

T. H. KANE.
 PROCESS FOR FORMING EXPANDED METAL.
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920,152.

Patented May 4, 1909.

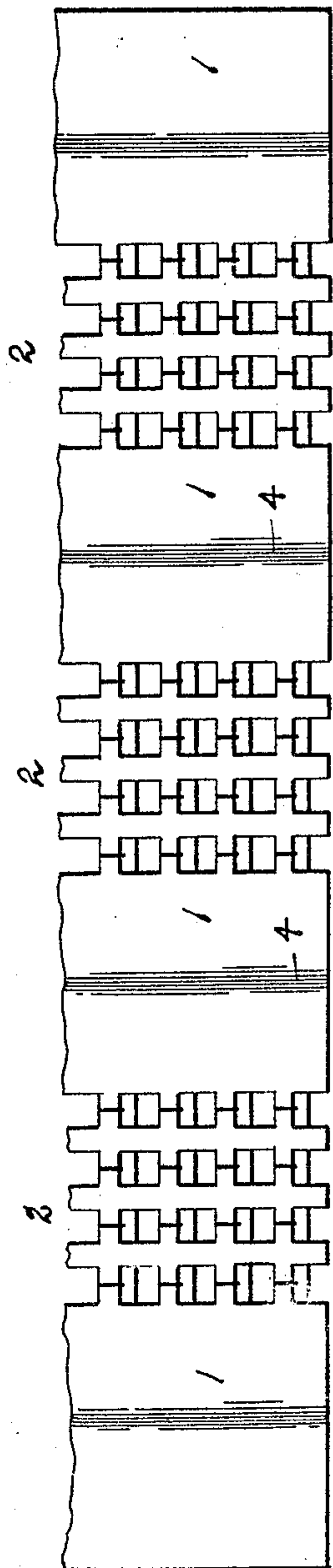


Fig. 1

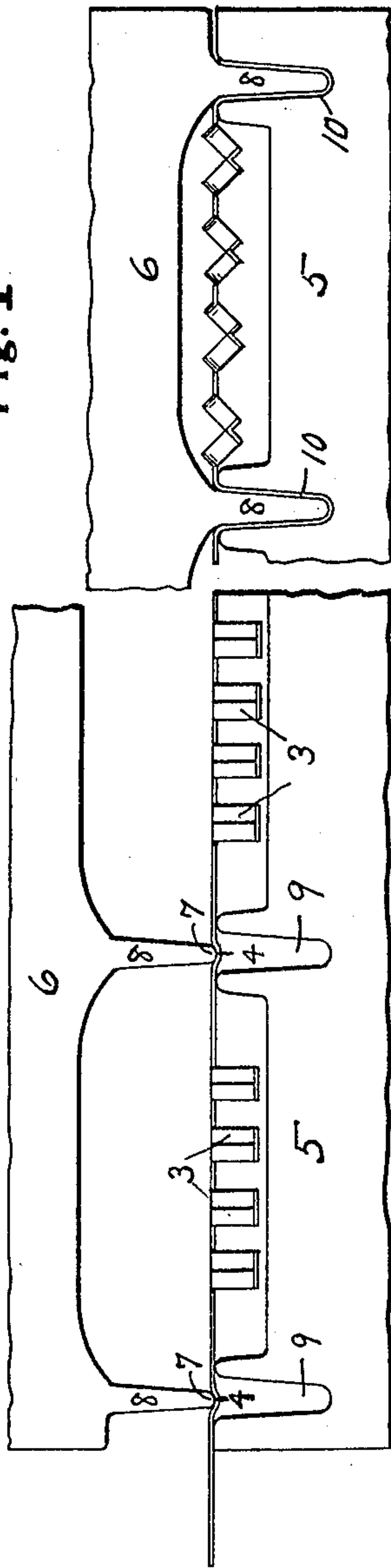


Fig. 2.

Fig. 3.

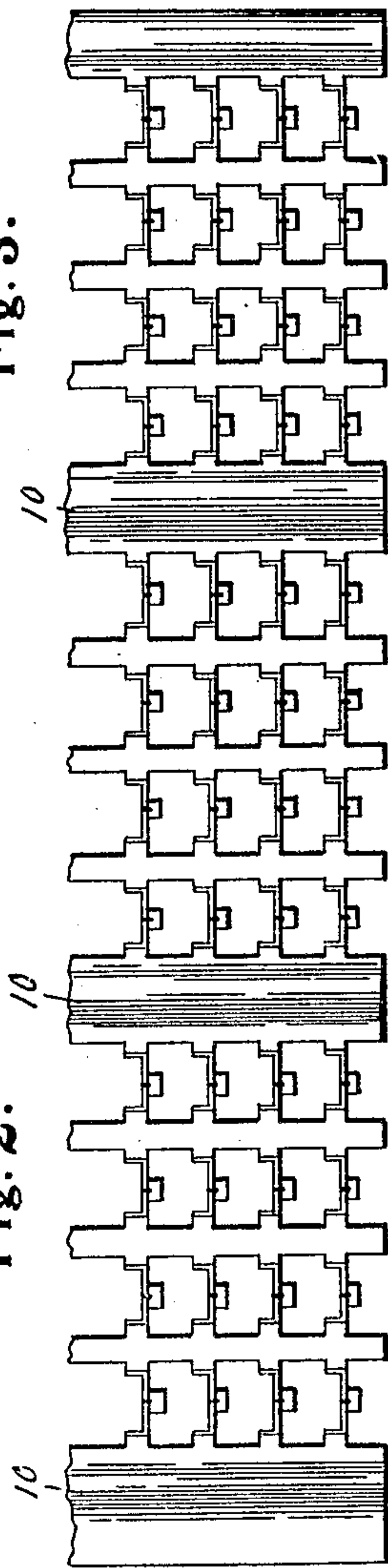


Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

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PROCESS FOR FORMING EXPANDED METAL.

