F. W. BARRY.

SHEET METAL WORKING MACHINE.

APPLICATION FILED FEB. 10, 1909.

963,850.

Patented July 12, 1910.

3 SHEETS—SHEET 1.

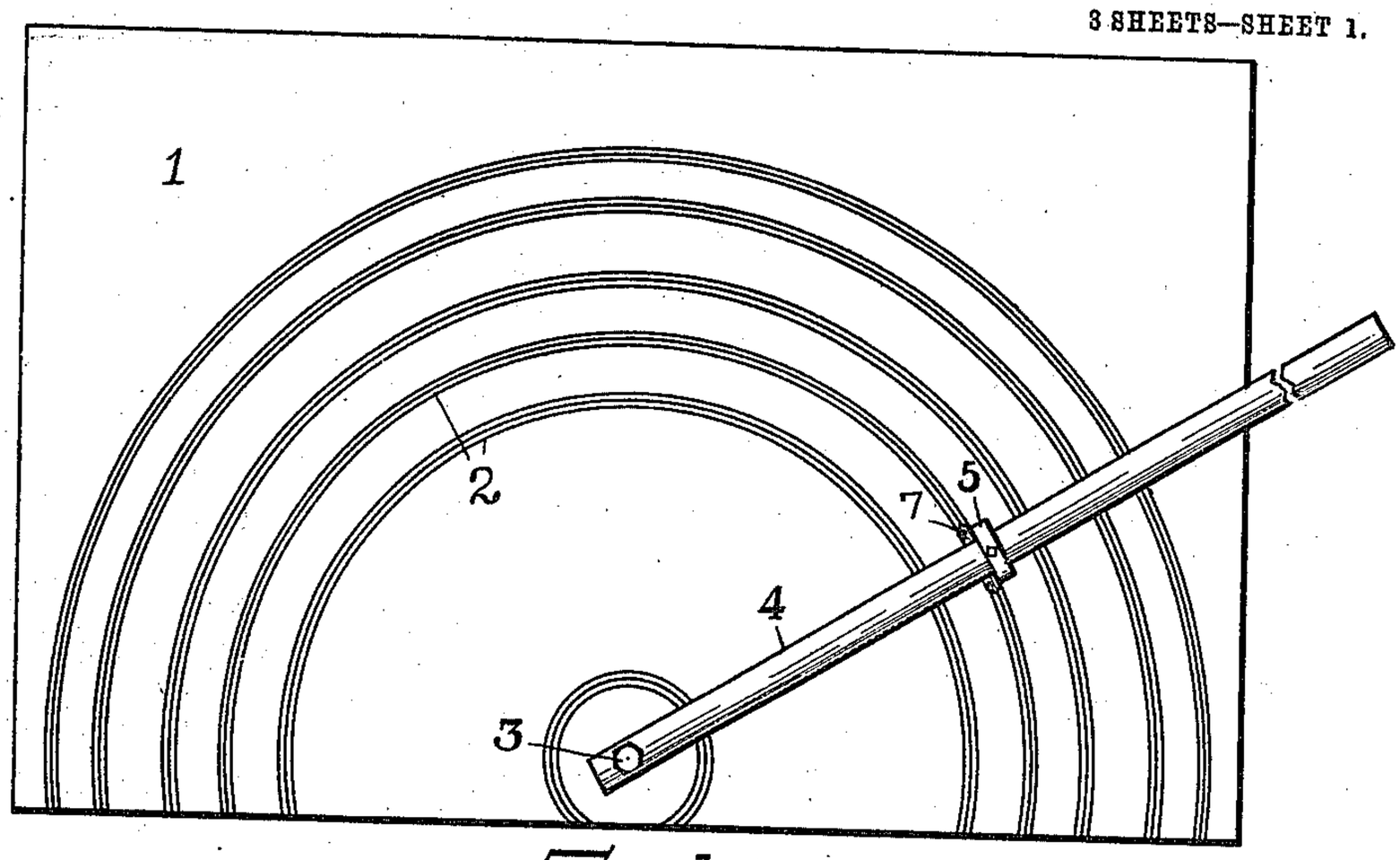

FIG. 1.

