Dec. 29, 1925. 1,567,211

E. D. TUBBS

REENFORCED ROAD STRUCTURE

Filed August 15, 1925

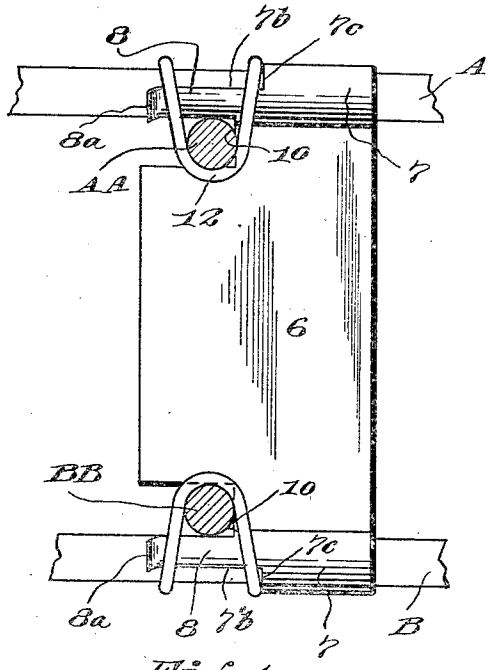


Fig. 1.

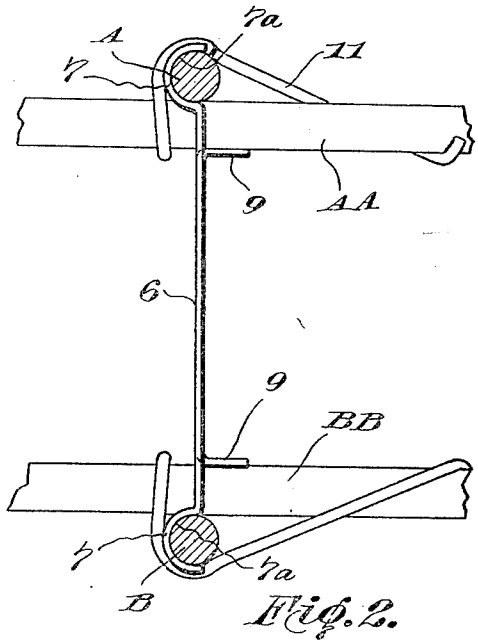


Fig. 2.

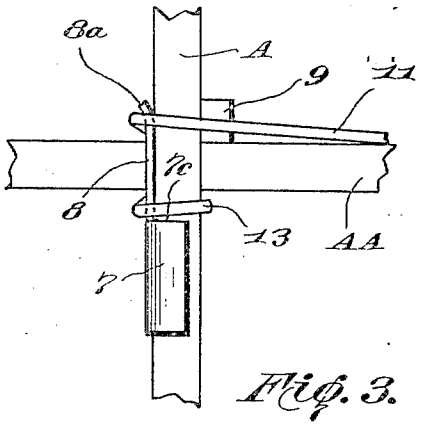


Fig. 3.

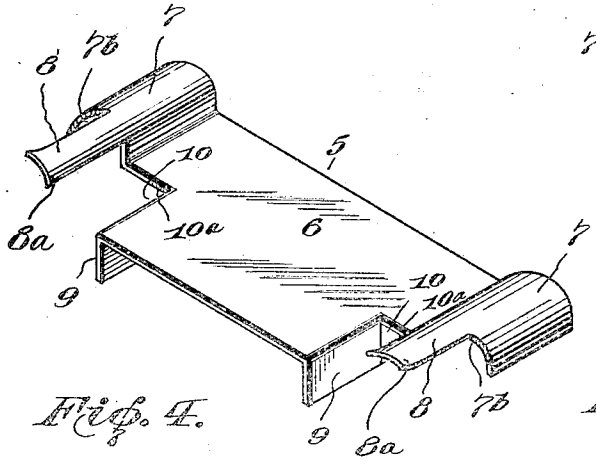


Fig. 4.

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UNITED STATES PATENT OFFICE.

EARL D. TUBBS, OF NEW YORK, N. Y.

REENFORCED ROAD STRUCTURE.

Application filed August 15, 1925. Serial No. 50,457.

To all whom it may concern:

Be it known that I, EARL D. TUBBS, a citizen of the United States, residing at New York city, New York, have invented certain new and useful Improvements in Reenforced Road Structures, of which the following is a specification.

This invention relates generally to improvements in reenforced road structures, but more specifically deals with improved means for holding reenforcing rods, used in connection with the construction of concrete road-beds, in spaced parallel relationship.

Those skilled in the art to which this invention appertains are doubtless aware that the fabricated structure for reenforcing concrete work comprises substantially a network of rods running at right angles to each other, the lower series being spaced from the upper series by a device technically termed a "separator", which serves to hold said series in spaced parallel relation throughout the length and breadth of the roadway.

The devices at present used for the above purpose are well adapted to lock the rods in a fixed position, but fail to maintain this position due to enormous stresses and strains which attends the expansion and contraction of the concrete.

My invention comprehends an improved device that admirably adapts itself not only as securing or locking means, but further is capable of withstanding the pressure due to crushing loads and the movements of the concrete as noted above.

The objects of the invention are:

First. To provide a device capable of being positioned between rows of reenforcing rods to maintain the same in spaced parallel relation.

Second. To provide each row of rods, arranged at right angles with each, with means for holding the same in locked position.

Third. To provide in an article of the class described means for securing adjacent rods at their points of intersection.

Fourth. To provide removable resilient means for fastening a connector to adjacent rods.

Further objects relating to details of economies of construction and operation will definitely appear from the detailed description to follow, said objects being accomplished by the means described in the following specification.

