

No. 690,688.

Patented Jan. 7, 1902.

C. J. BARNES.
COMBINATION WRENCH.

(Application filed May 9, 1901.)

(No Model.)

3 Sheets—Sheet 1.

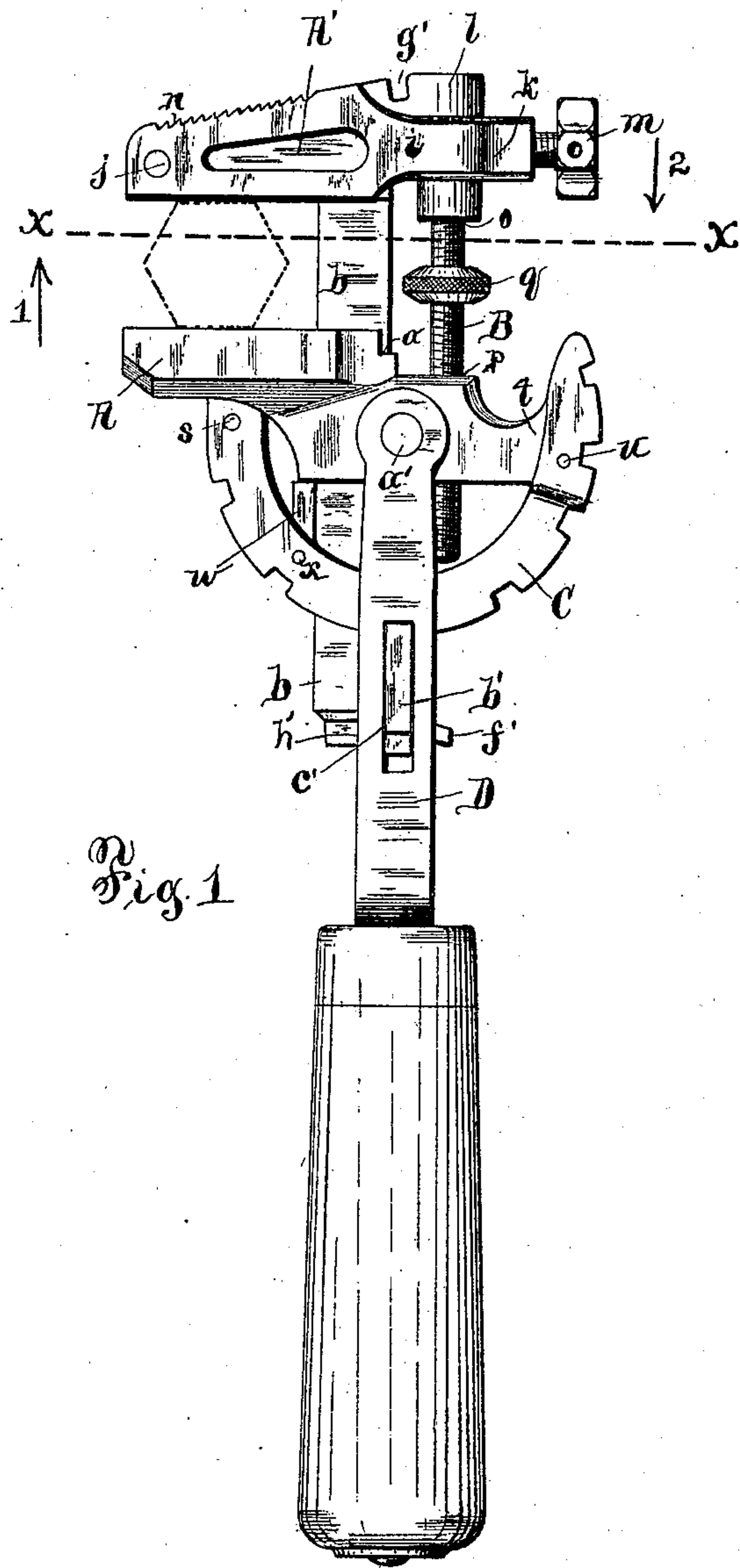


Fig. 1

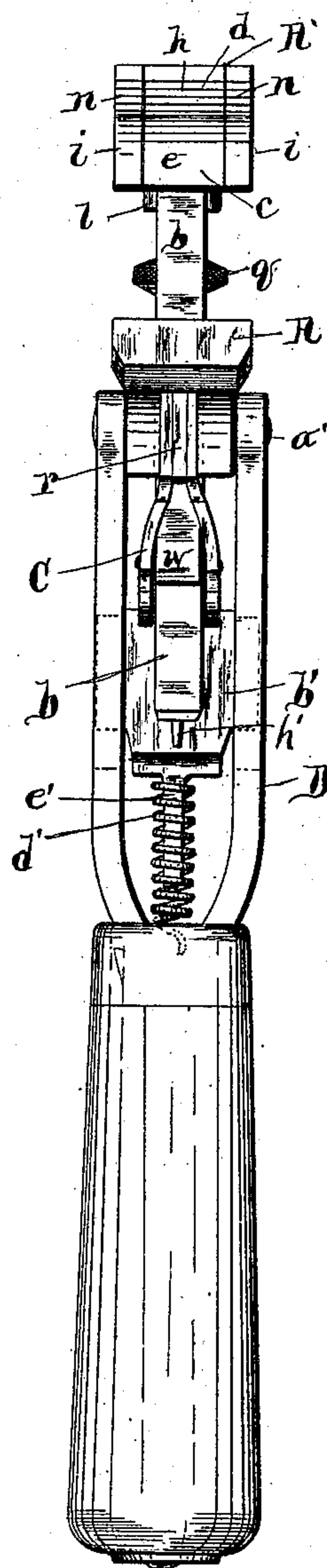


Fig. 2

