

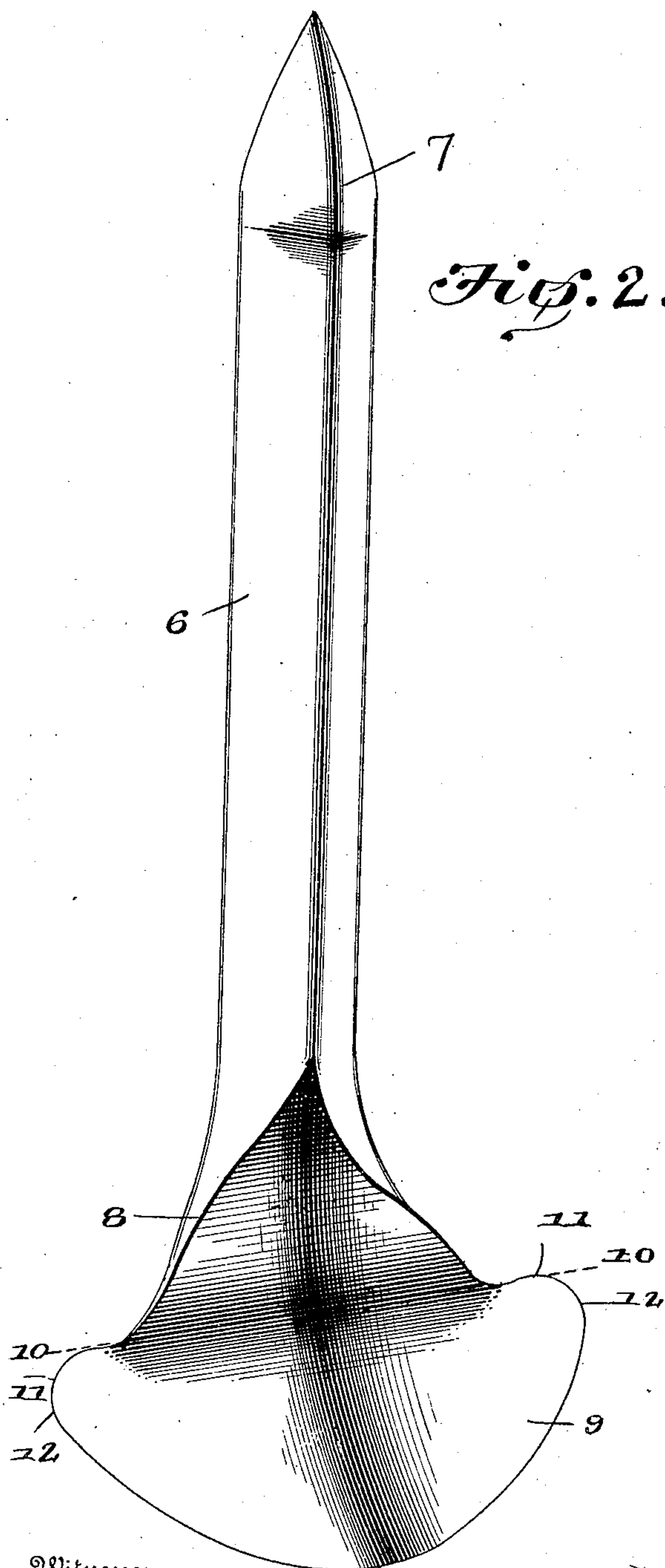
No. 844,163.

