2 Sheets—Sheet 1.

C. MILLER & J. BOLDON.

MACHINE FOR FLANGING BOILER-HEADS.

No. 189,870. Patented April 24, 1877.

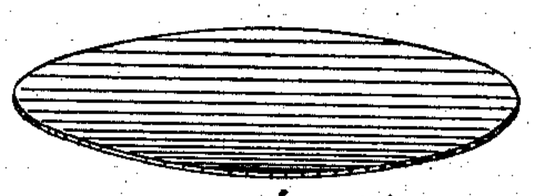

Fig: 5.

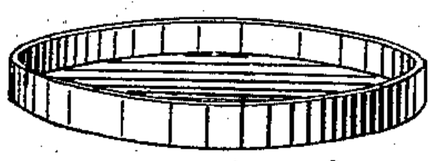

Fig: 6

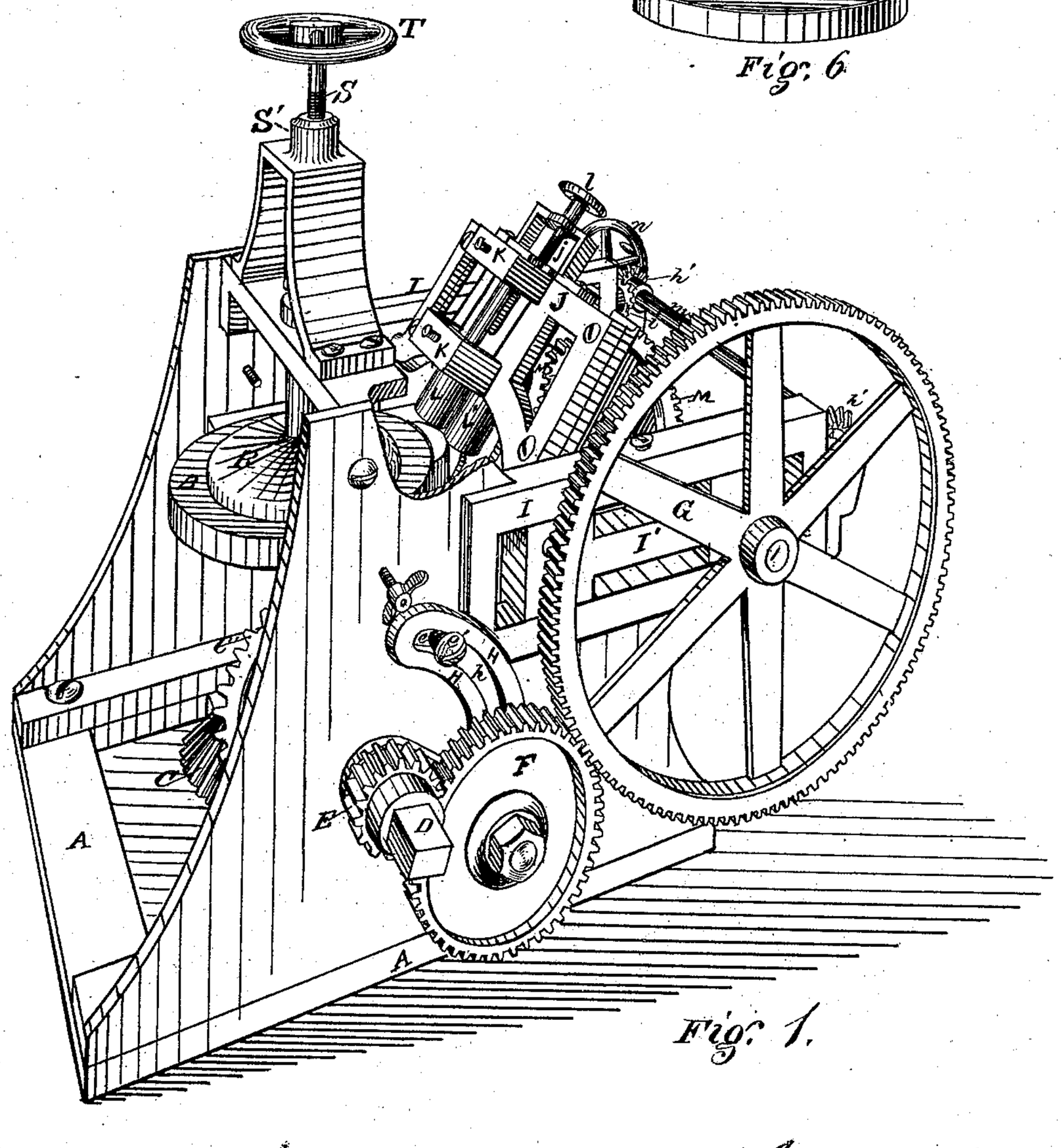

Fig: 1.

