

(No Model.)

G. H. SMITH.

SELF LUBRICATING LOOSE PULLEY.

No. 318,399.

Patented May 19, 1885.

Fig. 2.

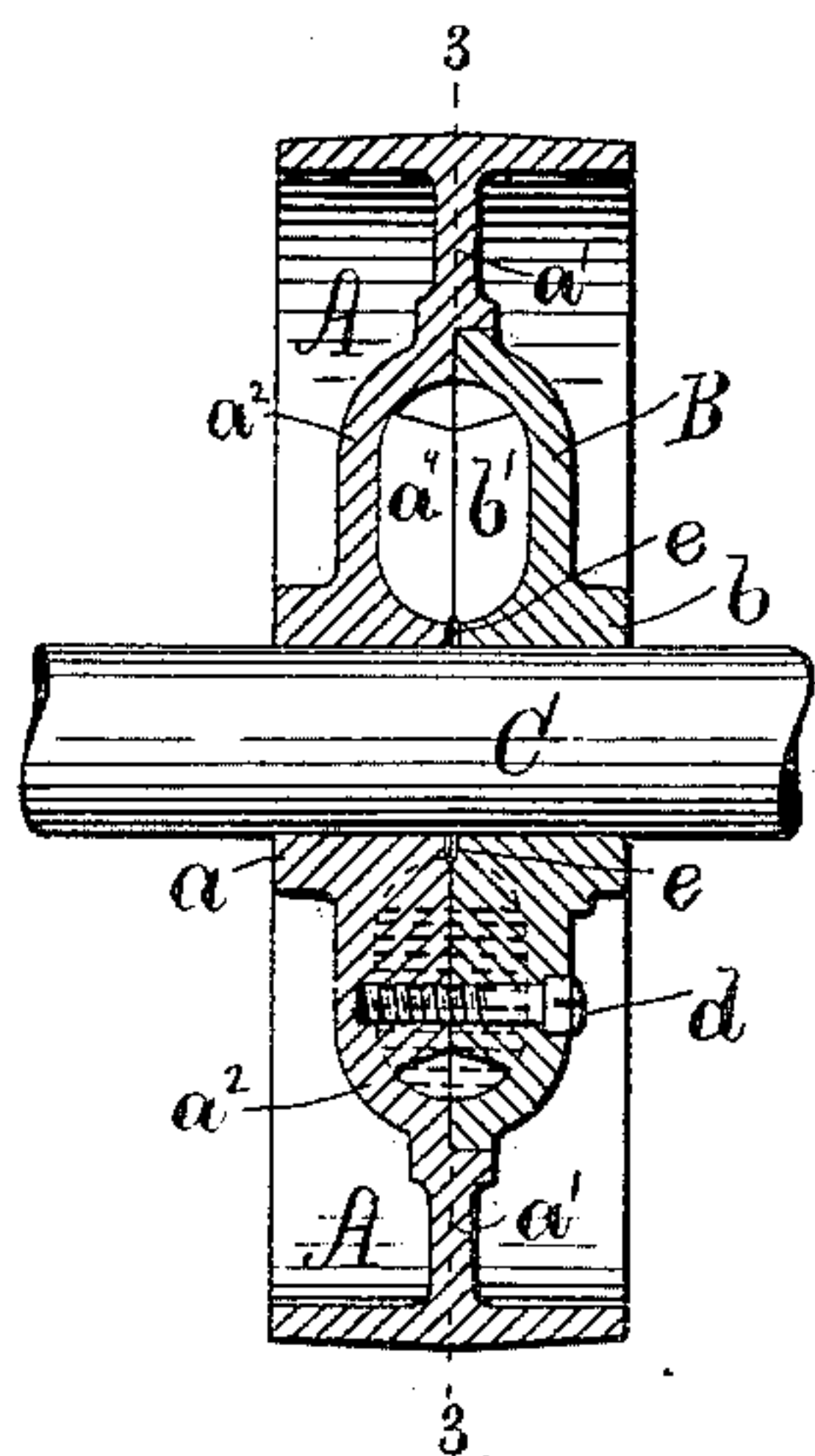


Fig. 3.