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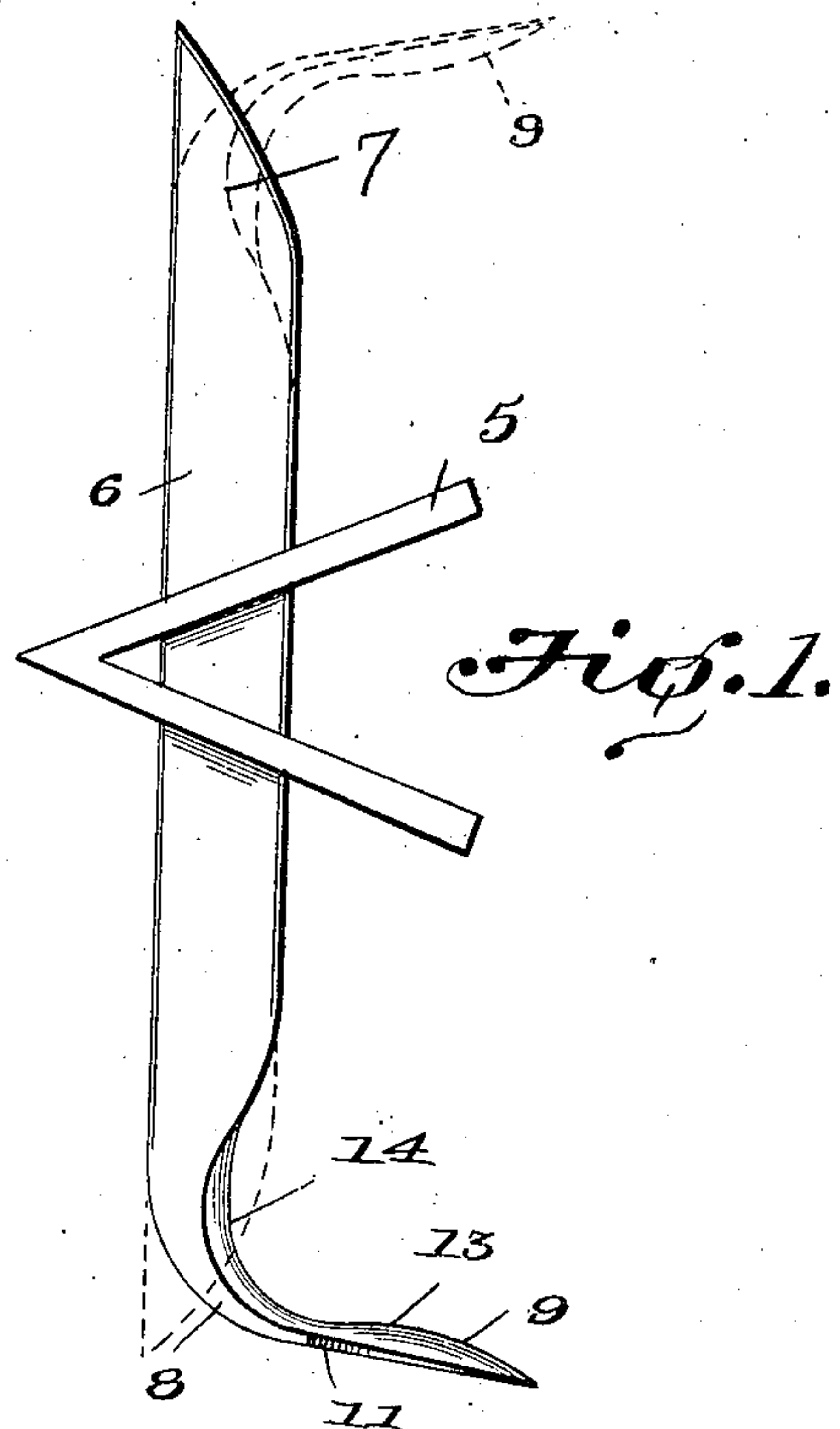
C. P. MICHAELSEN.

CULTIVATOR.

APPLICATION FILED OCT. 30, 1906.

