No. 854,927. PATENTED MAY 28, 1907.

N. E. CLARK.

RETICULATED METAL.

APPLICATION FILED DEC. 23, 1905.

Fig. 1.

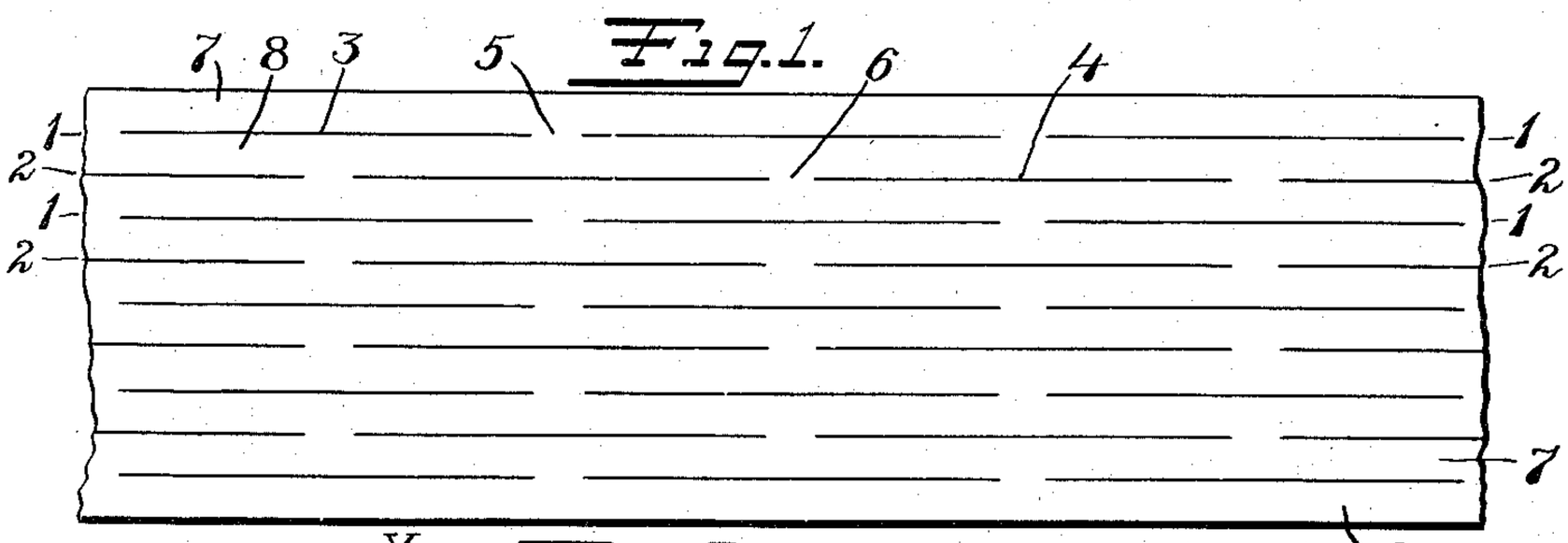


Fig. 2.

