

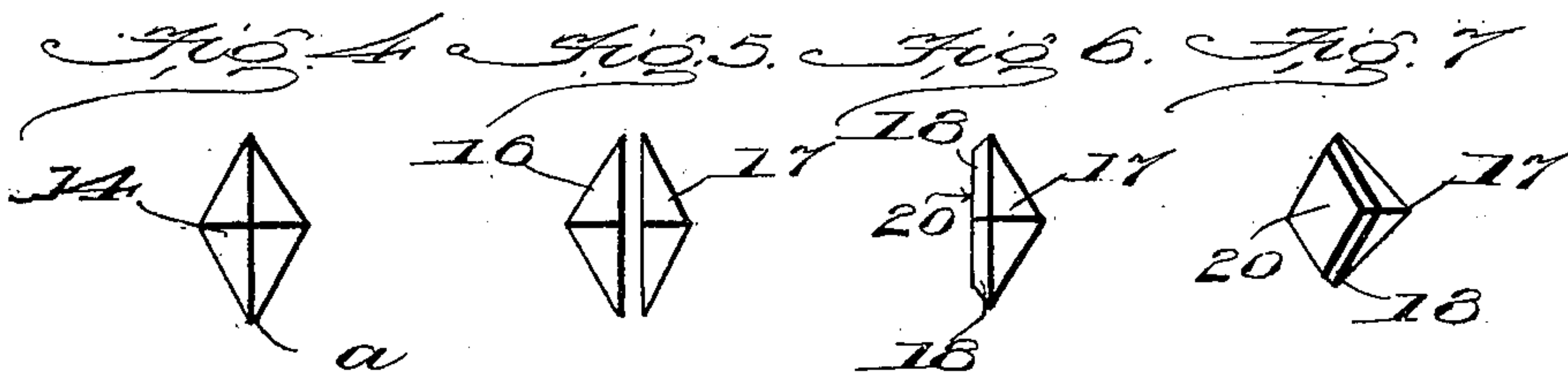
