TIE WIRE AND SPREADER

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INVENTOR

BY

ATTORNEYS.
My invention relates to improvements in tie wire and spreader, and it consists in the combinations, constructions and arrangements hereinafter described and claimed.

An object of my invention is to provide a tie wire and spreader which is extremely simple in construction, which may be secured to the forms for concrete and the like at a number of places, whereby strengthening the connections between the inside forms and the outside forms. The device has means for permitting it to be imbedded in the forms and also has means for receiving additional fastening members if it is desired to more firmly secure the device in place.

A further object of my invention is to provide a device of the type described which may be made of a heavier material than is the standard tie wire and spreader, and which may make use of a material that is rust proof, because the device comprises a single strand extending between the form walls instead of a long double strand as is now used.

A further object of my invention is to provide a device of the type described, in which the form spreaders hold the sheeting against the studding, thus doing away with the necessity of nailing the sheeting to the studding.

Other objects and advantages will appear in the following specification, and the novel features of my invention will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawing forming a part of this application, in which

Figure 1 is a side elevation of my device shown as operatively applied to forms for building a concrete wall;
Figure 2 is a perspective view of the device; and
Figure 3 is an enlarged detail view of the fastening means.

The usual practice in building wall forms is to first construct the forms for one side of the wall, and then secure the necessary tie wire to this form, this wiring being subsequently used for securing the other form in place. The tie wire is of relatively thin gauge, and it is therefore doubled so as to be strong enough for securing the two forms together. This requires about six feet of wire for each tie, and this wire, of course, hangs down where it is in the way and also becomes hidden behind the reinforcing bars which are placed along the single form prior to the building of the form that makes the opposite side of the wall.

The second wall form is spaced from the first wall form by spacing blocks which are subsequently removed when the concrete has been poured between the two wall forms. The wall forms are composed of sheeting boards approximately six inches in width, and these boards are nailed to the 2 x 4 studdings.

When the wall has set it is necessary to take a crowbar and remove the studding from the sheeting, and also to cut the tie wires which have been bent around the studdings.

With my invention I do away with the necessity of nailing the sheeting boards to the studding, thus saving considerable time, labor and material, and furthermore, I provide forms which may be quickly removed after the cement wall has set, without the necessity of using a crowbar for tearing the studding from the sheeting. This, of course, results in a great saving of material, because under the old system the boards were soon damaged to such an extent that they could not be used again, and therefore new ones had to take their place.

The tie wire and spreader consists of a single strip of wire 1 which is of a heavier gauge than the tie wire now employed and has a pair of loops 2 and 3 fashioned therein, the wire being spot welded at the points \( \alpha \) and \( \gamma \) for preventing the unraveling of the loops when strain is placed upon the wire 1. The ends of the wire are bent at right angles with respect to the plane of the loop 3, and these ends are sharpened for forming prongs 4. Figure 2 clearly shows how spacing members 5 are spot welded to the wire 1, and are curved for a purpose hereinafter described. From the foregoing description of the various parts of the device, the operation thereof may be readily understood. In Figure 1 I have shown a form consisting of studding 6, and sheeting boards 7. The tie 1 connects the
studdings 6 together, while the spacing members 5 bear against the inner surfaces of the sheeting boards 7 and determine the thickness of the wall.

As designed, the wire 1 may be secured in place by merely driving the prongs 4 into the studdings 6, and if additional fastening means is needed nails 8 and 9 may be driven through the loops 2 and 3 into the studdings.

The wire 1 is much shorter than the usual tie wire and therefore can be bent out of the way after one wall form has been built, and prior to the forming of the other wall form, thus permitting reinforcing rods, not shown, to be disposed adjacent to the completed form. The sheeting boards 7 merely have to be dropped into place, the grooved spacing members 5 preventing the boards from becoming impinged upon the upper ends of the members, but instead acting as cams for guiding the boards into place against the studdings. The spacing members 5 do away with the necessity of providing spacing blocks which are now commonly employed.

If desired, the wire 1 may be formed with a core positioning wire 10 (see Figure 1), and a core 11 may be supported by two adjacent wires and held in position by the wires 10. This type of tie wire may be used for hollow walls.

It has been found that non-rust proof wire is used in present wall construction because two strands of this wire have to be bent at the same time, and it is necessary to provide a small gauge wire that is readily bent, and such a wire is a non-rust proof wire. Tie wire soon rusts away and leaves openings in the wall through which water can pass. My device makes use of a heavy gauge wire that is galvanized, and therefore this wire will not deteriorate. In taking the forms down from the completed wall when using my device, it is merely necessary to remove the nails 8 and 9 and then to sever wire 1 at the points adjacent to the sheeting boards 7. The studdings 6 and the boards 7 will now cease to be supported, and will be readily removed from the wall without the necessity of using crowbars as is now the practice.

I have found that the sheeting plates 7 may be held against outward movement by means of staples 25 which have prongs 26 adapted to be imbedded in the boards 7. Figure 2 shows how the staples have their backs curved for spacing the prongs from the boards. The wire 1 is mounted upon the lower boards 6 and is secured thereto by hammering the lower prongs 26 into the board. The upper boards may now be disposed in place and may be secured by hammering the upper parts in place. In certain constructions it may be desired to remove the lower boards before the upper ones, and in this event the lower prongs 26 may be bent out of the way or may be severed from the wire. If desired, the staples 25 may be used in lieu of the rings, and the prongs fashioned in the wire itself.

It should be further noted that the wire 1 may be inclined from the horizontal should the builder so desire, and the curved members 6 would permit such a positioning without their interfering with the placing of the sheeting boards in the forms.

I claim:

1. The combination with inner and outer wall forms, including studs and sheeting supports, of tie wire and spreaders having means for imbedding themselves in the studding, and means for clamping the sheeting boards against the studding.

2. The combination with inner and outer wall forms, including studs and sheeting supports, of tie wire and spreaders having means for imbedding themselves in the studding, and means for clamping the sheeting boards against the studding, said last named means being adapted to support and to clamp said sheeting boards against said studding.

3. A device of the type described, comprising a form holding wire and means carried by the outer ends of the wire for engaging with the outer surfaces of form boards for holding these boards against movement away from each other, said means being movable for freeing the upper or lower boards from each other and means for securing said wire to a support.

4. A tie wire and spreader comprising an elongated member having eyelets at its ends, means for engaging with the outer surfaces of form boards, and curved members for engaging with the inner surfaces of the boards.

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