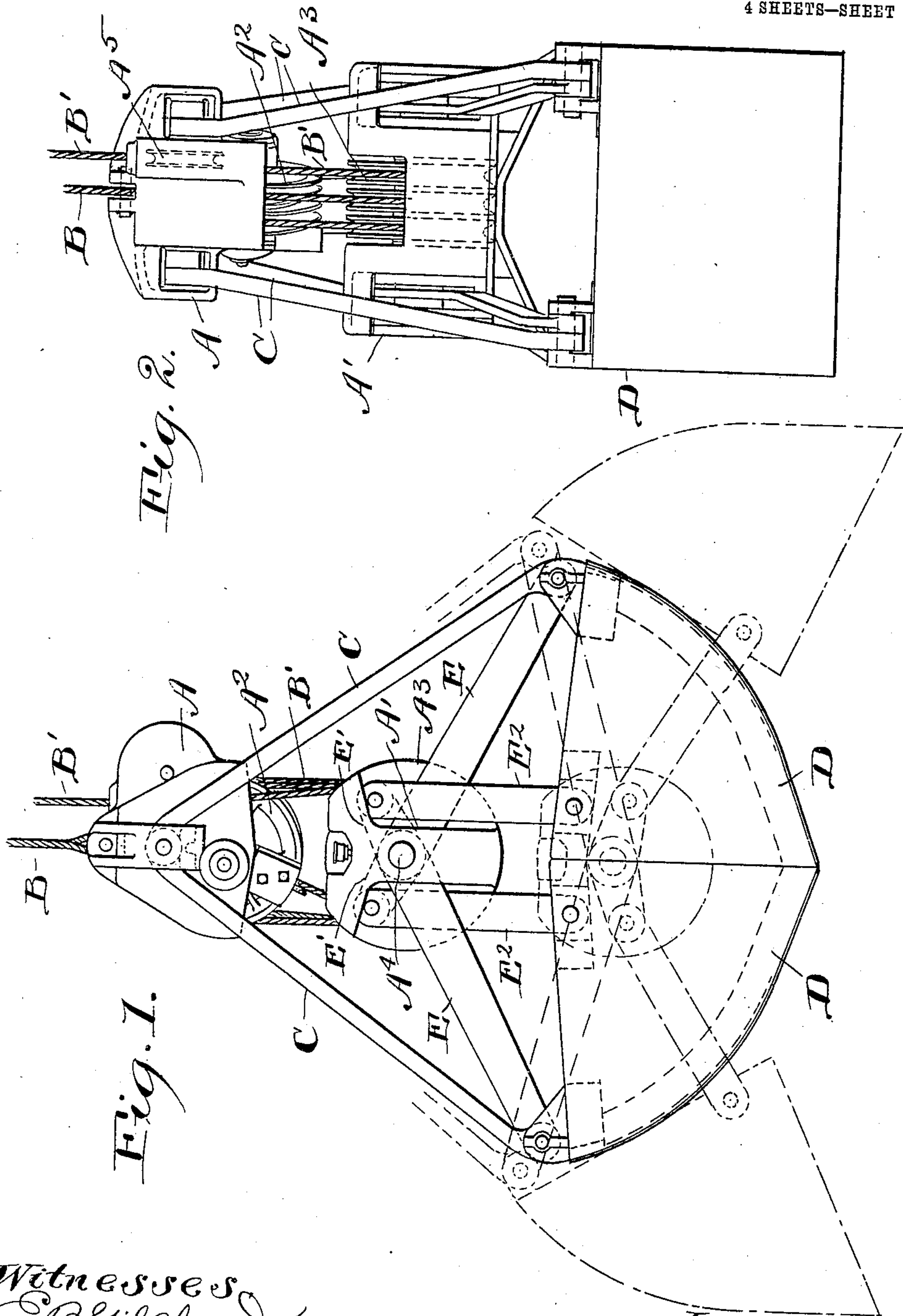


J. B. H. OUCHTERLONY.  
CLAM SHELL BUCKET.  
APPLICATION FILED JUNE 25, 1908.

925,018.

Patented June 15, 1909.

4 SHEETS—SHEET 1.



Witnesses  
C. B. Gilchrist.  
H. B. Sullivan.

