Jan. 4, 1949. I. W. FULLER 2,457,883

DETACHABLE WIRE LETTER WITH FABRIC COVERING

Filed June 11, 1947 3 Sheets-Sheet 1

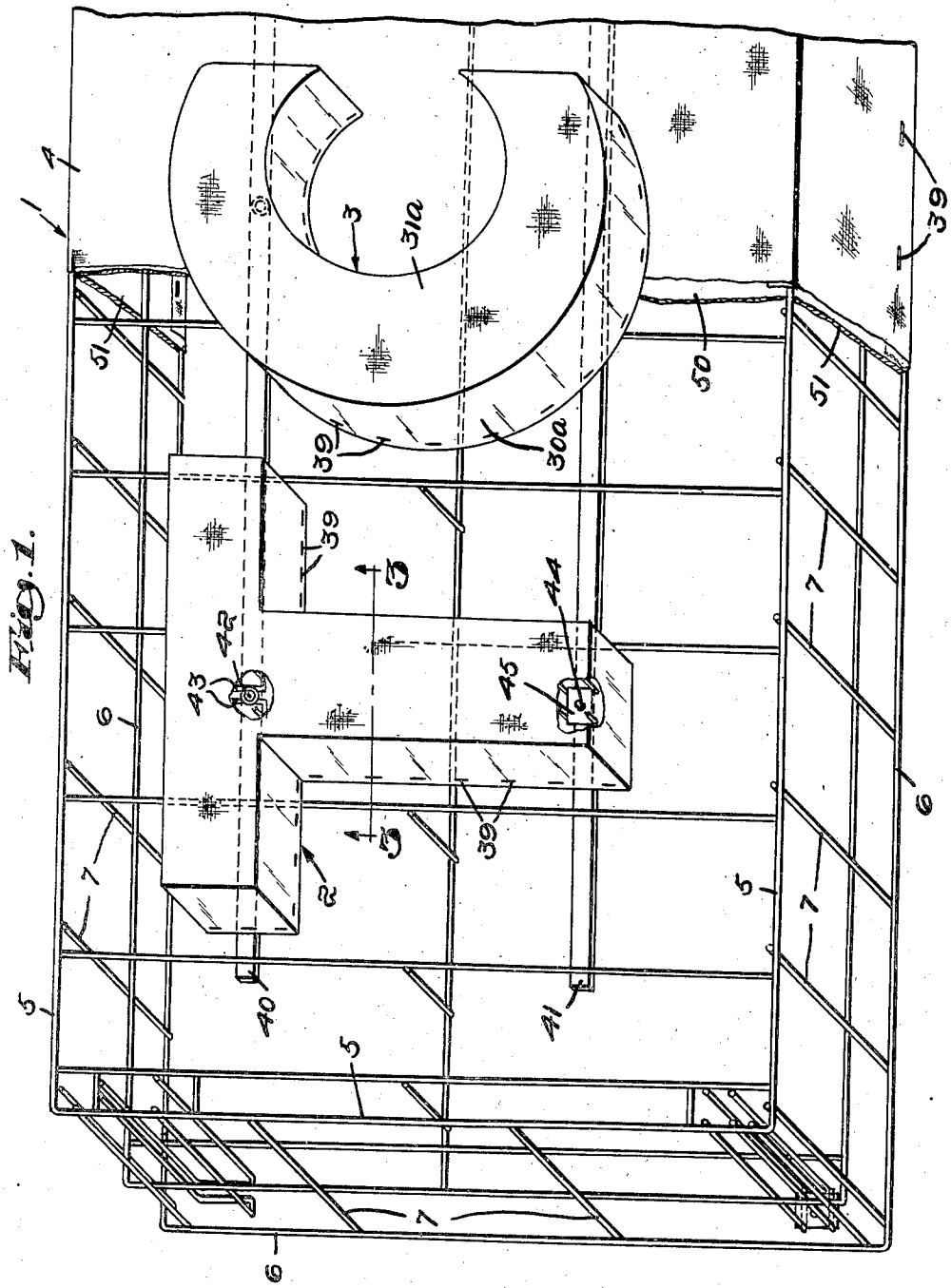



Fig. 1.

