

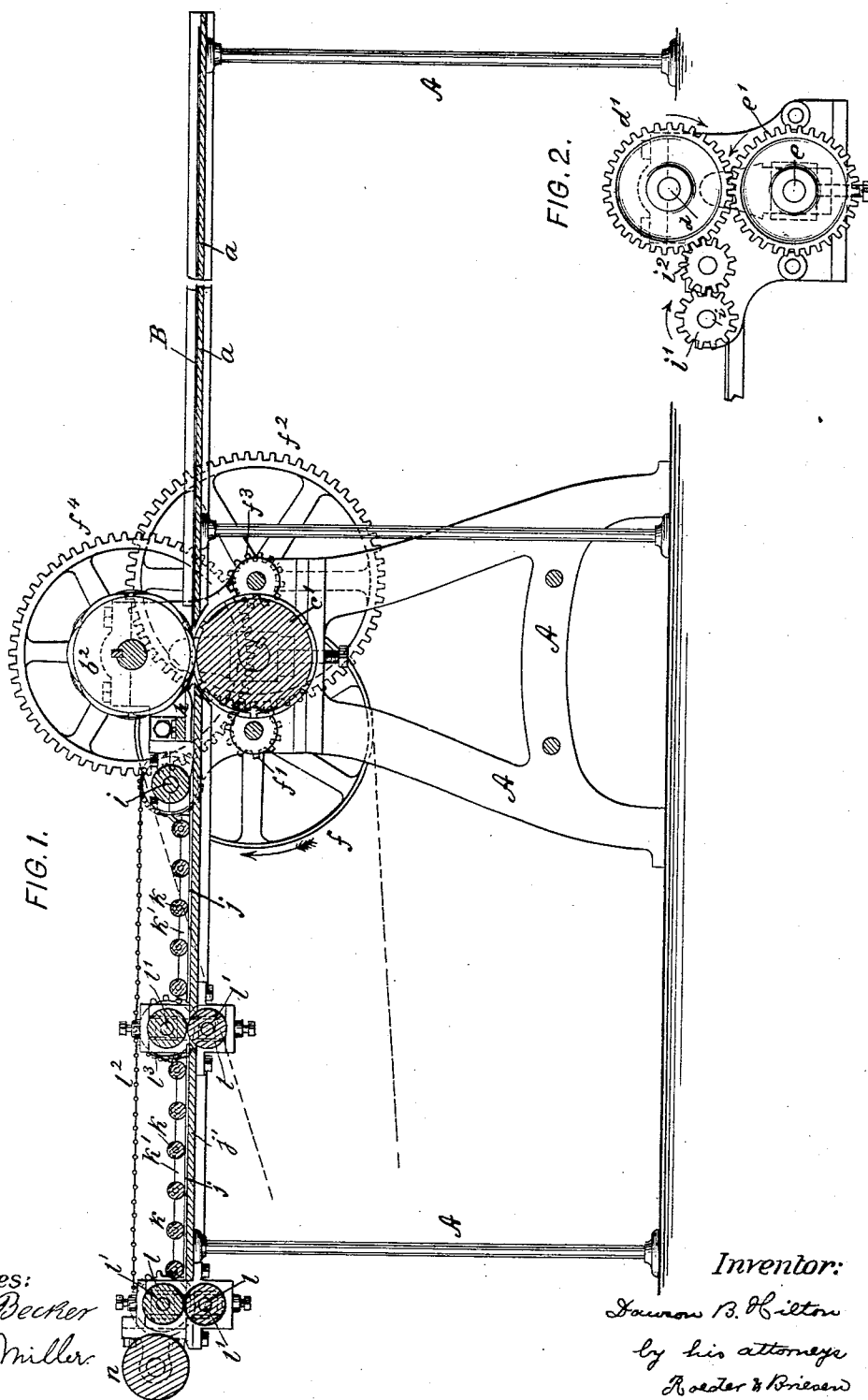
(No Model.)

