

No. 819,643.

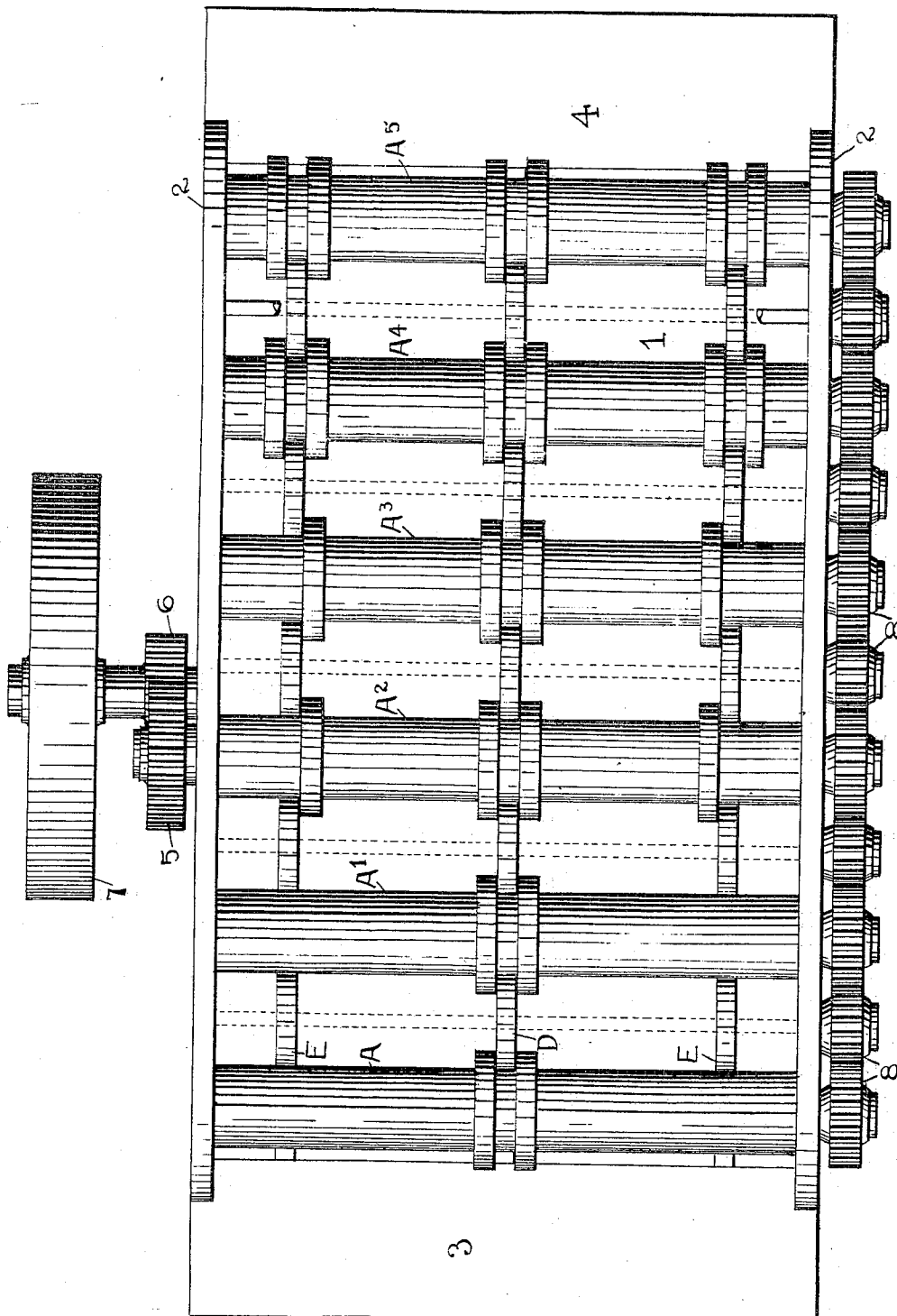
PATENTED MAY 1, 1906.

