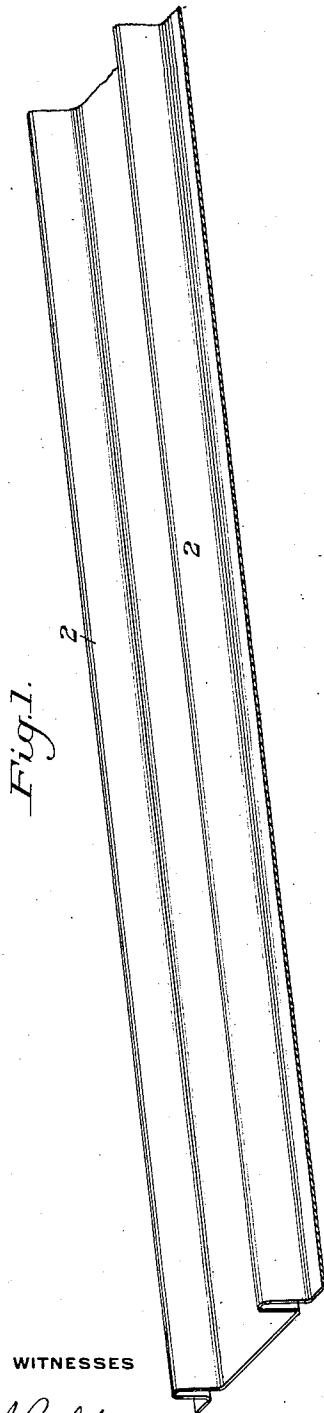


H. E. WHITE.
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 APPLICATION FILED JUNE 21, 1911. RENEWED AUG. 31, 1912.

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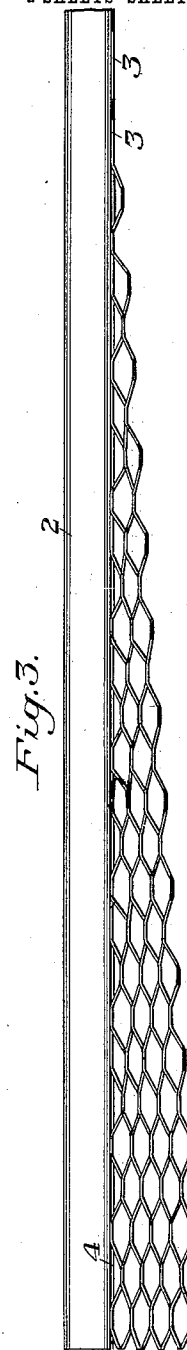
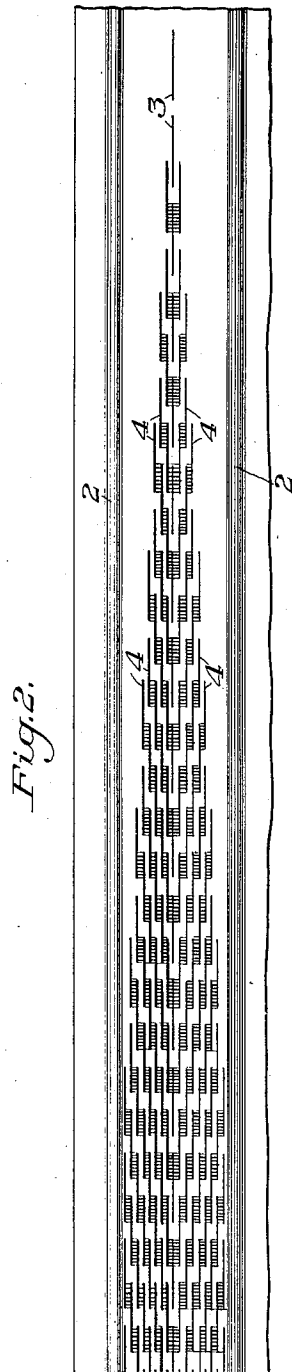
Patented Apr. 1, 1913.

2 SHEETS—SHEET 1.



WITNESSES

R. A. Balderson
 J. M. Corwin



INVENTOR

H. E. White,
 by Baker, Byers & Parmelee,
 His Attys.

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2 SHEETS—SHEET 2.

Fig. 5.

