No. 776,603. PATENTED DEC. 6, 1904.

A. D. LEBLANC.

CHUCK.

APPLICATION FILED NOV. 12, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

FIG. 1.

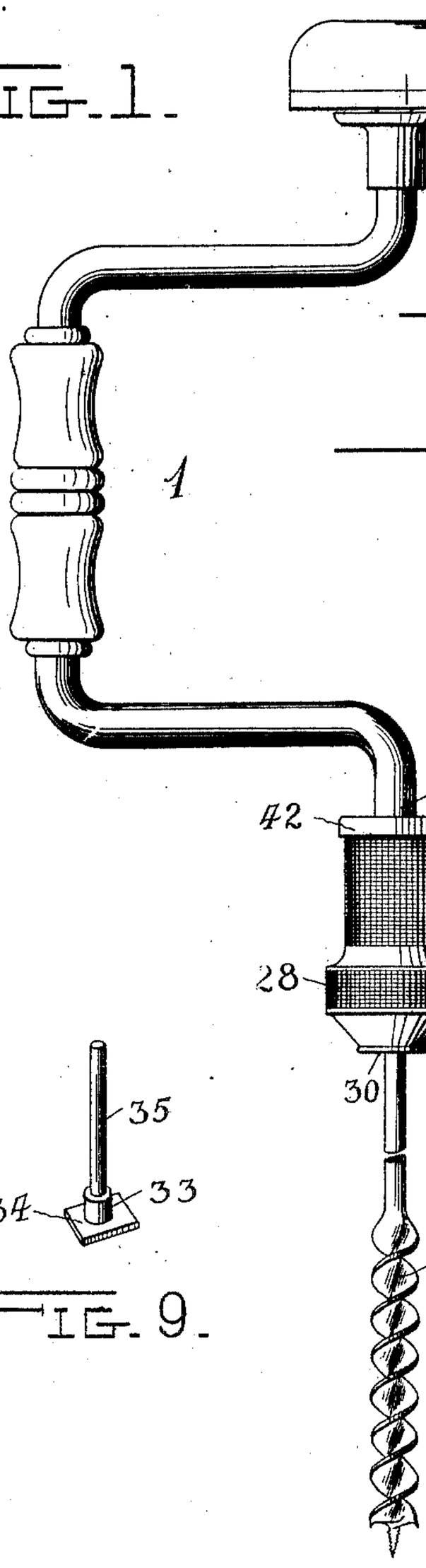

FIG. 6.

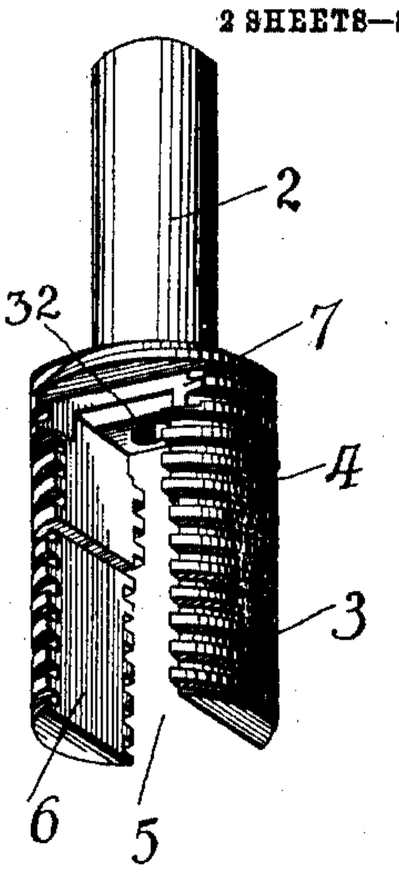

FIG. 7.

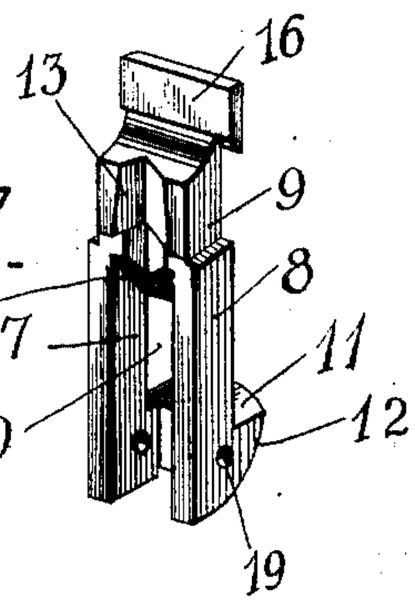

FIG. 9.

