

(No Model.)

2 Sheets—Sheet 1.

E. OLSON.  
SPIRIT LEVEL.

No. 516,898.

Patented Mar. 20, 1894.

*Fig. 1*

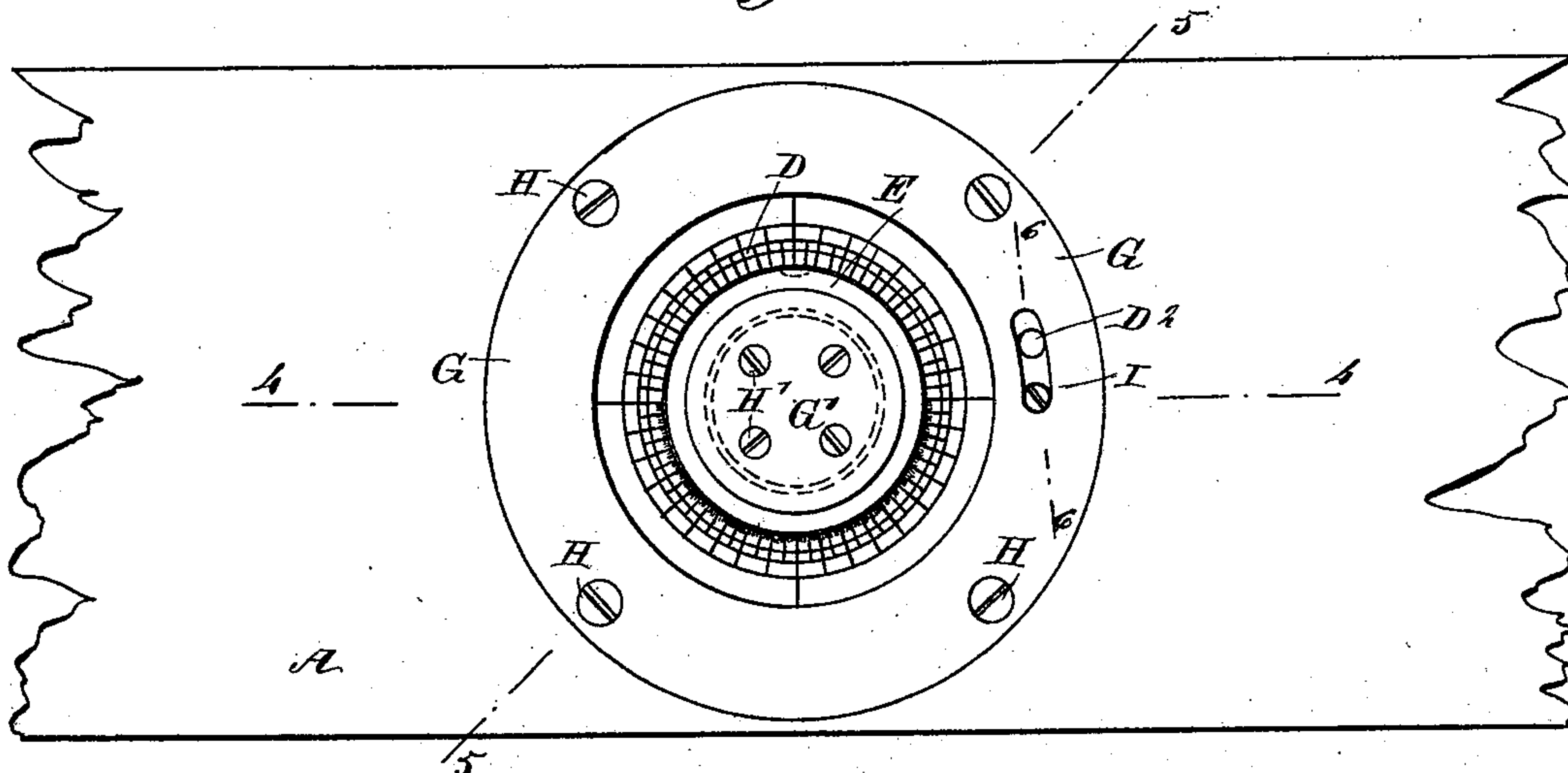
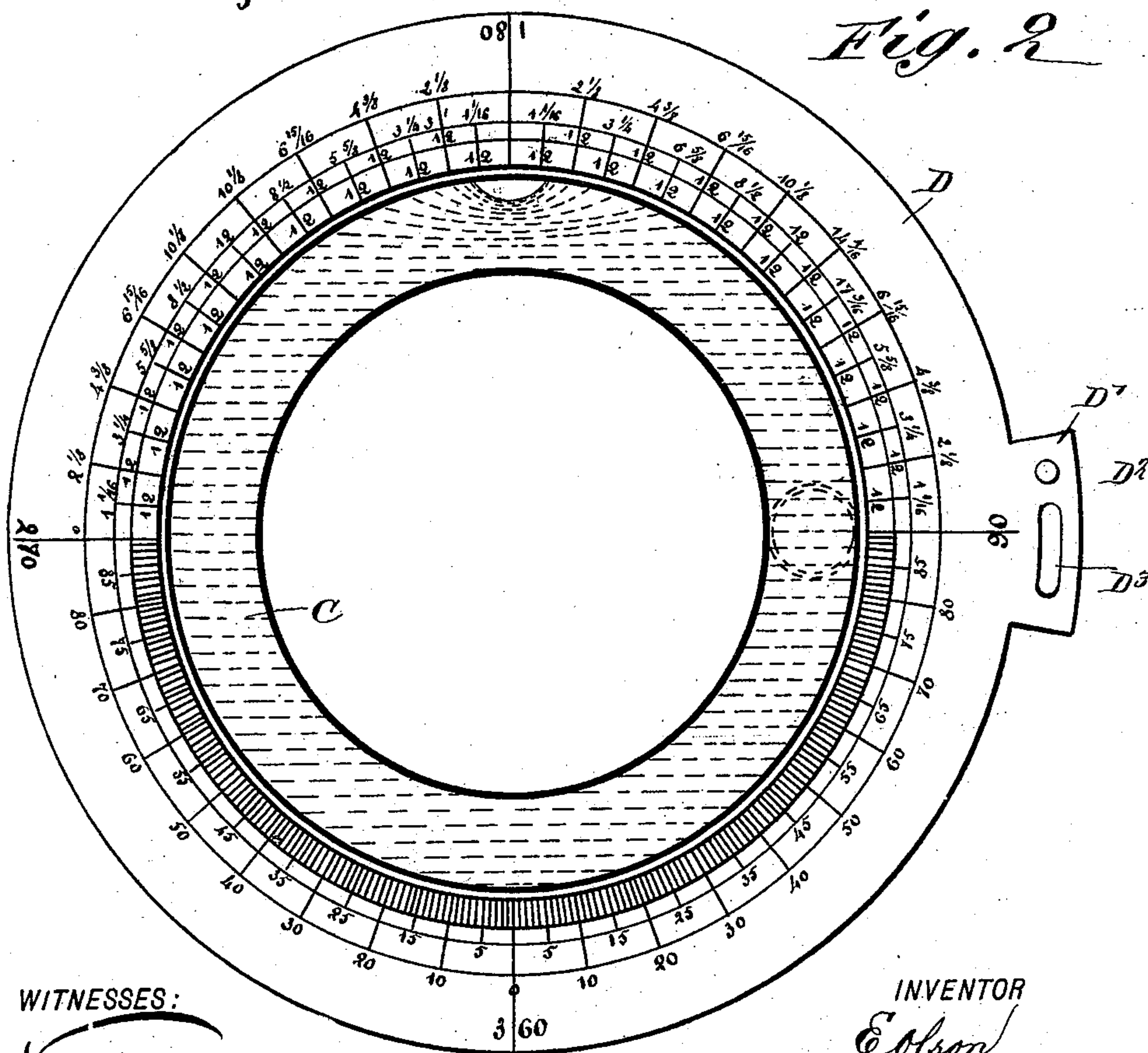