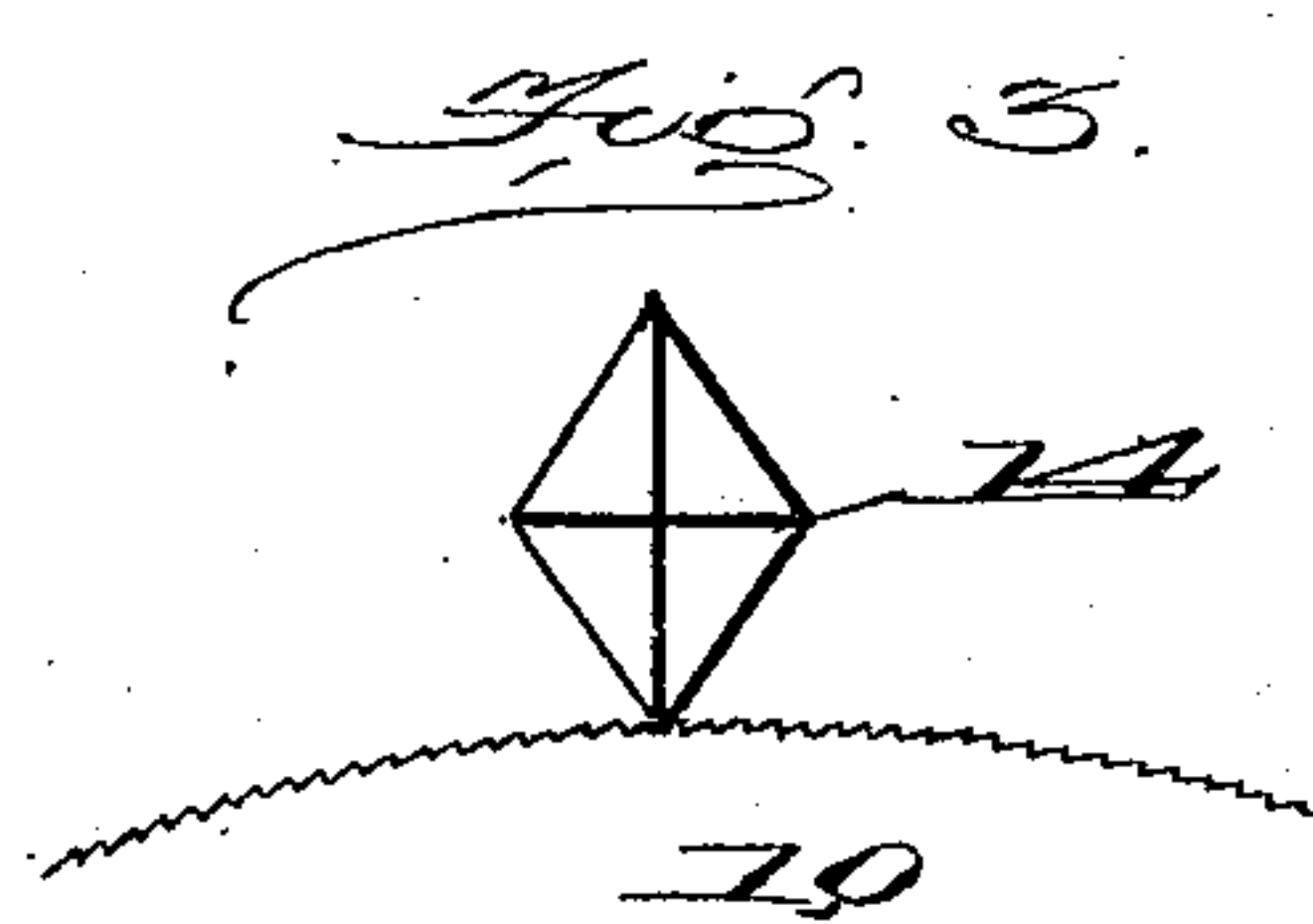
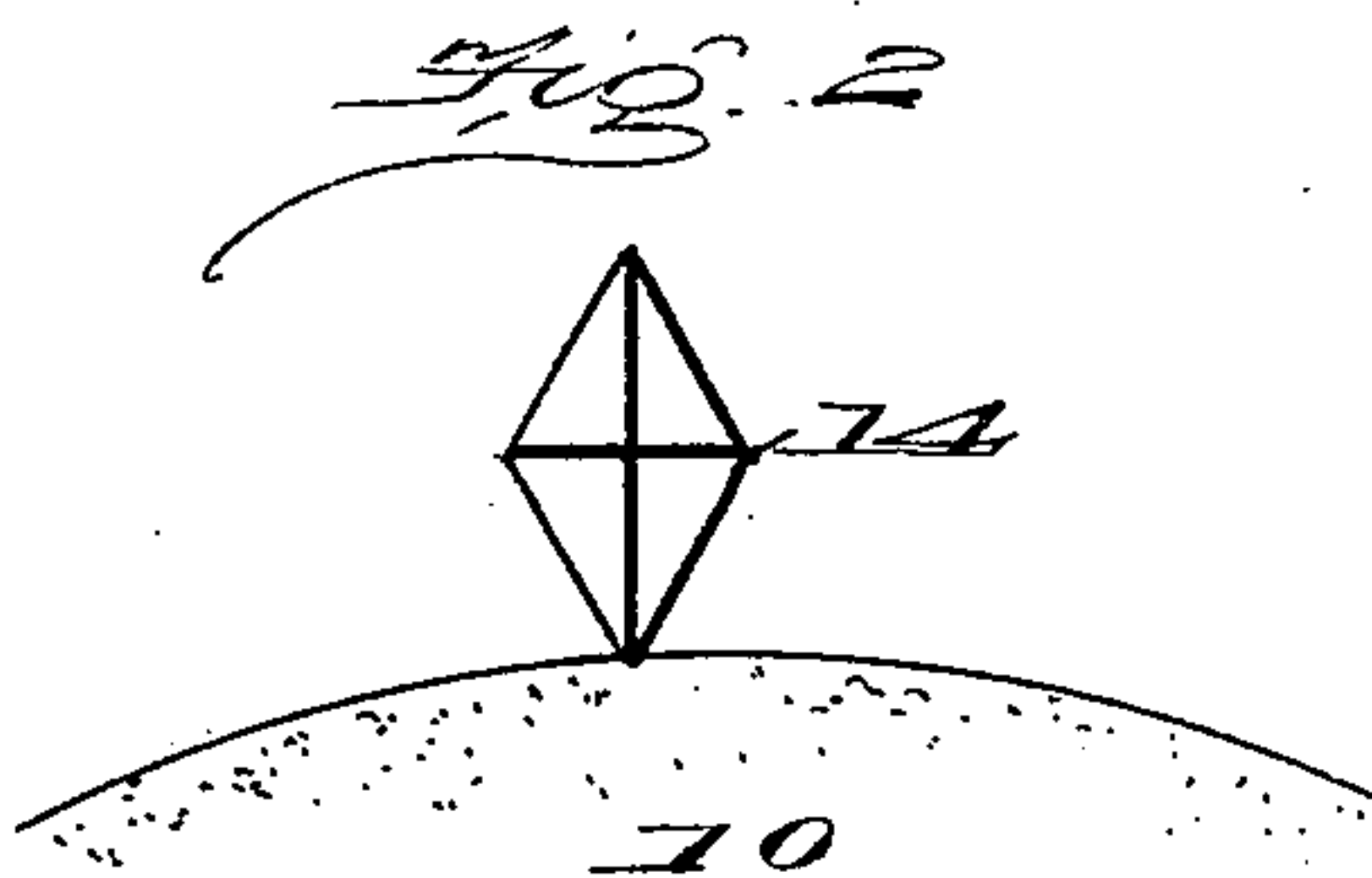