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Fig. 6.

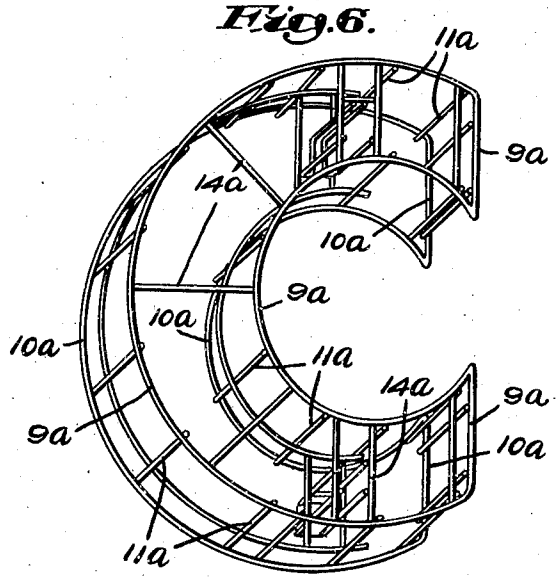



Fig. 7.

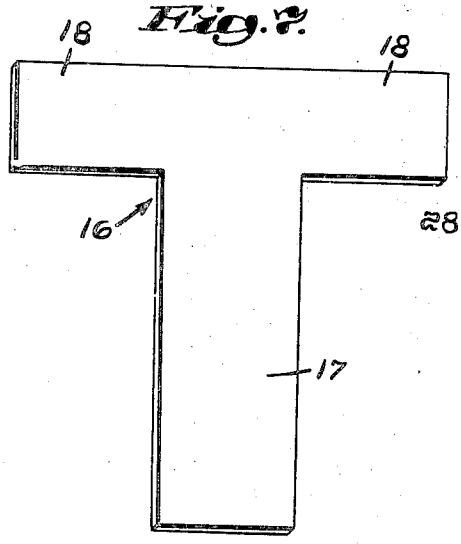
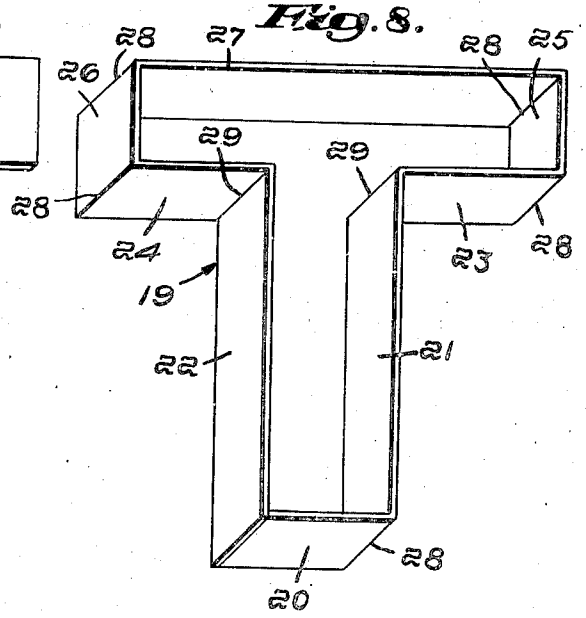



Fig. 8.




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Fig. 2.

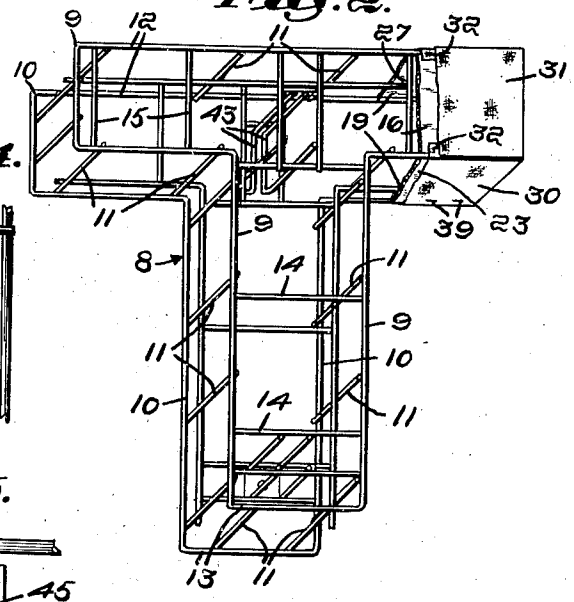



Fig. 4.

