No. 784,517. PATENTED MAR. 7, 1905.

L. E. CURTIS.

PROCESS OF EXPANDING SLITTED SHEET METAL.

APPLICATION FILED JUNE 8, 1903.

Fig. 1

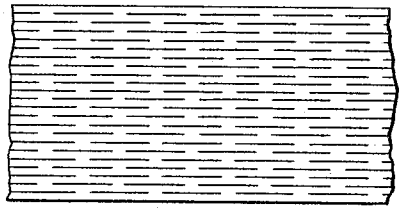


Fig. 4

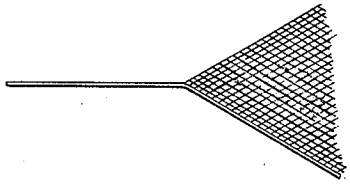


Fig. 2

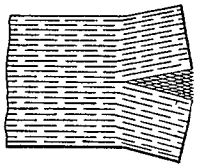


Fig. 3

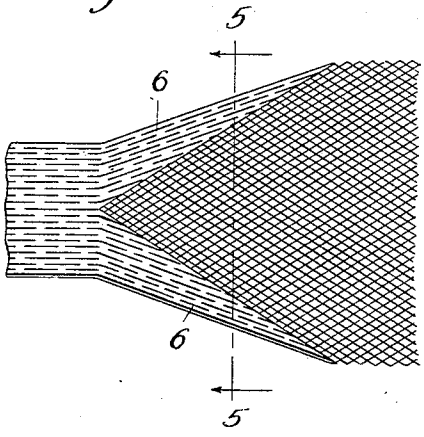


Fig. 5

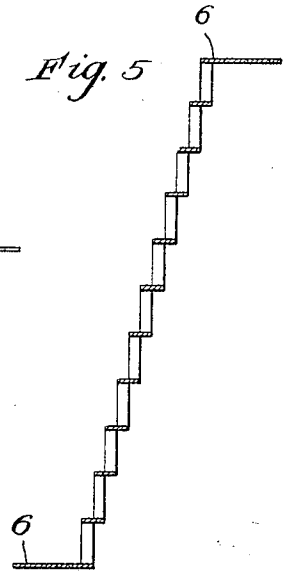


Fig. 6

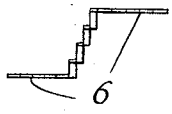
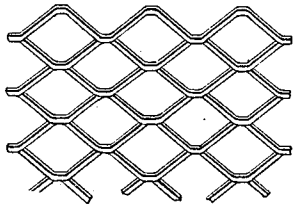


Fig. 7



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No. 784,517. Patented March 7, 1905.

UNITED STATES PATENT OFFICE.

LEWIS E. CURTIS, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO BRECKINRIDGE JONES, TRUSTEE, OF ST. LOUIS, MISSOURI.

PROCESS OF EXPANDING SLITTED SHEET METAL.

SPECIFICATION forming part of Letters Patent No. 784,517, dated March 7, 1905.

Application filed June 8, 1903. Serial No. 160,495.

To all whom it may concern:

Be it known that I, LEWIS E. CURTIS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Processes of Expanding Slitted Sheet Metal, of which the following is a specification.

This invention relates to an improved method of manufacturing what is generally known as "expanded metal" from sheet metal which has been previously slit or slashed.

The nature of my improvement is fully explained below and will be understood from the accompanying drawings, illustrating the various stages of manufacture.

The object of the invention has been to provide a method of opening already-slitted sheets which will permit the sheets to shorten while undergoing the opening operation and which can be practiced while the sheets are being continuously and rapidly fed in a longitudinal direction. These features enable me to produce expanded metal at a very rapid rate and at a great reduction in cost.

In the accompanying drawings, forming a part of this specification, Figure 1 is a plan of the slitted sheet. Fig. 2 shows the sheet at the start of the expanding operation, and Fig. 3 shows the sheet mainly expanded. Fig. 4 is an edge view of the sheet as shown at Fig. 3. Fig. 5 is an enlarged section on line 5 5 of Fig. 3. Fig. 6 shows an end view of Fig. 2, and Fig. 7 is a view of the expanded metal.

Previous to expanding or opening the metal I prepare a sheet of metal of the proper width and length by slitting it throughout, the slits being formed in rows longitudinal of the sheet and of uniform length, the rows being spaced apart a distance corresponding to the width desired for the strands in the completed article and the slits in each row being staggered with reference to the slits in the next adjacent row or rows. A sheet thus slit is shown at Fig. 1. I next take this slitted sheet and subject it to the opening or expanding operation. In this operation I subject the sheet to a continuous and progressive bending operation, commencing at one end of the sheet at a point between the side edges and proceeding to the other end thereof, the bending being in the direction of the thickness of the metal and in lines intersecting the slits and diagonal to the sheet, the portions of the sheet outside or back of the bending line being held against opening until they are reached in the bending operation. In the preferred manner of practicing the invention I commence the bending at the longitudinal center of the end of the sheet, bending the metal at opposite sides of the longitudinal center in opposite directions away from the original plane of the sheet. The bending is in diagonal lines, crossing the slits and extending in both directions from the center toward the side edges. This will be understood from Fig. 2, where the commencement of the operation is indicated. In the continued movement of the sheet the diagonal lines at which the bending takes place gradually lengthen until they reach the side edges and cross all the rows of slits, the expanded portion then assuming a position substantially at right angles to the ordinary plane of the sheet, as seen at Fig. 4. The expanded portion of the sheet being unconfined and freed from the tension previously upon it shortens as the expanding proceeds. The margins or unexpanded sides of the sheet seen at 6 6 in Figs. 3 and 5 afford means for gripping the sheet, so that the divergence between the longitudinal halves thereof may cause the tension necessary to open the slits, the unopened portions being thus held at an angle to the opened portions, and by commencing the opening operation at the center of the end of the sheet the margins of the sheet engaged by the feeding mechanism are unaffected by the shortening of the expanded portions, and no provision need be made in the feeding mechanism to accommodate such shortening. In the bending the slits in the different rows open consecutively instead of simultaneously, though several of them, each in a different row from the others, may open simultaneously.

While I have suggested the practice of my invention by means of certain machinery, it is apparent that its operation is not limited to

any particular mechanical means, and indeed the process may be practiced by hand, as it has been done.

I claim—

1. The herein-described process of opening slashed sheet metal, consisting in subjecting the sheet to a longitudinally-progressive bending operation, the bending commencing at one end of the sheet and along a longitudinal line intermediate the edges thereof, and being in lines diagonal to the said longitudinal intermediate line, and the parts of the sheet on the opposite sides of the said line being bent in opposite directions transversely to the original plane of the sheet as the opening of the sheet progresses.

2. The herein-described process of bending slashed sheet metal, consisting in subjecting the sheet to a longitudinally-progressive bending operation, the bending commencing at one end of the sheet and progressing along a longitudinal line intermediate the edges thereof, and being in lines diagonal to the said longitudinal line, the parts of the sheet on the opposite sides of the said line being bent in opposite directions transversely to the original plane of the sheet as the opening of the sheet progresses, and the unopened portions of the sheet situated outside of the parts being opened being held at an angle to the said opened parts.

3. The herein-described process of opening slashed sheet metal, consisting in subjecting the sheet to a longitudinally-progressive bending operation, the bending commencing at one end of the sheet and extending along the longitudinal central line thereof and thence being in lines diagonal to said central line, and the longitudinal halves of the sheet being bent in opposite directions transversely to the original plane of the sheet as the bending operation progresses.

LEWIS E. CURTIS.

Witnesses:
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