

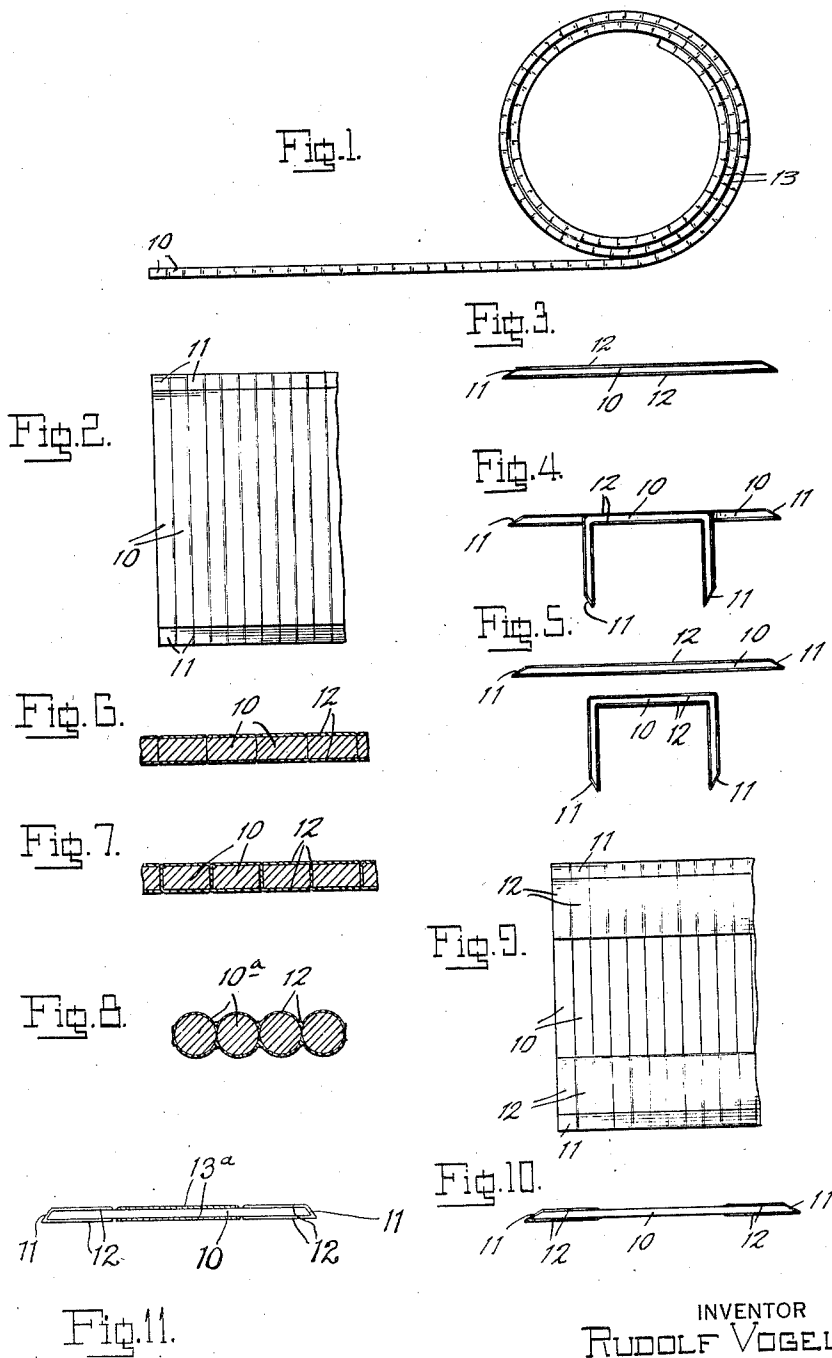
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STAPLE STRIP

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STAPLE STRIP

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3 Claims. (Cl. 1—56)

The present invention relates to staple strips, particularly intended for use in stapling machines of the type in which the staple strip is fed in the machine in flat relation, the staple forming portions of the strip being formed into staple shape in the machine by bending the staple legs downwardly from the strip before severing and driving of the staple. These strips as heretofore constructed have usually been in the form of a sheet metal blank in which the staple forming portions were integral with each other, the integral connection between the staple forming portions being broken by the staple forming and driving means of the machine. A machine of this type is disclosed in the U. S. patent to C. A. Palmgren, for Stapling devices, No. 1,761,640 dated June 3, 1930.

It is an object of the present invention to provide a staple strip in which the staple forming portions are not integrally connected but in the form of separate pieces of metal, and further to provide means connecting these pieces together in a strip, which means are adapted to be broken easily for the purpose of forming and severing the staple, but will at the same time provide such a connection between the separate staple forming pieces of wire as to permit the strip to be handled without deformation or breakage and also to be rolled.