Fig. 2



**WITNESSES:**

C. Neveu  
L. Sodgwick

**INVENTOR**

E. Olson

BY

BY *Munn & Co*  
ATTORNEYS.

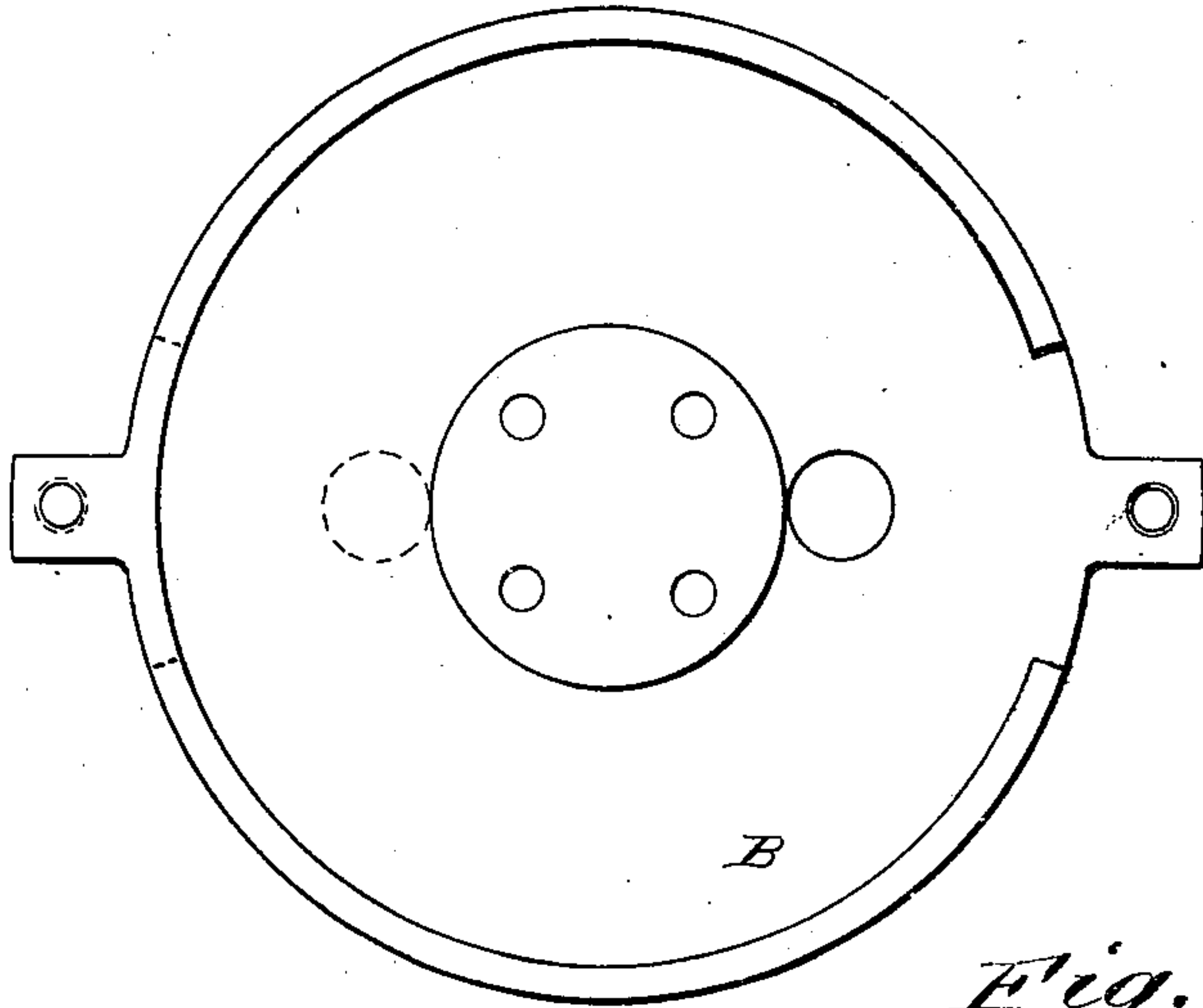
THE NATIONAL LITHOGRAPHING COMPANY.  
WASHINGTON, D. C.