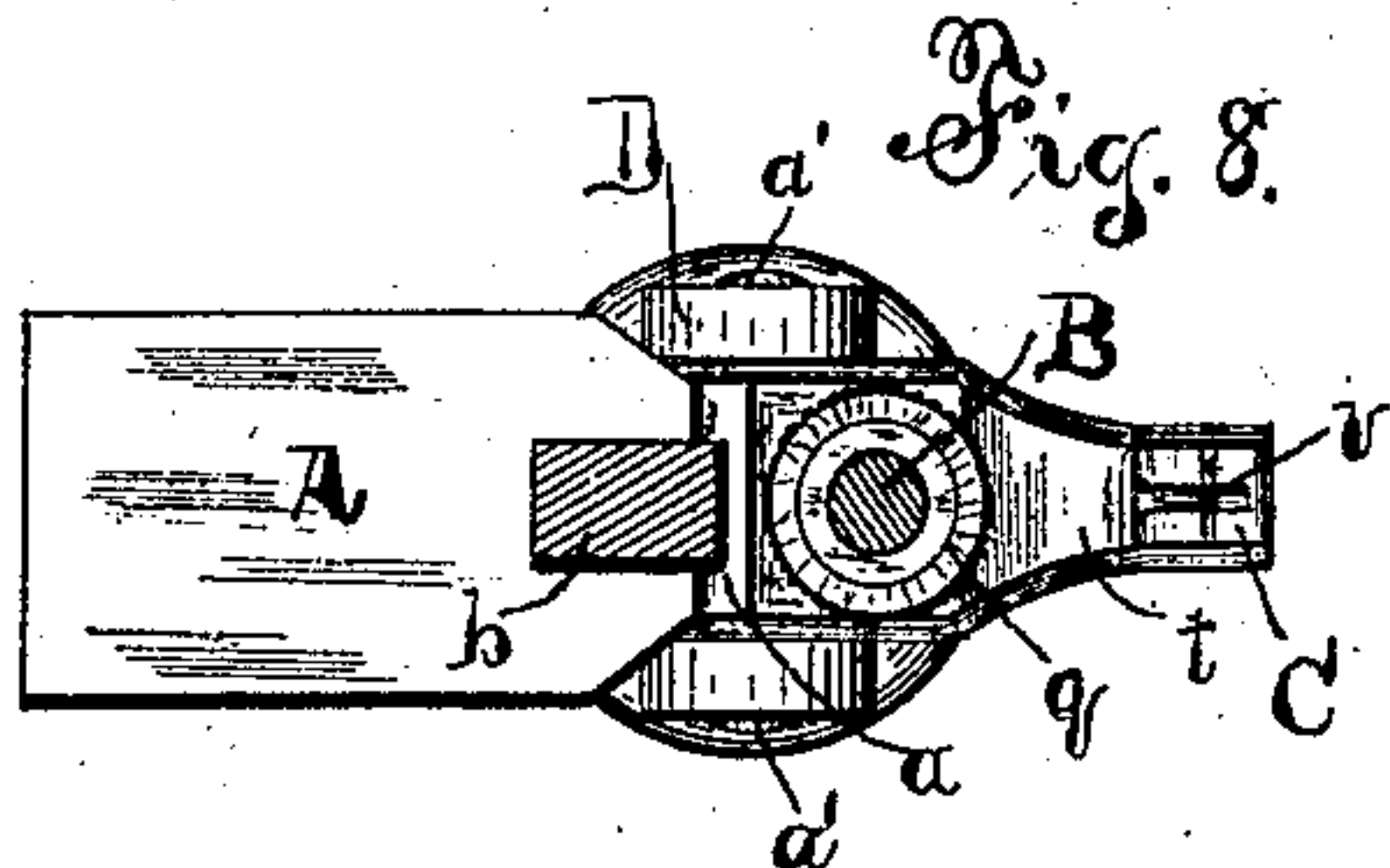


Fig. 3

WITNESSES:
H. B. Smith.
J. J. Laves

INVENTOR
Clarence J. Barnes
By E. Laves
ATTORNEY.

