

No. 683,664.

Patented Oct. 1, 1901.

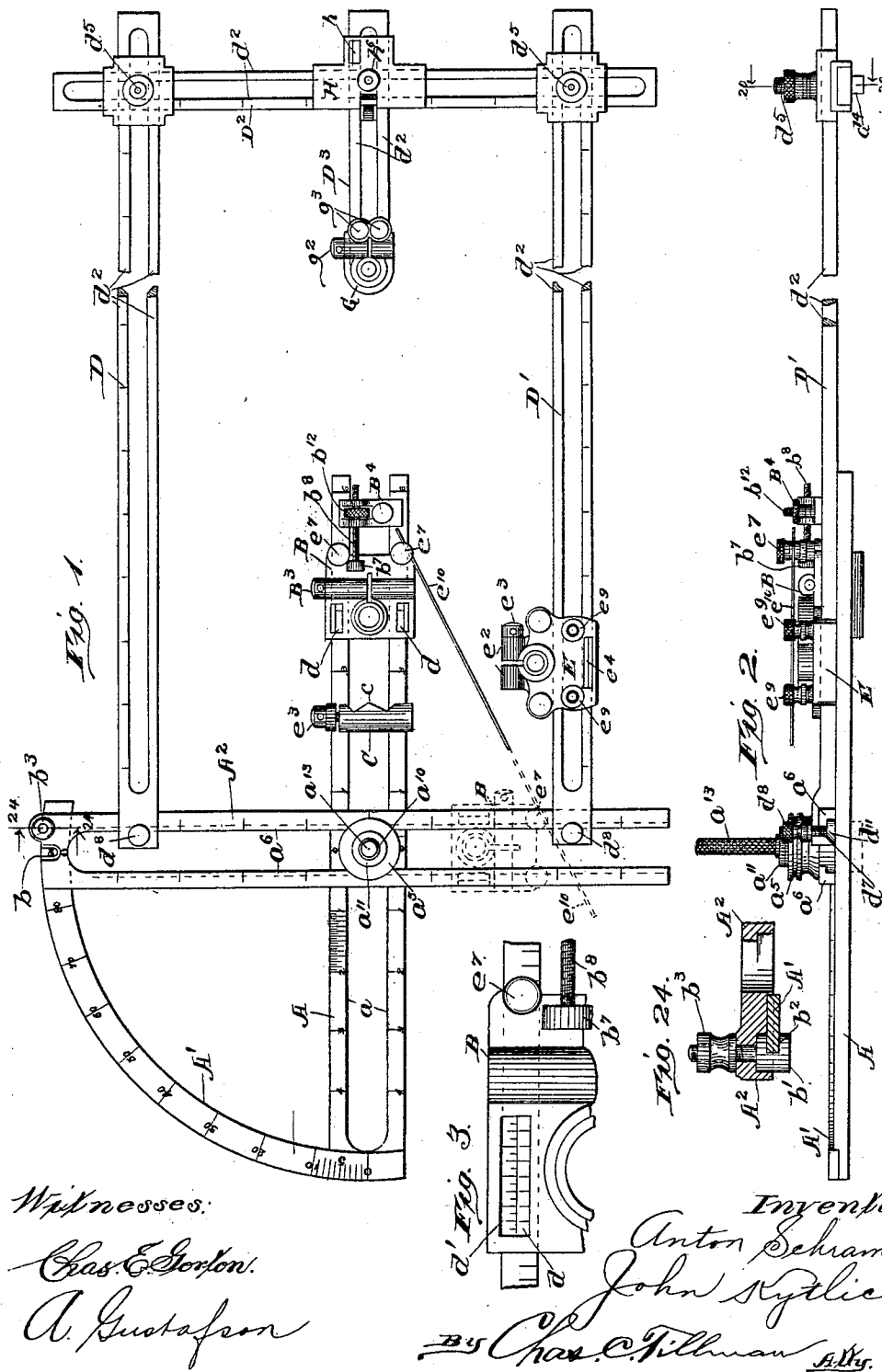
A. SCHRAMEK & J. KYTLICA.

DRILL GAGE.

(Application filed July 8, 1901.)

(No Model.)

