

No. 752,772.

PATENTED FEB. 23, 1904.

O. F. HELFRITZ.
PIPE WRENCH.

APPLICATION FILED JUNE 20, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

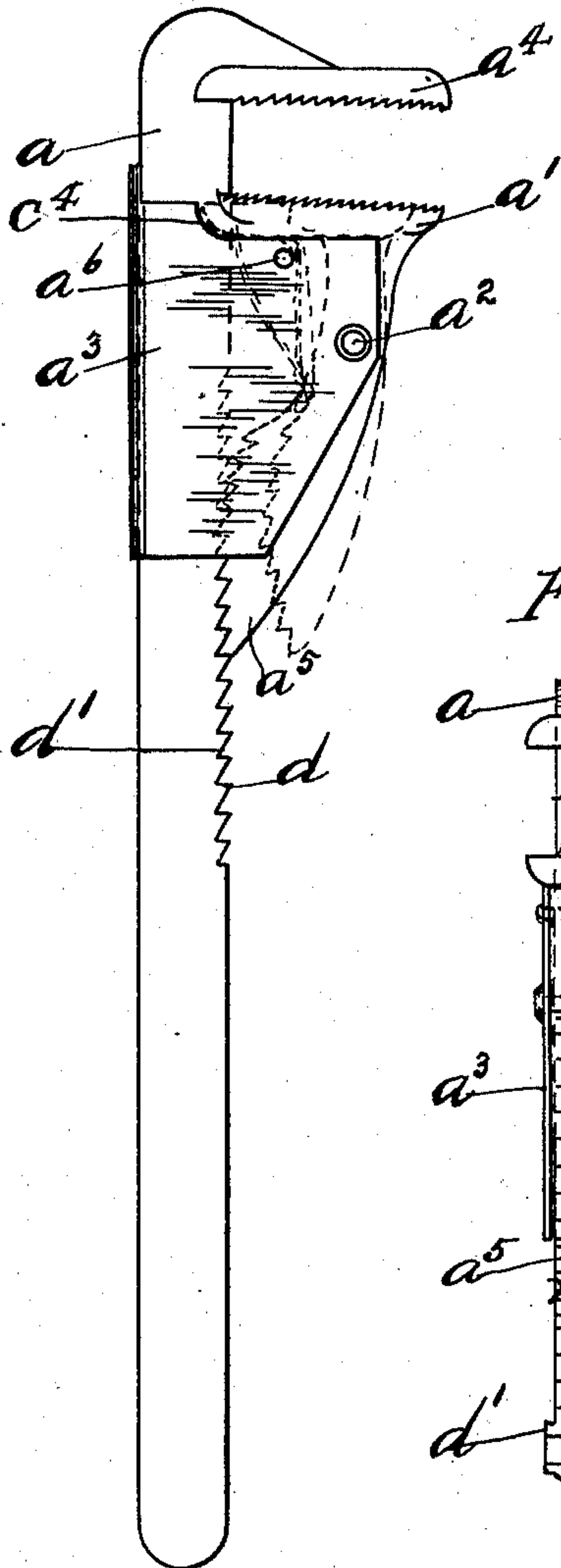


Fig. 2.