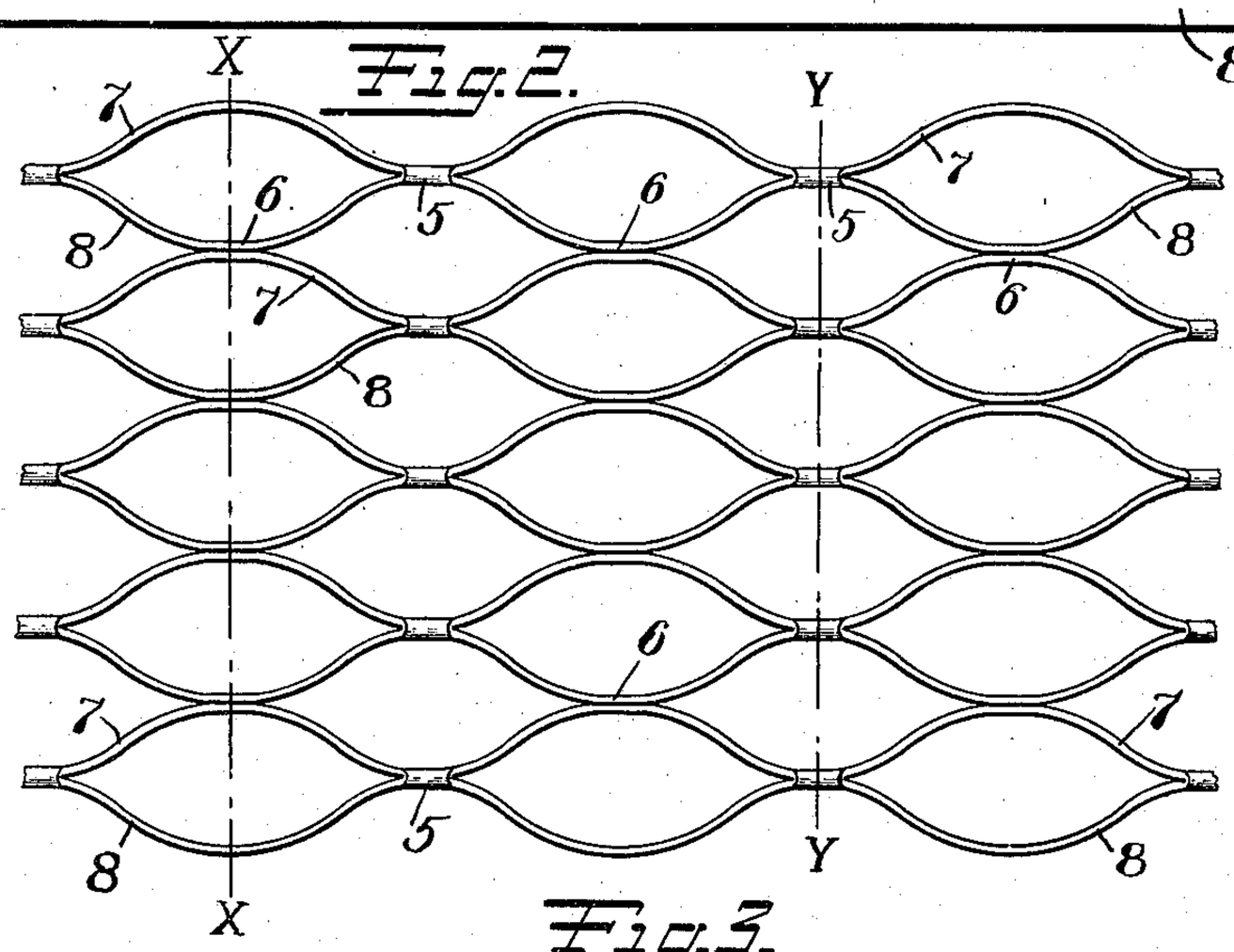


Fig. 3.

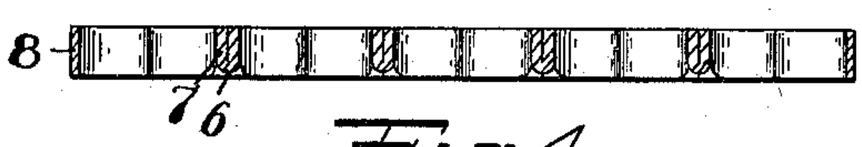


Fig. 4.

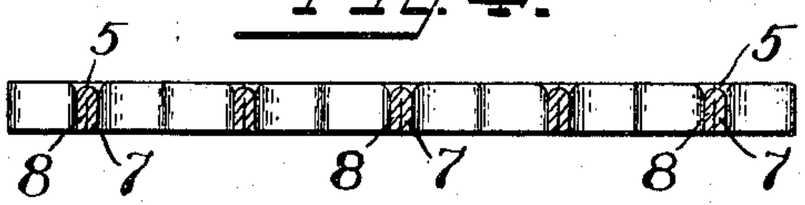
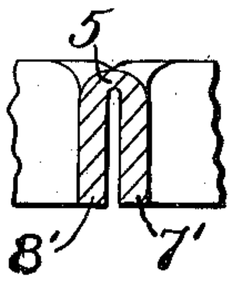


Fig. 5.



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UNITED STATES PATENT OFFICE.

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RETICULATED METAL.

No. 854,927. Specification of Letters Patent. Patented May 28, 1907.

Application filed December 23, 1905. Serial No. 293,062.

To all whom it may concern:

Be it known that I, NORRIS ELMORE CLARK, a citizen of the United States, residing at Plainville, county of Hartford, Connecticut, have invented certain new and useful Improvements in Reticulated Metal, of which the following is a full, clear, and exact description.

My invention relates to sheet metal working and particularly the manufacture of reticulated material.

The object is to construct a material for use in gratings, lathings, guards, grilles, lattice, etc., where considerable strength is desired.

