

No. 668,670.

Patented Feb. 26, 1901.

H. E. WHITE.

PROCESS OF MAKING EXPANDED METAL.

(Application filed Sept. 14, 1900.)

(No Model.)

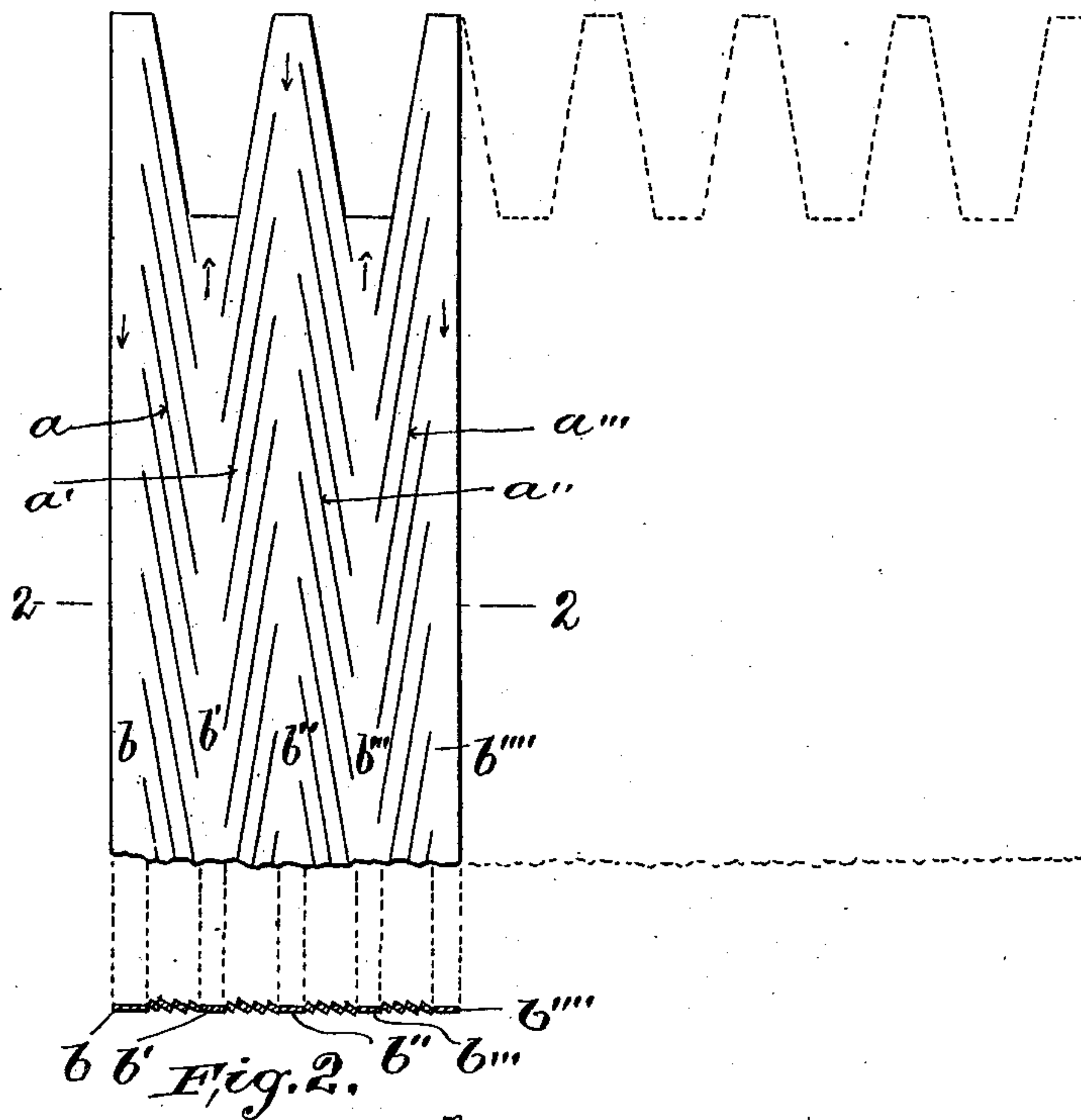
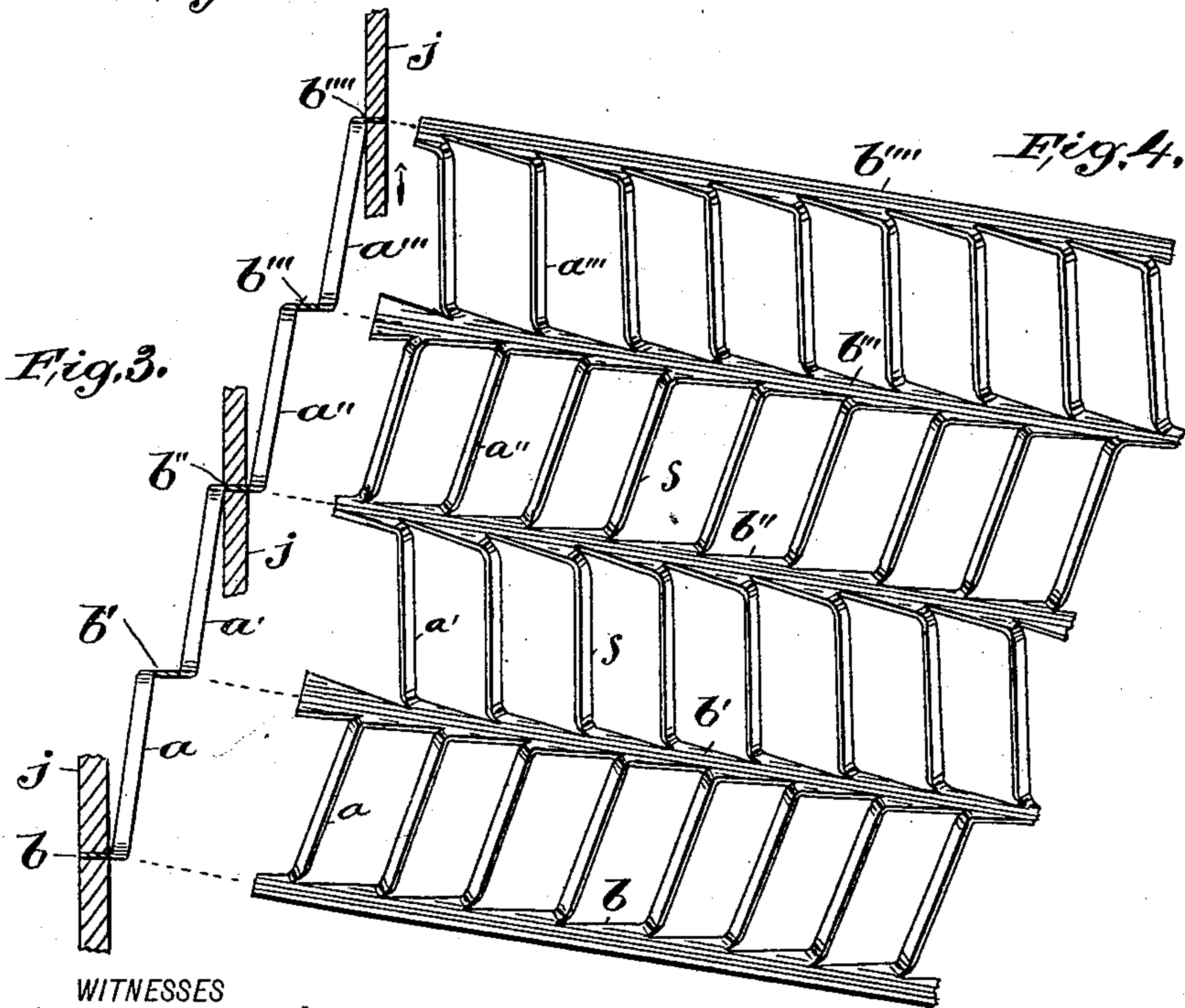


