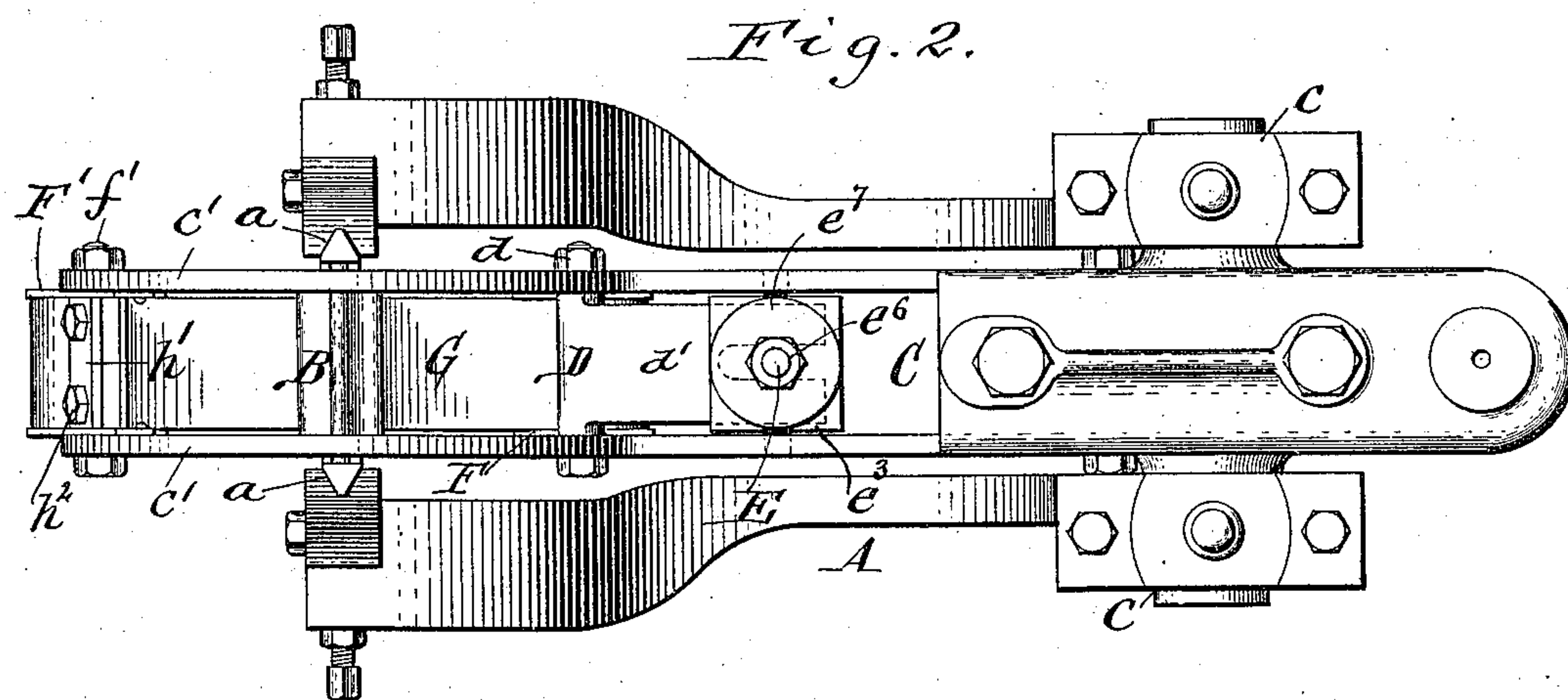
