

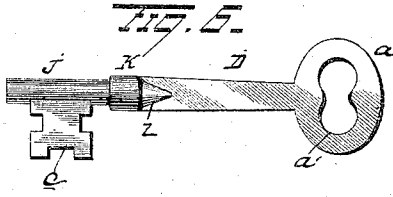
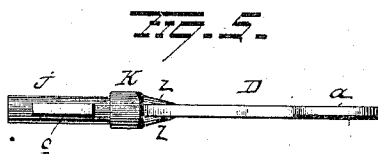
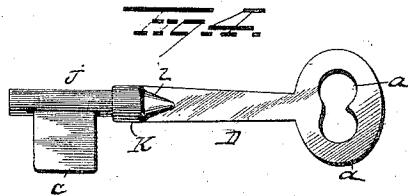
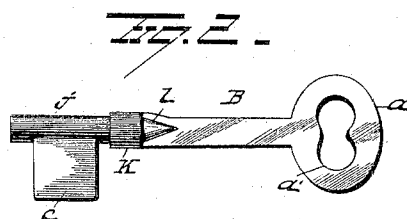
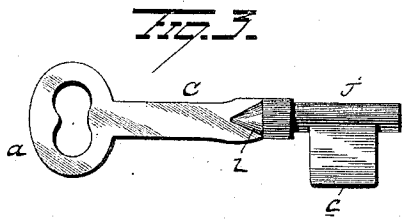
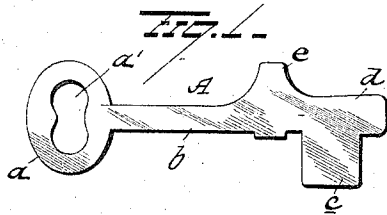
(No Model.)

G. B. COWLES.

KEY.

No. 371,823.

Patented Oct. 18, 1887.



Witnesses
E. M. Birmingham
J. E. Jones

Inventor.
George B. Cowles
By his Attorney
H. A. Seymour.

UNITED STATES PATENT OFFICE.

GEORGE B. COWLES, OF NEW BRITAIN, CONNECTICUT, ASSIGNOR TO P. & F. CORBIN, OF SAME PLACE.

KEY.

SPECIFICATION forming part of Letters Patent No. 371,823, dated October 18, 1887.

Application filed May 7, 1887. Serial No. 237,464. (No model.)

To all whom it may concern:

Be it known that I, GEORGE B. COWLES, of New Britain, in the county of Hartford and State of Connecticut, have invented certain
5 new and useful Improvements in Keys; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

10 My invention relates to an improvement in keys, and especially to that class of keys constructed from a single piece of metal and provided with a flattened shank and solid cylindrical barrel, the latter being provided with
15 a key-bit. Heretofore a majority of keys of the type above referred to have been made by forming the flat shank of sheet metal and securing to one end of the shank a cast-metal barrel and bit by casting the barrel on the
20 shank or by making the barrel and bit of sheet metal and securing it to the shank, either by soldering or riveting it thereto. Thus in both methods of construction referred to the key is made in two parts, and as thus constructed is objectionable, owing to the fact that
25 its weakest point is at the joint between the shank and barrel-section of the key, and in the event that the joint is not perfectly made the two parts are liable to become loose, and thereby
30 render the key valueless for use. Again, the joint formed between the two sections will not permit of a perfect finished appearance being imparted to the article, as it is impossible to effectually conceal the joint.

35 The object of my invention is to provide a key of the type referred to and obviate the objectionable features therein which have been specified; and with this end in view my invention consists in a sheet-metal key made in
40 a single piece and formed with a flattened shank and cylindrical barrel, the entire key being formed of a single piece of sheet metal.

45 In the accompanying drawings, Figures 1, 2, and 3 represent key-blanks in the different stages of manufacture; and Figs. 4 and 5 show the finished key-blank, and Fig. 6 the completed key.

50 In the manufacture of my improved key I first stamp out from sheet metal, preferably sheet steel, by suitable die and punch, the blank A illustrated in Fig. 1, which is formed

with a bow, *a*, having an opening, *a'*, therein, which is produced either at or during the operation of stamping out the blank or by a separate operation. The blank is also provided
55 with a shank, *b*, and a key-bit, *c*. This blank is formed with a wide portion, *d*, from which the solid cylindrical key-barrel is swaged, and is also provided with a still wider portion, *e*, from which the shoulder adjacent to the barrel is formed. Blank A is placed between
60 suitable dies and swaged edgewise and transformed into the blank B. (Shown in Fig. 2.) The operation of swaging transforms the wide portion *d* of the blank A into an oval-shaped barrel, *j*, on the blank B, and the widest portion, *e*, of the blank A into the shoulder K, and tapering strengthening-ribs *l* on blank B. The
65 blank B is then placed between another pair of dies and swaged flatwise, thereby producing the blank C, in which the barrel and shoulder portions are made cylindrical and the tapering ribs and the bit are made perfectly smooth and uniform in shape and finish, while the shank and bow portions are flattened out
70 and reduced in thickness, as illustrated in Fig. 3. The blank C is then subjected to the operation of trimming dies, which serve to remove the surplus metal and produces the complete and finished key-blank D illustrated in Figs.
75 4 and 5. The bit of the completed key-blank D is then sawed into the desired shape and the blank subjected to the action of buffing-wheels, thereby forming the finished article represented in Fig. 6.

85 The cost of manufacturing keys in the manner described is much less than by the old process, hereinbefore referred to, wherein the key is made of two sections fastened together; and the key thus made from a single piece of
90 sheet metal is not only superior to the old form in its appearance and finish, but is also a much stronger and more durable article.

95 I make no claim herein to the process of making keys in the manner described, as it forms the subject-matter of another application.

100 I am aware that it is not new to construct keys having hollow cylindrical barrels formed by bending a web or section around a mandrel or former, and hence I make no claim to such construction.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A wrought-metal key - blank having a
5 bow, a flattened shank, and solid cylindrical barrel, made from a single piece of sheet metal.
2. A key made from a single piece of sheet metal and provided with a flattened shank and bow, a solid cylindrical barrel, and an enlarged shoulder and strengthening-ribs, sub-
10 stantially as set forth.
3. A key made from a single piece of wrought

metal and provided with a shank, a bow, a solid cylindrical barrel, and an enlarged shoulder between the barrel and shank, substan- 15
tially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

GEORGE B. COWLES.

Witnesses:

G. ERNEST ROOT,
E. L. PRIOR.