



No. 614,246.

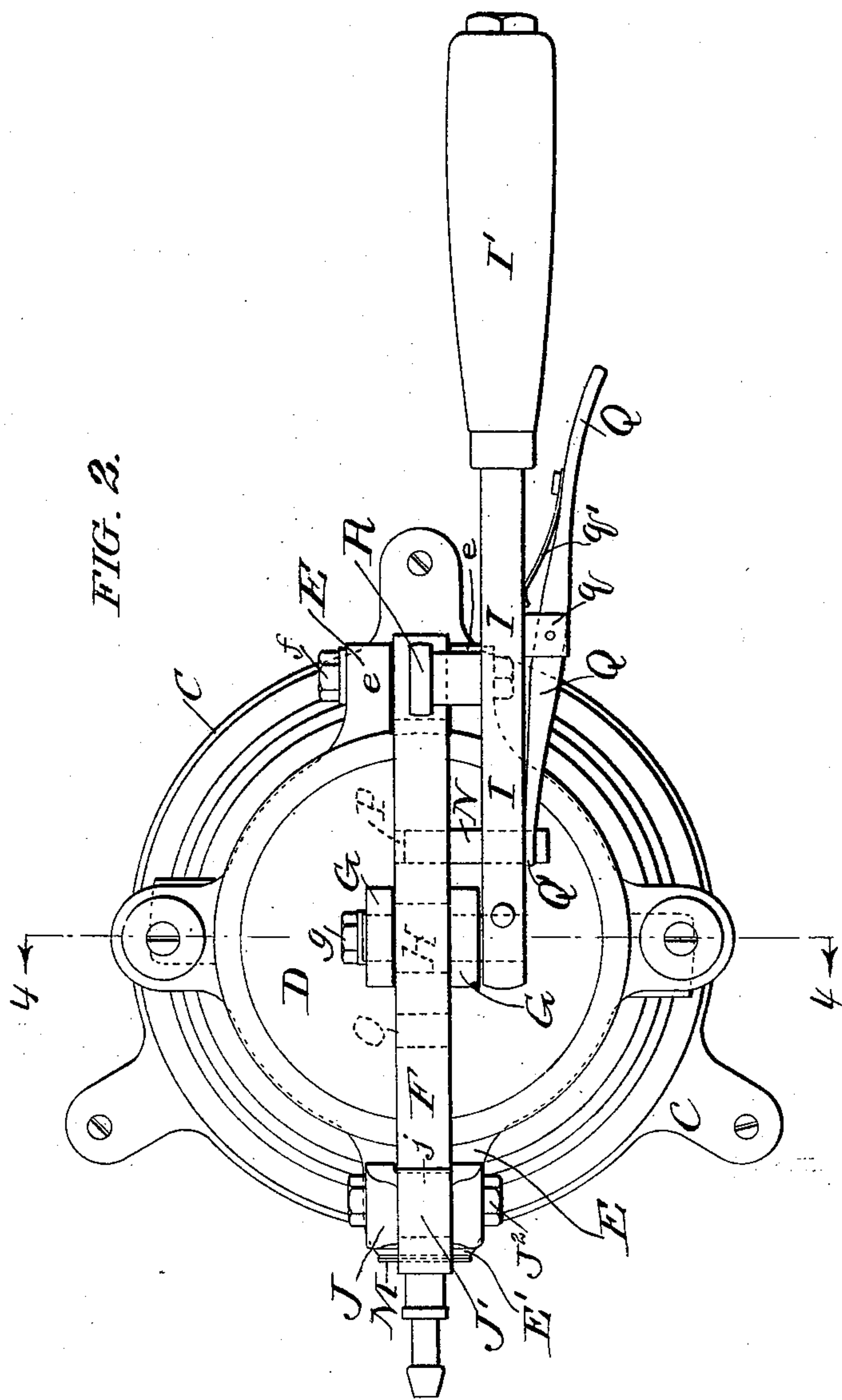
Patented Nov. 15, 1898.