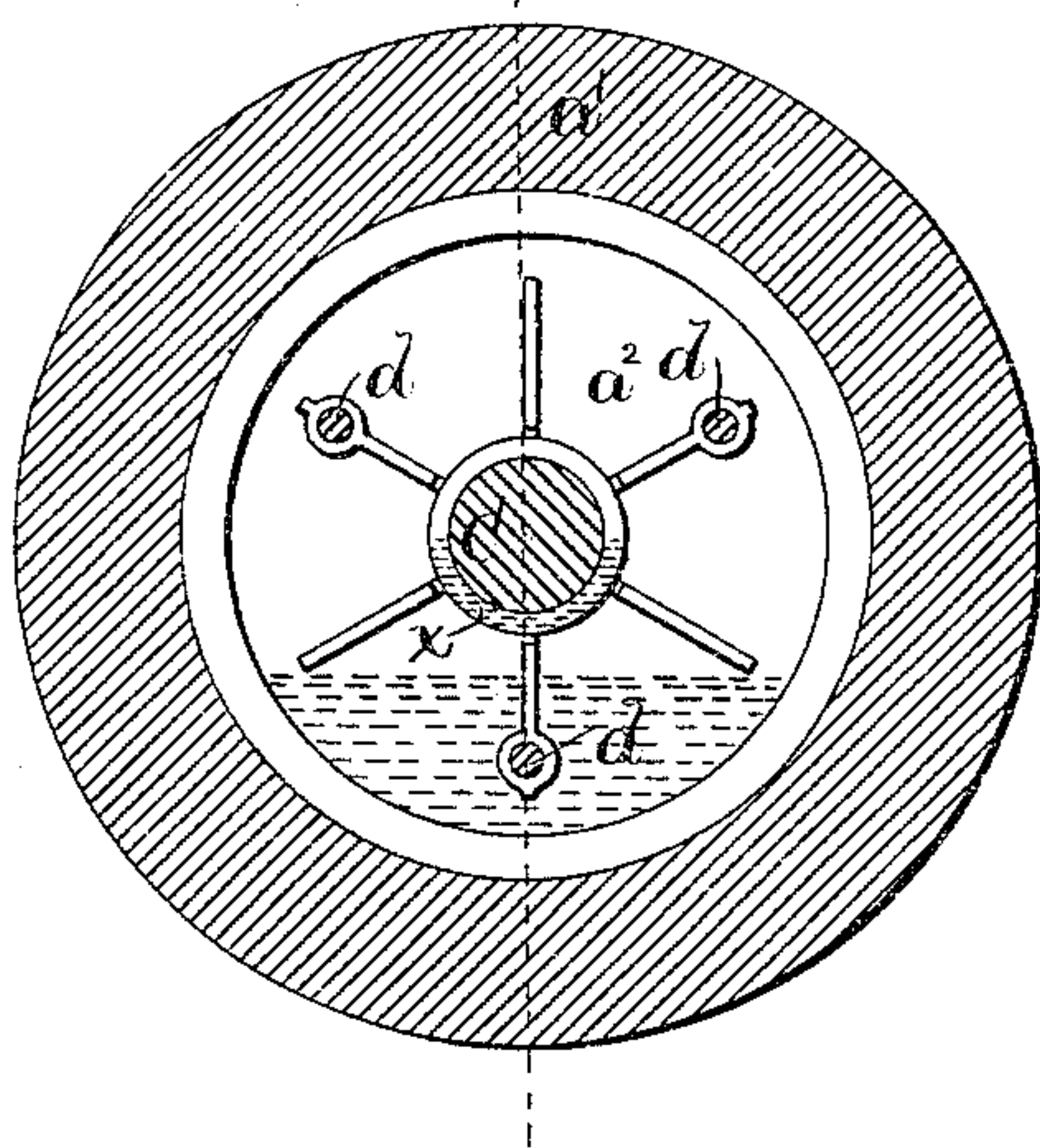


Fig. 1.

