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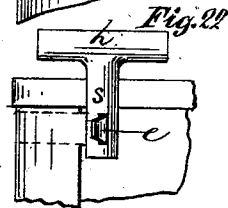
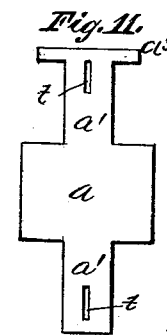
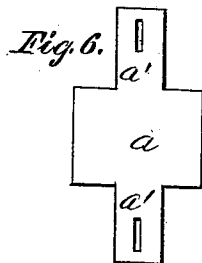
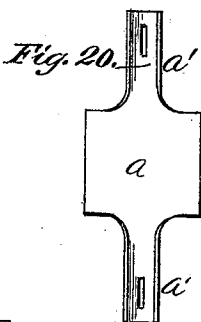
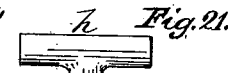
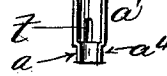
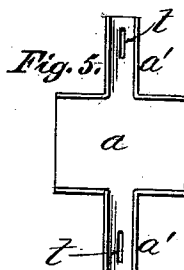
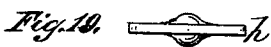
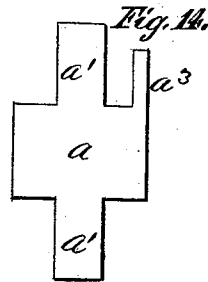
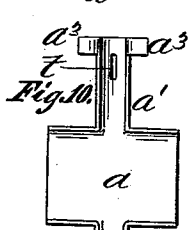
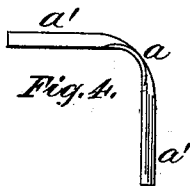
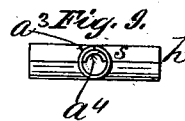
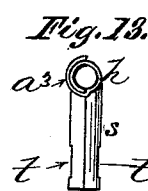
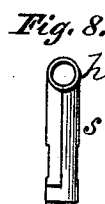
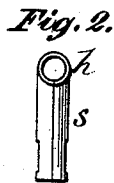
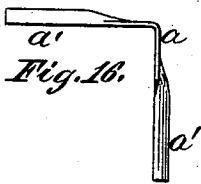
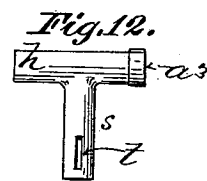
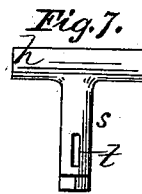
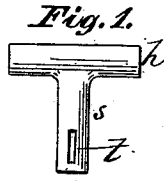
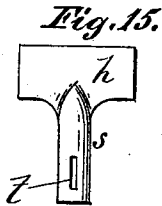
2 Sheets—Sheet 1.

O. S. FELLOWS.

KEY FOR OPENING SHEET METAL CANS.

No. 543,004.

Patented July 23, 1895.