E. OLSON.  
SPIRIT LEVEL.

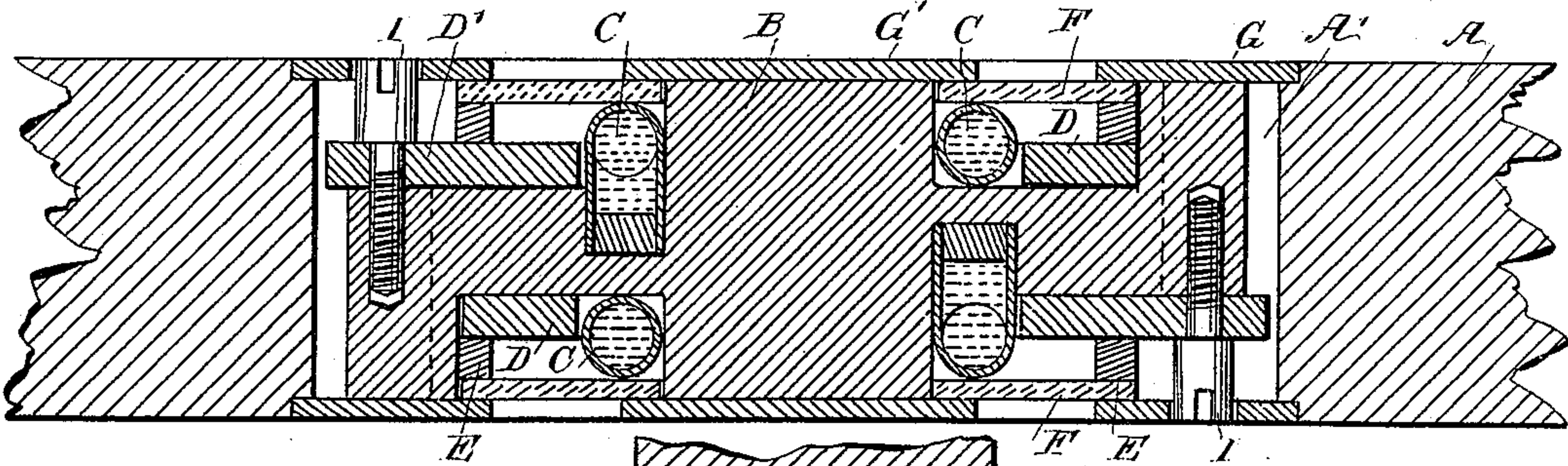
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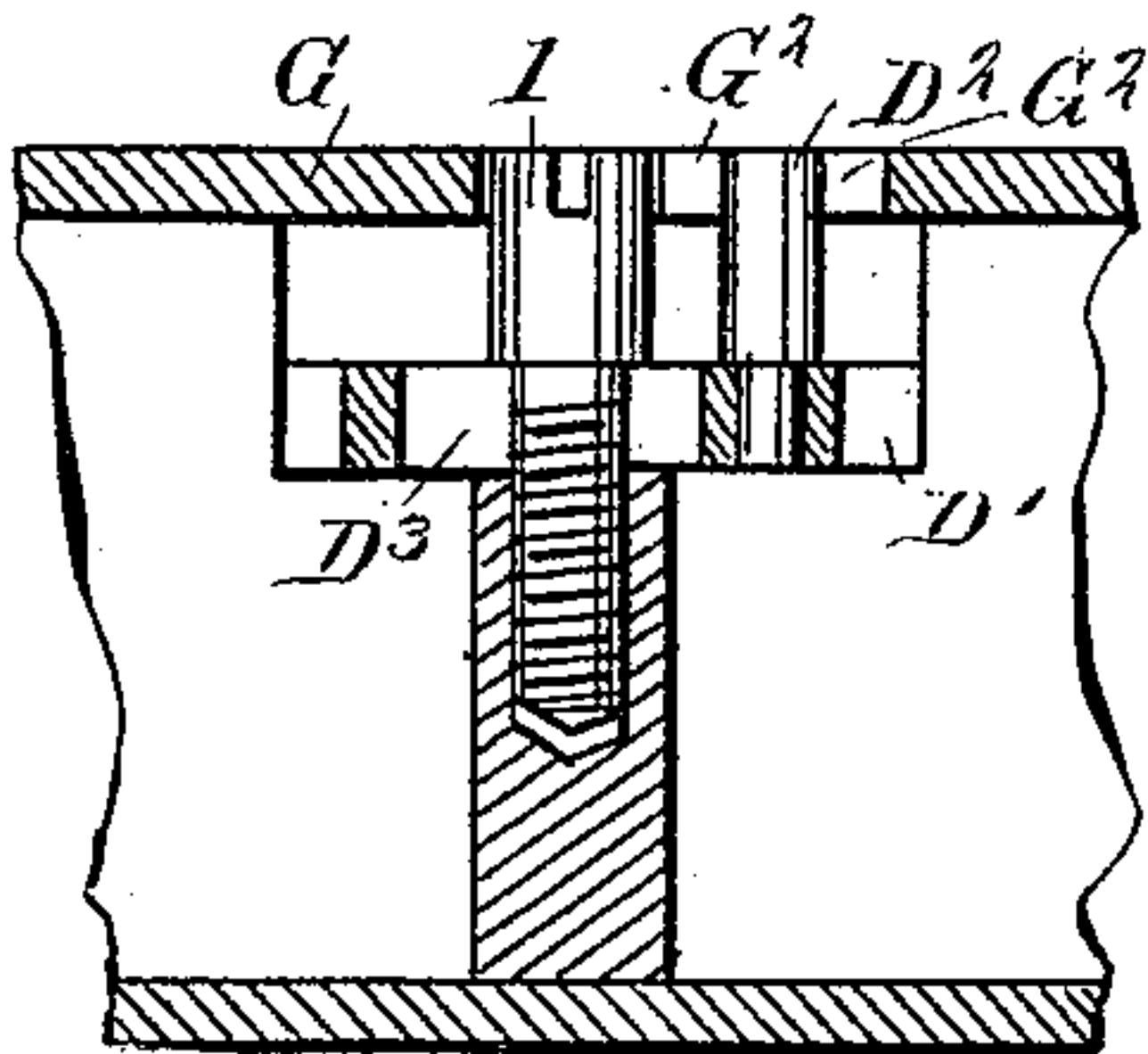
*Fig. 3*