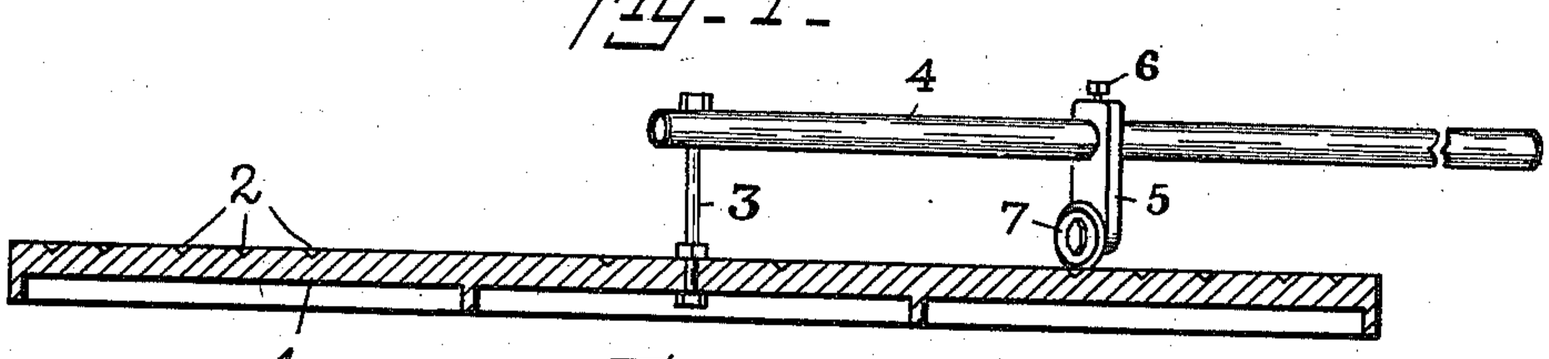

FIG. 2.