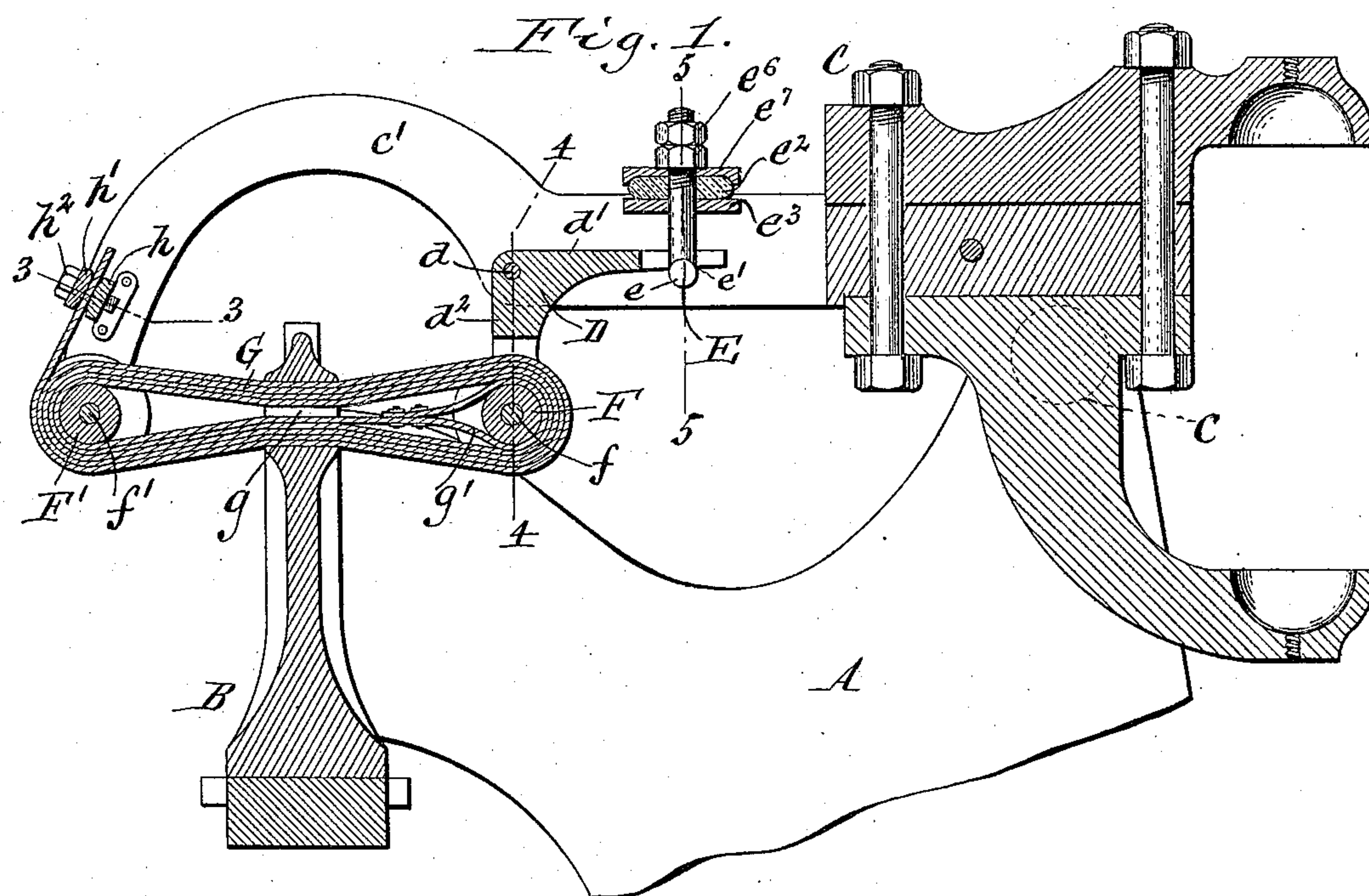


