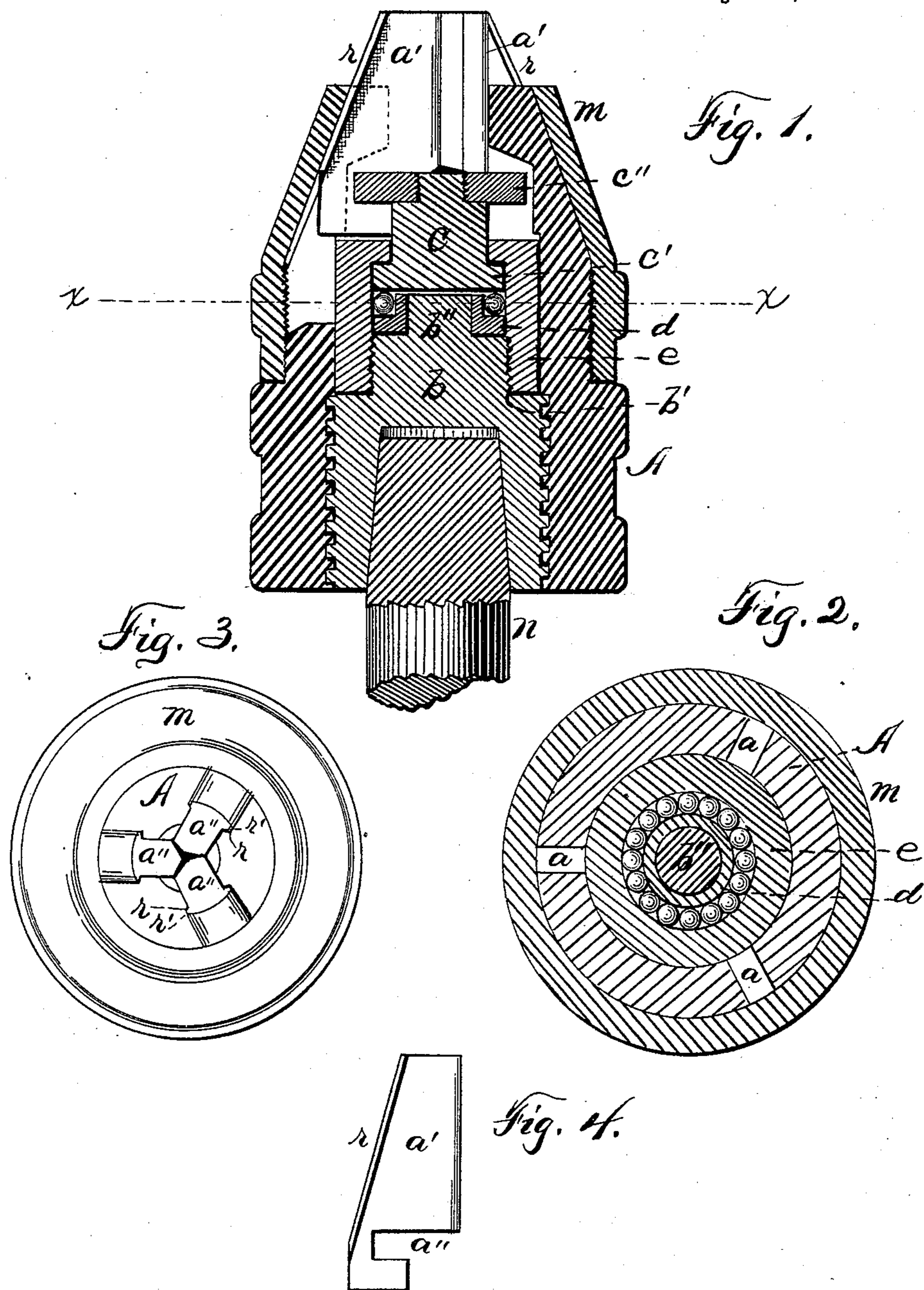


(No Model.)

