

Feb. 5, 1935.

H. F. YOUNG

1,990,155

JOIST

Filed April 25, 1931

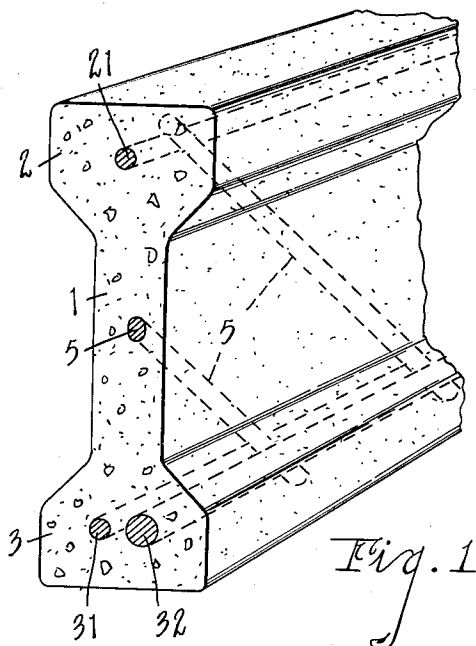


Fig. 1

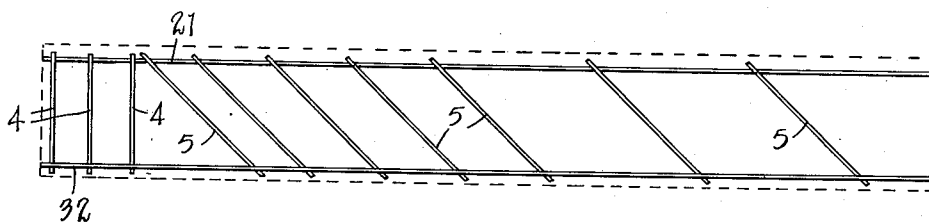


Fig. 2

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## UNITED STATES PATENT OFFICE

1,990,155

## JOIST

Howard F. Young, Kalamazoo, Mich., assignor of one-half to Leonie S. Young, Kalamazoo, Mich.; Leonie S. Young administratrix of said Howard F. Young, deceased

Application April 25, 1931, Serial No. 532,837

2 Claims. (Cl. 72-61)

The objects of the invention are:

First, to provide an improved joist of concrete containing light weight aggregates such as "Haydite", a vitrified aerated clay product, or cinder or other light weight aggregates, although the invention is adapted to the production of concrete beams generally which, however, as ordinarily made, are so heavy as to be cumbersome.

Second, to provide a beam or joist with an improved arrangement of reinforcing material.

Third, to provide an improved reinforcement for use in I-beams or joists.

Objects pertaining to details and economies of construction and operation will appear from the description to follow. I carry out my invention by the devices and means illustrated in the accompanying drawing, in which:

Fig. 1 is a detail perspective view of a section of joist embodying my invention.

Fig. 2 is a detail side elevation of the reinforcement member of one-half of a joist, the position and relation of the concrete being indicated by dotted lines.

The joist is made up of a web portion 1 having a head 2 and a base 3. In the head is disposed a reinforcing rod 21 and in the base a pair of reinforcing rods 31, 32 in spaced relation to each other. Tie rods 4, 4 to resist the sheering strain are disposed in a plane vertically between the reinforcing rod 21 and the rods 31, 32. The lower ends of these rods are disposed between the pairs of rods 31, 32 and are electrically welded in place.

Inclined tie rods 5 are spaced in close proximity to each other towards each end and are widely spaced toward the center of the joist or beam. This results in great economy of the material and, owing to the fact that the rods are welded to-

gether, the cross section is not deformed and straight rods and tie rods are straight and the full value of the material is secured. By disposing the pair of reinforcing rods at each side of the upwardly extending stay rod, a balanced structure is secured. By slightly varying the size of the rods it is possible to meet any specification requirement.

The projecting ends of the stay rods, of course, afford additional bond where they project above and below the reinforcing rods, all accomplished with great economy of material.

This application for patent is a continuation in part of my application filed Dec. 9, 1929, Ser. No. 412,654.

I desire to claim the specific structure that I have illustrated and also to claim the invention broadly as pointed out in the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A pre-cast joist or beam of concrete with reinforcing consisting of a single rod in the head and a pair of rods in the base, and tie rods disposed and secured between the rods at the base and to the top rod by welding the end tie rods being at right angles and the intermediate tie rods being inclined upwardly and outwardly.

2. A pre-cast reinforced concrete beam or joist with a reinforcement comprising continuous longitudinal strands at top and bottom thereof with straight cross strands welded thereto the end tie rods being at right angles and the intermediate tie rods being inclined upwardly and outwardly from the center toward the ends of the joist.

HOWARD F. YOUNG.