

(No Model.)

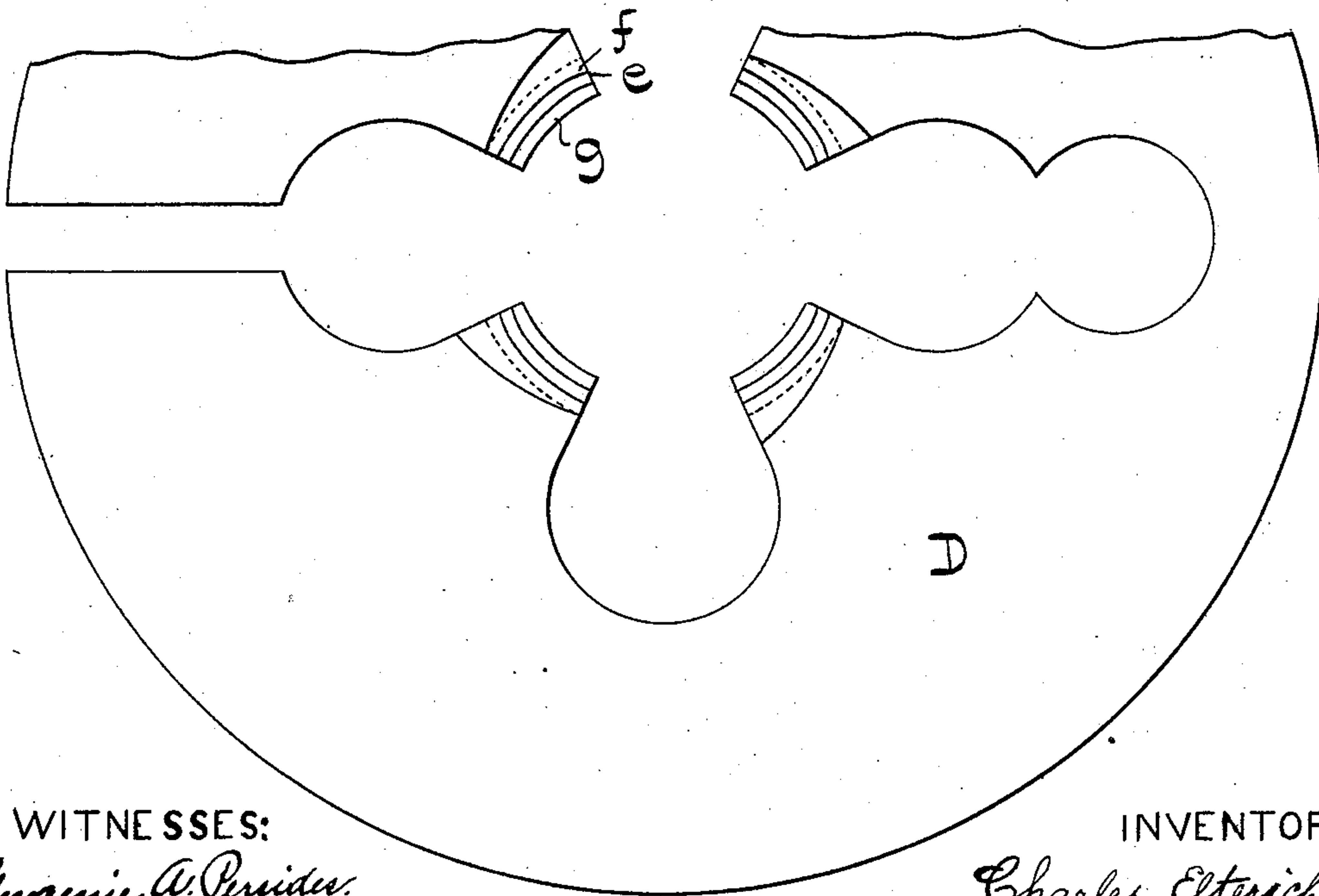
