

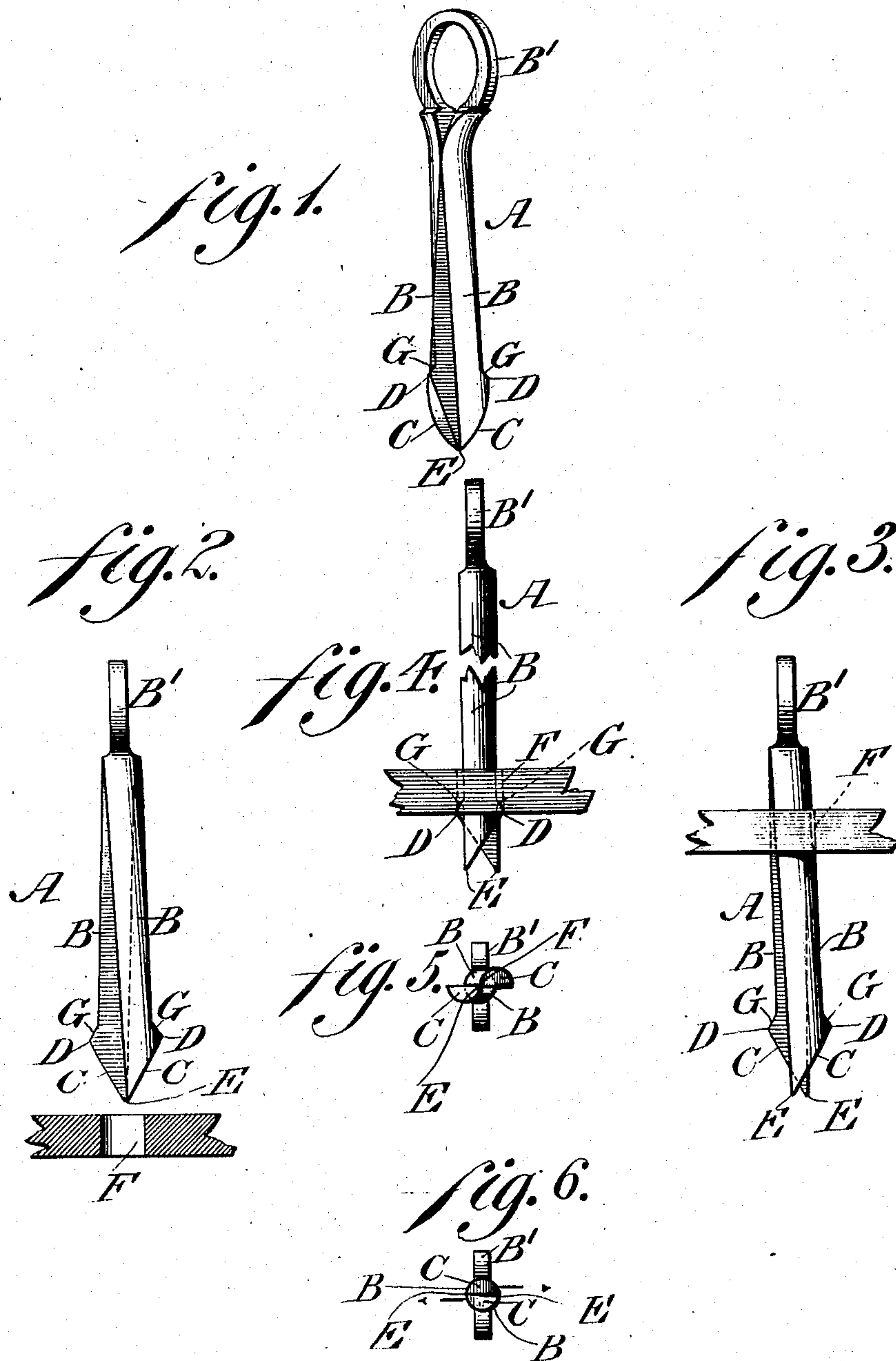
F. S. McWHORTER.

COSTER KEY.

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919,925.

Patented Apr. 27, 1909.



Witnesses

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UNITED STATES PATENT OFFICE.

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COTTER-KEY.

No. 919,925.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRANCIS S. McWHORTER, a citizen of the United States, residing at Riverton, county of Burlington, State of New Jersey, have invented a new and useful Cotter-Key, of which the following is a specification.