2 Sheets—Sheet 1.

No. 575,784.

Patented Jan. 26, 1897.



Witnesses:
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F. Gustav Wilhelm.

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(No Model.)

2 Sheets—Sheet 2.

F. RAYMOND.
POWER HAMMER.

No. 575,784.

Patented Jan. 26, 1897.

Fig. 3.

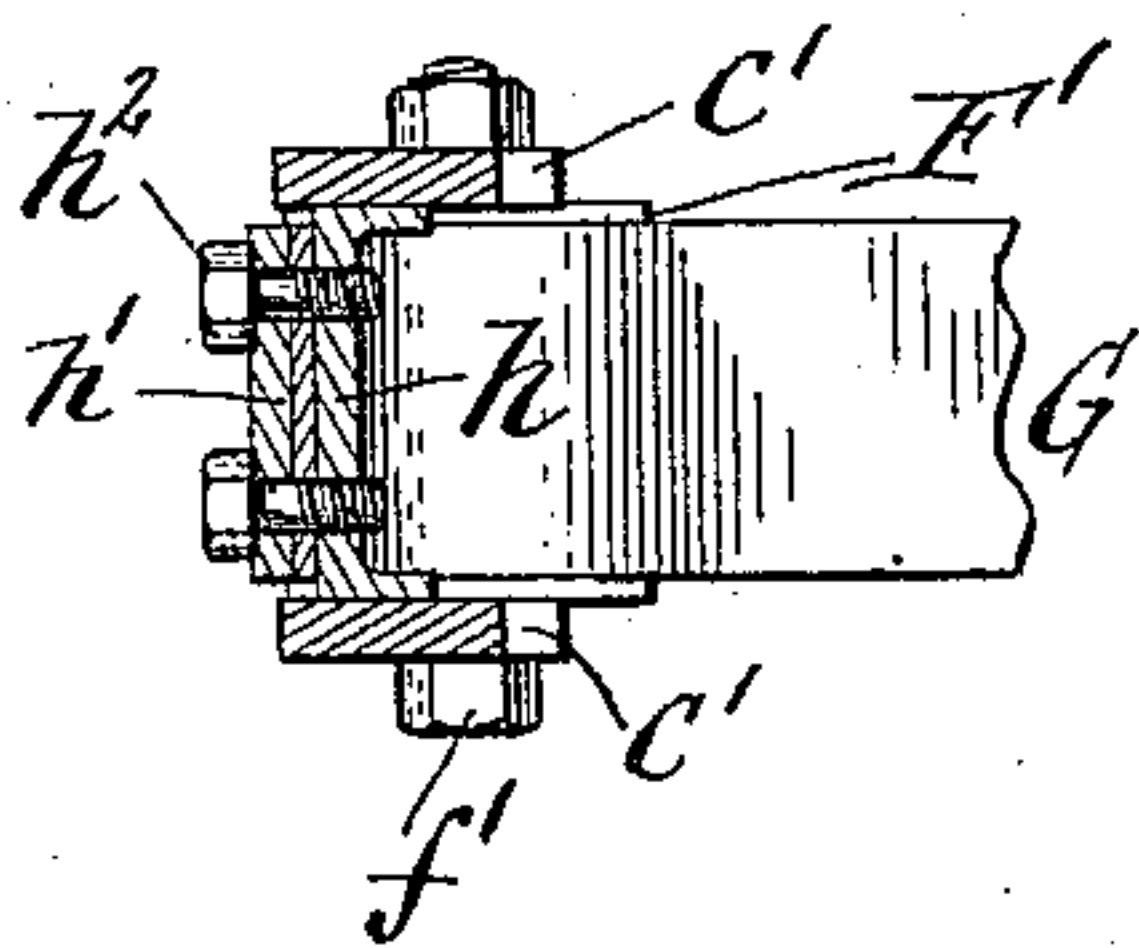


Fig. 4.

