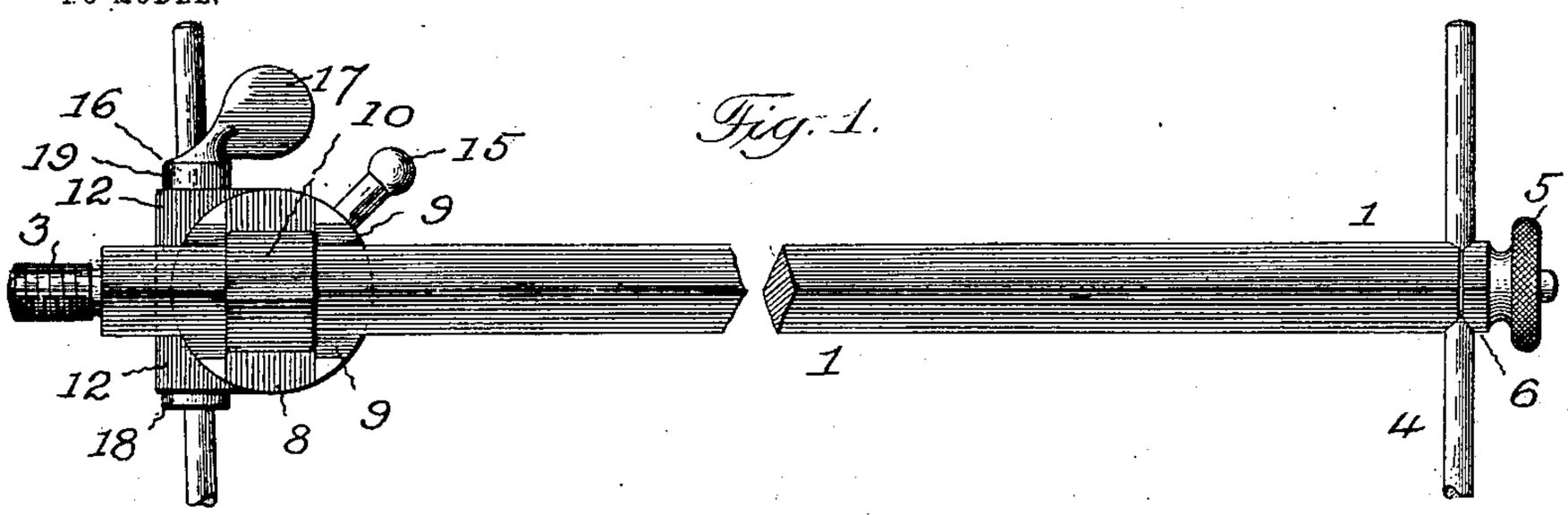



Fig. 2.