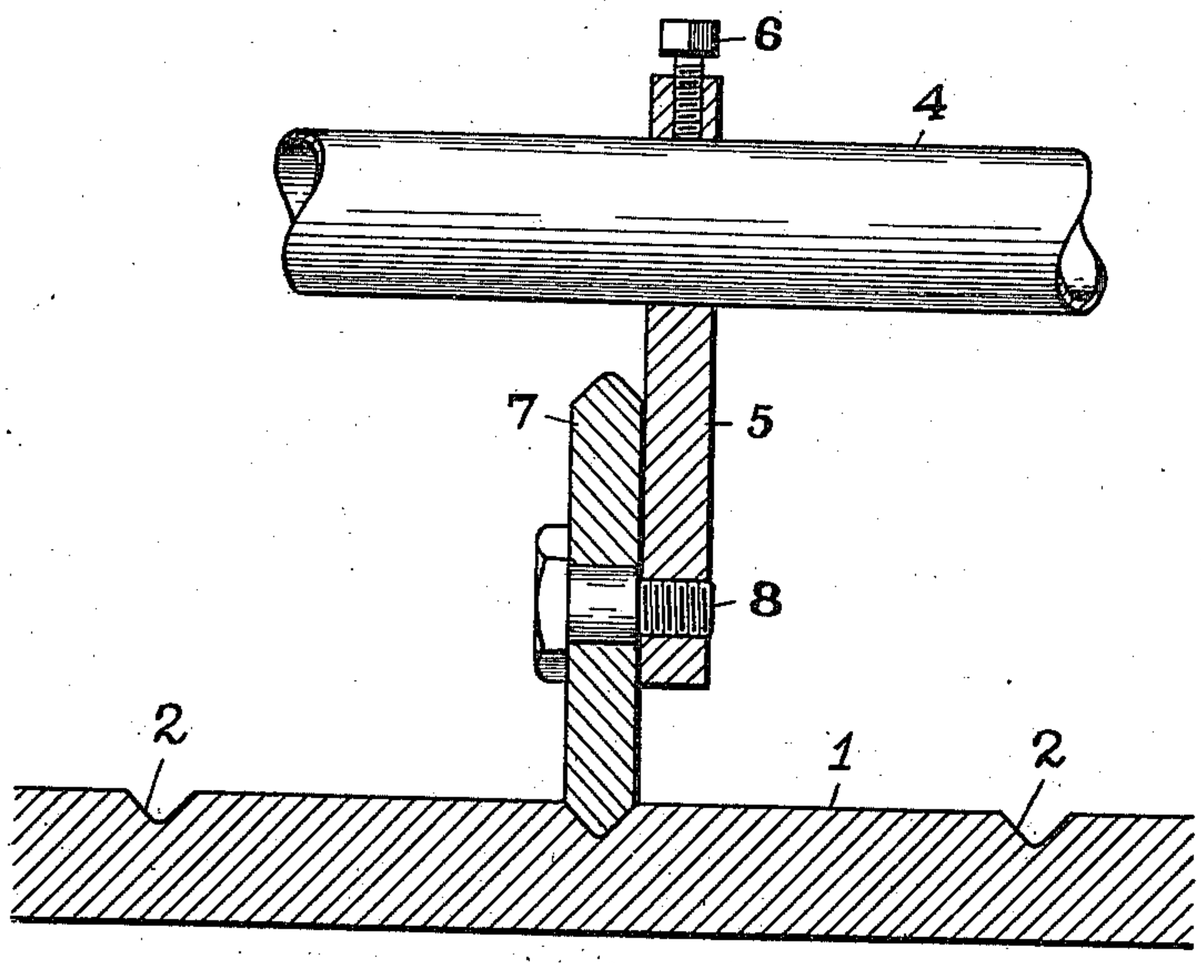

FIG. 3.

WITNESSES:

John E. Heller.

Maria K. Beyroth.

INVENTOR.

Frederick W. Barry,

BY

Abraham Knobel,

ATTORNEY.

963,850.

F. W. BARRY.

SHEET METAL WORKING MACHINE.

APPLICATION FILED FEB. 10, 1909.

Patented July 12, 1910.