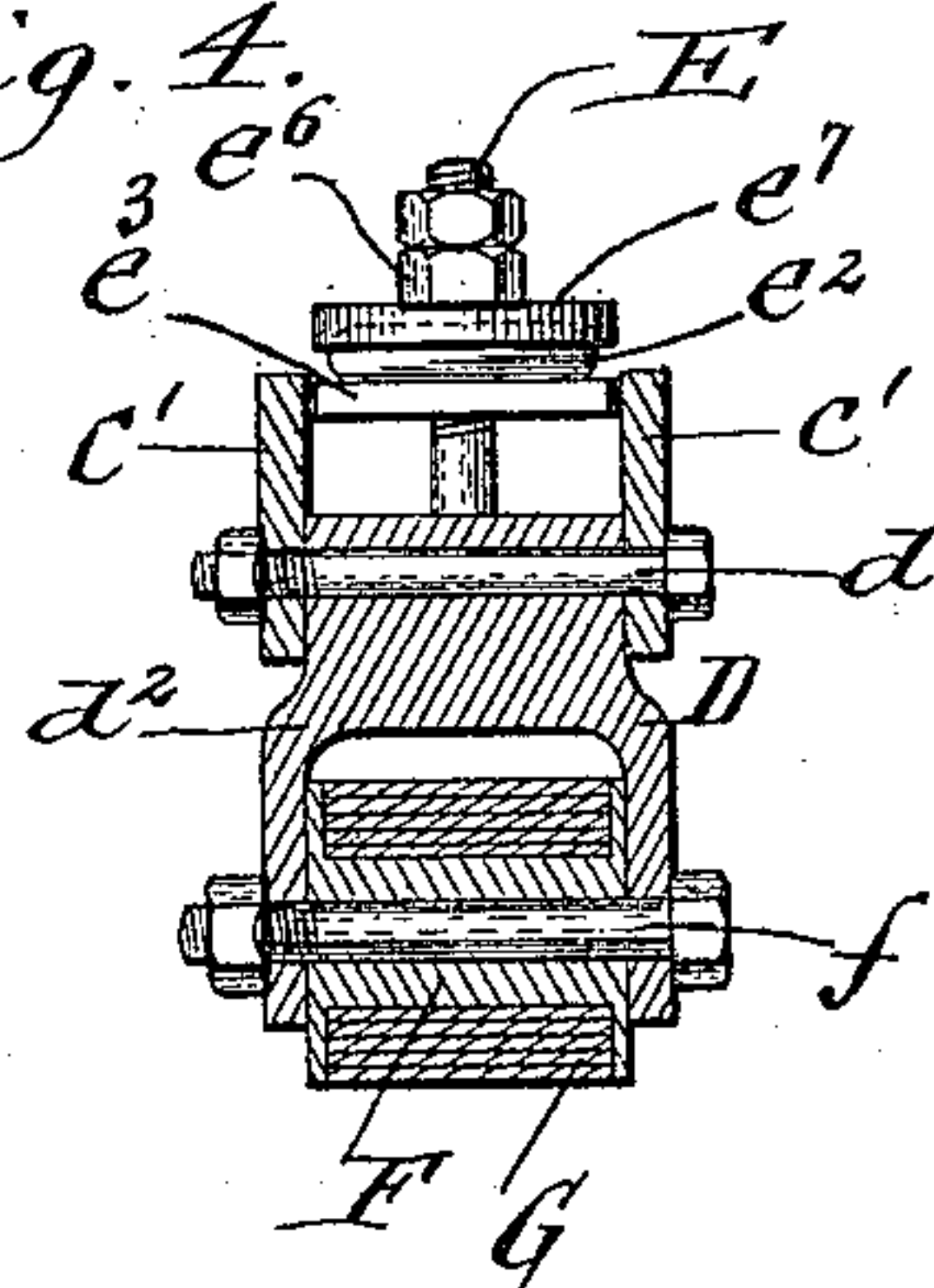


Fig. 5.

