

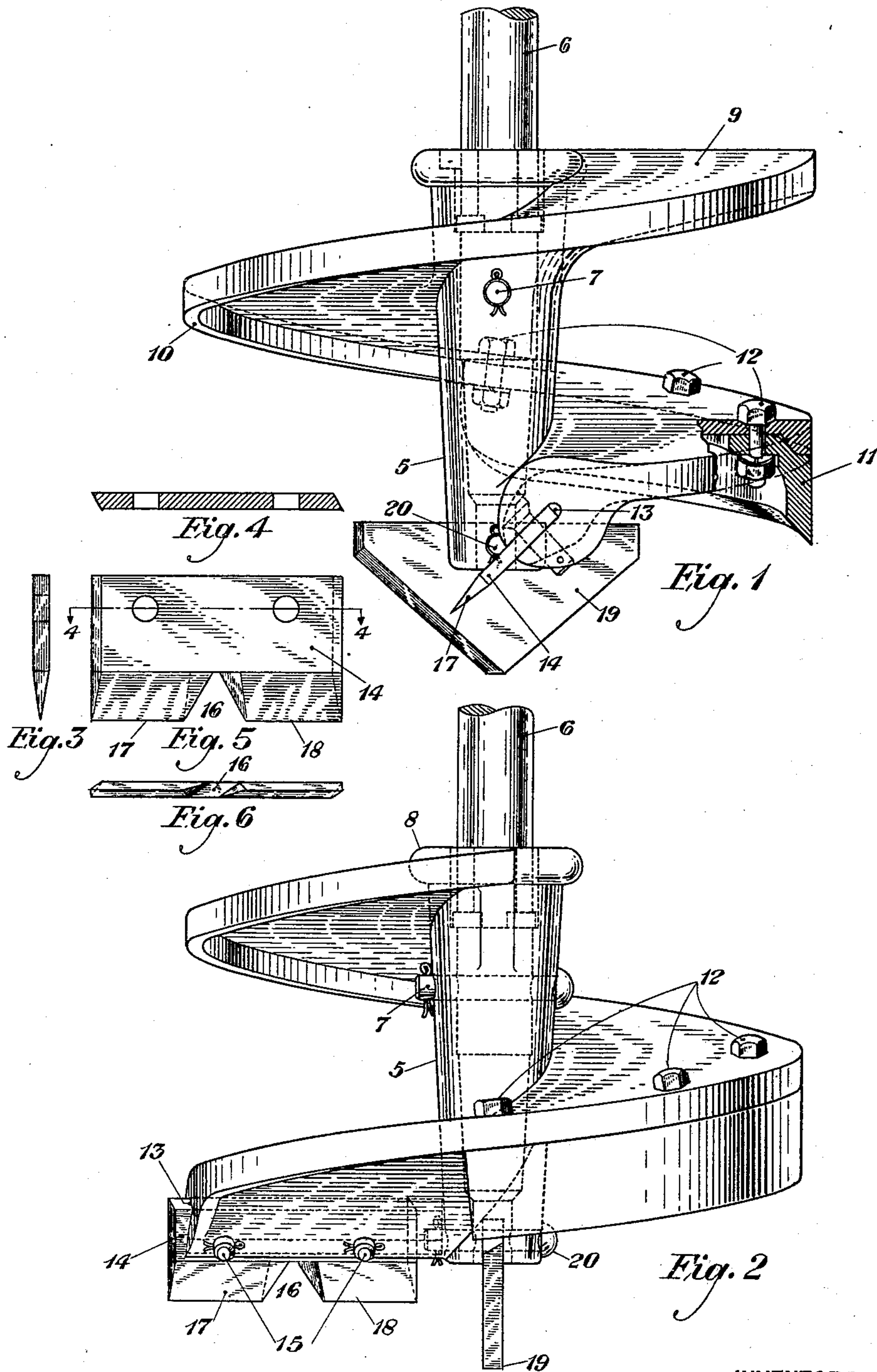
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EARTH AUGER

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EARTH AUGER

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This invention relates to augers, and more particularly to augers adapted to be used with earth boring apparatus.

An object of the invention consists of an auxiliary device for an auger which will facilitate and increase the effectiveness of the operation of the auger.

Another object of the invention consists in the provision of a blade which may be quickly attached to and detached from the auger.

A further object is to provide a blade which is simple and comparatively inexpensive, and which is adapted to be reversed to give double use before sharpening is necessary.

These and other objects will be apparent from the following description, when considered in connection with the accompanying drawing, in which one embodiment of the invention is illustrated.

Referring to the drawing, Figure 1 is an elevation of an auger with the improved blade applied thereto; Fig. 2 is a similar view with the device turned at an angle of 90° from that shown in Fig. 1; Fig. 3 is an end view of the improved blade; Fig. 4 is a sectional view thereof taken on the line 4—4 of Fig. 5; Fig. 5 is a side elevation of the blade; and Fig. 6 is a bottom view thereof.