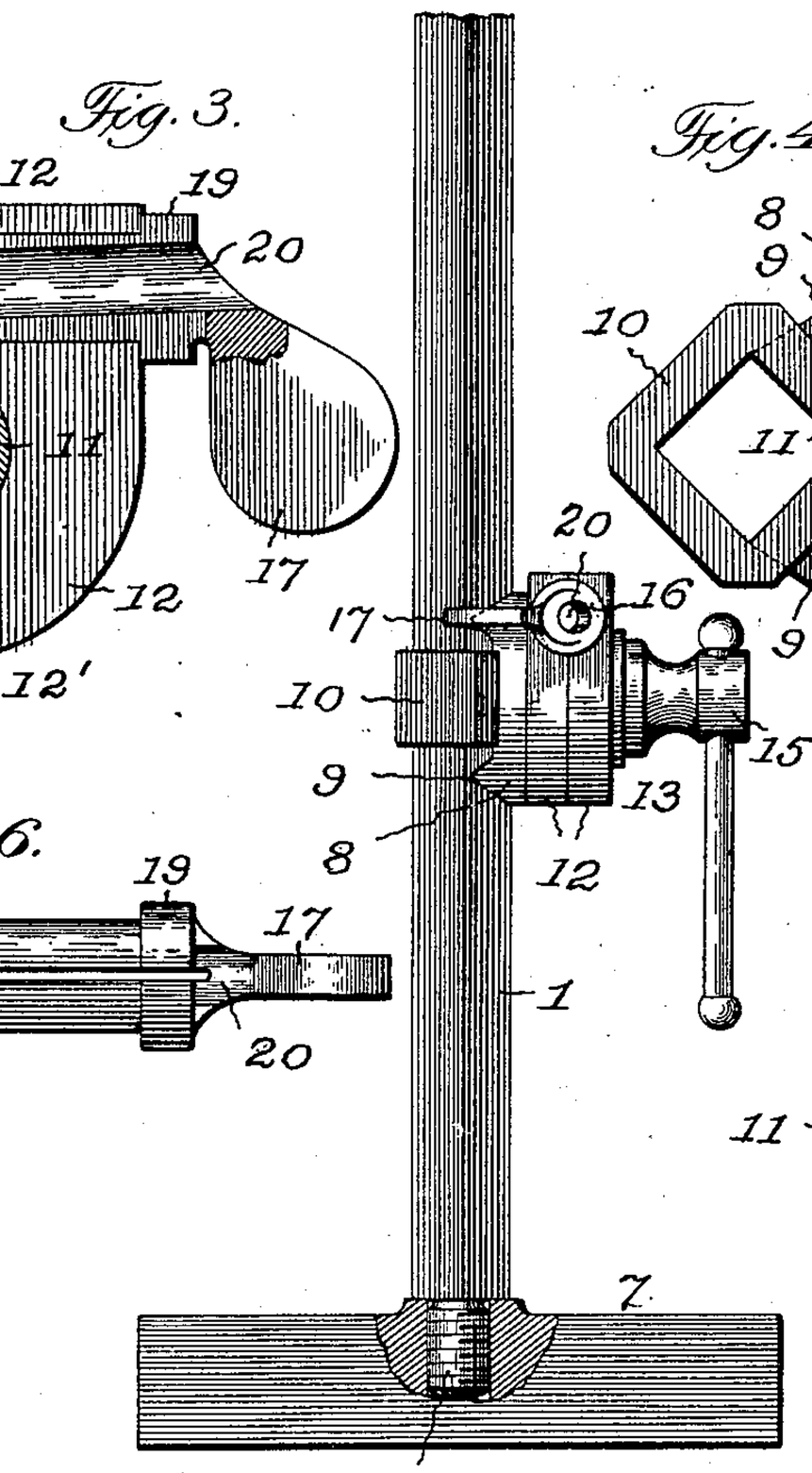



Fig. 3.




Fig. 4.

