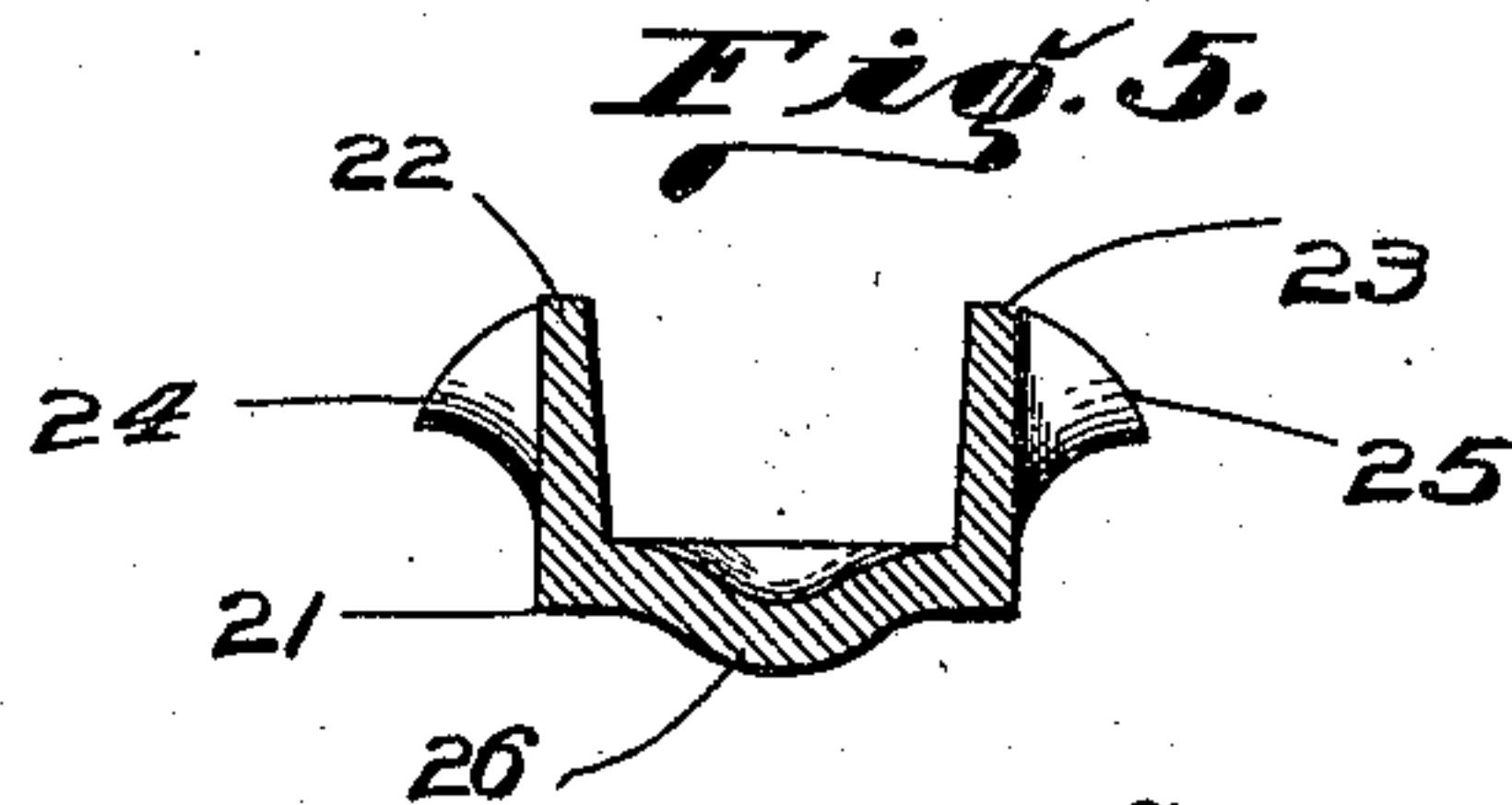