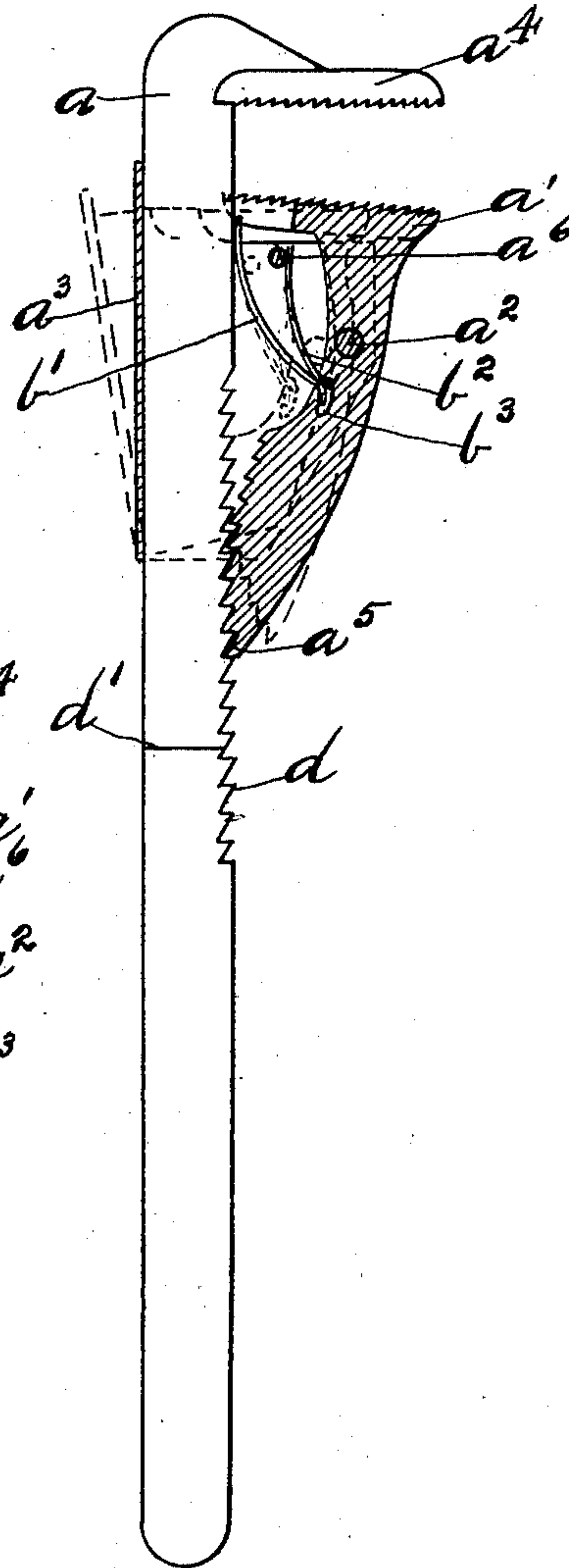
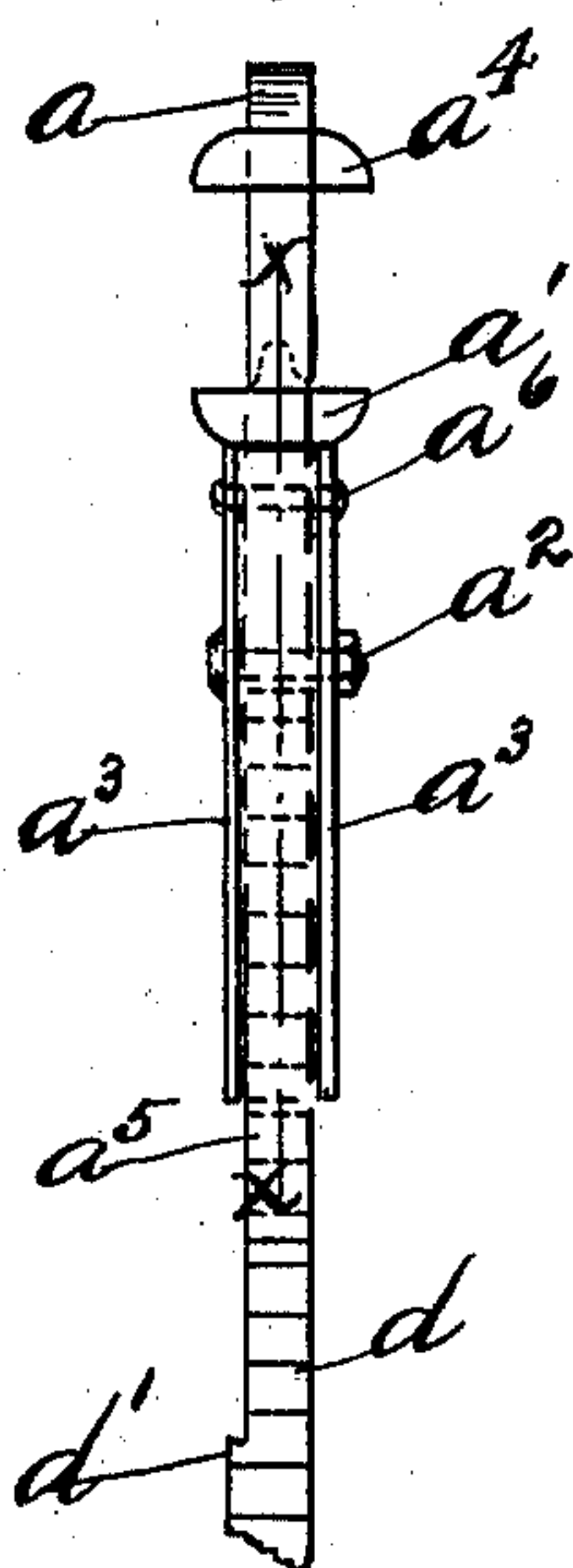


Fig. 3.



Witnesses.
A. L. Buchanan
C. M. Buchanan

Inventor:
Otto Frank Helfritz
By Henry Lea Dodson,
Attorney.

No. 752,772.