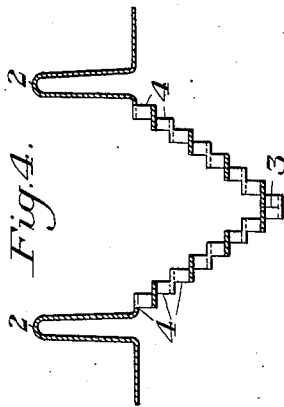
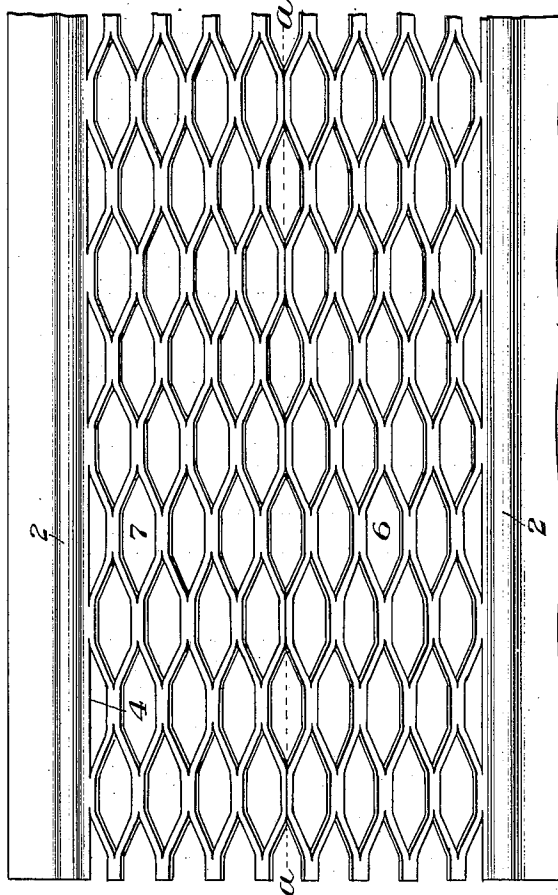


Fig. 4.



Fig. 6.

WITNESSES

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UNITED STATES PATENT OFFICE.

HERBERT E. WHITE, OF YOUNGSTOWN, OHIO, ASSIGNOR TO THE GENERAL FIRE-
PROOFING COMPANY, OF YOUNGSTOWN, OHIO, A CORPORATION OF OHIO.

METHOD OF MANUFACTURING EXPANDED-METAL STRUCTURES.

1,057,694.

Specification of Letters Patent.

Patented Apr. 1, 1913.

Application filed June 21, 1911, Serial No. 634,616. Renewed August 31, 1912. Serial No. 718,144.

To all whom it may concern:

Be it known that I, HERBERT E. WHITE, a resident of Youngstown, in the county of Mahoning and State of Ohio, have invented a new and useful Method of Manufacturing Expanded-Metal Structures, 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 perspective view illustrating the first step in the manufacture, in accordance with my invention. Fig. 2 is a plan view, and Fig. 3 is a side view, illustrating the cutting operations. Fig. 4 is a cross-sectional view showing the cut blank before expanding. Fig. 5 is a plan view of a portion of the expanded blank or structure, and Fig. 6 is a cross-section of the expanded blank or structure.

My invention has relation to a novel method of forming expanded metal structures, and is designed to provide a method of this character by means of which expanded metal structures can be rapidly and accurately formed, in accordance with my invention.

In producing a structure embodying my invention, I first take a flat metal sheet and subject it to the action of dies to form therein the longitudinally extending, relatively deep, parallel ribs 2, as shown in Fig. 1. The sheet may be of any desired width and may be formed with any number of these parallel ribs, and the form of the ribs may be widely changed without departing from my invention. I next cut or slit the blank, the first cutting consisting of a series of aligned longitudinal cuts 3, formed centrally between adjacent ribs, or between the pairs of adjacent ribs, and then make subsequent parallel cuts 4 at each side of the central line of cuts, each successive cut acting to stretch the metal between the cuts downwardly, so that the blank assumes the V-shape, shown in Figs. 2, 3 and 4.

Figs. 2 and 3 show the manner in which the cuts are successively made, until finally substantially the entire space between the adjacent ribs is cut and stretched so that a cross-section through two adjacent ribs and the intervening slitted portion, taken at any point through the length of the sheet, will have the general V-form shown in Fig. 4. Each series of cuts or slits is staggered

or alternated with respect to those of the adjacent series, so as to produce a diamond mesh. This cutting or slitting can be very accurately done, since the ribs 2 act to greatly increase the stiffness of the sheet and permit it to be rigidly guided and held to the action of the cutting dies.