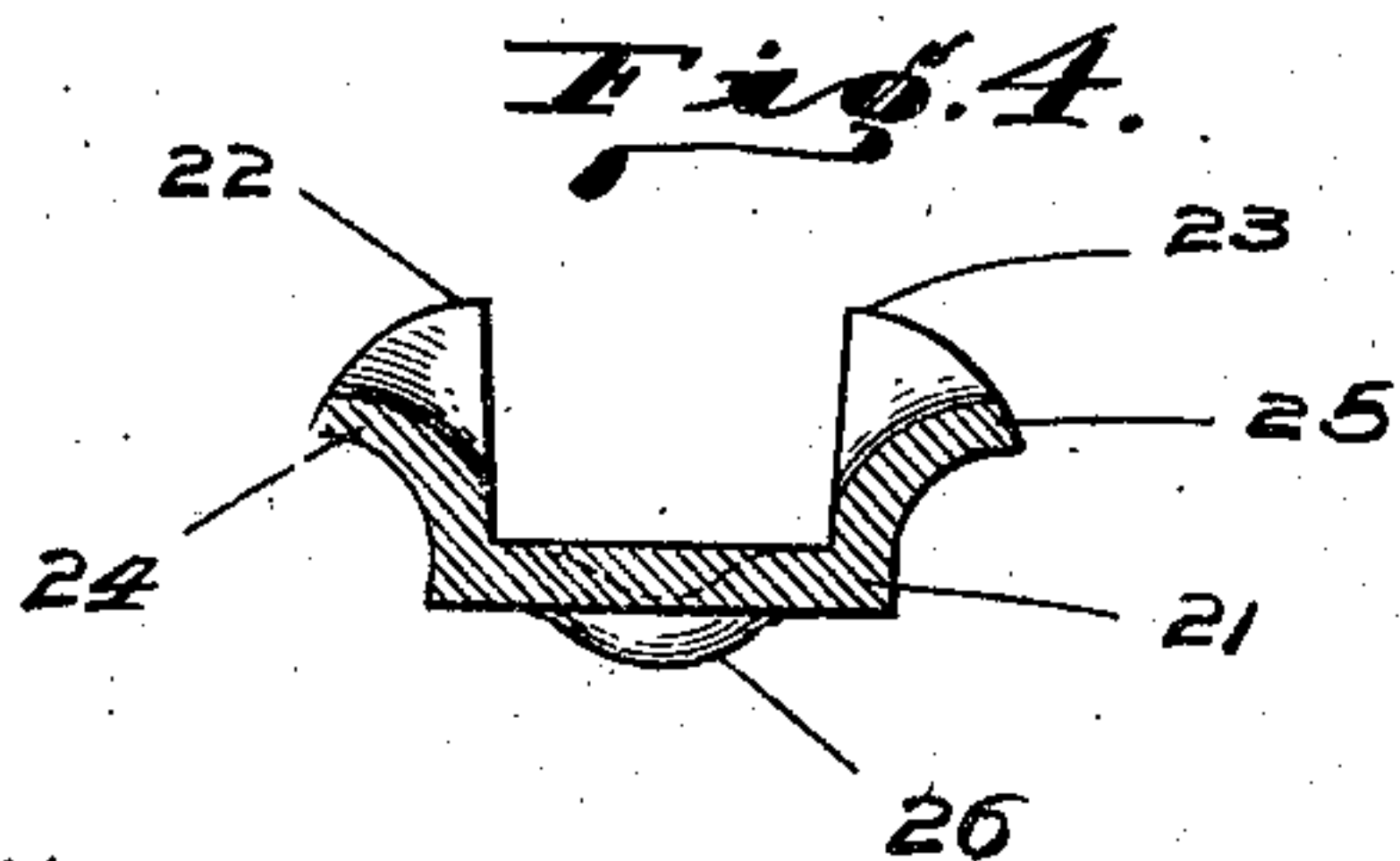
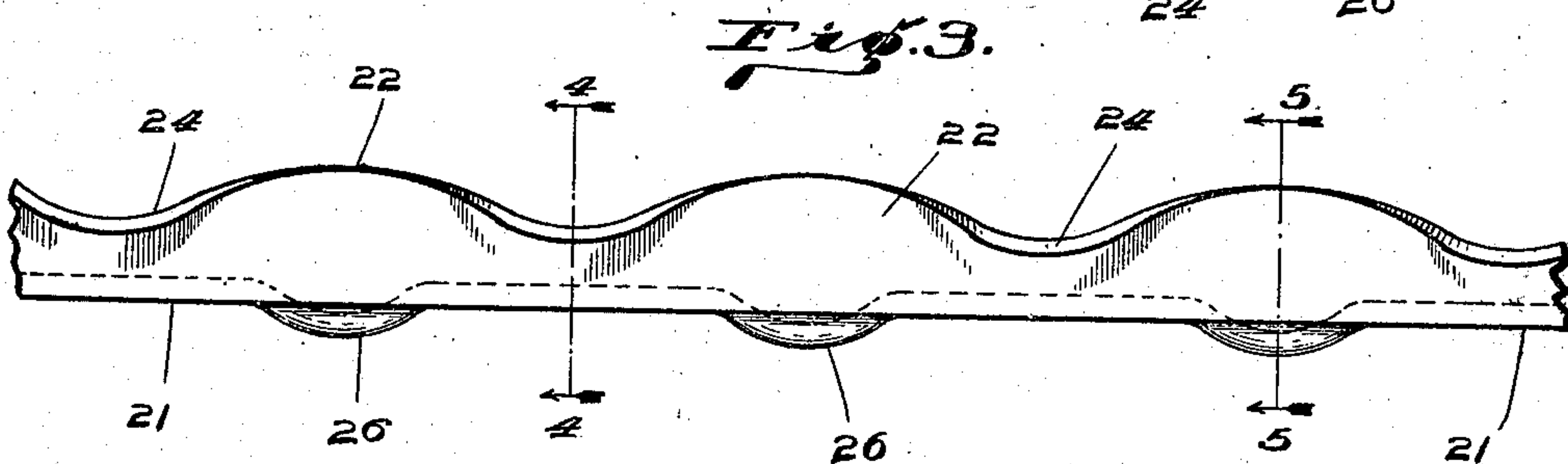