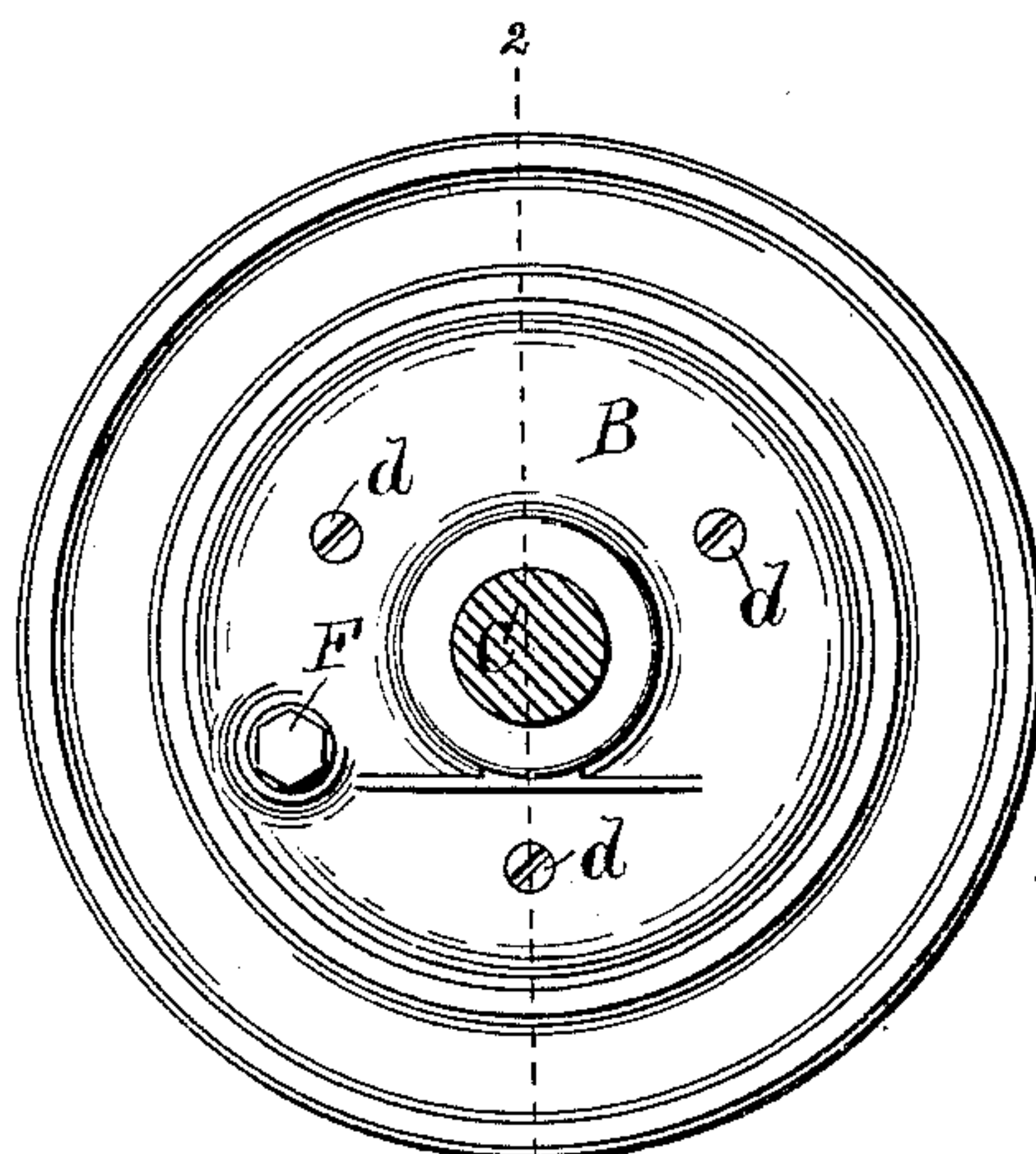
