

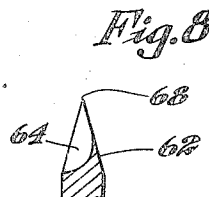
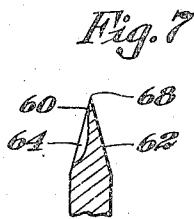
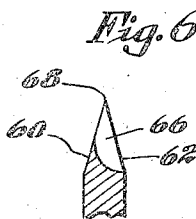
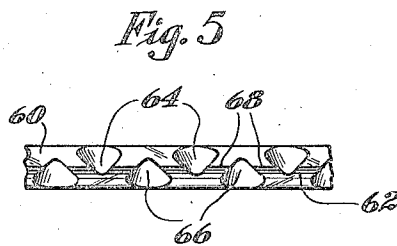
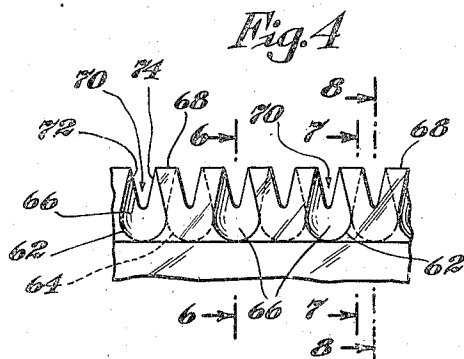
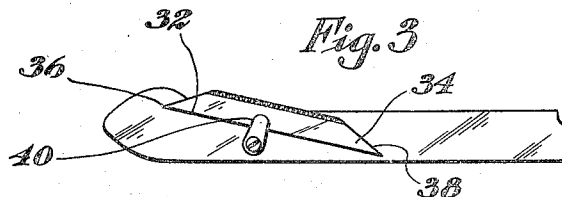
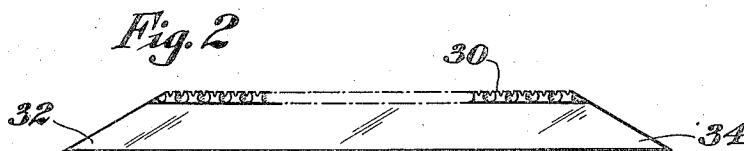
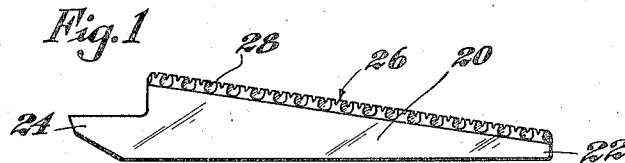
March 29, 1938.

G. DALKOWITZ

2,112,271

PILE WIRE

Filed Dec. 22, 1934



INVENTOR,
Godfrey Dalkowitz,
BY *Arthur B. Smith*
ATTORNEY.

UNITED STATES PATENT OFFICE

2,112,271

PILE WIRE

Godfrey Dalkowitz, New York, N. Y., assignor to
American Safety Razor Corporation, Brook-
lyn, N. Y., a corporation of Virginia

Application December 22, 1934, Serial No. 758,847

3 Claims. (Cl. 139—44)

This invention relates to pile wires and in particular to the cutting elements of pile wires, whether permanently associated therewith or adapted for replaceable association therewith.

Among the objects of my invention are: the provision in a pile wire cutting element of a more effective cutting edge; the provision of means for increasing the effectiveness of a cutting element of a pile wire by the provision of an increased length of cutting edge without increasing the size of the cutting element; the provision in a pile wire cutting element of a serrated cutting edge; the provision in a cutting element for a pile wire of substantially longitudinal cutting edges and auxiliary cutting edges disposed at an angle thereto; the provision in a pile wire of a cutting element reversible in relation thereto; and the provision in a pile wire cutting element of two sets of cutting edges, one set of which is available for cutting when the cutting element is in one position in the pile wire, and the other set of which is used when the element is reversed in the pile wire.

