May 10, 1932. T. C. SCHENK 1,857,610

FORM TIE

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Fig. 1.

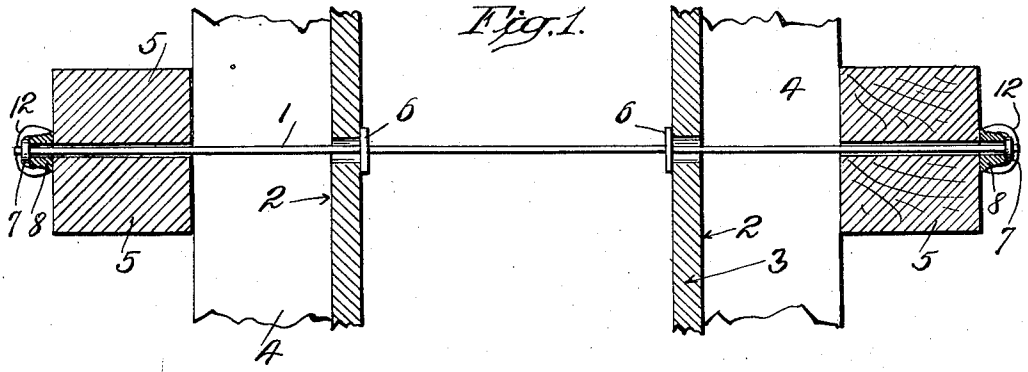


Fig. 2.

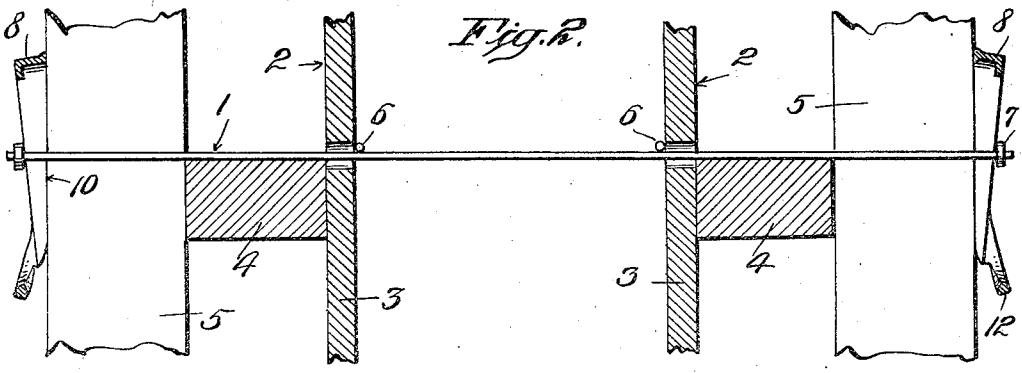


Fig. 3.

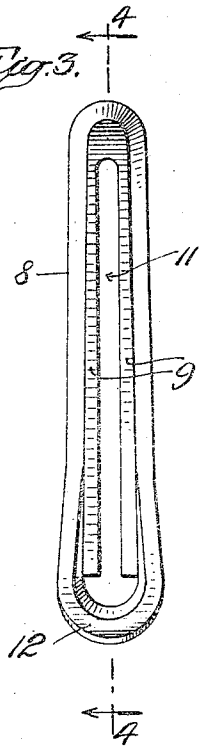


Fig. 4.

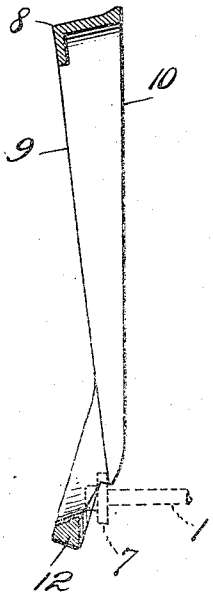


Fig. 5.

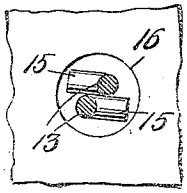
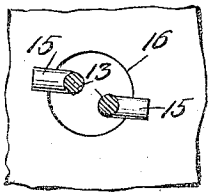


Fig. 6.



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Fig. 7.

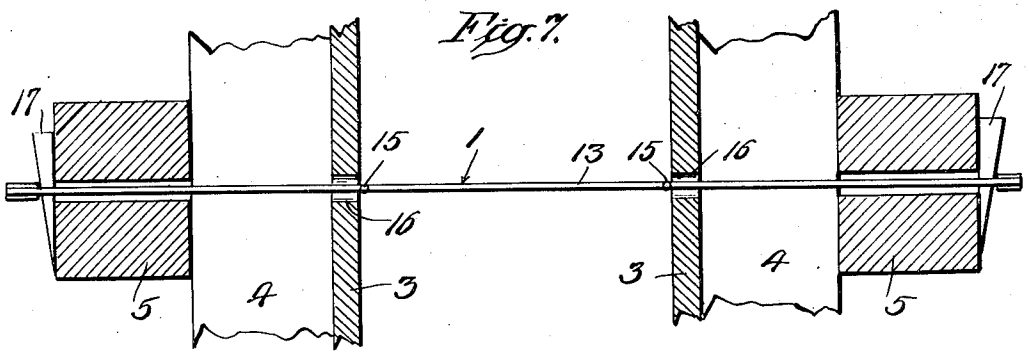


Fig. 8.