FIG. 8.

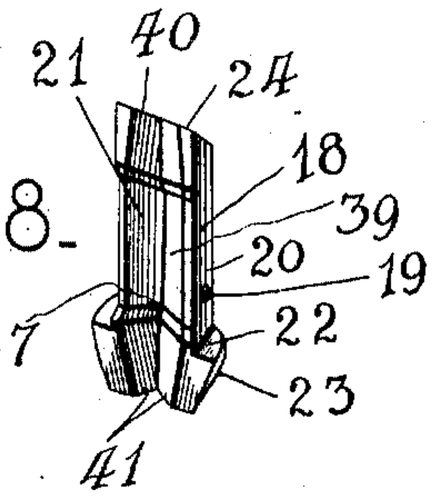

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PHOTO-LITHOGRAPHED BY SACHETT & WILHELMS LITHO. & PTG. CO. NEW YORK

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CHUCK.

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NO MODEL. 2 SHEETS—SHEET 2.

FIG. 2.

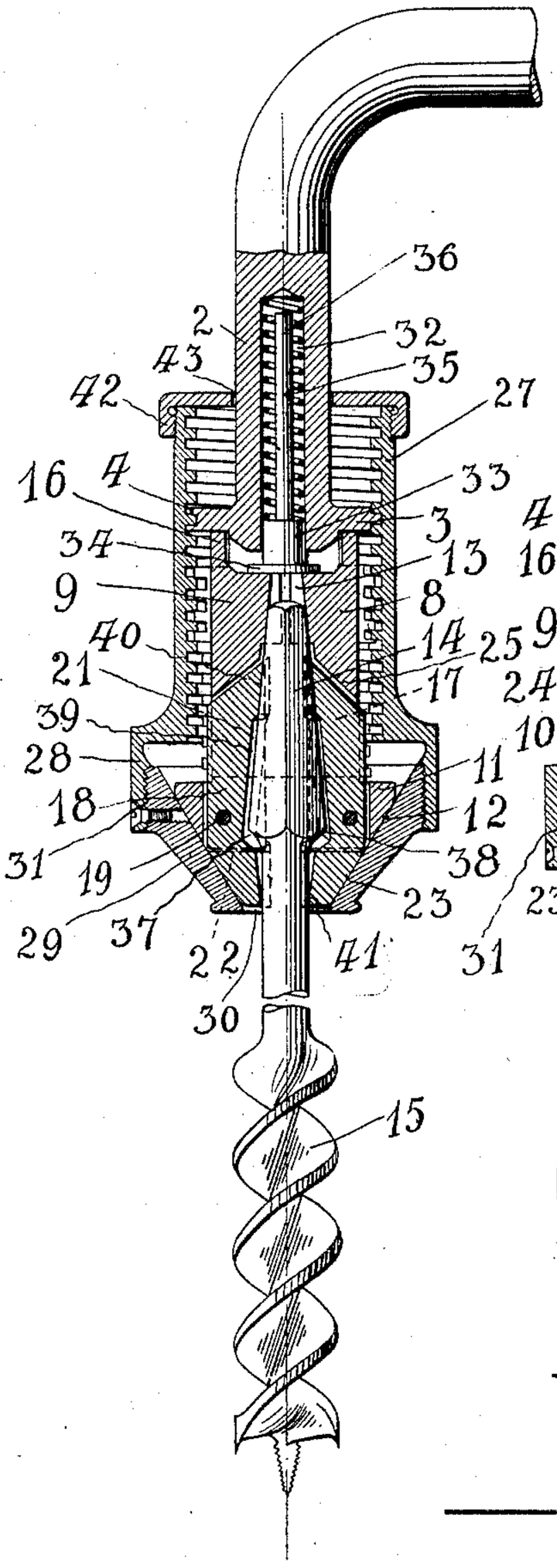

FIG. 3.