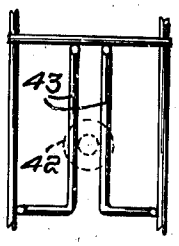



Fig. 5.

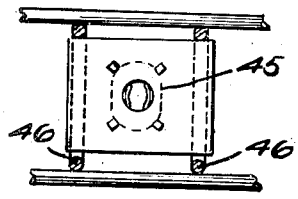
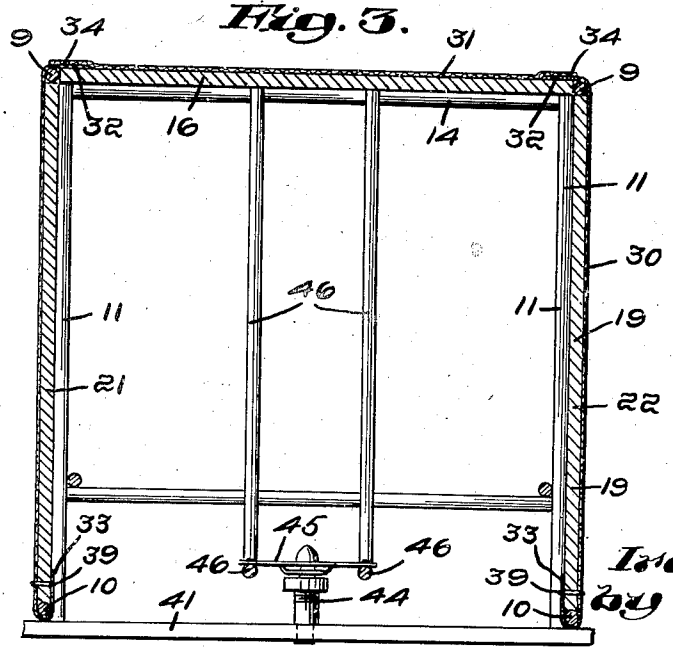



Fig. 3.




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Patented Jan. 4, 1949

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# UNITED STATES PATENT OFFICE

2,457,883

## DETACHABLE WIRE LETTER WITH FABRIC COVERING

Ira W. Fuller, Roxbury, Mass.

Application June 11, 1947, Serial No. 753,912

3 Claims. (Cl. 40—140)

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This invention relates to painted signs and especially to advertising signs having raised characters, letters or symbols which are sometimes referred to as embossments.

In order to maintain in satisfactory condition a painted advertising sign that is located out of doors and is thus subjected to the weather, it is necessary to repaint it periodically. If the sign is a large one and is placed on top of a building or in some other more or less inaccessible place, the operation of repainting the sign presents a more or less difficult problem and is often times quite expensive.

In my co-pending application, Serial No. 586,537, filed May 4, 1945, I have illustrated and described an advertising sign presenting a background element and individual letters or symbols which are detachably mounted on the background element and each of which is made with a skeleton framework of wire and a covering envelope of painted fabric, which covers the front, sides, top and bottom of the framework, the back of the framework being open, the construction being such that the renewal of the painted surface of the letters can be accomplished by demounting the letters or symbols from the background element and then removing the fabric envelope from each letter or symbol and replacing it with a freshly painted fabric envelope, after which the re-covered letters or symbols may be replaced on the background element.

In constructing a sign as shown in my above-mentioned application some difficulty was experienced in laying the fabric covering or envelope smoothly on the sides of the letters or symbols that presented concave surfaces or re-entering angles. For instance, the letter "T" presents a re-entering angle on each side between the stem and the underside of the laterally extending arm, and the letters "B," "D," "E," "F," etc., also each present one or more re-entering angles. The letter "C" presents a convex surface on the outside and a concave surface on the inside, and other letters such as "D," "G," "J," "S," etc., also present concave surfaces on one or both sides.

