

(No Model.)

J. A. MACKENZIE.
TREPHINE.

No. 493,730.

Patented Mar. 21, 1893.

Fig. 1.

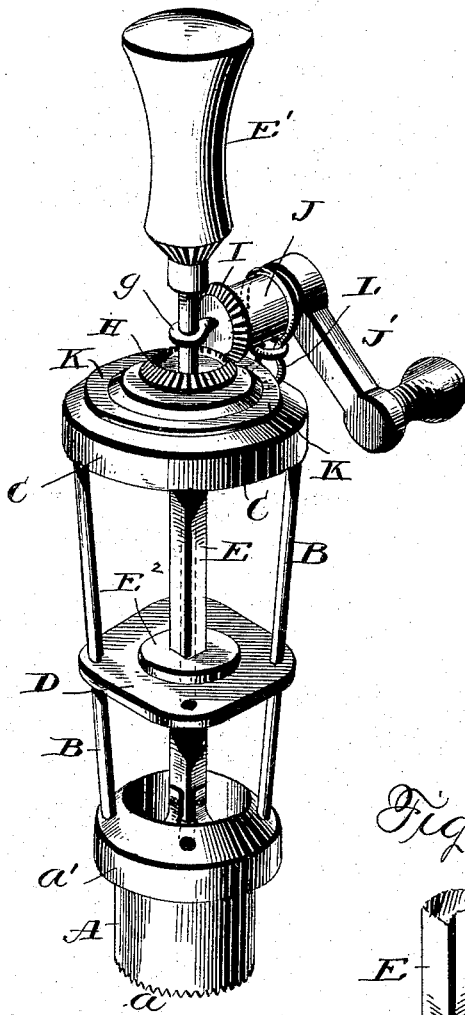


Fig. 2.

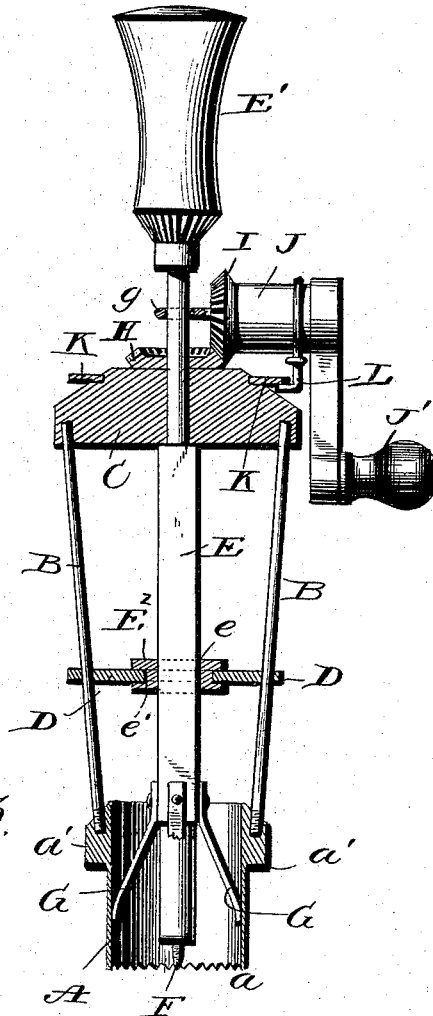
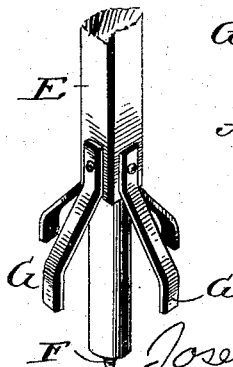


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

JOSEPH ALEXANDER MAC KENZIE, OF WELDON, TEXAS.

TREPHINE.

SPECIFICATION forming part of Letters Patent No. 493,730, dated March 21, 1893.

Application filed November 10, 1892. Serial No. 451,568. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH ALEXANDER MAC KENZIE, a citizen of the United States, residing at Weldon, in the county of Houston and State of Texas, have invented certain new and useful Improvements in Trephines; and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in trephines, and it has for its objects among others to provide a new and simple yet durable and efficient, though cheap, form of instrument of this character, by which better results can be obtained than by the means and methods heretofore employed.

I provide a simple hand device, easily operated and composed of few parts and those compactly arranged and easily assembled so as to occupy but small space thus enabling a physician to carry the same with him and this without any danger of breakage thereof.

The device is of novel construction and embodies in its construction certain features which render it superior in its make-up as well as in operation.

Other objects and advantages of the invention will hereinafter appear and the novel features thereof will be specifically defined by the appended claims.

