A. G. BERG & J. H. ROOT.

CENTER INDICATOR.

APPLICATION FILED MAY 27, 1911.

1,093,027.

Patented Apr. 14, 1914.

2 SHEETS—SHEET 1.

Fig. 1.

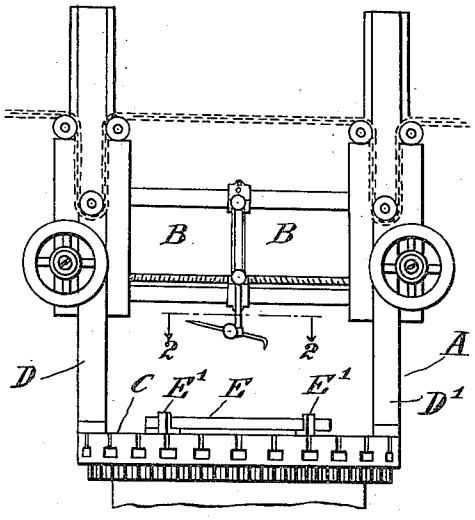


Fig. 2.

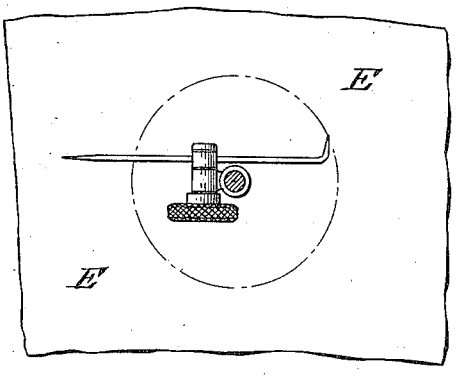
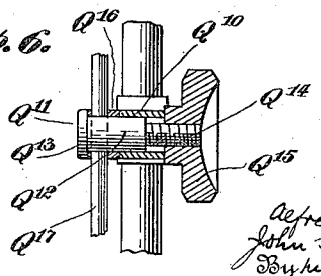


Fig. 6.



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2 SHEETS—SHEET 2.

Fig. 3.

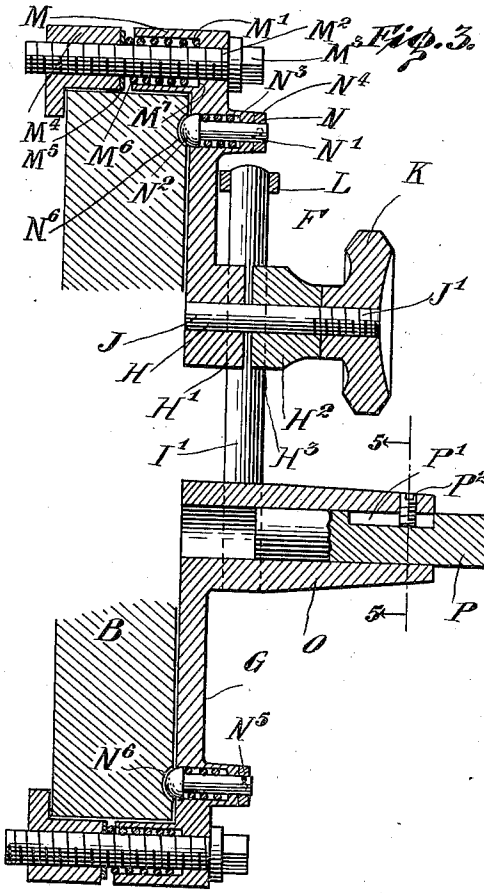


Fig. 4.

