No. 640,108. Patented Dec. 26, 1899.

H. M. DALZELL.

TUBULAR CROWN SAW.

(Application filed June 17, 1899.)

(No Model.)

Fig. 1

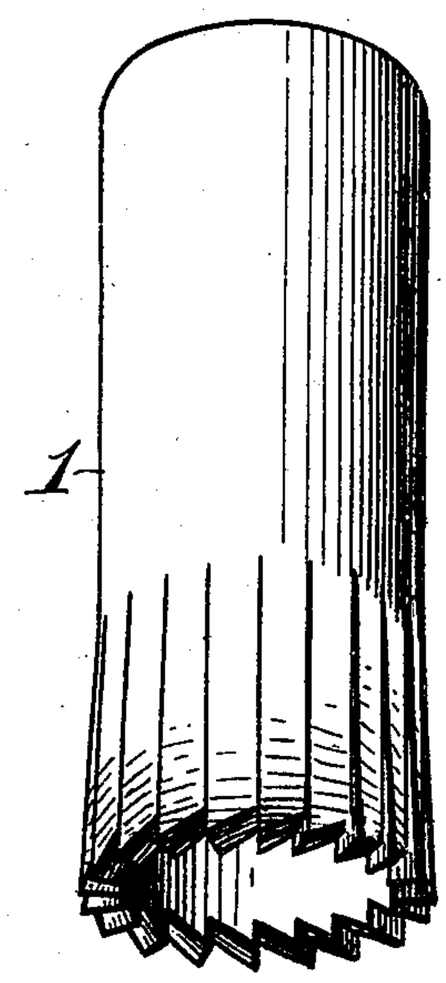
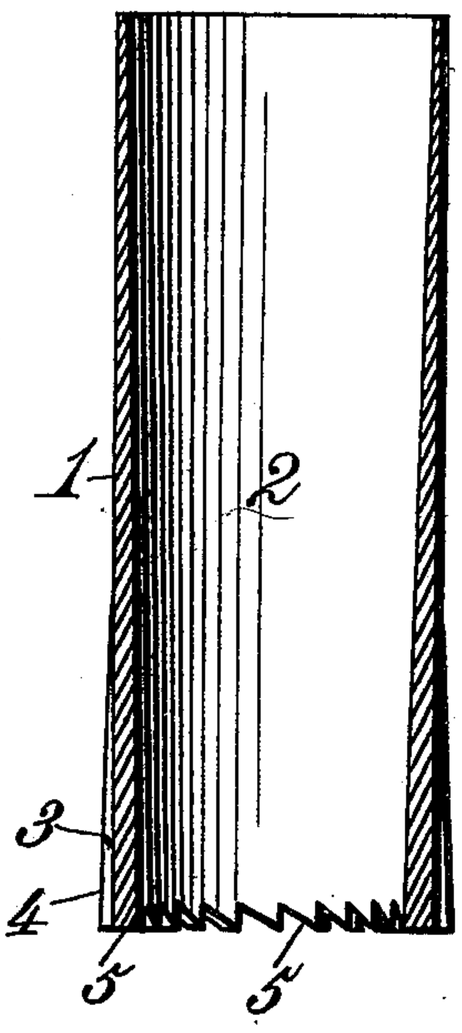


Fig. 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

HENRY M. DALZELL, OF MUSCATINE, IOWA.

TUBULAR CROWN-SAW.

SPECIFICATION forming part of Letters Patent No. 640,108, dated December 26, 1899.

Application filed June 17, 1899. Serial No. 720,942. (No model.)

To all whom it may concern:

Be it known that I, HENRY M. DALZELL, a citizen of the United States, residing at Muscatine, in the county of Muscatine and State of Iowa, have invented new and useful Improvements in Tubular Crown-Saws, of which the following is a specification.

My invention relates to tubular crown-saws, the same being particularly designed for use in cutting shells for the production of button-blanks and the like. The invention is not, however, limited to this use, as it may be successfully employed in other connections.