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2 Sheets—Sheet 2.

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MACHINE FOR FLANGING BOILER-HEADS.

No. 189,870. Patented April 24, 1877.

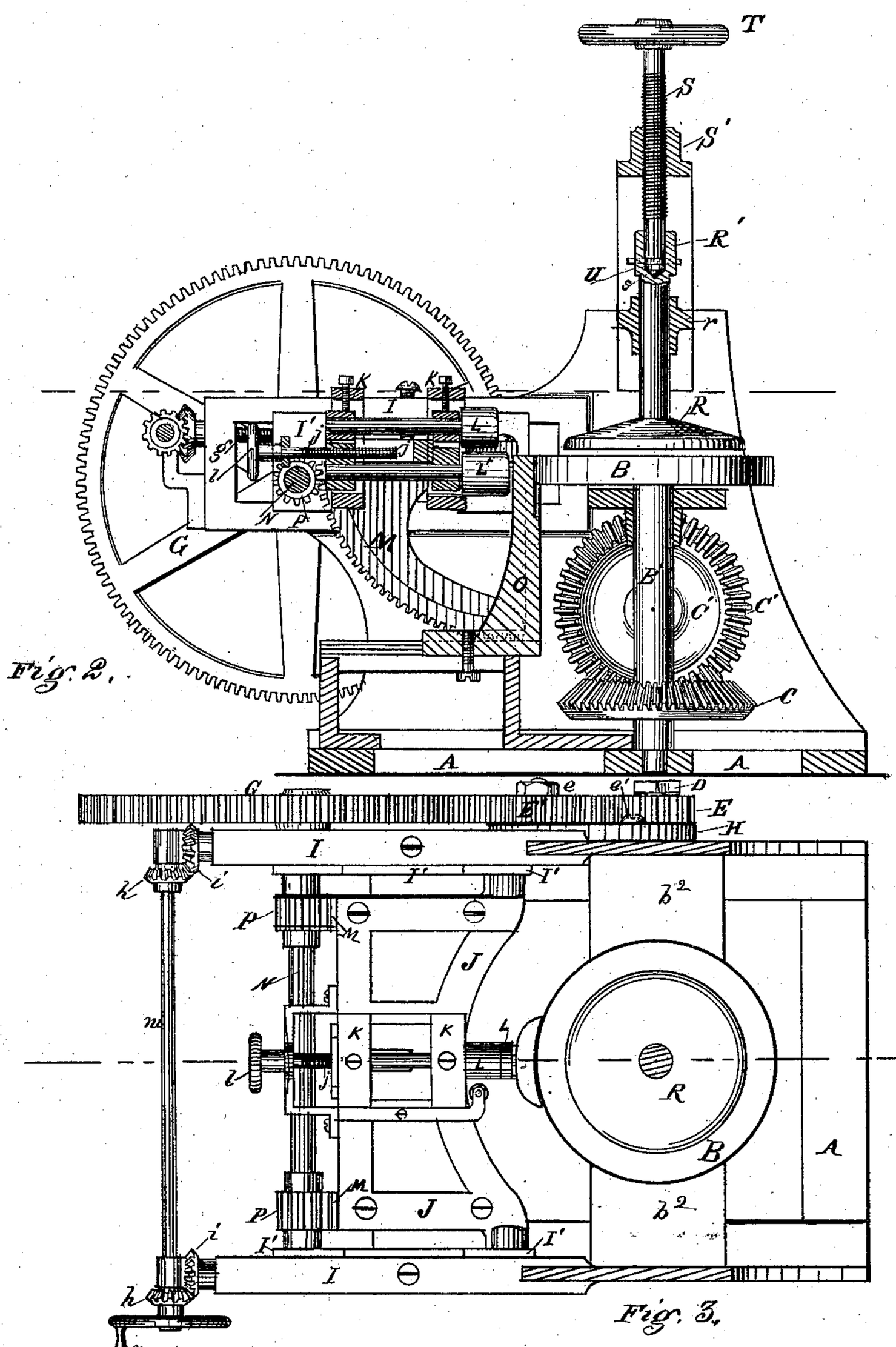

Fig. 2.

Fig. 3.

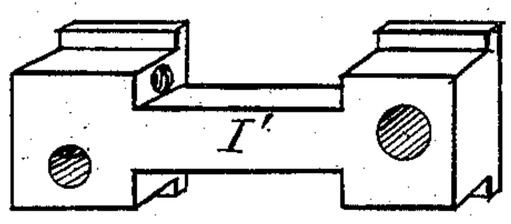

Fig. 4.

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UNITED STATES PATENT OFFICE.

CONRAD MILLER AND JOSEPH BOLDON, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN MACHINES FOR FLANGING BOILER-HEADS.

Specification forming part of Letters Patent No. **189,870**, dated April 24, 1877; application filed February 15, 1877.

