J. F. Keeler,

Flanging Machine,

No. 54,920. Patented May. 22, 1866.

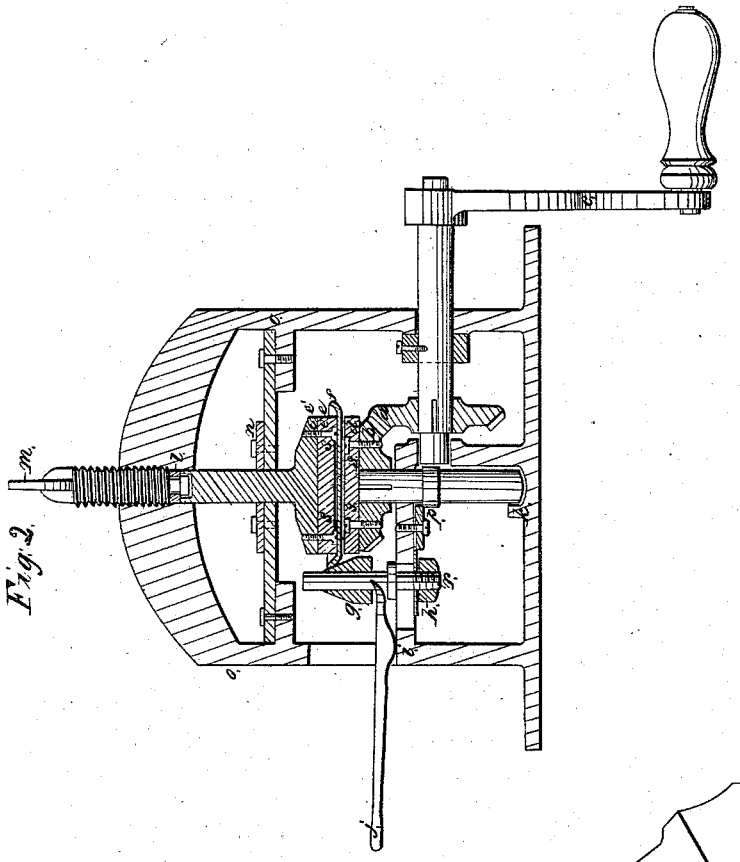

Fig. 2.

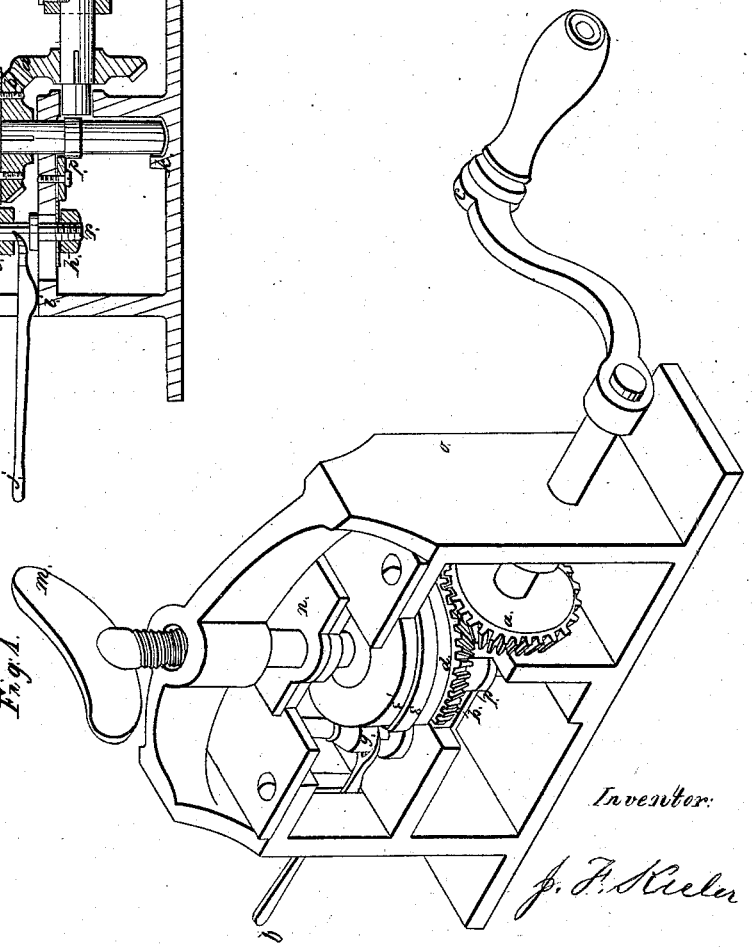

Fig. 1.

