

W. E. WHITE.
SPACING BAR FOR SPIRALS.
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1,361,558.

Patented Dec. 7, 1920.

Fig. 1

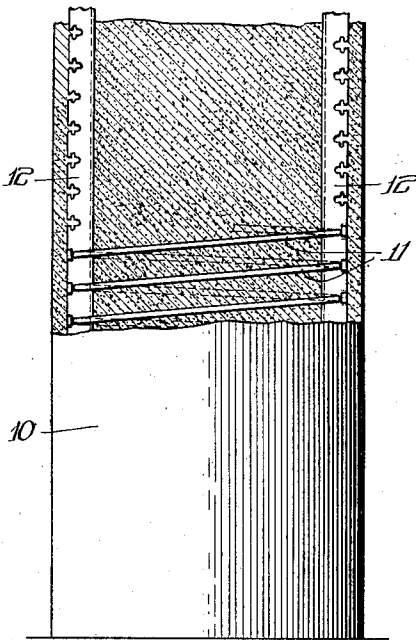


Fig. 4

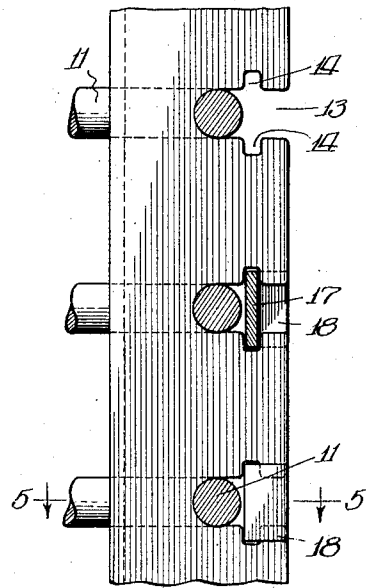


Fig. 5

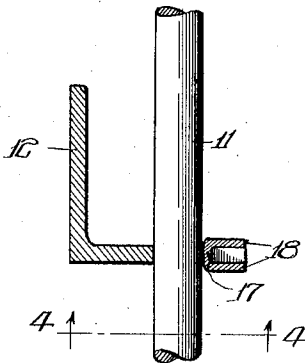


Fig. 6

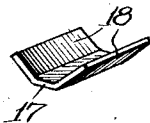


Fig. 3

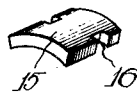
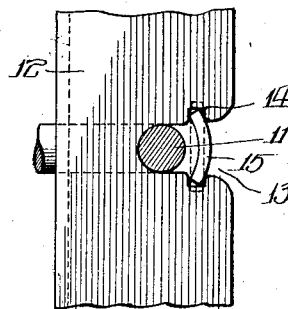


Fig. 2



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UNITED STATES PATENT OFFICE.

WILLIAM E. WHITE, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR TO PAUL J. KALMAN COMPANY, A COPARTNERSHIP CONSISTING OF PAUL J. KALMAN AND GEORGE E. ROUTH, JR., OF ST. PAUL, MINNESOTA.

SPACING-BAR FOR SPIRALS.

1,361,558.

Specification of Letters Patent.

Patented Dec. 7, 1920.

Application filed November 3, 1919. Serial No. 335,276.

To all whom it may concern:

Be it known that I, WILLIAM E. WHITE, a citizen of the United States, and resident of Minneapolis, in the county of Hennepin and State of Minnesota have invented certain new and useful Improvements in Spacing-Bars for Spirals, of which the following is a specification.

My invention relates to devices intended for use in connection with concrete reinforcement and particularly to a novel key for fastening or attaching spacing bars to reinforcing spirals of helicoidal form.

An object of the invention is to provide novel means adapted to be employed for permanently attaching the successive turns of a helical spiral reinforcing member to a spacing bar. A device of this character should be so constructed that the spirals are positively secured in proper relation to the spacing bar, the fastening means being such as to admit of certain freedom of movement of the spiral relative to the bar in order to permit of the collapsing of the spiral as required in shipping and handling.

A further object is to so design the fastening means that the parts may be united with a minimum of expense and effort. In the construction here proposed I provide a simple key adapted to be inserted in position and permanently fixed in locking relation by a single blow of a hammer or other suitable tool. The key employed will be formed of relatively soft metal which will easily take a permanent set. Two forms of such a device are shown, one adapted to be positioned by a blow of a hammer or other heavy instrument, the other to be fixed in place by pinching together two flanges thereof. In both cases the key is permanently held in place by distorting the metal composing the key.

The invention will be more readily understood by reference to the accompanying drawing, wherein,

Figure 1 is an elevation partly in section showing the spiral of my invention in operative position;

Fig. 2 is an enlarged sectional detail thereof;

Fig. 3 is a perspective view of the key employed;

Fig. 4 is an enlarged sectional detail

showing a modified form of the fastening key;

Fig. 5 is a sectional view on the line 5—5 of Fig. 4; and,

Fig. 6 is a perspective view of the key employed in the construction of Figs. 4 and 5.