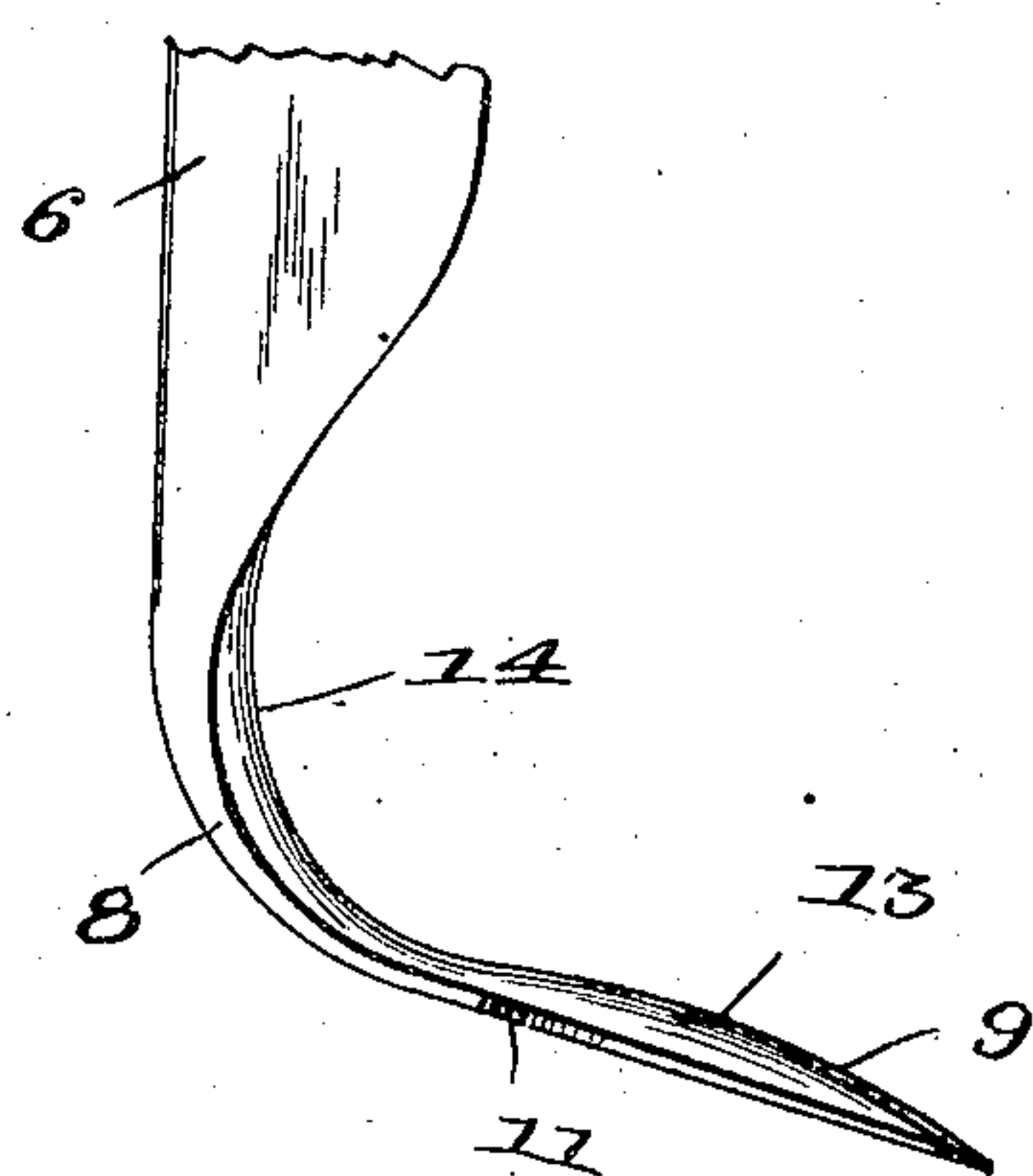


*Fig. 2.*



*Fig. 1.*

*Fig. 3.*



Witnesses

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# UNITED STATES PATENT OFFICE.

CLAUS P. MICHAELSEN, OF DUSTY, WASHINGTON.

## CULTIVATOR.

No. 844,163.

Specification of Letters Patent.

Patented Feb. 12, 1907.

Application filed October 30, 1906. Serial No. 341,209.

*To all whom it may concern:*

Be it known that I, CLAUS P. MICHAELSEN, a citizen of United States, residing at Dusty, in the county of Whitman, State of Washington, have invented certain new and useful Improvements in Cultivators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same. This invention relates to combined cultivator and harrow teeth, and has for its primary object the provision of a tooth of this class pointed at one end to serve as a harrow implement and provided at its opposite end with a weed-cutting blade, which serves as a cultivator implement, the tooth being reversible, so that either of its ends may be used as the conditions of the land require, and a further feature of the tooth resides in the fact that it is applicable to any of the ordinary forms of harrow-frames or tooth-attaching means now in use.

Besides the feature above described the principal novelty of the tooth resides in the peculiar means of forming the blade. The shank of the tooth is triangular in cross-section, and the under side of the blade is formed by a continuation of one of the flat faces of the shank, the edge of the shank formed by the intersection of the remaining two faces thereof being beaten down to form in part the upper face of the blade. By this construction a much stronger tooth is produced than if the entire tooth was flat, or substantially so, and were hammered out at one end to form the blade, for the reason that the blade extends in the same direction as the thickest portion of the shank.

