

(No Model.)

2 Sheets—Sheet 1.

C. WHITEHOUSE.

AUGER BIT.

No. 364,153.

Patented May 31, 1887.

FIG.1.

FIG.2.

FIG.5.

FIG.4.

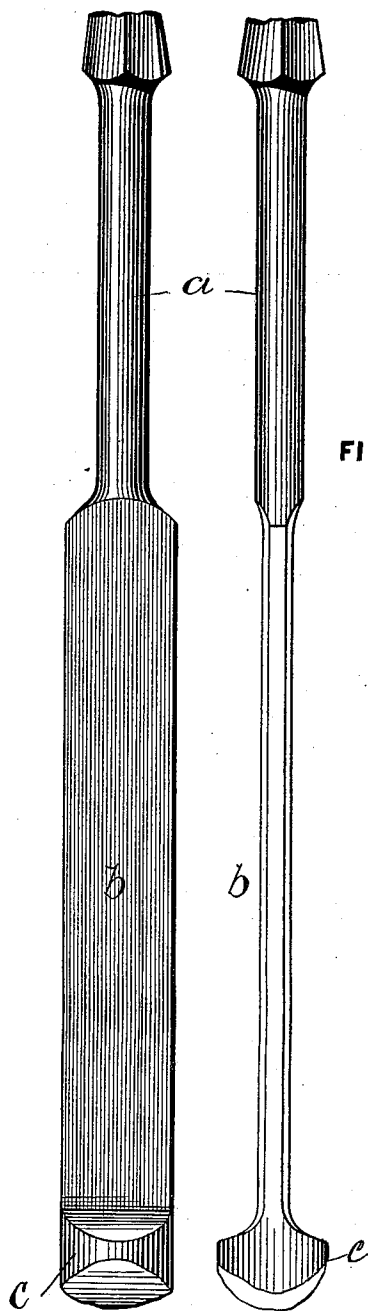


FIG.3

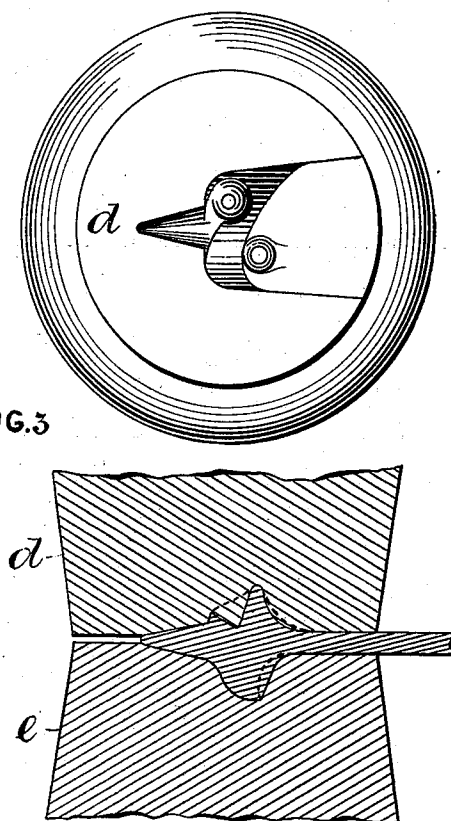


FIG.7.

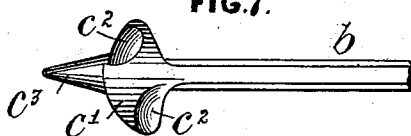
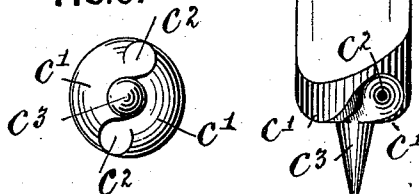


FIG.6.



WITNESSES.

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FIG. 8.

FIG. 9.

