

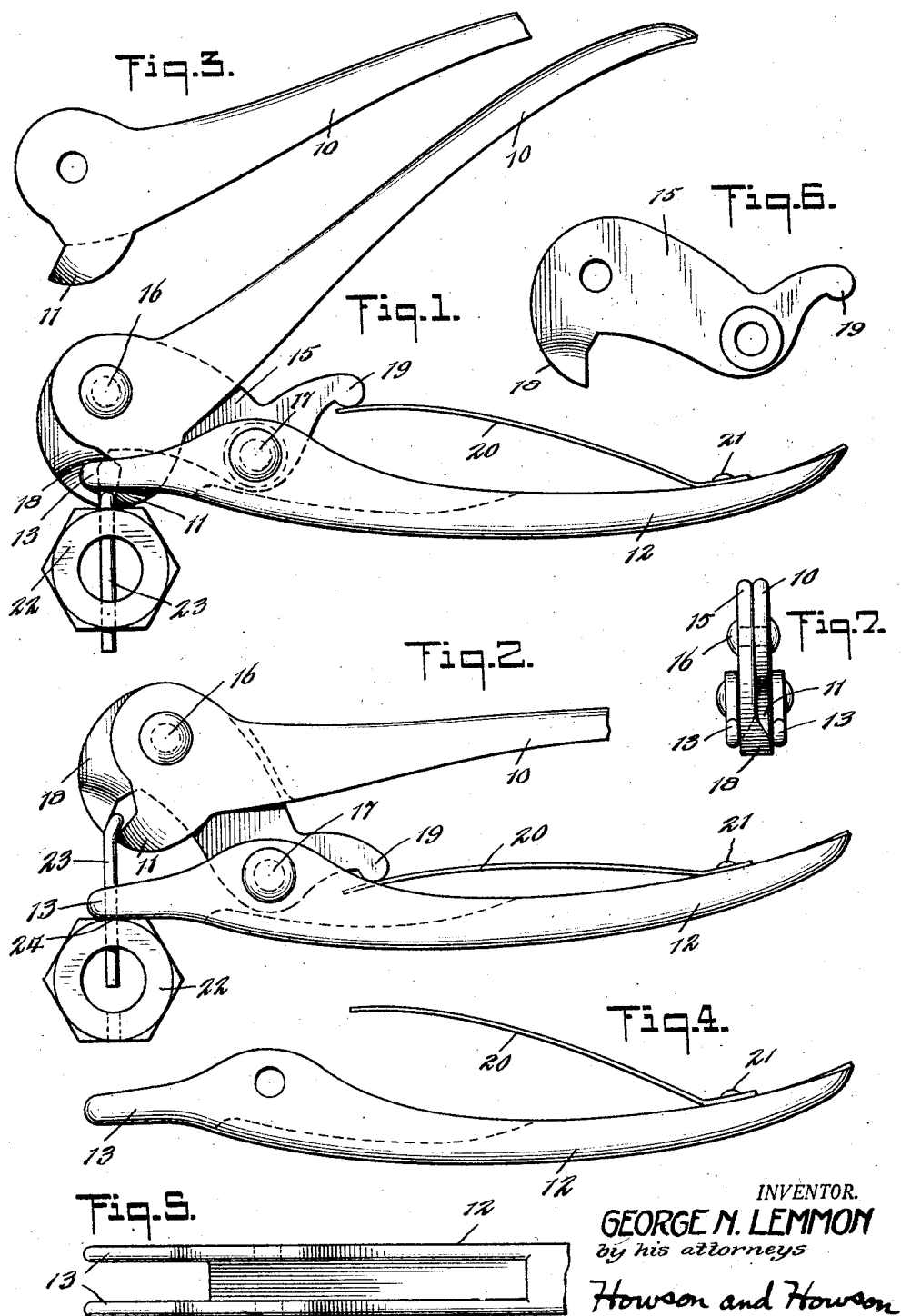
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EXTRACTOR FOR COTTER PINS, NAILS, AND THE LIKE

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EXTRACTOR FOR COTTER PINS, NAILS, AND THE LIKE.