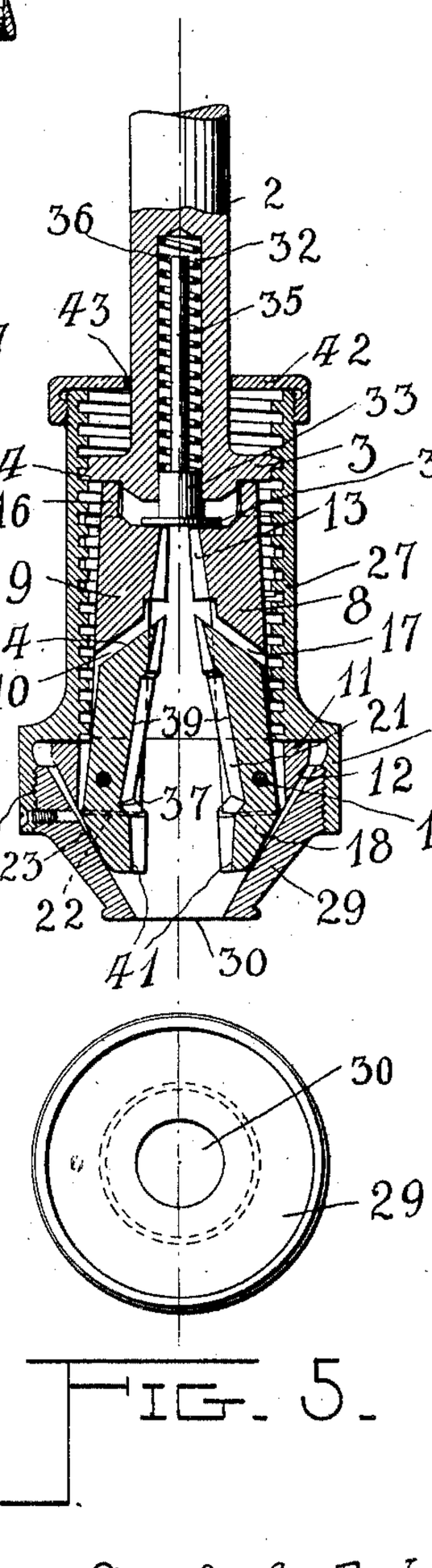

FIG. 4.

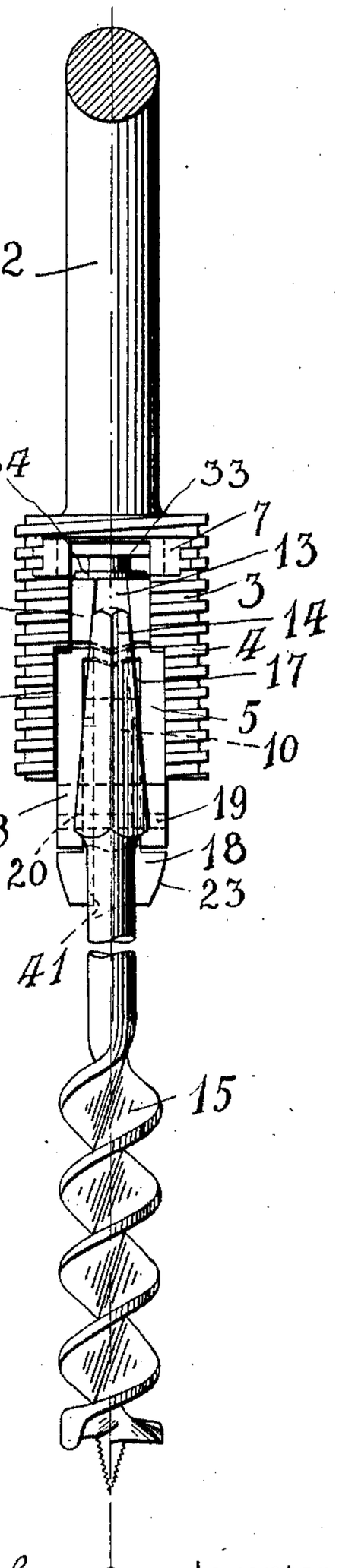

FIG. 5.