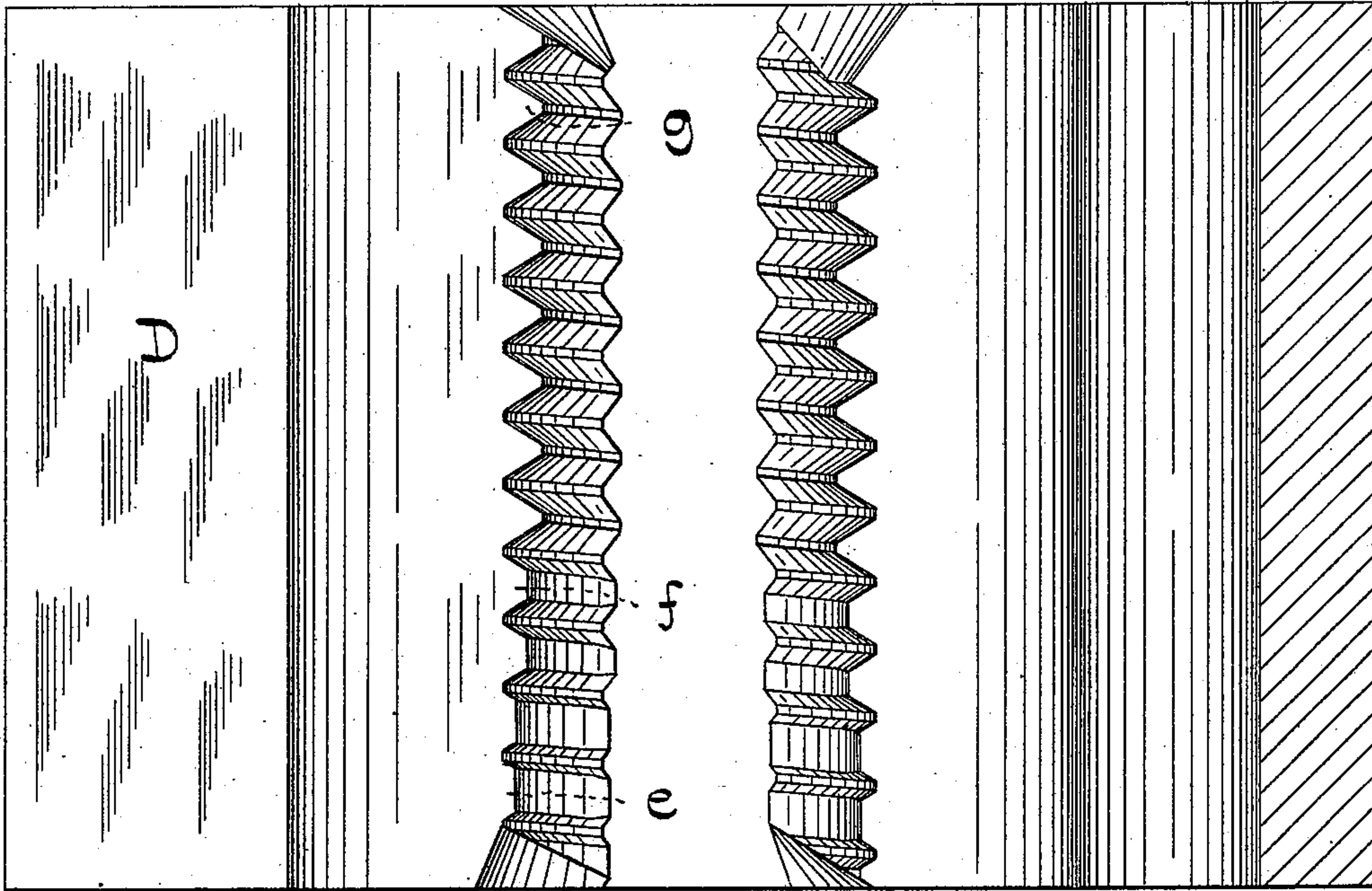
2 Sheets—Sheet 1.