In order that the desired ends, embracing those above outlined, may be successfully accomplished, the invention consists in the peculiar combinations, and the construction, arrangement and adaptation of parts, all as more fully hereinafter described, shown in the drawings and then particularly pointed out in the claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification and in which

Figure 1 is a perspective view of a trephine constructed in accordance with my invention. Fig. 2 is a central longitudinal section through the same, and Fig. 3 is a perspective view

upon an enlarged scale of the central shaft and its attachments, removed from the instrument in order to better show such parts.

Like letters of reference indicate like parts throughout the several views in which they appear.

Referring now to the details of the drawings by letter, A designates the blade or cutting portion of the implement, which blade consists of a hollow body portion having its acting or lower edge provided with serrations or teeth *a*. At the upper edge of this body portion is an annular enlargement or collar *a'* within which are seated and held in any suitable manner the lower ends of the rods B which may be of any desired number and the upper ends of these rods are attached to a disk C the upper face of which is tapered or beveled from toward its center toward the edge or periphery as shown for a purpose which will soon be made apparent. The rods B pass through a collar D near its periphery as shown and these rods may be arranged in a vertical or a slightly inclined plane as may be desired and according to the diameters of the disk and collar compared with that of the cutting blade.

E is a shaft centrally arranged within the device and its upper end is provided with a handle E' and this shaft is loosely journaled at its upper portion below the handle in a central opening in the disk C as shown, while below the portion which is thus loosely journaled the shaft is square or polygonal in shape and passed through a correspondingly-shaped hole *e* in a wheel or disk E² which has a peripheral groove *e'* into which the inner edge of the collar D loosely fits so as to guide the said disk and yet permit free movement thereof. This shaft at its lower end is provided with a screw threaded point F to form a center and at a point within the cutting cylinder there are arranged the spring arms G which are secured at their upper ends to the sides of the central shaft and the free ends of these spring arms bear against the inner walls of the body portion of the cutter and serve to hold the screw pointed end of the shaft at the center of the lower or cutting edge of the cutter while the cylinder is being rotated, as will presently appear.

Secured to the center of the upper face of the disk C is a bevel pinion H which is de-

signed to be engaged by a bevel pinion I carried by a horizontal shaft J which is provided with a crank handle J' by which it is turned and this shaft and its pinion are not mounted upon the device but held in operative position by a ring or eye g in the end of the shaft and projecting through the center of the pinion thereon as shown in Fig. 1. The operating pinion I can thus be moved up out of contact with the pinion H when desired to throw the parts out of operative position.

K is a ring secured to the beveled upper face of the disk C as shown, the ring being held in a horizontal position so as to leave a space under its outer edge and in this space under the ring is engaged the bent ends of the wire L loosely sleeved on the crank shaft carrying the pinion I as seen. The object of this being to hold the pinion I down to its work. The wire is loosely sleeved on the shaft so as to be moved into and out of operative position.

The operation will be readily understood when taken in connection with the above description and annexed drawings. The device is centered by means of the screw pointed end of the central shaft and the cutting tool forced against the skull and the said cutter is then given the necessary rotary movement by means of the pinions above described and the crank shaft. The parts are kept in their proper relative positions by this centering point and the spring arms, the bevel pinion being fast with the disk C when the shaft is turned and the other bevel pinion in engagement with the pinion on the disk the said disk and all its attached parts must revolve therewith. In practice this device has proved most efficient for the purposes for which it is intended.

Modifications in detail may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

What I claim as new is—

1. In a trephine of the character described, the combination with the stationary centering device, of a rotatable cutter mounted to revolve around the same, as set forth.

2. In a trephine of the character described, the combination with a stationary centering device comprising a screw threaded shaft and spring arms thereon, of a rotary cutter and means for revolving the same, as set forth.

3. In a trephine of the character described, the combination with the disk and the ring thereon, of the shaft carrying a pinion for rotating the disk, and a device on the said shaft for engaging the ring as and for the purpose specified.

4. In a trephine of the character described, the combination with the disk and the cutter and collar, of the rods connecting the same, the spring arms on the shaft, the shaft, the pinion on the disk and the shaft carrying a pinion meshing with the pinion on the disk, as set forth.

5. The trephine described consisting of the disk with ring, the cutter, the rods connecting the disk and cutter, the collar and the grooved disk within the same, the bevel pinion on the disk, the horizontal shaft with its pinion, and the wire with arms on the horizontal shaft for engaging the ring on the disk all substantially as specified.

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

JOSEPH ALEXANDER MAC KENZIE.

Witnesses:

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JOHN ROSEMOND.