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My invention relates to an extractor for
cutter-pins, tacks, nails and the like, and
particularly to extractors of the plier type
adapted to be gripped in the hand. Among
the principal objects of my invention are,
(1) to provide an extractor which will with-
draw a pin or nail which has but a small
portion accessible; (2) to provide an efficient
manually operated extractor which is simple
and inexpensive to manufacture.

While the gripping jaws of my extractor
may be shaped in any fashion appropriate to
the service for which it is designed, I have
illustrated jaws primarily intended for
clamping upon a cotter-pin, and in the ac-
companying drawings,

Fig. 1 is a side elevation of an extractor
in which my invention is embodied in this
form;

Fig. 2 is a side elevation corresponding to
Fig. 1, but illustrating the operation of the
extractor;

Fig. 3 is a side elevation of jaw lever;

Fig. 4 is a side elevation of the fulcrum
lever;

Fig. 5 is a broken plan of the fulcrum end
of the latter;

Fig. 6 is a side elevation of the link jaw
member; and

Fig. 7 is an end elevation of the extractor
as viewed from the left in Fig. 1, showing
how the parts are connected together.

Cotter-pin extractors are commonly pro-
vided with a point intended to enter and
engage the eye of the cotter-pin. When
cotter-pins are in good order they are readily
removed by a pair of ordinary pliers. In
actual practice, however, cotter-pins are
often encountered which have been ham-
mered in, the eye having been thereby closed
or even broken. Often, also, so small a por-
tion of the pin is accessible that it is ex-
tremely difficult to get a grip on the exposed
end with an ordinary pair of pliers. The
present device may be successfully used
even under these conditions.

My device includes a pair of clamping
jaws such as have long been in general use
in nail extractors. Cotter-pins, however,
are generally used in places where a nail ex-
tractor cannot be used, as there is seldom
a surface upon which the fulcrum arm of
the nail extractor can be rested. The addi-
tion of the extra handle member makes the
new device easily operated and effective in

the difficult cases for which no other device
is at all suitable.

Referring to the drawings, the appliance
shown comprises a manually gripped lever
arm 10 shaped at one end to form a jaw 11,
and an opposed manually gripped lever arm
12 shaped at its corresponding end to form
a fulcrum fork 13 which straddles the jaw
11. While a fork end is preferable it is not
necessary. It is essential only that the ful-
crum lever 12 shall have an end which rests
upon the support, e. g. a nut from which the
cotter pin is extracted.

Interposed between and connecting the
two lever arms 10 and 12 is a link 15 piv-
oted at 16 and 17 to the arms 10 and 12.
One free end of the link 15 is shaped to form
a jaw 18 opposed to the jaw 11, and also
straddled by the forked end 13 of the arm
12. At its opposite free end the link is pro-
vided with a tail 19 engaged by the free end
of a leaf spring 20 secured at 21 to the arm
12. The effort of the spring tends to move
the jaws 18 and 11 through the fork 13 of
the lever arm 12.

The operation of the extractor is readily
followed from Figs. 1 and 2. To open the
jaws the hand grip ends of the arms 10 and
12 are separated. The fork 13 is held by the
spring 20 above the gripping ends of the
jaws 11 and 18. The latter may now be po-
sitioned on opposite sides of the head of the
cotter-pin 23. When the arm 10 is pressed
toward the arm 12 by the grip of the
hand, the jaw 11 approaches the jaw 18, and
clamps the cotter-pin head. As the arms 10
and 12 are further closed, the forked ful-
crum end of the arm 12 swings on the pivot
17 toward the plane of the jaw ends since the
jaw arm 10 is now halted by its engagement
with the cotter-pin. The fork then bears
upon the support 24, which may be the face
of the nut 22 through which the pin 23
passes, and a further gripping effort upon
the arms 10 and 12 is exerted through the
link 15 to lift the jaws 18 and 11 straight
away from the nut 22. The pin 23, thus
started through its hole in the nut, may
now be pulled straight through the hole by
the bodily displacement of the extractor
away from the nut. If its frictional en-
gagement is still too great to permit this,
however, a second grip may be taken fur-
ther down on the cotter-pin, and the opera-
tion repeated.