C. ELTERICH.
THREAD CUTTING IMPLEMENT.

No. 574,721.

Patented Jan. 5, 1897.

Fig. 1.



WITNESSES:

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H. Faber du Faur

Fig. 2.

INVENTOR:

Charles Elterich,
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ATTORNEY.

2 Sheets—Sheet 2.

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Fig. 3.

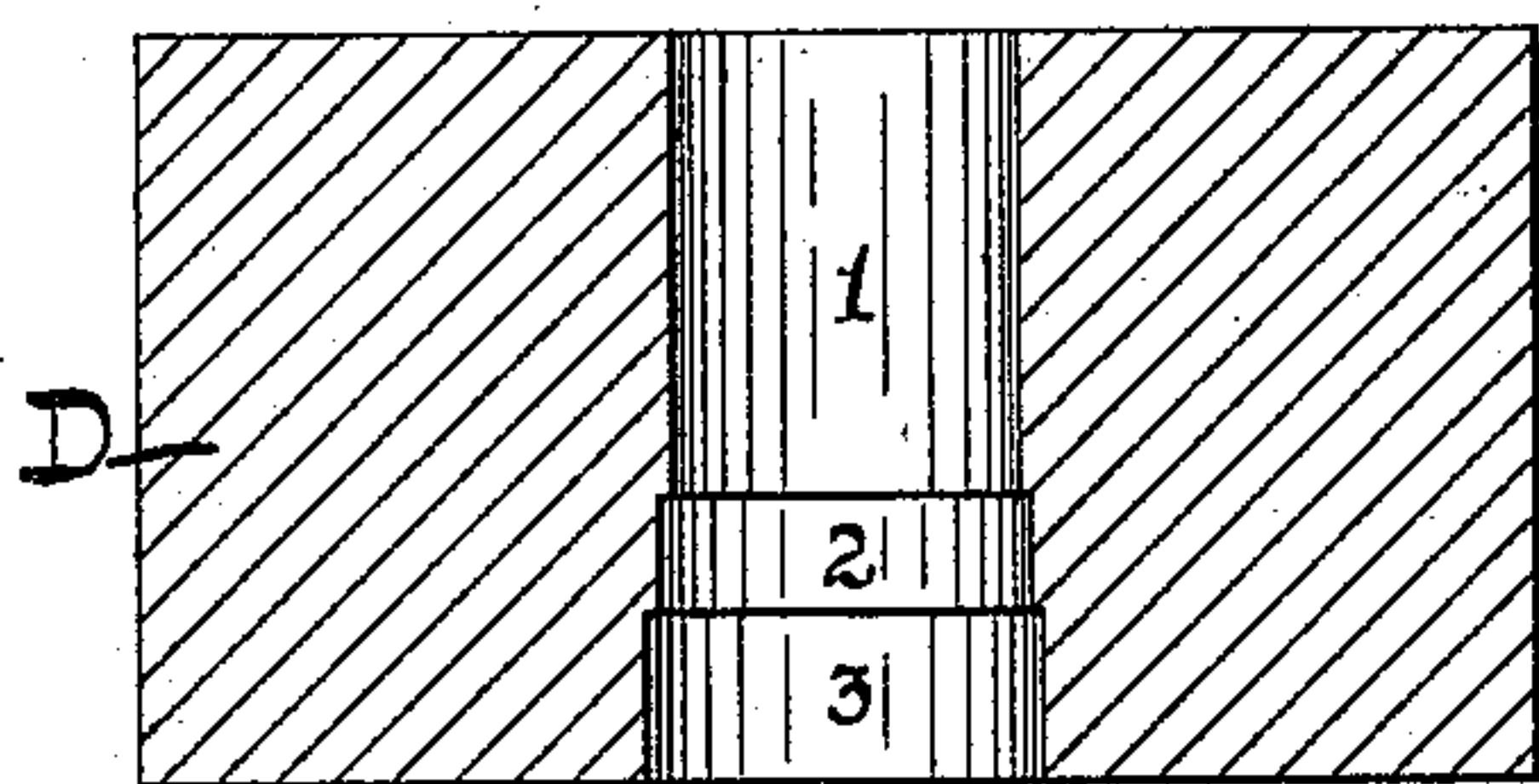
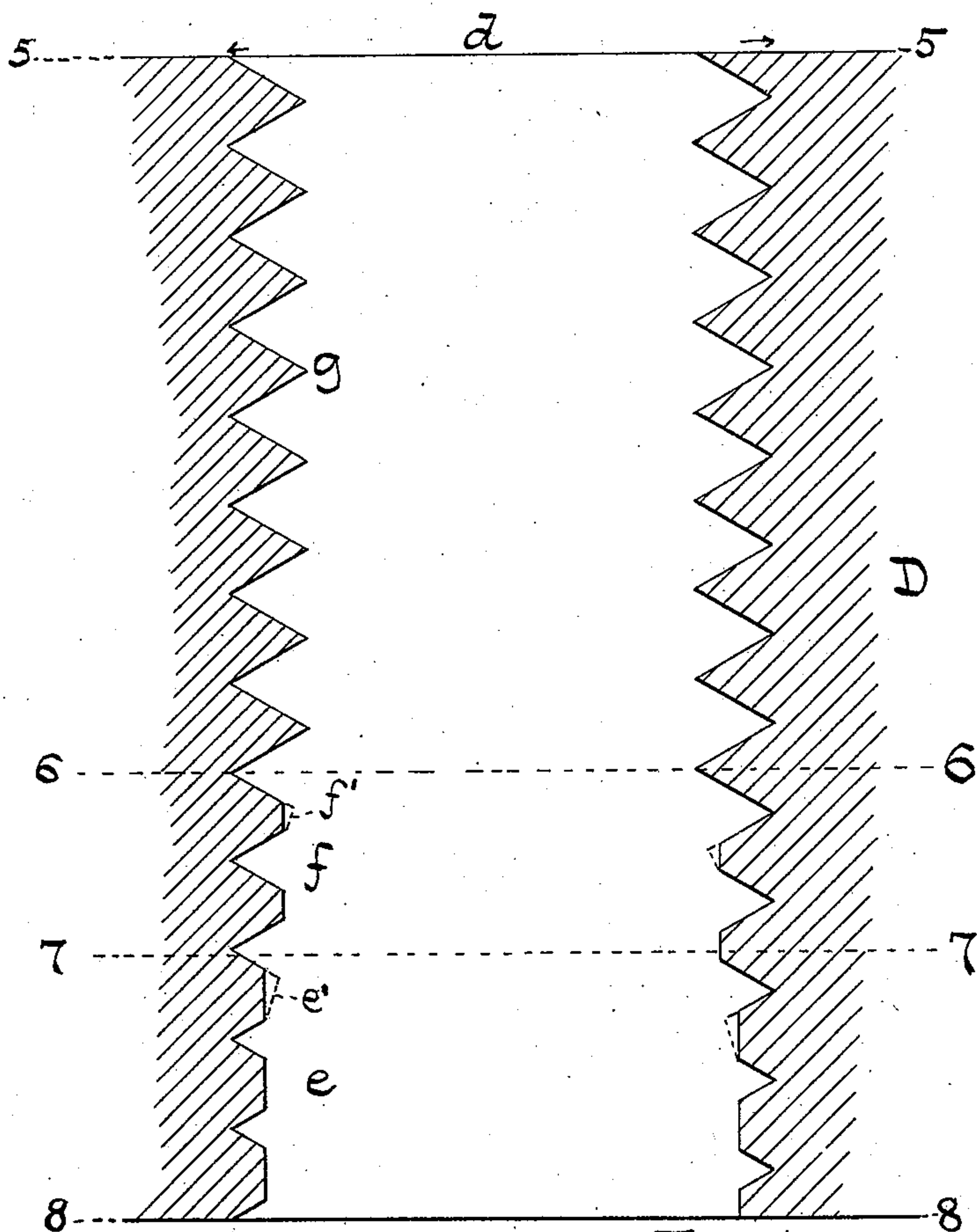
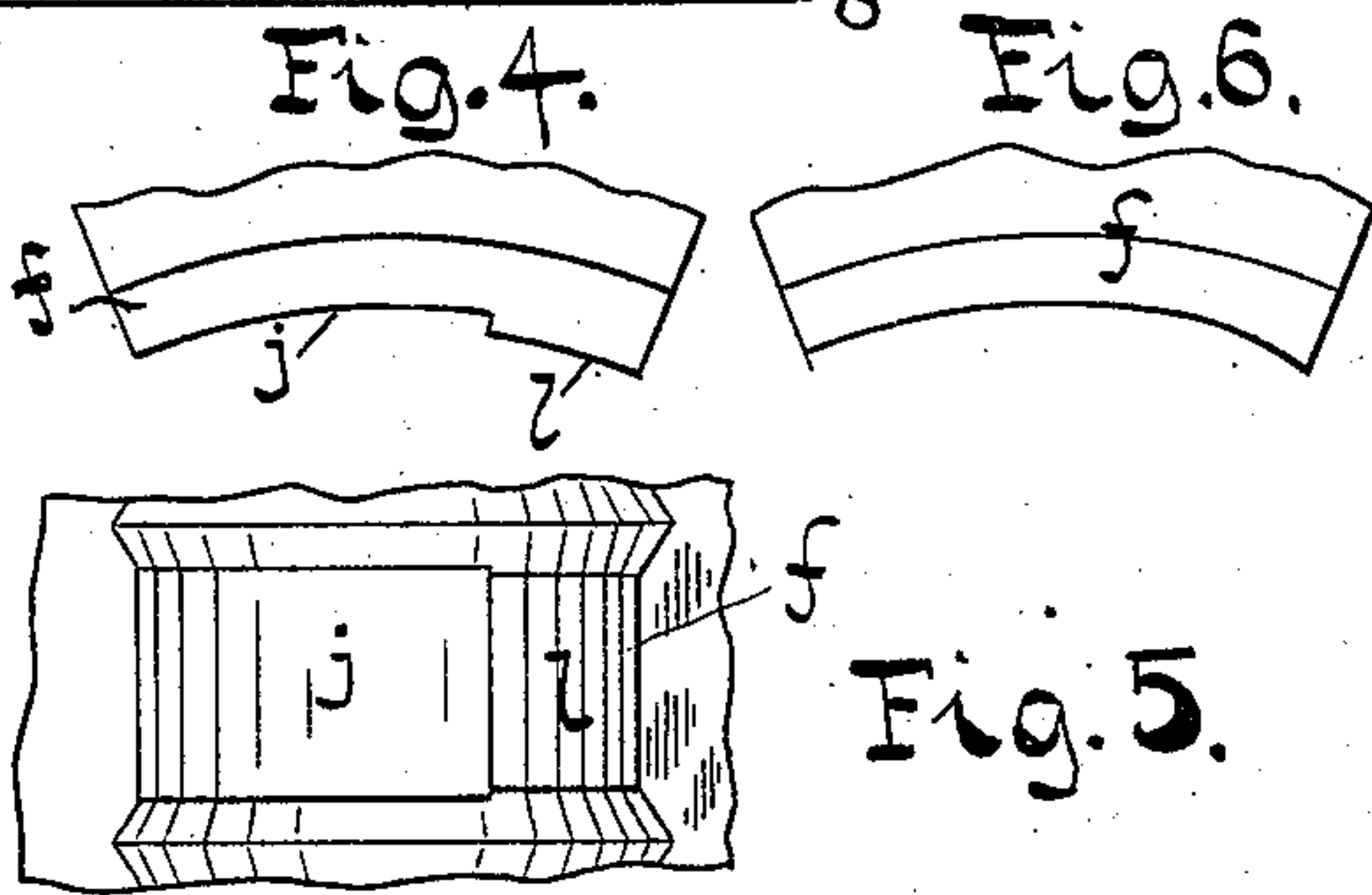