3 Sheets—Sheet 1.

D. B. HILTON.
MACHINE FOR MAKING METAL LATHS.

No. 580,087.

Patented Apr. 6, 1897.



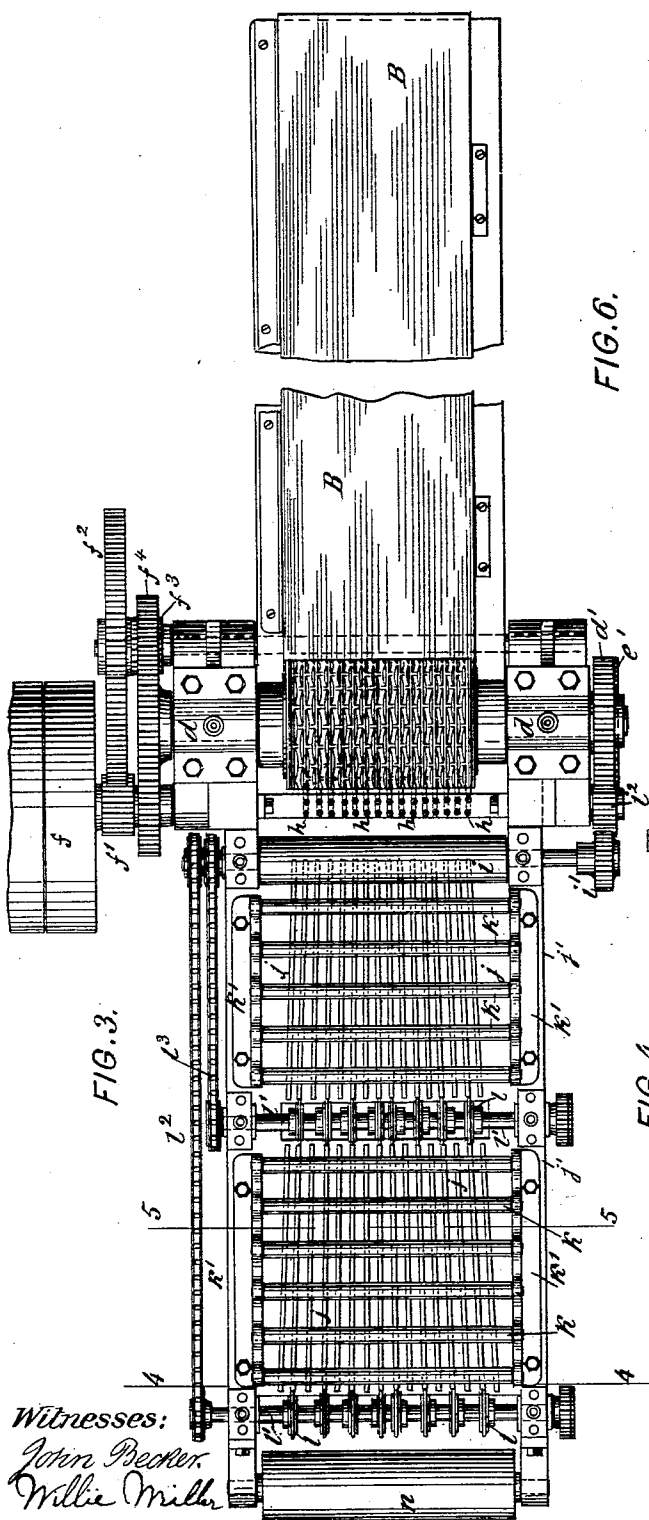
Witnesses:
John Becker
Willie Miller

Inventor:
Dawson B. Hilton
by his attorneys
Roeder & Bricaud

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FIG. 6.

