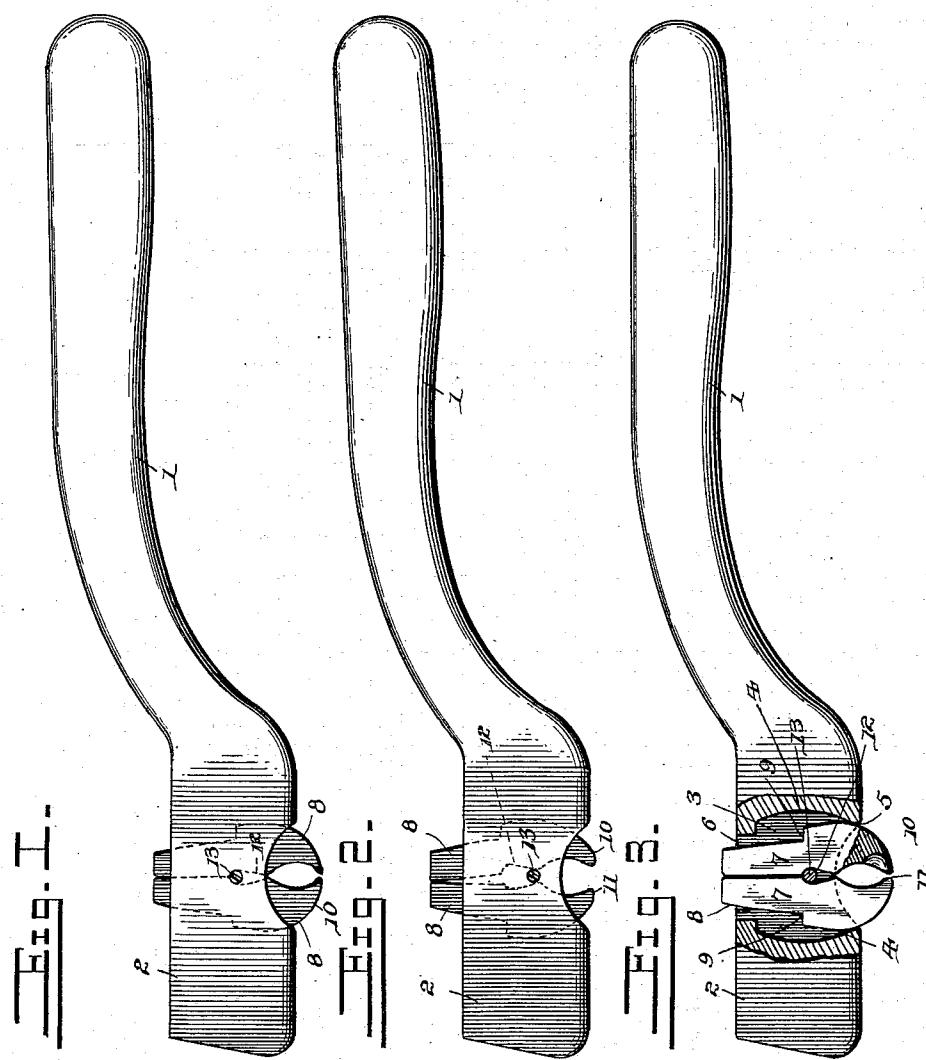


No. 652,002.

D. A. KINCAID.
NAIL EXTRACTOR.
(Application filed Oct. 18, 1899.)

(No Model.)

Patented June 19, 1900.



Witnesses

F. C. Alden.

By his Attorneys,

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UNITED STATES PATENT OFFICE

DAVID ASHBY KINCAID, OF SOUTH PORTLAND, MAINE.

NAIL-EXTRACTOR.

SPECIFICATION forming part of Letters Patent No. 652,002, dated June 19, 1900.

Application filed October 13, 1899. Serial No. 733,496. (No model.)

To all whom it may concern:

Be it known that I, DAVID ASHBY KINCAID, a citizen of the United States, residing at No. 49 Sawyerstreet, South Portland, in the county 5 of Cumberland and State of Maine, have invented a new and useful Nail-Extractor, of which the following is a specification.

The invention relates to improvements in nail-extractors.

10 The object of the present invention is to improve the construction of nail-extractors and to provide a simple, inexpensive, and efficient device of great strength and durability adapted to engage under the head of a nail 15 and capable of readily extracting the same without bending the nail at the point of engagement therewith.

The invention consists in the construction and novel combination and arrangement of 20 parts, hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a side elevation of a nail-extractor constructed in accordance with this invention, the jaws being in their lowermost position. Fig. 2 is a similar view, the jaws being raised. Fig. 3 is a longitudinal sectional view, the parts being arranged as illustrated in Fig. 1.

