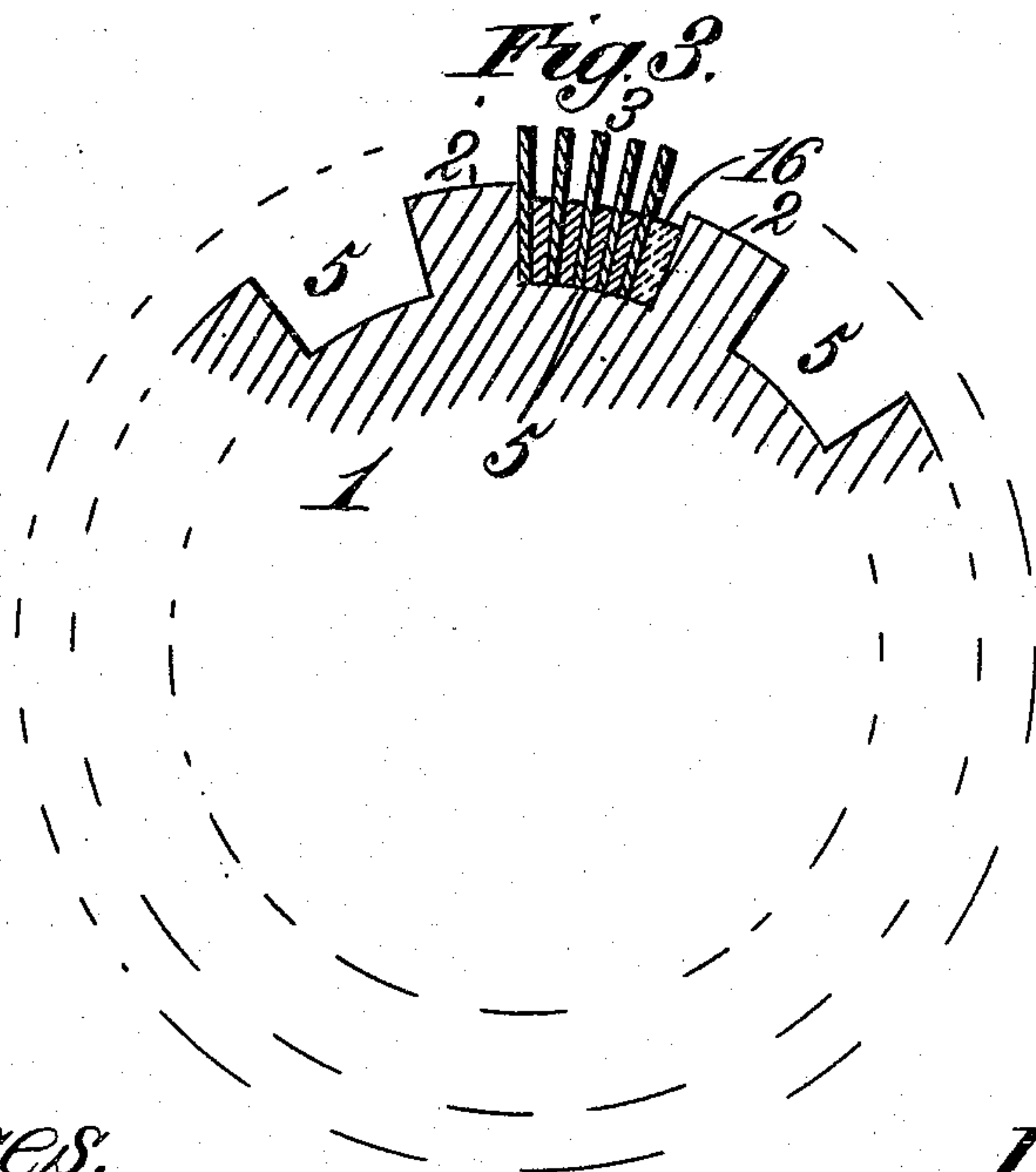
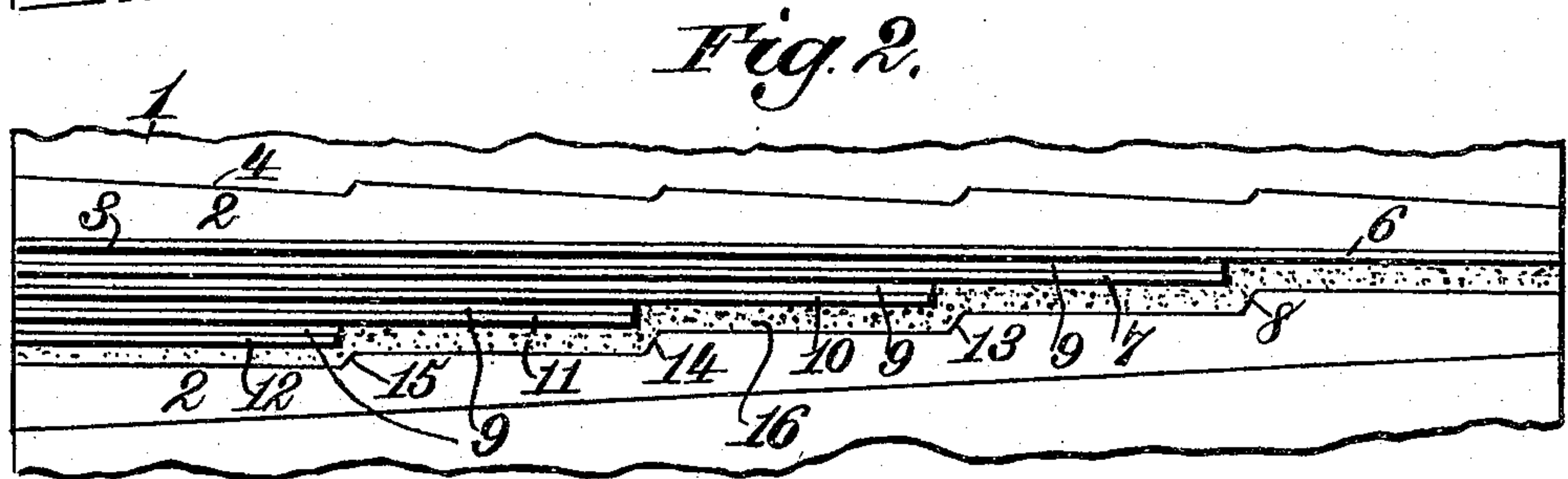