In the drawing, in which like characters designate like parts throughout, 5 indicates a shank of tubular formation which is slightly tapered toward its lower portion. An end of a shaft 6 extends within the chamber in the upper portion of the shank 5 and is secured thereto by means of a bolt 7. This bolt passes through openings provided in the shaft and shank and a cotter-pin may be inserted through the extended end of the bolt to maintain it in position. The end of the shaft 6 which is positioned in the lower part of the chamber portion of the shank 5 may be round in cross-section, while the portion of the shaft positioned in the chamber and terminating at the collar 8 of the shank may be square, in accordance with well-known construction. The shaft 6 may be connected to apparatus from which power is derived for the purpose of rotating the auger in its boring operation.

A spiral portion or helix 9 is formed about the shank 5 and extends downwardly from the collar 8. This helix is shown as having a re-enforcing edge or flange 10 which projects downwardly therefrom. A thrust plate 11 which forms a cutting lip for the auger continues from a point adjacent the termination of the flange 10 and is secured to the helix 9 by bolts 12, as more clearly shown in Fig. 1. The thrust plate 11 is provided for the purpose of keeping the auger centered in the hole by preventing the thin edges of the helix from being pressed into the comparatively soft material at the side of the hole, due to the action of the cutting blade, to be presently described, which operates on only one side of the center point. The end of the helix 9 is of a somewhat circular formation and has a longitudinal slot 13 provided through its wall which extends in an angular direction of approximately 45° and may be provided with a round terminating head portion. The slot 13 is adapted to receive a substantially rectangular auger blade 14, which may be secured in said slot by means of detachable bolts 15 which pass through openings in the blade and in the end of the helix 9. These bolts may have cotter-pins applied through holes provided in their projecting ends to retain the bolts in position. It is preferred that the bolts be so positioned that the cotter-pins will be on the opposite side of the helix 9 from that coming in contact with the material being bored into in order that the wear on the said cotter-pins will be negligible during the boring operation. The blade 14 is shown as having a flat top surface in the form of a parallelogram whose end portions are beveled in a parallel direction, and the sides of the blade 14 may be substantially flat through their major portion. An angular slot 16 is cut through the bottom of the flat side portions at the approximate center thereof and beveled portions terminating in cutting points 17 and 18 are formed on each side of the slot. These beveled portions may be of substantially triangular shape in vertical cross-section and the provision of the angular slot 16 between these portions cause their opposing faces to

present parallel inclined surfaces. The formation of the slot in the manner described permits such dislodged material as may gather at this point during the drilling operation to be discharged over the blade and be deposited on the upper surface of the helix from whence it travels upwardly in a well-known manner. The formation of the slot, as described, also permits the division of the blade in two cutting sections. The portion 17 as shown mounted in Fig. 2 performs the major cutting operation, while the section 18 contributes only slightly in this respect, as the auger point, to be presently described, has already dislodged the earth which the section 18 could reach. The provision of the blade 14 forms an auxiliary cutting edge which co-operates with the auger point, and increases the diameter of the hole being bored. After the cutting section 17 has become dull, the blade 14 may be readily removed by detaching the pins 15 from the helix. The blade may be then removed and reversed so that the cutting section 18 may be used.

The auger point 19 with which the blade 14 co-operates is of flat and substantially triangular formation, and is positioned in a slot formed at the end of the shank 5, and is secured thereto by a bolt 20 which extends through these elements. The flat auger point 19 is of suitable thickness and its horizontal top edge projects outwardly from the surface of the shank any desired distance. Vertical portions may be provided at the ends of the top edge of the auger point 19 and beveled portions extending therefrom meet to form a cutting point. The slot in which the flat auger point 19 lies, and the slot in which the auger blade 14 lies are preferably so arranged that the auger point and auger blade lie in substantially perpendicular positions with respect to each other.

The shaft, which is connected at one end with the auger, may have its opposite end connected with a power shaft or other apparatus to cause the rotation of the auger. The auger point of the improved device operates in a well-known manner, while the auger blade and thrust plate co-operate therewith and increase the diameter of the hole being drilled.

What is claimed is:

An auger comprising a shank, a shaft secured thereto for rotating the shank, a helix formed on said shank, a blade member connected to said shank, and a second blade member having a cutting edge adapted to be reversibly connected to said helix and co-operating with said first mentioned blade member, said second blade member having an angular slot for dividing its cutting edge into two sections, one of said sections being operative for cutting clearance at the outside of auger in one position of the blade and the

other section being similarly operative on the reversed position of the blade.

In testimony whereof, I have signed my name to this specification this 31st day of December, 1928.

HERMAN BARTENBACH.

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In testimony whereof, I have signed my name to this specification this 10th day of December, 1928.

JOHN B. SPOWART.

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