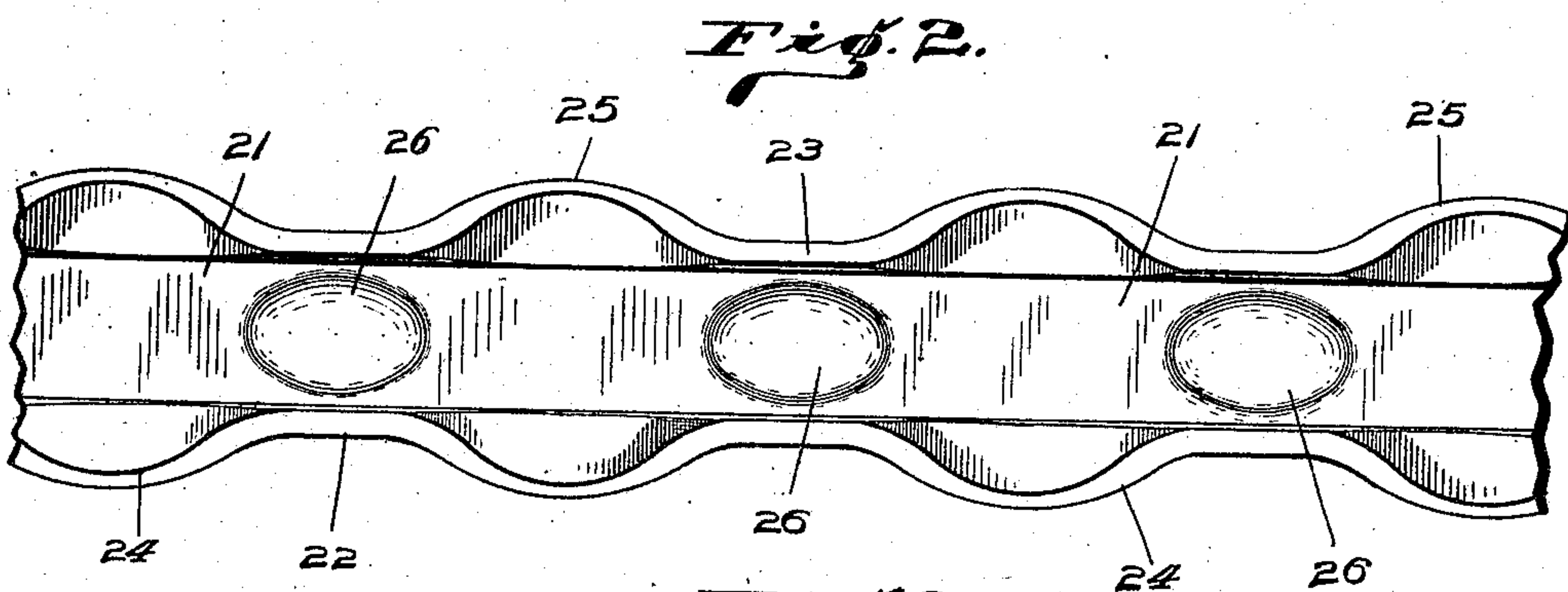