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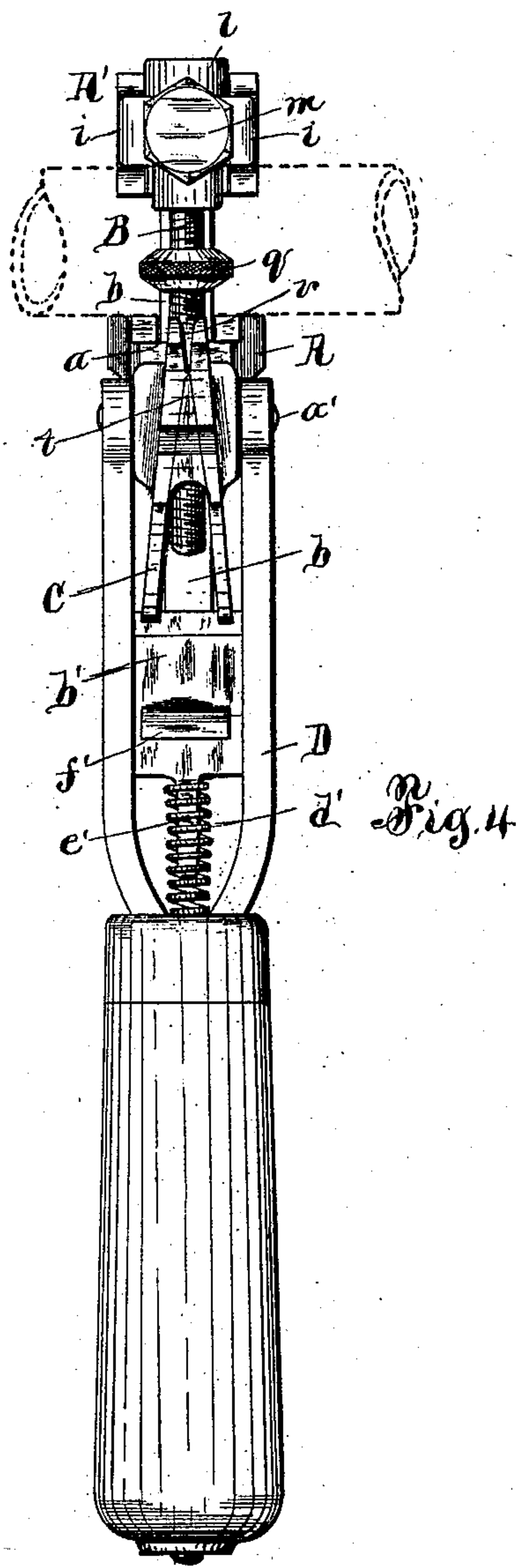
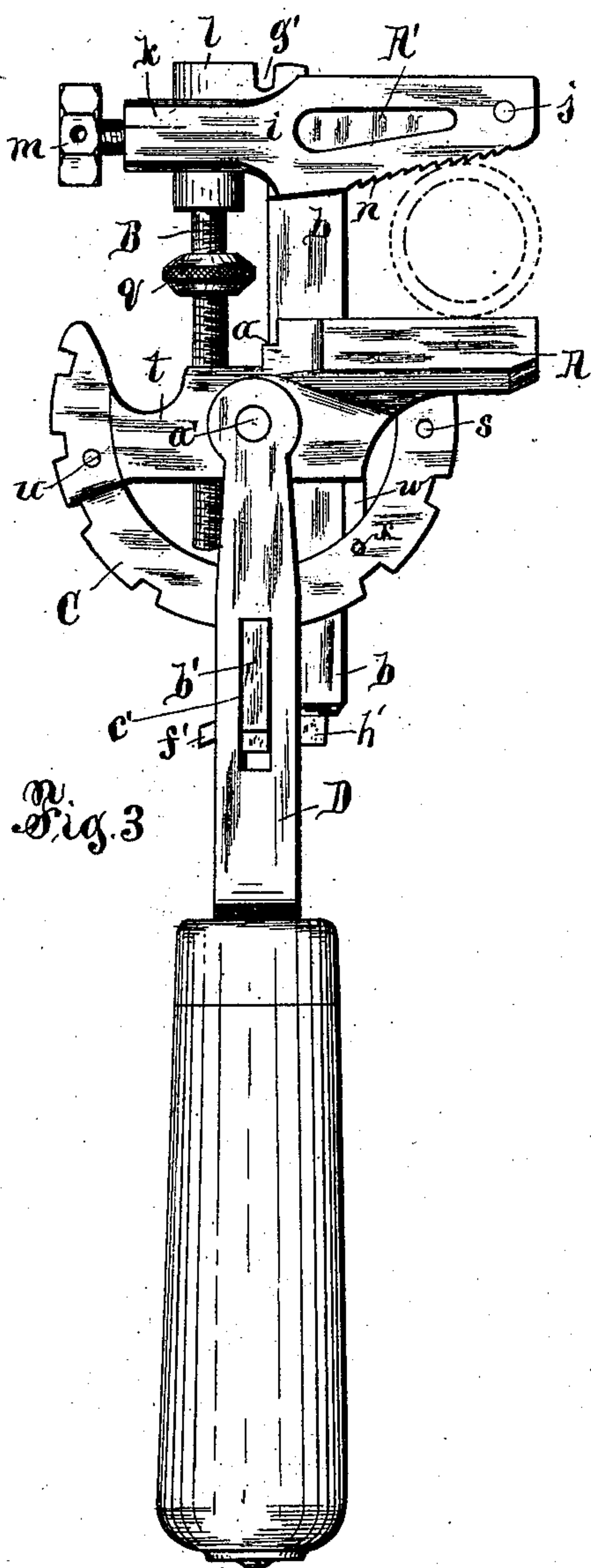
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WITNESSES:
H. B. Smith.
J. J. Laass.