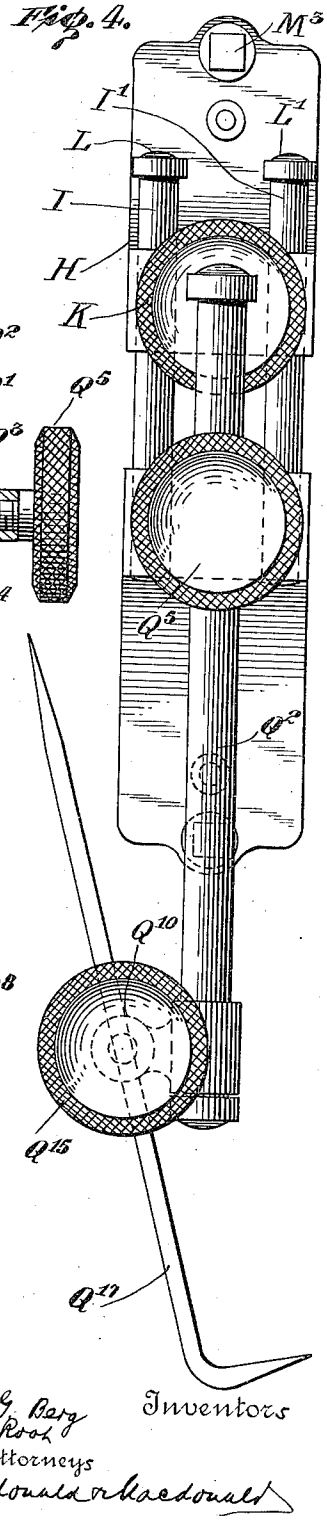
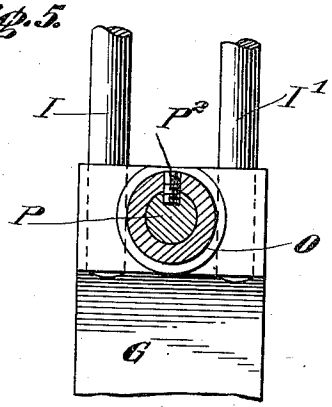


Fig. 5.



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UNITED STATES PATENT OFFICE.

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CENTER-INDICATOR.

1,093,027. Specification of Letters Patent. Patented Apr. 14, 1914.

Application filed May 27, 1911. Serial No. 629,872.

To all whom it may concern:

Be it known that we, ALFRED G. BERG and JOHN H. ROOT, both citizens of the United States, residing at Newburgh, in the county of Orange and State of New York, have invented certain new and useful Improvements in Center-Indicators, of which the following is a full, clear, and exact specification, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a center indicating device and one of its objects is the provision of means whereby the same may be quickly and conveniently placed in position, and when in place, the parts readily adjusted with relation to the work.

Another object is to provide such a device which may be attached to the cross rails of boring mills.

Another object is to provide means on such a device whereby the same may be adapted for use on boring mills of different sizes and of different widths and depths of cross rails.

Another object is to provide means on such device for quickly finding the central point on the cross rail in attaching the device thereto.

A still further object is to provide means whereby the scriber holding-bar forming a part of the device may be adjusted vertically and be thereby adapted to different sizes of work.

In the drawings,—Figure 1 is a front elevation, swing a portion of a boring mill and the indicating device in position thereon; Fig. 2 is a horizontal section on line 2—2 of Fig. 1; Fig. 3 is a vertical section through the center of the device, showing certain parts in elevation; Fig. 4 is a front elevation; Fig. 5 is a section partly in elevation on line 5—5 of Fig. 3; and Fig. 6 is a detail section of the scriber holding-arm.

Referring to the construction illustrated, A indicates a portion of a boring mill having the cross rail B, the rotary work-holding table C, and provided with tool holders D, D′, and other operating parts which it will be unnecessary to describe since they may be of any of the well known forms and themselves form no part of our invention. Upon the table C is mounted the work E, which is secured in position by the usual clamping devices indicated at E, E′.