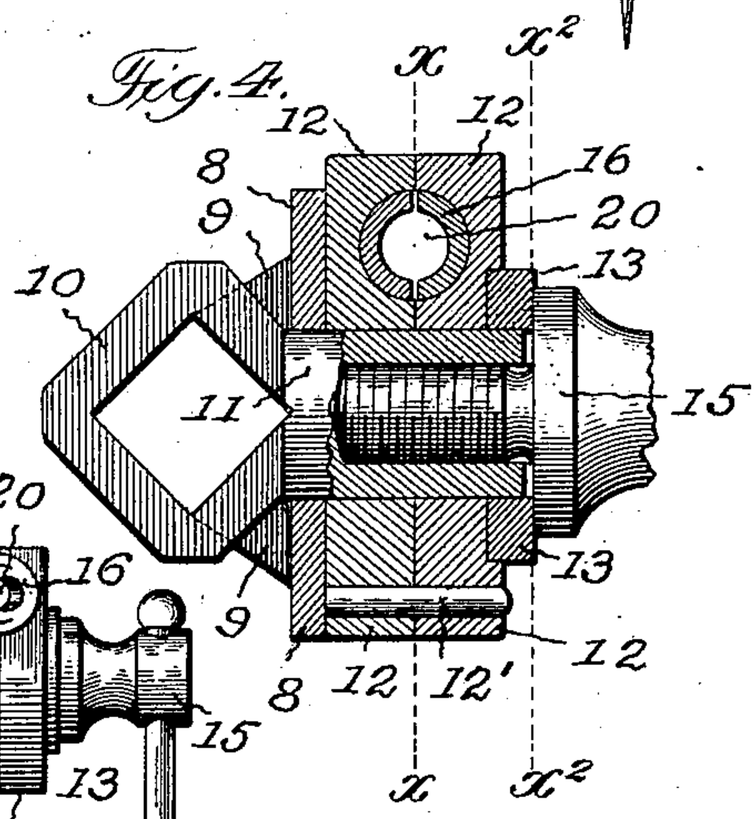
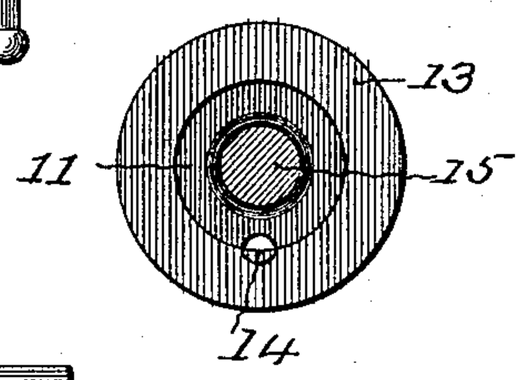



Fig. 6.




Fig. 5.

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No. 730,742. Patented June 9, 1903.

# UNITED STATES PATENT OFFICE.

JOHN J. BYRNE, OF CHICAGO, ILLINOIS.

## MEASURING INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 730,742, dated June 9, 1903.

Application filed January 26, 1903. Serial No. 140,466. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN J. BYRNE, a citizen of the United States of America, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Measuring Instruments, of which the following is a specification.

The present invention relates to measuring instruments used by machinists and like artisans, and has for its object to provide a simple, durable, and efficient mechanism capable of interchangeable application to the stand of a surface-gage or to the beam of a trammel and which is adapted to afford a very precise and at the same time ample range of local adjustment to the scriber or pointer rod in the operation of the final and accurate adjustment of the instrument and in which a single master clamping means is adapted to secure the various movable parts of the mechanism at the required adjustment in a simultaneous, substantial, and convenient manner, all as will hereinafter more fully appear, and be more particularly pointed out in the claims.

In the accompanying drawings, illustrative of the present invention, Figure 1 is a side elevation illustrating the present mechanism applied to a trammel-beam; Fig. 2, a similar view, partly in section, illustrating the application of the same to the stand of a surface-gage; Fig. 3, an enlarged sectional elevation at line $x\,x$, Fig. 4, of the clamping and scriber-adjusting mechanism of the present improvement; Fig. 4, a transverse section of the same at line $x'\,x'$, Fig. 3; Fig. 5, a sectional elevation of the same on line $x\,x$, Fig. 4; Fig. 6, a detached plan view of the longitudinally-slitted holding-sleeve for the scriber-rod.

Similar numerals of reference indicate like parts in the several views.

Referring to the drawings, 1 represents a straight beam or post, which in the preferred form of the present invention is of a square form in cross-section or of any other usual non-circular form. Such beam or post may have any required length and be made sectional, if required, and is adapted to form the beam portion of a machinist's trammel, as illustrated in Fig. 1, or the vertical post of a machinist's surface-gage, as illustrated in Fig. 2. For such last-mentioned use said beam or post will have a screw-threaded end 3, adapted to screw into a corresponding orifice in a supporting foot or base, and which screw-threaded end is also adapted to additionally constitute a part of a coupling with a correspondingly-formed beam or post section where an extended beam or post is desired. For the first-mentioned use as a machinist's trammel the beam or post 1 will have a transverse orifice at its other end for the passage of scriber-rod or trammel-point 4 and with a screw-threaded extension for the reception of the clamping-nut 5 and the interposed binding-washer 6, as shown in Fig. 1, and by means of which the trammel-point 4 is firmly clamped at any required adjustment in the transverse orifice aforesaid.