L. S. FLATAU.
SHEET METAL WORKING MACHINE.

APPLICATION FILED OCT. 5, 1903.

5 SHEETS—SHEET 1.

FIG. 1



ATTEST.

H. J. Fletcher
Witness

INVENTOR

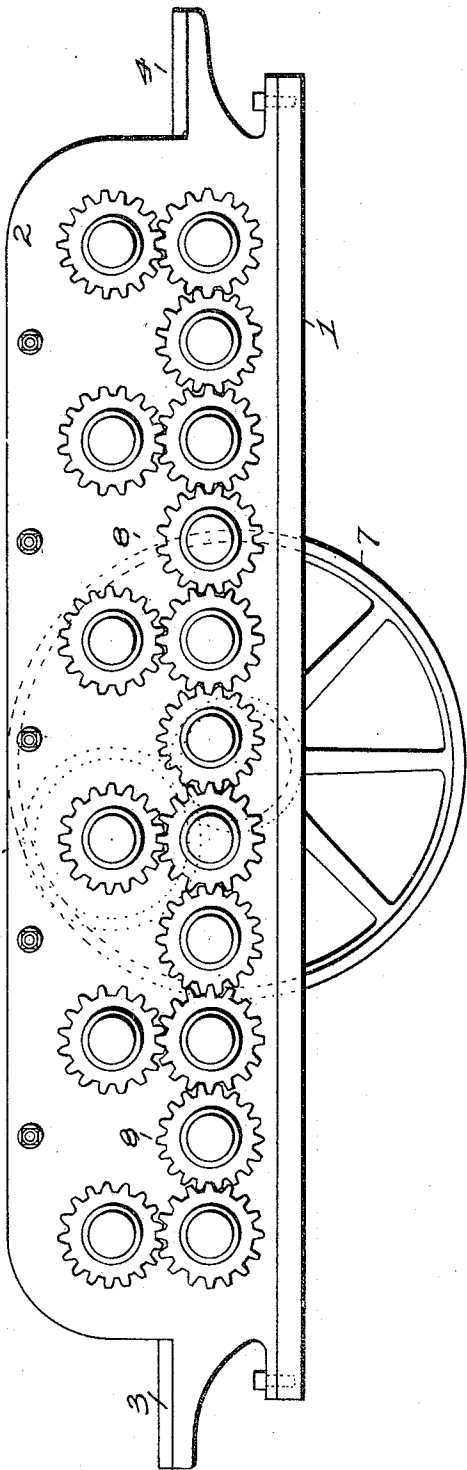
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By Shigdon, Langan & Hopkins, Attys.

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5 SHEETS—SHEET 2.

Fig. 2



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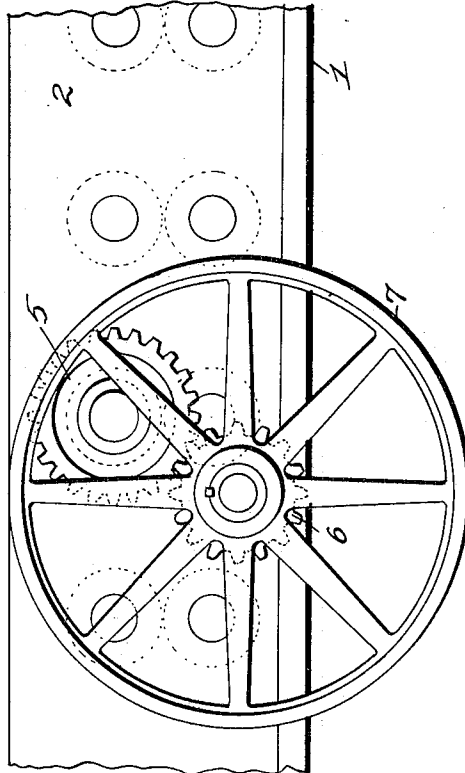
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5 SHEETS—SHEET 3.



