No. 715,252. Patented Dec. 9, 1902.

F. A. ERRINGTON.

CHUCK.

(Application filed Dec. 21, 1901.)

(No Model.)

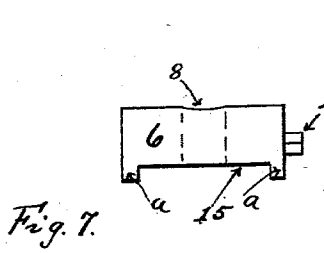

Fig. 7.

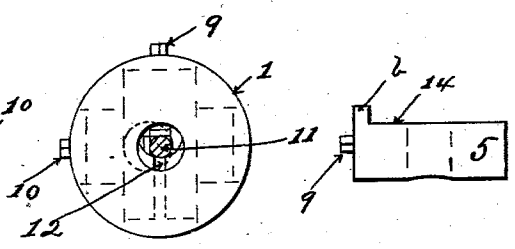

Fig. 3

Fig. 6.

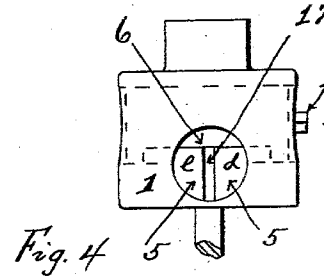

Fig. 4

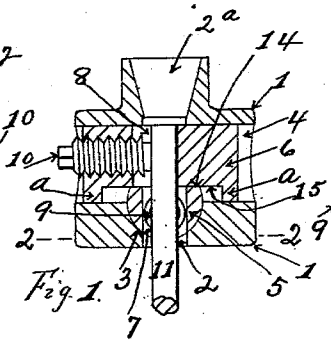

Fig. 1.

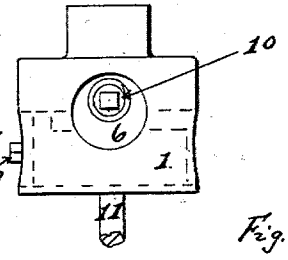

Fig. 5.

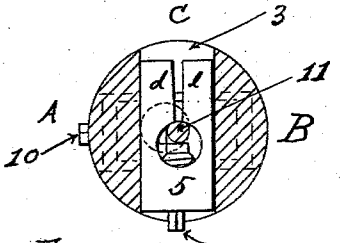

Fig. 2

Witnesses
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UNITED STATES PATENT OFFICE.

FRANKLIN ALFRED ERRINGTON, OF NEW YORK, N. Y.

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SPECIFICATION forming part of Letters Patent No. 715,252, dated December 9, 1902.

Application filed December 21, 1901. Serial No. 86,855. (No model.)

To all whom it may concern:

Be it known that I, FRANKLIN ALFRED ERRINGTON, a citizen of the United States of America, residing in the borough of Richmond, New York city, State of New York, have invented certain new and useful Improvements in Chucks, of which the following is a specification.

My invention relates, broadly, to means for centering a tool or piece of work with a supporting-body, and more particularly to the coaction of two independently-movable slides whose lines of movement are at right angles to the axis of said supporting-body and at an angle to each other, and to other details of improvements and combinations of parts hereinafter described and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part hereof, wherein—

Figure 1 is a vertical cross-section of a device embodying my invention. Fig. 2 is a horizontal cross-section on the line 2 2 of Fig. 1, showing the outer slide in full lines and illustrating the slot therein provided to allow the binding portions to expand. Fig. 3 is a bottom plan view of Fig. 1. Fig. 4 is a side elevation of Fig. 1, showing the expanding end of the outer slide or block. Fig. 5 is a similar view showing the clamping end of the inner block. Fig. 6 is a side elevation of the outer block 5 in the same position as indicated by dotted lines in Fig. 5, and Fig. 7 is a similar view of the inner block 6 as dotted in Fig. 4.

Similar numerals and letters of reference indicate corresponding parts in the several views.

1 is a supporting-body, having an axial socket 2 and transverse bores or slideways 3 4 opening thereinto and extending at right angles thereto and preferably shown at right angles to each other, although their angle to each other need not necessarily be a right angle. However, the angle to each other must be great enough to insure the proper coaction of the blocks, as hereinafter described. The socket 2 is preferably shown extended through the body 1 and tapered outwardly at its inner end 2^a to form a convenient method of connecting the body 1 with suitable driving means.

Clamping-blocks 5 6 are located in the transverse slideways 3 4, respectively. Each block is provided with a socket 7 8 and set-screw 9 10, respectively, the line of movement of the screw being at right angles to the line of the socket of the block. While the walls of plain round sockets 7 8 would act to aline and center a tool or work 11, I preferably provide in the socket of one of the blocks a central indenture 12, and thereby secure a more sensitive centering and alining coaction of the walls of the sockets of the blocks.

An advantage of using round transverse slideways 3 4 is that the body 1 can be in one piece; but heretofore a disadvantage of round slideways has been that in turning the clamping-screws 9 10 to grip the tool 11 a cylindrical block would turn in its round slideway independently of the body 1 and of its associate block. Also in the case of small work or tools the distance between the clamping-surfaces of the screws and the outer face of the body 1 would be too great to enable both screws to grip the tool or work. Therefore in the device illustrated I have preferably connected the blocks 5 6 together to hold each other from independent movement on their respective axes by flattening their adjacent sides at 14 15 in such a manner as to enable the blocks to bear upon each other. I have also shown the screws 9 10 set eccentrically in their respective blocks 5 6 to secure the maximum flat bearing of the blocks upon each other, as well as to shorten the distance between the clamping-surfaces of the screws 9 10 and the outer face of the body 1.