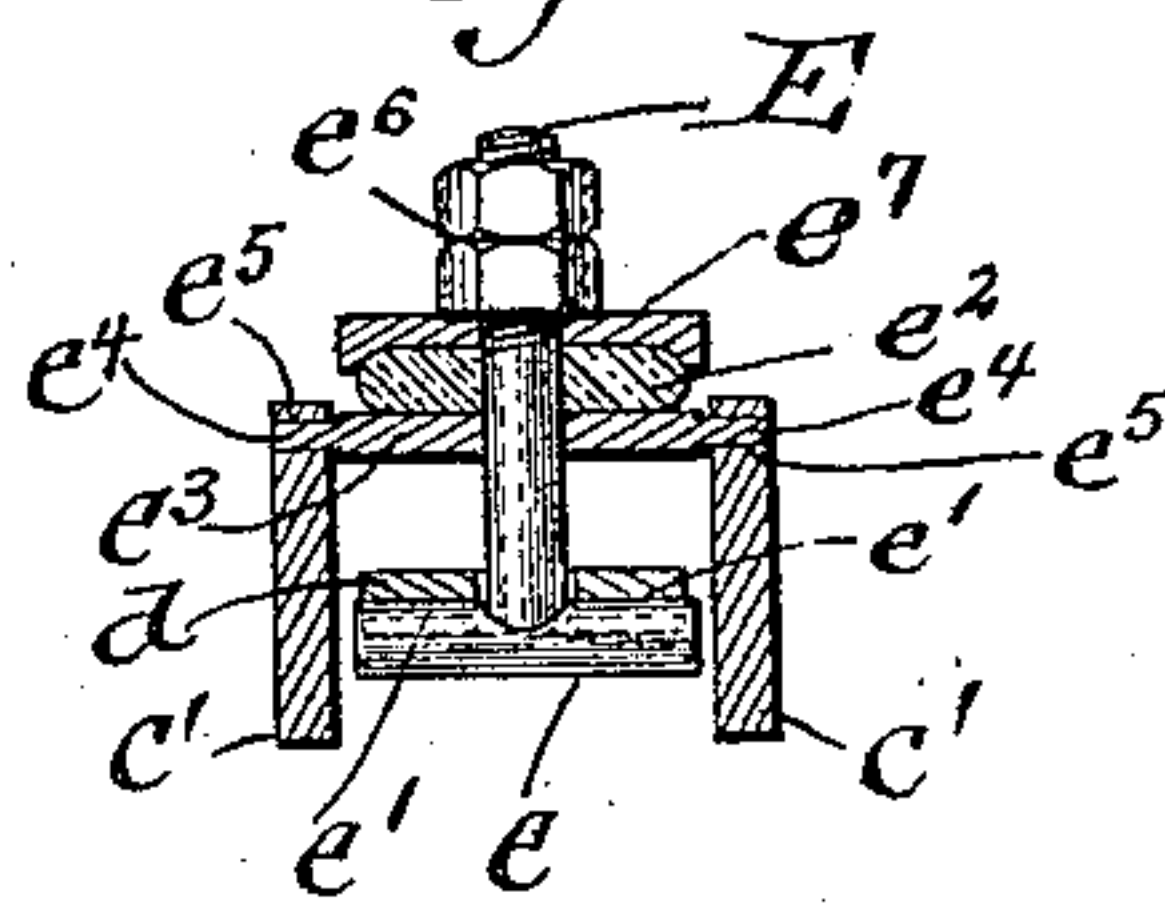


Fig. 6.