E. D. GILBERT.  
VULCANIZER.

(Application filed Mar. 18, 1898.)

(No Model.)

4 Sheets—Sheet 2.



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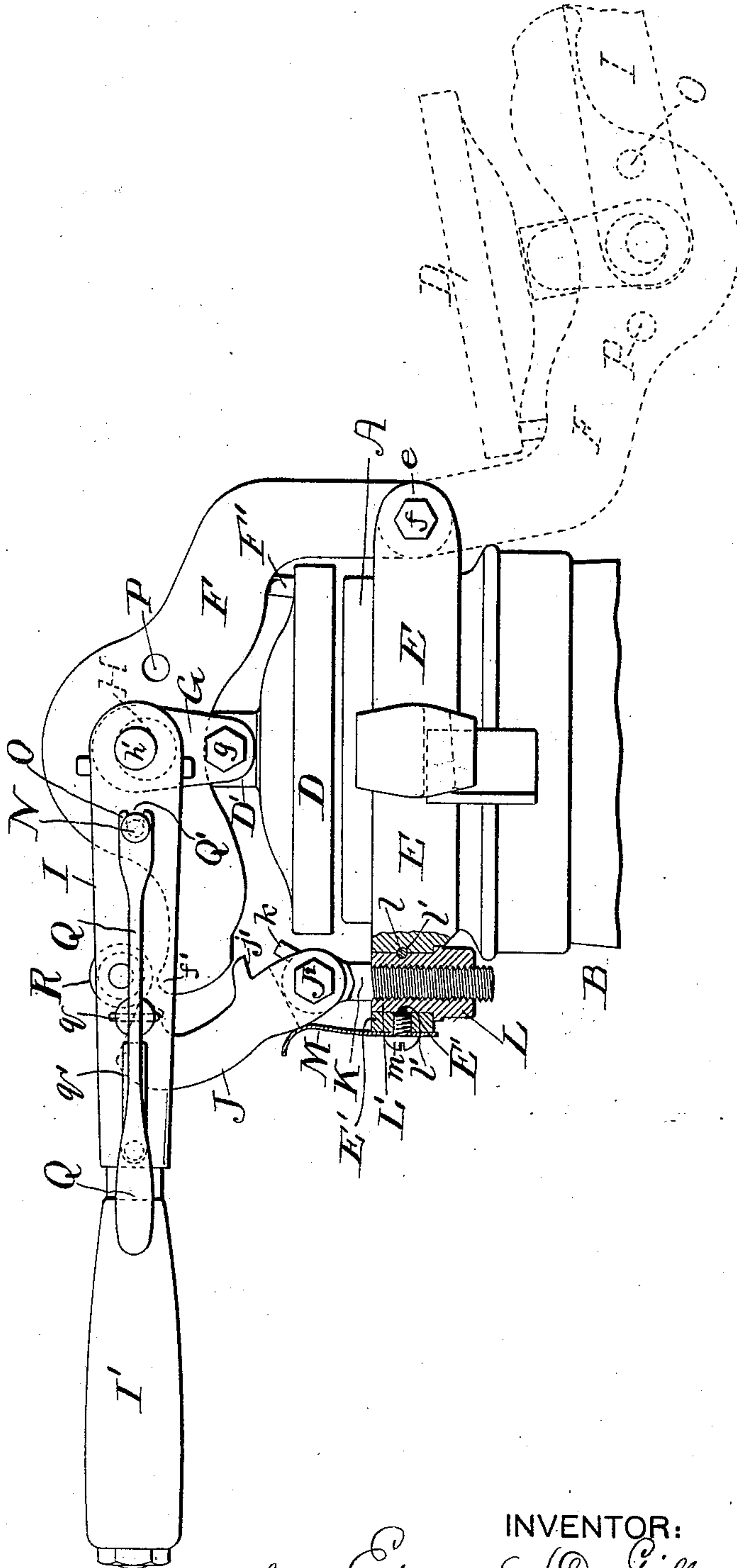
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FIG. 3.