The object of the invention is to so improve upon this class of inventions that binding or friction between the saw and the material being cut is prevented, choking is avoided, the swaging of the saw-teeth dispensed with, and means provided for the discharge of the dust or cuttings and for readily sharpening the teeth.

Other objects and advantages of the invention will hereinafter appear.

The invention consists of a tubular crown-saw having straight parallel ribs on the outer surface thereof, said ribs terminating at their outer ends in saw-teeth and gradually converging or decreasing in depth from the teeth inwardly.

The invention also consists in certain details of construction which will be hereinafter more fully described and claimed.

In the drawings forming part of this specification, Figure 1 is a perspective view illustrative of my saw, and Fig. 2 is a longitudinal section of the same.

Like reference-numerals indicate like parts in the different views.

The body 1 of my saw is provided with means whereby it may be attached to an ordinary hollow lathe and is tubular in form. The central bore 2 gradually increases in diameter from the outer end of the body inwardly, so as to provide means whereby the disk cut from the material operated upon may pass freely and without obstruction through said bore. The outer surface of the body 1 is formed with a series of grooves 3 3, gradually decreasing in depth and providing longitudinal straight ribs 4 4, which terminate at the outer end of the body 1 in teeth 5. The ribs 4 4 are formed with straight cutting edges, and the outer diameter of the body 1 along the line of said ribs gradually decreases in diameter or converges from the teeth 5 to the inner ends of said ribs. The grooves 3 3 also gradually decrease in depth, and said grooves and ribs finally merge into the outer wall of the body 1.

By the construction described it will be observed that I have produced a tubular crown-saw of simple and cheap construction in which provision is made by the straight grooves 3 3 for sharpening the teeth 5 and for the escape of sawdust and chips, and in which the necessity for setting the teeth is done away with. The tool may, therefore, be constructed of harder or more highly-tempered metal, and consequently will be much more durable and effective in its cutting action. It will be also observed that by tapering the body 1 along the line of the ribs 4 the greatest diameter of the tool is always along the line of the annularly-arranged teeth 5, so that binding between the ribs 4 and the material operated upon is avoided and choking is effectually prevented. As binding between the ribs and the material operated upon is prevented, the friction between these parts is reduced, and consequently the power necessary to rotate the saw is lessened, and heating and danger of drawing the temper of the metal of which the saw is constructed is greatly reduced. It will also be observed that by the construction described the tool will quickly and easily release itself at any point in its cut that it may be desired to remove it from its work. The disks or plugs cut will be of uniform size with smooth edges, the edges of the openings from which the disks are cut will also be smooth, and the chips will be thrown back from the point of contact of the teeth, all of which is very important, especially when the device is used for trephining the skull. Also by using two sizes of saws true rings of desired width with smooth edges may be cut out.

It will of course be understood that my improved saw may be used in connection with any form of plunger or ejector for removing the disks from the interior of the tube.

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

1. A crown-saw consisting of a tubular body 1, having a longitudinal bore 2, and cutting-teeth 5, on the lower edge of the tubular body, the outer and inner walls of said body converging from the lower end upward whereby the external cross-sectional diameter of said tubular body gradually decreases from the cutting-teeth toward the upper end throughout the length thereof, and the diameter of said bore gradually increases from one end to the other, so that a disk cut from the material operated upon may pass freely and without obstruction through said bore, and a series of parallel grooves 3, gradually decreasing in depth, extending in straight lines on the outer surface of the body from the cutting-teeth upward, the two walls forming each of said grooves being inclined relative to each other to provide a plurality of straight cutting-ribs 4, on the outer surface of the tubular body which merge entirely in the body at their upper ends.

2. A crown-saw, consisting of a tubular body having straight parallel cutting-ribs along its outer surface at one end, said ribs terminating in cutting-teeth at the lower end of the body and gradually decreasing in depth from the teeth to a point above the latter where they merge entirely in said body between the ends thereof, the central bore of the tubular body gradually increasing in diameter from the said teeth inwardly, substantially as described.

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

HENRY M. DALZELL.

Witnesses:

JOHN C. WILSON,

THOMAS W. CHERRY.