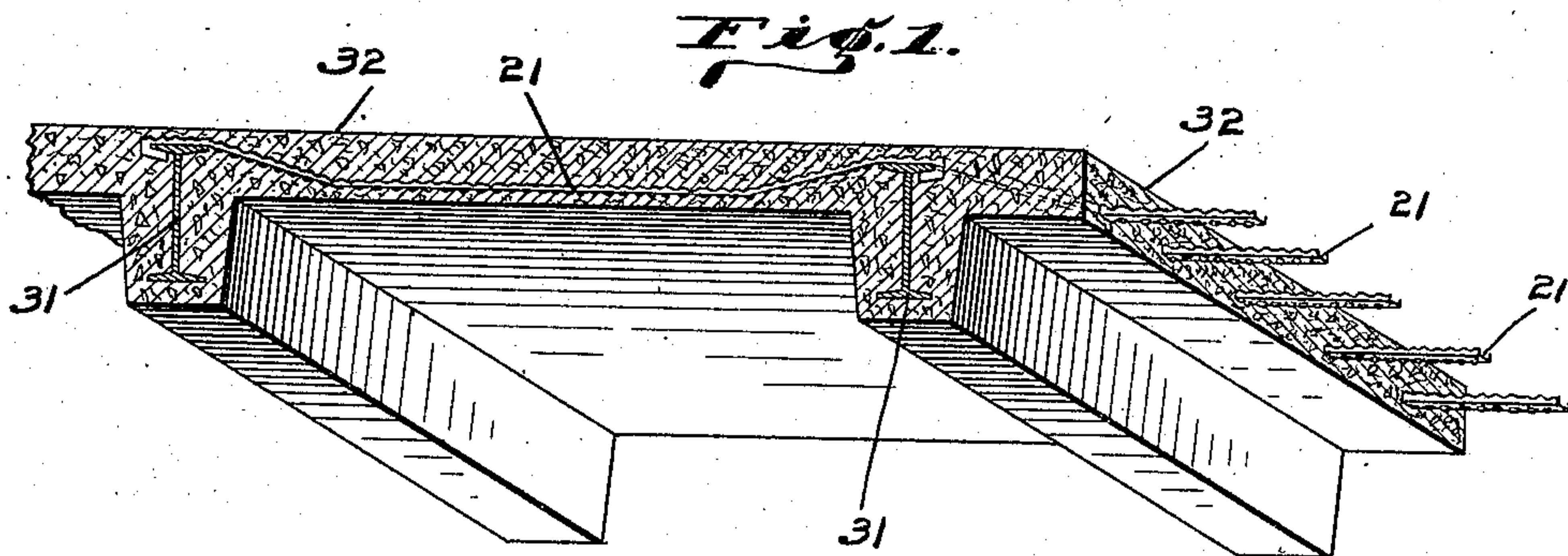