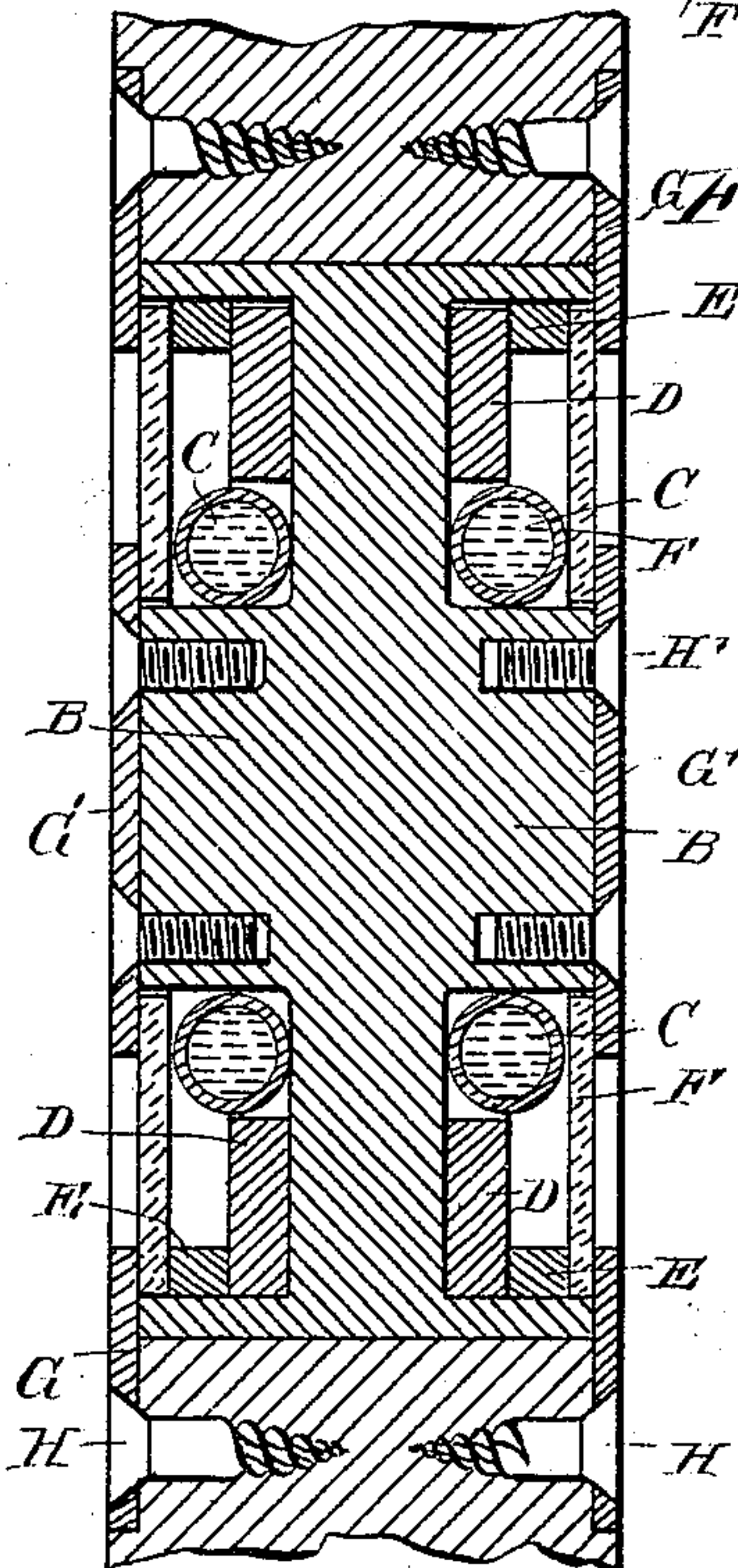
*Fig. 4*



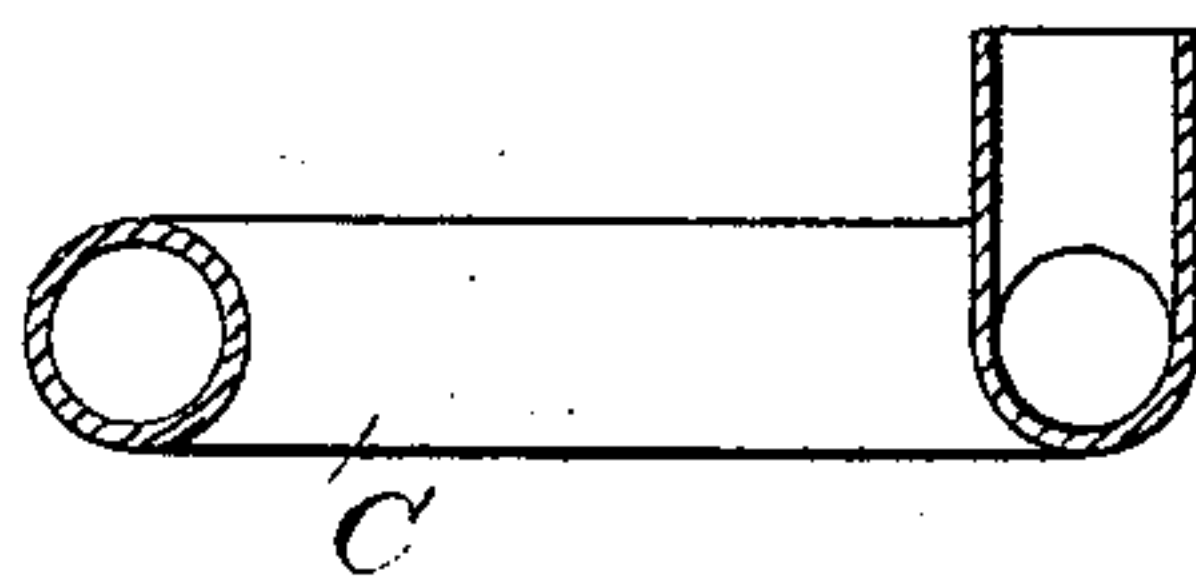
*Fig. 6*



*Fig. 5*



*Fig. 7*



WITNESSES:

*C. N. N. N.*  
*C. Seelgwick*

INVENTOR

*E. Olson*

BY

*Munn & Co.*  
ATTORNEYS.



# UNITED STATES PATENT OFFICE.

ERIK OLSON, OF NEIHART, MONTANA.

## SPIRIT-LEVEL.

SPECIFICATION forming part of Letters Patent No. 516,898, dated March 20, 1894.

Application filed June 3, 1893. Serial No. 476,512. (No model.)

*To all whom it may concern:*

Be it known that I, ERIK OLSON, of Neihart, in the county of Meagher and State of Montana, have invented a new and Improved  
5 Level, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved level, which is simple and durable in construction, very effective in operation, and more especially designed for use  
10 of carpenters and other mechanics, to enable them to readily find the desired level, plumb, angle and bevel, of any given object.

The invention consists principally of a disk  
15 secured to the stock and carrying a graduated ring, and a cylindrical tube secured to the said disk next to the said ring, the said tube being filled with a liquid having a bubble indicating on the graduation of the said ring.

20 The invention also consists of certain parts and details, and combinations of the same, as will be hereinafter described and then pointed out in the claims.