For the attainment of these objects and such other objects as may hereinafter appear or be pointed out, I have shown certain illustrative embodiments of my invention in the drawing, wherein:

Figure 1 is an elevational view of the cutting element of a pile wire, of standard form in general, but modified in accordance with the teachings of my invention;

Figure 2 is an elevational view of another form of pile wire cutting element;

Figure 3 is a view showing the application to a pile wire holder, of the cutting element of Figure 2;

Figure 4 is a detail view of the cutting edge of a pile wire cutter, showing a form of tooth construction;

Figure 5 is a plan view of Figure 4; and

Figures 6, 7 and 8 are sectional views on the lines 6—6, 7—7 and 8—8 of Figure 4, looking in the directions of the respective arrows.

Pile wires, as customarily used at the present time, have a cutting element with a straight cutting edge which is inclined at a slight angle to the line of motion of the pile wire, thereby giving a sliding cutting action. Such cutting edges when only slightly dulled are apt to fail in their cutting action because of the slight inclination of the cutting edge, which permits the threads to slide a considerable distance before they are cut, or it may even happen that the threads are not cut at all. Consequently, a defective product

may result unless great watchfulness is exerted and frequent inspection and replacement are resorted to. Where the cutting element is integral with the pile wire this results in great waste which is reduced to some extent by the use of removable cutters, but is nevertheless very great. It is the purpose of my invention to reduce the frequency of replacement by lengthening the life of the cutting edge and to insure a greater certainty of the cutting action even though the cutting edge is considerably dulled. For this purpose I make the cutting edge of serrate construction, and thereby introduce two effects. The length of the cutting edge is increased, without increasing the overall length of the cutting element because of the numerous transversely placed cutting edges, and secondly the certainty of cutting is increased even where the blade is dulled because of the steep inclination of the transversely placed cutting edges to the line of motion, whereby not merely is there less chance of slippage without cutting, but also, if the loop to be cut passes uncut from one tooth to the next tooth, the loop is released from the first tooth and reaches the cutting edge of the second tooth with a kind of resilient snap, almost certain to cause cutting.

In order to further increase the life of each cutting element, I propose to make the elements reversible in the holder and to provide them with two sets of cutting edges, each set being effective in only one of its positions in the holder.

In Figure 1 is shown a pile wire cutting element of conventional shape. It comprises a generally triangularly shaped body portion 20 tapering down to its forward end 22, and provided with an extension 24 fitting into a corresponding recess in the pile wire holder and serving to anchor the rear end of the cutter therein. The cutting edge is indicated at 26. As at present constructed it would be a straight knife edge. I propose to modify this straight knife edge construction by providing a serrated edge, as shown in the figure, having teeth 28 aligned in the general direction of the straight cutting edge heretofore used.

In Figure 2 is shown a cutting element which is intended to be reversible. Where a plain knife edge is used on the cutting element, nothing is to be gained by reversing the position of the blade, but where a serrated edge having cutting edges facing in two directions is used, only one of these sets of cutting edges is used at one time, and by reversing the position of the pile wire in the holder the other set of cutting edges may be brought into play.

The pile wire cutter of Figure 2 is shown as of trapezoidal shape having a serrated cutting edge 30 and extensions 32 and 34 for anchoring the cutter in the pile wire holder. A holder adapted for the use of such a reversible cutter is shown in Figure 3, in which the extensions 32 and 34 are shown as anchored in corresponding recesses 36 and 38 in the pile wire holder, and an element 40 is shown as holding the cutting element in place. It will be observed that the cutter of Figure 2 is symmetrically constructed so that it will occupy the same space in its two positions, although it will be obvious that this need not be so. It will also be understood that this construction is only intended to be suggestive of how a reversible pile wire cutter may be constructed.

Although a great variety of serrated constructions may be used in connection with cutting elements made in accordance with my invention, for the purpose of explaining my invention the description of one will suffice, and with that end in view I have selected the illustrative form shown in Figures 4 to 8 inclusive.