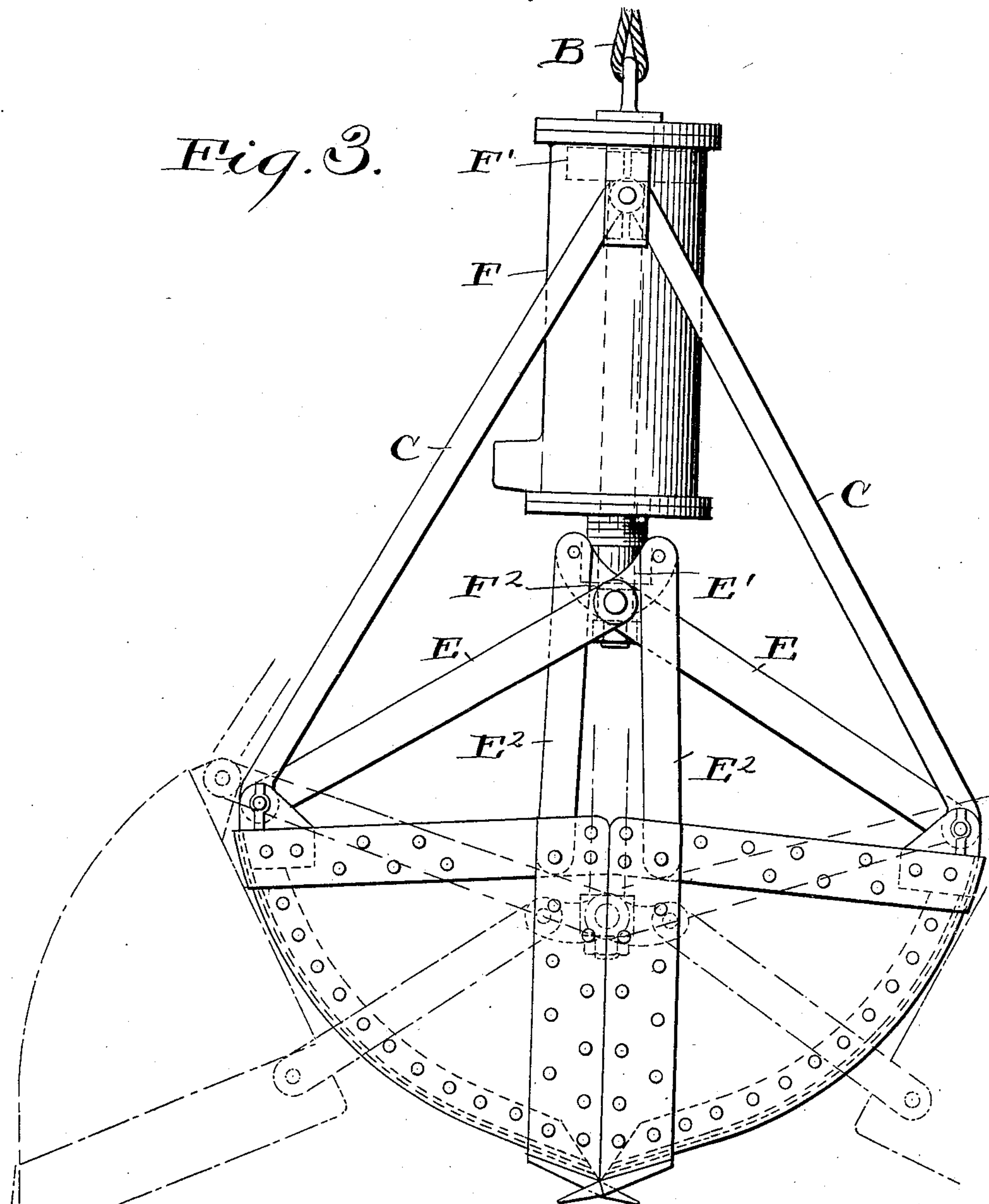
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4 SHEETS—SHEET 2.