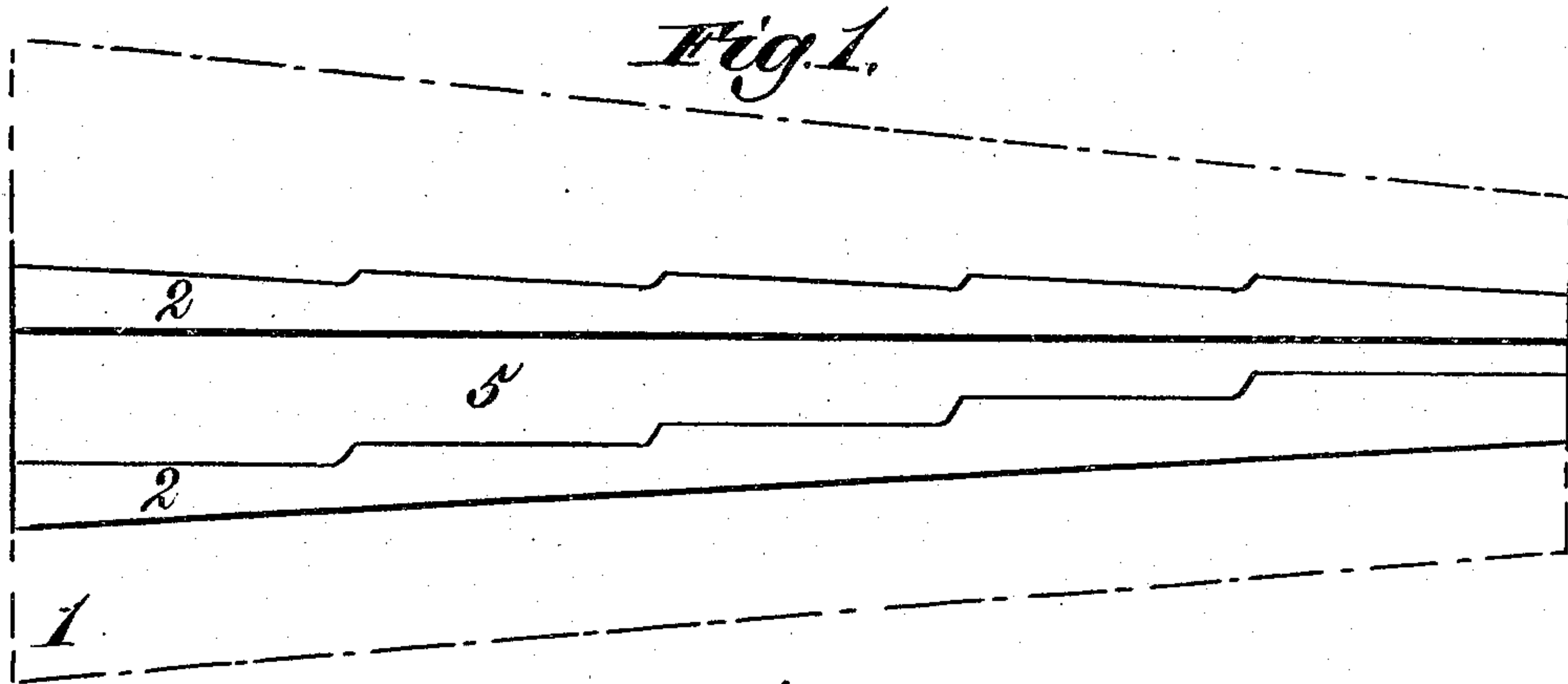


