Sept. 4, 1923. 1,466,680

J. C. TIMM

DIES FOR CUTTING METAL REENFORCEMENT

Filed Sept. 30, 1920

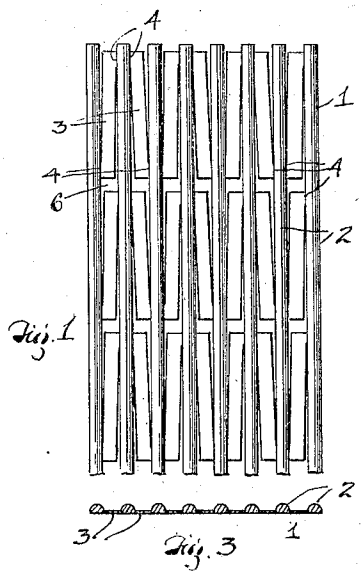


Fig. 1

Fig. 3

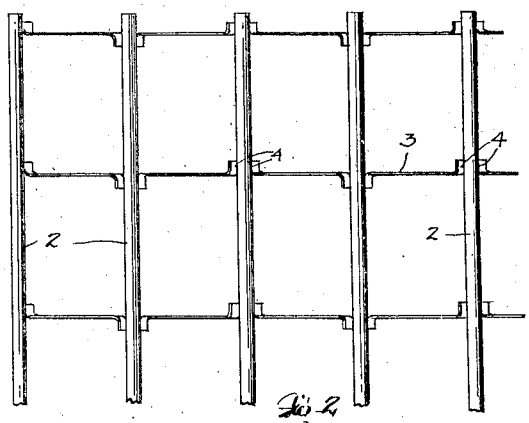


Fig. 2

Fig. 4

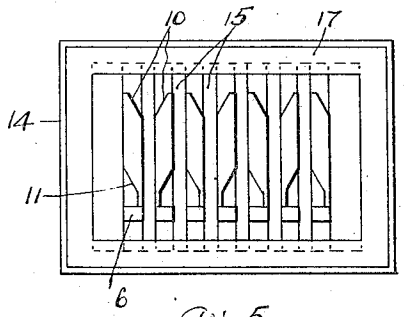


Fig. 5

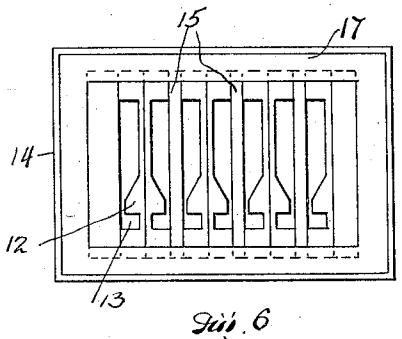


Fig. 6

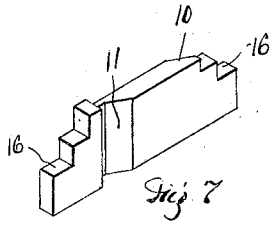


Fig. 7

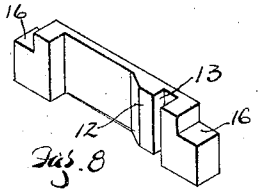


Fig. 8

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UNITED STATES PATENT OFFICE.

JOHN C. TIMM, OF YOUNGSTOWN, OHIO.

DIES FOR CUTTING METAL REENFORCEMENT.

Application filed September 30, 1920. Serial No. 413,738.

To all whom it may concern:

Be it known that I, JOHN C. TIMM, a citizen of the United States, and a resident of Youngstown, county of Mahoning, and State of Ohio, have invented a new and useful Improvement in Dies for Cutting Metal Reenforcements, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

The present invention relates to expanded-metal suitable for use as reenforcement in concrete construction or in the lighter grades as metal lath. More particularly the invention relates to the die mechanism for slitting the metal whereby waste is reduced to a minimum and the resultant expanded sheets enlarged per original weight of metal while maintaining the same weight per unit area in their expanded condition. The dies for slitting the metal are so formed as to give the required cut and so arranged that they may be readily replaced and renewed as required. To the accomplishment of the foregoing and related ends, said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawing and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawing:—

Fig. 1 is a plan view of a sheet of metal cut but not expanded; Fig. 2 is a similar plan view of an expanded sheet; Figs. 3 and 4 are end elevations of Figs. 1 and 2, respectively; Figs. 5 and 6 are plan views of assembled top and bottom dies; and Figs. 7 and 8 are perspective views of individual top and bottom die members.

