July 21, 1931. F. C. WOTNOSKE 1,815,368

SPREADER DEVICE FOR CONCRETE FORMS

Filed April 18, 1929 3 Sheets-Sheet 1

Fig. 1.

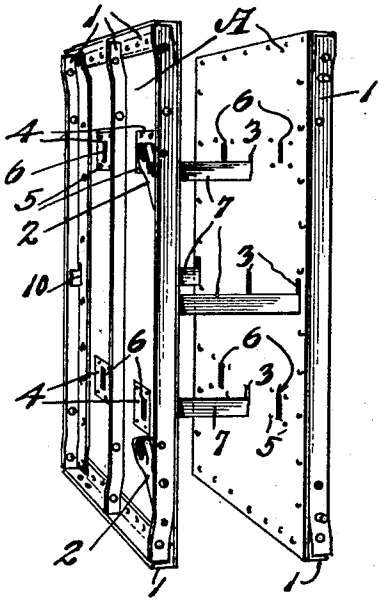


Fig. 3.

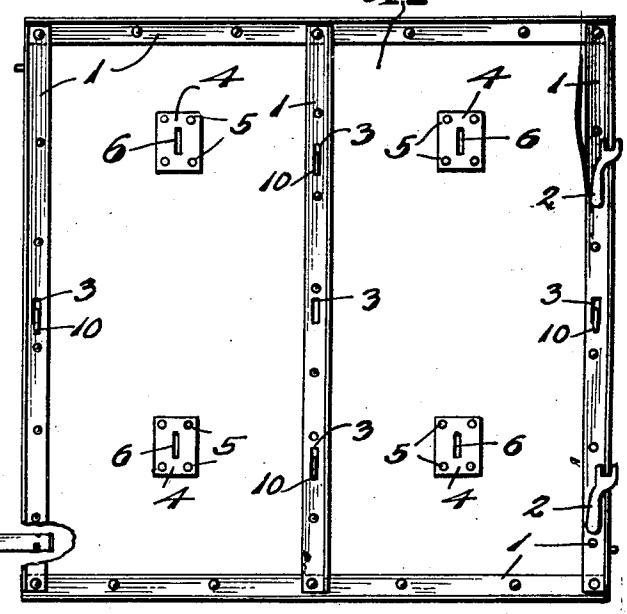
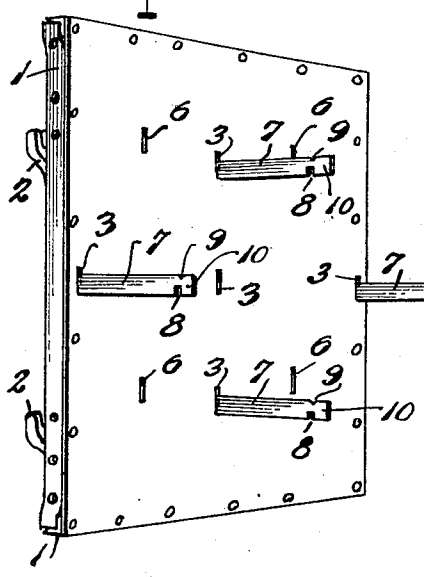


Fig. 2.



INVENTOR
F. C. Wotnoske

BY

Robb & Robb

ATTORNEYS

July 21, 1931. F. C. WOTNOSKE 1,815,368

SPREADER DEVICE FOR CONCRETE FORMS

Filed April 18, 1929 3 Sheets-Sheet 2

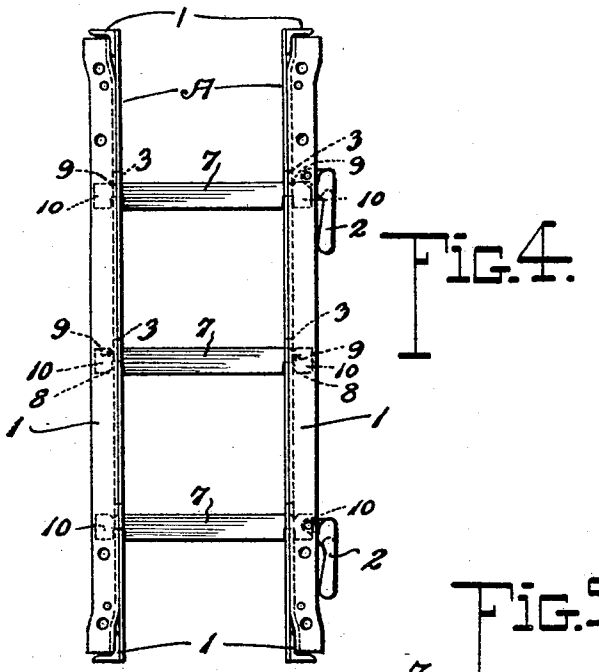


Fig. 4.