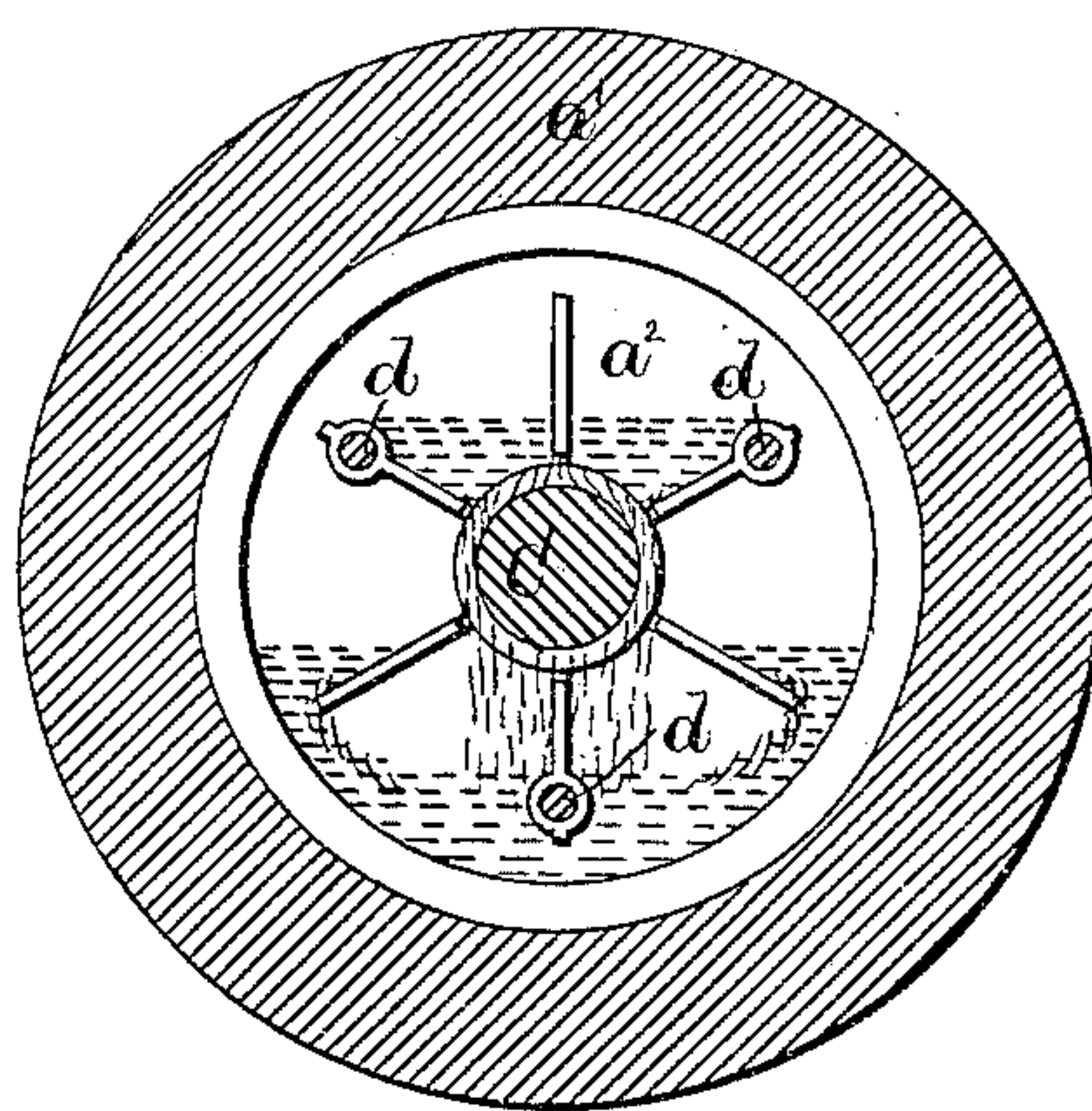