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FIG. 6.

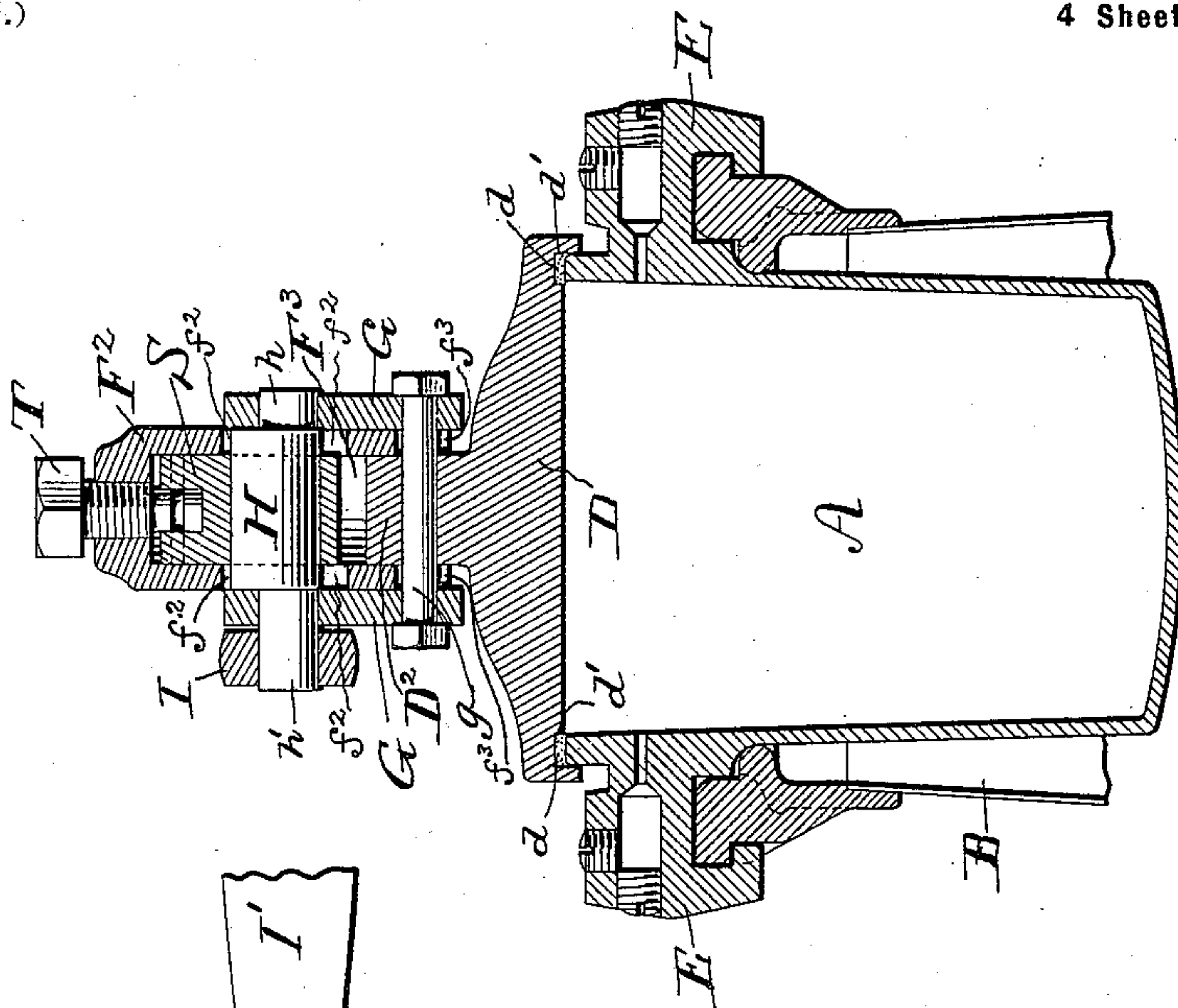
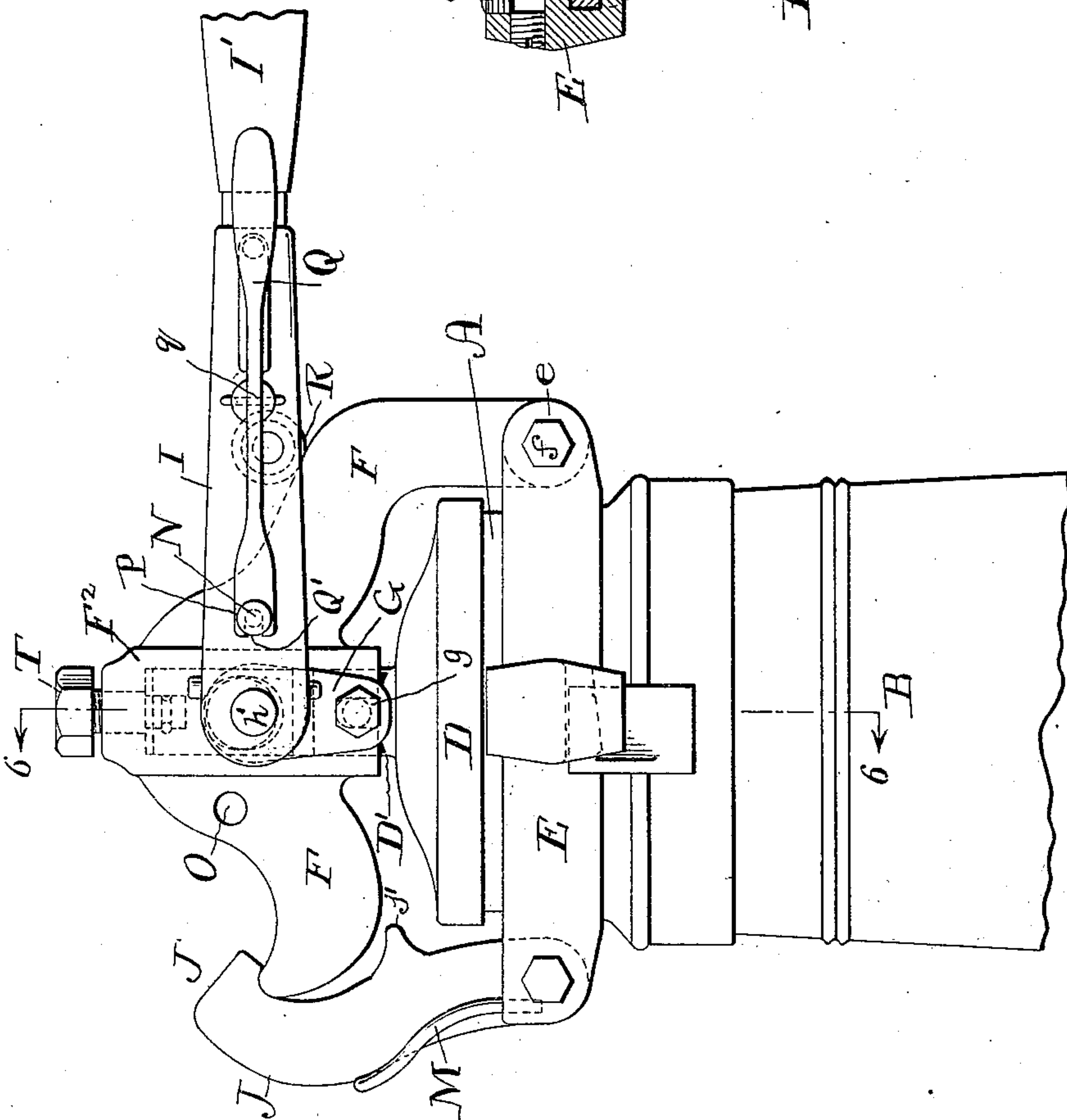


FIG. 5.