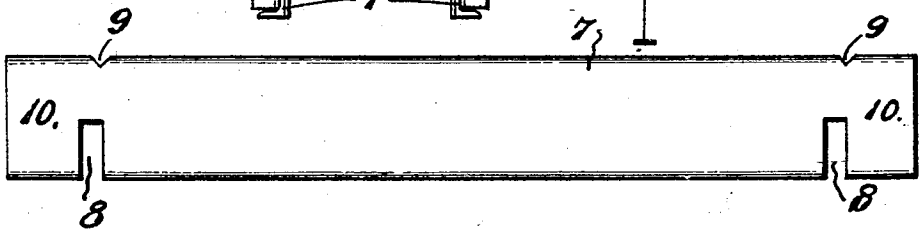


Fig. 5.

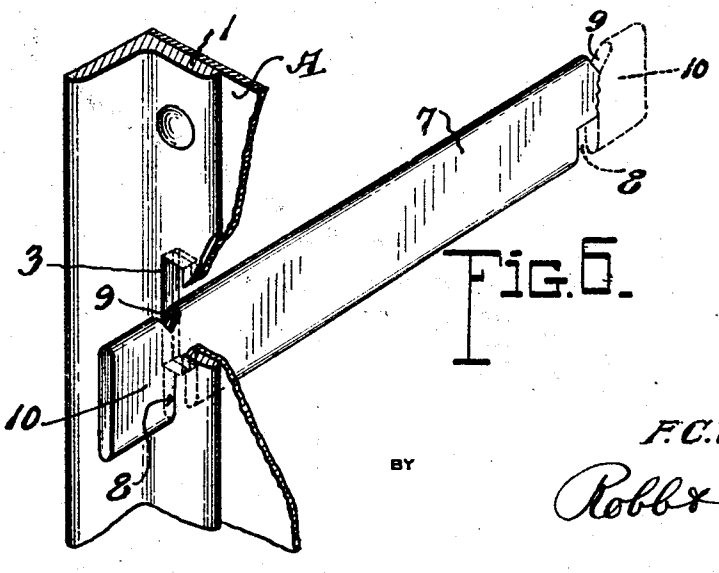


Fig. 6.

INVENTOR
F. C. Wotnoske

BY

Robb & Robb

ATTORNEYS

July 21, 1931. F. C. WOTNOSKE 1,815,368

SPREADER DEVICE FOR CONCRETE FORMS

Filed April 18, 1929 3 Sheets-Sheet 3

Fig. 7

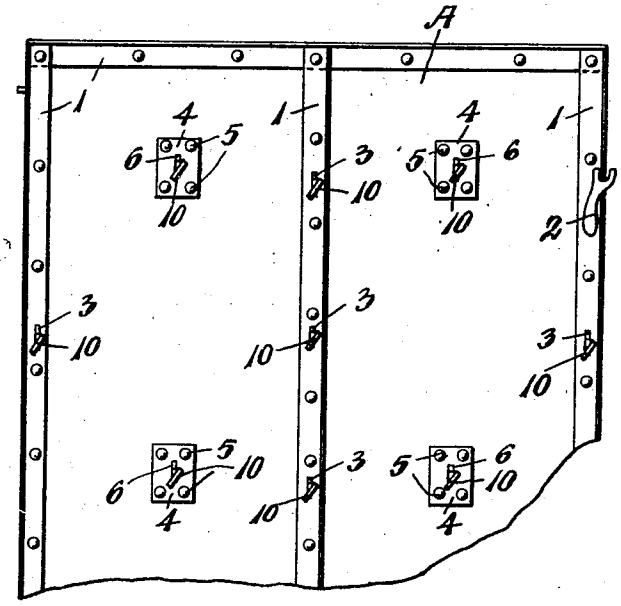
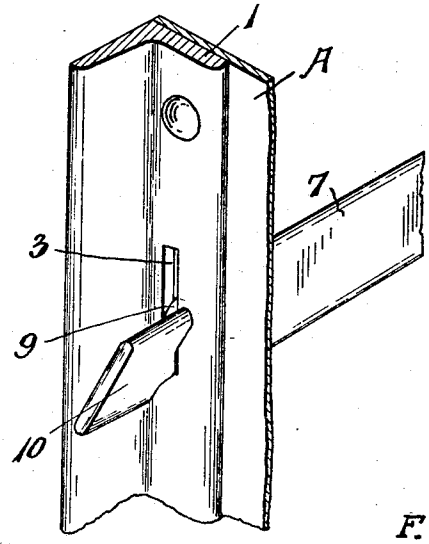


Fig. 8.