Witnesses:
O. W. Gardner
August Hoffmann

Inventor:
Olin S. Fellows,
By his Attorney,
George William Smith

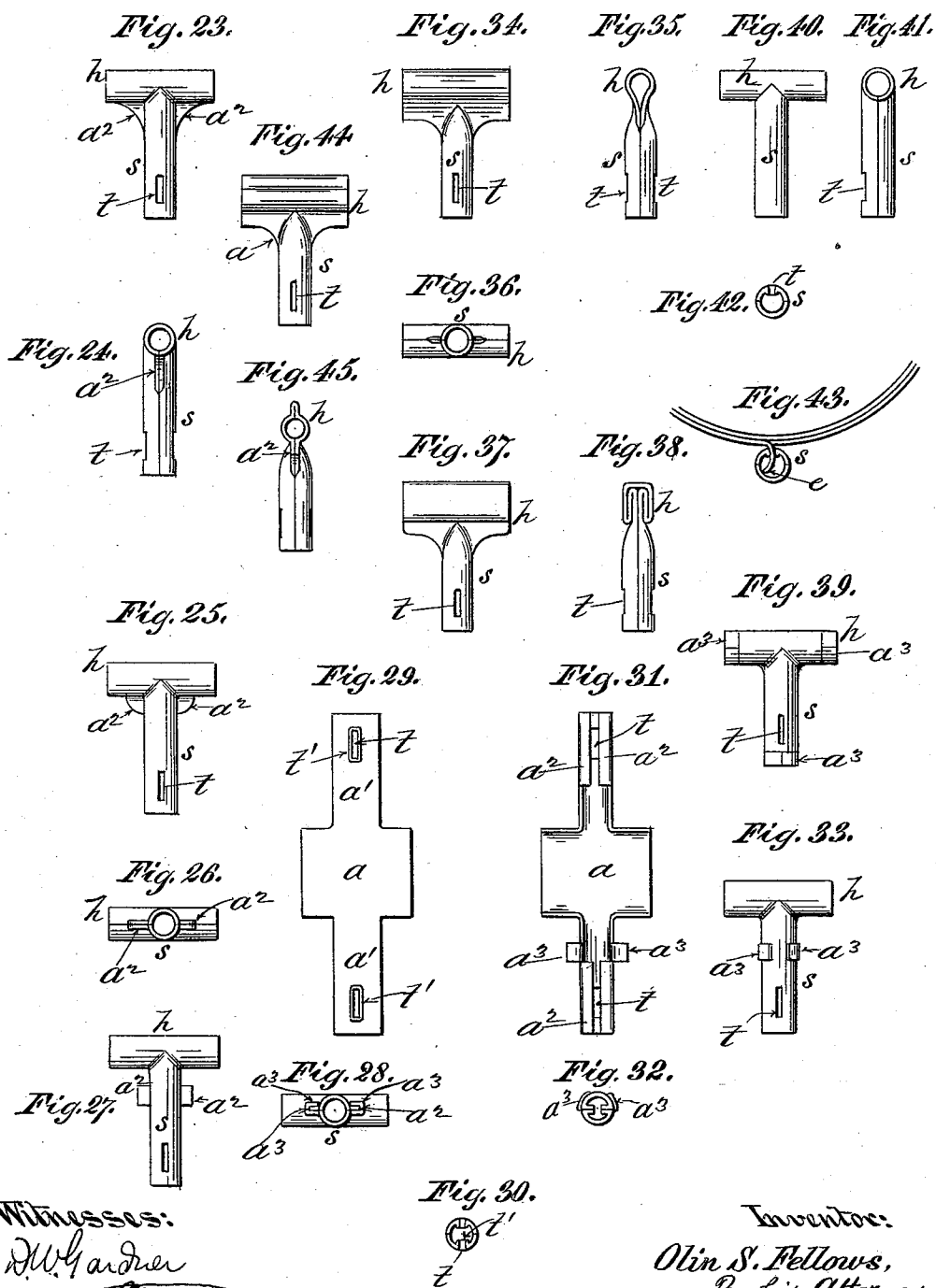
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

OLIN STEPHEN FELLOWS, OF MIDDLETOWN, NEW YORK.

KEY FOR OPENING SHEET-METAL CANS.

SPECIFICATION forming part of Letters Patent No. 543,004, dated July 23, 1895.

Application filed November 12, 1894. Serial No. 528,565. (No model.)

To all whom it may concern:

Be it known that I, OLIN STEPHEN FELLOWS, a citizen of the United States, residing at Middletown, in the county of Orange and State of New York, have invented certain new and useful Improvements in Keys for Opening Sheet-Metal Cans, of which the following is a specification sufficient to enable others skilled in the art to which the invention appertains to make and use the same.

My invention relates to devices known as "keys" for use in effecting the opening of sheet-metal cans and packages by the stripping off of either the flange of an end plate or of a portion of a can-body, so as to release an end plate. Heretofore these keys have been struck up or otherwise formed out of heavy sheet metal with a flat shank slotted to receive the end of the stripping-tongue of a can. This form of key is objectionable for the reason that the leverage exerted by the flat shank as it is rotated during the operation of stripping is uneven, resulting in a series of jerks and strains which are apt to tear or rupture the strip, if the metal is thin, and rendering the operation of stripping difficult and uncertain.

