

D. KERR.
 CONCRETE REINFORCING BAR.
 APPLICATION FILED FEB. 23, 1911.

1,022,850.

Patented Apr. 9, 1912.

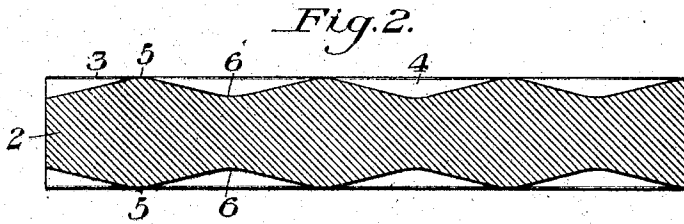
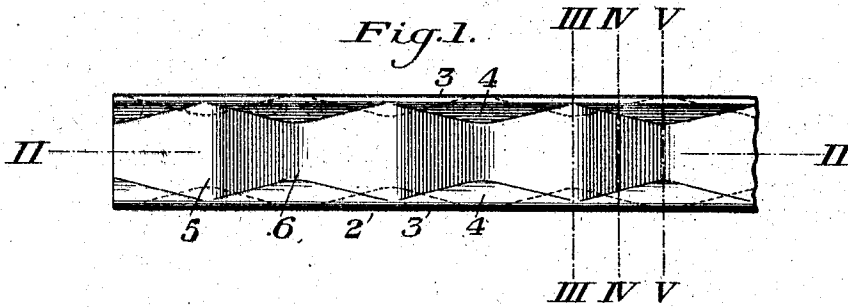


Fig. 3.

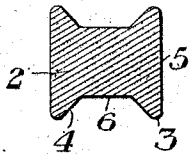


Fig. 4.

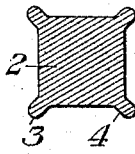
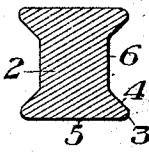


Fig. 5.



WITNESSES

R. A. Balderson
W. F. Marquis

INVENTOR

Daniel Kerr,
by Robert Dymally Parmelee,
Att'y.

UNITED STATES PATENT OFFICE.

DANIEL KERR, OF YOUNGSTOWN, OHIO.

CONCRETE-REINFORCING BAR.

1,022,850.

Specification of Letters Patent.

Patented Apr. 9, 1912.

Application filed February 23, 1911. Serial No. 610,366.

To all whom it may concern:

Be it known that I, DANIEL KERR, of Youngstown, county of Mahoning, State of Ohio, have invented a new and useful Improvement in Concrete-Reinforcing Bars, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of a portion of a bar embodying my invention; Fig. 2 is a section on the line II—II of Fig. 1; and Figs. 3, 4 and 5 are sections taken, respectively, on the lines III—III, IV—IV and V—V of Fig. 1.

My invention has relation to concrete reinforcing bars, and is designed to provide a bar of this character which can be readily rolled, without injuring the steel to detrimentally affect its tensile strength, and to provide a bar having a bonding surface of novel and effective character as hereinafter more fully pointed out.

Referring to the accompanying drawings, the numeral 2 designates the body portion of the bar which is of angular cross section with a longitudinal rib or projection 3 at each of its four corners, each longitudinal rib or projection having an inwardly sloping or beveled face 4.

Each of the four faces of the bar is formed with a series of longitudinally extending corrugations, of which 5 indicates the high points and 6 the low points. Each corrugation has a gradual slope from its high point to adjacent low points, as clearly seen in Fig. 2, the high points of the corrugations preferably rising to about the plane of the outer edges of the corner ribs or projections 3. The corrugations form a series of alternating ridges and pockets or recesses, the latter by reason of the inward slope or bevel of the corner ridges or projections having all four sides or walls of sloping form.

The high and low points of the corrugations at opposite sides of the bar are directly opposite each other, and the high and low points of the corrugations at the other two sides of the bar are arranged to alternate therewith. In other words, considering the bar as a whole, the high and low points on one side are respectively midway of the high and low points of the corrugations on the two adjacent sides. By reason of the sloping form of the corrugations and the alter-

nating arrangement thereof, it will be seen that the bar has the same cross sectional area throughout its length, although the form of the cross section is different at different points, as will appear by reference to Figs. 3, 4 and 5. Thus, Figs. 3 and 5 are of substantially I-beam cross section with the axes at right angles to each other in the two figures, while Fig. 4 shows a generally rectangular cross section.

The bar being of uniform cross sectional area throughout its length, there is no waste of steel for bonding purposes. The sloping faces of the corrugations, as well as the sloping inner faces of the corner ridges or projections make the bar free from sharp corners of a nature to exert a splitting or wedging action upon the concrete. At the same time, this form of the corrugations effectually stops any tendency of the bar to turn or move endwise in the concrete, since it opposes an equal resistance to the movement in all directions.

The form of the bar gives it a maximum area of bonding surface in proportion to its cross sectional area. The longitudinal arrangement of the corrugations, as distinguished from the transverse arrangement commonly employed, not only makes the rolling of the bar much easier, but it also results in an increase in the tensile strength of the bar for an equal cross sectional area. Where transverse corrugations are employed, the more or less abrupt bending of the steel into the corrugations appears to injuriously affect the fiber of the steel, and to avoid this is one of the objects of my invention.

While I prefer to embody my invention in the form illustrated in the drawing, namely, in a four-sided bar, it will be obvious that the invention is applicable to bars having three sides or more than four sides.

I claim:

1. A concrete reinforcing bar having a continuous bonding surface formed by a series of adjoining depressions, each depression having four sloping faces, said faces sloping from the face of the bar to the bottom of the depressions, the inclined sides of each depression, which extend in a longitudinal direction, converging into like sloping faces of the adjoining depressions; substantially as described.

2. A concrete reinforcing bar having a plurality of continuous bonding faces, each

- of said faces having a series of adjoining depressions, each depression having four sloping faces, said faces sloping from the face of the bar to the bottom of the depressions, the inclined sides of each depression, which extend in a longitudinal direction, converging into like sloping faces of the adjoining depressions; substantially as described.
- 10 3. A rectangular concrete reinforcing bar having a plurality of bonding surfaces, each surface having a plurality of adjoining depressions, and each depression having four sloping faces, said faces sloping from the face of the bar to the bottom of the depressions, the inclined sides of each depression, which extend in a longitudinal direction, converging into like sloping faces of the adjoining depressions; substantially as described.
- 20 4. A square concrete reinforcing bar having adjoining bonding depressions in each face thereof, each of the depressions having four sloping faces sloping from the edge of the bar to the bottom of the depressions, the inclined sides of each depression, which extend in a longitudinal direction, converging into like sloping faces of the adjoining depressions, the depressions on opposite sides of the bar being diametrically opposite to each other and the depressions on the other two sides being staggered with relation thereto; substantially as described.
- In testimony whereof, I have hereunto set my hand.

DANIEL KERR.

Witnesses:

NELLIE CREBBONS,
JOHN S. FLARB.