2 Sheets—Sheet 1.



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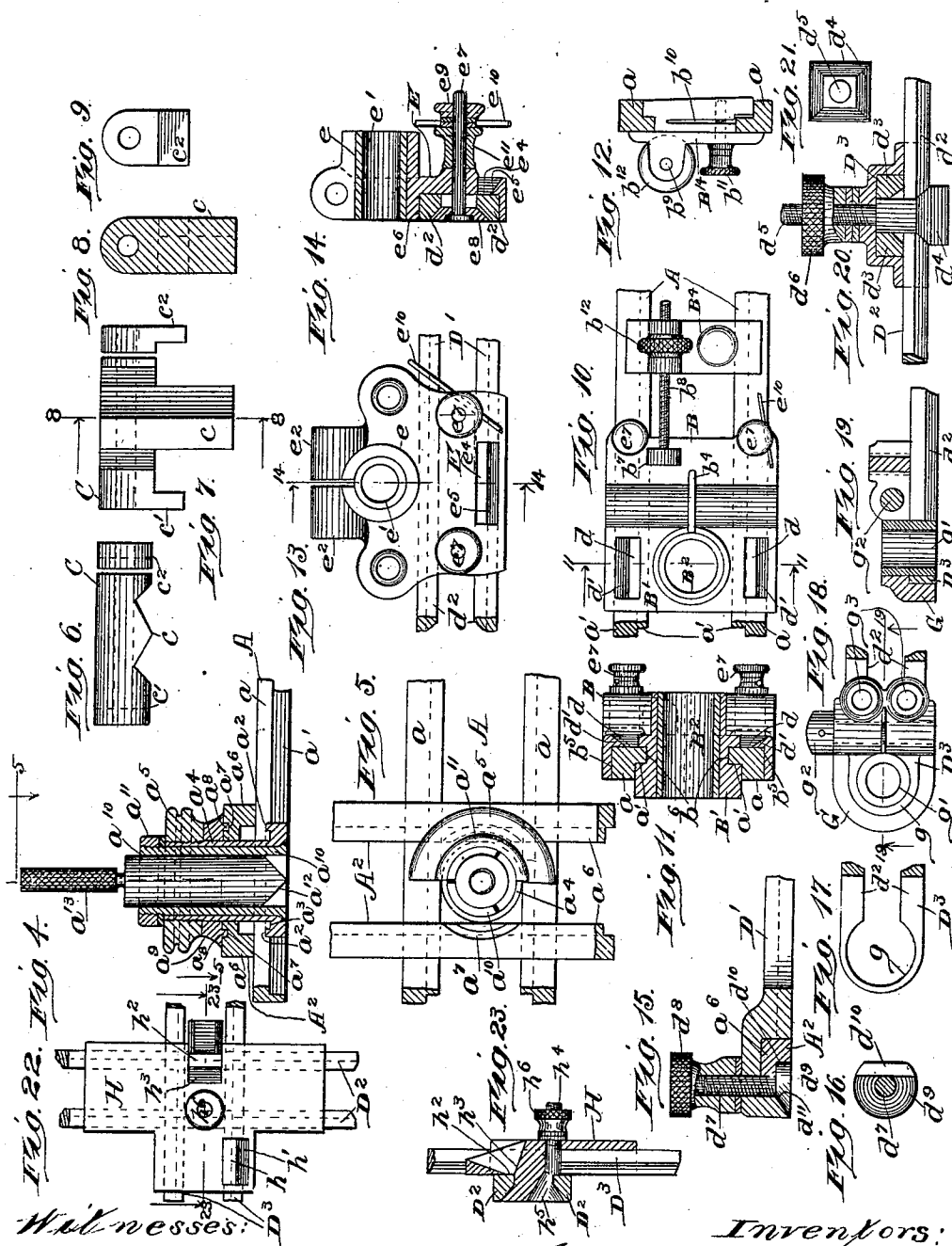
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UNITED STATES PATENT OFFICE.

ANTON SCHRAMEK AND JOHN KYTLICA, OF CHICAGO, ILLINOIS.

DRILL-GAGE.

SPECIFICATION forming part of Letters Patent No. 683,664, dated October 1, 1901.

Application filed July 8, 1901. Serial No. 67,454. (No model.)

To all whom it may concern:

Be it known that we, ANTON SCHRAMEK, a citizen of the United States, and JOHN KYTLICA, a subject of the Emperor of Austria-Hungary, both residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Drill-Gages, of which the following is a specification.