7 is the supporting foot or base, having any usual and approved form and into which the beam or post 1 is screwed or otherwise secured in a vertical position, as illustrated in Fig. 2.

8 is a clip-block, preferably of a disk shape and formed with a smooth bearing-surface on one side, saddle-legs 9 on the opposite side to engage the side of the beam or post 1, and with a central bore for the passage of the shank of the clamping-head, hereinafter described.

10 is a clamping-head formed with a transverse orifice for the passage and reception of the non-circular beam or post 1 and adapted in its normal operation to draw against the side of said beam or post and firmly clamp the same against the adjacent faces of the saddle-lugs 9 of the clip-block 8 to secure the described parts in fixed relation to each other, as hereinafter more fully described.

11 is a tubular extension-shank on the clamping-head 10, which occupies the central orifice of the clip-bar 8 aforesaid and formed with an internal screw-thread, as shown.

12 12 are two counterpart jaw-plates arranged in substantially close relation and provided with transverse orifices, through which the aforesaid tubular shank 11 of the clamping-head 10 passes to maintain said plates in proper position with relation to the other parts of the mechanism.

12′ is a steady-pin holding the jaw-plates from independent turning movement one upon the other.

13 is a washer fitting the free end of the tu-

bular shank 11, so as to slide freely thereon, but held from independent turning movement with relation thereto by a spline 14 on one part fitting a longitudinal groove in the other part, as shown in Fig. 6 of the drawings, or by any other well-known and equivalent connection. Such washer 13 has bearing against the outermost jaw-plate 12 and is preferably seated in a shallow recess in the face of the same, as shown in Fig. 4.

15 is a clamping-screw, the headed portion of which has abutment against the outer surface of the washer 13, while its screw-threaded shank portion screws into the screw-threaded bore of the shank extension 11 of the clamping-head 10, the construction being such that with a turning movement of said clamping-screw in one direction all of the described parts will be clamped together in a substantially simultaneous manner, and with a turning movement in the opposite direction a corresponding release of the parts will be effected.

16 is a longitudinally-divided sleeve fitting and turning in a circular bearing formed therefor in the opposed faces of the counterpart jaws 12 12 and to one side of the central orifices in said plates for the passage of the extension-shank 11, heretofore described.

17 is a hand-lever or thumb-wing by which a rotative adjustment of the sleeve 16 is effected when desired.

18 and 19 are end collars on the sleeve 16 to prevent endwise movement of the same in its bearing between the jaw-plates 12 12 aforesaid.

20 is a bore in the sleeve 16 and which in the preferred form of the present invention as illustrated in Figs. 1 and 3 of the drawings is formed by a hole or orifice formed in said sleeve in a line oblique to the longitudinal axis thereof.

21 is a scriber or pointer rod of any usual form, fitting the oblique bore 20 aforesaid.

With the described construction of the sleeve 16 a short turning movement of the same, owing to the oblique manner in which the scriber or pointer rod 21 is held thereby, will cause the point of said scriber or pointer rod to move in a circular or gyratory path and with a very considerable range of adjustment and which range will depend upon the distance the point of said scriber is away from said scriber-holding sleeve 16. With the improved arrangement of parts shown in the drawings the scriber-rod 21 and the holding-sleeve 16 are clamped and held to their adjustment through the instrumentality of the main clamping-screw 15, and by such means the manipulation of the mechanism is greatly simplified and made very convenient.

It is within the province of the present invention to make the beam or post 1 circular in cross-section, with a corresponding formation of the clamping-faces of the clip-block 8 and the clamping-head 10 where any special requirement may call for such change.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a measuring instrument of the character herein described, the combination of a beam or post, a pair of counterpart jaw-plates formed with a circular bearing in their opposed faces, a longitudinally-divided sleeve fitted in said bearing, a scriber-rod held by said sleeve in a position eccentric to the axis of the bearing, and means for adjustably connecting said jaw-plates to the beam or post, substantially as set forth.