*Fig. 3.*



*Witnesses.*  
*E. P. Gilchrist.*  
*H. P. Sullivan.*

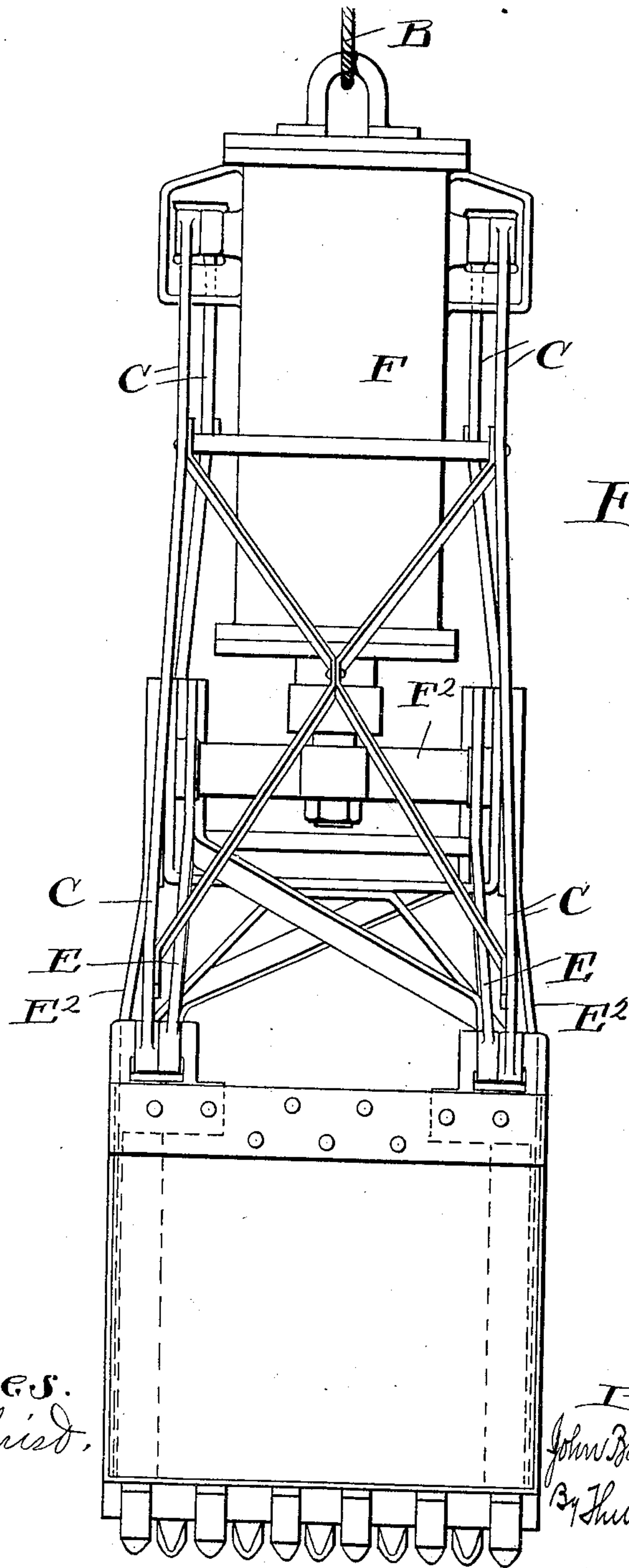
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4 SHEETS—SHEET 3.