INVENTOR
Clarence J. Barnes
By E. Laass
ATTORNEY.

No. 690,688.

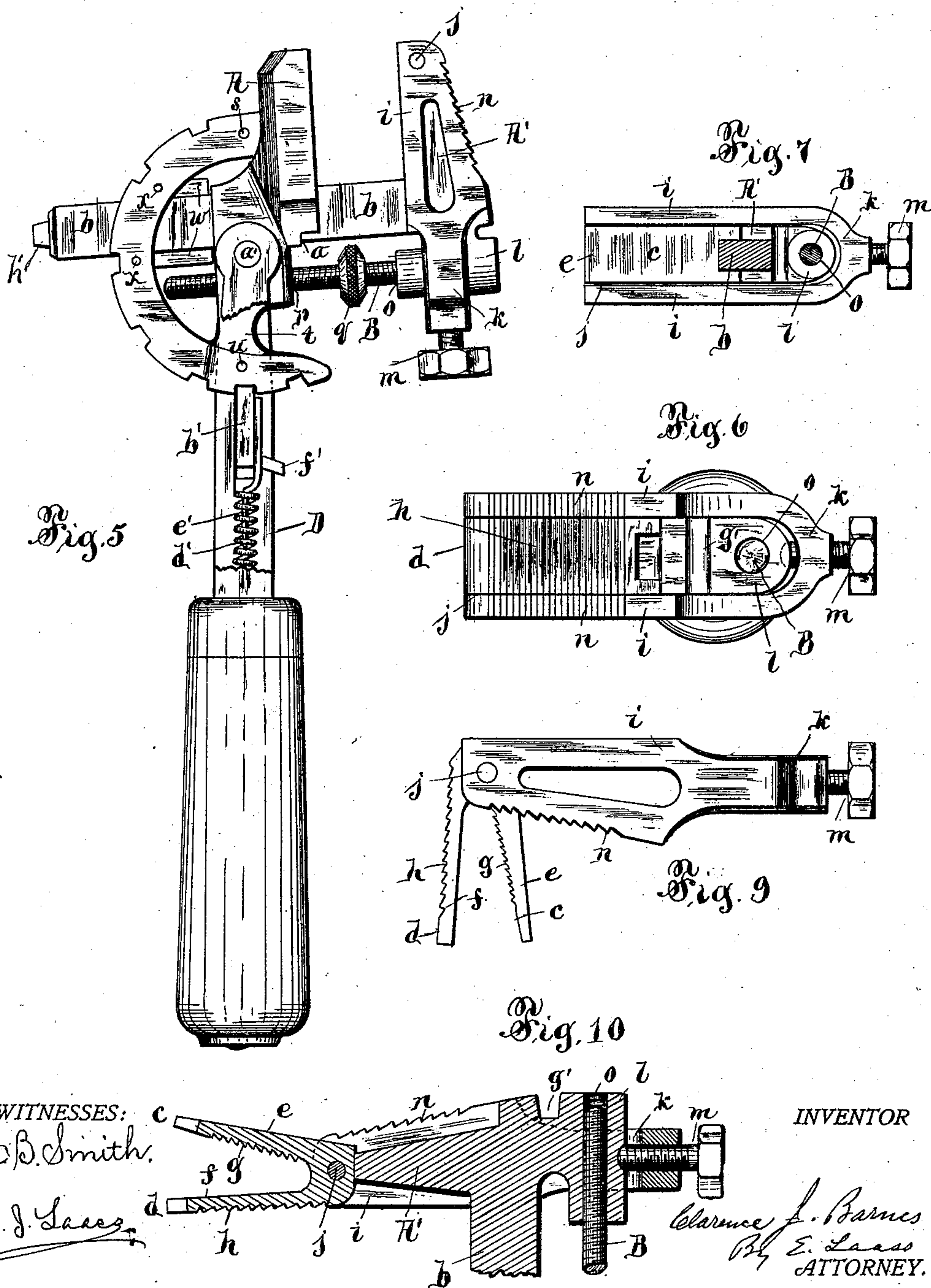
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3 Sheets—Sheet 3.