My invention consists of a cotter key formed of resilient legs normally spread-apart, with slopes in opposite directions on the outer terminals thereof, the points of said slopes being adapted to meet at or about the central line of the longitudinal axis of the key producing practically a common point for the latter at said line, so that when the key is inserted in an opening of a member which the key is intended to occupy, the point of the key and adjacent portions of the slopes are of less diameter than said opening, so that they readily enter the latter without the points as a common point presenting any obstacles to such entrance and the slopes ride on the wall of the same, thus contracting the normal width of the legs of the key, whereby they frictionally engage said wall, and after they pass the opening they expand or spread-apart, and thus cause the key to take firm hold of the wall of the opening, which hold cannot be overcome except by superior force exerted on the key.

It also consists of means serving to assist in preventing improper displacement of the key from its place of occupation.

For the purpose of explaining my invention, the accompanying drawing illustrates a satisfactory reduction of the same to practice, but the important instrumentalities thereof may be varied, and so it is to be understood that the invention is not limited to the specific arrangement and organization shown and described.

Figure 1 represents a perspective view of a cotter key embodying the invention. Fig. 2 represents a side elevation of the same in normal condition. Fig. 3 represents a side elevation of the same in operative condition. Fig. 4 represents a side elevation showing the position of members of the key as having just entered the opening it is intended to occupy. Fig. 5 represents a bottom end view thereof taken from Fig. 2. Fig. 6 represents a bottom end view thereof taken from Fig. 4.

Similar letters of reference indicate corresponding parts in the figures.

Referring to the drawings:—A designates a cotter key, which is composed of a pair of legs B, B, and the loop B', which latter joins what may be termed the upper ends of said legs and imparts resiliency thereto and permits the legs to slide to the right and left on each other, said legs in their normal position being spread-apart as shown in Figs. 1 and 2, and so together presenting a tapering form in the direction of their length.

On what may be termed the lower end of each leg, is the sloping or bevel-surface C, it being noticed that said surface extends from the terminal of the leg upwardly and outwardly to the side of the leg as at D, and forms a well-defined point E at said terminal, it being also noticed that the points of the two legs meet at or about the center of the longitudinal axis of the key, and the sloping or bevel-surfaces diverge from said points.

The operation is as follows:—The points of the legs are presented as a common point of the key to an opening F, which is cylindrical in form, see Fig. 2, and forced thereinto, the sloping or bevel-surfaces then riding on the wall of the opening and consequently causing the legs to slide on each other from their spread-apart or expanded position, and so be contracted in width and produce a comparatively cylindrical body of the same, see Fig. 4. As the points, bevel-surfaces and bodies of the legs pass through the opening, the bodies begin to expand, as shown in Fig. 3, so that they frictionally engage the wall of the opening, and so remain securely in position. The sides of the legs are cut away from the places D, toward the loop B', thus leaving at said places the shoulders G, which face in a direction toward said loop and are sufficiently near the points of the legs for operative purposes, it being evident that should improper withdrawal movement be imparted to the key, the shoulders G abut against the wall of the opening F, and so provide a stop or barrier to the further advance of the key through said opening, the effect of which is evident. Said shoulders may be overcome, however, by superior force, and thus the key may be readily withdrawn or removed from its place of occupation.

The loop B' is shown of reduced thickness

as compared with the legs B. By this provision, it possesses increased resiliency for permitting the legs to partly cross each other in their expanded condition, and to be
5 pressed toward each other in their contracted condition in entering the opening F, as shown in Fig. 4, after which said legs are firmly engaged by friction with the wall of said opening owing to their partly expanded condition,
10 as shown in Fig. 3. The friction of the legs in the opening F may be regulated by the extent of spreading-apart of said legs by increasing or decreasing the twist of said loop or bow B', which otherwise connects the legs
15 in the manner stated. Again, the slopes or bevels permit the key to be inserted in the opening F by rotary motion, thus easing the operation of such insertion.

The reduction of the thickness of the loop or bow B' may be accomplished by pressing
20 or flattening the portion of the metal or material that the loop or bow occupies, or by removing some of the said material at said portion and so thinning the same, while the
25 material of the legs may retain an original

condition that of half-round wire, to which reduction and material, however, I do not limit myself.

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

1. A cotter key composed of a pair of resilient legs normally spread-apart, each leg having a point on its inner side and a slope extending therefrom to the outer side of the
35 leg, the slopes being in opposite directions, and the points normally meeting at or about the center of the longitudinal axis of the key.

2. In a cotter key, a pair of resilient legs with points on the ends of the inner sides
40 thereof, said points normally meeting as a common point of the key at or about the center of the longitudinal axis of the key, and sloping surfaces extending respectively in opposite directions from said meeting-points to
45 the outer sides of the legs.

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