PATENTED FEB. 23, 1904.

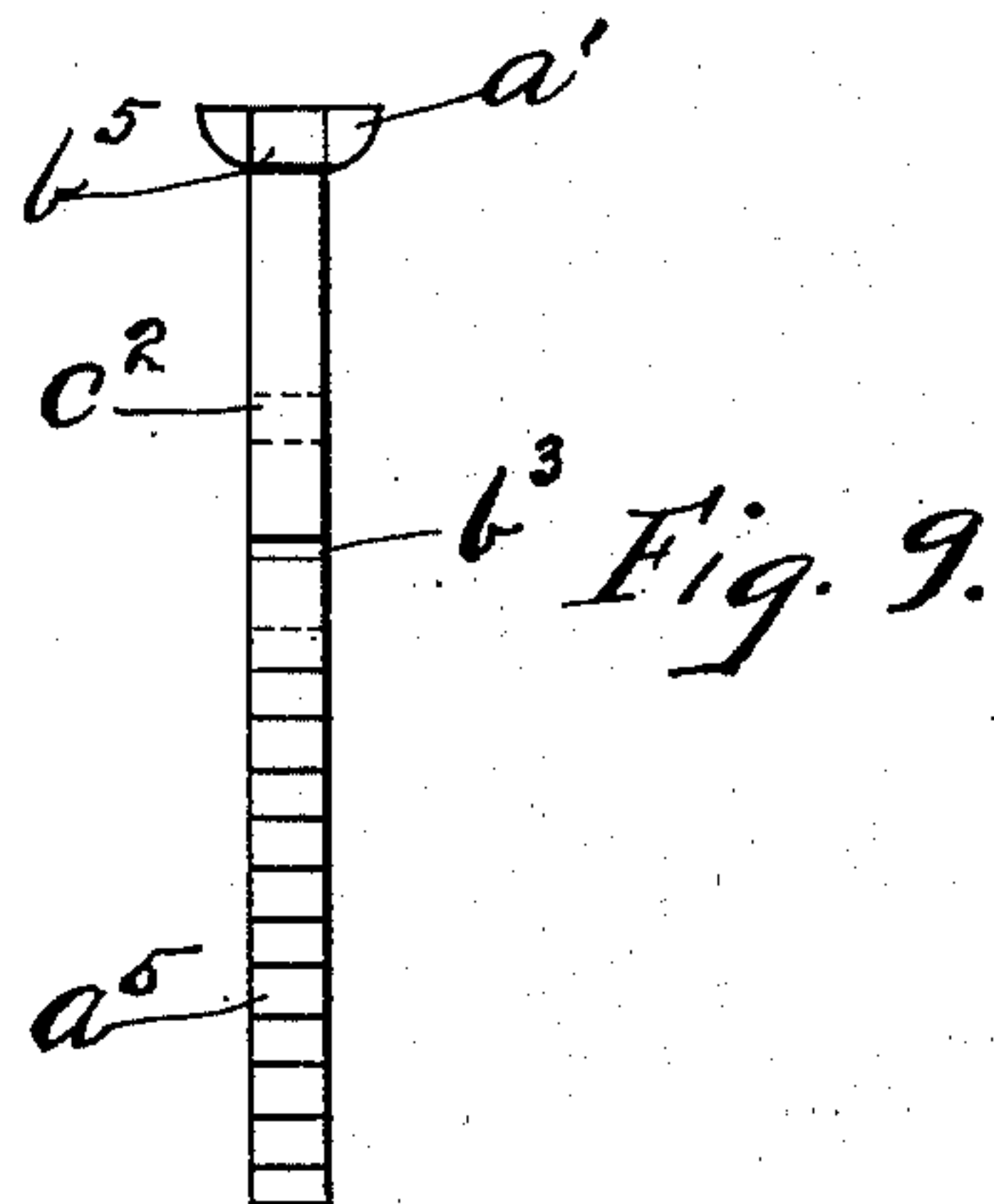
