C. H. AMANN & L. A. HARKER.
EXPANDING MANDREL.

No. 191,634. Patented June 5, 1877

Fig 1

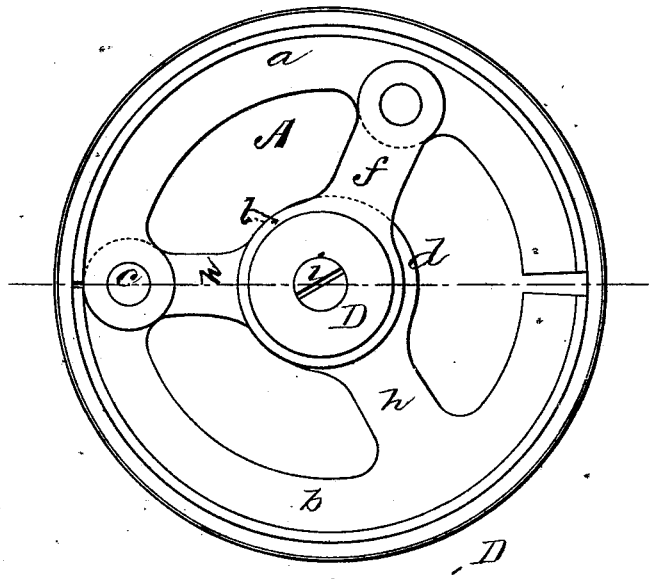


Fig 2.

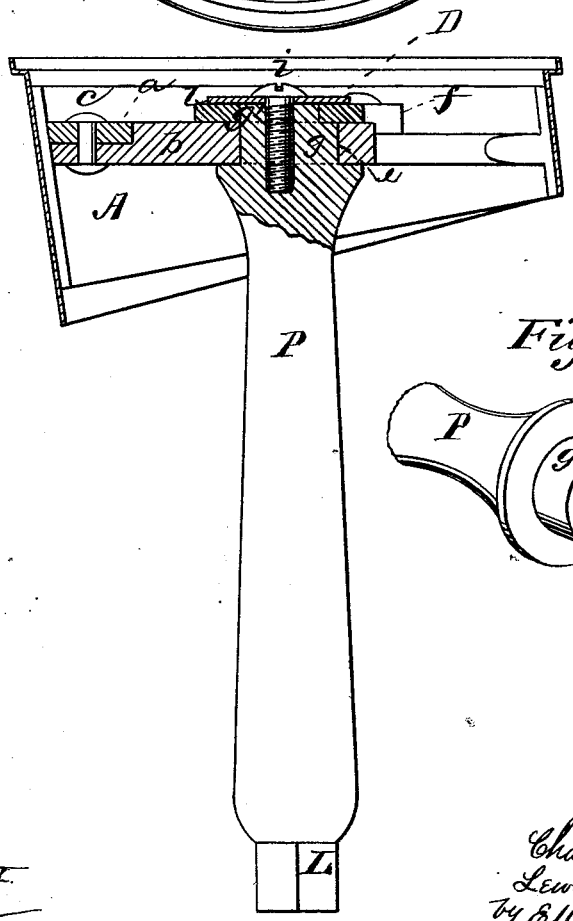
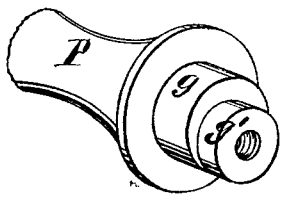


Fig 3



WITNESSES
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CHARLES H. AMANN AND LEWIS A. HARKER, OF COLUMBUS, OHIO.

IMPROVEMENT IN EXPANDING-MANDRELS.

Specification forming part of Letters Patent No. **191,634**, dated June 5, 1877; application filed May 12, 1877.

To all whom it may concern:

Be it known that we, CHARLES H. AMANN and LEWIS A. HARKER, both of Columbus, in the county of Franklin and State of Ohio, have invented a new and valuable Improvement in Expanding-Mandrels; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a plan view of the expanding-disk and operating-arm; and Fig. 2 is a sectional view of the invention. Fig. 3 is a perspective view of the handle.

This invention has relation to improvements in chucks or expanders for holding the sections of a curved stove-pipe elbow during the formation of the jointing; and the nature of the invention consists in combining with the hinged sections of the expanding-disk, having a hub secured to one section, and a pivotal arm secured to the other section, an operating-shaft, having a cylindrical rabbet adapted to enter the aperture of the hub, and an eccentric adapted to enter that of the arm, whereby the disk will be increased in diameter by turning the shaft, as hereinafter shown and described.

In the annexed drawings, the letter A designates the disk, composed of two semi-cylindrical sections, *a b*, hinged together at *c*. Section *b* has two radial arms, *h*, converging in a hub, *d*, provided with a cylindrical aperture, *e*, and section *a* a pivoted arm, *f*, provided at its free end with a cylindrical eye, *l*, of less diameter than the aperture of the hub aforesaid. P represents an operating-shaft, having a cylindrical rabbet, *g*, and a rabbeted eccentric, *g'*, upon its end, adapted, respectively, to enter the aperture of the hub and that of the eye on arm *f*. When thus applied the rotating of the shaft through the medium of the eccentric and arm *f* will cause the section *a* to swing outward, enlarging the diameter of the disk, and consequently expanding the pipe-section and holding the same firm during the formation of the jointing. The shaft and expanding-disk are secured together by means of disk D, of greater diameter than the eccentric, and a screw, *i*, passing through said disk centrally into the metal of said eccentric.

The free end of the shaft will have a wrench-seat, L, by means of which the expansion of the pipe-section may be more forcibly accomplished than by hand.

What we claim as new, and desire to secure by Letters Patent, is—

The combination, with the hinged sections *a b*, having, respectively, a hub, *d*, provided with a cylindrical aperture, *e*, and a pivoted arm, *f*, provided with eye *l*, of the shaft P, having a cylindrical rabbet adapted to enter the cylindrical aperture *e* of the hub *d*, and an eccentric adapted to enter the eye *l* of the arm *f*, substantially as specified.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

CHARLES H. AMANN.
LEWIS A. HARKER.

Witnesses:
JOHN M. TIBBETTS,
J. C. PATRICK.