In the drawings it will be seen that the spiral to which my improvement is applied, is intended as a reinforcement for a concrete column 10. The spiral, consisting of successive helical turns 11 of a wire or rod is held with the successive turns in properly spaced relation by the use of angle bars 12, preferably positioned at diametrically opposite points on the spiral. It is desirable that spirals constructed in this manner be fabricated at a mill or shop which is usually far distant from the point of use. It is, therefore, necessary that the spirals be transported, and shipping and handling are much easier if the spirals are collapsed. To that end the spacing bar should be so connected to the successive turns of the wire that the collapsing function is readily secured. However, the fastening device should be relatively permanent as otherwise the sections are likely to be displaced in shipping and handling. To that end I have provided a fastening key which accomplishes the desired results and may be constructed and installed very cheaply. In accordance with the common practice one leg of each of the spacing angles is punched at intervals, the notch 13 for the accommodation of the wire being laterally enlarged or provided with offset notches 14 at a point outside of the limit of the largest wire intended to be accommodated within the notch 13. After the rod or wire has been bent into spiral form the turns of the wire are located within the notches 13 whereupon a key, constructed as shown in Fig. 3, is placed in the notches and distorted to securely hold the wires in place. The key 15, as shown in Fig. 3, may be generally rectangular in outline and is provided with notches 16 on its opposite ends adapted to cooperate with the lateral notches 14. The key is constructed of relative soft, bendable metal of such composition that it will readily take a permanent set and is initially bent into general arcuate form, as shown in Figs. 2 and 3. In install-

ing the key it is placed in the position shown in the full lines of Fig. 2, that is, with the notches in the ends of the key engaging with the metal at one side of the lateral enlargements in the notch whereupon it is struck a blow with a hammer or other suitable instrument and straightened out to the dotted line position of Fig. 2. In this position the notches 16 in the key will be held in the notches 14 and as the key has been elongated by being straightened it can not be removed without rebending it to its original shape. Thus it will be seen that it constitutes a permanent fastening and will not bind the wires in the opening.

In the construction shown in Figs. 4, 5 and 6, the wires 11, angle spacers 12 and the notches 13, 14, remain the same. The key best shown in Fig. 6 is, however, slightly different. It consists of a short strip of metal having a web 17 and two legs 18 which may initially be formed as shown in Fig. 6. To install the key it is inserted with its ends in the notches 14 and the legs 18 are then bent into the position shown in Fig. 5 by means of a pair of pincers or by hammering. This key will likewise be composed of material which readily takes a permanent set. An advantage in this form of key is in that it may be composed of metal of thinner section inasmuch as the holding capacity is increased due to the channel shape of the key when installed. In the case of each of the keys it will be seen that neither can be removed without distorting the metal composing it.

The constructions here proposed provide simple and economical means for accomplishing the desired result. The punched openings in the angle bar are so shaped that a die of relatively massive proportions may be employed there being no small openings to be punched. The keys may be formed automatically in a single operation and their cost is insignificant.

Obviously the construction is capable of modifications other than those shown and I do not wish to be limited except as indicated in the appended claims.

I claim:

1. Spacing means for reinforcing mem-

bers, comprising a bar disposed transversely of said members and notched to accommodate each member, the notches being laterally enlarged at a point inside the entrance thereto and outside of the member accommodated therein, and a key adapted to be interlocked with said enlargement and be given a permanent set to hold the same in place, substantially as described.

2. Spacing means for reinforcing members, comprising a bar disposed transversely of said members and notched to accommodate each member, the notches being laterally enlarged at a point inside the entrance thereto and outside of the member accommodated therein, and a key having notched ends, the key being adapted to be disposed in a bar notch and to be distorted to cause the key notches to engage with the enlargement, substantially as described.

3. Spacing means for reinforcing members, comprising a bar disposed transversely of said members and notched to accommodate each member, the notches being laterally enlarged at a point inside the entrance thereto and outside of the member accommodated therein, and a curved key having notched ends, the key being located within a bar notch and being elongated by being flattened thereby effecting permanent interlocking engagement with the bar, substantially as described.

4. Spacing means for reinforcing members, comprising a bar disposed transversely of said members and notched to accommodate each member, the notches being laterally enlarged at a point inside the entrance thereto and outside of the member accommodated therein, and a notched key of less length than the width of said bar notches, said key being constructed to permit elongation thereof and thereby to effect interlocking engagement of the notches in the key with the enlargement in the bar notches, substantially as described.

Signed at Chicago, Ill., this 23rd day of October, 1919.

WILLIAM E. WHITE.

Witness:

T. D. BUTLER.