10 This invention relates to improvements in gages, and while it is more especially intended to be used as a drill-gage yet it may be employed as a gage for other tools; and it consists in certain peculiarities of the construction, 15 novel arrangement, and operation of the various parts thereof, as will be hereinafter more fully set forth and specifically claimed.

20 The object of our invention is to provide a gage which shall be simple and inexpensive in construction, strong, durable, and effective and accurate in operation.

25 In order to enable others skilled in the art to which our invention pertains to make and use the same, we will now proceed to describe it, referring to the accompanying drawings, in which—

30 Figure 1 is a plan view of a gage embodying our invention, showing it shortened for the convenience of illustration. Fig. 2 is a view in side elevation thereof. Fig. 3 is an enlarged view of a portion of one of the jigs and a part of the main gage-bar. Fig. 4 is a view, partly in section and partly in elevation, through the securing mechanism for the 35 central pivot. Fig. 5 is a plan view taken on line 5 5 of Fig. 4 of a portion of the main gage-bar, the main transverse gage-bar, and a portion of the mechanism for securing said pivot and bars together. Fig. 6 is a detached 40 plan view of an attachment for taking inside measurements. Fig. 7 is a view in elevation thereof. Fig. 8 is a vertical sectional view taken on line 8 8 of Fig. 7. Fig. 9 is a detail view of a portion of said attachment. Fig. 45 10 is a plan view of a portion of the main gage-bar and the jig thereof. Fig. 11 is a sectional view taken on line 11 11 of Fig. 10. Fig. 12 is an end view of the said jig and gage-bar. Fig. 13 is a plan view of a jig used 50 on one of the supplementary side gage-bars. Fig. 14 is a sectional view thereof, taken on line 14 14 of Fig. 13. Fig. 15 is a detail view

showing the means for connecting the supplementary side gage-bars to the main transverse gage-bar. Fig. 16 is a detail view of the screw therefor. Fig. 17 is a plan view of one end of the gage-bar which is mounted on the supplementary transverse gage-bar. Fig. 18 is a plan view thereof with a jig mounted thereon. Fig. 19 is a sectional view taken on line 19 19 of Fig. 18. Fig. 20 is a view, partly in section and partly in elevation, taken on line 20 20 of Fig. 2, of the mechanism employed for securing the supplementary side gage-bars and the supplementary transverse gage-bar together. Fig. 21 is a detail view of the screw thereof. Fig. 22 is a plan view of a portion of the supplementary transverse gage-bar, a part of the intermediate supplementary gage-bar, and the mechanism for securing the said bars together. Fig. 23 is a sectional view taken on line 23 23 of Fig. 22. Fig. 24 is a sectional view taken on line 24 24 of Fig. 1, showing the means for securing the main gage-bar to the segmental gage-bar.

Similar letters refer to like parts throughout the different views of the drawings.

A represents the main gage-bar, which comprises two parallel pieces *a*, joined together at one of their ends and having on their upper surfaces graduate-marks, as is clearly shown in Fig. 1 of the drawings. One end of the bar A is rigidly secured to a segmental gage-bar A', which is also provided on its upper surface with a scale or graduate-marks.

The lower surfaces of the pieces *a* of the main gage-bar are formed with angular recesses *a'* to cause them to engage suitable recesses in the sleeve of the jig, which is mounted on said bar. The pieces *a*, comprising the bar A, are formed on their lower surfaces at about their middle with segmental recesses *a''* to receive the circular upturned flange *a'''* on the lower portion of the tube or sleeve *a*, which passes between the pieces *a* and has its upper portion screw-threaded to engage a nut *a'''*, located thereon. Extending crosswise of the main gage-bar A is a main transverse gage-bar A², which comprises two parallel pieces *a²*, joined together at one of their ends and having on their upper surfaces graduate-marks. The pieces *a²*, comprising the bar A², are angular in cross-section, as shown in Figs. 2, 4, 5, and 15 of the draw-