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# UNITED STATES PATENT OFFICE.

EDMUND D. GILBERT, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO  
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## VULCANIZER.

SPECIFICATION forming part of Letters Patent No. 614,246, dated November 15, 1898.

Application filed March 18, 1898. Serial No. 674,302. (No model.)

*To all whom it may concern:*

Be it known that I, EDMUND D. GILBERT, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Vulcanizers; and I do hereby declare the following to be 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 vulcanizers of the class employed by dentists and others for vulcanizing rubber dental plates, &c.; and it consists in certain improvements, as hereinafter described and claimed, in the means for supporting, clamping and unclamping, and handling the lids or covers of vulcanizers.

In the accompanying drawings, in which like letters refer to like parts throughout the several views, Figure 1 is a view in side elevation of a vulcanizer made in accordance with my invention. Fig. 2 is a top or plan view thereof. Fig. 3 is a view similar to Fig. 1, with the lower portion of the vulcanizer broken away and with the parts occupying a different position from that shown in Fig. 1, some parts being in vertical section. Fig. 4 is a view in vertical central section on the lines 4 4 of Figs. 1 and 2, the lower part of the vulcanizer being broken away. Fig. 5 is a view in side elevation, and Fig. 6 a vertical central sectional view on the line 6 6 of Fig. 5, of the upper portion of a vulcanizer of modified construction.

The vulcanizer comprises the usual pot or boiler A, supported in a jacket B by means of a flange *a* on the boiler resting upon the top of the jacket. The jacket B may be supported upon a base C. A lid or cover D, provided with a suitable packing *d*, contained in an annular groove *d'* on its inner face, (see Fig. 4,) is adapted to close the top of the boiler for making it steam-tight, as will readily be understood by those familiar with the art. The jacket, the means for heating the vulcanizer, the means for detachably connecting the boiler to the jacket, the thermometer, steam-gage, and blow-off are or may be of any well-known or suitable construction and need not be herein described.

For the purpose of expeditiously handling the cover D, for clamping it tightly upon the boiler, and for unclamping said cover I have provided novel mechanism, such as will now be described.

Rigidly connected to the boiler A is a collar E, provided with ears *e e*, between which is pivoted at *f* one end of a cover-supporting yoke or clamp-bar F. The cover D is connected to the yoke F by means of links G G, pivoted at their lower ends to a lug D' on the center of the cover by means of a bolt *g*, and at their upper ends are pivoted to an eccentric or cam H, having bearing in the yoke F and provided on opposite sides with pivots *h h'*, on which the links G are journaled. One of said pivots *h'* of the eccentric H is extended beyond the link G and has keyed upon it the inner end of an operating-lever I, having a handle I', preferably of wood. A latch J, adapted to engage the outer or free end of the cover-supporting yoke, is provided for holding said yoke in its operative position over the boiler. This latch is preferably pivoted, by means of a cross-bolt J<sup>2</sup>, to a vertically-adjustable carrier, consisting, as shown, of a bolt K, connected to the collar E at a point diametrically opposite the pivotal connection of the yoke with said collar. The means herein shown for vertically adjusting the bolt K consists of a swivel-nut L, (see Fig. 3,) provided with a tubular extension L', having bearing in an opening in an extension E' of said collar E and prevented from endwise movement, while capable of being turned therein, by a pin *l*, passing through the collar extension E' and into an annular groove *l'* on the tubular extension of the nut. The bolt K is threaded and fits in the nut L, and it will be seen that by turning said nut in one direction or the other the bolt K and the latch J may be raised or lowered. A plate-spring M, connected at *m* to the collar E and bearing against the latch J, serves to normally throw said latch inwardly, the inward movement of the latch being limited by a lug *k* on the head of the bolt, with which lug the latch comes in contact. When the yoke is swung into its operative position over the boiler, its outer or free end, which is rounded at *f'*, is engaged by the hook *j* of