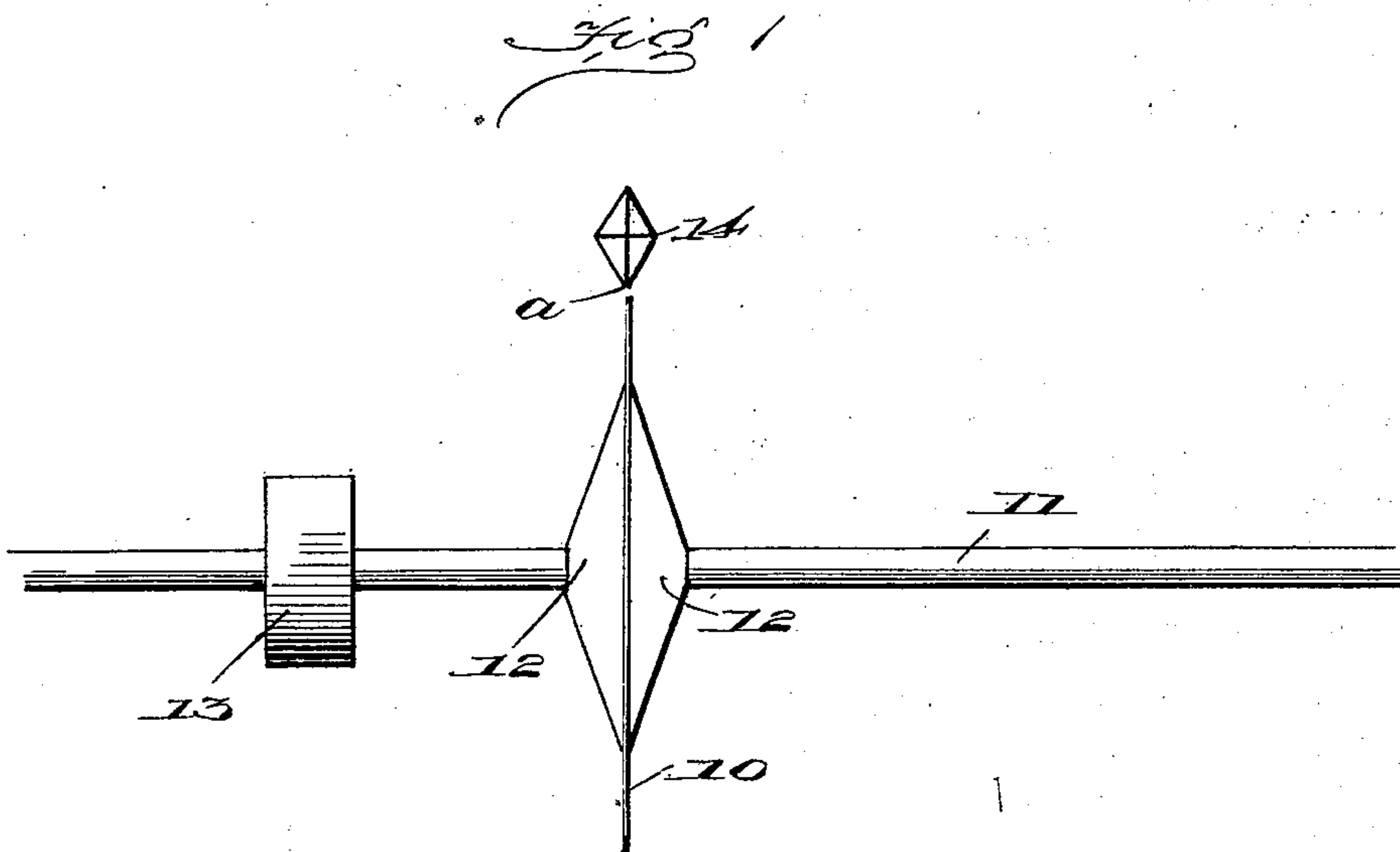
No. 694,215.