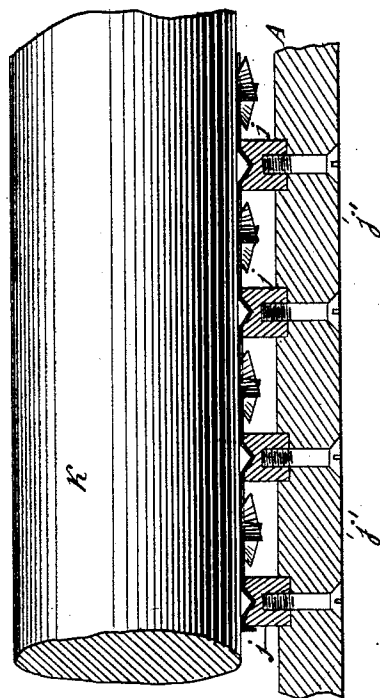


FIG. 4.

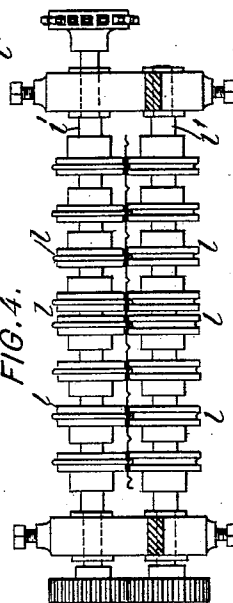
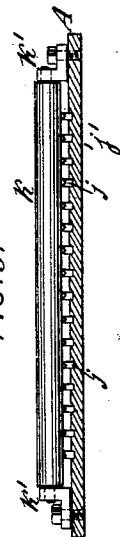


FIG. 5.



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3 Sheets—Sheet 3.

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FIG. 7.

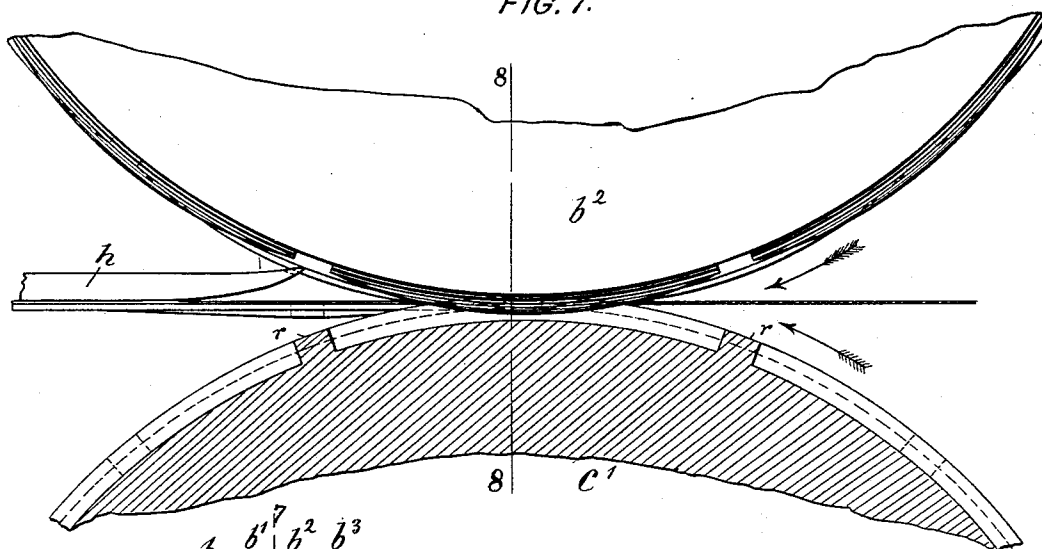


FIG. 8.

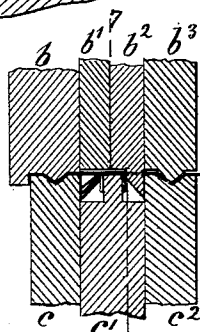


FIG. 11.



FIG. 9.