3 SHEETS—SHEET 2.

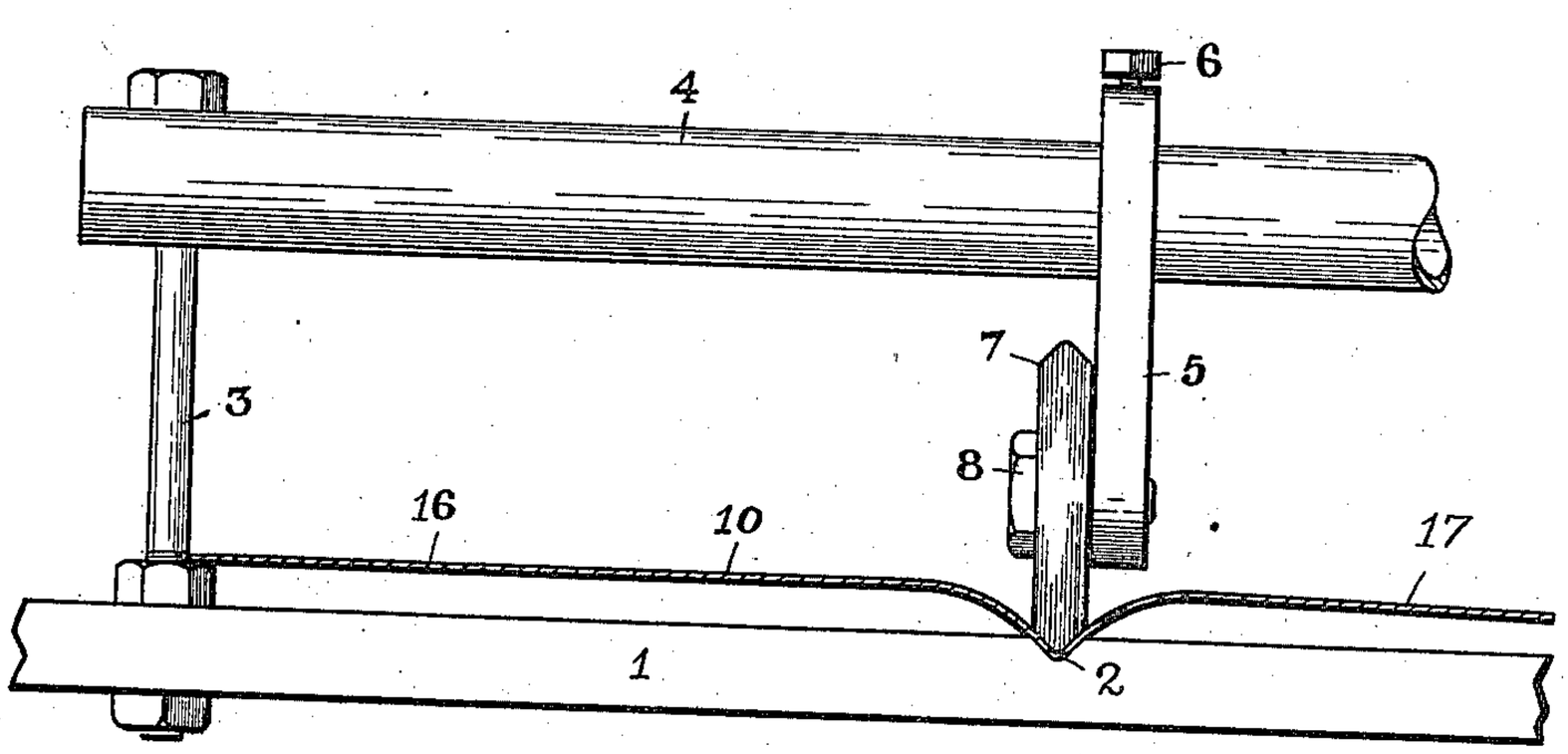

Fig. 4.

Fig. 5.

WITNESSES:

John E. Heller.

Maria K Beynroth.

INVENTOR.

Frederick W. Barry,

BY

Abraham Knobel,

ATTORNEY.

963,850.

F. W. BARRY.

SHEET METAL WORKING MACHINE.

APPLICATION FILED FEB. 10, 1909.

Patented July 12, 1910.