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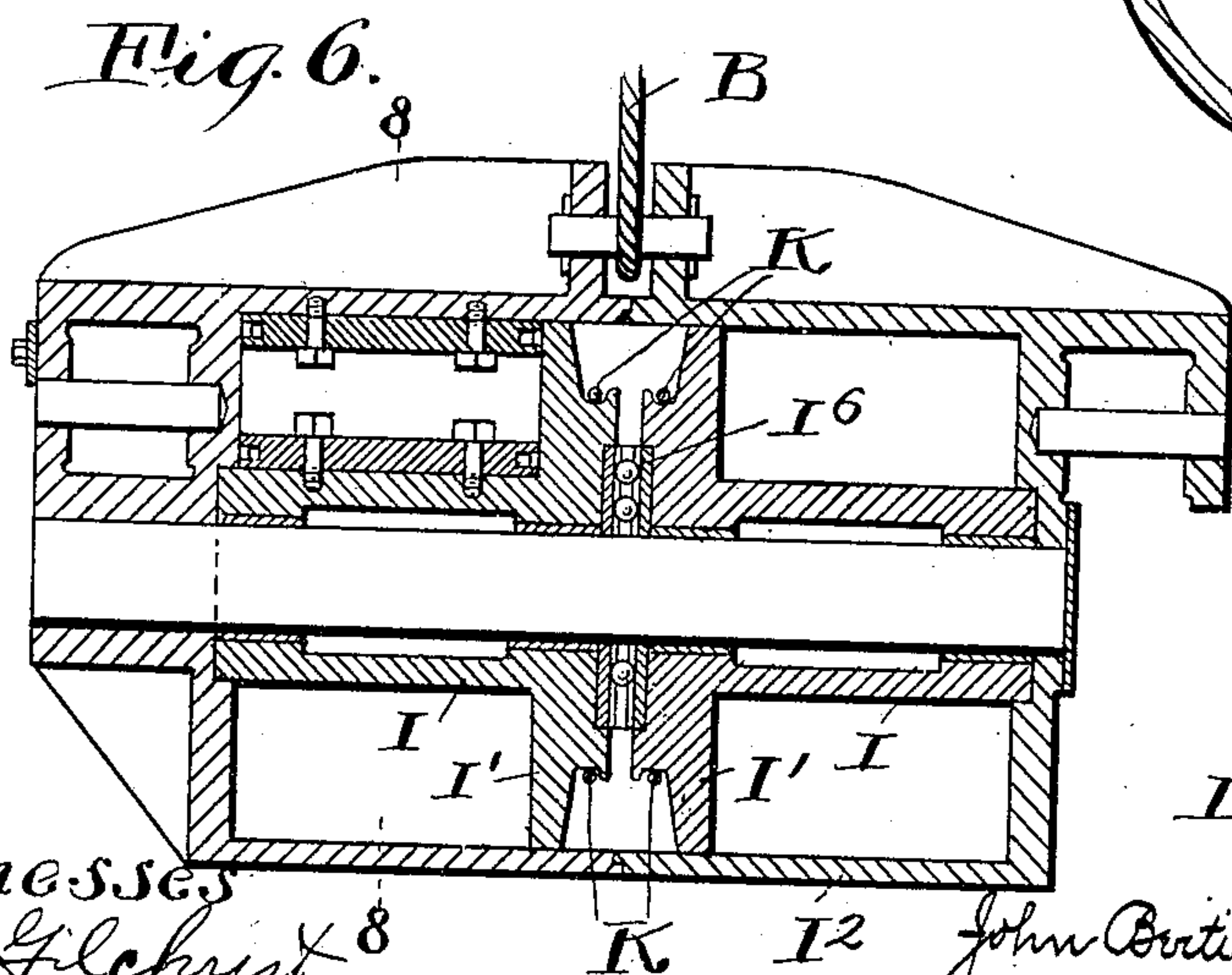
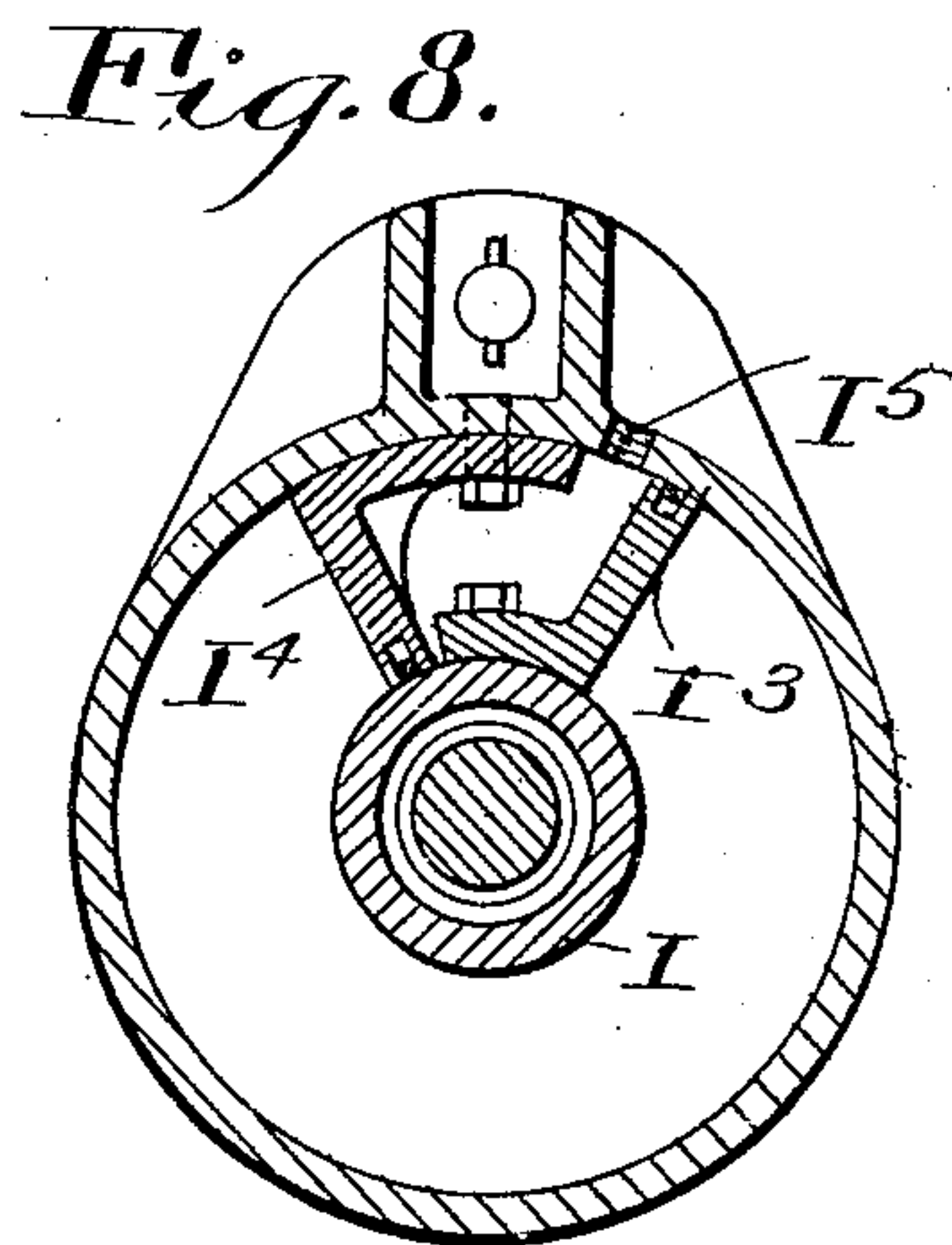