Broadly stated, the blade is gradually widened from its point of junction with the shank of the tooth until it has become quite thin, at which point the side edges of the blade are abruptly broadened to produce a cutting portion of greater width than the remainder of the blade. In other words, the entire tooth consists practically of a shank, a blade-shank formed integral with the main shank, and the blade formed integral with the blade-shank, the point of termination of the main shank being at the point where the front edge of the blade commences to be flattened and the termination of the blade-shank being at the point of sudden widening of the blade. It will further be noted from the drawings and

the specific description of the blade which is to follow that the edge of the blade which is battered down forms the front edge when the tooth is used as a cultivator-tooth, and hence more ready passage of the tooth through the soil and weeds is assured than if the flat surface was presented forwardly. The performance of the function just stated above is materially aided by the fact that the upper face of the blade portion of the tooth and also the upper face of the blade-shank is slightly convexed, which prevents to a considerable degree the adherence of clods of dirt thereto.

In the accompanying drawings, Figure 1 is a view in elevation of one of my teeth, showing the same applied to one of the tooth-bars of a harrow, the position of the tooth when used to cultivate the ground being shown in full lines and its position when used as a harrow-tooth being indicated in dotted lines. Fig. 2 is a detail perspective view of one of the teeth; and Fig. 3 is a detail view, in side elevation, of the lower or blade end of the tooth.

Referring more specifically to the drawings, the numeral 5 denotes one of the tooth-bars of a harrow, which while it may be of any construction is here shown as being formed of a bar of angle-iron and having diverging wings through which are formed aligning triangular openings for engagement therethrough of the teeth which embody my invention.

As shown in the drawings, each of the teeth comprises a tooth-shank 6, which is pointed at one of its ends, as at 7, which end will for convenience sake be denoted throughout the specification as the "upper" end, and the said shank 6 is triangular in cross-section.

One of the longitudinal edges of the shank at the lower end thereof is hammered down, as at 8, to form a blade-shank and a blade, the blade-shank being indicated by the numeral 8 and the blade proper by the numeral 9. The shank 8 for the blade is curved in the arc of a circle until it forms a junction with the blade, and the blade itself is substantially flat, or, in other words, is not curved, as is the shank. From the construction described and from the drawings it will be observed that the rear face of the tooth-shank 6 and the rear or under face of the blade-shank 8 and also the under face of the blade 9 form a continuous surface.

The extreme rear edge of the blade proper is indicated by the dotted lines 10 10 in Fig.



2, and it is at this point that the blade-shank 8 forms the junction with the blade, the said blade being abruptly broadened at this point of junction, as clearly shown in the said figure, to form shoulders 11, the outer edges of which are curved, as at 12, and are sharpened to form a cutting edge. From these shoulders the edges of the blade are curved forwardly toward each other and merge into the front edge thereof, and the said side and the front edge of the blade are also sharpened to form a cutting edge.

From the foregoing description of the tooth it will be observed that the same consists properly of three sections—namely, the tooth-shank, the blade-shank, and the blade—and that these sections are integral, and, furthermore, that the blade-shank and the blade are formed solely by hammering down one end of the tooth-shank. By this construction an extremely simple and inexpensive method of manufacture may be pursued, as will be readily seen.

The advantages produced by the specific construction of the sections of the tooth are that no matter whether the tooth is being used as a harrow-tooth or a cultivator-tooth one of its longitudinal edges will always be presented in the direction of travel of the implement, thereby serving to break up the clods of dirt, and consequently permitting easier passage of the teeth through the soil, and a further advantage lies in the fact that the blade-shank is of considerable less width than the blade itself, and hence the soil will not adhere to the blade, but will pass around the blade-shank, the blade proper being almost horizontal, and hence serving very effectually to cut the weeds.

To further aid the tooth in its ready passage through the soil when used as a cultivator-tooth, the upper face of the blade 9 and also the forward face of the blade-standard 8 are convexed, as indicated by the numerals 13 and 14, respectively, although the under side of the blade and the rear under side of the blade-shank are perfectly smooth, as heretofore stated.

It is to be understood that I do not desire to be limited to the exact details of construction shown and described, for obvious modifications will occur to a person skilled in the art.

What is claimed is—

A tooth of the class described comprising a shank which is triangular in cross-section and pointed at one end, said shank being provided at its opposite end with a blade-shank formed by beating down the forward edge of the tooth-shank, the said blade-shank being curved forwardly and slightly downwardly in the arc of a circle, and a blade formed integral with the shank and by beating down or flattening the end portion thereof, the said blade being abruptly broadened at its rear edge and of greater width than the blade-shank, the rear face of the tooth-shank and the rear under face of the blade-shank and the under face of the blade forming a continuous unbroken surface, the upper face of the blade and the upper face of the blade-shank being convexed.

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

CLAUS P. MICHAELSEN.

Witnesses:

H. F. NAGEL,

H. J. MICHAELSEN.