ings, and have about their middle on their upper surfaces segmental grooves a^7 to receive the circular flange a^8 on the washer a^9 , which surrounds the sleeve a^4 and rests on the upper surface of the bar A^2 . (See Fig. 4.) Within the sleeve a^4 is located a bushing a^{10} , which has its lower outer portion flared to fit the correspondingly-shaped opening in the lower end of the sleeve a^4 and has its upper portion split and screw-threaded to engage a nut a^{11} , employed for clamping the bushing a^{10} on the pivot a^{12} , which has on its upper end a milled stem a^{13} , by means of which it may be turned. The joined end of the bar A^2 is provided with an opening b , through which the graduate-scale on the segmental bar A' may be seen and read. The bar A^2 is adjustably secured to the segmental bar A' by means of a screw b' , which passes through the end of the bar A^2 , and has in its head a recess b^2 to receive the edge of the bar A' and a thumb-nut b^3 on the upper end of the screw. On the main bar A is located a jig for one of the drills, which comprises a block B , having a circular opening and a longitudinal slot b^4 , communicating therewith. The lower portion of the block B is formed with angular recesses b^5 to fit over the pieces a of the main gage-bar. Within the circular opening of the block B is a sleeve B' , which has an annular recess b^6 to receive the inner portions of the pieces a . (See Fig. 11.) Within the hollow of the sleeve B' is located a bushing B^2 , in which the drill or tool may be located. Extending crosswise the block B is a screw-bolt B^3 , used for tightening the sleeve B' on the bushing. The upper surface of the block B is provided with a boss b^7 , in which is located one end of a screw b^8 , which passes through a suitable opening on a boss b^9 , carried by a plate or block B^4 , which is formed to fit between the pieces a of the main gage-bar and to rest on the upper surface thereof. The block B^4 is formed with a slot b^{10} , and has a set-screw b^{11} to clamp the upper and lower portions of said block on one of the pieces a of the main bar. The screw b^8 is provided with a thumb-wheel b^{12} , used for turning the screw when it is desired to adjust the jig-block B on the main gage-bar. Located on the upper surface of the pieces a of the main gage-bar A is a clamp or attachment C , which has a downwardly-extending V-shaped portion c at about its middle and at its ends two downwardly-extending parts c' and c^2 , the latter being separate from the portion C and secured thereto by means of a screw-bolt c^3 , which passes through an opening in the part c^2 and engages a suitable opening in the portion C . In using the gage for taking the inside measurements of a tube or circular article or for adjusting the drill in respect to such an article four attachments C are employed, one being located with the apex of the extension c from that of the other, when by sliding the attachments C on the main gage-bar the diameter of the tube or circular

article may be ascertained. Again referring to the jig mounted on the main gage-bar A and above described, by reference to Figs. 1, 3, 10, and 11 of the drawings it will be seen that each side of the block B is provided with a slot d , through which the graduate-marks on the bars a may be seen. The face of the block is formed with beveled portions d' , inclined toward the slot d , and has on said beveled portions graduate-marks representing smaller fractional parts than those on the main gage-bar. For instance, suppose the scales on the gage-bar are divided into inches and eighths of an inch, while those on the beveled portions of the jig are divided into sixteenths of an inch. Now by sliding the jig by means of the screw b^8 so as to place two of the marks on the block between two of the marks on the main gage-bar a scale of thirty-seconds of an inch will be produced, and so on if the fractional scale on the block is decreased.

In Fig. 1 of the drawings we have shown our gage provided with two supplementary side gage-bars D and D' , each of which comprises two parallel pieces d^2 , joined together at their ends. These gage-bars are provided on their upper surfaces with graduate-marks and have their lower surfaces inwardly beveled, as at d^3 . (See Fig. 20.) Extending crosswise the ends of the bars D and D' is a supplementary transverse gage-bar D^2 , which has on its upper surface graduate-marks and its lower surface inwardly beveled to receive the beveled head d^4 on the set-screws d^5 , which pass between the parallel pieces composing the bars D , D' , and D^2 . At the juncture of each of the bars D and D' with the bar D^2 is located a plate D^3 , which has at its corners downturned portions to rest between the corners formed by said bars. The said screws d^5 pass through suitable openings in the plates D^3 and have on their upper ends nuts d^6 to firmly secure the plates D^3 in position on their respective bars. The opposite ends of the bars D and D' are secured to the main transverse gage-bar A^2 by means of set-screws d^7 and nuts d^8 on the upper ends thereof. The lower ends of the screws d^7 are provided with heads d^9 , having shoulders d^{10} to fit in the angular recesses of the pieces a^6 of the bar A^2 and with beveled portions d^{11} to rest against correspondingly-shaped portions on the lower surfaces of the bars D and D' , as is clearly shown in Fig. 15 of the drawings. On one or both of the bars D and D' is located a jig, which comprises a block E , having a recess on its lower surface to receive the pieces d^2 , comprising said bars, and a circular vertical opening e to receive the bushing e' for the drill or other tool. The plate E is provided with two bosses e^2 , in which is located a screw e^3 for clamping them together, so as to securely hold the bushing e' in place. The plate E is also provided with a slot e^4 , through which the graduate-marks on the bars D and D' may be read, and, like