In Fig. 1 a sheet 1 of metal is shown as being cut ready for expanding into the form shown in Fig. 2. This sheet 1 is provided with a series of spaced ribs 2 which may be rolled into the sheet or which may be solid or of any desired shape for the finished reinforcing.

As illustrated, the flat metal portions between the ribs are cut or slashed evenly in series. The portion 3 which makes the connecting link is severed or slit along the edge of the rib, the left hand cut extending from the top of the link to a point adjacent the bottom thereof but leaving the unslit portion 4. On the right hand side the slit is reversed so as to leave similar unslit portion 4 at the top of the link. Between links a portion is completely cut away leaving a rectangular opening 6 connecting with the slits at the corners. This opening is as small as possible, being merely of a convenient size to allow for the proper cutting of the edges so that the metal may be completely severed. On the link on the opposite side of the ribs the slit is reversed so that the two links on the opposite side of each rib have the unslit portion 4 forming an integral piece with the rib.

No metal is cut away and discarded except sufficient to leave these rectangular openings 6 which open into the slits at the edges of the ribs so that the waste metal is reduced to a minimum. The slits are clearly made along the edges of the ribs and the sheet is then expanded to the form shown in Fig. 2. The expanding operations bend the links so that they lie in a plane at almost right angles to the original plane of the metal and the pairs of unslit portions 4 lie in substantially the same plane. This forms heels or spacing portions so that the ribs are spaced above bottom level of the sheet when in position as reenforcement.

To accomplish this slitting operation, complementary die members are employed, the top die member having a beveled end 10 to leave the right hand unslit portion of the link. The lower end of this member has a recess with a beveled edge 11 to leave the bottom unslit portion of the link and then a square solid portion which is raised and which makes the rectangular opening 6. The other or stationary dies are formed with complementary projections 12 and square openings 13. The dies are formed and mounted in pairs, the dies of each pair being reversed as to position as best shown in Figs. 5 and 6 to form the links with unslit portions in pairs on opposite sides of the ribs.

These cutting dies are adapted to be mounted in a suitable form 14 being spaced apart by plain bars 15 to cover the ribs and may be readily inserted or replaced in the forms. Each member has end portions 16

reduced in height so as to fit under suitable frame members 17 of the form to hold the dies in place.

Heretofore, in cutting reinforcing metal to leave ribs connected by links, it has been necessary to cut away a considerable portion of the metal between successive ribs in the sheet and this metal is simply wasted. By the use of the present dies the only loss is caused by the square apertures which are reduced in size to a minimum. Each punch of the die may slit one entire series of links the entire width of the sheet and then the sheet may be advanced before the next operation of the dies thus facilitating the work of cutting or slashing the sheets preparatory to expanding. The ribs will be spaced apart the desired width of the link and the slitting is along the edges of the ribs whatever their shape. The width of the link should be sufficiently greater than its thickness so that in expanding they twist and lie at almost right angles to the original plane of the sheet.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:—

1. A cutting die for expanded metal having one rectangular cutting end and a straight cutting edge along one side, and being beveled off at the other end, the other side being provided with a cut away portion having one edge at an angle to leave an uncut portion.

2. A cutting die for expanded metal having a raised rectangular cutting end, a cutting side lower than said raised end and extending therefrom to a point adjacent the other end of the die and then being beveled off to the other side, the other edge being formed with a cut away portion, one side of which is beveled similarly to the first beveled portion.

3. A cutting die for expanded metal provided with a rectangular cutting end, a cutting side extending from such rectangular portion to a point adjacent the other end of the die and then extending at an angle to the other edge, the other edge being formed with a cut away portion adjacent the rectangular end.

Signed by me, this 24th day of September, 1920.

JOHN C. TIMM.