The invention consists in an improved process and the product.

Briefly, it may be said to comprise lancing or slitting a strip or sheet of metal, folding the strands along the lines of slits, and expanding or opening the slits in the direction of the original plane. The result is a product consisting of a series of pairs of strands, the strands of each pair being connected at intervals by bonds on one face of the material and the adjacent strands of adjacent pairs being connected in alternation by bonds on the other face of the material.

The drawings illustrate the slitted metal and the reticulated product.

Figure 1 shows a fragment of a slitted or lanced strip. Fig. 2 shows the same after reticulation. Fig. 3 is a sectional view on the plane of the line X—X Fig. 2. Fig. 4 is a sectional view on the plane of the line Y—Y— Fig. 2. Fig. 5 is an enlarged fragmentary section at a bond between two strands.

The metal strip may be lanced or slitted in any suitable manner along the lines 1 and 2. The individual slits 3 of one line being arranged alternating with the slits 4 of the other.

5 and 6 respectively are the bonds between slits 3—3 and 4—4. The strip of lanced metal may thus be said to consist of a series of strands 7 and 8 connected by alternating bonds.

The reticulated material may be formed from the lanced strip by folding the metal along the lines of the bonds, and then opening the slits. The first line 1 of the bonds 5 is folded with the strands 7 and 8 down, while the second line 2 of bonds 6 is folded up leaving the bonds 5 all on the upper face of the material and carrying all of the bonds 6 to the lower face. Punches may then be entered into the already partially opened slits for the purpose of separating the strands and forming reticulations of the desired size and shape.

When the bonds are folded over, the metal is drawn down somewhat below the plane of the edges of the strands, as seen in Fig. 5. For gratings and other uses when considerable wear takes place this is particularly advantageous since the bond will not be subjected to as great wear as the strands. The sides of the strands 7 and 8 are not necessarily drawn close together but may be left separated as shown, in Fig. 5. This subjects the metal to less internal stress. If the strands are narrow relative to the size of the reticulating punches, then the strip will be considerably expanded so that the area of the finished product is greater than that of the original strip. Conversely, if the strands are relatively wide, the product may even be narrower than the original strip. The strands being arranged on edge afford great strength to resist pressure at right angles to the plane of the material. The reticulating operation requires the application of only a small force, because the bending pressure is applied at right angles to the axis of the section of the strand which has the least moment of inertia. The strands may be bent into any shape desired for ornamental or special purposes.

In the drawings I have illustrated the invention as applied to a strip of metal lanced longitudinally, expanded laterally and somewhat contracted or foreshortened longitudinally. This is the preferred method. The process may, however, be carried out by operation on a strip lanced transversely instead.

When the product has been formed as shown, it may be rolled or ground to finish and smooth the edges and remove inequalities of formation, etc. The strands being brought substantially together and parallel adjacent the bonds, reinforce each other horizontally. The upper and lower surfaces are substantially flat and parallel to the original plane of the stock so that it may be handled readily and produced in any length desired. Its great strength makes it useful under conditions to which the ordinary expanded or reticulated metal is unequal. The cost of construction is small so that the process may be

carried on economically and without waste of material.

What I claim is:

1. As an article of manufacture, a reticulated material formed of sheet metal having strands arranged at right angles to the plane of the material and connected by integral bonds adjacent to but slightly below the surface of said article.

2. As an article of manufacture, a reticulated material formed of sheet metal having strands arranged with their cut edges forming the upper and lower surfaces of the material connected at intervals by integral folded bonds adjacent to but slightly below the surface of said article.

3. As an article of manufacture, a reticulated material formed of sheet metal having strips arranged at right angles to the plane of the material, connected at intervals by rows of intergal folded bonds arranged alternately on opposite sides of the material said bonds being adjacent to but slightly below the surfaces of said article.

4. As an article of manufacture, a reticulated material formed of sheet metal having strips arranged at right angles to the plane of the material, connected at intervals by rows of intergal folded bonds arranged alternately on opposite sides of the material and below the surfaces thereof.

5. As an article of manufacture, a reticulated material formed of sheet metal having strands substantially at right angles to the plane of the material, with openings between them, and connected at intervals by an integral arched portion the crown of the arch being below the surface of the article.

6. A plate of material formed of sheet metal having strands arranged with their flat edges forming the upper and lower surfaces of the plate or material, connected at intervals by integral folded portions and spaced apart between the connections to form openings the fold being below the bearing surface of the article.

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Witnesses:

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