the latch J, and a pin or lug  $j'$  on said latch serves to limit downward movement of the yoke. While the yoke thus occupies its operative position, the cover D is suspended directly over the boiler and may be firmly clamped thereon by moving the operating-lever to the right, it being understood that as said lever is moved to the right the eccentric H is rocked in its bearing and forces the cover down upon the boiler through the medium of the links G. In Fig. 1 the parts are shown in the position just described—that is to say, with the cover tightly clamped upon the boiler. To lift the cover, the operating-lever is pulled upwardly and the eccentric rocked to pull the cover upwardly and break its connection with the boiler. The latch J may then be moved outwardly or to the left to release the yoke, which may then be swung into its inoperative position, as shown in dotted lines, Fig. 3, the cover being carried with it out of the way to expose the boiler.

While the mechanism so far described is effective for the purpose intended, I have provided further means whereby the cover may be more conveniently clamped, unclamped, and handled and which will be next described.

A locking pin or bolt N, fitted to slide crosswise of the operating-lever in an opening therein, is adapted to engage holes O P in the yoke. The locking-pin is operated by a lever Q, pivoted at  $q$  to the side of the operating-lever and provided with a forked end  $Q'$ , which engages an annular groove in the bolt N. A spring  $q'$  acts with a tendency to thrust the locking-pin into engagement with either of the holes O or P when said pin is brought opposite them. The operating-lever is provided with a projection, preferably consisting of a cam or roller R, journaled upon said lever, for the purpose of acting upon the upper beveled or cam surface  $J'$  of the latch and forcing the same outwardly to release the yoke when the operating-lever is swung into the proper position. A lug  $F'$  on the under side of the cover-supporting yoke serves to arrest the upward movement of that side of the cover which strikes the lug when the operating-lever is moved to the left to break the connection between said cover and the boiler. This is for the purpose of insuring the breaking of the connection between the boiler and the side of the cover opposite to the lug before reversing the movement of the operating-lever to lift the cover to one side of the vulcanizer.

The operation of my improved vulcanizer is as follows: With the parts in the position shown in dotted lines, Fig. 3, the operating-lever, yoke, and cover are to one side of the boiler, which is thereby exposed, and a proper flask or flasks (not shown) containing the article or articles to be vulcanized may be placed within the boiler. The handle  $I'$  of the operating-lever may now be grasped by the hand and rocked upwardly and to the left, and as the operating-lever is locked to the yoke by

reason of the locking-pin N engaging the hole O in the yoke the yoke and cover are swung into position over the boiler and the roller R rests upon the latch J, as shown in full lines, Fig. 3. Pressure upon the lever Q withdraws the locking-pin from engagement with the hole O in the yoke and permits the same to drop until it rests upon the lug  $j'$  of the latch J, the spring M causing the latch to automatically rock inward and engage the free end of the yoke. The operating-lever, being free from the yoke, is next rocked to the right without disturbing the yoke, and this movement of the operating-lever rocks the eccentric H and forces the cover down to tightly clamp it upon the boiler, as shown in Fig. 1. As the eccentric is thrown over on the dead-line when the cover is clamped down, there is no danger of the cover being lifted by pressure of steam in the boiler; but in order to avoid all possibility of the lever being accidentally rocked while the steam is in the boiler the construction of my improved vulcanizer is such that as soon as the cover is properly clamped upon the boiler the locking-pin N automatically engages the hole P in the yoke and securely locks the operating-lever thereto. In this way the parts are securely locked in position until the locking-pin is purposely withdrawn from the hole P in the yoke, and the operator is insured against accident that might otherwise be caused by the operating-lever being lifted by a thoughtless or ignorant person. When the operating-lever is locked in this position, it may be used as a handle by which the boiler may be lifted from the jacket and handled for the purpose of cooling the boiler, pouring out water, &c. After the vulcanizing process is completed the locking-pin may be withdrawn from the hole P by means of the lever Q and the operating-lever pulled upwardly and to the left to break the connection between the cover and boiler, which, as is well known in the art, frequently becomes very tight during the vulcanizing process, and considerable force is often required to separate the cover from the boiler. As before explained, the cover is separated from the boiler and suspended over the same when the eccentric H is rocked by moving the operating-lever upwardly and to the left, and continued movement of the operating-lever in the same direction causes the roller R to ride upon the beveled surface of the latch J and forces the same outwardly until the yoke is released. (See full lines, Fig. 3.) Immediately the yoke is released from engagement of the latch the locking-pin automatically springs into the hole O, and the yoke and cover carried thereby may be quickly swung into the inoperative position (shown in dotted lines, Fig. 3) by throwing the operating-lever to the right.