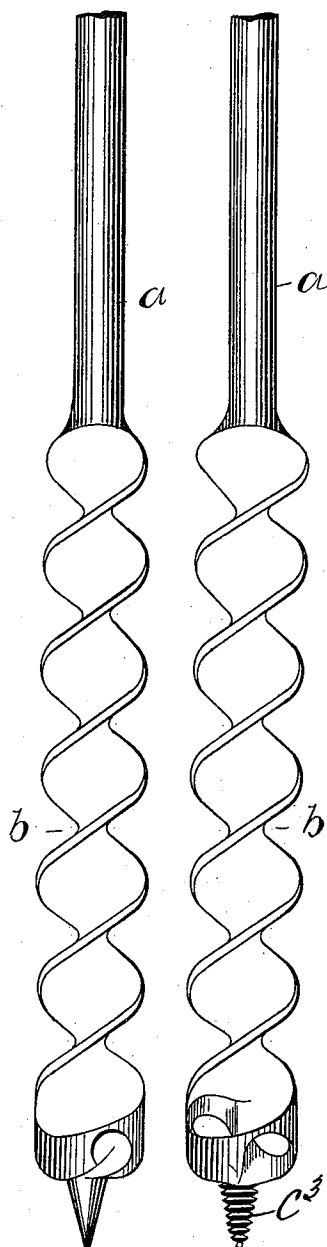


FIG. 14.

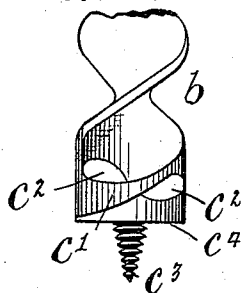


FIG. 15.

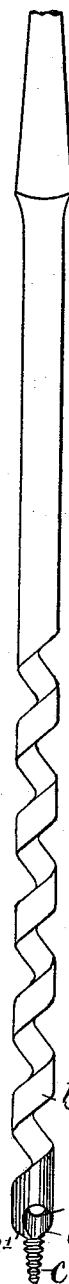


FIG. 13.

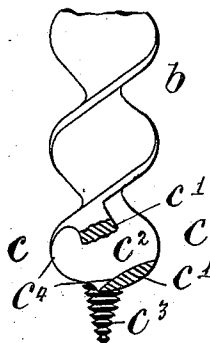


FIG. 11.

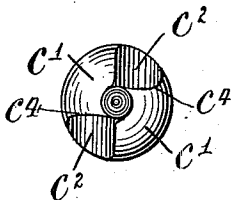


FIG. 10.

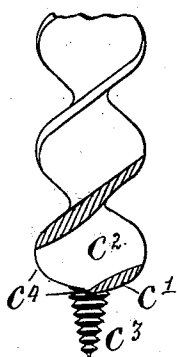


FIG. 12.

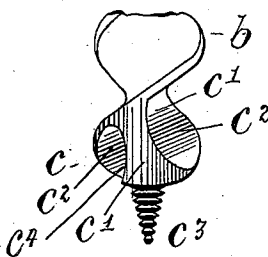


Fig. 16.



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SPECIFICATION forming part of Letters Patent No. 364,153, dated May 31, 1887.

Application filed January 25, 1887. Serial No. 225,469. (No model.) Patented in England October 25, 1886, No. 13,603.

To all whom it may concern:

Be it known that I, CORNELIUS WHITEHOUSE, a subject of the Queen of Great Britain, residing at Bridgtown, Cannock, England, manufacturer, have invented an Improvement in Screw or Twist Augers and in the Means and Tools Employed in the Production of the Same, (for which I have applied for Letters Patent in Great Britain, dated the 25th day of October, 1886, and numbered 13,603,) of which the following is a specification.

My invention relates to screw or twist augers, or rather the tips or nose part or parts thereof, and to means and tools employed in the production or formation of the same, as hereinafter described.

By my improvement screw or twist augers are rendered far more efficient and durable when in use than those of the ordinary kind made by the ordinary process or processes.

According to my invention I make the said tips or nose parts in the form of a solid or a looped end, so as to have connected or closed blade-cutting parts without terminals or open-winged cutters, as of the ordinary kind, and which said solid wings or connected cutting-blades are partly produced or fashioned by the process of stamping. The said screw or twist augers make a clear and decisive cut, and are not liable to get out of order or be deranged, as there are no terminal or standing-out ends or overhanging parts to break off.

In carrying out my improvement I take a suitable blank, forged, stamped, or otherwise produced from suitable metal, and with a solid enlarged bulbous part containing sufficient metal to form the head and nose of the cutting parts. I then heat this said blank, or rather the head of the blank, to a forging heat, and by means of a drop-stamp or by pressure I give the end of the blank the general shape of the nose and head part. The percussive blow or blows of the stamp thus employed forces the heated metal into every part of the dies, which when brought together are an approximate counterpart of the head, nose, and leading cutting parts of the auger.