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No. 776,603. Patented December 6, 1904.

UNITED STATES PATENT OFFICE.

ADOLPHE D. LEBLANC, OF MONTREAL, CANADA.

CHUCK.

SPECIFICATION forming part of Letters Patent No. 776,603, dated December 6, 1904.

Application filed November 12, 1903. Serial No. 180,837. (No model.)

To all whom it may concern:

Be it known that I, ADOLPHE D. LEBLANC, a subject of the King of Great Britain, residing in the city and district of Montreal, in the Province of Quebec, Canada, have invented certain new and useful Improvements in Chucks; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to woodworking-tools, and concerns itself especially with the construction of a chuck to be used in connection with a brace for holding an auger or bit or a similar tool, such as a screw-driver.

The object of the invention is to provide a chuck of very simple construction which will operate to open and close quickly and which will grasp the head of the tool firmly and securely.

In its general construction the invention contemplates the use of an enlarged threaded head, which head constitutes a socket in which grips or clamps are loosely received. The vertical extension of the brace-body just at this head is provided with a centrally-disposed bore in which a spring is mounted, and this spring thrusts against a plate, which plate in turn thrusts against the said grips and tends to throw the said grips or clamps apart. Near the lower extremities of the clamps jaws are pivotally attached, which jaws when the clamps open out are impelled to spread apart, so as to facilitate the introduction or removal of the head of an auger or similar tool which is to be secured within the chuck. The lower extremities of the clamps and the jaws are of substantially conical form and lie behind a conically-formed cap, which cap is carried by a body mounted upon the threaded head aforesaid. From this arrangement the rotation of the body upon the head quickly actuates the clamps and their jaws to seize or release the tool.

The invention consists in the construction and combination of parts to be more fully described hereinafter and definitely set forth in the claims.

In the drawings, which fully illustrate my invention, Figure 1 is a side elevation of a brace to which my chuck has been applied. Fig. 2 is a vertical cross-section through the chuck, representing a portion of the brace in elevation and showing the chuck while holding the bit or auger, the said auger being broken off, as indicated, to save space. Fig. 3 is a view very similar to Fig. 2, but representing the chuck in its open position, the tool being not shown. Fig. 4 is a view representing the body of the chuck as removed, together with one of the clamps, and representing the tool in position in front of the remaining clamp. Fig. 5 is a plan of the inside of the cap referred to above. Fig. 6 is a perspective of the head referred to above. Fig. 7 is a perspective of one of the clamps. Fig. 8 is a perspective of one of the jaws which attach to the clamps. Fig. 9 is a perspective of a presser-plate with its stem.

Throughout the drawings and specification the same numerals of reference denote like parts.

Referring more particularly to the parts, 1 represents a brace of any suitable form having a lower vertical extension 2, which terminates below in an enlarged head 3, which head is provided externally with screw-threads 4, as shown, and is mutilated centrally to form an opening or socket 5, which passes diametrically through the same. This socket 5 preferably presents opposite parallel substantially plain faces 6, as shown, and the socket is preferably of greater width near the extremity of the head, as indicated. Near its upper portion and on opposite sides the edges of the socket 5 are formed with lateral recesses 7 for a purpose which will appear more fully hereinafter.

A pair of oppositely-disposed clamps 8 are received within the socket 5, the said clamps being preferably of substantially the form shown in Fig. 7, including the recesses 9, and provided with the elongated openings 10, which clamps terminate below in laterally-projecting shoulders 11, between which and the lower ends of the clamps are the conical outer faces 12. Above the openings 10 the inner faces of the bodies of the clamps are provided with tapering grooves or recesses

13; adapted to receive the upper extremity of the head 14 of a tool, such as the auger 15 illustrated. The clamps 8 terminate above in fins 16, which are disposed toward the rear of the clamps with respect to the tool to be held thereby, and the extremities of these fins project laterally beyond the recess 9, as shown, and are adapted to be received in the notches or recesses 7, referred to above. The openings 10 referred to preferably present oppositely-disposed flat faces 17, and between these faces jaws 18 are held, the same being pivoted at 19 near the lower extremities of the clamps, as indicated. The bodies 20 of these jaws are shaped so that they conform substantially to the openings 10, which receive them. Their inner faces are provided with clamping-grooves 21, as indicated, and they are provided below with laterally-projecting shoulders 22, the outer faces 23 whereof are substantially of conical form, as shown, and constitute continuations of the aforesaid conical faces 12 of the clamps. The upper extremities of the jaws 18 terminate in inclined faces 24, which faces lie adjacent to similarly-inclined faces 25, which constitute the upper sides of the openings 10.