To this end it is particularly proposed to provide metallic connection means between the staple forming pieces, which connection means may be solder or a metallic coating, sprayed or electro-plated upon a series of the staple forming pieces arranged in contacting relation to form a strip, such coating forming a continuous integral surface upon the strip. Such coating may be upon one or both sides, and may also extend between the staple forming pieces. As a modification it is proposed to provide a staple-strip in which the leg forming portions only of the staple strip are connected, so that upon bending the leg forming portions by the shearing action which takes place in the machine, the staple will be completely severed by such shearing action.

Another object is to provide a staple strip roll in which the windings are adhesively retained together so that the roll will not unroll of itself, but will unroll readily as the strip is drawn from the roll.

With the above and other objects in view embodiments of the invention are shown in the accompanying drawing, and these embodiments will be hereinafter more fully described with refer-

ence thereto, and the invention will be finally pointed out in the claims.

In the drawing:

Fig. 1 is a side elevation of a staple strip according to my invention, showing the strip partially rolled.

Fig. 2 is a plan view of a portion of the strip.

Fig. 3 is an end view.

Fig. 4 is an end view showing the staple legs of one of the staple forming pieces bent downwardly.

Fig. 5 is an end view showing the staple severed from the strip.

Fig. 6 is an enlarged sectional view of several staple forming pieces of the strip connected together by coatings upon the upper and lower surfaces.

Fig. 7 is a similar view showing the coating also disposed between the side surfaces of the staple forming pieces.

Fig. 8 is a sectional view of a modified form of strip in which wire of circular cross-section is employed.

Fig. 9 is a plan view of a modified form of strip in which the staple forming legs only are coated.

Fig. 10 is an end view thereof.

Fig. 11 is an end view of a further modification, similar to the modification shown in Figs. 9 and 10, but having easily breakable adhesive applied thereto for retaining the bridge portions of the staples together and for also retaining the windings of the strip of staples when it is rolled.

Similar reference characters indicate corresponding parts throughout the several figures of the drawing.

Referring to the drawing, the staple strip comprises a series of separate pieces of staple forming members 10, pointed at the ends, as at 11—11, the pieces 10 being connected together in the form of a strip by a metallic coating 12 which may be sprayed upon the upper and lower surfaces, electro-plated thereon, or otherwise applied, for instance solder coatings may be applied to the surface of the staple forming pieces and integrally connected by the application of heat. Instead of applying the coating to both the upper and lower surface one surface only may be coated. Also, as shown in Fig. 7, the entire surfaces of the staple forming pieces may be solder coated and connected together by the application of heat.

In Fig. 8 I have shown the wire pieces 10^a of circular cross-section connected as in the other modifications by the metal coating 12.

While I have particularly referred to metal adhesive other material may be used which will ac-

comply the same purpose in carrying out the invention.

Due to the strong and flexible connection between the separate staple forming members provided by the metal coating the strip may be readily rolled, as shown in Fig. 1. In order to prevent unintentional unwinding, and also to maintain the windings of the roll against displacement in the stapling machine, the windings may be connected together by an easily breakable adhesive 13 such as lacquer, glue, cellulose-acetate, or the like, applied between the windings, this adhesive being readily broken as the strip is unwound.

As shown in Fig. 4 the staple is formed by first bending down the leg forming portions which are severed from the adjacent staple forming piece by a shearing action, and then applying downward pressure upon the bridge of the staple to sever the bridge from the adjacent staple forming piece.

In Figs. 9 and 10 I have shown a modification in which the metal coating 12 is applied only to the staple leg forming portions of the members 10. In this case the severing of the staple from the strip will be accomplished entirely by the shearing action employed in bending down the staple leg forming portions, the bridge portions being free. As a further modification illustrated in Fig. 11 the bridge forming portions have an easily breakable adhesive 13^a such as lacquer, glue or the like applied between them, in which case the staple will not immediately be freed from the strip upon bending of the leg portions, but it requires only a very slight pressure of the staple driving to release it. Also the lacquer, glue, or the like, employed for this purpose may be utilized for retaining the windings of the strip when it is rolled,

simply by rolling the strip before the adhesive dries.

I have illustrated and described preferred and satisfactory embodiments of the invention, but it will be obvious that changes may be made therein, within the spirit and scope thereof as defined in the appended claims.

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

1. A staple forming strip comprising a plurality of non-integral straight staple forming pieces arranged in a row, and breakable adhesive means applied as a coating to the leg forming portions only of said staple forming pieces whereby a staple forming piece becomes severed from the adjacent piece in the row through the shearing action of bending the staple legs.

2. A staple forming strip comprising a plurality of non-integral straight staple forming pieces arranged in a row, breakable adhesive means retaining said pieces together in flat strip form, said strip being rolled, and separate adhesive means more easily breakable than said first adhesive means also retaining the windings of the roll together.

3. A staple forming strip comprising a plurality of non-integral straight staple forming pieces arranged in a row, and easily breakable adhesive means applied between the bridge forming portions of said staple forming pieces for retaining the staple in the strip upon bending of the staple legs, said strip being rolled, said easily breakable adhesive means also adapted to retain the windings of the roll together.

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