R. M. RUSSELL.
DRILL CHUCK.

No. 539,193.

Patented May 14, 1895.



WITNESSES:

WITNESSES:
E. S. Borch.
Chas. W. Marvin.

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UNITED STATES PATENT OFFICE.

ROSS M. RUSSELL, OF BINGHAMTON, NEW YORK.

DRILL-CHUCK.

SPECIFICATION forming part of Letters Patent No. 539,193, dated May 14, 1895.

Application filed November 10, 1894. Serial No. 528,433. (No model.)

To all whom it may concern:

Be it known that I, ROSS M. RUSSELL, of Binghamton, in the county of Broome, in the State of New York, have invented new and useful Improvements in Chucks, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to chucks, and particularly to that class employing reciprocating gripping-jaws, which are carried by a reciprocating head within an outer casing, said head being mounted within a tubular body, a shank or stem being removably connected to said body, and a sleeve provided with converging walls being mounted upon said body.

The object of my invention is to improve the construction of the chuck, by making said head sectional, with an anti-frictional bearing between said sections, and so connecting them that either section can be rotated independently of the other, so that the gripping jaws will not be rotated within the sleeve when the inner section of the head is screwed into the case, but the sleeve will wedge them inwardly, though then stationary; also in which the rotation of the sleeve, screwing it up, will force the jaws inward; and in which the rotation of the case upon the inner section of the head will advance or retract the jaws, the outer section of said head not being rotated thereby, whereby in any case by the non-rotation of this outer section and the non-rotation of the jaws, when said jaws are brought into contact with the shank of a drill or other tool, they will not slip around therein until their grip becomes strong enough to resist the strain, but when they engage with the tool will retain their grip in the same position and location.

My invention consists in the several novel features of construction and operation hereinafter described and which are specifically set forth in the claim hereunto annexed. It is constructed as follows, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal sectional elevation of the chuck. Fig. 2 is a transverse section thereof on line $x x$ in Fig. 1. Fig. 3 is a front elevation. Fig. 4 is a side elevation of one of the gripping-jaws.

—A— is a tubular case, having a frusto-conical point, provided with slots —a— to re-

ceive the jaws —a'—. The head consists of sections —b—c—, the section —b— being screwed into the case and reduced in diameter and threaded as at —b'— and again reduced to create the stud —b''— upon its outer end. An anti-frictional bearing —d— comprising a ball-race ring around said stud, and balls in said race, of ordinary construction is placed between said head sections, and —e— is a retaining ring screwed onto the section —b— and flanged inwardly to engage with the flange —c'— upon the base of the outer section. The outer section is also provided with a removable ring —c''— projecting beyond and creating a flange around the outer end thereof, which fits into the slots —a''— in the jaws, and when the sleeve —m— is screwed onto the case said jaws are thereby held in place upon said section. The inner section —b— is recessed to receive and be mounted upon a shank —n— or may be secured upon a shank, and when said shank is placed in a chuck, or in a lathe or bit-stock, the unscrewing rotation of the section —b—, the case being held stationary, retracts the jaws to be opened to receive a tool-shank, the outer section and the jaws not being rotated; and when said inner section is screwed into said case, said jaws are advanced and forced inward toward each other, both by their engagement with the sleeve, and through the engagement of the ribs —r— on said jaws with recesses —r'— in the edges of the slots —a—, said jaws not being then rotated, nor said inner section, so that when the jaws engage with the tool-shank they are not rotated around or over it, but take their grip at the points of original contact.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

The combination with a case and jaws mounted therein, of a head within the case consisting of sections having an anti-frictional bearing between them, and engaging with the jaws to reciprocate them, substantially as shown and described.

In witness whereof I have hereunto set my hand on this 7th day of November, 1894.

ROSS M. RUSSELL.

In presence of—

W. C. HAWES,
GEO. R. NELSON.