Our device comprises upper and lower clamping members F, G, the upper one of which comprises a back plate H, having a plurality of vertical semi-circular bores indicated at H′, and a front plate H^2 having similar vertical semi-circular bores indicated at H^3, said bores acting as recesses to receive a plurality of adjustable guide standards I, I′. The back plate H and the front plate H^2 are adjustably held in clamping position against the guide standards I, I′ by means of a bolt J passing through the front and back plates between said standards, said bolt being threaded at its outer end as at J′, for the reception of a threaded hand wheel K, which, engaging the threads of the bolt J′ is adapted to press the front and back plates H, H^2 toward each other to adjustably hold the standards I, I′, which latter are provided with stops L, L′ for limiting their downward movement.

Both the upper and lower clamping members are provided with similarly-formed flanges to grip the cross-rail of the boring mill, and a description of one will sufficiently describe the other, similar letters of reference being used for each.

The back plate H of the upper clamping member is formed with a rearwardly extending flange M, having a recess M′, through which passes a threaded bolt M^2, which bolt is longitudinally movable within the recess M′ having a head M^3 to limit its rearward movement. Mounted upon the threaded bolt M^2 is a threaded flange member M^4, contacting with the front face of which is a washer M^5, against which rests one end of a coiled spring M^6 which lies partly within the recess M′ and is adapted to be compressed against a shoulder M^7 forming a part of said recess, its function being to keep the flange parts in distended position for ready attachment to the cross rail. The back plate H is also provided with a recess N, through which passes a small bolt N′, having a head N^2 adapted to move within the enlarged rear end of said recess. The bolt N′ is also provided with a holding nut N^4 to limit the inward movement of the same. The bolt N′ and also a similar bolt N^5,—which latter being the same as that just described, requires no further description,—we will term position finders, since they are intended to abut within recesses on the cross-rail of the boring mill as shown at N^6 in Fig. 3.

The lower clamping member G is formed with a forwardly extending horizontally recessed holder arm O, and rigidly mounted in said holder arm, on either side of said recess are the lower ends of the two adjustable guide standards I, I′. Mounted within the horizontal recess of the holder arm O is a slide rod P, having a key-way P′, engaging which is a set-screw P^2 projecting through the upper side of the holder arm O, the arrangement being such that the slide rod P is capable of forward and backward movement, but not rotary movement, and may be secured in any desired position by means of the set-screw P^2. The slide rod P is provided at its outer end with a holding member Q, vertically recessed at Q′ to receive a vertically movable slide rod Q^2, said holding member having also a horizontal recess Q^3, the bore being threaded to receive a threaded bolt Q^4, having a hand knob Q^5, whereby the bolt Q^4 may be set against the slide rod Q^2 to hold the same in any desired vertical position. The slide rod Q^2 is provided at its upper end with a stop Q^6 to limit its downward movement, and, at its lower end, with a collar Q^7 to hold in place a sleeve Q^8, provided with a laterally extending shank portion Q^9 supporting a sleeve Q^{10} which supports a bearing bolt Q^{11}, comprising an enlarged bearing surface Q^{12}, a head Q^{13}, and a threaded outer end Q^{14} adapted to receive a hand wheel Q^{15}. The bearing surface Q^{12} is also provided with a sleeve Q^{16}, passing through a recess in which, and through a recess in the bearing surface Q^{12} is a scriber-gage Q^{17}, which is adapted to be held in any desired radial position on the sleeve Q^{10} by means of the hand wheel Q^{15}, which latter may be loosened or tightened to adjust said gage to different positions. By means of the sleeve Q^8 said scriber-gage may be rotated to any position about the rod Q^2. It will be seen that by loosening the hand wheel Q^{15}, said gage may be rotated axially, may be rotated endwise about its own axis and may be rotated concentrically about the axis of the slide rod Q^2, thus constituting it, in effect, a universal gage. It may be adjusted vertically to suit different sizes of work, by means of the slide rod Q^2 and the hand wheel Q^5 and may be adjusted laterally by means of the slide rod P.