UNITED STATES PATENT OFFICE.

CLARENCE J. BARNES, OF LIVERPOOL, NEW YORK.

COMBINATION-WRENCH.

SPECIFICATION forming part of Letters Patent No. 690,688, dated January 7, 1902.

Application filed May 9, 1901. Serial No. 59,367. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE J. BARNES, a citizen of the United States, and a resident of Liverpool, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Combination-Wrenches, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

One of the objects of the invention is to produce a monkey-wrench which shall admit of easy and quick adjustment and to provide the same with interchangeable parts, so as to adapt it to be used as a pipe-wrench when desired.

Another object of the invention is to provide a wrench having a handle which can be readily set at different angles in relation to the jaws, whereby the same shall possess great efficiency and utility.

To this end the invention consists in the novel construction and arrangement of the component parts, as hereinafter fully described, and set forth in the claims.

In the accompanying drawings, Figure 1 is a side view of my improved tool and showing the wrench applied to a nut, indicated by dotted lines. Fig. 2 is a front view of the same. Fig. 3 is a view of the opposite side of the tool and showing the same used as a pipe-wrench, the pipe being indicated by dotted lines. Fig. 4 is a back view of the tool as applied in Fig. 3. Fig. 5 is a side view showing the handle set in position to allow the screw-driver to be used. Fig. 6 is an enlarged outer end view of the tool in the condition shown in Fig. 1. Fig. 7 is a transverse section on line X X in Fig. 1, viewed in the direction indicated by the arrow 1. Fig. 8 is also a transverse section on line X X, viewed in the direction indicated by arrow 2. Fig. 9 is an enlarged detail view of the supplemental jaws or gripping-plates and the arms by which they are carried on the main adjustable jaw; and Fig. 10 is an enlarged longitudinal section of the adjustable jaw, showing the supplemental jaws in operative position.

Referring to the drawings, A and A' denote the two jaws of the monkey-wrench. The jaw A is stationary and is formed with a guide *a*, in which is disposed a longitudinally-mov-

able shank *b*, and to said shank is fixed the jaw A', whereby the latter can be set at different distances from the jaw A, and thus constitutes the adjustable jaw. Said jaw A' is preferably formed integral with said shank and is of wedge-shape form, and is provided with a pair of integrally-formed interchangeable gripping-plates *c* and *d*, which diverge longitudinally to correspond to said jaw A' and are formed with smooth faces *e* and *f*, respectively, and with serrated or toothed faces *g* and *h*, respectively, as clearly shown in Figs. 9 and 10. When the jaws A A' are to be used as a monkey-wrench, the said plates *c* and *d* are arranged so as to present the smooth face *e* of the plate *c* to the face of the stationary jaw A, as shown in Figs. 1, 2, and 5, and when said jaws are to be applied as a pipe-wrench the plates are arranged to present the serrated or toothed face *h* of the plate *d* to the face of said stationary jaw, as shown in Figs. 3, 4, and 6.

The combined plates *c* and *d* constitute supplemental pipe-jaws which are particularly designed to be applied to pipes of very small diameters, as clearly shown in Fig. 10. Said gripping-plates are sustained in position on the adjustable jaw A' by means of a pair of parallel arms *i i*, pivoted to the same by means of a pin *j*, which arms embrace the sides of said jaw and are integrally united by a yoke *k*, which extends around a head *l*, formed on the rear end of the jaw, and a set-screw *m*, working in said yoke and bearing on said head, as more clearly shown in Figs. 6 and 10. Said arms *i i* each have one of their edges formed with serrations or teeth *n n* to correspond with the plate *c*, thus affording a more firm grip when the jaws are applied as a pipe-wrench.