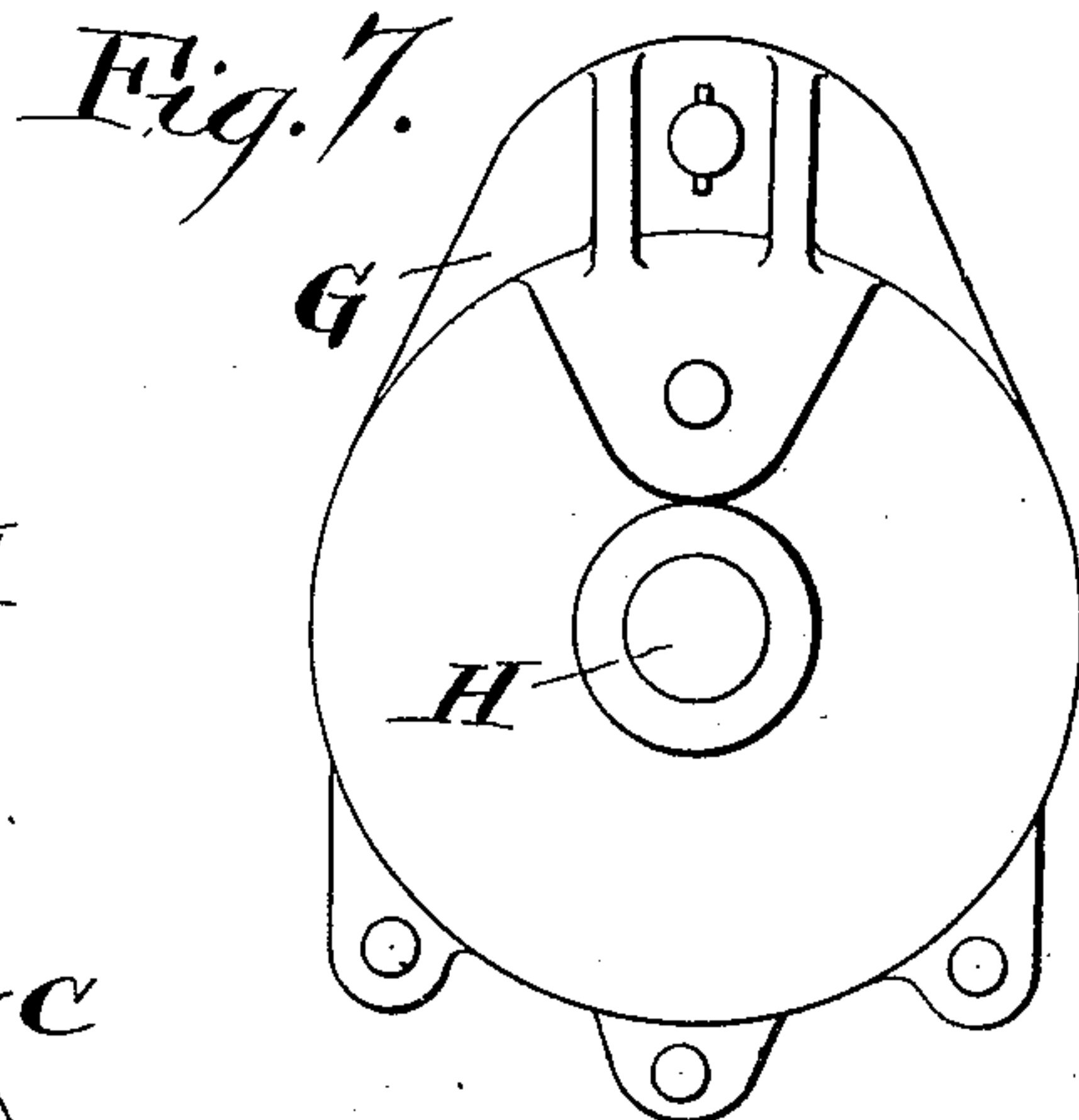
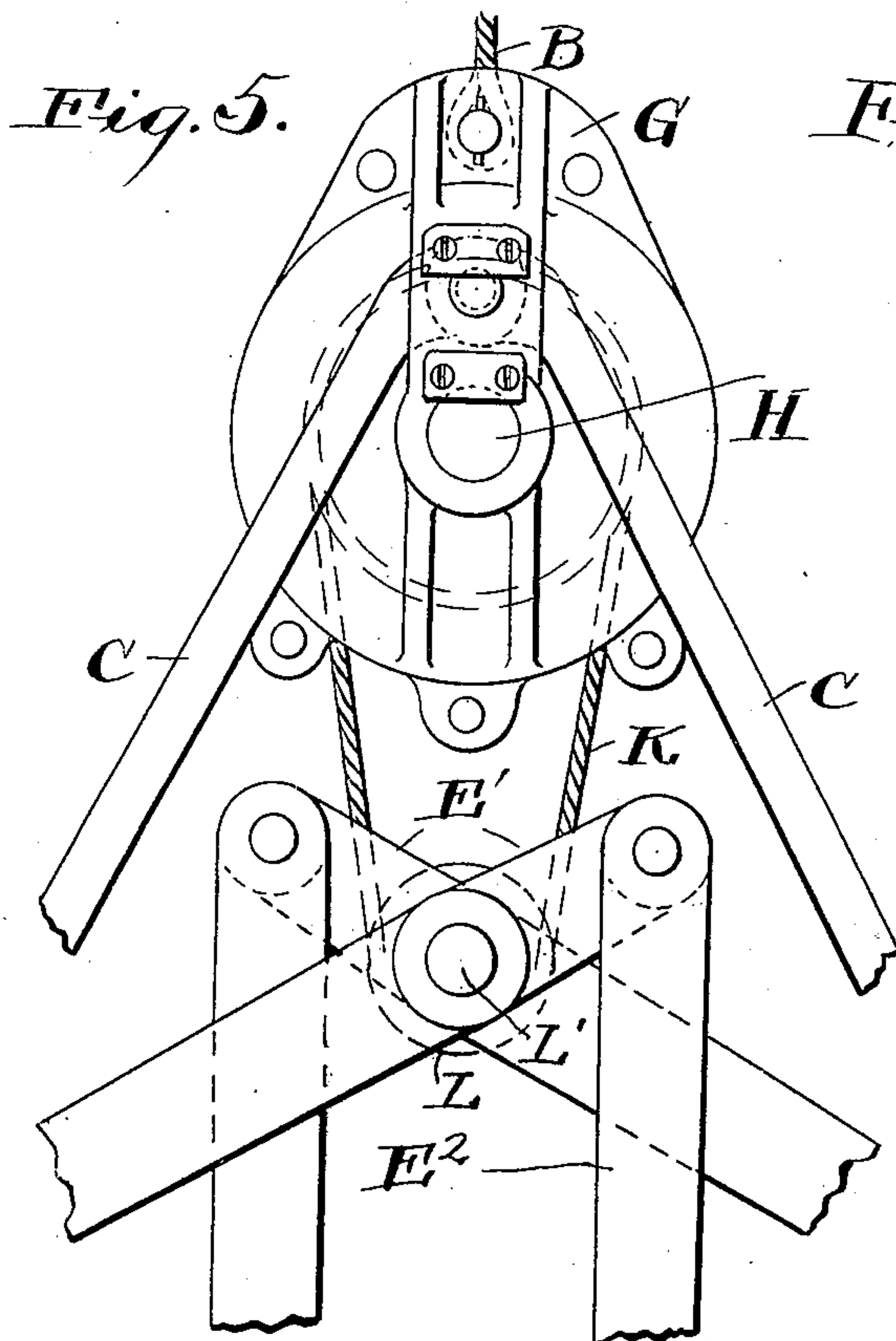