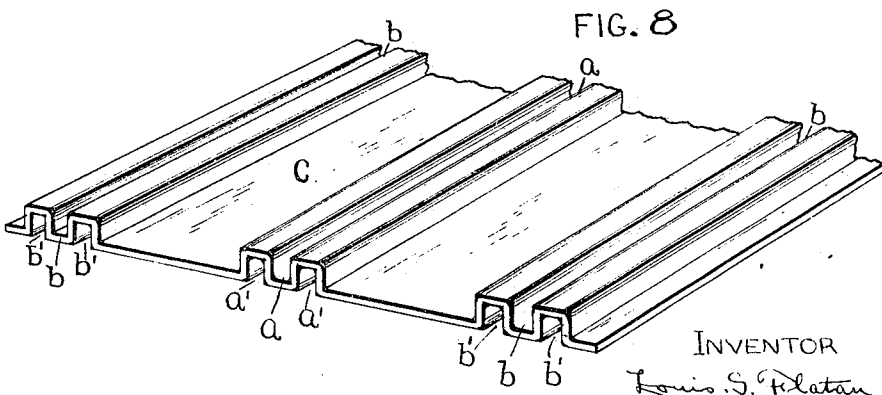
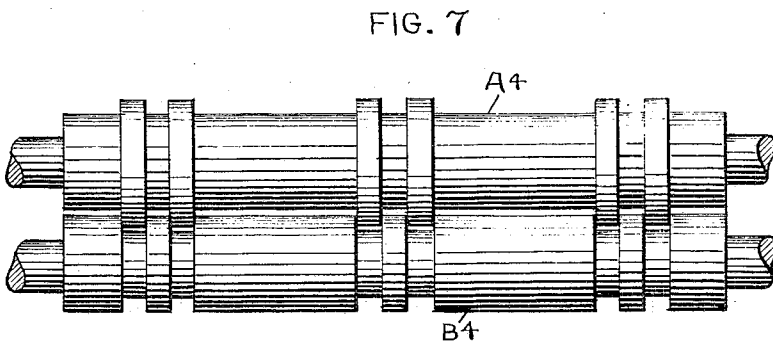
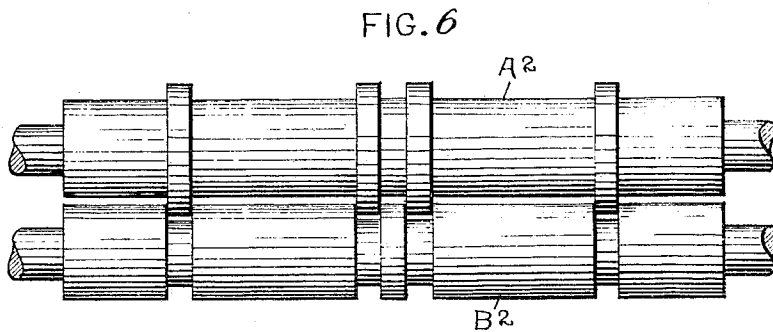
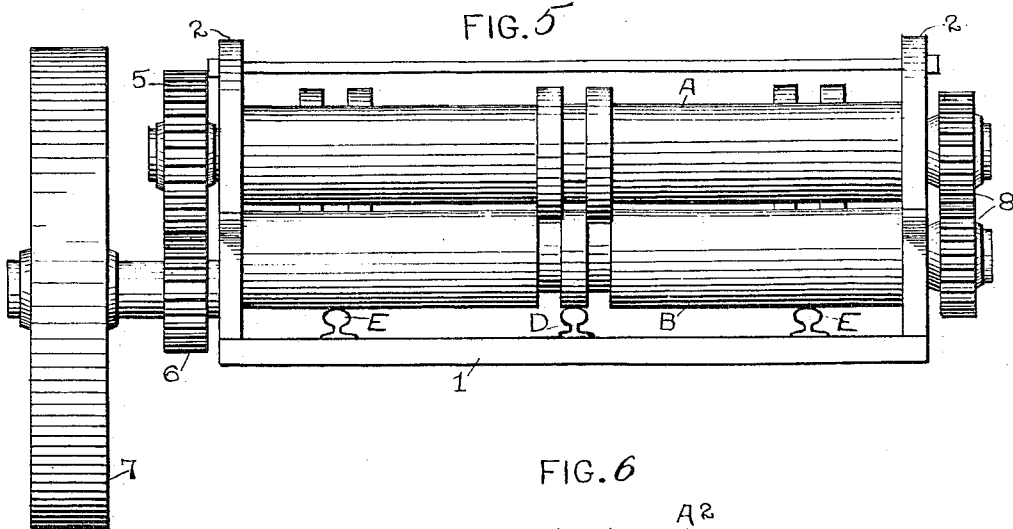
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5 SHEETS—SHEET 4.