The upper and lower clamping members F, G, by means of the spring adjustments provided in the flange members M and bolts M^2 adapt the machine to various depths of boring mill cross-rails and by means of the standards I, I′ may be adjusted to cross-rails of various dimensions in width, by which we mean the distance between the upper and lower surfaces of the cross rail.

We wish it to be understood that we do not confine ourselves to the precise details of construction and arrangement herein set forth, as modification and variation may be made without departing from the spirit of the invention as defined by the appended claims.

What we claim is:

1. The combination with a universally adjustable scriber-gage, of a plurality of clamping members for attachment to the cross rail of a boring mill, and a plurality of position-finders on said clamping members adapted to engage centering recesses on the cross rail.

2. The combination with a universally adjustable scriber-gage, of a plurality of clamping members for attachment to the cross rail of a boring mill, and a plurality of position-finders on said clamping members adapted to engage centering recesses on the cross rail, said position-finders comprising a plurality of retractable bolts.

3. The combination with a universally adjustable scriber-gage, of a plurality of clamping members for attachment to the cross rail of a boring mill, and a plurality of position-finders on said clamping members adapted to engage centering recesses on the cross rail, said position-finders comprising a plurality of spring-pressed bolts.

4. In an apparatus of the class described, the combination of a plurality of guide standards, a plurality of clamping members on said standards, with means for vertical adjustment, a slide rod carried by one of said clamping members arranged parallel with said standards, and vertically adjustable, and a scriber capable of universal adjustment with relation to said rod.

5. The combination of a plurality of guide standards, a plurality of clamping members on said standards, with means for vertical adjustment, said clamping members including a plurality of clamping flanges adjustable laterally with relation to said standards, said arrangement adapting the device for attachment to boring mill cross rails of different sizes, a holding-arm projecting laterally from one of said clamping members, a slide rod on said holding arm, and a scriber carried by said rod capable of universal adjustment with relation thereto.

6. The combination of a plurality of guide standards, a plurality of clamping members on said standards, one of said members being adjustable on said standards, said clamping members including a plurality of clamping flanges adjustable laterally with relation to said standards, said arrangement adapting the device for attachment to boring mill cross rails of different sizes, a holding-arm projecting laterally from one of said clamping members and adjustable longitudinally thereon, a slide rod adjustably mounted on said holding-arm, and a scriber supported by said rod capable

of universal adjustment with relation thereto.

7. The combination of a plurality of guide standards, a plurality of clamping members on said standards having means for vertical adjustment, said clamping members including a plurality of spring pressed clamping flanges adjustable laterally with relation to said standards, said arrangement adapting the device for attachment to boring mill cross rails of different sizes, a holding-arm projecting laterally from one of said clamping members and adjustable longitudinally thereon, a slide rod adjustably mounted on said holding-arm, and a scriber gage and a carrier therefor rotatably mounted on said rod.

8. The combination of a plurality of guide standards, a plurality of clamping members on said standards, adapted to grip the cross-rail of a boring mill, said clamping members including a plurality of adjustable clamping flanges, a holding-arm projecting laterally from one of said clamping members and adjustable longitudinally thereon, a slide rod vertically adjustable on said holding-arm, a scriber, a scriber carrier mounted on said rod, arranged for rotary movement thereabout, and means on said carrier whereby said scriber may be rotated concentrically with the axis of said carrier, and also rotated about and moved lengthwise of its own axis.

9. In a device of the class described, the combination of a plurality of clamping members, a holding-arm projecting laterally from one of said clamping members, a slide rod carried by and adjustably movable at right angles to said arm, a rotatable sleeve on said slide rod, a sleeve connected to the last named sleeve, at right angles thereto, a recessed bearing bolt within the last named sleeve, a sleeve on said bolt having a recess registering with the recess in said bolt, a scriber arm within said recesses, and means for tightening and loosening said parts to take a plurality of positions about the slide rod.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."