If after having clamped the cover in position upon the boiler and commenced the process of vulcanization, it should be found that



the cover has not been clamped with sufficient pressure, which will be indicated by the escape of steam from between the cover and boiler, more pressure may be brought to bear upon the cover and the same more firmly clamped by simply turning the swivel-nut L to draw the latch downward. It will be observed that this may be accomplished without disturbing other parts of the vulcanizer, such as unclamping the yoke, and that, too, while steam is up in the boiler.

In Figs. 5 and 6 I have shown a vulcanizer of modified construction in which the cover is guided in its vertical movement. In this modification the cover-supporting yoke F is provided with a central enlargement or hub F<sup>2</sup>, having a preferably round bore F<sup>3</sup>. On the top of the cover and located centrally thereof is a round stem D<sup>2</sup>, which fits and moves up and down in the bore of the yoke-hub, and the links G G are connected to this stem by way of the bolt g and to the pivots h h' of the eccentric H, as before described. The eccentric in this instance is mounted to turn in a plug or block S, which is fitted in the bore of the yoke-hub above the stem D<sup>2</sup>, and the opposite ends of the eccentric are shown as projecting into slots f<sup>2</sup> f<sup>2</sup> in the walls of the yoke-hub. The lower end of the yoke-hub is provided with slots f<sup>3</sup> f<sup>3</sup>, in which the bolt g moves up and down. The plug S may be moved up and down and held in its adjusted position by means of a swivel adjusting-screw T, tapped in the top of the yoke-hub and having swiveling connection with the plug S.

In the modified construction, it will be observed, the cover is guided in its vertical movement and when in position over the boiler is always in alinement with the top of the same, whereby an accurate fit is insured when the operating-lever is actuated to clamp the cover upon the boiler. In this instance it is not necessary that the latch J be vertically adjustable, as the pressure upon the cover may be regulated by adjustment of the screw T to move in the eccentric up or down.

From the above description it will be apparent that my improved vulcanizer possesses certain novel and distinctive features, which enable it to be operated safely, securely, and expeditiously. It will be seen that by means of the eccentric clamping mechanism a direct central pressure may be applied to the cover to firmly clamp it upon the boiler and that the same mechanism may be employed to quickly break the connection between the cover and boiler after vulcanizing; that very considerable pressure of the character referred to may be applied with but comparatively slight exertion on the part of the operator; that the cover may be quickly and easily brought into position over the boiler and firmly clamped upon the same and the parts automatically and securely locked against accidental movement; that the connection between the cover and the boiler may be read-

ily broken after vulcanizing and the cover quickly and easily removed from the boiler into a position out of the way of the same, and, lastly, that all of these movements may be expeditiously performed by the manipulation of a single operating-lever, which may be controlled with one hand by the operator. It will further be seen that after the cover has been clamped to the boiler by the clamping mechanism any looseness in the parts may be quickly and easily taken up without unclamping the cover or otherwise disturbing the cover supporting and clamping mechanism.

Obviously my improvements are susceptible of many variations without departing from the spirit or scope of my invention, and I therefore do not wish to be understood as confining myself to the particular construction of mechanisms herein shown and described.

I claim as my invention—

1. The combination, in a vulcanizer, of the boiler, a cover therefor, a cover-supporting yoke, an eccentric having bearing in said yoke, a connection between said eccentric and the center of said cover, and means for operating said eccentric, whereby direct pressure may be applied to said cover, centrally thereof, for the purpose of both clamping the cover upon the boiler and for unclamping it therefrom, substantially as and for the purpose set forth.