Patented Feb. 25, 1902.

J. H. G. STUURMAN.  
METHOD OF CUTTING DIAMONDS.

(Application filed Dec. 5, 1901.)

(No Model.)



Inventor  
John H. G. Stuurman

Witnesses

*Wm. J. Berth.*  
*A. G. Neumann.*

By *Vieta J. Evans*  
Attorney

# UNITED STATES PATENT OFFICE.

JOHN H. G. STUURMAN, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-HALF TO HERMAN A. GROEN AND JOSEPH GROEN, OF NEW YORK, N. Y.

## METHOD OF CUTTING DIAMONDS.

SPECIFICATION forming part of Letters Patent No. 694,215, dated February 25, 1902.

Application filed December 5, 1901. Serial No. 84,859. (No specimens.)

*To all whom it may concern:*

Be it known that I, JOHN H. G. STUURMAN, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Methods of Cutting Diamonds, of which the following is a specification.

In shaping or, as it is technically called, "cutting" diamonds it has been the practice prior to my invention to subject the stone to a grinding process, which, because of the extreme hardness of the stone, is very slow and tedious and greatly increases the cost of production of the finished article. The most serious drawback to the usual process, however, resides in the fact that a very material part of the diamond is reduced to dust or powder, which, while useful for grinding purposes, is of very low and trifling value as compared with the original value of the portion reduced by attrition.

It is the object of the present invention to overcome and do away with this grinding process in the primary preparation of the diamond and practically save all the diamond by severing or dividing it into two halves or sections substantially equal in size, weight, and value. This I accomplish by cutting entirely through the stone on the line with either of its axes, beginning at one of the points of intersection of the girdles and continuing the cut directly on the line of the selected axis until the stone is divided.