When the cutting or slitting has been completed, the blank is expanded laterally to bring the cut or slit portion or portions into a substantially flat plane, as shown in Figs. 5 and 6. The expanded structure then shows, between each pair of ribs, an expanded section of diamond mesh form with the slats or bars of the mesh inclined at a considerable angle to the flat plane of the structure, the bars 6 at one side of the longitudinal central line *a* of the expanded portion, being inclined reversely to the bars 7 at the opposite side of such central line. This inclination of the mesh bars, and particularly the reverse inclination at opposite sides of the central line *a*, greatly increases the strength and rigidity of the structure.

It will be readily understood that while I have shown a structure having only two ribs, the structure may be of any desired width within practical limits, with an expanded section between each two adjacent ribs. The structure formed in the manner above described can be used for a variety of purposes, such as lathing, concrete reinforcement, etc.

When deep ribs are formed intermediate the expanded sections, such as those illustrated at 2 in the drawings, the structure may be used as a self furring lath, the ribs 2 acting as furring strips or ribs. The provision of these deep ribs prior to the cutting and expanding operations is a feature of considerable importance. By the initial provision of such ribs, not only is the sheet and the subsequent slitted structure very greatly stiffened and made more easy to handle in the subsequent operations, but it is the provision of these ribs which enables me to start the cutting and expanding at the central portion of each expanding section and work laterally in each direction, gradually drawing the meshes downwardly and stretching the metal from each side toward the center, as shown.

I do not claim herein the novel structures produced by the method herein described,

REISSUED

as this forms the subject matter of my co-
pending application Serial No. 634,617 of
even date herewith.

What I claim is:

5 1. The method of making expanded metal
structures, which consists in first slitting the
intermediate portion of a metal sheet, suc-
cessively slitting the sheet on both sides of
the first slits, said slits being successively
10 made nearer and nearer to the margins of
the sheet, and deforming the portions of
metal between the slits to produce open in-
terstices.

15 2. The method of making expanded metal
structures, which consists in first producing
longitudinal slits in the intermediate por-
tion of a metal sheet, successively forming
other longitudinal slits in the sheet on both
20 sides of the first slits, the said latter slits
being successively made nearer and nearer
to the margins of the sheet, and deforming
the portions of metal between the slits to
produce open interstices.

25 3. The method of making expanded metal
structures, which consists in first slitting the
intermediate portion of a metal sheet, suc-
cessively slitting the sheet on both sides of
the first slits, said slits being successively
30 made nearer and nearer to the margins of the
sheet, and stretching the portions of metal
between the slits to produce open interstices.

35 4. The method of making expanded metal
structures, which consists in first producing
longitudinal slits in the intermediate por-
tion of a metal sheet, successively forming
other longitudinal slits in the sheet on both
sides of the first slits, the said latter slits

being successively made nearer and nearer
to the margins of the sheet, and simulta-
neously stretching and deforming the por- 40
tions of metal between the slits to produce
open interstices.

5. The method of making expanded metal
structures, which consists in first slitting
the intermediate portion of a metal sheet, 45
successively slitting the sheet on both sides
of the first slit, said slits being successively
made nearer and nearer to the margins of
the sheet, simultaneously stretching and de-
forming the metal between the slits into a 50
substantial V or trough-shape at one side
of the plane of the original sheet, and after-
ward laterally expanding the cut portion
of said sheet.

6. The method of making expanded metal 55
structures, which consists in first forming
in a metal sheet, spaced ribs, then cutting
longitudinal slits in an intermediate por-
tion of the sheet between the ribs, forming
successive longitudinal slits on both sides 60
of the first slits, the said latter slits being
successively made nearer and nearer to the
ribs, simultaneously stretching and deform-
ing the metal between the slits to produce
a substantial V-shape or trough between the 65
ribs, and afterward laterally expanding the
cut portion of said sheet to bring the same to
substantially flat condition.

In testimony whereof, I have hereunto set
my hand.

HERBERT E. WHITE.

Witnesses:

F. K. RHINES,
O. D. KAISER.