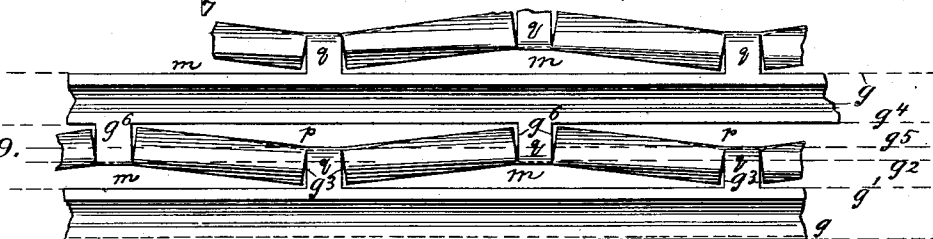
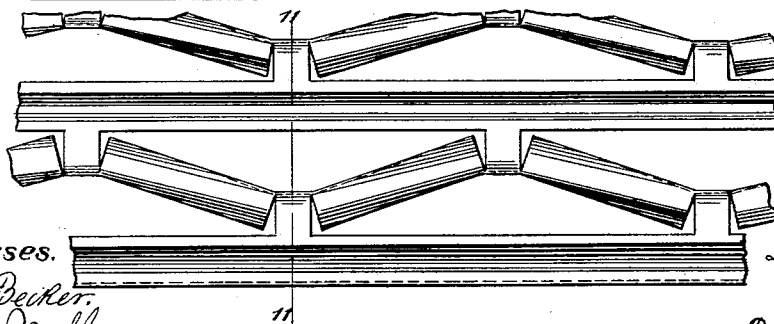


FIG. 10.



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UNITED STATES PATENT OFFICE.

DAWSON B. HILTON, OF BROOKLYN, NEW YORK.

MACHINE FOR MAKING METAL LATHS.

SPECIFICATION forming part of Letters Patent No. 580,087, dated April 6, 1897.

Application filed August 25, 1896. Serial No. 603,923. (No model.)

To all whom it may concern:

Be it known that I, DAWSON B. HILTON, of Brooklyn, New York, have invented an Improved Machine for Making Metal Laths, of which the following is a specification.

This invention relates to a machine for making metal laths of the kind in which a sheet-metal blank is slit, flanged, and laterally expanded or stretched, so that the completed lath is open-work and of greater area than the blank from which it is made. Such a lath is described in Patent No. 551,766, issued to me December 24, 1895. The machine produces the lath automatically from the blank in first slitting and cutting the metal and then distending it laterally, all as will be hereinafter more fully described.

In the accompanying drawings, Figure 1 is a vertical longitudinal central section of my improved machine; Fig. 2, a detail of the gearing between the rollers *d e*; Fig. 3, a plan of the machine; Fig. 4, a cross-section on line 4 4, Fig. 3; Fig. 5, a cross-section on line 5 5, Fig. 3; Fig. 6, an enlarged detail of Fig. 5; Fig. 7, a longitudinal section of the cutting-dies on line 7 7, Fig. 8; Fig. 8, a cross-section on line 8 8, Fig. 7; Fig. 9, a face view of the work after being acted upon by the cutting and bending dies and before being stretched; Fig. 10, a face view of the work completed; and Fig. 11 a cross-section on line 11 11, Fig. 10.

The letter *a* represents the feed-table of the machine, supported by frame *A*. Upon this table the sheets of metal *B* to be cut, bent, and stretched are fed between the upper rotary cutting and bending dies *b b'* *b² b³* (see Fig. 8) and the lower corresponding dies *c c'* *c²*. These dies are keyed to the transverse shafts *d e*, respectively, intergeared at *d' e'*, and of which the upper shaft *d* receives motion from pulley *f* by gearing *f'*, *f²*, *f³*, and *f⁴*.

The dies *b b' c c'*, &c., are so profiled as to groove, cut, and bend or flange the work. Thus for the pattern illustrated, for example, in Fig. 9 I employ for each set three upper and two lower dies. The end dies *b c* are male and female dies, respectively, and form the grooved or corrugated and flanged section marked *g* in Fig. 9. The beveled die *b'*, together with die *c* and half of the die *c'*, cuts the work along the line *g'*. It also flanges it along the line *g²*, opening out the spaces *m*,

and cross-cuts it along the lines *g³*. The beveled die *b²*, together with the other half of the die *c'* and the die *c²*, cuts the work along the line *g⁴*. It also flanges it along the line *g⁵*, opening out the spaces *p*, and cross-cuts it along the lines *g⁶*. The dies *b³ c²* operate in the same manner as the end dies *b c*, excepting that they do not flange the work. The small bridges or connecting-pieces *q* of the work are supported while the work passes through the dies by means of the rests *r* on die *c'*.