3 SHEETS—SHEET 3.

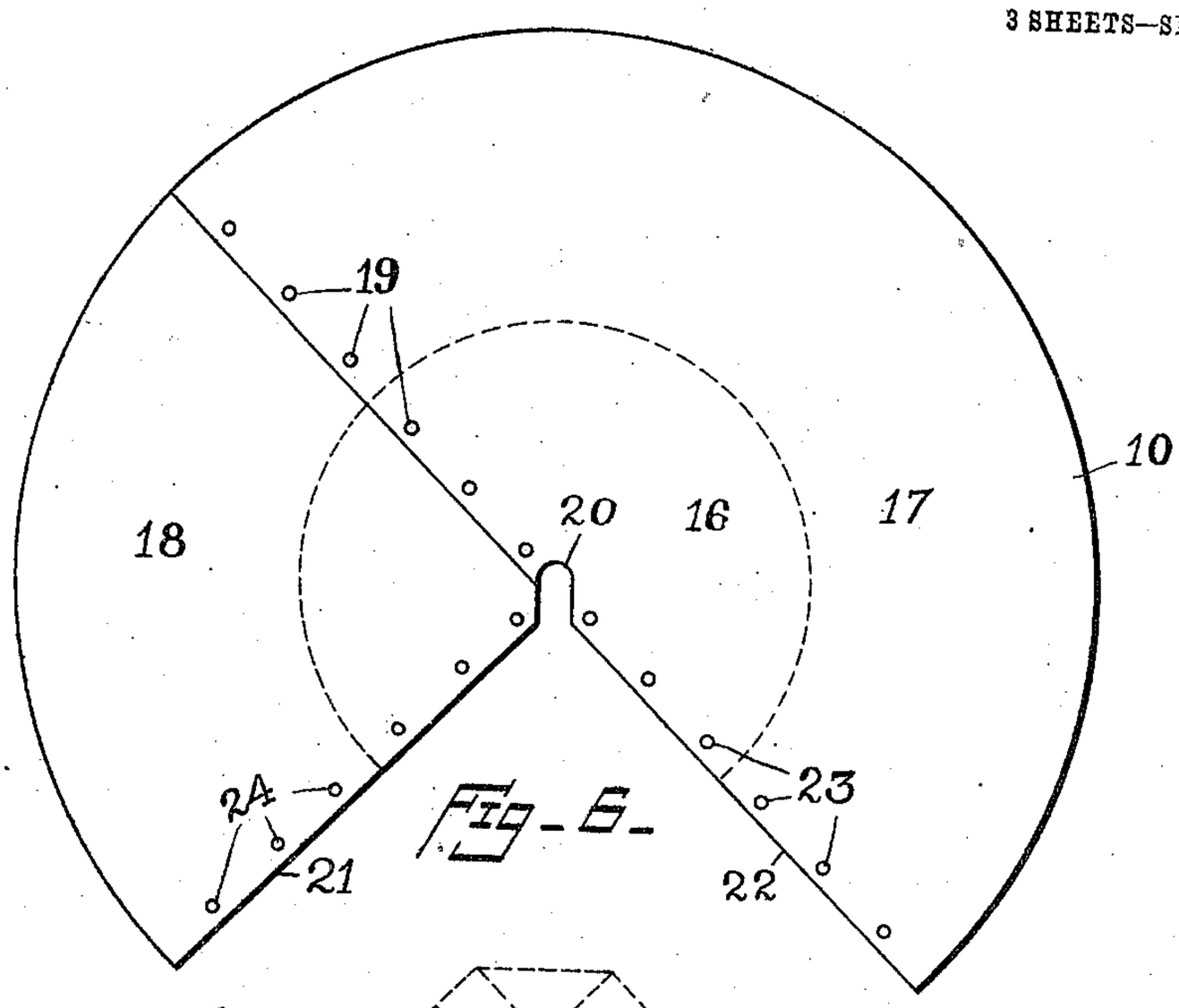

FIG. 6.

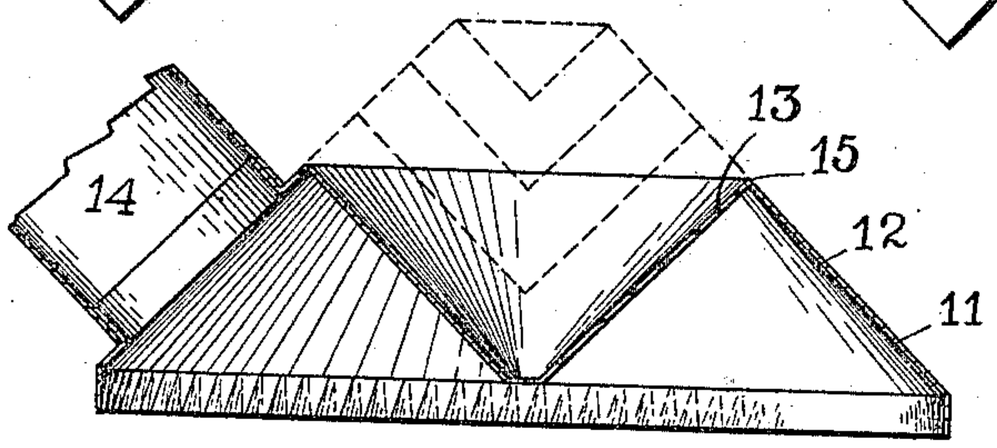

FIG. 7.