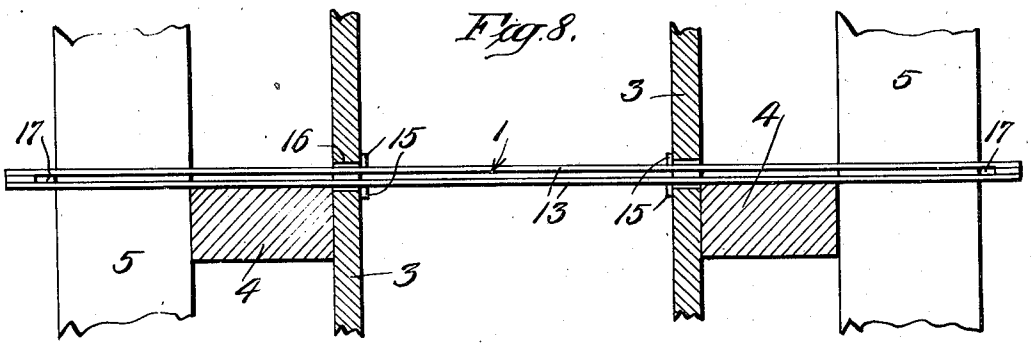


Fig. 9.

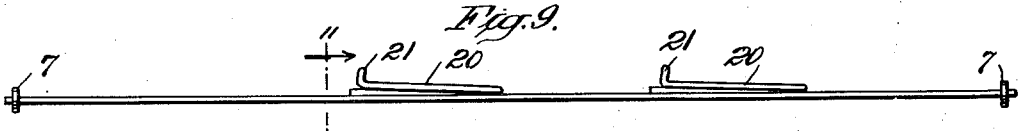
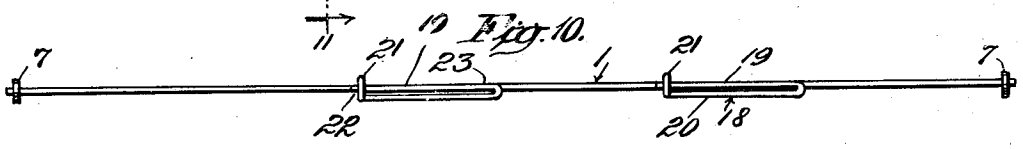


Fig. 10.



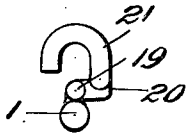


Fig. 11.

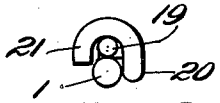


Fig. 12.

INVENTOR

TAMIS C. SCHENK

BY C. Edwards

ATTORNEY

Patented May 10, 1932 1,857,610

UNITED STATES PATENT OFFICE

TAMIS C. SCHENK, OF BROOKLYN, NEW YORK, ASSIGNOR TO RICHMOND SCREW ANCHOR CO., INC., A CORPORATION OF NEW YORK

FORM TIE

Application filed May 1, 1931. Serial No. 534,153.

The object of my invention is to provide a simple form tie which will be cheap to construct, easy to manipulate, and satisfactory in service, and which may be broken off well in the concrete after use, so as to leave no exposed metal, after the pointing of the wall. These and other objects are accomplished by my invention, some embodiments of which are hereinafter more particularly set forth.

For a more detailed description of my invention, reference is to be had to the accompanying drawings, in which

Figure 1 is a sectional view showing one embodiment of my invention;

Figure 2 is a similar view taken at right angles to Figure 1;

Figures 3 and 4 show a fastening wedge, Figure 4 being a sectional view taken on the line 4—4 of Figure 3;

Figures 5 and 6 show a modified form of my invention, the full structure being shown in Figures 7 and 8, Figures 5 and 6 showing a certain manipulation of parts incidental to the use of the device;

Figures 9, 10, 11 and 12 show a further embodiment of my invention, Figure 11 being a sectional view taken on the line 11—11 of Figure 9.

Throughout the various views of the drawings, similar reference characters designate similar parts.

My improved form tie 1 may be used with any suitable form 2, which may consist of longitudinal boards 3 re-enforced by horizontal beams 4 and vertical beams 5, all of which are used in the conventional manner. This tie 1 may be made in any of several forms, which will now be described, beginning with the one shown in Figures 1 to 4 inclusive.

