April 29, 1930. W. A. FERRIS 1,756,187

ELECTRIC WELD FORM SPACER

Filed Feb. 12, 1927

Fig. 1

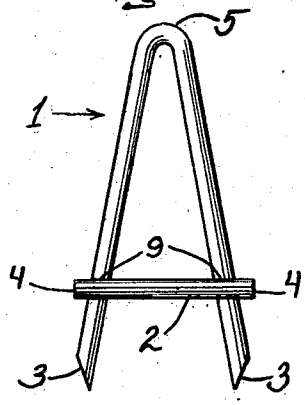


Fig. 2

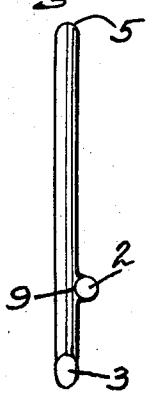


Fig. 3

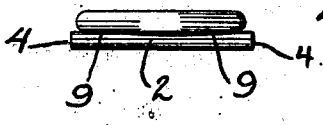


Fig. 4

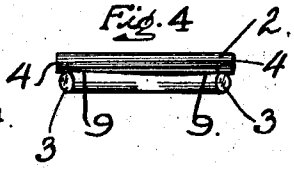


Fig. 5

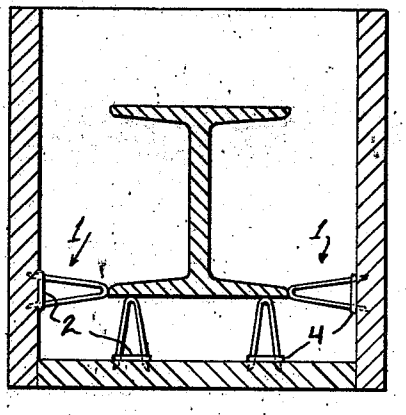
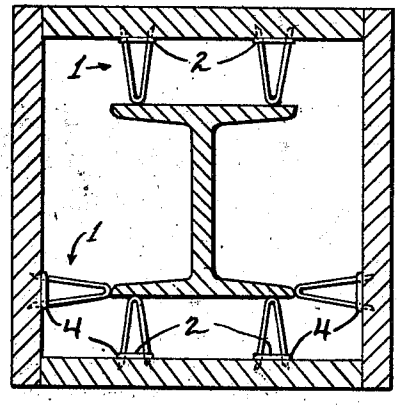


Fig. 6



INVENTOR
WALLACE A. FERRIS

WITNESS
Robt. S. Woolsey

by James R. Townsend
his attorney

Patented Apr. 29, 1930 1,756,187

UNITED STATES PATENT OFFICE

WALLACE A. FERRIS, OF LOS ANGELES, CALIFORNIA

ELECTRIC WELD FORM SPACER

Application filed February 12, 1927. Serial No. 167,818.

This invention relates to the art of concrete fire proofing for steel structures and consists in certain means for holding apart from structural steel or iron such as columns and beams, the boards or planks that go to make up the forms which encase the steel columns or beams that are to be protected by concrete.

Objects of the present invention are cheapness, lightness, simplicity, ease of manufacture, ease of handling and ease and certainty of setting the spacers.

An object of one form of this invention is to provide a spacer that will be more rigid when set in place than spacers heretofore provided for this purpose.

The invention broadly includes two pieces of wire, one of which is adapted to form a standard and is provided with a sharpened point adapted to be driven into the form member, and the other of which has the side thereof adjacent to said point, spaced from the other end of the standard the distance required to be provided between the form and the structural metal to be encased.

The invention comprises a spacer standard having a point adapted to be driven into the form member and having an intermediate head or cross bar fixed to the standard to serve as a stop for spacing the top or driving end of the standard from the form into which the point of the standard is to be driven.

This form of spacer is especially adapted for rapid and cheap manufacture and also for being readily handled by the workmen setting them in place; and such spacer is adapted to cheap and simple manufacture with straight standard or a loop standard; either of which may be made by laying the standards in a row side by side spaced apart according to the length of the stop that is to be applied thereto, and applying a straight wire to the entire row and welding the wire and the standards together and then cutting the cross-wire into lengths, the ends of which are equidistant from the axes of their standards respectively, and the operation of applying and welding the stop bars to the standards may be varied, according to the convenience or operative means of the manufacturer.

The standards and stop bars may be formed out of straight wire, and in some instances the standards may be made of a U or V-shaped bend of such wire; the cross bars in the latter case being welded to both legs of their standards respectively, at the appropriate distance from the point or points, as the case may be, of the standards.