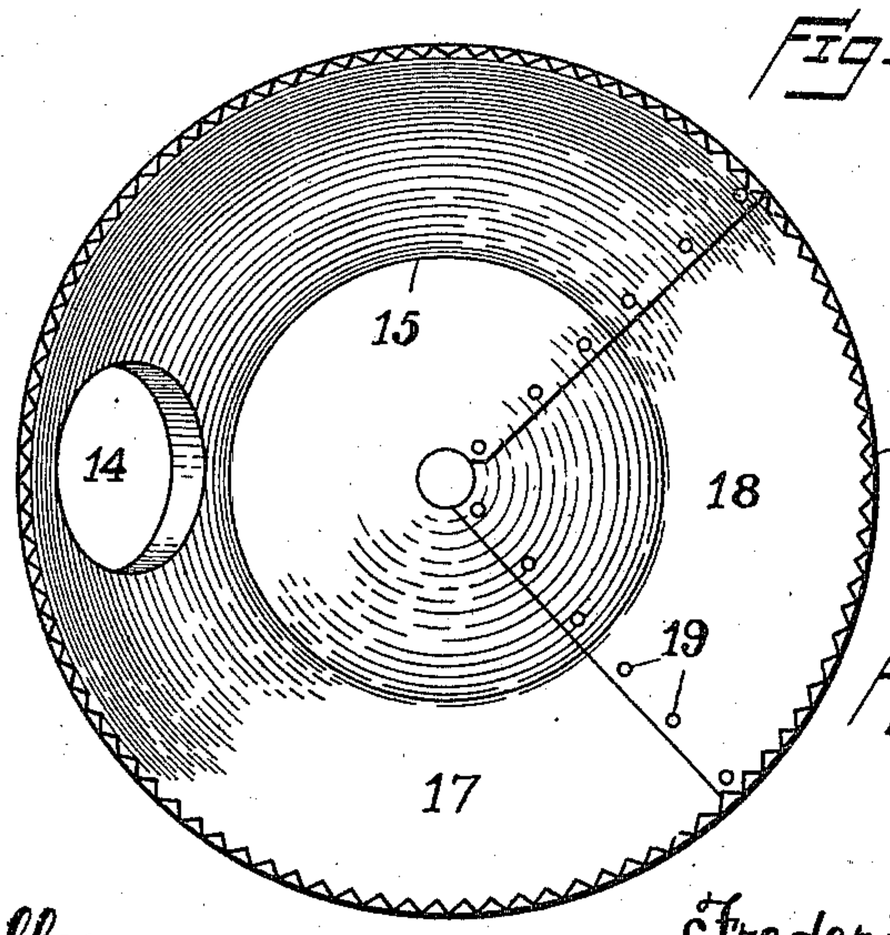

FIG. 8.

WITNESSES:

John E. Heller.

Maria K Beyroth.

INVENTOR.

Frederick W. Barry,

BY

Abraham Knobel,

ATTORNEY.

UNITED STATES PATENT OFFICE.

FREDERICK W. BARRY, OF LOUISVILLE, KENTUCKY.

SHEET-METAL-WORKING MACHINE.

963,850. Specification of Letters Patent. Patented July 12, 1910.

Application filed February 10, 1909. Serial No. 477,122.

To all whom it may concern:

Be it known that I, FREDERICK W. BARRY, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented a new and useful Improvement in Sheet-Metal-Working Machines, of which the following is a specification.

This invention relates to sheet metal working machines, and some of the objects of my improvement are, to provide a machine for producing the conventional heating-furnace top of reverted, conical shape, without a seam between the top of the large, truncated cone and the base of the small, inverted cone, and thus to provide a saving of material, saving of labor, a top that is more durable, more efficient, and of neater appearance than is produced by the seaming process; and to provide such a machine which is simple in construction and operation, durable, and comparatively inexpensive to manufacture. These objects I attain by means of the mechanism and the resulting furnace-top illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of the machine; Fig. 2, an elevation of the machine, showing the platen in section; Fig. 3, a detail sectional view; Fig. 4, an elevation, showing the sheet in process of being creased; Fig. 5, a detail view in elevation, showing a modification of the machine and the sheet of metal in the process of being creased thereby; Fig. 6, a plan view of the blank sheet from which the furnace-top is formed; Fig. 7, a sectional view of the furnace-top, showing the pipe-connection and diagrams of cones of different height, and also showing the integral crimped edge; and, Fig. 8 is a bottom plan view of the furnace-top.

Similar reference numerals refer to similar parts throughout the several views of the drawings.

A platen, 1, made preferably of cast iron, is provided with circular grooves, 2, in its upper surface. The walls of grooves 2 slant preferably at approximately 45 degrees relative to the surface of the platen, and 90 degrees relative to each other, thus forming V-shaped grooves. These grooves are not sharp at the bottom, but rounded. They are arranged concentrically, and a plurality of them is provided, for a purpose which will hereinafter be described. At the center of the circular grooves 2 a hole is provided in platen 1, in which is mounted a vertical pivot-post, 3. Upon pivot-post 3 is pivoted, at its end, an operating-bar, 4. The bar 4 may be made solid, but is preferably made of tubing. The free end of bar 4 extends somewhat beyond the perimeter of platen 1, in order that it may be grasped with the hand and swung around in use. Upon bar 4 is mounted an adjustable, pendent bracket, 5, set in position upon the bar by means of a set-screw, 6. At the lower end of bracket 5 is mounted a rotatable creasing-wheel, 7, upon a stud, 8. The bracket 5 is set in such a position upon bar 4 that wheel 7 coincides with and is adapted to travel in one of the grooves 2. It will thus be seen that when arm 4 is swung around its pivot wheel 7 travels in its groove 2.