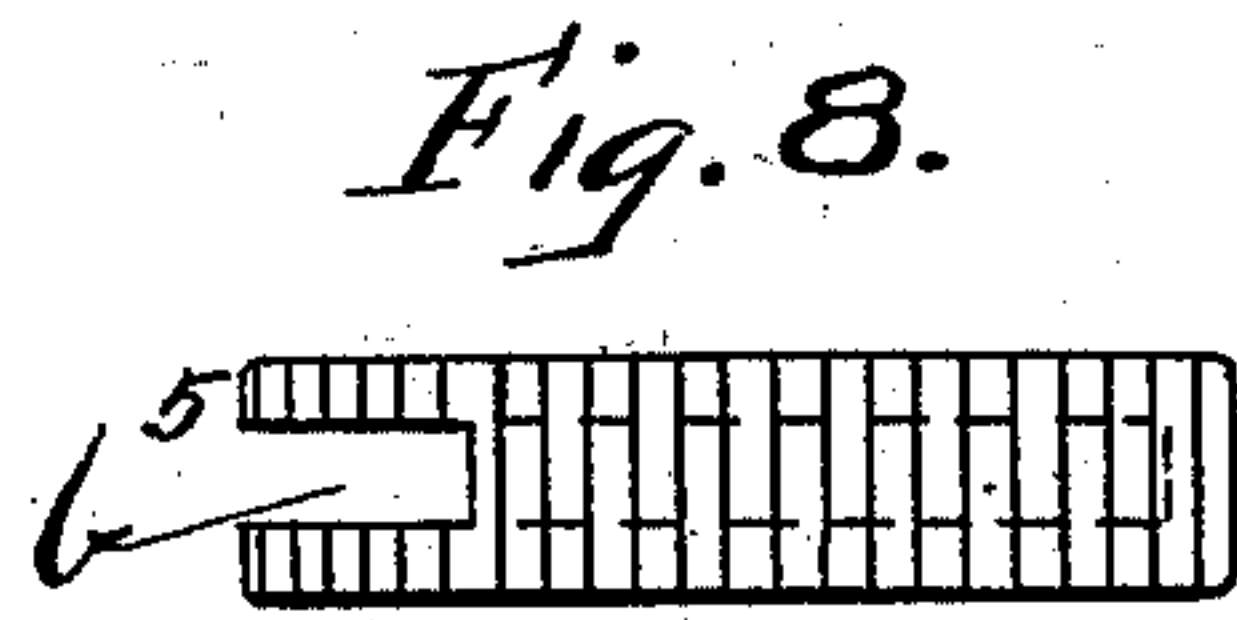
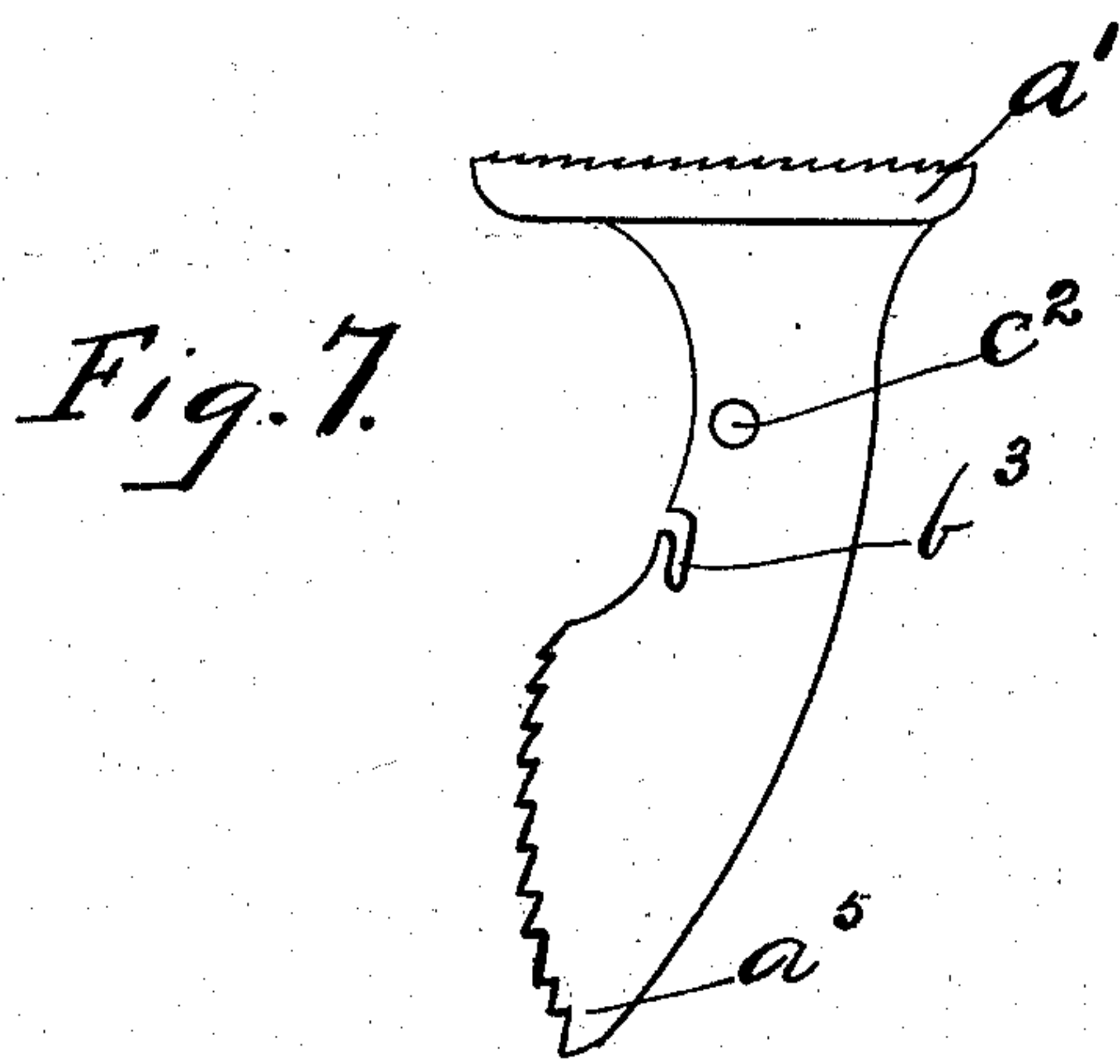