The physical structure of the parts is rugged, simple and serviceable. It may be varied in detail while still embodying the thoughts which underlie what I claim as my invention.

I claim:

1. An extractor for cotter-pins and the like, comprising a pair of levers, a link connecting the same and having a jaw end, one of said levers having a jaw end cooperating with the link jaw, the other lever having a fulcrum end which moves across the plane in which the jaws meet, when the operating levers approach each other.

2. An extractor of the type described, comprising a lever with forked fulcrum end adapted to straddle the head of a pin or the like, and a pair of cooperating jaw members pivotally connected together, one of the jaw members being pin connected to the fulcrum lever, said jaw members playing across the plane of said forked end of the fulcrum lever.

3. An extractor comprising a jaw lever, a fulcrum lever, a link jaw cooperating with the lever jaw, a pivotal connection in the neighborhood of the jaw between the link and jaw lever, and a pivotal connection between the link and fulcrum lever at a point remote from the link jaw.

4. An extractor comprising a jaw lever, a fulcrum lever, a link jaw cooperating with the lever jaw, a pivotal connection in the neighborhood of the jaw between the link and jaw lever, and a pivotal connection between the link end fulcrum lever at a point remote from the link jaw, together with spring means engaging the link tending to urge the clamping jaws past the fulcrum lever.

5. In an extractor for cotter-pins or the like, a pair of jaws pivotally connected together and an extension on one of said jaws in combination with a handle member to which said extension is pivotally connected, there being a fulcrum end rigid with said handle member.

6. In an extractor for cotter-pins or the like, a pair of jaws pivotally connected together, a rigid handle extension on one jaw, and a rigid extension on the other jaw, in combination with a second handle member pivotally connected with said second extension there being a fulcrum end rigid with said second handle member.

7. In an extractor for cotter-pins or the like, a pair of jaws pivotally connected together, and an extension on one of said jaws,

in combination with a handle member to which said extension is pivotally connected, there being a fulcrum end rigid with said handle member said handle member being operable independently of the operation of the jaws.

8. In an extractor for cotter-pins or the like, a pair of jaws pivotally connected together, a rigid handle extension on one jaw, and a rigid extension on the other jaw, in combination with a second handle member pivotally connected with said second extension, said second handle member having a fulcrum arm which extends from the pivot towards the jaws.

9. In an extractor for cotter-pins or the like, a pair of jaws pivotally connected together, a rigid handle extension on one jaw, and a rigid extension on the other jaw, in combination with a second handle member pivotally connected with said second extension, said second handle member having an arm which straddles the jaws and extends to their gripping point.

10. In an extractor for cotter-pins or the like, a pair of jaws pivotally connected together, a rigid handle extension on one jaw, and a rigid extension on the other jaw, in combination with a second handle member pivotally connected with said second extension, said second handle member having a fulcrum end which extends to the gripping point of the jaws.

11. In an extractor for cotter-pins or the like, a pair of cooperating clamping jaws, and a handle rigidly attached to one of said jaws, in combination with a second handle pivotally attached to the second jaw, and an arm rigid with said second handle extending from the point of attachment toward the clamping contacts of the jaws said arm being adapted to act as a fulcrum for the jaws.

12. In an extractor for cotter-pins or the like, a pair of cooperating clamping jaws, and a handle rigidly attached to one of said jaws, in combination with a second handle pivotally attached to the second jaw, an arm rigid with said second handle extending from the point of attachment toward the clamping contacts of the jaws said arm being adapted to act as a fulcrum for the jaws, and spring means tending to keep the second jaw in fixed relation with its handle.

In testimony whereof I have signed my name to this specification.

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