It is one of the objects of the present invention to provide improvements in the construction shown in my above-mentioned application which facilitates the laying of the covering element smoothly on the sides and at the apex of a re-entering angle and also on a concave surface, the construction being such that after the covering has been thus laid on a concave surface or a re-entering angle, it will be retained in a smooth unwrinkled condition.

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In order to give an understanding of the invention, I have illustrated in the drawings a selected embodiment thereof which will now be described, after which the novel features will be pointed out in the appended claims.

In the drawings.

Fig. 1 is a fragmentary perspective view of a sign embodying my invention with part of the covering for the background element removed to better show the construction.

Fig. 2 is a perspective view of a removable symbol in the form of a letter "T," the covering for the letter being broken away to better show the construction.

Fig. 3 is an enlarged sectional view through the letter "T" on the line 3—3, Fig. 1.

Fig. 4 is a fragmentary view illustrating one of the separable fasteners by which the letter or symbol is secured to the background element.

Fig. 5 is a view showing the type of separable fastener which I prefer to use at the bottom of each letter or symbol.

Fig. 6 is a perspective view showing the skeleton framework for a symbol in the form of the letter "C."

Fig. 7 is a view of the backing element which is used on the front of the letter "T" for supporting the fabric covering element.

Fig. 8 is a perspective view of the backing element used at the sides, top and bottom of the letter "T" for giving support to the fabric element.

The sign herein illustrated includes a background element indicated generally at 1, and a plurality of symbols detachably mounted on the background element, which symbols may be letters or designs depending upon the character of the advertising sign. For illustrative purposes the background element is shown as having mounted on the front thereof the two letters "T" and "C" which may form part of a complete advertising sign and which are indicated at 2 and 3, respectively.

The background element is made with a skeleton framework of wire as in my above-mentioned applicationg, Serial No. 586,537, which skeleton framework is covered by an envelope 4 of fabric which is painted to give the desired color effect. The skeleton framework for the background element 1 comprises a wire 5 which outlines or bounds the front of the background and a similar wire 6 which outlines or bounds the back of the background, said wires 5 and 6 being herein referred to as "bounding" wires.

The two bounding wires 5 and 6 are connected

by transverse connecting wires 7 which are spot-welded to the wires 5 and 6. Said transverse wires 7 are located on the inside of the wires 5 and 6 and thus the transverse wires at the bottom of the skeleton framework for the background occupy a plane inside of the portions of the bounding wires 5 and 6 forming the bottom of the background, and the transverse wires 7 at the ends of the background framework occupy a plane inside of the plane of the vertical portions of the bounding wires 5 and 6 which form the ends of the background. The front face, the top and bottom faces, and the end faces of the background element are covered by the fabric covering 4 above described.

Each of the letters or symbols 2, 3, is also made with a skeleton framework of wire and a fabric envelope or covering as described in my above-mentioned application, Serial No. 586,537. According to the present invention, however, each letter or symbol includes in its construction not only a skeleton framework of wire, and the fabric covering or envelope, but also a backing member of sheet material which covers the front, the sides and the top and bottom of each letter, and to which the envelope is adhesively united, thereby producing a letter in which the painted fabric covering is maintained in a smooth unwrinkled condition at the sides and apex of any re-entering angle and also throughout any concave surfaces such as is found on the inside of the letter "C."

The manner in which the symbols are made is illustrated in Figs. 2, 3, 7 and 8 which show a letter "T." Such letter comprises the skeleton framework of wire indicated generally at 8 in Fig. 2 and which is formed with a front bounding wire 9 that outlines the front of the letter, a rear bounding wire 10 which outlines the rear of the letter, and a plurality of transverse wires 11 connecting the front and rear bounding wires 9 and 10 at the sides, top and bottom of the letter. The transverse connecting wires 11 are spot-welded to the wires 8 and 9 and they are located on the inside of said wires. For instance, the transverse wires 11 at the sides of the stem and ends of the arms of the "T" are on the inside of the vertical portions of the bounding wires which outline said parts, and the transverse wires 11 at the top of the letter "T" are on the under side of the top portion 12 of the bounding wires, while the transverse wires 11 at the bottom of the stem and the bottom of the arms lie above the portions 13 of the bounding wires which outline the corresponding portions of the framework.