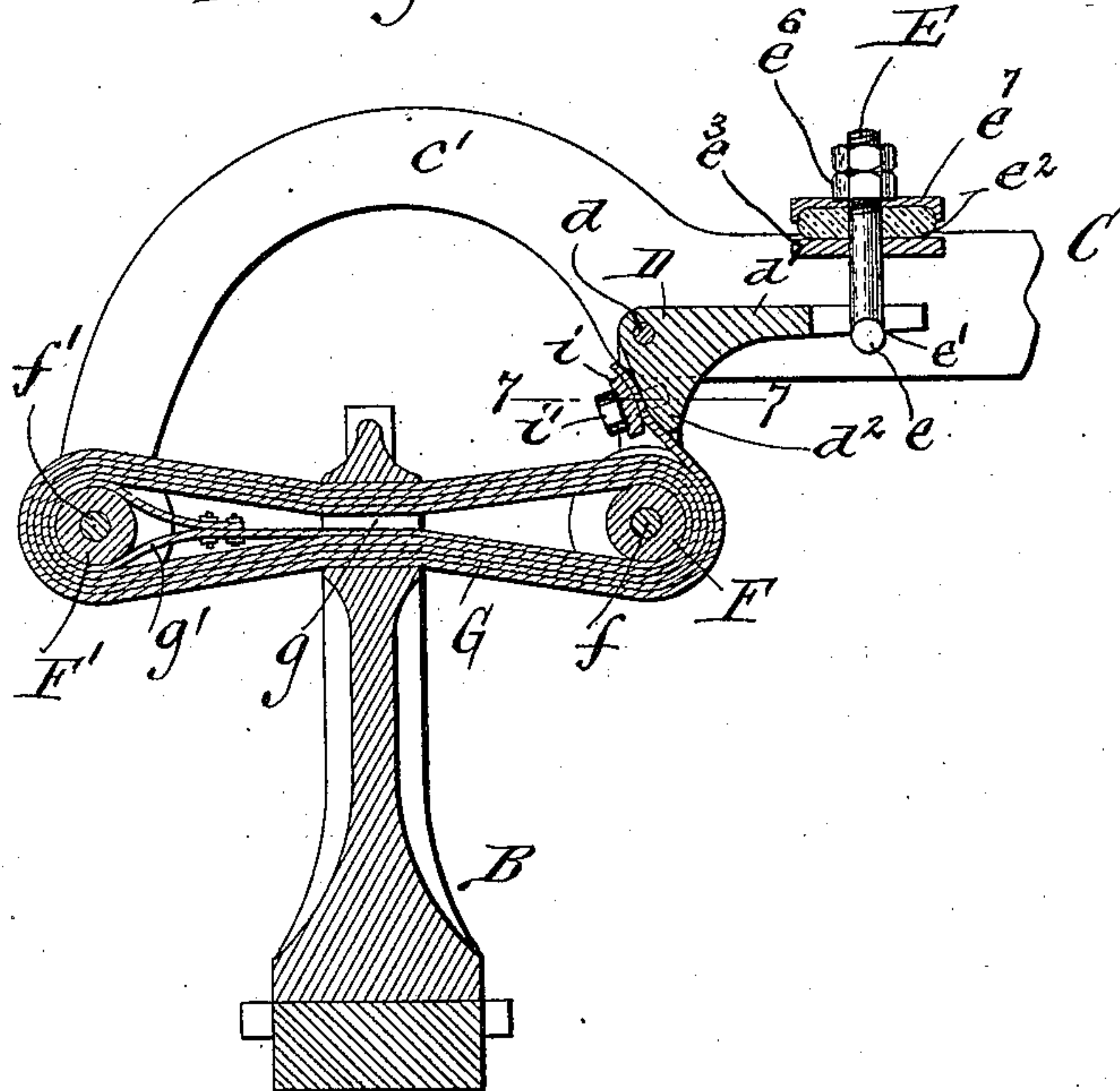
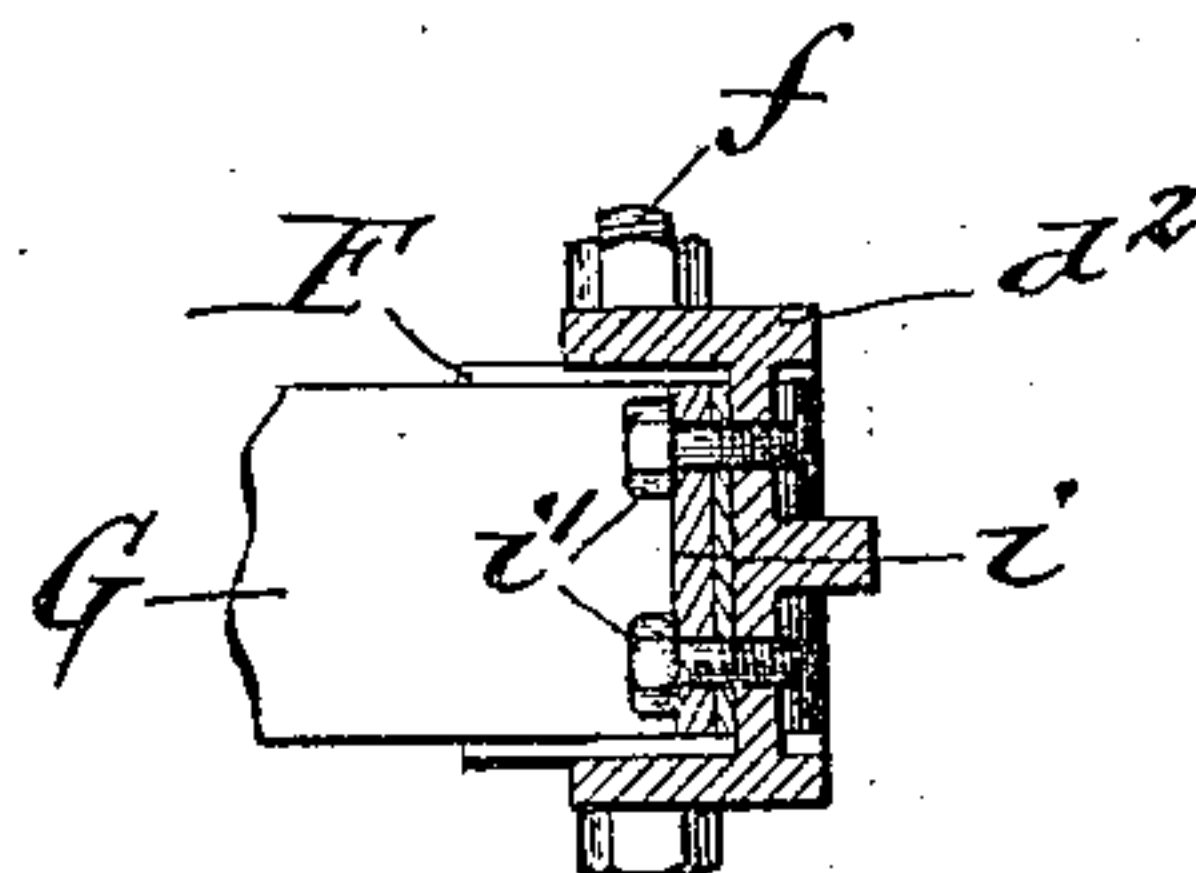