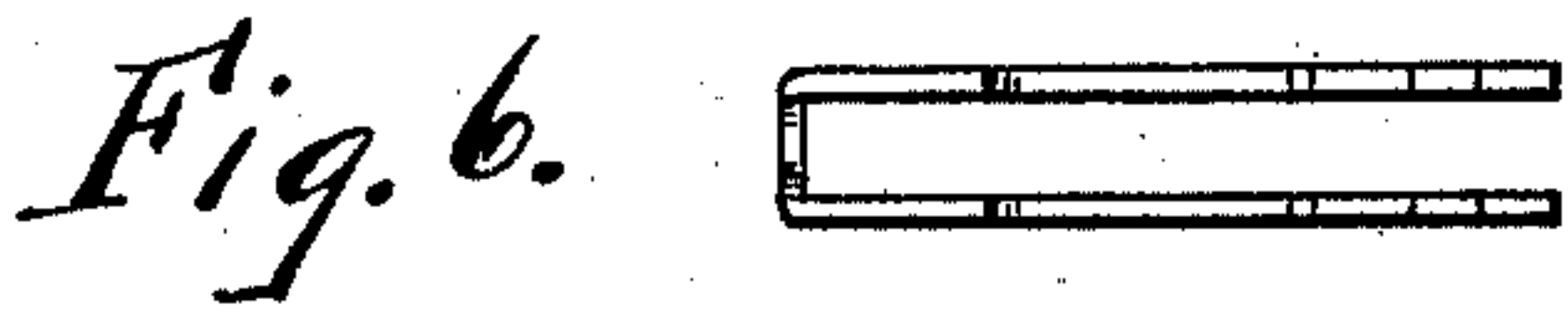
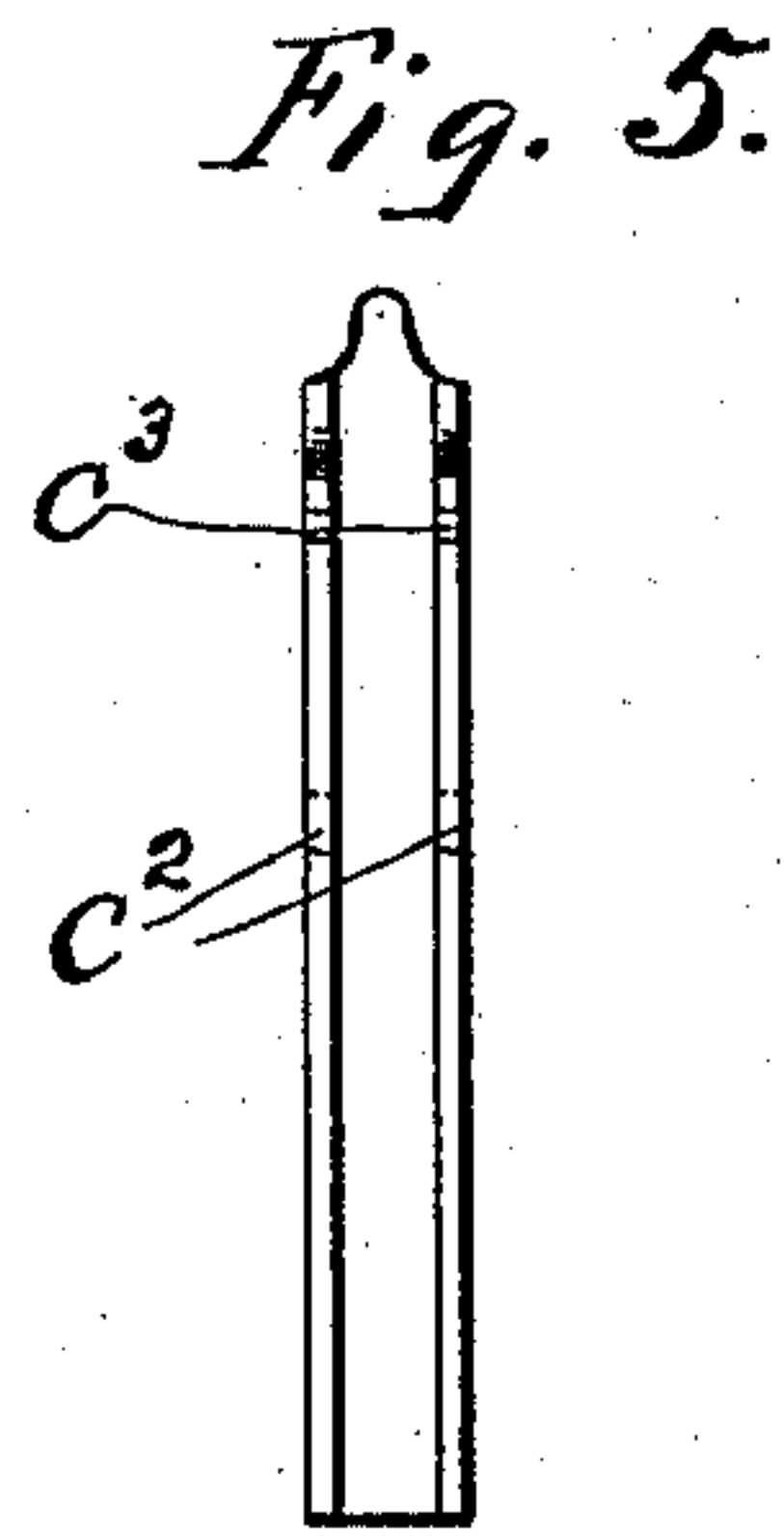