The skeleton framework is also provided with transverse wires 14, 15 which extend across the front thereof, the wires 14 extending horizontally across the front of the stem of the "T" and the wires 15 extending vertically across the arms of the "T." Both wires 14 and 15 are located on the inside of the front bounding wire 9 and are spot-welded thereto.

At the front, the sides, the top and the bottom of the skeleton framework there is provided a backing element of sheet material which rests against the transverse wires 11, 14, 15, and the edges of which frictionally engage the bounding wires. This backing element material has a thickness substantially the same as the diameter of the bounding wires and hence when it is in position resting against the transverse wires, the outer face of the backing material will be flush with the bounding wires.

In Fig. 7 there is shown at 16 a piece of backing material shaped to fit within the front bounding wire 9 of the letter "T." The sheet material of which this backing element is made has a thickness equal to the diameter of the bounding wire, and the stem portion 17 thereof has a dimension to fit snugly within the portions of the front bounding wire which outline the stem of the letter "T," and the arms 18 have the proper dimensions to fit snugly within the portions of the front bounding wire 9 that outline the arms of the "T." The dimensions of the backing element 16 are such that when it is applied to the skeleton framework, the frictional engagement of the edges of said element 16 with the front bounding wire 9 will hold said element 16 in place.

While any suitable sheet material may be used for this purpose, I regard stiff cardboard material or some other paper material of the correct thickness as being entirely suitable.

For covering the sides, top and bottom of the letter "T" a backing element such as shown in Fig. 8 will be used. This backing element is made of a strip of cardboard or other similar material which has a sufficient length to wrap clear around the sides, top and bottom of the framework and which has a width substantially equal to the distance between the front and the back bounding wires. The strip of cardboard or other material is creased or scored at appropriate places so that it will bend sharply around the exterior angles of the framework and also bend into the re-entering angles.

The backing member for the sides, top and bottom is indicated at 19 and the strip from which the backing member is made is creased at the transverse lines 28 so that it can be bent in these places to present exterior angles, and is also creased or scored at the lines 29 so that it can be bent at such lines to form re-entering angles. Assuming that the strip of backing material is creased as above described, it may be applied to the wire framework for the letter "T" by placing the portion 20 thereof in position at the bottom of the framework between the front and rear bounding wires 9 and 10, and then bending the strip along the creased or scored line 28 so that the section 21 thereof will lie against the side of the stem of the framework and be retained between the front and rear bounding wires. The strip is then bent along the score line 29 to form the re-entering angle and the portion 23 is fitted into place on the underside of one of the arms of the "T." The wrapping of the strip around the sides and top of the framework is then continued so that the portion 25 will fit into the space between the front and rear bounding wires at one end of one arm of the "T," the upper section 27 will fit into the space between the front and rear bounding wires along the top of the "T," the section 26 will fit into the space between the front and rear bounding wires at the end of the other arm of the "T," the section 24 will fit into the space between the front and rear bounding wires on the under side of the other arm of the "T," and the section 22 will fit into the space between the front and rear bounding wires on the other side of the stem.

As stated above, the width of the strip is such that when it has been wrapped around the framework, it will be held in place by the frictional engagement of the edges of the strip with the front and rear bounding wires. The backing material covers the front and the sides, the top and bottom of the framework only, the back of the framework being left open.

The letter or symbol is finished by adhesively

securing a fabric envelope to the backing elements 16 and 19 after they have been mounted on the framework, said envelope thus covering the front, the top, bottom and sides of the letter, the back of the letter, however, being open and free from both the backing element and the envelope. The covering envelope of fabric is made in two parts, one of which 30 is a strip of the proper length to encircle the sides, top and bottom of the symbol, and the other of which 31 covers the front of the symbol. The strip 30 of fabric is sufficiently wide so that when it is applied to the backing member 19, the front edge of the strip can be folded over the front bounding wire 9 onto the front backing member 16 as shown at 32 in Fig. 3, while the rear edge of said strip can be folded around the rear bounding wire 10 and adhesively united to the inside of the backing member 19 as shown at 33 in Fig. 3. If desired the folded over portion 33 of the covering strip 30 may be stapled to the backing element 19.