A structure constituting a preferred embodiment of my invention is illustrated in the accompanying drawings forming a part of this specification, in which:

Figure 1 is an elevation of my invention illustrating the same in operative position.

Fig. 2 is a similar view at right angles to Fig. 1.

Fig. 3 is a plan view of the parts shown in Fig. 2; and

Fig. 4 is a perspective view of the connector.

As pointed out hereinbefore, my device is adapted to bind together reenforcing rods used in concrete road work, and further to hold same in spaced relation and to securely hold this network of reenforcing rods in fixed position in order to resist the expansion and contraction of the concrete and thus avoid cracking or other disruption of the same.

To this end, I have developed a device which may be likened unto a steel beam, in that its strength also resides in the web adjacent the upper and lower flanges. My connector, which is denoted generally by the numeral 5, comprises the body or web portion 6 (see Fig. 4), having its ends formed with flanges 7, preferably bowed, thereby forming the pockets 7^a for the reception of certain reenforcing rods, which will be pointed out in detail hereinafter.

A portion of said flanges 7, adjacent the extremity thereof, is cut away, as indicated at 7^b, and also an incision is made adjacent the rear of said flanges 7, just above the point of bending between the latter and the said web 6. This incision is continued at right angles to said flanges as shown at 10^a, running longitudinally now with the web 6, and the material therein is bent downwardly, as observed in Fig. 4, thereby forming lateral extensions 9. The material remaining in the flanges 7 presents a forwardly directed tongue 8, the tip therefore being bent upwardly as shown at 8^a.

The foregoing briefly describes the formation of my device and points out the steps in its manufacture, and with this introduction the practical use of the device will now be understood in view of the following description.

The bottom portion of the network of

reenforcing rods comprises the pieces B and BB, the latter being arranged above the former and at right angles therewith. The upper portion comprises the rods A and AA and are similarly disposed. My device is now inserted between the upper and lower rows of rods, the flanges 7 engaging the rods A and B, as clearly shown in Fig. 2, while the rods AA and BB are received within recesses 10, (see Fig. 1), the whole being clasped in position by means of the resilient clips 11.

Figures 1 to 3 inclusive should be carefully considered to understand the assembled relation between my device and its associated parts, and on inspection of Fig. 1, especially, it will be noted that the cutaway portion 7^b adjacent the extremities of said flanges 7 has its rear portion 7^c spaced rearwardly of the longitudinal incision 10^a. By this construction the rods AA and BB abut said incisions 10^a and are held against the same and the rods A and B respectively by the loops 12 of the clips 11, the ends of said clips being wrapped over said rods A and B respectively and abutting the rear portions 7^c. Thus the portions of said clip 11, passing over the top of the rods A and B are in intimate contact therewith. Further the bent portion 8^a of said tongue 8 and the edge of said rear portion 7^c mutually coact with said clip 11 to retain the device in fixed position, the chances of lateral displacement or shifting of the same being exceedingly remote. It should also be noted that the lower edge of said tongue 8 is cut high enough on the flanges 7 so as not to interfere with the positive abutting of the pairs of right-angular positioned rods. The effect of crushing loads upon the fabricated structure as a whole will be withstood by the web 6, and in addition thereof I provide the lateral projections 9 (see Fig. 2) which abut the rods AA and BB as indicated.

The clips 11 are formed from a single piece of wire the outer end thereof being clamped beneath and above the rods AA and BB respectively, as clearly shown in the drawings.

I claim:

1. A device of the character described comprising a body portion having arcuately formed flanges at the ends thereof, elongated projections extending longitudinally with respect to said flanges, said body portion being reduced in length at one side thereof and lateral projections extending from said reduced portion.

2. A device of the character described comprising a body portion embodying curved flanges at the ends thereof, curved elongated projections extending longitudinally with respect to said flanges, the outer ends thereof being bent upwardly, said body portion being reduced in length at one side thereof and lateral projections extending from said reduced portion.

3. A device of the character described comprising a body portion having arcuately formed flanges at the ends thereof, the extremities of said flanges terminating substantially in the same plane with said body portion, projections extending longitudinally with respect to said flanges, said projections being slightly curved transversely and having their outer ends bent upwardly said body portion being reduced in length to define recesses adjacent said projections and lateral projections extending from said reduced portion.

4. A device of the character described comprising a body portion having arcuately formed flanges at the ends thereof, longitudinal projections extending from said flanges and defining a cutaway portion adjacent the extremities of said flanges, said projections being slightly curved transversely and having their outer ends bent upwardly, said body portion being reduced in length to define recesses adjacent said projections and lateral projections extending from said reduced portion.

5. The combination with a fabricated structure comprising an upper and lower network of reenforcing rods, of a connector embodying a web portion having arcuately formed flanges adapted to engage one vertically spaced parallel series of rods, projections extending longitudinally with respect to said flanges and defining a cutaway portion adjacent the extremities of said flanges, said web portion presenting a reduced portion adjacent one side thereof to define recesses for the reception of the other vertically disposed parallel series of rods and lateral extensions abutting the inner surfaces of the last-mentioned series of rods.

6. The combination with a fabricated structure comprising an upper and lower network of reenforcing rods, of a connector having flanges adapted to engage the upper and lower parallel rods, projections extending from said flanges, said flanges being cutaway adjacent said projections to define recesses, said web portion having a reduced side portion defining other recesses for the reception of the innermost set of parallel rods, the rear of the recesses in the web portion being spaced slightly forward of the rear portion of said recesses formed in said flanges, and resilient means securing said connector to said fabricated structure, said means comprising a looped portion adapted to embrace the innermost series of rods and to engage its companion rod between the outer end of said projections and the rear of said recesses in the web portion.

In testimony wherof I affix my signature.

EARL D. TUBBS.