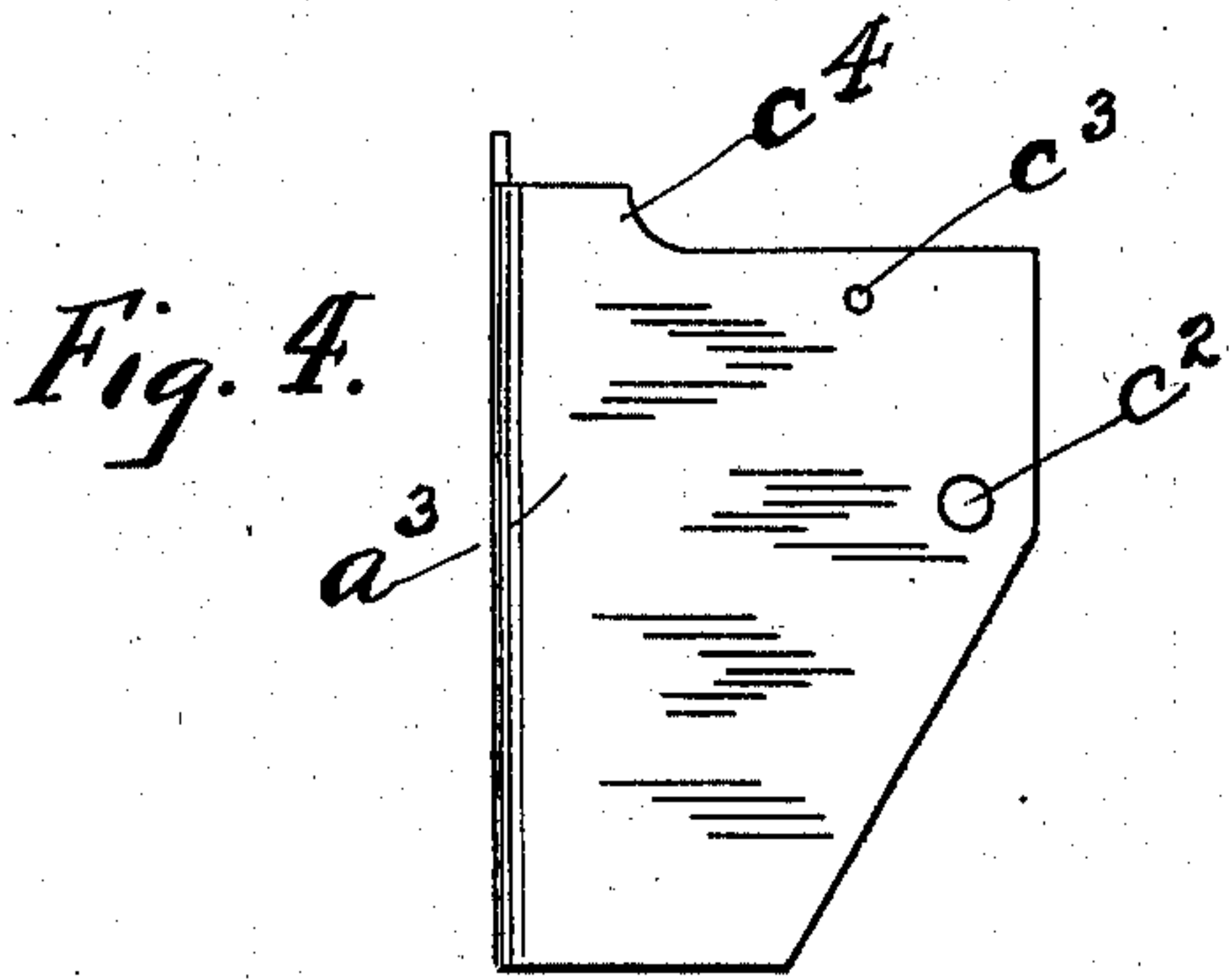
O. F. HELFRITZ.