It is of course to be understood that the dies are selected to produce the particular pattern desired and that as many groups of dies are keyed to the shafts *d e* as correspond to the width of the work, so that as the latter is drawn through the dies it is grooved, cut, and flanged from edge to edge.

The work after being acted upon by the dies, as described, will be of the shape illustrated in Figs. 8 and 9. In this shape it is stripped from the cutting-dies by a series of stripping-fingers *h* and passes under a roller *i* upon a series of grooved ribs *j*, secured within grooves of a bed-plate *j'*. The ribs *j* extend in a substantially longitudinal direction, but they diverge from the front toward the rear of the machine, Fig. 3. The ribs are so spaced at their forward end that they correspond and are in alinement with the grooved or corrugated sections *g g* of the work, and thus as the work is by the dies pushed upon the ribs each of the ribs will engage one of the sections *g*. The profile of the ribs should correspond substantially to the profile of the sections *g*, so that the work is properly seated and will be held to the ribs at the sections *g*.

In order to prevent the work from being raised vertically off the ribs, I employ a number of transverse rollers or keepers *k*, which are journaled in bearings *k'*, adjustably secured to the bed-plate *j'* at a short distance above the ribs *j*. The work is conducted to the front ends of the ribs *j* by means of the roller *i*, which is intergeared with shaft *d* by gears *i' i²*. Additional feed-rollers *l*, mounted on shafts *l'*, that are driven from the shaft of roller *i* by chains *l² l³*, serve to draw the work along the ribs *j* and toward the discharge end of the machine.

It will be seen that as the grooved sections

g of the work are in effect locked to the diverging ribs j it is necessary for the work to gradually expand laterally between such sections as it is being fed along the diverging ribs, the degree of such expansion corresponding, of course, to the degree of divergence of the ribs. Thus when the work arrives at the rear or delivery roller n it will have been stretched or distended to its proper shape, Fig. 10, and its area will have been increased to a degree equal to the amount of lateral distention, which in turn corresponds to the degree of lateral deflection of the ribs. In this way the finished lath produced will be much wider than the original work-piece, and will, moreover, be properly cut, flanged, and grooved to be ready for use.

It is clear that in lieu of mounting the cutting and bending rolls upon the same frame A that carries the stretching-ribs they may be mounted upon a separate frame, but in that case an additional handling of the work is necessary.

What I claim is—

1. In a machine for making metal laths the combination of a series of diverging ribs adapted to engage the work, which has first been operated upon by a cutting-roll, with means for holding the work to such ribs, and means for feeding the work over such ribs, substantially as specified.

2. In a machine for making metal laths the combination of a series of grooved diverging ribs, with means for feeding the work which

has first been operated upon by a cutting-roll over such ribs and means for holding the work in engagement with said ribs, substantially as specified.

3. In a machine for making metal laths the combination of a set of cutting and flanging dies with a series of diverging ribs placed back of said dies, means for holding the work to such ribs, and means for feeding the work, substantially as specified.

4. In a machine for making metal laths the combination of a set of cutting and flanging dies with a series of grooved diverging ribs, means for holding the work in engagement with said ribs, and means for feeding the work, substantially as specified.

5. In a machine for making metal laths the combination of a set of cutting and flanging dies arranged on transverse shafts with a series of longitudinally-arranged grooved diverging ribs, a series of keepers, and feed-rollers for drawing the work over the ribs, substantially as specified.

6. In a machine for making metal laths the combination of a series of dies of which some are grooved, with a series of diverging ribs, the inner ends of which are in alinement with the grooved dies, means for holding the work to such ribs, and means for feeding the work over the ribs, substantially as specified.

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Witnesses:

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