In order to illustrate the manner of carrying out the method embodied in my invention, reference is made to the accompanying drawings, wherein—

Figure 1 is a view in elevation of a conventional cutter, its shaft, and driving-pulley, also indicating a diamond placed in proper position for contact with the cutter and beginning of the cut. Fig. 2 is an enlarged fragmentary side elevation of the cutter, also representing a diamond as being presented to the action of the cutter. Fig. 3 is a view of a diamond preparatory to being cut in two. Fig. 4 is a view showing the diamond-point as abraded for engagement with the cutter. Fig. 5 is a view showing the sections or halves after the diamond has been divided into two

parts. Fig. 6 is a side elevation of a diamond after the cutting and cleaning operations have been completed. Fig. 7 is a perspective view of one of the parts of the stone after having been divided and the edges cut off.

In the drawings I have illustrated conventionally a mechanism for carrying out the method forming the subject-matter of my invention, and reference being had to the illustrations it will be perceived that in forming the divisional cut a disk-shaped cutter 10 is employed, which is about as thick as ordinary writing-paper and may be made of suitable steel. This cutter is mounted upon an arbor or shaft 11 and braced by collars 12, arranged on opposite sides thereof and suitably fastened to the shaft. The shaft is rotated by means of a motor-actuated band or belt, which may be mounted on a pulley 13 on the shaft.

It will be premised that, so far as I am aware, prior to my invention it was deemed practically impossible to cut or saw directly through the thicker portion of the stone; but by my invention it has been proven practical, expedient, and successful. This difficulty I overcome primarily by abrading or roughening a point common to the angle of intersection of the girdles, as indicated at *a*, to afford an entrance or start for the saw or cutter to engage preliminary to its progress through the stone. This abrasion may be accomplished by any of the means well known in the trade, usually by rubbing the point with a diamond-chip.

It is to be understood that the diamond (indicated at 14) is to be held firmly by means of a chuck or any suitable form of holder, the diamond being arranged and adjusted so as to present one of the points at the intersection of the girdles directly in line with the cutting edge of the disk and one of the axes of the stone also directly in line therewith. As above stated, the diamond is subjected to the action of the cutter by presenting thereto one of the points at the intersection of the girdles, said point having been first roughened or abraded, as indicated in Figs. 1 and 4 at *a*, and with one of its axes in alinement with the cutter. Any suitable feeding mechanism may be utilized for advancing the diamond toward the axes of rotation of the cutter, so to cause the cutter to work its way



through the diamond. The divisional cut is made directly in line with and in the plane of the selected axis, so that after the cutter has worked its way entirely through the diamond the stone is divided into two equal parts, as indicated by 16 17 in Fig. 5 of the drawings. These parts or sections are substantial counterparts of each other, and each is substantially one-half the weight of the original stone, since owing to the thinness of the cutter there has been practically no waste. After accomplishing the division of the diamond each of the parts is subsequently subjected to the action of the splitting-tool, and the sides and ends bordering the table of the diamond are removed, as shown in Figs. 6 and 7, thereby forming the facets 18, bordering the newly-formed table 20. The small particles which are split from the sections to form the facets 18 may be utilized in the manufacture of glass-cutters, drills, and other cutting instruments in which diamond cutting-points are ordinarily employed.

From the foregoing description it will be ascertained that practically all of the diamond

is preserved instead of reducing a material portion of the original stone to dust or powder.

What I claim is—

1. The method of cutting through the axis of a diamond herein described, consisting in abrading the diamond at a point of intersection of the girdles, and then continuing the cut through the selected axis of the stone at right angles to its other axis, substantially as specified.

2. The method of cutting through the axis of diamonds to divide them in two equal parts herein described, consisting in abrading the stone at a point of the intersection of the girdles, and then making a dividing cut directly on the line of the selected axis of the stone, whereby the stone is divided into two equal parts, and then splitting off the points, sides and ends, substantially as described.

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

JOHN H. G. STUURMAN.

Witnesses:

SIMON GROEN,

JACQUES U. PIMENTER.