Fig. 1.



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HERBERT E. WHITE, OF BROOKLYN, NEW YORK, ASSIGNOR TO INTERNATIONAL METAL LATH COMPANY, OF NEW JERSEY.

PROCESS OF MAKING EXPANDED METAL.

SPECIFICATION forming part of Letters Patent No. 668,670, dated February 26, 1901.

Original application filed May 11, 1899, Serial No. 716,407. Divided and this application filed September 14, 1900. Serial No. 30,045. (No specimens.)

To all whom it may concern:

Be it known that I, HERBERT E. WHITE, of Brooklyn, in the city of New York, State of New York, have invented certain new and useful Improvements in Processes of Making Expanded Metal Structures, of which the following is a description, referring to the accompanying drawings.

This application is a division of my application, Serial No. 716,407, filed May 11, 1899.

While my invention is to some extent applicable to a great many forms of expanded metal structures, it is particularly applicable to the forms shown in Letters Patent to Gibson, No. 451,418, dated April 28, 1891, and to Hilton, No. 588,576, dated August 24, 1897, and to the improved structures which form the subject-matter of patent to White, No. 653,643, dated June 12, 1900. Such structures are formed from sheets having slitted portions with rows of parallel slits, which alternate with unslitted portions or ribs, which are frequently grooved or corrugated. The slitted portions after expansion form slatted or open-work sections admirably adapted for lathing. The corrugations were formerly believed to be necessary in order to permit the regular expanding of the metal when it was stretched by applying force to the two opposite edges of the sheet. I have discovered an entirely new method for effecting the expansion without necessitating any such provision. The new process depends on certain properties of the metal sheets, and it may be carried out manually or by machinery. It is not dependent upon the functions of any particular machine.

In the drawings, Figure 1 shows one form of slitted sheet ready for expansion. Fig. 2 is a section thereof on plane 2 2. Fig. 3 shows the sheet during or at the limit of expansion. Fig. 4. is a face view of the expanded sheet.

The process is as follows: If all the ribs b b' b'' b''' , &c., be simultaneously drawn apart perpendicularly to the plane of the sheet, or, better still, if alternate ribs b b'' b'''' be so drawn apart at a rate of motion which is proportional to the desired distances between the ribs in the finished structure, a regular and strictly proportional expansion takes place in each slitted section easily and

without tearing throughout the operation. The tendency of the metal sheet is to bend only along lines lying in the plane of the sheet and not to bend (or tear) edgewise of the metal. This tendency causes the several sections to all expand in a perfectly regular manner when treated by being forced perpendicularly, as I have just described. To illustrate by example: If a sheet having four slitted sections alternated with five ribs, as shown, be laid flat on a table, and if the first rib at one edge of the sheet be held flat on the table, the third rib may then be drawn perpendicularly—say two inches—keeping the faces of the ribs always parallel with the table. The fifth rib similarly may be so drawn up without twisting or turning to double the distance, or four inches above the table, and there will be found to be an even and perfectly regular expansion throughout all the sections that form the slitted portions. This action is illustrated in Fig. 3 of the drawings, where plates or jaws are shown to indicate the parallel expanding movement perpendicular to the original plane of the sheet without the ribs turning or twisting. Such jaws may, if suitably actuated, replace human agency when the process is carried out by machinery. Suppose the sheet, Fig. 2, is put in place between such pairs of jaws and the jaws brought together to grip the alternate ribs firmly between each pair. Let the jaws then be moved perpendicularly of the sheet to the relative positions shown in Fig. 3, each pair of jaws moving as a unit and being brought to such positions either by proportional and simultaneous movement of all the pairs of jaws or by successive proportional movements of the pairs of jaws severally. The opposed cooperating jaws hold and act upon the unslitted portions or ribs only without allowing the metal to turn or twist, and as a result the little slats s , Fig. 4, are formed evenly and regularly throughout. When the slits in neighboring rows or sections are oppositely oblique—that is to say, inclined in opposite directions, as seen in Fig. 1—an endwise movement also of ribs b' and b''' relative to ribs b , b'' , and b'''' takes place necessarily, as shown by the arrows, Fig. 1, during the expansion. As ribs b b'' b'''' only are held during the expansion,

the others or alternate ribs are free to so move endwise.

Two forms of machine especially adapted to using this process for producing the style of laths shown in the White patent and in the Gibson and Hilton patents, respectively, are shown in my original application above referred to.

What I claim as the characteristic features of my invention are the following:

1. The process of treating previously-slitted metal sheets for expanded metal structures, which consists in subjecting the unslitted ribs thereof to a displacing action proportionate to the expansion desired without twisting of the ribs, and thereby producing proportional expansion throughout all the slitted portions, substantially as set forth.

2. The process of treating previously-slitted

metal sheets for expanded metal structures, which consists in subjecting the alternate ribs to a displacing action transverse to the original plane of the sheet and proportional to the ultimate expansion, substantially as set forth.

3. The process of treating previously-slitted metal sheets for expanded metal structures, which consists in subjecting the unslitted ribs thereof to a displacing action perpendicular to their original plane without turning or twisting the ribs and thereby expanding the several sections regularly throughout, substantially as set forth.

Signed this 12th day of September, 1900, at Niles, Ohio.

HERBERT E. WHITE.

Witnesses:

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