Fig. 7.

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UNITED STATES PATENT OFFICE.

CHARLES ELTERICH, OF NEW YORK, N. Y.

THREAD-CUTTING IMPLEMENT.

SPECIFICATION forming part of Letters Patent No. 574,721, dated January 5, 1897.

Application filed January 14, 1896. Serial No. 575,441. (No model.)

To all whom it may concern:

Be it known that I, CHARLES ELTERICH, a citizen of the United States of America, and a resident of New York, in the county and State of New York, have invented certain new and useful Improvements in Thread-Cutting Implements, of which the following is a specification.

My invention has reference to improvements in thread-cutting dies; and it has for its object to provide an implement of this character adapted for the purpose of cutting a perfect continuous thread and one which can be used for a long time without appreciable wear. To this end I construct the implement with a cutting-thread of substantially constant diameter at its bottom, the top of the thread being cut away at the entering end and gradually increased by steps of one or more substantially flat-top teeth toward the finishing end.

The nature of my invention will best be understood when described in connection with the accompanying drawings, in which—

Figure 1 represents a vertical section, on an enlarged scale, of a die embodying my invention. Fig. 2 is a bottom view, part being broken away. Fig. 3 is a diagrammatic view illustrating the construction of the cutting-thread. Figs. 4, 5, and 6 are detail views illustrating the manner of constructing clearance for the cutting-thread. Fig. 7 is a central cross-section showing the shape of the orifice in the die before forming the thread.

Similar letters and numerals of reference designate corresponding parts throughout the several views of the drawings.

Referring at present to Figs. 3 and 7 of the drawings, I shall now proceed to describe the manner of constructing the die, which is as follows: Into a suitably-formed steel blank D is drilled and reamed a hole having the stepped portions 1, 2, and 3. This hole is tapped out with a suitable tap, and the thread produced is then in the form shown in Fig. 3, it having a substantially uniform diameter *d* at its bottom, while its inner diameter is stepped. The portion of the thread between the lines 5 5 and 6 6 represents the finishing portion of the die, and in this portion the thread is of the full standard size. The portion of the thread between the lines 7 7 and

8 8 represents the entering portion of the thread, and in this portion the top of the thread is cut away or reduced and the hole thereby made larger. The intermediate portion, that is, the portion between the lines 6 6 and 7 7 is also reduced at its top, but the diameter at the top of these teeth is smaller than that of the top of the teeth between the lines 7 7 and 8 8. The die, as described, therefore consists of a series of gradually-increasing portions *e*, *f*, and *g*, composed of one or more substantially flat-top teeth, so that the material acted upon is gradually cut away up to the finishing portion *g*, while the successive portions always cut outwardly from the base-line of the thread. If desired, intermediate taper portions, as *e' f'*, as indicated by dotted lines in Fig. 3, may be introduced to facilitate the cutting.

In practice I remove a portion of the die at the entering end of the same, as shown in Figs. 1 and 2, to facilitate entering, while a like removal may be made at the finishing end to enable the die to be reversed for the usual purpose. To provide for clearance, I first back off the teeth, as at *j*, with a suitable cutter, as shown in Figs. 4 and 5, and then file down the portion *l* to obtain the shape shown in Fig. 6.

The die is finished in the usual manner.

With the present construction of die I obtain a perfect thread, which is smooth and solid and is not expanded or stretched bodily. The thread not being stretched by the die, it possesses the full strength of the material. All the known dies produce more or less stretching of the threads, and the pitch is thereby increased from the standard. Furthermore, in my present construction the diameter of the shank at the terminal threads is gradually increased, thereby producing bolts of extraordinary strength at the usual weak point.

The cutting action of a die embodying my invention may be described as quite similar to the action of the thread-cutting tool in a lathe in making a succession of cuts.

While I have herein stated that the base-line of the threads must be substantially uniform in diameter I do not wish to be understood that the said base-line cannot be slightly taper.

It is of course to be understood that in adapting the invention to dies for cutting threads on pipes, where a taper-thread is usually formed, the base-line of the thread must
5 have a constant taper corresponding to that of the stepped cutting-line.

What I claim as new is--

1. A die whose cutters are formed from a thread, the base-line of which is substantially
10 straight from bottom to top of said die; the top of the thread being cut away at the entering end and gradually increased by steps consisting of one or more substantially flat-top teeth to the finishing end, substantially
15 as described.

2. A die whose cutters are formed from a thread, the base-line of which is substantially straight from bottom to top of said die; said thread having its top cut away at its entering
20 end, but having its full width at the base-line, and said thread being gradually increased toward its apex by steps consisting of one or more substantially flat-top teeth, substantially as described.

3. A die whose cutters are formed from a
25 thread, the base-line of which is substantially straight from bottom to top of said die, and having its top cut away at the entering end and gradually increased by steps of one or more substantially flat-top teeth; the backs
30 of said teeth being cleared circumferentially backward and tapered from the clearance portion to the cutting edge, substantially as described.

4. A die provided with a cutting-thread of
35 constant taper at its base-line; the top of the thread being cut away at the entering end and gradually increased by steps consisting of one or more substantially flat-top teeth to the finishing end, substantially as described.
40

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 24th day of December, 1895.

CHAS. ELTERICH.

Witnesses:

A. FABER DU FAUR, Jr.,
G. W. EISENBRAUN.