Fig. 7.



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UNITED STATES PATENT OFFICE.

FRANK RAYMOND, OF SYRACUSE, NEW YORK, ASSIGNOR TO CHRISTOPHER C. BRADLEY, JR., OF SAME PLACE.

POWER-HAMMER.

SPECIFICATION forming part of Letters Patent No. 575,784, dated January 26, 1897.

Application filed May 15, 1896. Serial No. 591,605. (No model.)

To all whom it may concern:

Be it known that I, FRANK RAYMOND, a citizen of the United States, residing at Syracuse, in the county of Onondaga and State of New York, have invented a new and useful Improvement in Power-Hammers, of which the following is a specification.

This invention relates to that class of power-hammers which contain a vertically-moving hammer-head and a helve which is connected with the upper portion of the hammer-head by a strap attached to the helve on opposite sides of the hammer-head and engaging between its supports in an opening in the hammer-head, whereby a yielding or flexible connection is established between the helve and the head.

The objects of my invention are to so construct the strap and the devices by which it is attached to the helve that the several superimposed layers of the strap rest loosely upon each other and can separate slightly as the strap vibrates during the working of the hammer, thereby avoiding heating of the strap, and to provide means for readily adjusting the tension of the strap.

In the accompanying drawings, consisting of two sheets, Figure 1 is a fragmentary longitudinal sectional elevation of a power-hammer provided with my improvements. Fig. 2 is a top plan view of the same. Fig. 3 is a horizontal section in line 3 3, Fig. 1. Figs. 4 and 5 are vertical transverse sections in lines 4 4 and 5 5, Fig. 1, respectively. Fig. 6 is a longitudinal sectional elevation showing another embodiment of my invention. Fig. 7 is a horizontal section in line 7 7, Fig. 6.

Like letters of reference refer to like parts in the several figures.

A represents the main frame of the hammer, and B the hammer-head, sliding in vertical ways *a*, formed on the front portion of the frame.

C represents the vertically-oscillating helve, which is pivoted to the main frame at *c* and which may be operated in any suitable and well-known manner. The front portion of the helve is composed of two parallel bars *c'* *c'*, which are arranged side by side and separated so as to leave a space between them.

D represents an adjusting elbow-lever ar-

ranged between the bars of the helve in rear of the hammer-head and pivoted to these bars by a transverse bolt *d*. The upper or horizontal arm *d'* of the elbow-lever projects rearwardly and is bifurcated, while its lower arm *d''* projects downwardly and is bifurcated. E represents a vertical screw-bolt by which this lever is adjusted. This bolt is arranged with its lower end between the bifurcated portions of the upper arm of the elbow-lever and is pivotally connected thereto by a round cross-bar *e*, arranged on the lower end of the adjusting-bolt and engaging with round seats *e'* on the under side of the upper arm. The adjusting-bolt is supported at its upper end by a spring *e''*, preferably of rubber, which rests upon a transverse supporting-plate *e'''*. The latter is provided at its ends with transverse trunnions *e''''*, which are journaled in bearings *e'''''*, formed in the bars of the helve. The adjusting-bolt passes through the upper arm of the elbow-lever, the supporting-plate and spring, and is provided at its upper screw-threaded end with screw-nuts *e''''''*, which bear upon a washer *e'''''''* on the spring.

F F' represent two supporting spools or sleeves, one of which is attached to the bifurcated lower arm of the elbow-lever by a transverse bolt *f*, while the other is arranged between the front ends of the helve-bars, in front of the hammer-head, on a transverse bolt *f'*.