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4 SHEETS—SHEET 4.



Witnesses  
E. B. Gilchrist  
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# UNITED STATES PATENT OFFICE.

JOHN BERTIL H. OUCHTERLONY, OF CLEVELAND, OHIO, ASSIGNOR TO THE McMYLER MANUFACTURING COMPANY, A CORPORATION OF OHIO.

## CLAM-SHELL BUCKET.

No. 925,018.

Specification of Letters Patent.

Patented June 15, 1909.

Application filed June 25, 1908. Serial No. 440,207.

*To all whom it may concern:*

Be it known that I, JOHN BERTIL H. OUCHTERLONY, a subject of the King of Sweden, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Clam-Shell Buckets, of which the following is a full, clear, and exact description.

The present invention relates to a type of hoisting bucket commonly known as the clam-shell type, and is particularly directed to the link connection between the sections of the bucket and the heads from which the sections are swung and operated.

The object of the invention is to so suspend the bucket from its operating heads that it shall be capable of an unusually wide reach without diminishing in any manner the power of the closing mechanism.

While the invention has been directed primarily to the type of bucket in which a plurality of turns or runs of the opening and closing chain or cable is taken around sheaves angularly disposed to each other, as for example, in the prior patent No. 616,287, Campbell, it has been my purpose to make the structure of such generic characteristics as will make it applicable to those buckets in which powerful steam cylinders are used for closing the bucket segments.

Referring to the accompanying drawings which illustrate different embodiments of my invention, Figure 1 is a side elevation showing my invention applied to a bucket having two heads of sheaves supporting the buckets by means of link connection therewith; the open position being indicated in dotted lines. Fig. 2 is an end elevation of the bucket shown in Fig. 1. Fig. 3 is a side elevation of a bucket embodying my invention; the bucket segments being opened and closed by means of a vertical steam cylinder. Fig. 4 is an end elevation of the bucket shown in Fig. 3. Fig. 5 is an enlarged detail showing the invention applied to a bucket in which horizontally disposed, rotary engines are used for opening and closing the bucket. Fig. 6 is a vertical longitudinal section through the closing cylinders. Fig. 7 is an end elevation of the frame supporting the rotating cylinders and Fig. 8 is a vertical transverse section on the line 8-8 of Fig. 6.

Referring to Figs. 1 and 2 in which a cable or chain is employed for closing the bucket

segments, it will be seen that the apparatus embodies two heads A, A'; an upper head A to which the holding rope B is attached and in which is journaled a plurality of sheaves A<sup>2</sup> for the opening and closing rope G', the sheaves being journaled on an axis mounted askew to the axis of the sheaves A<sup>3</sup> on the lower head A' in order to provide for the running of the opening and closing cable through its succeeding turns with the least possible friction, after a manner well known in the use of pulley blocks and as shown in the patent to Campbell above referred to. From the upper head mentioned extend pivoted supporting links C C which are pivoted at their lower ends to the outer corners of the bucket segments D D. The lower head has mounted therein a shaft A<sup>4</sup> extending transversely and having journaled thereon the sheaves A<sup>3</sup> about which the turns of the closing rope are run, these lower sheaves being parallel with the central plane of the bucket. The friction pulley A<sup>5</sup> mounted in the upper head serves to guide the opening and closing rope as it runs to the lower head. Also journaled on the lower head are a pair of levers E E pivoted to the rear edge of the bucket segments and having at their upper end projections E' rigidly connected therewith extending beyond the shaft on which they are journaled. From the ends of these projections depend links E<sup>2</sup> attached to the bucket segments near their inner ends and supporting the same.

It will be seen with the arrangement just described that the bucket is opened by throwing the weight of the bucket on the holding rope B and letting the opening and closing rope B' run so that the lower head A' will drop and permit the bucket to swing open pivoting on the outer ends of the links C attached to the upper head. The levers E connected with the lower head will, as the head on which they are journaled drops, push the rear edge of the bucket segments outward slightly and the rocking of the lever projections E' will thrust downward and outward the links E<sup>2</sup> by which the inner ends of the bucket segments are supported, thus giving the scraping edges on the bucket a spread not ordinarily had and not hitherto attained with this type of bucket.

It will be seen that as the bucket is closed the multiple winding of the closing rope about the sheaves of the upper and lower



heads will multiply the power applied to the task of drawing the bucket segments together, so that a comparatively small exertion will accomplish a great deal of work.

5 I do not, however, claim any part of this multiplication of the power applied as part of my invention as this is, together with the idea of setting the upper and lower sheaves at an angle to each other, old and discussed  
10 in the Campbell patent above cited. I do, however, claim the construction by which I am able to use this powerful closing device in a manner which will enable me to attain a reach in excess of that hitherto had where  
15 such devices were used.

The construction shown in Figs. 3 and 4 comprises a vertical steam cylinder F to which the holding rope B is attached and which has secured thereto, preferably near  
20 its upper end, pivot links C which at their lower end pivotally support the outer ends of the bucket segments. The piston F' in the cylinder has attached thereto a stem extending through a stuffing box and a cross  
25 head F<sup>2</sup> at the lower end thereof, at the extremities of which are journaled rocking levers E pivoted to the outer ends of the bucket segments in a manner similar to the  
30 links C which are secured to the upper end of the engine cylinder. These rocking levers have projections E' rigid therewith extending beyond their journal and from these projections supporting links E<sup>2</sup> extend  
35 downwardly and are pivotally connected at their lower ends with the inner ends of the bucket segments. When it is desired to open or close the bucket the holding rope is held  
40 taut and the piston is forced downward or upward, as the case may be. It will be obvious that as the piston moves downward the rocking levers and the links attached thereto will spread the buckets so that their scraping  
45 edges will have the greatest possible reach; and as the piston is forced upward the full power of the engine will be utilized in causing the segments to dig deeply into the material during their closing movement.