Inasmuch as the backing strip 19 fits and conforms accurately to the re-entering angles of the framework, and since the covering fabric 30 is adhesively secured to the backing member, said fabric will be retained in a smooth unwrinkled condition at the apex of the re-entering angles.

After the covering strip 30 has been thus adhesively secured to the backing member 19 at the top, bottom and sides of the symbol, then the front covering piece 31 which has the same shape as the backing element 16 is adhesively secured to said element 16 as shown in Fig. 3, the edges 34 of the covering piece 31 overlying and being adhesively united to the in-turned edges 32 of the strip 30.

By means of this construction the fabric covering or envelope for the letter will be firmly supported throughout the front, sides, top and bottom of the symbol by the backing elements 16 and 19, and as said covering element is adhesively secured to the backing element, it will have a smooth unwrinkled condition. Moreover, this manner of making each letter has special advantages in connection with letters that present indented portions or concavements. In connection with the letter "T" the construction above described enables the covering member to be correctly applied and properly held in the corners or angles between the stem and the lower side of the arms of the "T," and the same would be true with respect to corresponding angles in such letters as "E," "R," etc.

My invention also provides means for satisfactorily making a symbol having a concave side, such for instance as the letters "C," "G," or "S." There is shown in Fig. 6 the skeleton framework embodying my invention which would be used for making the letter "C," and this comprises the front bounding wire 9a and the rear bounding wire 10a, each bounding wire having the shape to outline the front and back of the letter. The bounding wires are connected by the cross wires 11a as described with reference to the letter "T" in Fig. 2, said wires being located on the inside of the bounding wires and being welded thereto. There will also be cross wires 14a connecting the opposite sides of the front bounding wire 9a. In making the letter "C" a backing member coresponding to the backing member 19 of Fig. 8 will be placed between the front and rear bounding wires at both the outside and inside of the letter and another front backing element corresponding to 16 of Fig. 7,



but having the correct shape to fit within the sides of the front bounding wire 9a, will be used, said backing elements having the thickness equal to the diameter of the bounding wires and being held in place against the transverse wires 11a and 14a by their frictional engagement with the bounding wires.

The backing material which is used in connection with the letter "C," or other letters having concave surfaces, is of such a character that said strip of material can be bent into concave form without cracking or breaking it, so that when the backing material for the concave surface is in place, it will present a smooth solid concave surface to receive the covering fabric. Similarly the material used on the convex side of the letter or symbol will have the characteristic that it can be bent to conform to the convex shape without being broken or cracked.

After the backing material has been applied to the sides and the front face of the wire framework for the letter "C" as shown in Fig. 6, then the fabric covering or envelope is applied in the manner above described with reference to the letter "T," that is, a strip of the fabric is wrapped around the sides of the letter and adhesively secured to the backing material that is retained between the front and rear bounding wires, such strip of fabric being wide enough so that the front edge may be folded over onto the face of the backing material that fits within the front bounding wire 9a, and the rear edge may be folded around the rear bounding wire and adhesively united to the interior of the backing element that covers the sides of the framework.

After the strip of covering fabric has been wrapped around the sides of the wire, then a properly shaped piece of fabric is adhesively secured to the backing material at the front of the letter which is retained within the front bounding wire 9a.

The use of the backing element at the concave and convex sides of the wire provides a smooth surface to which the fabric covering can be adhesively united and which will hold the covering in a smooth unwrinkled condition.

Each letter is shown as mounted on the background element by separable fasteners similar to those shown in my above-mentioned application, Serial No. 586,537. A separable fastener is preferably used at the top and bottom of each letter or symbol and each separable fastener comprises a part which is secured to the background element and a complemental part which is carried by the framework of the letter or symbol. The parts of the separable fasteners which are mounted on the background element will preferably be supported by bars 40, 41 secured to the framework of the background element. The separable fastener at the top of each letter may consist of a headed stud 42 secured to the bar 40 and two parallel vertical wires 43 mounted on the framework 8 for the letter, the wires being positioned so that the shank of the headed stud 42 may be entered between the wires with the latter situated back of the head as shown in Fig. 1 and as illustrated in my co-pending application.