G represents the strap by which the hammer-head is flexibly connected with the helve and which passes with its central portion through an opening *g* in the upper portion of the hammer-head. This strap is secured with its inner end to one of the spools and is then coiled or wound around both spools until the proper thickness is obtained, after which the outer end of the strap is fastened to the helve either directly or through the intervention of the elbow-lever, which is mounted on the helve. The inner end of the strap is preferably constructed with a loop *g'*, which embraces the spool.

As shown in Figs. 1, 2, 3, and 4, the inner end of the strap is fastened to the spool on the elbow-lever, while its outer end is fastened to the front portions of the helve by means of an adjustable clamping device.

This device consists, as shown, of a cross-bar h , secured to the helve-bars and bearing against one side of the end of the strap, a clamping-plate h' , bearing against the other side of the strap, and clamping-screws h^2 , connecting the bar and the plate.

In the construction represented in Figs. 6 and 7 the inner end of the strap is secured to the front spool on the helve, and the outer end of the strap is fastened to the elbow-lever by a clamping-plate i and bolts i' .

My improved strap is fastened at the end of its innermost layer and wound or coiled loosely around its supports, and the end of its outermost layer is then secured by the clamping device. It is in these respects essentially different from the endless straps heretofore employed, whether constructed of one layer or of several layers cemented together. My improved strap can be readily coiled until the required thickness is obtained, and the superimposed layers can separate slightly as the strap vibrates, whereby air is admitted between the layers and undue heating of the strap is avoided.

The clamping device by which one end of the strap is secured permits of a rough adjustment of the strap to be quickly effected, and the adjusting device of the elbow-lever permits of a fine adjustment of the tension after the rough adjustment has been made.

I claim as my invention—

1. The combination with the hammer-head and the helve provided with supports on opposite sides of said head, of a connecting-strap having an attaching device at the end of its innermost layer and being coiled around said supports and having another attaching device at the end of its outermost layer, substantially as set forth.

2. The combination with the hammer-head and the helve provided with supports on opposite sides of said head, of a connecting-strap coiled around said supports and secured with the end of its innermost layer to one support and with the end of its outermost layer to the helve, substantially as set forth.

3. The combination with the hammer-head and the helve provided with supports on opposite sides of said head, of a connecting-strap coiled around said supports and secured with the end of its innermost layer to one of said supports, and a clamping device connecting the end of the outermost layer of the strap to the helve, substantially as set forth.

4. The combination with the hammer-head

and the helve, of an adjusting-lever mounted on the helve on one side of the hammer-head and provided with a strap-support, a strap-support carried by the helve on the opposite side of the hammer-head, a connecting-strap coiled around said supports, and attaching devices whereby the ends of the innermost and outermost layers of said strap are separately attached, one directly to the helve and the other to the adjusting-lever, substantially as set forth.

5. The combination with the hammer-head and the helve, of an adjusting-lever mounted on the helve, a strap carrying the hammer-head and attached to said lever, and a clamping device whereby the outer end of said strap is adjustably secured substantially as set forth.

6. The combination with the hammer-head and the helve, of an adjusting-lever pivoted to said helve in rear of the hammer-head, a strap carrying said head and attached with its rear end to said adjusting-lever, and an adjustable clamping device whereby the front end of the strap is attached to the helve, substantially as set forth.

7. The combination with the hammer-head and the helve, of an adjusting-lever pivoted to said helve in rear of the hammer-head, a strap carrying said head and attached with its rear end to said adjusting-lever and with its front end to said helve, a plate pivoted on said helve, a spring mounted on said plate, and a bolt connecting the spring with said adjusting-lever, substantially as set forth.

8. The combination with the hammer-head and the helve, of an adjusting-lever pivoted to said helve in rear of the hammer-head and consisting of a downwardly-projecting lower arm and a rearwardly-projecting upper arm, a strap carrying said hammer-head and connected with its front end to said helve and with its rear end to the lower arm of the adjusting-lever, a supporting-plate provided with trunnions which are journaled in bearings on the helve, a spring mounted on said plate, and an adjusting-bolt provided at its lower end with a cross-bar which is pivoted on the upper arm of the elbow-lever and at its upper end with a washer which bears against said spring, substantially as set forth.

Witness my hand this 7th day of May, 1896.

FRANK RAYMOND.

Witnesses:

C. W. SMITH,
E. H. WILDER.