The head 3 and the clamps 8, together with the jaws 18, are all enveloped in a cylindrical sleeve which constitutes the sleeve 27 of the chuck, the said sleeve having internal threads received by the threads 4 aforesaid. This sleeve 27 has an expanded mouth 28 therebelow, which is internally threaded, as shown, to receive a cap 29, which cap is of substantially conical form, and its inner face is adapted to lie against the conical faces 12 and 23 of the clamps and jaws, as indicated most clearly in Figs. 2 and 3. It is provided below with an opening 30, through which the tool 15 may pass. This cap 29 is secured in place by means of a small machine-screw 31.

Just above the head 3 the extension 2 of the brace is provided with a centrally-disposed bore 32, in the lower extremity whereof there is guided the cylindrical body 33 of a presser-plate 34, and to the body 33 attaches a central stem 35, about which there is disposed a helical spring 36, which thrusts downwardly and forces the presser-plate 34 against the upper extremities of the clamps. As the fins 16 aforesaid are located outwardly with respect to the points at which the presser-plate exerts its force, it should be readily understood that the clamps 8 tend constantly to move outwardly at their lower extremities, carrying with them the jaws 18. It should be observed, however, that the jaws project at their backs slightly beyond the outer sides of the bodies of the clamps, so that when the clamps have sprung outwardly, as indicated in Fig. 3, the internal threads of the sleeve 27 will operate to throw the upper extremities of the jaws inwardly. In this way the lower extremities of the jaws are thrown outwardly and the entrance or removal of the tool 15 is much facilitated. Evidently a rotation of the sleeve which would advance the same upwardly and cause the inner inclined face of the cap 29 to impinge the beveled faces 12 and 23, respectively, of the clamps and jaws would operate to throw the lower extremities of the jaws and clamps inwardly in such a manner that the head of the tool inserted therebetween would be securely held. The clamping-grooves 21 in the jaws are preferably of substantially the outline shown most clearly in Fig. 2. These grooves are of greatest depth approximate the pintles thereof, so as to form a shoulder at the point 37, so as to receive the shoulders 38 of the tapered head 14 of the tool, it being understood that this head would be of the usual tapering square section. At these points 37, and preferably for some distance above and below the same, the material of the face is recessed, as indicated at 39, so that the actual holding of the tool takes place principally at the points 40 and 41, which are respectively at the extremities of the jaws.

The upper extremity of the sleeve 27 is provided with a cap-plate 42, which has a central opening 43, through which the extension 2 passes. The shoulders 11 operate as stops to limit the downward movement of the sleeve 27.

From the arrangement described a very simple chuck is produced, the jaws of which respond quickly to the movements of the controlling-body and which operate at the same time to grasp the head of the tool very firmly. At the same time the chuck presents a very neat appearance.

While I have shown in the accompanying drawings the preferred form of my invention, it will be understood that I do not limit myself to the precise form shown, for many of the details may be changed in form or position without affecting the operativeness or utility of my invention, and I therefore reserve the right to make all such modifications as are included within the scope of the following claims or of mechanical equivalents to the structures set forth.

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

1. A bifurcated head member, a plurality of separable clamps supported therein adapted to serve as tool-holding means, independently-pivoted jaws carried by said clamps, means for actuating said jaws, and independently-operable means for opening said clamps.

2. A bifurcated head member having recesses therein, clamps having extensions which rest in said recesses, said clamps having openings extending therethrough, jaws pivotally supported in said clamps, said jaws being adapted to project into said openings, and means for causing independent movement of said clamps and jaws.

