Nov. 23, 1943. K. B. MAINES 2,334,781

EXPANSION PLIERS

Filed March 21, 1942

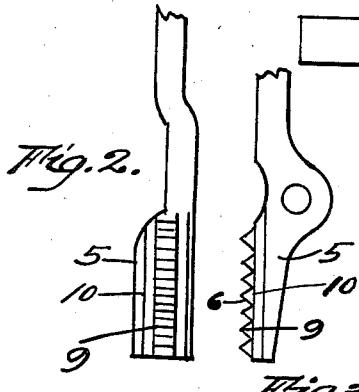


Fig. 2.

Fig. 3.

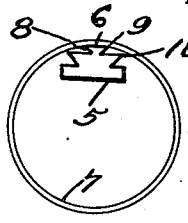


Fig. 4.

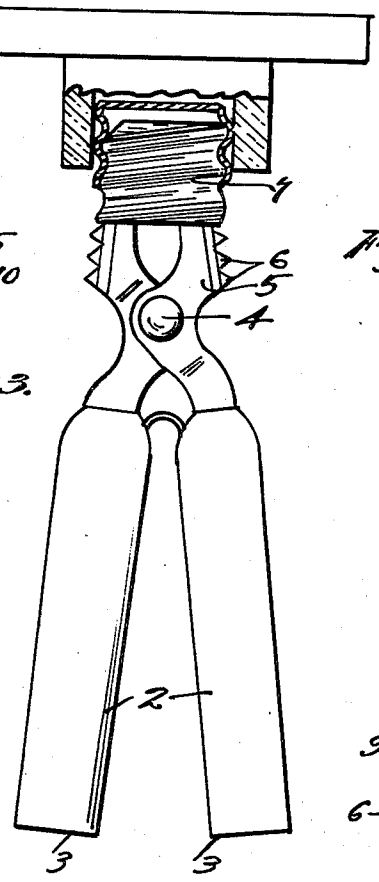


Fig. 1.

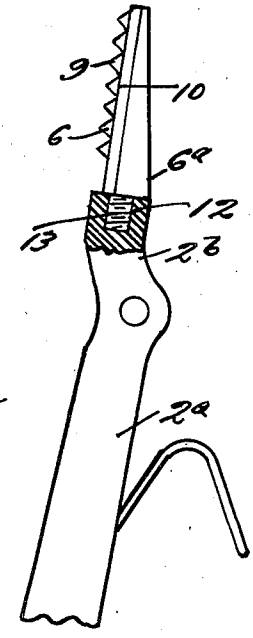


Fig. 5.

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EXPANSION PLIERS

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2 Claims. (Cl. 81—5.1)

This invention is a hand tool of the expansion jaw pliers type adapted to be used by biting against the bore or other inner face of various parts, elements or devices to facilitate application or removal thereof, or other employment as may be seemed desirable to the individual or mechanic applying the pliers.

It is an object of the invention to provide a simple, practical, substantial, reliable and highly effective hand pliers whereby to easily, safely, quickly and effectively remove the conventional screw-bases of common electric light bulbs from their sockets in event that the glass bulbs have been broken off while the light is in the socket, and to provide a pliers of this kind which has features to first break the glass lining in the base to expose the bore surface of the metal and which same feature will be effective to rotate the base to screw it out of the socket when the pliers is bodily rotated by the user. A further object is to provide elongate biting edges at the sides of the pliers' jaws to insure a safe and reliable and effective bite into the base bore surface.

A further purpose of the invention is to provide a pliers of this type in which the main levers are wholly of insulative material and the biting jaws are of a suitable metal and are mounted on ends of the levers at points near the pivotal connection between the levers.

The invention consists of certain advancements in this art as set forth in the ensuing disclosure and having, with the above, additional objects and advantages as hereinafter developed, and whose construction, combination, and details of means and the manner of operation will be made manifest in the following description of the herewith illustrative embodiment; it being understood that modifications, variations and adaptations may be resorted to within the scope, spirit and principle of the invention.

Figure 1 is a sectional elevation showing the tool applied for the removal of the base of an electric light bulb the bulb of which has been broken off at its neck juncture with the base.

Figure 2 is a plan of the tooth face of one of the pliers jaws.

Figure 3 is a side elevation of one of the jaws.

Figure 4 is an end view of one of the jaws as engaging the bore face of a bulb base.

Figure 5 is an elevation of a fragment of one lever having an attached jaw and is itself of insulating material.

The pliers is composed of a pair of duplicate levers **2** forming handles which, in Fig. 1, are encased in a jacket **3**, on each, of a substantial electrical insulative material, a hard rubber or its insulative equivalent being effective. The levers are interpivoted at **4** to be squeezed toward each other in the palm of the user (right or left hand). Projecting from the pivoted ends of the levers and on its respective right or left side of the pivot, each lever has a longitudinally elongate jaw **5**; these jaws moving apart as and when the levers **2** are relatively contracted.

Each jaw has along its outer side or face a row of triangular cross-section transverse, straight ridged teeth **6** which have the function, as the jaws move outwardly, of crushing the lining of glass or other medium, of the neck of a conventional electric light bulb, fixedly engaging the inner or bore face of the bulb base **7**, Fig. 1 (from which base the bulb has been broken off). A further function is given the teeth **6** by under-bevelling or dove-tail cutting the transverse ends of the teeth as at **8** so that their ridge ends present sharp corners **9** to securely bite into the metal base as the pliers is turned by the hand of the user after the crust of glass has been broken away from the base surface at the points where the row of teeth dig in.

A further means is also provided to insure bite into the base and to give the tool a long useful life for the intended purposes, and this means includes the provision of long, longitudinally extending ridge forming, knife-edge shoulders **10** at each side of the rows of teeth **6** and at the root plane thereof as seen in Fig. 3. The shoulders **10** are formed along the outer face and at the sides of the elongate body of the respective jaw **5**. As the teeth **6** break through the glass and engage the metal base the sharp cornered shoulders **10** bite into the base. The teeth and the shoulders are effective as the pliers are rotated in either direction.

In Fig. 5 there is shown a form in which the handle lever **2***a* is wholly of a highly insulative material and its pivoted end has a short extension **2***b* bored with a screw thread **12** to receive a complementary threaded shank **13** of a metallic, applicable jaw **6***a* having teeth and shoulders as above set forth.

What is claimed is:

1. An expansion action pliers including a pair of levers in substantially parallel arrangement and interpivoted between their ends and having, forward of the pivot, elongate effective limbs which are spread apart when the rear, handle-forming ends of the levers are moved toward each other; the laterally outer faces of the said elongate limbs having, each, a ridge extending longitudinally

thereof for crushing glass or other lining in a broken-bulb, electric light base, the longitudinal sides of said ridges being bevel undercut to provide longitudinal biting edges to engage in the said base when the plier limbs are expanded therein and the pliers are bodily turned, the ridges having outer rows of teeth.

2. An expansion pliers having handles pivoted together and provided with elongated pressure limbs which are opened as the handles move toward each other about the pivot axis and which limbs are provided along their laterally outermost faces, each with a row of teeth having biting edges disposed transverse to the length of said limbs and the sides of the limbs and the ends of the teeth all being undercut to form biting features.

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