PIPE WRENCH.

APPLICATION FILED JUNE 20, 1903.

NO MODEL.

2 SHEETS—SHEET 2.



Witnesses.
H. L. Buchanan.
C. M. Buchanan.

Inventor.
Otto Frank Helfritz
By Harry Lee Odell,
Attorney.

UNITED STATES PATENT OFFICE.

OTTO FRANK HELFRITZ, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF
TO J. HEINSFURTER, OF CHICAGO, ILLINOIS.

PIPE-WRENCH.

SPECIFICATION forming part of Letters Patent No. 752,772, dated February 23, 1904.

Application filed June 20, 1903. Serial No. 162,380. (No model.)

To all whom it may concern:

Be it known that I, OTTO FRANK HELFRITZ, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Pipe-Wrenches, of which the following is a specification.

The object of my invention is to construct a pipe-wrench which will not lock itself on the pipe, but can be worked with a ratcheting movement at all times.

It is a common experience in the use of pipe-wrenches to have the wrench lock itself upon the pipe so firmly that it is frequently necessary to use a hammer in order to loosen it. My wrench is designed to overcome this defect and at the same time can be manufactured very inexpensively, and has for its further object to provide a wrench which has no projection at the back, thus allowing one to work in a corner or extremely close to the wall, where one cannot get with the wrench of ordinary construction, and to provide a quick adjustment for working different sizes of pipe without sacrificing any of the strength needed in such a wrench.

I am aware that there have been quick-adjusting wrenches upon the market; but all with which I am familiar have this fatal defect—namely, an inability to stand rough usage or hard work.

My method of accomplishing this result can be better understood by having reference to the accompanying drawings, which are a part of this specification and are hereunto annexed.

Similar letters refer to similar parts throughout the entire description.

Figure 1 is a side elevation of the wrench. Fig. 2 is a similar view showing the jaw and saddle in section, taken on line X X in Fig. 3. Fig. 3 is an end elevation. Fig. 4 is a side view of the saddle. Fig. 5 is an end elevation. Fig. 6 is a top or plan view. Fig. 7 is a side elevation of the jaw. Fig. 8 is a top or plan view of the same. Fig. 9 is a rear elevation of the same.

In the drawings, a is the beam, having a rack d cut upon its edge and a shoulder or stop d' near the lower part of the said rack, its

upper part terminating in a jaw a' , having serrations cut on its face.

a' is an adjustable jaw, having serrations cut upon its face, held in place by a saddle a^3 and secured thereto by a bolt a^2 , which passes through holes c^2 in the saddle and the jaw a' . This jaw is likewise prevented from a lateral movement by a notch b^5 cut in the rear part of the top of it. The lower end a^5 of the jaw a' has teeth cut upon its edge, fitting to and coinciding with the teeth of the rack d on the beam a . These teeth are cut upon an arc, which is exaggerated in the drawings to better illustrate it, the arc being of such radius as to permit of a number of teeth being engaged at all times. An annular opening b^3 is formed in the adjustable jaw a . Mounted in this opening are two flat springs b' and b^2 , one, b' , which bears against the face of the beam, the other, b^2 , bearing against a pin a^6 , mounted in holes c^3 of the saddle a^3 and is in constant tension. The upper edge of the saddle has a shoulder c^4 , formed thereon, which fits the jaw of the wrench.