INVENTOR

F. C. Wotnoske.

BY

Robb & Robb

ATTORNEYS

Patented July 21, 1931 1,815,368

UNITED STATES PATENT OFFICE

FRED C. WOTNOSKE, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO METAL FORMS CORPORATION, OF MILWAUKEE, WISCONSIN

SPREADER DEVICE FOR CONCRETE FORMS

Application filed April 18, 1929. Serial No. 356,287.

This invention appertains to the art of concrete forms, and involves primarily the provision of a novel type of spreader device which functions to maintain plates, which constitute parts of a concrete form, in spaced relation. Heretofore it has been the practice to avail of wires which are threaded through openings in the plates and twisted to prevent the plates from spreading farther than is permissible. This old method has several disadvantages, among which are noted the following:—The plates are not held spaced apart; that is, there is nothing prior to the pouring of concrete which prevents the plates from moving toward one another. Furthermore, considerable inconvenience is caused by this method as some little time is required to put the wires through the openings and twist the same to prevent the plates from spreading. When the plates are removed subsequent to the pouring and setting of the concrete, it is necessary to cut the wires so as to permit removal of the plates.

I propose by this invention to obviate the above unfavorable conditions accompanying the old wire tie system of spacing the plates, by providing a notched bar which is designed to cooperate with slots in the plates to provide a sort of interlock between the plates and the bar whereby the former are properly held in position with respect to one another and movement in either direction on the part of the plates is inhibited.

In carrying out this idea more in detail, the plates are provided, at suitable points, with slots, these being preferably located adjacent the reinforcing ribs or flanges with which the forms are provided. The flat bars are notched adjacent their ends and these bars are inserted in the slots in the plate and moved downwardly so that the notches engage the plate. At this time the ends of the bars may be twisted or turned to a slight degree, thereby preventing their removal or displacement from the plates through accident or otherwise. The plate forms will now be held in position during the pouring of the concrete, and after the set has taken place, the ends of the bars may be twisted further which causes a fracture or breaking off of the ends of the same at the notched portions which are the points of junction with the plate. The latter may now be removed, leaving that portion of the bar which was formerly between the forms, embedded in the concrete.

An important feature of the invention lies in the setting up of a positive interlock between the bar and the plate form, this being created by the notched bar and slotted plate connection, taken together with the slight twisting of the ends after the bars are properly positioned.

Certain additional advantages are obtained by the preferred method of use of these bars, which method lies in first applying the bars to maintain the plate forms spaced prior to and during the pouring of the concrete and then destroying the spacing effect of the bars after the concrete has set, permitting the removal of the plates and at the same time leaving the bars embedded in the concrete which provides certain reinforcing effects for the concrete structure.

A more detailed feature of the invention lies in the provision of notches in the bar substantially opposite to the notches which provide the interlock with the plate so as to facilitate the twisting off of the extremities of the said bar.

With these and other objects and advantages in view, the invention comprises other novel constructions, combinations, and arrangements of parts as will in part become apparent and in part be hereinafter stated.

For a full and more complete understanding of the invention, reference may be had to the following description and accompanying drawings, in which—

Figure 1 is a perspective view of the plate forms spaced apart by notched flat bars in accordance with this invention.

Figure 2 is a perspective view showing the bars as applied to one of the plates.

Figure 3 is a front view of one of the plate forms with the bars attached thereto.

Figure 4 is an end view bringing out particularly the interlock between the notched bars and the plates.

Figure 5 is a detail showing in elevation of one of the notched bars.

Figure 6 is an enlarged detail fragmentary showing in perspective of the interlock connection between one end of the bar and one end of the plate forms.

Figure 7 is a view similar to Figure 3 and shows the ends of the bars in their twisted position.

Figure 8 is an enlarged perspective view bringing out the twisted end of a bar.

While a preferred specific embodiment of the invention is herein set forth, it is to be understood that I am not to be limited to the exact constructions illustrated and described because various modifications of these details may be provided in putting the invention into practice within the purview of the appended claims.