To prevent the blocks 5 6 from dropping out of body 1 when not in use, I have left lugs *a* on each end of the flat surface on the block to be first inserted into body 1, and one integral lug *b* is left on the other block. I have preferably split the end of one of the blocks, as shown, by extending the indenture 12 in the form of a slot through the end of the block 5. This will have the twofold effect of normally swelling the sides of that end of the block to prevent the block from readily dropping out of body 1 and also of rigidly clamping the block so split in its slideway by the expansion of its open end portions *d e* under

the pressure of its clamping-screw 9 when being turned against the tool 11, thereby holding the tool 11 immovably in relation to the body 1, which is an advantage under some requirements.

The coaction of the parts is as follows: A tool 11 being inserted into socket 2 and through block-sockets 7 8 is gripped by one of the screws 9, which brings it into the center of its slide 5 and centrally of the body 1 relatively to the sides A B thereof, but not relatively to the sides of C D of the body, the tool 11 being clamped to block 5 independently of block 6. Thereupon the other screw 10 of block 6 is clamped against the tool 11, which moves the block 5 transversely of body 1, through the medium of tool 11, and brings the tool 11 in the center of block 6 and centrally of the body relatively to the sides C D thereof, thus completing by the joint action of the blocks 5 6 and their parts the centering and alining of the tool 11 with the body 1.

Having now described my invention, what I claim is—

1. The combination with a body provided with a transverse slideway, of a clamping-block located in said slideway and provided with a socket adapted to register with the axis of the body, said block being provided at one end with a clamping-screw and the other end of the block being split in line with the block-socket to enable the split end of the block to expand under the pressure of the screw, substantially as described.

2. The combination with a body provided with a transverse slideway, of a clamping-block movable diametrically of the body in said slideway and provided with a socket adapted to register with the axis of the body, said block being provided at one end with a clamping-screw and the other end of the block being split in line with the block-socket, and means to coact with the block to center a tool held in said block-socket with the axis of the body, substantially as described.

3. The combination with a body, of a pair of clamping-blocks extending transversely of the axis of the body at an angle to each other, said blocks being movable diametrically of the body and connected to rotate in unison therewith and being each provided with a socket, said sockets being adapted to register with each other and with the axis of the body to receive a tool, and means to clamp said tool independently to each block, substantially as described.

4. The combination with a body provided with a plurality of transverse slideways extending through the axis of the body at right angles thereto and at an angle to each other, of a plurality of clamping-blocks movable diametrically of the body in said slideways, each of the blocks being provided with a socket, said sockets being adapted to register with each other and with the axis of the body, and a clamping-screw meshing with one end of each block, the other end of one of the blocks being split in line with its socket into two expansible portions, substantially as described.

5. The combination with a body provided with a plurality of circular slideways extending through the axis of the body at right angles thereto and at an angle to each other, of a plurality of cylindrical clamping-blocks movable diametrically of the body in said slideways, means to prevent independent rotation of said blocks in their respective slideways, each of said blocks being provided with a socket, said sockets being adapted to register with each other and with the axis of the body to receive a tool, and means to clamp said tool independently to each block, substantially as described.

6. The combination with a body provided with a plurality of transverse slideways opening into each other at their intersection with the axis of the body and extending at right angles to said axis and at an angle to each other, of a plurality of clamping-blocks movable diametrically of the body in said slideways independently of each other and connected together at their intersection to prevent their independent rotation in their respective slideways, each of said blocks being provided with a socket, said sockets being adapted to register with each other and with the axis of the body to receive a tool, and means to clamp said tool independently to each block, substantially as described.

7. The combination with a body provided with a plurality of circular slideways extending through the axis of the body at right angles thereto and at an angle to each other, of a plurality of cylindrical clamping-blocks movable diametrically of the body in said slideways and having their adjacent sides flattened to bear upon each other, each of said blocks being provided with a socket, said sockets being adapted to register with each other and with the axis of the body, and each of said blocks having a clamping-screw, one of said clamping-screws being located eccentrically to the axis of its respective block, substantially as described.

8. The combination with a body, of a pair of clamping-blocks extending transversely of the axis of the body at an angle to each other, said blocks being movable diametrically of the body and connected to rotate in unison therewith and being each provided with a socket adapted to register with each other and with the axis of the body to receive a tool, means to limit the endwise movement of each block transversely of the body, and means to clamp said tool independently to each block, substantially as described.

9. The combination with a body, of a pair of clamping-blocks extending transversely of the axis of the body at an angle to each other, said blocks being movable diametrically of the body and connected to rotate in unison

therewith and being each provided with a socket, said sockets being adapted to register with each other and with the axis of the body to receive a tool, one of said blocks having abutments located on opposite sides of the other of said blocks and adapted to engage the last-named block to limit the endwise movement of the first-named block, and means to clamp said tool independently to each block, substantially as described.

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