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5 SHEETS—SHEET 5.

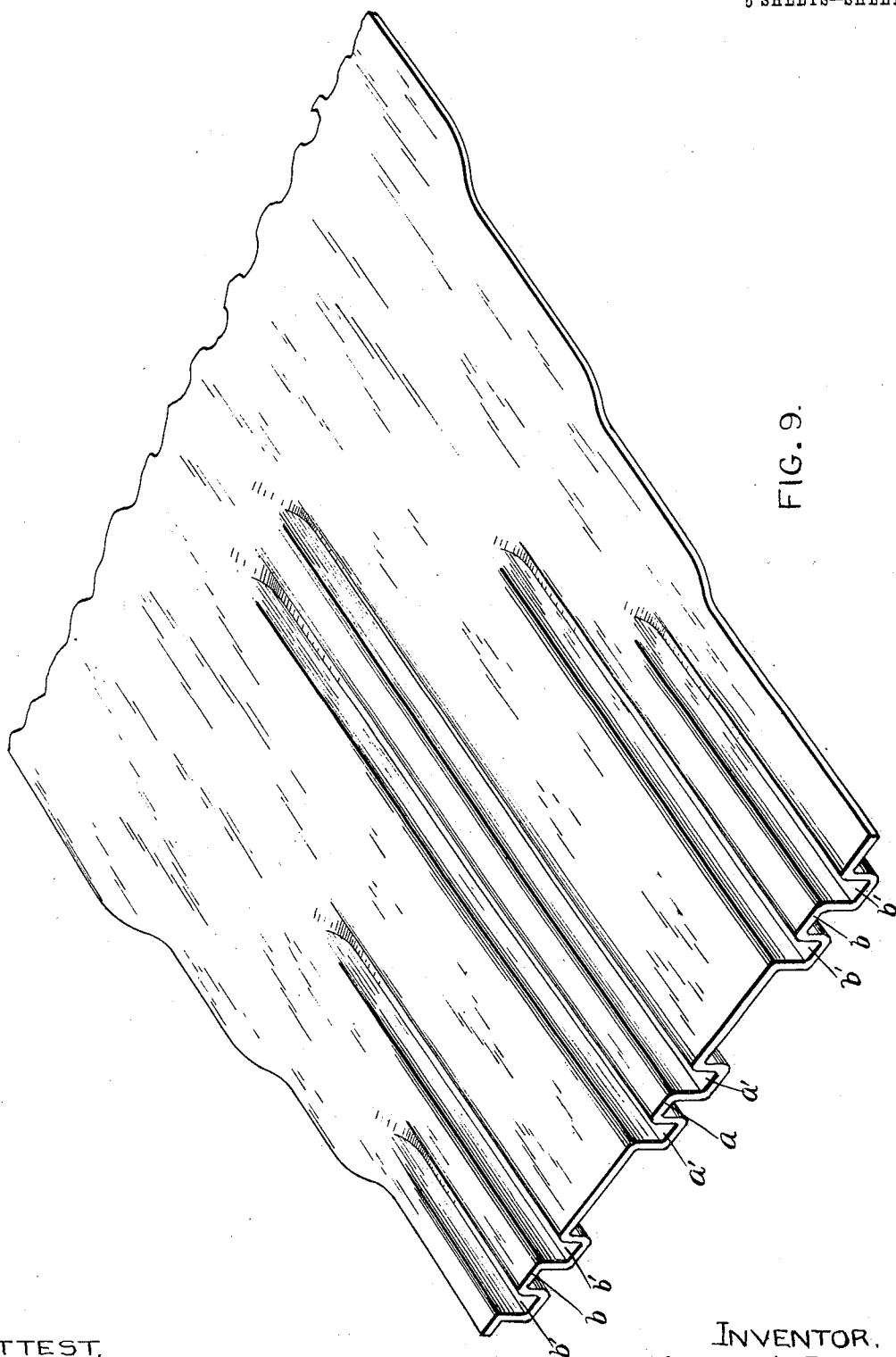


FIG. 9.

ATTEST,
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UNITED STATES PATENT OFFICE.

LOUIS SPENCER FLATAU, OF ST. LOUIS, MISSOURI, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE REPUBLIC RAILWAY APPLIANCE CO., OF ST. LOUIS, MISSOURI, A CORPORATION OF ILLINOIS.

SHEET-METAL-WORKING MACHINE.

No. 819,643.

Specification of Letters Patent.

Patented May 1, 1906.

Application filed October 5, 1903. Serial No. 175,755.

To all whom it may concern:

Be it known that I, LOUIS SPENCER FLATAU, a citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Sheet-Metal-Working Machinery, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to sheet-metal-working machinery.

My object is to construct a machine which will produce a plurality of high parallel strengthening beads or ridges and corresponding grooves in a sheet-metal plate, said beads being formed first at the center of the plate and then successively both ways from the center, the successive beads being located from the central bead or groove, so that the metal will simply be bent in forming said beads and not swaged or stretched and so that said beads will be exactly parallel regardless of whether the edges of the plate were straight or parallel or not.

My invention comprises the novel features herein shown, described, and claimed.

Figure 1 is a top plan view of a machine embodying the principles of my invention. Fig. 2 is a side elevation. Fig. 3 is a central sectional elevation on a plane parallel with Fig. 2. Fig. 4 is a detail in elevation of the opposite side of the machine from Fig. 2, both ends being broken away, the object being to show the driving-pulley and gearing. Fig. 5 is a front elevation with the guide-table removed and showing the first pair of rollers, said rollers being adapted to produce a pair of central beads and the corresponding central groove. Fig. 6 is a front elevation of the third pair of rollers, said rollers being adapted to produce the first successive beads on each side of the center. Fig. 7 is a front elevation of the fifth pair of rollers, said rollers being adapted to produce the second successive beads on each side of the center. Fig. 8 is a view in perspective of a completed piece of metal after it has passed through my machine, said sheet being inverted relative to the rollers shown. Fig. 9 is a perspective of a sheet of metal, showing the progress of the sheet through the machine shown in Fig. 1

and drawn for the purpose of showing the successive formation of the beads.