Throughout the various figures of the drawings and following description, like reference characters denote corresponding parts.

Referring now to the drawings, the plate forms are designated A. These forms are provided with flanges 1 which act as sort of reinforcing ribs for the plates and also as a means for connecting adjacent plates together. In connection with this last mentioned phase, it is noted that the device as shown at 2 may be operated to join two plates by positively holding the side flanges thereof together. Plates A are provided, preferably adjacent to the flanges 1, with slots 3 for a purpose to be hereinafter more fully set out. If it is found necessary to provide points of connection for the bars at points other than in close proximity to the flanges 1, plates A may be provided with reinforcing or strengthening plates 4 which may be joined to the plates A in any preferred manner as by rivets shown at 5 and the plates A and 4 slotted as shown at 6.

A tie bar 7 of suitable metal such as iron, is provided adjacent each end with notches 8, each of which is adapted to engage a plate form A subsequent to the insertion of the extremities of the bar in the slots 3. Gravity action will maintain this engagement, but the ends of the bars 7 are preferably twisted a slight amount thereby positively preventing their removal from the plates A. The bar 7 may also be provided with the smaller notches 9 which are substantially opposite the outer walls of the notches 8 so as to facilitate the twisting off of the end portions of the bar 7 which are designated 10.

The method of use of my novel spreader device lies in first inserting the ends of these bars 7 in the slots 3 and then moving the same downwardly so that the notches 8 engage plates A. The ends 10 then are twisted to a slight degree so as to prevent their removal from the plates A. Concrete is now poured into the form which is defined by the spaced plates, and subsequent to the setting of the concrete the ends 10 may be twisted off due to the notches 8 and 9, the point of fracture of the bar being of course at these notches. The plates A may then be removed from the concrete structure leaving the bars 7 embedded therein under which condition they act as a sort of reinforcing element. The end portions of the bar 7 are connected to the main body portion across the notches 8 by frangible portions of the bar, which are readily fractured or broken as previously described.

A notable feature of this invention lies in the frangible end portions of the tie bars. The ends of the bars are first passed through the slots in the plate forms, and then the bars are moved downwardly causing the notches in the bars to engage the plates and hold them in their proper spaced relation. At this time, the ends of the bars and the slots in the plates are in alignment. By deforming these bar ends, as by twisting, the ends are positioned out of alignment with the slots in the plates so that the bars cannot become accidently disengaged from the plate forms. This positive locking of the bars in the plates is very important. After the concrete has been poured and sets, then a further deformation or twisting of the bar ends causes them to break off, thereby permitting removal of the plate forms from the bars.

This application is a continuation in part of my application Serial No. 341,516, filed February 20th, 1929, for "spreader device for concrete forms".

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States, is

1. In a concrete form, the combination, with spaced plates having openings therein, of bars having notches engaging said openings and thereby maintaining said plates in their spaced relation, the ends of the said bars being deformed by twisting said ends out of alignment with the openings thereby preventing the accidental displacement of the bars from said plates, the bars having small notches on the edges opposite those engaging the forms to thus weaken the metal at such end so that the latter may be twisted or broken off, and means for supporting said bars to resist movement of the same with respect to the plates during twisting of the ends.

2. The method of setting up and taking down bar spaced concrete form plates, which lies in first interlocking the spaced plates with the bars to hold the plates in spaced position, whereby a form is defined, twisting the ends of the bars to prevent their disengagement from the plates, pouring concrete into the form, allowing the concrete to set, twisting the bar ends further to destroy the interlock between the plates and the bars to permit the removal of the plates from the

said concrete, and positively supporting said bars during twisting of the ends to resist relative movement of the bars with respect to the concrete.

3. In a knock-down concrete form, the combination with spaced plates between which concrete may be poured, said plates having openings therein, of tie bars inserted through said openings and interlocked with the plates, the ends of said bars being deformed thereby preventing their unauthorized displacement from engagement with said plates, and said plates positively supporting said bars during deformation of the ends thereof to resist relative movement of the bars with respect to the plates.

4. In a concrete form, the combination with spaced plates having openings therein, of bars having notches engaging said openings, the said plates closely engaging the bars at the notches for the full width of the bars whereby to maintain the plates in spaced relation and the bars interlocked therewith, the ends of said bars being deformed by twisting said ends out of alignment with the openings, thereby preventing accidental detachment of the bars from the plates.

In testimony whereof I affix my signature.

FRED C. WOTNOSKE.