2. In a measuring instrument of the character herein described, the combination of a beam or post, a pair of counterpart jaw-plates formed with a circular bearing in their opposed faces, a longitudinally-divided sleeve fitted in said bearing and provided with an eccentric bore formed by an orifice in said sleeve oblique to the longitudinal axis of the same, a scriber-rod fitting said bore, and means for adjustably connecting said jaw-plates to the beam or post, substantially as set forth.

3. In a measuring instrument of the character herein described, the combination of a beam or post non-circular in cross-section, a pair of counterpart jaw-blades formed with a circular bearing in their opposed faces, a longitudinally-divided sleeve fitted in said bearing, a scriber-rod held by said sleeve in a position eccentric to the axis of the bearing, and means for adjustably connecting said jaw-plates to the beam or post, substantially as set forth.

4. In a measuring instrument of the character herein described, the combination of a beam or post non-circular in cross-section, a pair of counterpart jaw-plates formed with a circular bearing in their opposed faces, a longitudinally-divided sleeve fitted in said bearing and provided with a bore formed oblique to the axis of the bearing, a scriber-rod fitting said bore, and means for adjustably connecting said jaw-plates to the beam or post, substantially as set forth.

5. In a measuring instrument of the character herein described, the combination of a beam or post non-circular in cross-section and provided with a screw-threaded extension at one end, a pair of counterpart jaw-plates formed with a circular bearing in their opposed faces, a longitudinally-divided sleeve fitted in said bearing, a scriber-rod held by said sleeve in a position eccentric to the axis of the bearing, and means for adjustably connecting said jaw-plates to the beam or post, substantially as set forth.

6. In a measuring instrument of the character herein described, the combination of a beam or post non-circular in cross-section and provided with a screw-threaded extension at one end, a pair of counterpart jaw-plates formed with a circular bearing in their opposed faces, a longitudinally-divided sleeve fitted in said bearing and provided with a

bore formed oblique to the axis of the bearing, a scriber-rod fitting said bore, and means for adjustably connecting said jaw-plates to the beam or post, substantially as set forth.

7. In a measuring instrument of the character herein described, the combination of a beam or post non-circular in cross-section, means for securing a scriber-rod at one end of the same, a pair of counterpart jaw-plates formed with a circular bearing in their opposed faces, a longitudinally-divided sleeve fitted in said bearing, a scriber-rod held by said sleeve in a position eccentric to the axis of the bearing, and means for adjustably connecting said jaw-plates to the beam or post, substantially as set forth.

8. In a measuring instrument of the character herein described, the combination of a beam or post non-circular in cross-section, means for securing a scriber-rod at one end of the same, a pair of counterpart jaw-plates formed with a circular bearing in their opposed faces, a longitudinally-divided sleeve fitted in said bearing and provided with a bore formed oblique to the axis of the bearing, a scriber-rod fitting said bore, and means for adjustably connecting said jaw-plates to the beam or post, substantially as set forth.

9. In a measuring instrument of the character herein described, the combination of a beam or post non-circular in cross-section, means for securing a scriber-rod at one end of the same comprising a transverse orifice in the end of the beam, a screw-threaded extension on said end, an interposed washer and clamping-nut on said extension, a pair of counterpart jaw-plates formed with a circular bearing in their opposed faces, a longitudinally-divided sleeve fitted in said bearing, a scriber-rod held by said sleeve in a position eccentric to the axis of the bearing, and means for adjustably connecting said jaw-plates to the beam or post, substantially as set forth.

10. In a measuring instrument of the character herein described, the combination of a beam or post non-circular in cross-section, means for securing a scriber-rod at one end of the same comprising a transverse orifice in the end of the beam, a screw-threaded extension on said end, an interposed washer and clamping-nut on said extension, a pair of counterpart jaw-plates formed with a circular bearing in their opposed faces, a longitudinally-divided sleeve fitted in said bearing and provided with a bore formed oblique to the axis of the bearing, a scriber-rod fitting said bore, and means for adjustably connecting said jaw-plates to the beam or post, substantially as set forth.