Referring to the drawings in detail, my improved sheet-metal-working machine comprises the rectangular bed-plate 1; the pair of bearing-blocks 2, rigidly mounted at the long sides of the bed-plate; the feed-table 3, mounted upon brackets extending forwardly from the bearing-blocks; the delivery-table 4, mounted upon brackets extending backwardly from the bearing-blocks; one or more pairs of embossed central bead-producing rollers A B A' B', journaled in the bearing-blocks near their front ends in positions to receive metal sheets from the table 3; one or more pairs of the embossed first successive bead-producing rollers A² B² A³ B³, journaled in said bearing-blocks in alinement with the central bead-producing rollers; one or more pairs of embossed second successive bead-producing rollers A⁴ B⁴ A⁵ B⁵, journaled in said bearing-blocks in alinement with the first successive bead-producing rollers; the plate-guide D, mounted upon the center of the bed-plate and extending upwardly between the pairs of rollers to engage the central beads and assist in guiding the plate; a series of continuous plate-guides E, mounted one upon each side of the guide D and extending upwardly between the successive bead-producing rollers to engage the successive beads and assist in guiding the plate; gears connecting each pair of rollers together, the gears connecting the second pair to the first, and so on; the gear 5 upon the other end of the roller A²; the drive-pulley 7, mounted upon a trunnion projecting from one of the bearing-blocks; the gear 6, connecting the pulley to the gear 5.

The bed-plate 1 may be mounted in any suitable way, and the bearing-blocks 2 may be secured to the bed-plate by bolts, as shown in Figs. 2 and 3, or in any suitable way. If desired, the upper edges of the bearing-blocks may be connected by tie-rods. (Shown in Figs. 2, 3, and 5.)

The third pair of embossed rollers A² B² (shown in Fig. 6) is embossed at the center, like the first and second pair, and on each side of the center they are embossed for the first successive beads, and the fourth pair of rollers A³ B³ is like the third. The fifth and

sixth pairs $A^4 B^4 A^5 B^5$ are embossed like the third and fourth, and on each side of that they are embossed for the second successive beads.

5 The bearing-blocks 2 serve as guides for the edges of the metal plate C, which is placed upon the feed-table 3 and inserted between the first pair of rollers A B, and as the plate passes between the rollers A B A' B' the central
10 grooves $a' a'$ are formed, producing corresponding central beads between which is the space a , in which the guide D fits, thus engaging between the central beads and guiding the plate. The metal plate is comparatively
15 free between the unembossed parts of the rollers, and as the metal is bent to form the beads it is correspondingly contracted in width and drawn away from the bearing-blocks and the guiding function is trans-
20 ferred to the guide D and the plate passes between the two second pairs of rollers $A^2 B^2 A^3 B^3$, which produce the first successive grooves $b' b'$, one on each side of the central beads, and producing corresponding beads,
25 the metal to form said beads being drawn in from the edges, still further contracting the sheet in width. The guides E E come up between the third and fourth pairs of rollers to engage outside of these first successive
30 beads, said guides also coming up between each succeeding pairs of rollers. Then the metal plate passes through the rollers $A^4 B^4 A^5 B^5$, thus producing the two second successive grooves $b' b'$ and corresponding beads,
35 between which and the first successive beads are the spaces $b b$, in which the guides E E

operate, and finally the metal plate is delivered upon the table 4 completed, as shown inverted in Fig. 8.

The central grooves and ribs are formed 40 first, the sheet being held between the bearing-blocks, then the guide D engages the beads, then the first successive beads and grooves are formed, the guides E E come into
45 service, then the second successive beads and grooves are formed. It is obvious that the grooves and beads must be parallel, as the central ones are formed first and the successive ones are located from the center ones
50 and bear no relation to the edges of the plate.

While I have shown only two successive steps besides the center, it is obvious that the number may be increased.

I claim—

In a sheet-metal-working machine; a bed- 55 plate; bearing-blocks upon the bed-plate; a series of embossed bead-producing rollers in said bearing-blocks; the embossing on said rollers being arranged to produce beads suc-
60 cessively; and a series of continuous guides extending upwardly from the bed-plate to engage between the beads so that the sheet of metal will travel in a straight line through the machine.

In testimony whereof I have signed my 65 name to this specification in presence of two subscribing witnesses.

LOUIS SPENCER FLATAU.

Witnesses:

M. G. IRION,
ALFRED A. EICKS.