I will now proceed to describe the manner in which my invention is to be carried into effect, referring to the accompanying drawings, in which—

Figure 1 is a front elevation. Fig. 2 is an

edge view of a blank from which a solid winged or connected blade auger according to my invention is made. Fig. 3 is a sectional view of the forming-dies. Fig. 4 is an elevation of a blank partially completed. Fig. 5 is a plan view of one of the dies. Fig. 6 is an end view of a partially-finished blank. Fig. 7 is a side view of the same. Figs. 8 and 9 are elevations of blanks in process of completion. Figs. 10, 11, 12, 13, and 14 are detail views of lower or cutting ends of a complete auger. Fig. 15 is an elevation of a single-twist auger made according to my invention, and Fig. 16 an end view of the same.

The blank consists of a stem or shank, *a*, with flattened part *b*, which, when twisted, forms the screw part; and at the lower terminal end of this said flat part a bulbous or swell enlargement, *c*, is formed of sufficient size to make the head, nose, and cutting parts of the auger. I then heat the head part *c* of this blank to a forging heat, and by means of upper and lower dies, *d e*, Fig. 3, worked in or by means of a drop-stamp or by pressure, I give the end *c'*, Fig. 4, of the said blank the general shape of the tip or nose end of an auger to be made.

The dies *d e*, of which one is shown in plan in Fig. 5, form an approximate counterpart of the tip, head, cutting, and leading parts of the auger to be made. The roughly-formed end *c'* thus produced, which is shown in plan, Fig. 6, and edge view at Fig. 7, has fins or webs running along its middle, (not shown,) and these are subsequently removed by clearing-tools or clipping-dies worked in a press. Thus the tip or end of the auger, Figs. 4, 6, and 7, consists of a nose, *c'*, and sunken depressions *c''*, which are subsequently bored through, so as to form cutting-edges and exit-passages for the material cut to pass therethrough, and from thence up the troughs of the screw or worm. The said tip or extreme end is formed with a taper spike, *c''*, which is subsequently wormed.

The next process in the formation of the auger is the twisting of the part *b*, as represented in Fig. 8, and subsequently the worming of the part *c'*, as represented in Fig. 9. Said Fig. 9 represents in side elevation a finished auger made according to my invention. Fig. 10 represents a section of the lower part of the said auger, and Fig. 11 is an under side

view of the same, while Fig. 12 is a side view, and Fig. 13 the same partly in section.

In the finished auger, *a* is the shank. *b* is the worm. *c* is the tip or nose or lower end. *c*³ is the wormed screw at the under side thereof. *c*² are holes or passages directed upwardly in the direction of the twists and with the entrances thereto of smaller diameter than their outlets; and leading into the furrows of the screw *c*¹ are the solid wings or connecting-blade cutting parts, which bridge from side to side of the holes. The boundary edges of the holes, or rather the edges of the wings which surround the holes, lie in a varying or in an oblique plane, and have their lower part formed into cutting-edges, which are marked *c*⁴.

Although I have described my invention in connection with a round-nosed auger, yet I wish it to be understood that my invention is applicable to square-nosed augers, as represented in Fig. 14; or the shape of the nose may be varied to suit the materials to be bored without departing from the nature of my invention.

Fig. 15 represents a single-twist auger provided with a tip or nose end made according to my invention. In this auger a single cutting-edge and aperture is situated on the side of the cutting-nose, instead of two apertures

or holes, as aforesaid with respect to the other figures, and which said hole leads to the helical channel of the twist. *b* is the single twist. *c*¹ is the closed cutter-blade. *c*² is the hole. *c*⁴ is the cutting-edge, and *c*³ is the leading-screw.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. As a new article of manufacture, a wrought-metal auger having its cutting-head provided with solid winged cutter-blades bridging from side to side and forming cutting-edges and loop-holes, said loop-holes being of larger diameter at their upper or outlet ends than they are at their lower or inlet ends, as shown and described.

2. The method or process for the manufacture of wrought screw-augers, which consists in first forging or stamping a blank with a bulb containing sufficient metal to form the head and nose of the cutting part, then heating the head of said blank and subjecting it to the percussive blows of a suitable stamp or die, substantially as described.

Signed this 22d day of December, 1886.

CORNELIUS WHITEHOUSE.

Witnesses:

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Both of Birmingham.