This tie 1 has cross bars 6 welded to the same in such a manner as to make the metal somewhat brittle where the weld occurs, so that when the bar is bent, it will fracture at this point. As long as it is straight and in tension, this brittleness is not important as it does not impair its tensile strength. At each end, the tie is provided with an enlarged head or washer 7, which is secured in place by swaging or in any other suitable manner. The parts are drawn together by means of wedges 8 at each end. These wedges are carefully designed as to be bottom heavy and not top heavy. Each wedge is composed of a casting or forging with parallel surfaces 9 adapted to engage the parts 7 with increasing thickness from the inner surfaces 10 as the top is approached, the top position being that which the wedge assumes when in use. A longitudinal slot 11 extends nearly the length of the wedge and at the bottom there is an elevated loop 12 which is so arranged and disposed that it carries more weight than the top and will clear the part 7 of a form tie 1 when inserted as indicated in Figure 4. This part 12 is in the form of a loop as indicated, and when the wedge is put in place and free to turn with the tie 1 going through the slot 11. gravity will cause it to assume a vertical position with the loop 12 down. This is most important because during the pouring and other operations incidental to the use of the forms there is some vibration and if this wedge were top heavy instead of bottom heavy, it would have a tendency to loosen, reverse, and drop. This is impossible with the structure made as above described.

The use of this modification will be readily understood. Assuming that the forms are assembled and against the bar 6, the wedges are inserted as indicated in Figure 4, and driven down or allowed to slide down to their proper position, where they will automatically lock and remain firm until the forms are taken down, and the forms are taken down by striking upwardly the loops 12 of the wedges 8 and then removing the wedges and taking down the forms, and this will leave the ends of the ties 1 projecting. As soon as the concrete is sufficiently hard, these ties may be readily broken by bending close to the bars 6, because of the effect of the welding which makes the bars brittle at these points and the ends may be thrown away and the surface finished so as to completely conceal the metal.

In the embodiment shown in Figures 5 to 8 inclusive, the tie 1 consists of two parallel rods 13 welded to a common plate 14 at each end, and at suitable intervals these rods are provided with laterally projecting lugs 15

which are welded so as to cause the metal of the bars 13 to be brittle at the weld. These ties 1 are somewhat flexible and may be sprung as shown in Figure 5 so as to pass through a hole 16, and then spread outwardly as shown in Figure 6 so that a form plank 3 may be held against these lugs 15. Wedges 17 are used to hold the parts together and act on the same general principle as the wedges 8. These wedges 17 are ordinary wedges which fit between the bars and require no description. These wedges may be driven upwardly when the forms are taken down and thereafter the parts of the forms may be removed and the rods 13 may be broken the same as the rods of the form tie above described.

In Figures 9 to 12 inclusive, is yet another modification. Here the ties 1 are the same as before and require no further description, except that the bars 6 are omitted and in place of them are used stops 18, each of which is composed of a shank 19 welded at each end to a rod 1 and then it is bent back on itself and slightly outwardly to form an arm 20, at the end of which is a hook 21, which is adapted to take over the bar 1 and the part 19 as indicated in Figures 11 and 12. Figure 11 shows the normal condition of the stop and Figure 12 shows the hook member 21 pressed down so that it may pass through a hole 16.

The embodiments of my invention shown in Figures 7 to 9 are suitable where it is desired to erect a form on both sides, and thereafter to insert the ties.

In the structure shown in Figure 9, the part 19 is welded at places marked 22 and 23 for the purpose of having the parts 19 and 20 sticking out of the finished concrete after the forms are removed. These parts give opportunity for a firm hold in the hand so that the tie can be broken off causing the break to be about one-half of an inch inside the surface of the concrete and removing all metal from the surface to eliminate later stains from rust on the wall.

In the structure shown in Figure 9 as in the other structures, the weld which holds the bar 19 to the tie 1 makes the metal brittle where the weld occurs, so that in this form of tie, the breakage is the same as before.

While I have shown and described some embodiments of my invention, it is obvious that it is not restricted thereto, but that it is broad enough to cover all structures that come within the scope of the annexed claims.

Having thus described my invention, what I claim is:

1. A form tie having a stop welded thereto against which a form may rest, and means for holding a form against the stop, the weld making the tie brittle at the point of the weld without decreasing substantially the tensile strength of the form tie, the weld making the tie easily breakable when bent at the weld.

2. The substance of claim 1 characterized by a holding means composed of a bottom-heavy wedge.

3. A form tie of claim 1 composed of two parallel bars with lugs thereon adapted to form stops, the bars being capable of being sprung together so as to permit the lugs to pass through a hole in the form.

4. A form tie of claim 1 characterized by stops welded to the tie and provided with loops adapted to be sprung toward the tie so as to permit the loops to pass through holes in a form.

5. A form tie of claim 1 characterized by brittleness within a concrete wall after use so that it may be broken within the wall.

In testimony whereof I have hereunto set my hand this 11th day of April, 1931.

TAMIS C. SCHENK.