S. R. WAGG.
 MULTIPLE BAR CONSTRUCTION FOR REFINING ENGINES.
 APPLICATION FILED AUG. 6, 1903. RENEWED DEC. 6, 1905.

930,904.

Patented Aug. 10, 1909.



Witnesses.
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UNITED STATES PATENT OFFICE.

SOLOMON R. WAGG, OF APPLETON, WISCONSIN.

MULTIPLE-BAR CONSTRUCTION FOR REFINING-ENGINES.

No. 930,904.

Specification of Letters Patent.

Patented Aug. 10, 1909.

Application filed August 6, 1903, Serial No. 168,536. Renewed December 6, 1905. Serial No. 290,605.

To all whom it may concern:

Be it known that I, SOLOMON R. WAGG, a citizen of the United States, residing at Appleton, in the county of Outagamie and State of Wisconsin, have invented new and useful Improvements in Multiple-Bar Construction for Refining-Engines, of which the following is a specification.

This invention relates to certain new and useful improvements in refining engines, and has for its object to provide a novel construction of cone and to provide a novel construction of multiple bar, a number of which are designed to be secured about the surface of the cone.

In order that the invention may be clearly understood, I have illustrated the same in the accompanying drawing, in which:

Figure 1 is a plan view of a portion of a plug to illustrate the construction of the ribs. Fig. 2 is a similar view showing a bar in position on the plug, and Fig. 3 is a cross section through the larger end of the plug.

Referring now to the drawing, 1 indicates the conical plug of an ordinary refining engine of the Jordan type, 2 a series of longitudinal ribs extending from end to end of the plug at desired distances apart, and 3 the multiple bars. Each of the ribs 2 is provided on one side with a series of off-sets 4 arranged in step-by-step manner, beginning at the larger end of the plug, and on the other side has preferably a straight edge or plane surface. The ribs 2 are arranged to provide spaces 5 between each two ribs for the reception of the bars, and in such a manner that the plane side of one rib faces the recessed side of the adjacent rib.

In the construction of the multiple bar I first provide a blade 6, which is of a length to extend from one end to the other of the plug. I next provide a second blade 7 which is of a length to extend from the larger end of the plug to a point opposite the first step or shoulder 8 from the smaller end of the plug. Between these two blades I interpose a spacing bar 9, which is of less radial width than the two blades 6 and 7, so as to leave a projecting portion of these blades for the cutting surface as usual. I next, in a similar manner, provide blades 10—11 and 12 of a length respectively to extend to the respective steps or shoulders 13—14 and 15, and between each two adjacent blades so arranged, I provide metal spacing bars 9,

which are of the same length as the shortest blade next to which they are respectively placed.