3. A plurality of clamps adapted to serve

as tool-holding means, a plurality of auxiliary jaws pivotally connected therewith, a bifurcated head forming a support therefor, a sleeve movable on said head, and a beveled cap connected with said sleeve adapted to impinge said clamps and said jaws.

4. A bifurcated head, a plurality of clamps adapted to serve as tool-holding means supported within the bifurcation of said head, and a plurality of jaws pivotally supported within recesses in said clamps, in combination with a sleeve, with contracted mouth, movable on said head and adapted to impinge said clamps and said jaws.

5. A bifurcated head, a stem thereon having a longitudinal opening therein, a plurality of clamps yieldingly supported within the bifurcation of said head, and adapted to serve as tool-holding means, rockable jaws supported in recesses in said clamps, and extending therebeyond, a spring-actuated plunger in the opening of said stem bearing against said clamps, in combination with a longitudinally-movable sleeve and a cap having an inclined face adapted to impinge said jaws.

6. A head member, a plurality of clamps pivotally supported thereupon, said clamps being adapted to serve as tool-holding means, a plurality of jaws pivotally supported within recesses formed in said clamps, lateral extensions on said jaws serving as stops, and a sleeve longitudinally movable on said head adapted to impinge said stop.

7. In a chuck, a bifurcated head, a plurality of clamps connected therewith, said clamps being adapted to serve as tool-holding means and rockable between the legs of said head, a plurality of pivoted jaws supported in recesses in said clamps, a sleeve movable on said head, said sleeve terminating in an extension of relatively greater sectional area than the body portion thereof, and a member with inclined inner face forming a jaw-closing member.

8. In a chuck, in combination, a head having a socket, clamps adapted to serve as tool-holding means received by said socket, means for supporting said clamps upon said head, means for opening said clamps, jaws pivotally carried by said clamps, a body mounted upon said head and adapted to close said clamps, the outer sides of said jaws being adapted to engage said body, whereby said jaws are opened thereby.

9. In a chuck, in combination, a head having a socket, clamps received by said socket, means for supporting said clamps upon said head, means for constraining said clamps outwardly at the outer extremities thereof, jaws pivotally carried by said clamps, the inner extremities of said jaws projecting outwardly beyond said clamps, and a body movably mounted upon said head and having a conical surface adapted to constrain said clamps inwardly.

10. In a chuck, in combination, a head having a socket, clamps mounted in said socket, means for supporting said clamps upon said head, said clamps having openings therein, jaws pivotally mounted in said openings, the extremities of said jaws projecting beyond said clamps, a member disposed axially within said head, means for constraining said member against said clamps to open the same, and a movable body carried by said head and having a conical surface which may close said clamps.

11. In a chuck, in combination, a head having a socket with oppositely-disposed recesses, said head having a coaxial extension thereabove with a bore therein, clamps carried in said socket and having projections received by said recesses, a spring within said bore, a member constrained by said spring against said clamps, jaws pivotally carried by said clamps, the extremities whereof adjacent to said head normally project beyond said clamps, said clamps and said jaws having coöperating inclined faces which constitute stops for the movement of said jaws, said jaws and said clamps having substantially coincident faces near their outer extremities, and a body mounted upon said head and having a substantially conical surface engaging said last faces to close said jaws and said clamps.

12. In a chuck, in combination, a substantially cylindrical head having an external thread and a diametrically-disposed opening, said opening having recesses in the edge thereof near the inner extremity of said head, clamps carried in said opening and having projections received by said recesses, jaws pivotally attached to said clamps near the outer extremities thereof, said head having an extension with a bore, a member carried in said bore, a spring constraining said bore against said clamps, and a body adapted to screw upon said head and having a substantially conical surface adapted to constrain said jaws inwardly.

13. In a chuck, a bifurcated head having a hollow shank, a spring-actuated plunger in said shank, a plurality of clamps supported by said head, a plurality of jaws pivotally connected with said clamps, a sleeve, and a conical cap connected with said sleeve.

14. In a chuck, a bifurcated head having a hollow shank, a spring-actuated plunger in said shank, a plurality of tool-holding clamps supported by said head, a plurality of jaws pivotally connected with said clamps, a sleeve, and a conical cap connected with said sleeve.