2. The combination, in a vulcanizer, of the boiler, a cover therefor, a hinged cover-supporting yoke, an eccentric having bearing in said yoke, a connection between said eccentric and the center of said cover, an operating-lever connected to said eccentric, a latch or hook for engaging the free end of said lever, and means carried by said operating-lever, for disengaging said latch from said yoke, substantially as and for the purpose set forth.

3. The combination, in a vulcanizer, of the boiler, a cover therefor, a hinged cover-supporting yoke, means carried by said yoke for clamping said cover upon said boiler and for unclamping it therefrom, a connection between said clamping means and the center of said cover, an operating-lever connected to said means for clamping and unclamping the cover, and means for locking said operating-lever to said yoke, whereby the operating-lever serves the double purpose of clamping and unclamping the cover and of handling the said yoke and the cover carried thereby, substantially as set forth.

4. The combination, in a vulcanizer, of the boiler, a cover therefor, a hinged cover-supporting yoke, an eccentric having bearing in said yoke, a connection between said eccentric and the center of said cover, an operating-lever connected to said eccentric, a latch for engaging the free end of said yoke, means carried by said operating-lever for automatically releasing the yoke from engagement of said latch, and means also carried by said op-



erating-lever for automatically locking the operating-lever to the yoke immediately upon the yoke being released from engagement of the latch, substantially as set forth.

5 5. The combination, in a vulcanizer, of the boiler, a cover therefor, a hinged cover-supporting yoke, an eccentric having bearing in said yoke, a connection between said eccentric and the center of said cover, an operating-lever connected to said eccentric, means  
10 for engaging the free end of the yoke, and means for automatically locking the operating-lever to said yoke after said operating-lever has been brought to a position to clamp  
15 the cover upon the boiler, whereby the said cover may be securely locked against pressure of steam within the boiler, substantially as set forth.

6. The combination, in a vulcanizer, of the boiler, a cover therefor, a hinged cover-supporting yoke, an eccentric having bearing in said yoke, a connection between said eccentric and the center of said cover, an operating-lever connected to said eccentric, a latch  
25 for engaging the free end of the yoke, and means carried by the operating-lever for locking said lever to said yoke in either of two positions, in one of which the yoke may be swung back and forth by the operating-lever,  
30 and in the other of which the cover may be securely locked in its clamped position upon the boiler, substantially as set forth.

7. The combination, in a vulcanizer, of the boiler, a cover therefor, a cover-supporting yoke, cover-clamping mechanism carried by said yoke, means for locking said yoke in position over said boiler, an operating-lever for operating the cover-clamping mechanism, means carried by said operating-lever for au-

tomatically unlocking said yoke from said boiler, and locking mechanism for locking said operating-lever to said yoke in either of two positions, in one of which the yoke may be swung back and forth by the operating-lever and in the other of which the cover  
45 may be securely locked in its clamped position upon the boiler, substantially as set forth.

8. The combination, in a vulcanizer, of the boiler, a cover therefor, a hinged cover-supporting yoke, cover-clamping mechanism carried by said yoke, an operating-lever for said cover-clamping mechanism, and means exposed at all times for vertically adjusting said cover independently of its clamping mechanism, whereby the clamping-pressure  
55 upon said cover may be increased after said cover has been clamped upon the boiler by its clamping mechanism, without unclamping the same, substantially as set forth.

9. The combination, in a vulcanizer, of the boiler, a cover therefor, a hinged cover-supporting yoke, cover-clamping mechanism carried by said yoke, an operating-lever for said cover-clamping mechanism, a latch for engaging the free end of said yoke and means  
65 for vertically adjusting said latch, said means being exposed at all times, whereby the clamping-pressure upon said cover may be increased after said cover has been clamped upon the boiler, without unclamping the same, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

EDMUND D. GILBERT.

Witnesses:

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