The object of my machine thus far described is to provide a conical furnace-top, 11, for heating-furnaces (Figs. 7 and 8). This furnace-top is made in the form of a truncated cone, 12, having an inverted cone, 13, joined at its base to the top of cone 12. This form of furnace-top has been found especially adapted to hot air furnaces, because by means of it the heated air is equally distributed to a number of conductor pipes, 14, which are connected at the surface to the truncated cone 12. Heretofore these furnace-tops have been made of several pieces, the inverted cone 13 being joined to the truncated cone 12, by a seam at 15. It will be understood that by this construction, (Fig. 6) the circular portion afterward occupied by the inverted cone 13 had to be cut out, and then the circular portion 16, thus removed, was not sufficiently large to form the inverted cone 13, and therefore another piece of metal had to be cut, of sufficient size to form the inverted cone. This resulted in a great waste of material.

With my method of making furnace-tops, made practicable by my improved machine, I am enabled to make the entire furnace-top of a single blank of sheet metal, in circular form, illustrated in Fig. 6. I have however, illustarted the blank in Fig. 6, as made up of two pieces, 17 and 18, united by a line of rivets, 19. This is done when a large top is made, because the sheets of metal are usually not sufficiently wide to form the entire top, and it is more economical to form the top of two pieces as illustrated. The

parts 17 and 18 are, however, riveted together previous to forming the top into conical shape.

When the blank is ready, the bracket 5 is set upon bar 4 in such a position that wheel 7 coincides with the one of the circular grooves 2 which is of suitable diameter to form the circular edge 15 predetermined for the particular top to be produced. The blank, (Fig. 6) which has previously been provided with a central notch, 20, is placed upon platen 1, so that the circular wall of the notch 20 rests against pivot-post 3 and the blank lies upon the platen under wheel 7. Wheel 7 is then pressed down, by pressing downward on bar 4, so that it presses the sheet-metal into groove 2 as the arm 4 is rotated about the pivot-post. By this means, wheel 7 produces a circular crease in the sheet-metal blank, turning the central portion 16 somewhat upward and slightly elevating the central, notched portion. When this circular crease has been formed, the blank may be readily manipulated, so that the edges 21 and 22 lap. The outer portion 17, of the circular blank, outside of the circular crease, is thus formed into the upright, truncated cone 12, and the inner portion 16, within the crease, is formed into the inverted cone 13. The rivets are then placed in the previously provided rivet-holes, 23 and 24, and the edges 21 and 22 are riveted together in permanent form.

I have thus described the preferable construction of my machine, but it is obvious that it may also be constructed as shown in the modification illustrated in Fig. 5, in which the creasing-means are inverted from those previously described. A track, 9, formed of angle iron, is secured upon the top of platen, 1. The upper edge of track 9 is formed of inverted V-shaped cross-section, and the wheel 7 is grooved correspondingly.

In Fig. 7 I have shown by dotted lines how furnace-tops of different height may be produced by decreasing and increasing the diameter of the circular crease which forms the upper edge 15. This is accomplished by setting bracket 5 along bar 4, so that wheel 7 runs in the proper groove 2 on the platen to produce the crease of required diameter.

Having thus described my invention so that any one skilled in the art pertaining thereto, may understand its construction and use, I claim—

1. A machine for scoring sectoral pieces preparatory to making integral reveted cones of sheet metal, comprising a platen provided with a circular groove, a pivot-post secured on said platen, an arm pivoted on said pivot-post, and an adjustable rotary scoring-wheel mounted on said arm.

2. A machine for scoring sectoral pieces preparatory to making integral reverted cones of sheet metal, comprising a support for a sheet of sheet metal, scoring means on said support, and pivoted scoring means mounted at one edge of said support, to cooperate with said scoring means on said support, adapted to produce a circular crease in a sheet of metal operated upon preparatory to forming it into an integral cone.

3. A sheet-metal working machine for producing furnace tops, comprising a metal platen provided with a circular concentric groove in its surface, a central pivot-post at the center of said concentric groove, an operating-arm pivoted on said pivot-post, an adjustable bracket mounted on said operating-arm, and a scoring-wheel rotatably mounted on said bracket, all cöoperating to form a circular forming-crease in a sheet of metal, preparatory to forming said sheet into a reverted cone.

FREDERICK W. BARRY.

Witnesses:
ABRAHAM KNOBEL,
HARRY P. CONVERSE.