The adjustment of the jaw A' is effected by means of a right-and-left screw B, which engages a screw-threaded aperture *o* in the aforesaid head *l* and a like aperture *p*, formed in an extension *t* on the rear end of the stationary jaw A, said screw being provided with a thumb-piece *q*, by which to turn the same, and thus impart longitudinal movement to the shank *b*.

C denotes a segmental rack which is rigidly secured to the stationary jaw A and consists of a pair of circular notched plates disposed

at opposite sides of the shank *b*. The forward ends of said plates converge and embrace an ear *r*, projecting from the lower or back face of said jaw, and are fastened thereto by means of a rivet *s*. The rear ends of said plates converge similarly and embrace the extension *t* and are attached thereto by a rivet *u*. The extreme rear end portions of the plates are made tapering, and between said portions is a V-shaped space, (indicated at *v*), thus forming a device which can be utilized for pulling tacks, &c. At the intermediate portion of the rack *C* are secured a pair of guide-pieces *w w*, preferably by means of rivets *x*, between which guide-pieces the aforesaid shank *b* slides.

While I prefer to secure the rack *C* to the stationary jaw in the manner just described, at the same time it will be observed that the same may be formed integral with said jaw, and, furthermore, the guide-pieces referred to may be formed integral with said rack.

By employing a right-and-left screw for operating the shank *b* it will be seen that the jaw *A'* can be very quickly set at the required distance from the stationary jaw.

D is a bifurcated handle which embraces opposite sides of said rack *C* and stationary jaw *A* and is pivotally attached to the latter by means of a pin *a'*. In the bifurcation of said handle is disposed a dog *b'*, which slides in longitudinal guide-slots *c' c'*, formed in the handle, and is held in engagement with said rack by means of a coiled spring *d'*, bearing with one end against the free end of the dog, which spring surrounds a stem *e'*, formed on the dog, and has its opposite end suitably seated in the handle. Thus said handle can be readily swung to different angles in relation to the jaws *A A'* when desired and locked to the rack. Said dog *b'* is formed with a thumb-piece *f'*, by which to draw the same out of engagement with said rack. The jaw *A'* is formed with a transverse notch *g'*, which is adapted to be used for turning various objects, such as screw-eyes, thumb-screws, hooks having screw-threaded shanks, &c.

The inner end of the shank *b* is formed with a tongue *h'*, constituting a screw-driver, which can be conveniently used when desired.

What I claim is—

1. In a wrench, the combination of a stationary jaw, a handle pivotally attached thereto and provided with means for locking the same at various angles to said jaw, a longitudinally-movable shank sustained on said jaw, an adjustable jaw fixed to said shank and formed wedge shape, a pair of integrally-formed interchangeable gripping-plates disposed divergent to each other and sustained on said adjustable jaw, and a screw for moving the aforesaid shank as and for the purpose set forth.

2. In a wrench, the combination of a stationary jaw, a segmental rack rigidly secured to said jaw, a handle pivotally attached to the jaw, means on the handle to engage said

rack to lock the handle at various angles to the jaw, a longitudinally-movable shank sustained on said jaw, an adjustable jaw fixed to said shank and formed wedge shape, a pair of integrally-formed interchangeable gripping-plates disposed divergent and sustained on said adjustable jaw, and a screw for moving said shank as and for the purpose set forth.