No. 920,152.

Specification of Letters Patent.

Patented May 4, 1909.

Application filed August 13, 1908. Serial No. 448,289.

To all whom it may concern:

Be it known that I, THOMAS HENRY KANE, a citizen of the United States, and a resident of Youngstown, in the county of Mahoning and State of Ohio, have invented a new and Improved Process for Forming Expanded Metal, of which the following is a specification.

This invention relates to a new and improved process for forming reticulated sheets combined with strengthening ribs, and its object is to reduce their cost of manufacture.

My invention consists in the process of simultaneously forming a reticulated metal, which has been sheared or slitted according to the method illustrated in Patent No. 862,897 to Forsyth, dated August 13, 1907, with open-work and rigid portions.

It further consists in so manipulating a sheet of metal, formed with alternate bands of slitted and entire portions, that all the slitted portions will be expanded laterally and all the entire portions be bent to form strengthening ribs, simultaneously.

In the accompanying drawings, Figure 1 is a plan of a sheet of metal which has alternating bands of entire and slitted portions, the slitted portions having already been formed according to the process described in said patent. Fig. 2 is a partial view of the sheet in a press. Fig. 3 is a partial view of the sheet and press after the operation has been completed. Fig. 4 is a plan of a portion of a completed sheet.

Similar reference characters refer to like parts throughout the several views.

The Forsyth patent disclosed an expanded sheet metal adapted for metal lath and similar purposes. Such open-work metal can be employed with only very short spans as it has little transverse strength. My improved process is designed to produce a similar article which shall have great transverse strength, which may be used to extend across large spans when employed for roof, ceiling and floor work, or vertically for the forming of partitions.

The sheet metal is first slitted as described in the Forsyth patent, and the tongues bent down, the slitted bands 2 and entire bands 1 of the sheet alternating. The bands 1 are preferably formed with grooves 4. The sheet is now placed on the lower die 5 of a press and the upper or male die 6 is brought

down, the edges 7 of the tongues 8 entering the grooves 4. Continued movement causes the tongues to force the bands 1 into the grooves 9 of the lower die 5 as shown in Fig. 3. As the edges 7 fit the slight grooves 4, there is no slipping at the outside tongues. The amount of material necessary to form the U shaped ribs 10 must be subtracted from the original space between ribs 4, resulting in the lateral expansion of the bands 2. It will be readily observed that any other desired manner of preliminary slitting may be adopted instead of that of the Forsyth patent. Instead of a flat press such as shown in the drawings, grooved rollers may be employed. The difference between the distances around a tongue 8 and the distance across a groove 9 equals the amount a band 2 is expanded and these distances must be properly proportioned.

Metal sheets of this finished material having ribs 10 one inch deep, spaced four inches and made of No. 28 sheet metal are admirably adapted for partitions, there being no necessity for bracing between ends if the partitions are not more than nine feet high. Secured direct to both sides of joists, spaced about four feet apart, the upper surface covered with two inches of concrete, the lower surface plastered, a good floor and ceiling is produced. For roofs, these stiffened sheets may be laid with the flat side upper-most, the ribs resting on the frame work, the upper side covered with an inch of fine water-proofed concrete and the lower side plastered. The spans for the ribs in this case may be four or five feet.

When used to form partitions, the ribs 10 act as studding, when used for floors and ceilings, the ribs are beams. The strength of the construction will depend upon the thickness of the metal, and the distance between and depth of the ribs, and as these are easily modified, this building material can be produced to meet all requirements.

Having now explained my improvements, what I claim as my invention and desire to secure by Letters Patent is:—

1. The process of forming ribbed expanded metal, consisting in slitting the same to form parallel bands of slitted portions separated by parallel grooved bands of entire portions, the slitting being along longitudinal lines so as to form tongues slit through their bases,

then striking up the tongues, and then bending the entire portions to form U shaped ribs at the same time preventing the sheet from contracting generally whereby the slitted bands are expanded.

2. The process of forming ribbed expanded metal which consists in forming a sheet with longitudinal series of slits and bands of entire metal alternately, then forcing all the bands of entire metal into the grooves of a die simultaneously, thereby expanding the slitted portions laterally.

3. The process of forming expanded sheet metal reinforced by longitudinal ribs extending from one face of the same which consists in first slitting the sheet so as to form parallel bands of slitted metal separated by

bands of entire metal and grooving the entire metal, then placing the same between dies having grooves and projecting tongues in such a manner that a tongue of the dies will enter each groove in the entire portion of the sheet, and operating the dies to form the ribs, the drawing in of the edges of the entire portions of the sheet separating the edges of the slitted portions.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

THOMAS HENRY KANE.

Witnesses:

H. L. BEARD,
ADA OSBORN.