Fig. 4.



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# UNITED STATES PATENT OFFICE.

GEORGE H. SMITH, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO THE  
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## SELF-LUBRICATING LOOSE PULLEY.

SPECIFICATION forming part of Letters Patent No. 318,399, dated May 19, 1885.

Application filed April 9, 1885. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE H. SMITH, of the city and county of Providence, and State of Rhode Island, have invented a new and  
5 useful Improvement in Self-Lubricating Loose Pulleys, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

10 My invention relates to that class of pulleys which are provided with a chamber for lubricant placed in communication with the bearing, so that the pulley shall automatically lubricate its bearing.

15 The object of my invention is to provide a pulley which shall lubricate its bearing while at rest sufficiently to prevent friction and wear during a succeeding working period, and yet be free from waste.

20 To the above purpose my invention consists in certain peculiar novel features of construction and arrangement, as hereinafter described and claimed.

25 In order that my invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 is a side elevation of my improved pulley. Fig. 2 is a sectional view of the same  
30 on the line 2 2 of Fig. 1. Fig. 3 is a similar view of the same on the line 3 3 of Fig. 2, showing the condition of the lubricant at the time of starting. Fig. 4 is a similar view showing the condition of the lubricant immediately after having been stopped.

35 In the said drawings, A designates the rim of the pulley, *a* the hub, and *a'* the web. The web *a'* is formed with a swell, *a<sup>2</sup>*, and also with a shoulder, *a<sup>3</sup>*, the swell being concentric  
40 to the axis of the pulley, and the shoulder being annular and surrounding the margin of the swell. Upon the inner side of the web are formed a series of half-partitions, *a<sup>4</sup>*, extending radially from the axis and terminating  
45 somewhat short of the outer margin of the swell.

B designates a separate portion of the pulley, which is formed with a hub, *b*, and with a swell which is the counterpart of the swell  
50 *a<sup>2</sup>* upon the web *a'*. Upon its inner side the

separate piece B is formed with a series of half-partitions, *b'*, corresponding in number, position, and extent with the half-partitions *a<sup>4</sup>* of the web *a'*. The outer margin of the separate piece B fits tightly under the shoulder *a<sup>3</sup>*  
55 of the web *a'*.

C designates the shaft upon which the pulley is mounted. The separate piece B is secured to the web of the pulley by a number of  
60 screws, *d*, which pass through the ends of certain of the half-partitions, and when said separate piece is properly secured a slight space, *e*, will be left between the contiguous faces of the hubs *a* *b*, by means of which the lubricant in the chamber formed by the swells of the  
65 web and separate piece will be conveyed to the bearing.

F designates a plug, which closes a filling-opening in the side of the pulley. Now, the pulley is placed in the position shown in Figs. 70  
1 and 4, and the lubricant is filled into the chamber through the filling-opening up to a level with the lower edge of said opening. The plug F is now inserted and the pulley is  
75 started. As the pulley runs, the oil will be forced centrifugally outward against the edge of the chamber, and will circulate over the outer ends of the partitions *a<sup>4</sup> b'*. When the pulley stops, a portion of the oil will settle in the lower part of the chamber, while the remainder  
80 of the oil will settle between the two uppermost partitions, and be drawn by capillary action through the channel or space *e*, and thence to the bearing of the pulley; hence it will be seen that the pulley lubricates itself suffi-  
85 ciently for its next working period. After the pulley has remained at rest for some little time, all superfluous oil will fall back into the lower part of the chamber; but some of the oil will be held by capillary action around the  
90 shaft, as shown at X in Fig. 3. Thus it will be seen that the pulley is exceedingly economical in its use of oil, and that no waste of oil can occur.

Having thus described my invention, I claim 95  
as new and desire to secure by Letters Patent—

1. In a self-lubricating loose pulley, the space or channel *e*, the oil-chamber, and the partitions terminating short of the margin of said chamber, as described.

2. The combination, with the web  $a'$ , having the rim A, hub  $a$ , and swell  $a^2$ , with the half-partitions  $a^4$ , of the separate piece B, having the swell, the hub  $b$ , and half-partitions  $b'$ , as set forth.

3. The combination, with the web  $a'$ , having swell  $a^2$ , with its half-partitions  $a^4$ , the rim A, hub  $a$ , and shoulder  $a^3$ , of the separate piece B, with its swell and half-partitions  $b'$ , and the screws  $d$ , as specified.

4. The combination, with the web  $a'$ , having rim A, hub  $a$ , swell  $a^2$ , shoulder  $a^3$ , and half-partitions  $a^4$ , of the separate piece B, having its swell and hub  $b$ , and half-partitions  $b'$ , the screws  $d$ , and the filling-opening with its plug F, as described.

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Witnesses:

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