the block B, has a beveled portion e^5 , provided with graduate-marks of different fractions from that shown on the said bars and for the same purpose as above described in reference to the block B or jig mounted on the main gage-bar.

The lower surface of the plate E is provided with a recess e^6 to receive the bars d^2 . (See Fig. 14.) Passing through the plate E between the bars d^2 are screws e^7 , which have on their lower ends heads e^8 to engage the bars d^2 and on their upper ends nuts e^9 to clamp the tie wires or rods e^{10} , which are located between the said nuts and washers e^{11} on said screws. These tie-rods are employed for uniting the different jigs together, and the jig on the main gage-bar A is likewise provided with screws e^7 for the purpose of engaging said wires. Located between the bars D and D' and on the bar D² is an intermediate gage-bar D³, which comprises two parallel pieces d^2 , having on their upper surfaces graduate-marks and joined together at each of their ends. The end of the bar D³ adjacent to the main gage-bar is provided with a circular opening g , in which is located a bushing g' for the reception of the drill or other tool. Located around the circular portion of the bar D³ is a clamp G, which is provided near its ends with a screw-bolt g^2 , used for tightening the clamp. The said clamp is also provided with set-screws g^3 , used for engaging tie-rods e^{10} , as in the other jigs. Located on the bars D² and D³ is a T-shaped plate H, which is provided with a slot h , through which the marks on the bar D³ may be read. The face of the plate H is provided with an inclined portion h' , having graduate-marks representing smaller fractional parts than those on the gage-bar D³. The plate H is also provided with a slot h^2 , through which the marks on the gage-bar D² may be read. The face of the plate is provided with an inclined portion h^3 , having graduate-marks representing smaller fractional parts than those on the bar D². Passing through the plate H is a screw-bolt h^4 , which has on its lower end a beveled head h^5 to engage the bar D² and on its upper end a nut h^6 used for securing the plate in position.

In Fig. 1 of the drawings we have shown our instrument provided with jigs on the main gage-bar, one of the supplementary side gage-bars, and on the intermediate gage-bar, and by dotted lines a jig on the main transverse gage-bar.

The jig represented by dotted lines is shown as being connected to the jig on the main gage-bar by means of a tie-wire e^{10} , and it is apparent that all of the jigs may be connected by such wires, and it is further evident that jigs may be placed on each of the gage-bars, and in practice we usually employ one on each of said bars.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a drill-gage, the combination with a main gage-bar, of a main transverse gage-bar adjustably secured thereto, a jig slidably mounted on each of said bars and having slots through which the marks on the bars may be seen and provided on their faces with graduate-marks, substantially as described.

2. In a drill-gage, the combination with a main gage-bar, of a main transverse gage-bar adjustably secured thereto, a jig slidably mounted on each of said bars and having slots through which the marks on the bars may be seen and provided on their faces with graduate-marks, and means to connect the jigs together, substantially as described.

3. In a drill-gage, the combination with a main gage-bar, of a segmental gage-bar fixed to one end thereof, a main transverse gage-bar adjustably secured to the main bar, and segmental bar, the transverse bar having a slot in its end connected to the segmental bar and provided with marks on its face near said slot, a jig slidably mounted on the main and transverse bars and having slots through which the marks on the bars may be seen and provided with graduate-marks on their faces near said slots, substantially as described.

4. In a drill-gage, the combination with a main gage-bar, of a segmental gage-bar fixed to one end thereof, a main transverse gage-bar adjustably connected to the main and segmental bar, supplementary side gage-bars adjustably secured at one of their ends to the main transverse bar, a supplementary transverse gage-bar adjustably secured to the side gage-bars, an intermediate gage-bar adjustably secured to the supplementary transverse bar, jigs mounted on any or all of said bars and means to connect them together, substantially as described.

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