To all whom it may concern:

Be it known that I, MAHLON E. LAYNE, a citizen of the United States, residing at Houston, in the county of Harris, and State of Texas, have invented certain new and useful Improvements in Blanks for Making Perforated Tubing, of which the following is a specification.

The invention relates particularly to the manufacture of the perforated well tubing employed as the framework for screens as used in water and oil wells; it is further designed to improve the quality of the tubing. The steps employed and the blanks used are illustrated in the accompanying drawing, wherein:

Figure 1 is a section through a pair of rolls in which a sheet of metal is being corrugated.

Figure 2 is a section through the sheet after it has been punched.

Figure 3 is a section through the sheet after it has been drawn welded into a tube.

Figures 4, 5 and 6 are views similar to those of Figures 1, 2 and 3, wherein a different form of corrugation is illustrated.

Figure 7 is a front elevation of a still different form of rolls employed.

Figure 8 is a section on the line VIII—VIII of Figure 7.

Figure 9 is a plan view of two skelps, one of which has been punched, and the other of which is unpunched.

Figures 10 and 11 are sectional views respectively on the lines X—X and XI—XI of Figure 9.

Figure 12 is a transverse section through another form of rolls and skelp in process of formation.

Figure 13 is a plan view of a portion of a sheet treated in the rolls of Figure 12, and Figure 14 is a section on the line XIV—XIV of Figure 13.

In producing the tubing shown in Figure 3, the skelp is first passed through the rolls 1 and 2 forming thereon the ribs 3. The sheet after emerging from the rolls, is punched or drilled as indicated in Figure 2, the perforations 4 being placed in series between the ribs 3. After being punched, the sheet is drawn welded into the tube indicated in cross section in Figure 3. The corrugated tube as illustrated in Figure 3, is much stiffer than a plain tube having the same amount of metal, and as the tube is thinner between the ribs 3, the openings 4 may be punched or drilled with greater ease than is the case where a plain tube of greater thickness is employed.

The process illustrated in Figures 4, 5 and 6 is substantially that just described for Figures 1, 2 and 3, the only difference being that the corrugations are produced on both sides of the skelp 5, and the action of the rolls is largely a bending action. The skelp 6 of Figures 9 and 10 is formed in the rolls of Figure 7, such rolls being provided with the projections 7 for producing the recesses 8 in the face of the skelp. It will be apparent that the series of recesses or short grooves 8 form a plurality of interrupted grooves extending longitudinally along the skelp. After the sheet is rolled to the form shown in the right hand portion of Figure 9, the ends of the recesses 8 are either punched or drilled forming the perforations 9 (Figure 11). The skelp thus perforated is subsequently drawn welded into a tube construction corresponding to that of Figures 3 and 6. It will be noted that the steps in the production of this particular form of tube are the same as those of the method previously described, the distinction being that instead of continuous grooves extending from one end of the sheet to the other being formed, interrupted grooves consisting of the recesses 8 are formed.

The sheet shown in Figures 13 and 14 is quite similar to that of Figures 9, 10 and 11, the principal distinction being in the character of the openings 10 which correspond to the openings 9 in the sheet of Figure 9. In forming this sheet the skelp is passed through the rolls 11 and 12 as indicated in Figure 12. These rolls are provided with the opposing shearing teeth 13 and 14, which serve to bend down the metal in the manner illustrated, and shear it at the end of the recesses to form the openings 10. By this means one of the steps illustrated in the other method described is done away with, the step done away with being the perforating step.

Having thus described my invention and illustrated its use, what I claim as new and desire to secure by Letters Patent is the following:

1. A blank for use in the formation of perforated tubular screens, comprising a sheet metal skelp provided in its face with a plurality of longitudinal grooves and provided with a series of communications be-
between the grooves and the other side of the skelp substantially as described.

2. A blank for use in the formation of perforated tubular screens, comprising a skelp provided in its face with a plurality of longitudinal interrupted grooves and with a communication from each section of each groove to the other side of the skelp.

3. A blank for use in the formation of tubular screens, comprising a skelp provided in its face with a plurality of longitudinal interrupted grooves, each portion thereof increases in depth from one end thereof to the other end and communicates at its deepest portion with the rear side of the skelp.

In testimony whereof I have hereunto signed my name in the presence of the two subscribed witnesses.

MAHLON E. LAYNE.

Witnesses:

R. E. GARRETT.

LLOYD F. LAYNE.