15. In a chuck, a bifurcated head having a hollow shank, a spring-actuated plunger in said shank, a plurality of clamps supported by said head, a plurality of jaws pivoted intermediate the ends of said clamps, and a sleeve on said head, said sleeve terminating in a conical end portion.

16. In a chuck, a bifurcated head having a hollow shank, a spring-actuated plunger in said shank, a plurality of tool-holding clamps supported by said head, a plurality of jaws piv-

oted intermediate the ends of said clamps, and a sleeve on said head, said sleeve terminating in a conical end portion.

17. In a chuck, a bifurcated head provided with recesses, clamps rockably mounted in said recesses, jaws pivotally mounted in said clamps intermediate the ends thereof, and means for closing the opposite end portions of said jaws.

18. In a chuck, a bifurcated head provided with recesses, tool-holding clamps rockably mounted in said recesses, jaws pivotally mounted in said clamps intermediate the ends thereof, and means for closing the opposite end portions of said jaws.

19. In a chuck, a bifurcated head provided with recesses, clamps rockably mounted in said recesses, jaws pivotally mounted between said clamps, and means for rocking said jaws.

20. In a chuck, a bifurcated head provided with recesses, tool-holding clamps rockably mounted in said recesses, jaws pivotally mounted between said clamps, and means for rocking said jaws.

21. In a chuck, a bifurcated head having recesses therein, clamps rockably mounted in said recesses, a plurality of rockably-mounted jaws between said clamps, said jaws being pivoted intermediate their ends, a sleeve, and a conical cap thereon adapted to first close the outer ends of the jaws and afterward close the inner ends thereof.

22. In a chuck, a bifurcated head, a plurality of clamps rockably mounted thereon, jaws pivotally mounted between said clamps intermediate the ends thereof and projecting therebeyond, and a conical member movable longitudinally of said jaws.

23. In a chuck, a bifurcated head having a hollow shank, a plunger in said shank, a plurality of clamps rockably mounted thereon, jaws pivotally mounted between said clamps, intermediate the ends thereof, and projecting therebeyond, and a conical member movable longitudinally of said jaws.

24. In a chuck, a bifurcated head, a plurality of clamps rockably mounted thereon, jaws pivotally mounted between said clamps intermediate the ends thereof, and projecting therebeyond, and a conical member movable longitudinally of said jaws, said clamps, jaws and conical member being so proportioned that the outer ends of the jaws are closed before the inner ends thereof, after which said jaws are rocked to close their inner ends.

25. In a chuck, a bifurcated screw-threaded head, rockable clamps mounted thereon, jaws pivotally supported between said clamps, the pivots for said jaws being located intermediate the ends of said jaws and the ends of said clamps, a sleeve with internal screw-thread, and a conical cap movable with said sleeve.

26. In a chuck, a bifurcated head having a hollow shank, a spring-actuated plunger in said shank, clamps rockably mounted on said head, jaws pivotally supported between said clamps, the pivots for such jaws passing through the jaws and clamps intermediate the ends of both, a sleeve movable longitudinally of said head, and a conical hollow cap connected therewith.

27. In a chuck, a bifurcated head having a hollow shank, a spring-actuated plunger in said shank, clamps rockably mounted on said head, said clamps having tool-receiving recesses therein, jaws pivotally supported between said clamps, the pivots for such jaws passing through the jaws and clamps intermediate the ends of both, a sleeve movable longitudinally of said head, and a conical hollow cap connected therewith.

28. In a chuck, a bifurcated head having a hollow shank, a spring-actuated plunger in said shank, clamps rockably mounted on said head, jaws pivotally supported between said clamps in recesses extending longitudinally thereof, the pivots for such jaws passing through the jaws and clamps intermediate the ends of both, a sleeve movable longitudinally of said head, and a conical hollow cap connected therewith.

29. In a chuck, a head, tool-holding clamps rockably mounted thereon, jaws pivotally mounted between said clamps and extending therebeyond, a sleeve movable longitudinally of said head, and a cap thereon adapted to impinge said jaws and to subsequently impinge said clamps.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

ADOLPHE D. LEBLANC.

Witnesses:
T. MYNARD,
M. MCALEER.