My invention consists, essentially, in a key formed of comparatively-thin sheet metal which is stamped up and bent over upon itself in such manner as to afford a shank having a convex exterior surface, preferably cylindrical, so as to render the strain of stripping even and uniform throughout. By my construction I also attain a light and inexpensive key, since the blanks therefor can be struck out of the same metal as the can and from the waste metal incident to its manufacture.

In the accompanying drawings, Figures 1 to 6, inclusive, show my improved key in its simplest form and steps in its manufacture. Figs. 7 to 11 show the same key having overlapping lugs which reinforce the end of the shank. Figs. 12, 13, and 14 illustrate the key as formed with an overlapping tongue on the handle. Figs. 15 to 20, inclusive, illustrate the formation of the key with a flat handle or finger-piece. Figs. 21 and 22 illustrate the use of the key. Figs. 23 to 26, inclusive, show the shank of the key formed with opposed flanges or webs, which prevent the overlap-

ping of the edges of the metal. Figs. 27 and 28 show a form in which the lugs are made to overlap to bind the parts together. Figs. 29 and 30 show the upsetting of the edges of the slot which receives the end of the stripping-tongue. Figs. 31, 32, and 33 show the lugs or flanges for preventing the overlapping of the edges of the metal arranged inside the shank with exterior overlapping tongues. Figs. 34, 35, and 36 show a modification in the form of the handle or finger-piece. Figs. 37 and 38 show the handle or finger-piece strengthened by doubling and folding the metal. Fig. 39 shows the key with overlapping tongues binding both shank and handle ends. Figs. 40 to 43, inclusive, illustrate the construction and use of the key with but a single slot for receiving the end of the stripping-tongue. Figs. 44 and 45 show a form of key corrugated.

The blank of metal from which the key is made is formed with a central portion *a*, having extensions *a' a'* of less width, which eventually constitute the shank *s*, while the intermediate wider portion *a* constitutes the finger-piece or head *h* when the blank is stamped and folded. Previous to folding, the extensions *a' a'* of the blank are slotted, as at *t*, to receive the end *e* of a stripping-tongue, (see Fig. 22 or 43,) and are embossed or drawn into such shape as to constitute a shank *s* when the blank is folded upon itself, having a convex exterior surface. The dishing or convexity of the inner surfaces of the extensions *a' a'* is preferably such as to afford a shank which is practically cylindrical in cross-section, although I do not wish to limit myself strictly to that form, since it is obvious that an elliptical or other curved form in cross-section would be more or less effective, the essential feature of my invention in this respect consisting in the formation of the shank with a convex exterior surface.

Both extensions *a' a'* may be formed with slots *t t*, coinciding one with the other, as in a majority of the figures, or a single slot *t* may be used, as illustrated in Fig. 43, in which case the protrusion of the stripping-tongue *e* is avoided and a perfect cylindrical surface is presented to the side of the can. The edges of the slots *t* may be upset and turned inward, as at *t'*, Figs. 29 and 30, to stiffen them

against the strain of resistance afforded by the end e of the stripping-tongue during the operation of opening a can.

As the edges of the extensions, after the blank has been stamped and folded, come together, it is desirable, where comparatively thin metal is used, to prevent their overlapping each other and thus impairing the form of the shank in cross-section, and this I accomplish by the formation of lateral lugs or webs $a^2 a^2$, which by opposing each other broaden the contact and hold the two halves of the blank apart. In this connection the lugs $a^2 a^2$ may be formed with overlapping tongues $a^3 a^3$, as in Fig. 28, or such tongues $a^3 a^3$ may be formed on either one or both of the extensions $a' a'$ and made to overlap the opposed part externally when the blank is folded. Thus in Figs. 7 to 10 the ends of the extensions are bound together by such tongues a^3 . In Figs. 12 and 13 the blank is held in its folded position by a binding-tongue a^3 on the handle h , while in Fig. 29 both methods are resorted to, as is desirable where thin tin is used.

The blank is preferably stamped with offsets $a^4 a^4$, as shown in Figs. 9 and 10, for the reception of these binding-tongues a^3 , so as to afford a continuous flush surface on the exterior of the key, although this is not essential, as will be seen by reference to Figs. 12, 13, and 33.

In Figs. 31 to 33 the spacing-lugs a^2 are bent inward, so as to form internal bearing-surfaces of considerable extension on both sides and beyond the slots t , thus materially stiffening and strengthening the shank at and adjoining the point of severest strain.