11. In a measuring instrument of the character herein described, the combination of a beam or post, a clip-block arranged at one side of the same, a pair of counterpart jaw-plates arranged at the side of the clip-block and provided with a circular bearing in their opposed faces, an orificed clamping-head engaging said beam or post and provided with a shank extension passing through the clip-block and jaw-plates aforesaid, a clamping means engaging said shank extension, a longitudinally-divided sleeve arranged in the circular bearing of the jaw-plates, and a scriber-rod held by said sleeve in a position eccentric to the axis of the bearing, substantially as set forth.

12. In a measuring instrument of the character herein described, the combination of a beam or post, a clip-block arranged at one side of the same, a pair of counterpart jaw-plates arranged at the side of the clip-block and provided with a circular bearing in their opposed faces, an orificed clamping-head engaging said beam or post and provided with a shank extension passing through the clip-block and jaw-plates aforesaid, a clamping means engaging said shank extension, a longitudinally-divided sleeve arranged in the circular bearing of the jaw-plates and provided with a bore formed oblique to the axis of the bearing, and a scriber-rod fitting said bore, substantially as set forth.

13. In a measuring instrument of the character herein described, the combination of a beam or post, a clip-block arranged at one side of the same, a pair of counterpart jaw-plates arranged at the side of the clip-block and provided with a circular bearing in their opposed faces, an orificed clamping-head engaging said beam or post and provided with a shank extension passing through the clip-block and jaw-plates aforesaid, a clamping-screw engaging in a screw-threaded recess in said shank extension, a longitudinally-divided sleeve arranged in the circular bearing of the jaw-plates, and a scriber-rod held by said sleeve in a position eccentric to the axis of the bearing, substantially as set forth.

14. In a measuring instrument of the character herein described, the combination of a beam or post, a clip-block arranged at one side of the same, a pair of counterpart jaw-plates arranged at the side of the clip-block and provided with a circular bearing in their opposed faces, an orificed clamping-head engaging said beam or post and provided with a shank extension passing through the clip-block and jaw-plates aforesaid, a clamping-screw engaging in a screw-threaded recess in said shank extension, a longitudinally-divided sleeve arranged in the circular bearing of the jaw-plates and provided with a bore formed oblique to the axis of the bearing, and a scriber-point fitting said bore, substantially as set forth.

15. In a measuring instrument of the character herein described, the combination of a beam or post, a clip-block arranged at one side of the same, a pair of counterpart jaw-plates arranged at the side of the clip-block and provided with a circular bearing in their opposed faces, an orificed clamping-head engaging said beam or post and provided with a shank extension passing through the clip-block and jaw-plates aforesaid, a clamping-

screw engaging in a screw-threaded recess in said shank extension, an interposed washer held from independent rotation on said extension, a longitudinally-divided sleeve arranged in the circular bearing of the jaw-plates, and a scriber-rod held by said sleeve in a position eccentric to the axis of the bearing, substantially as set forth.

16. In a measuring instrument of the character herein described, the combination of a beam or post, a clip-block arranged at one side of the same, a pair of counterpart jaw-plates arranged at the side of the clip-block and provided with a circular bearing in their respective faces, an orificed clamping-head engaging said beam or post and provided with a shank extension passing through the clip-block and jaw-plates aforesaid, a clamping-screw engaging in a screw-threaded recess in said shank extension, an interposed washer held from independent rotation on said extension, a longitudinally-divided sleeve arranged in the circular bearing of the jaw-plates and provided with a bore formed oblique to the axis of the bearing, and a scriber-point fitting said bore, substantially as set forth.

Signed at Chicago, Illinois, this 21st day of January, 1903.

JOHN J. BYRNE.

Witnesses:
ROBERT BURNS,
HENRY A. NOTT.