3. In a wrench, the combination of a stationary jaw, a segmental rack rigidly fastened to said jaw, a handle pivotally attached to said jaw and provided with a dog to engage said rack to lock the handle at various angles to the jaw, a longitudinally-movable shank sustained on said jaw, an adjustable jaw fixed to said shank and having its inner face diverging outwardly from the corresponding face of the stationary jaw, a pair of integrally-united gripping-plates disposed divergent and embracing the respective faces of the adjustable jaw, one of said plates formed with a smooth outer face and a serrated or toothed face, and the other plate formed vice versa, a pair of parallel arms pivoted to said plates at their junction and embracing the sides of said adjustable jaw and united by a yoke extending around the rear end of said latter jaw, a set-screw working in said yoke and bearing against said adjustable jaw, and a right-and-left screw engaging both jaws as and for the purpose set forth.

4. In a wrench, the combination of a stationary jaw, a segmental rack rigidly secured to said jaw, a handle pivotally attached to said jaw and provided with a dog to engage said rack to lock the handle at various angles to the jaw, a longitudinally-movable shank sustained on said stationary jaw, a screw to move said shank, an adjustable jaw fixed to said shank and formed with a head on its rear end, a pair of interchangeable gripping-plates integrally formed and disposed on the respective faces of said adjustable jaw, a pair of parallel arms embracing the sides of the latter jaw and pivotally connected to said gripping-plates and united by a yoke extending around the aforesaid head, a set-screw working in said yoke and bearing on the aforesaid head, and a right-and-left screw engaging both jaws as and for the purpose set forth.

5. In the herein-described tool, the combination of a stationary jaw, a handle connected thereto, a longitudinally-movable shank sliding in said jaw, an adjustable jaw fixed to said shank, a screw for operating said shank to set the adjustable jaw, a pair of integrally-formed interchangeable gripping-plates on the adjustable jaw, a pair of parallel arms pivoted to the front ends of said gripping-plates and integrally united by a yoke extending around the rear end of adjustable jaw, and a set-screw passing through said yoke and engaging said jaw for the purpose set forth.

6. In a wrench, the combination of a stationary jaw, a handle pivotally attached

thereto and provided with means for locking the same at various angles to said jaw, a longitudinally-movable shank sustained on said jaw, an adjustable jaw fixed to said shank, a right-and-left screw for moving said shank, a pair of integrally-united interchangeable gripping-plates disposed on the outer and inner faces respectively of said adjustable jaw, one plate formed with a smooth inner face and a serrated or toothed outer face, and the other plate formed vice versa, a pair of parallel arms embracing the sides of said adjustable jaw and pivoted to said gripping-plates, said arms being integrally connected by a yoke extending around the rear end of the latter jaw and each having a toothed surface corresponding to the toothed face of one of the gripping-plates, and a set-screw working in said yoke and bearing on the adjustable jaw as and for the purpose set forth.

7. In a wrench, the combination of a stationary jaw, formed on its rear end with an extension, a segmental rack composed of two like-disposed circular plates secured to said extension and outer face of said jaw, a handle pivotally attached to said jaw, a spring-pressed dog sliding on said handle to engage said rack to lock the handle at various angles to the jaw, a longitudinally-movable shank

sustained on said stationary jaw, an adjustable jaw fixed to said shank and formed on its rear end with a head, a right-and-left screw engaging said head and extension, a pair of integrally-united interchangeable gripping-plates disposed on said adjustable jaw, a pair of parallel arms embracing the sides of the latter jaw and pivotally attached to said gripping-plates, said arms being integrally connected by a yoke extending around the aforesaid head, and a set-screw working in said yoke and bearing against said head as and for the purpose set forth.

8. In the herein-described tool, the combination with a stationary jaw and a handle connected thereto, of an adjustable jaw sustained on said stationary jaw, a screw for setting said adjustable jaw, supplemental jaws carried on said adjustable jaw, a pair of arms pivotally connected to the supplemental jaws and integrally united by a yoke extending around the back of the latter jaw, and a set-screw passing through said yoke and engaging the jaw substantially as set forth.

CLARENCE J. BARNES.

Witnesses:

J. J. LAASS,
H. B. SMITH.