No. 858,410.

PATENTED JULY 2, 1907.

O. N. MUELLER.  
METAL STRUCTURE FOR REINFORCING CONCRETE.  
APPLICATION FILED JULY 10, 1906.



Witnesses  
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# UNITED STATES PATENT OFFICE.

OTTO N. MUELLER, OF INDIANAPOLIS, INDIANA.

## METAL STRUCTURE FOR REINFORCING CONCRETE.

No. 858,410.

Specification of Letters Patent.

Patented July 2, 1907.

Application filed July 10, 1906. Serial No. 325,453.

*To all whom it may concern:*

Be it known that I, OTTO N. MUELLER, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Metal Structures for Reinforcing Concrete, of which the following is a specification.

My invention relates to that class of metal devices which are used for the purpose of reinforcing concrete in structural work.

It is especially designed for use in making concrete floors carried by beams in buildings.

It consists in a peculiar treatment and formation of that class of structural shapes in which one or more members extends at an angle (usually at a right angle) with one or more others—such as channels, I-beams, T-bars, angles, and the like, whereby such members are so distorted from their regular shape as to present a wavy or crimped condition, and be thereby better enabled to mechanically connect with the concrete, and present a large area of contact surface.

I have chosen to illustrate my invention in connection with what are commonly known as channel bars, wherein the two edge members extend out at substantially right angles with the main or body member when the bar is in its ordinary or normal condition. Said invention is however equally applicable to many other structural shapes, and I desire to be understood as claiming said invention when applied to any of such shapes.

Referring to the accompanying drawings, which are made a part hereof, and on which similar reference characters indicate similar parts, Figure 1 is a perspective view illustrating the use of my said invention; Fig. 2 a plan view of a fragment of a channel bar after it has been treated in accordance with my said invention, Fig. 3 a side elevation thereof, and Figs. 4 and 5 transverse sectional views of the same.

As will be readily seen by an examination of these drawings the invention consists in distorting the members of such a bar so that the edges will extend in various directions and present numerous irregularities. The channel bar shown consists, as is usual, of a main member or body 21 and two side members or flanges 22 and 23. These side members or flanges are shown as bent outwardly at intervals, as at 24 and 25, and the main member or body is also shown as pressed outwardly at intervals, as at 26. After such a bar has been produced it is bent into the proper form to be carried by the I-beams 31 of a building, as is shown in Fig. 1, and the concrete 32 is then applied thereto and supported thereby. This particular kind of shape I have found unites exceedingly well with the concrete, so that the completed structure is unusually strongly united and bonded together.

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

1. A concrete reinforcing member consisting of a channel bar comprising side flanges and an intermediate connecting web, the side flanges being crimped laterally, and the intermediate web distorted outwardly at separated points.
2. A concrete reinforcing member consisting of a channel bar, comprising side flanges and an intermediate connecting web, the outer edges of the side flanges being outwardly distorted at separated points, and the intermediate web being outwardly distorted at separated points.
3. A concrete reinforcing member consisting of a channel bar, comprising side flanges and an intermediate connecting web, the outer edges of the side flanges being distorted outwardly only at separated points.

In witness whereof, I, have hereunto set my hand and seal at Indianapolis, Indiana, this 6th day of July, A. D. one thousand nine hundred and six.

OTTO N. MUELLER. [L. S.]

Witnesses:

CHESTER BRADFORD,  
THOMAS W. McMEANS.