The operation of the wrench is as follows: To adjust the wrench, one grasps the end a^5 of the jaw a' and moving it outwardly causes it to assume the position indicated by the dotted lines in Fig. 1. The jaw can then be raised or lowered freely, the spring b^2 causing it to mesh with the teeth d upon its release. The ratcheting movement is permitted by the double movement of both the jaw a' and the saddle a^3 , causing them to assume the position indicated by the dotted lines in Fig. 2. This movement being a rocking one, the teeth cut upon the jaw being cut on an arc, the jaw rocks upon them, but has always a number of teeth in mesh, the flat spring b' returning it to position when released. This movement is believed to be entirely new in any quick-adjustable wrench. At the same time the jaw is lowered slightly, but sufficiently to permit the backward movement of the wrench before taking a fresh grip upon the pipe.

It will be thus clearly seen that there is at all times in my wrench as much metal to be sheared off before the wrench could loosen as in the ordinary screw-adjusting wrench. Be-

sides, having no projection at the back and the advantages of quick adjustment and the rocking motion makes it impossible to lock the wrench, for a very slight backward pressure lowers the jaw a' sufficiently to release the wrench.

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

10 1. In a wrench, the combination of a beam having a rack cut upon its edge and a saddle fitted to and sliding upon said beam, having mounted therein an adjustable jaw, a bolt holding said jaw in place and acting as a pivot-pin, 15 teeth cut in an arc upon the edge of the lower jaw fitting to and coinciding with the teeth of the rack upon the beam, said jaw having an annular opening formed in its side, flat springs mounted therein, bearing respectively against 20 the edge of the beam, and a pin mounted in the saddle for the purpose set forth substantially as described.

2. In a wrench, the combination of a beam, its upper end terminating in a jaw, serrations 25 upon the face of said jaw, a rack cut upon the inner edge of the beam and a shoulder or stop formed near the lower end of said rack, a saddle having a smooth back fitted to and sliding upon said beam, the upper part of said saddle 30 having an adjustable jaw mounted in said saddle and secured in place by a bolt which acts as a pivot-pin, said jaw having a notch cut in its upper end corresponding in width to the beam, serrations cut upon the face of the jaw, 35 teeth cut in an arc upon the lower edge of said jaw fitting to and coinciding with the teeth upon the beam, said arc permitting it to rock upon said teeth in such manner as to keep some teeth in mesh at all times, springs bearing against the beam, and a pin mounted in 40 the said saddle, means to secure the said spring to said jaw for the purpose set forth substantially as described.

3. In a wrench the combination of a beam, 45 its upper end terminating in a jaw, a rack cut upon its edge, a saddle mounted and sliding on said beam, an adjustable jaw having teeth cut upon its lower edge fitting to the rack upon said beam, said teeth being cut upon an 50 arc to permit the jaw to rock without disen-

gaging the teeth, means to pivot said jaw upon said saddle and spring-actuated means to hold said teeth in mesh, for the purpose set forth substantially as described.

4. In a wrench, the combination of a beam, 55 its upper end terminating in a jaw, having serrations cut upon its face, a rack cut upon its edge, a saddle having a shoulder formed upon its upper edge, mounted and sliding on said beam, an adjustable jaw having teeth cut 60 upon an arc to permit the jaw to rock without disengaging the teeth, the said jaw having a notch at its back fitting to the beam and preventing a lateral movement thereof, means to pivot said jaw upon said saddle and spring- 65 actuated means to hold said teeth in mesh in such manner as to permit a double movement of the saddle and jaw, for the purpose set forth substantially as described.

5. In a wrench, the combination of the beam 70 a , the saddle a^3 , the adjustable jaw a' , the bolt a^2 securing said jaw in position, springs b' and b^2 mounted in an annular opening b^3 in said jaw bearing against the beam a and a pin a^6 mounted in the saddle, the beam a hav- 75 ing a rack d cut upon it meshing with teeth cut in an arc upon the end a^5 of the jaw a' , for the purpose set forth substantially as described.

6. In a wrench, the combination of a beam 80 having a rack cut upon its edge and a saddle fitted to and sliding upon said beam, having mounted therein an adjustable jaw, a bolt holding said jaw in place and acting as a pivot-pin, teeth cut in an arc upon the edge of the 85 lower jaw fitting to and coinciding with the teeth of the rack upon the beam, said jaw having an annular opening formed in its side, flat springs mounted therein, bearing respectively against the edge of the beam, and a pin 90 mounted in the saddle, the spring bearing against the said pin being under tension holding the teeth of the jaw in mesh with the teeth of the rack, for the purpose set forth substantially as described.

OTTO FRANK HELFRITZ.

Witnesses:

C. M. BURNAM,
R. L. BUCHANAN.