In the construction shown in Figs. 5 to 8 inclusive, it will be seen that the upper supporting head G has means for attachment  
50 to the holding rope B and has links C pivoted thereto which are secured at their lower ends to the outer edges of the bucket segments after the manner of the construction previously described. The upper supporting head has mounted on a central horizontal shaft H, a pair of rotating cylinders  
55 I I having rigid therewith, heads I' I' to which a supporting rope K is attached. These rotating cylinders are mounted in a cylindrical casing I<sup>2</sup> and each have projecting into said casing, a piston I<sup>3</sup> of suitable construction. Rigid with the casing is a  
60 head I<sup>4</sup> between which and the piston as at part I<sup>5</sup>, the steam is admitted for the pur-

pose of securing the rotation of the piston and the cylinder to which it is attached. The admission and exhaust of the steam may be controlled in any suitable and conventional manner. The two rotating cylinders  
70 have preferably some suitable anti-friction bearing I<sup>6</sup> between them and are mounted so as to be rotated in opposite directions by the steam pressure. One end of the opening and closing rope K takes over one cylinder  
75 head from one direction, while the other end of the rope takes over the second head from the opposite direction, so that the rotation of the two cylinders under steam pressure in one direction will cause the bight of the rope  
80 to draw up rapidly, while the rotation of the cylinders in the opposite direction will cause it to lower with equal rapidity. In the bight of this opening and closing rope is a sheave L mounted on a shaft L', also serving  
85 as a head, on which are journaled rocking levers E pivoted to the outer edges of the bucket segments. These rocking levers, like the previous construction described, have rigid therewith projections E' extending be-  
90 yond the journal. From the ends of these projections depend links E<sup>2</sup> pivoted to the inner ends of the bucket segments, the connection of the links and rocking levers in opening the bucket giving it an increased  
95 spread, the same in this case as in the previously described structures. It will thus be seen that I have attained the object of my invention in providing a lever and link support for the bucket segments which will give  
100 the scraping edges the greatest possible extension and which is especially attached for use in connection with the more powerful forms of closing mechanisms now known or possible to be used in this art.

Having thus described my invention, I claim:

1. In a hoisting bucket a head for securing to the holding means, bucket segments pivotally connected with said head, a second  
110 head movable relatively to the holding head and having link connection with the inner and upper ends of the bucket segments, means for giving the upper ends of the links a slight outward movement as they move  
115 downwardly.

2. In a hoisting bucket, the combination of a head, a pair of bucket segments pivotally connected by links with said head, a second head, lever arms journaled on said  
120 second head and each connected at their lower end with a bucket segment and having a projection extending beyond the journal, the inner ends of the bucket segments being suspended from said projections.

3. Hoisting mechanism comprising a head and a pair of bucket segments pivotally connected with said head by links, a second head, arms journaled on said head, each arm  
130 having two parts extending from the jour-



nal in different directions, the lower projection in each case being connected with a bucket segment, and the upper projection for the same arm being connected with the other bucket segment.

4. Hoisting mechanism comprising a head and a pair of bucket segments pivotally connected with said head, a second head and oscillatory members journaled on said second head, each oscillatory member articulating with the outer end of one bucket segment and connected with the inner end of the other bucket segment.

5. Hoisting mechanism comprising a pair of bucket segments, a head, links connected at their lower ends with said segments near their outer ends and pivoted to said head, a second head, levers pivoted to the said segments at their outer ends and pivoted on said second head, an extension for each lever beyond the pivot thereof, and links connecting said extensions with the forward end of the opposite scoops respectively.

6. Hoisting mechanism comprising a pair of bucket segments, a head, links connected at their lower ends with said segments near

their outer ends and pivoted to said head, a second head, levers pivoted to the said segments at their outer ends and pivoted on said second head, an extension for each lever beyond the pivot thereof, and links connecting said extensions with the forward end of the opposite scoops respectively, said heads being movable relatively to each other.

7. In a hoisting bucket the combination with a head, of a pair of bucket segments, rocking arms fulcrumed upon said head and attached at their end to the outer ends of the bucket segments, said arms being rotatably mounted on the head and having extensions beyond their fulcrum point and links leading from said extensions to the forward ends of the opposite segment, a second head, said segments having pivotal connection with said second head at their rear ends.

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

JOHN BERTIL H. OUCHTERLONY.

Witnesses:

H. R. SULLIVAN,  
E. L. THURSTON.