Each of the multiple bars 3 constructed as just described is inserted in a recess 5 with its long bar 6 extending along the side of a rib 2, and with the blades 12, 11, 10, 7 and 6 lying at some distance from the offset side of the adjacent bar so as to leave a filling space into which molten material such as lead or brimstone may be poured for the purpose of securing the bar in the recess 5, or soft metal strips of lead, or similar metal, may be placed in the space between the bar and the rib, and then hammered or swaged so as to be pressed firmly against the side of the rib and the sides of the respective blades of the multiple bar. This filling or swaging I have indicated by 16. I do not, however, limit myself to the particular manner of securing the multiple bars in position on the plug, and I desire to state here that any preferred manner of securing the bars on the plug may be employed without departing from the spirit of my invention.

If desired the blades and spacing bars may be inserted one by one into the grooves 5, and then be secured in place in any preferred manner, or the blades and spacing bars composing the multiple bar may be first bolted together before being placed on the plug.

In refining engines of the Jordan type, as now commonly constructed, long and short blades or bars are employed, the long bars usually extending from end to end of the plug, while the short bars are arranged around the larger end of the same. This, however, makes it necessary to diminish the clearance space between the bars with a given number of linear feet of bar surface. That is to say, each of my multiple bars contain fifteen linear feet of cutting surface, and the plug as a whole, when the bars are arranged around the same, will contain five hundred and forty linear feet of cutting surface. At the same time the clearance space between the bars will vary from one and one-half inches at the larger end of the plug to about one and three-eighths inches at the smaller end, so that practically a uniform clearance space is provided throughout the length of the plug. If it were attempted to place bars around this plug in the ordinary manner as above indicated, in sufficient number to yield five hundred and

forty feet of cutting surface, it would be found that at the closest points of approach between the blades there would only be a clearance space of about three-fourths of an inch. The novel construction herein described, therefore, gives a largely increased capacity to the machine for passing stock through the same, and this is owing to the compact arrangement of the blades, which is rendered possible by the construction outlined. In practice the blades of the bar will be about two and one-half inches wide, and the filler or spacing bars will be about one and one-half inches wide, both blades and spacing bars being of metal.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A multiple bar for refining engines comprising a series of longitudinally arranged blades of successively decreasing length and uniform radial width and means to maintain the blades in spaced relation.

2. In a refining engine a rotative conical plug having longitudinally extending ribs, each having a stepped side face opposed to a plane face, of an adjacent rib, multiple bars disposed singly in the spaces between the ribs and each comprising a series of longitudinally arranged blades of successively decreasing length, the blades terminating adjacent to corresponding offsets of the adjacent rib face, means to maintain the spacing of the blades, and means to maintain each bar rigidly in the space between the ribs.

3. A multiple bar for refining engines comprising a series of longitudinally arranged parallel blades of successively decreasing length and uniform radial width and spacing means between each pair of ad-

jacent blades, said means being not longer than the shorter blade of the pair and being of less radial width than the blades.

4. In a refining engine, a conical plug having longitudinally arranged ribs and multiple bars fitted singly in each space between the ribs, each bar comprising a plurality of longitudinally arranged blades of successively decreasing length and means to hold the blades in spaced relation.

5. In a refining engine, a conical plug, a plurality of multiple bars arranged longitudinally on the surface of the plug and each comprising a series of blades of successively decreasing length, and means to hold the blades spaced, means to hold the bars rigid and means to space the bars from one another by distances greater than the distances between the blades.

6. In a refining engine, a conical plug, a plurality of multiple bars arranged longitudinally on the surface of the plug and each comprising a series of blades of varying length and means to hold the blades spaced, means to hold the bars rigid, and means to space the bars from one another by distances greater than the distances between the blades.

7. In a refining engine, a rotative conical plug having a plurality of longitudinally arranged and spaced multiple bars, each consisting of a series of blades of different lengths assembled rigidly and forming a bar unit.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

SOLOMON R. WAGG.

Witnesses:

GEO. H. PEERENBOOM,
P. L. SCHUELLER.