This serrated or tooth construction is shown in Figures 4, 5, 6, 7 and 8. To simplify the explanation of this construction, I will indicate the manner in which it might be formed from a flat blank having a straight edge which is to become the cutting edge. This blank might first be bevelled from both sides as shown at 60 and 62, so as to form the straight edge, above referred to, into a cutting edge, and then grooves formed in said bevelled surfaces as indicated at 64 on the bevel 60, and at 66 on the bevel 62. These grooved portions are arranged in staggered relation as clearly appears from Figure 8, so that between every two grooved portions formed on one side there is an intermediate grooved portion formed on the other side. The grooves are made deep enough so that notches 70 will be formed which break up the straight cutting edge formed by the bevel 60 and 62 into small portions 68. There is thus formed a serrated construction in which each tooth is formed with cutting edges 72 and 74 angularly disposed to the longitudinal cutting edge 68. When the element moves to the right in Figure 7, the active edges would be 68 and 72, while when it moves to the left, the active edges would be 68 and 74.

It will be observed that the cutting edges 72 are disposed in staggered relation to the blade, being formed alternately on bevel 60 or bevel 62, and the same is true of edges 74. Each pair of opposed edges 72 and 74 is disposed on the same bevel, 60 or 62, but the next pair of edges will be formed on the opposite bevel.

This construction is adapted for cutting in either direction. If moved toward the right in Figure 4, the edges 52 and 56 will be active, while when it is moved in the other direction the edges 54 and 58 are the active ones.

Whereas the cutting element of Figures 4 to 8 is shown as having two sets of transverse cutting edges, namely 72 and 74 it is obvious that where the cutting element is not intended to be reversible as in the form of Figure 1, only one set of these edges need be sharpened, say the edges

72, while the other edges 74 need not be sharpened, but may be left blunt.

It will be obvious that changes in the details of the construction hereinabove described and illustrated in the drawing for the purpose of explaining the nature of my invention, may be made by those skilled in the art without departing from the spirit and scope of my invention as expressed in the appended claims. It is therefore intended that these details be interpreted as illustrative merely and not in a limiting sense.

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

1. In a pile wire construction a holder and a cutting element having two sets of oppositely directed cutting edges on a longitudinal edge thereof adapted for insertion into said holder and a symmetrically contoured recess in said holder wherein the cutting element may be removably and reversibly positioned in such a manner that its longitudinal edge assumes the same position in said holder, whether it is in its direct or its reverse position and whereby one or the other of said sets of cutting edges may be placed into their operative positions.

2. In a pile wire construction: a holder having a recess therein for the reception of a cutting element, and abutments associated with said recess in paired relation so that they are identically contoured but oppositely disposed, and so that they are mirror images of each other, and a cutting element adapted to seat within said recess and having shoulders thereon adapted to engage said abutments associated with said recess and adapted to determine the position of said element in the holder, and said shoulders also being identically contoured and disposed in mirror image relation to each other, said cutting element having a cutting edge disposed generally in a longitudinal direction in relation to the motion of the pile wire, and said shoulders and abutments being so disposed that said cutting edge assumes the same relation to the holder, whether the cutting element is inserted into the holder in a particular relation, or is positioned in the holder in a relation reverse to said last-mentioned relation.

3. In a pile wire construction: a holder having a recess therein for the reception of a cutting element, and abutments associated with said recess in paired relation so that they are identically contoured but oppositely disposed, and so that they are mirror images of each other, and a cutting element adapted to seat within said recess and having shoulders thereon adapted to engage said abutments associated with said recess and adapted to determine the position of said element in the holder, and said shoulders also being identically contoured and disposed in mirror image relation to each other, said cutting element having two sets of oppositely directed cutting edges on a longitudinal edge thereof, and said shoulders and abutments being so disposed that said longitudinal edge assumes the same relation to the holder no matter how said element is inserted into the recess.

GODFREY DALKOWITZ.