30 Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a handle, consisting of a shank or bar, having a straight outer portion 2, and 35 slightly curved at the inner end thereof to raise or offset the inner or grip end of the handle from the plane of the bottom of the straight portion 2. The outer straight portion 2 is provided with a tapering recess or

40 cavity 3, having flat side walls and curved end walls 4, extending upward from a bottom opening 5 and terminating short of the top or upper face of the handle, which is provided with a contracted top slot or opening

45 6. Within the cavity 3 is arranged a pair of similar jaws 7, composed of lower engaging portions and provided with approximately-straight shanks 8, having straight inner edges, as clearly illustrated in Fig. 3 of the accompanying drawings. The engaging portions of 50 the jaws extend beyond the inner or lower terminals of the shanks 8 to provide shoul-

ders 9, and their lower outer edges 10 are rounded, as shown. The jaws are cut away or recessed at their lower inner edges to provide a space for the head of a nail and to form engaging points 11, which are forked or bifurcated, as illustrated in Fig. 3 of the drawings, to enable them to extend around a nail and engage the same under the head thereof and at the same time permit the nail to have a limited movement, whereby when the same is extracted there will be no liability of bending the nail at the head. It has been found by experience that where nails are bent sharply at the head they are practically destroyed, as it is almost impossible to straighten them without breaking off the head, but by constructing the jaws as before described this is obviated. The jaws are provided at the lower ends of the shanks 8 with downwardly-converging edges 12, formed by recesses or notches and coöperating to form a tapering or approximately-triangular opening for the reception of a transverse fastening device 13, 75 consisting of a screw or pin and adapted to be readily removed to permit the jaws to be taken out and replaced. The transverse fastening device limits the longitudinal movement in one direction and prevents them from dropping too far, and at the same time it causes them to open as they are moved upward with relation to the handle 1. The jaws have a limited longitudinal and lateral movement and they do not extend a material distance beyond the handle, which is provided with a curved or segmental recess at the bottom opening 5 to enable the jaws to readily engage under the head of a nail.

In applying the device to the nail to be extracted the jaws are arranged at opposite sides of the head in an open position, as illustrated in Fig. 2 of the drawings, and the upper ends of the shanks 8 are struck with a hammer, which forces the jaws downward and causes the same to engage under the head of a nail. As the jaws move downward they move inward to clamp the nail, the inclination of the curved side walls causing such inward movement, and the space between the side walls is sufficient to permit the jaws to move downward a limited distance before they are forced inward, whereby they are caused to clear the head of the nail. The

outer end of the handle or bar forms a fulcrum, and the nail is extracted by raising the inner or grip end of the handle or bar. As the jaws move upward they describe a part 5 of a circle; but the forks or bifurcations and the cut-away portions above the points permit the nail to have a limited movement independent of the jaws, whereby the nail is permitted to assume or remain practically in 10 a perpendicular position in withdrawing, so that it will not be injured by such operation. In order to assist or facilitate a straight withdrawal of the nail, the jaws are permitted a limited oscillation or rotary movement, the 15 screw serving as a pivot and the slot 6 being sufficiently large to permit the necessary lateral movement of the shanks 8. The rounding of the outer edges of the engaging portions of the jaws and the concave end walls 20 enable the said jaws to have such a movement, which would be impossible were the jaws strictly wedge-shaped and the side walls straight.

It will be seen that the device is exceedingly simple and inexpensive in construction, 25 as it consists only of a handle or bar, the separate jaws, and the transverse fastening device, that the jaws are not liable to break, and that in event of one of them becoming 30 broken or otherwise injured it may be readily replaced by a new part by simply removing the transverse fastening device.

Changes in the form, proportion, size, and the minor details of construction within the 35 scope of the appended claims may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

What is claimed is—

- 40 1. A device of the class described comprising a handle having a socket, a pair of separate independent jaws arranged within the socket, and a central fastening device interposed between the jaws and arranged to open the same when the jaws are moved upward independently of the handle, substantially as described.
- 45 2. A device of the class described comprising a handle having a socket, a pair of jaws arranged within the socket and being separate and independent and provided above their engaging portions with recesses and arranged to bear against each other at the top and bottom of the recesses, at points above their engaging lower ends, and a fastening device interposed between the jaws and arranged in the said recesses, substantially as described.
- 55 3. A device of the class described comprising a handle having a cavity, and a pair of

separate or independent jaws arranged within the cavity and capable of rocking independently of the handle and of remaining in alignment with the nail to be extracted, whereby the latter is prevented from being bent, substantially as described. 65

4. A device of the class described comprising a handle having a cavity, a pair of independent jaws arranged within the cavity and having projecting and engaging portions, said 70 jaws being provided with opposite recesses having edges converging toward the engaging portions of the jaws, and a transverse fastening device extending through the said recesses and arranged to be engaged by the 75 said converging edges, whereby the jaws are caused to open or separate, substantially as and for the purpose described.

5. A device of the class described comprising a handle having a cavity extending 80 through it with downwardly-converging walls, a pair of independent jaws arranged within the cavity and projecting above and below the handle and having rounded bottom portions, said jaws being also provided 85 at their inner edges with recesses having converging walls, and a transverse fastening device interposed between the jaws and arranged to be engaged by the converging edges 90 thereof, whereby the jaws are open when they are moved upward independently of the handle, substantially as described.

6. A device of the class described comprising a handle having a cavity, a pair of independent jaws composed of lower engaging 95 portions, and upper shanks projecting above the handle, said jaws being provided at their inner edges with recesses formed with downwardly-converging edges, and a transverse 100 fastening device arranged within the said recesses in position to be engaged by the converging edges, substantially as described.

7. A device of the class described comprising a handle having a cavity, a pair of independent jaws arranged within the cavity, and a central fastening device interposed between the jaws and forming a pivot or fulcrum for the same, whereby the latter are adapted to rock or partially rotate independently of the handle and remain in alignment with the nail 105 to avoid twisting the latter, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

DAVID ASHBY KINCAID.

Witnesses:

MAJOR E. L. LIBBY,
JAMES W. LOWELL.