Reference is to be had to the accompanying  
25 drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the improvement. Fig. 2 is an enlarged side elevation  
30 of the graduated ring and spirit tube. Fig. 3 is a side elevation of the disk. Fig. 4 is a sectional plan view of the improvement on the line 4—4 of Fig. 1. Fig. 5 is a transverse section of the same on the line 5—5 of Fig.  
35 1. Fig. 6 is a sectional plan view of the means for adjusting the graduated ring; and Fig. 7 is a sectional plan view of one of the spirit tubes.

The improved level is provided with the  
40 usual stock A, formed at or near its middle with a transverse aperture A', in which is fitted a disk or wheel B, secured to the stock A by lugs projecting from the disk, as plainly shown in Fig. 3.

45 Around the hub of the disk B and on opposite sides of the web thereof are arranged cylindrical tubes C, each containing a liquid such as spirit or mercury, having a bubble to indicate on a graduation arranged on a  
50 ring D, held against the corresponding face of the web of the disk B, as will be readily

understood by reference to Figs. 4 and 5. Each graduated ring D is held in place on the corresponding face of the web of the disk by an elastic ring E, on the front surface of which  
55 rests a glass ring F, extending from the hub of the disk B to the inner surface of the rim thereof, as will be readily understood by reference to Figs. 4 and 5. This glass ring F lies in front of the glass tube C, the latter  
60 being arranged on the inner edge of the graduated ring D, so that the bubble in the spirit or mercury in the said tube is readily visible from the outside, to permit the operator to read off the position of the bubble on the  
65 graduation. Each glass ring F is held in place by a covering ring G, secured by screws H to the stock A, the inner edge of each glass ring F being engaged by a covering disk G',  
70 secured by screws H' to the face of the hub of the disk B. Thus, through the annular space formed between the disk G' and the ring G, the operator is enabled to view the position of the bubble in the corresponding  
75 glass tube C, it being understood that the bubble is visible through the glass ring forming a back for the space between the disk G' and the ring G.

In order to properly set each graduated ring D, I provide the same with a pin D<sup>2</sup>, (see Figs. 80  
1 and 6) extending outwardly into a segmental slot G<sup>2</sup>, formed in the ring G the said pin being secured on an extension D', of the ring D as illustrated in Fig. 2. A bolt I, passes through the slot G<sup>2</sup> and through a slot D<sup>3</sup>, in  
85 the extension D' of the ring D, to finally screw into the rim of the disk B, so as to fasten the graduated ring D in place against the face of the disk B, it being understood that when the screw I is loosened, the operator by taking  
90 hold of the pin D<sup>2</sup>, can turn the disk D so as to set the graduation thereof in proper position relative to the bottom and top sides of the stock A. As soon as the desired position has been obtained, the screws I are  
95 screwed down to fasten the rings D securely in place.

The graduation on each of the rings D is illustrated in detail in Fig. 2, and is formed  
100 on concentric circles of which the lower half indicates degrees and subdivisions while the upper half indicates bevels, cuts and pitches



corresponding to the degree indicated by the bubble on changing the position of the stock A from a horizontal to an inclined position.

As illustrated in Fig. 7, each of the tubes  
5 C is provided with a filling extension adapted to be closed by a cork after the tube is filled, as will be readily understood without further description.

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

1. An instrument of the class described, comprising a disk adapted to be secured to the stock, a graduated ring held on the web  
15 of the said disk, and a cylindrical tube surrounding the hub of the said disk and arranged on the inner edge of the said ring, the said tube being filled with a liquid having a bubble indicating on the said graduated  
20 ring, substantially as shown and described.

2. An instrument of the class described, comprising an apertured stock, a disk secured therein, a graduated ring held on the web of the said disk, means for adjusting

the said ring on the said disk, and a cylindrical tube arranged around the hub of the  
25 said disk on the inner edge of the said graduated ring, the said tube being filled with a liquid having a bubble indicating on the said  
30 ring, substantially as shown and described.

3. An instrument of the class described, comprising an apertured stock, a disk secured therein, a graduated ring held on the  
35 web of the said disk, means for adjusting the said ring on the said disk, a cylindrical tube arranged around the hub of the said disk on the inner edge of the said graduated ring, the said tube being filled with a liquid having a bubble indicating on the said ring, a  
40 glass ring for covering the said tube and graduated ring, and a cover disk and ring for holding in place the said glass ring, substantially as shown and described.

ERIK OLSON.

Witnesses:

CARL J. ORSTRUM,  
JOHN MYERS.