The length of the standards from point to stop bar and from the stop sides or edges of the stop bars to the driving ends or heads of the standards, respectively will be determined by the purpose for which the spacer is intended; and the completed spacers may be used for various purposes in addition to what is above specified, as for instance, for spacing wire mesh from forms against which walls may be built by cement shot from a cement gun.

The invention is broadly new, basic and particular in a form which comprises an A-shaped staple; and said staple is made of two pieces of wire, one having sharpened ends and the other being a cross bar connecting the limbs of the loop near the sharpened ends to form a stop for the staple when the same is driven into a plank or other object; a stop face of the bar being spaced from the outer face of the bend a distance equal to the space required between the form and structural steel or iron or other object to be encased by the cement or concrete material.

Other objects, advantages and features of invention may appear from the accompanying drawing, the subjoined detailed description and the appended claim.

The accompanying drawing illustrates the invention.

Figure 1 is a face view of my newly invented form spacer.

Fig. 2 is an edge view.

Fig. 3 is a view of the spacer looking at the driving end.

Fig. 4 is a view of the same looking at the insert end.

Fig. 5 is a horizontal section of a column with form and spacers in place.

Fig. 6 is a vertical section of an I beam and form for a soffit with spacers in place.

The V-shape body 1 forming the standard

of the spacer and the stop bar 2, of the spacer as shown in Figs. 1, 2, 3, 4, 5 and 6, are preferably made of pieces of polished steel wire of appropriate gage and of requisite lengths, as for example, when the space between the form and a steel I-beam or other structural iron is to be two inches, the V body on standard 1, may be of No. 10 polished steel wire approximately six inches long bent to V form; and the stop bar may be approximate one inch long.

The ends of the standard or body wire, will be cut aslant as indicated at 3 and the ends of the stop bar or wire may be practically square across as indicated at 4 in Figs. 1, 2 and 3.

The wire for the body or standard 1 will be bent midway between its ends to form a rounded driving head 5 and the stop bar 2 will be welded to the divergent limbs with the ends of the stop bar nearly flush with the outer edges of the limbs and arranged with a space two inches from the rounded driving head 5.

The spacers are free from cutting edges and are adapted to be carried in the pockets of workmen's aprons the same as nails.

It is understood that the principle of the invention may be carried out in various ways and that I do not limit myself to the exact construction shown nor to the use of round wire; as other construction and wire of other cross sections may be used where convenient or desired; nor do I limit myself to the particular shape of the bend at the head 5, nor to the particular cut of the points 3.

The stop bar 2 is secured to the standard by a weld 9 at each of the contacts between the bar and standard in all of the forms shown.

In practical manufacture the form shown in Figs. 1–4 may be readily made by first clipping the wires for the V-bend aslant in any desired way or form and then bending such wire into the V or U-shape seen most clearly in Fig. 1; laying a desired number of the V or U-shaped standards thus formed, side by side with their longitudinal axes in parallelism with each other, then laying a straight wire across the limbs of all of the loops, then electrically spot welding by suitable spot welding process, the cross wire, to the several limbs as at 9 and then clipping off the wire between the standards.

In setting the spacers to be driven into the form member, the junction of the cross bar and the standard afford ready grasp for the hand; and when the staple is driven the cross bar prevents the legs of the staple from spreading and insures that the standard will maintain its proper form so as to insure that the spacing will be correct. When the staple is driven into the form member, the cross bar is disposed flush against the surface thereof, functioning as a stop, and likewise forms an auxiliary means for supporting the staple on the form member.

The ends of the limbs may be clipped off for a finished job or bent over for plaster finish.

The junction of the stop bar and standard afford an easy hold for the fingers.

In practice the mechanic using either form of standard shown, will adjust the point to the proper place on the wooden form and will by the stroke of a hammer upon the driving head 5 set the standard in the wooden form until the stop comes against such form, thus gaging the space between the surface of the form and the surface of the metallic structural element that the form is to be spaced from and then the parts of the form will be brought into position to close the structural element and then the concrete may be poured in the usual way as will be understood by the diagrammatic showing in Figs. 5 and 6.

I claim:—

In the art of concrete fireproofing for steel structures, a spacer for maintaining a predetermined distance between the side of a metallic structural element and a member of a wooden form to confine the concrete, said spacer consisting in a staple forming a standard pointed at one end for insertion into the wooden mold member and provided at the other end with a bend forming a driving head adapted to contact with the metallic structural element to be encased; and a cross bar fixed to the legs of the staple near the pointed ends thereof to serve as a stop to gage the depth to which the ends will be driven.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 5th day of February, 1927.

WALLACE A. FERRIS.