The separable fastener used at the bottom of each letter may conveniently consist of a stud 44 secured to the bar 41 and a spring fastener element 45 adapted to be snapped over the head of the stud 44. Fasteners of this type are commonly used for fastening curtains and operate somewhat on the order of a glove fastener. The fastener element 45 will be mounted on suitable supporting wires 46 carried by the framework 8.

In mounting a letter or symbol on the background the wires **43** of the upper fastener will be dropped over the shank of the stud **42**, and the letter will be manipulated to put the fastener element **45** into register with the stud **44**, after which the fastener element **45** can be pushed over the head of the stud thereby locking the letter in place.

It will be understood that the back face of the letters or symbols embodying this invention is open and free from either the backing material or the covering fabric so that there is nothing to interfere with the mounting of the symbols on the background elements as above described and as seen in Fig. 3.

I will preferably employ a backing element of sheet material on the front, top, bottom and ends of the framework for the background element **1**, the covering **4** being adhesively applied to such backing element. The backing element at the front of the background element is indicated at **50** and at the top and bottom at **51**. These background elements will preferably have a thickness equal to the bounding wires **5** and **6** so that when they are in place, the exposed face of the backing elements become flush with the bounding wires. Since the fabric covering **4** is adhesively secured to the backing elements, such covering will have a smooth unwrinkled appearance.

I claim:

1. An advertising sign comprising a background element, a plurality of symbol elements each having a skeleton wire framework presenting spaced wires which bound the symbol at both the front and the back, intermediate wires connecting both the opposite sides of the front bounding wires and also the front and rear bounding wires at the sides of the framework, all such intermediate wires being located in planes inside the planes of the bounding wires, a backing element of relative stiff sheet material situated within and with its edges in frictional engagement with said front bounding wire, the front face of said backing element being flush with said bounding wire, a second backing element located between the front and rear bounding wires at the sides, top and bottom of the framework and with its edges in frictional engagement with said front and rear bounding wires, said second backing element having its outer face substantially flush with the bounding wires, an envelope of fabric covering and adhesively secured to the outer face of both backing elements, and seperable fasteners for removably securing each symbol element to the background element.

2. An advertising sign comprising a background element, a plurality of symbol elements each having a skeleton wire framework presenting spaced wires which bound the symbol at both the front and the back, intermediate wires connecting both the opposite sides of the front bounding wires and also the front and rear bounding wires at the sides of the framework, all such intermediate wires being located in planes inside the planes of the bounding wires, a backing element of relatively stiff sheet material situated within and with its edges in frictional engagament with said front bounding wire, the front face of said backing element being flush with said bounding wire, a second backing element located between the front and rear bounding wires at the sides, top and bottom of the framework and with its edges in frictional engagment with said front and rear bounding wires, said second backing element having its outer face substantially flush with the bounding wires, an envelope member of fabric adhesively secured to the outer end of the backing element at the sides, top and bottom of the symbol, the front edge of said envelope member being folded against and adhesively secured to the front backing element and the rear edge of said envelope member being folded around the rear bounding wire, a front envelope member covering and adhesively united to the front backing member, and separable fasteners for removably securing each symbol element to the background element.

3. An advertising sign comprising a background element, a plurality of symbol elements each having a skeleton wire framework presenting spaced wires which bound the symbol at both the front and the back, intermediate wires connecting both the opposite sides of the front bounding wires and also the front and rear bounding wires at the sides of the framework, all such intermediate wires being located in planes inside the planes of the bounding wires, a backing element of relatively stiff sheet material situated within and with its edges in frictional engagement with said folded bounding wire, the front face of said backing element being flush with said bounding wire, a second backing element located between the front and rear bounding wires at the sides, top and bottom of the framework and with its edges in frictional engagement with said front and rear bounding wires, said second backing element having its outer face substantially flush with the bounding wires, an envelope of fabric covering and adhesively secured to the outer face of both backing elements, the back of the skeleton framework being open and free from intermediate wires, backing element and envelope member, and separable fasteners for detachably securing each symbol element to the background element with the back of the symbol element in contact with said background element.

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No references cited.