The head or handle h of the key may be formed and stiffened in various ways. Where the metal is comparatively heavy a simple fold, as in Figs. 15 to 20, will be sufficient, presenting a flat broad surface for contact with the fingers of the user. With thinner metal it is desirable to reinforce and stiffen the handle h , and this may be done by simply stamping and bending the central portion of the blank a into substantially-cylindrical form by corrugating it, as in Figs. 44 and 45, or by using more metal and folding it transversely, similar to the manner shown in Figs. 36 and 37.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A key for opening sheet metal cans consisting of a piece of sheet metal having a middle portion formed with extensions of less width, so that when the blank is folded double said middle portion will constitute a transverse head stiffened by the fold, the extensions of less width constituting a shank formed, with coinciding slots in the superposed ends for the reception of a stripping tongue of a can, substantially in the manner and for the purpose described.

2. A key for opening sheet metal cans consisting of a piece of sheet metal having a middle portion formed with extensions of less width which are embossed so that when the blank is doubled upon itself the middle portion forms a transverse head and the extensions form a hollow shank, said shank being slotted to receive the stripping tongue of a can, substantially in the manner and for the purpose described.

3. A key for opening sheet metal cans consisting of a piece of sheet metal having a middle portion formed with extensions of less width which are stamped into semi-cylindrical shape, so that when the blank is folded with the concave surfaces and the extensions opposed to each other a cylindrical shank will be formed, which shank is slotted to receive the stripping tongue of a can substantially in the manner and for the purpose described.

4. A key for opening sheet metal cans consisting of a piece of sheet metal having a middle portion formed with extensions of less width, said middle portion being embossed transversely and the extensions being embossed longitudinally, the blank being folded upon itself with the convex surfaces opposed, and the shank being slotted to receive the stripping tongue of a sheet metal can, substantially in the manner and for the purpose described.

5. A key for opening sheet metal cans, consisting of a piece of sheet metal having a middle portion formed with extensions of less width which are embossed longitudinally so that when the blank is doubled upon itself the middle portion forms a transverse head and the extensions form a hollow shank, said shank being slotted to receive the stripping tongue of a sheet metal can, and the opposed portions of the blank being held together as folded by a tongue upon one portion overlapping the other portion, substantially in the manner and for the purpose described.

6. A key for opening sheet metal cans, consisting of a piece of sheet metal having a middle portion formed with extensions of less width which are embossed longitudinally so that when the blank is doubled upon itself the middle portion forms a transverse head and the extensions form a hollow shank, said shank being slotted to receive the stripping tongue of a sheet metal can, and the opposed portions of the blank being held together, as folded, by tongues on one portion overlapping the other portion substantially in the manner and for the purpose described.

7. A key for opening sheet metal cans, consisting of a piece of sheet metal having a middle portion formed with extensions of less width which are formed with laterally projecting lugs and are embossed longitudinally so that when the blank is doubled upon itself the middle portion forms a transverse head and the extensions form a hollow shank the

halves of which are held in proper relation to each other by the said lateral lugs, said shank being slotted to receive the stripping flange of a sheet metal can substantially in the manner and for the purpose described.

5 8. A key for opening sheet metal cans consisting of a piece of sheet metal having a middle portion formed with extensions of less width which are formed with laterally projecting lugs and are embossed longitudinally, so that when the blank is folded upon itself the middle portion forms a transverse head and the extensions form a hollow shank the two halves of which are held in proper relation to each other by the said lateral lugs and bound together by tongues on one portion overlapping the other portion, said shank being slotted to receive the stripping tongue of

a sheet metal can, substantially in the manner and for the purpose described.

20 9. A key for opening sheet metal cans consisting of a piece of sheet metal having a middle portion formed with extensions of less width which are embossed longitudinally, so that when the blank is doubled upon itself the middle portion forms a transverse head and the extensions form a hollow shank, said shank being slotted to receive the stripping tongue of a sheet metal can and having the edges of the slot upset internally to strengthen them, substantially in the manner and for the purpose described.

OLIN STEPHEN FELLOWS.

Witnesses:

GEORGE WILLIAM MIATT,
D. W. GARDNER.