Witnesses:

David H. Keech

Ignatius Hahn.

Inventor:

J. F. Keeler

UNITED STATES PATENT OFFICE.

JOEL F. KEELER, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN MACHINERY FOR FORMING FLANGES UPON BOILER-HEADS.

Specification forming part of Letters Patent No. **54,920**, dated May 22, 1866.

To all whom it may concern:

Be it known that I, JOEL F. KEELER, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Flanging Metal Plates for Boiler-Heads and other purposes; and I do hereby declare that the following is a full, clear, and exact description of the machinery therefor, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure I is a perspective view of my flanging-machine, and Fig. II is a longitudinal vertical section of all parts of the machine.

In the several figures like letters represent like parts.

My machine is chiefly designed for forming flanges on heavy metal plates by combining heat, rotary motion, either of the plate itself or of the flanger, or of both, with pressure in such a direction as to gradually form or raise a flange to such a height and shape as may be desired.

In the construction and operation of my machine I attain the following objects, viz: First, I form the flange upon the plate, usually at a single heat and in a gradual manner, by increasing the pressure of the flanging-cone gradually, while the plate is revolved, usually with great rapidity, making thereby a more perfect flange than by hand; second, by making the pressure uniform on all parts the flange can be raised on metal that could not be flanged by hammering, as is usually done.

To enable others skilled in machinery to make and use my flanging-machine, I will proceed to describe its construction and operation more fully.

I usually inclose the machinery in a strong frame of cast or wrought iron, capable of holding all the parts firmly in their respective places. I place the plate to be flanged between the two rotating tables of the size and shape of the inside of the flange, (usually round,) and then by pressing the tables firmly together and rotating them or the flanging-cones or other equivalent machinery, and then pressing upon the flanger it is raised gradually, according to the degree of heat in the plate, the speed of the rotation, and the amount of pressure combined.

In the drawings, *o o* is the frame of the flanging-machine. *a* and *b* are gear or miter wheels, operated or turned by the crank *c* for rotating the tables *d* and *e*, between which are placed the plate *f*, in order to have a flange formed on the outer edge of the same. *g* is the cone or flanger for raising the flange by means of the elevating-lever *j*, which, as the handle is depressed, raises the cone on its stem, around which it revolves, and as its lower and larger diameter is thus brought to bear against the plate it raises the flange accordingly. When the flange is formed the screw *m* is reversed and the table *e* and *e'* is raised and the flanged body drops off or is removed.

When very thick or heavy iron, steel, or other metal plates are flanged the plates are put into a suitable furnace and heated up to at least a red heat, and are run on a suitable carriage to the flanger. This is usually the mode of operation in flanging boiler-heads, for which this machine is more especially designed.

The plates *d* and *e*, forming the faces of their respective rotary tables or disks *b* and *e'*, are held in place by means of screws *s s* or other equivalent device, and hence can be removed and larger or smaller ones be substituted, according to the size and shape of the plate to be flanged. The cone *g* can also be correspondingly adjusted by means of the nut *h* on its axle or stem *r* and the slot or mortise *i*.

When the plate *f* and the forming-plates *d* and *e* are of irregular form or of other than circular form the nut *h* is loosened and the cone *g* and stem *r* are pressed against the plate *f* by springs or weights, which permit the cone to conform at once to the shape of the disk-plates as they revolve. When circumstances require it the disk-plate *d* connects with the cone or with the stem, compelling it to conform to the shape of the disk. One or more cones are used and their shapes, &c., varied to suit circumstances.

What I claim, and desire to secure by Letters Patent, is—

The rotary tables *b*, *d*, and *e e'*, in combination with the cone *g*, or their equivalents, for the purposes set forth.

JOEL F. KEELER.

Witnesses:

B. C. CHRISTY,

GEO. H. CHRISTY.