To all whom it may concern:

Be it known that we, CONRAD MILLER and JOSEPH BOLDON, of the city of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Machine for Flanging Boiler-Heads, which improvement is fully set forth in the following specification and accompanying drawing.

The object of our invention is to rapidly turn up the edge of a metallic disk, so that a flange will be formed on it, by a machine adjustable to the diameter and thickness thereof, and size of flange required for boiler or other heads.

The invention is illustrated in detail in the drawing, to which reference is had.

Figure 1, Sheet 1, is a perspective view of the invention. Fig. 2, Sheet 2, is a transverse vertical section of the same. Fig. 3, Sheet 2, is a plan view of the same. Fig. 4, Sheet 1, is a detail or perspective view of one of the sliding blocks I′. Fig. 5, Sheet 2, is a perspective view of a metallic disk before it is flanged. Fig. 6, Sheet 2, is a perspective view of the same disk after it has been operated on by the machine, showing it flanged.

In the drawings, A is a heavy bed-plate, to which all the parts attach. B is a circular revolving table, the diameter being such as to allow the smallest-sized head the machine is intended to work (about fourteen inches) to project the width of the intended flange all around. Said table is fast on shaft B′, which is journaled at its lower end in the bed-plate A, and also just below the table, in the bearing b^2. C is a large bevel-wheel on shaft B′, which is driven by its companion wheel C′, on the main shaft D, said wheels revolving the table B on the upright shaft B′. Motion or power is communicated to the machine by a driving-pulley on shaft D. E is a gear-wheel fast on main shaft D, between the bed-plate and driving-pulley D. (See Fig. 1.) H is an arm with straight and curved portions, the former provided with an aperture in its end to embrace loosely the shaft D, and the latter with a curved slot, *h*, throughout its extent, to enable it to slide on the screw *e*. F is a shifting-wheel, fixed to the elbow of said arm, so as to be raised or lowered to mesh with wheel G when the machine is set to flange disks of different sizes. Having been adjusted to any given position the arm is fixed by the screw *e″*. I I are ways on each side of the table, and at about the same elevation above the bed-plate, being supported by strong posts or frame-work connected to the bed-plate A. These ways are longitudinally and horizontally slotted. In these slots are placed the sliding blocks I′ I′, at the front end of which the swinging carriage J is pivoted or journaled. This carriage must be made very strong, and is of the form shown in Fig. 3. It carries the roller-frame K, in which are journaled the rollers L L′. The pillow-blocks *k k* slide longitudinally in said frame, being moved by the screw *j*, having the button *l*, by which the rolls can be projected from the front end of the frame K toward the table B. Connected to and descending from each side of frame K are two cogged segments, M M. (See Fig. 2.) Directly back of the carriage J is the shaft N, having its journals in the sliding blocks I′ I′. Fast on this shaft are two pinions, P P, the teeth of which mesh into the teeth of the segments M M. On the right-hand end of this shaft, outside of rail I and in line with wheel F, is a large gear-wheel, G, the teeth of which mesh into said intermediate wheel when in proper position, and which, through said intermediate wheel, receives motion from wheel E on main shaft D. *g g* are two screws, operated by the bevel-wheels *h h i i*, and small shaft *m* and crank *n*, by the action of which, it will be seen by reference to Figs. 1 and 2, the rolls, carriage, and shaft N are moved to or from table B, and it is obvious that when shaft N is moved back, wheel G would also move out of connection with wheel F. When this is the case the arm H is moved up that the intermediate wheel F will connect again. O is an L-shaped supporting-post, the short arm of which bears on the bed-plate, grooved to receive a lug from the under side of the said short arm, through which passes a screw, so that the post may be moved to or from the table, as the slides I′ I′ are. The long arm projects up to even height with table B, where it extends in width and is concave on its face

to correspond to the edge of the table B, its use being to support the edge of large disks at the point just in front of the rolls.

R is a head which revolves in the bearing *r* and on the point *s*, and is connected to the screw S by the cap R′, which turns loosely on its upper head or boss U. (See Fig. 2.) The screw S passes through the cross-bar S′, and, by its head U acting in the cap R′, raises the head R or lowers it on the boiler-head or disk to hold it firm on table B. T is a crank-wheel on screw S. A jam-nut by which the screw may be prevented from turning may be used above cross-bar S′.

Operation: The disk of iron to be flanged is placed on table B, and adjusted to project evenly. The head R is then screwed down by the screw S and fixed by the jam-nut from turning. Supporting-post O is then moved forward by turning the adjusting-screw to support that portion of the disk which is to form the flange. The sliding blocks I′ I′ are then moved forward by means of the screws *g g*, crank *n*, shaft *m*, and bevel-wheels *h i h i*, bringing the carriage and rolls up to the disk, and the rolls being in a horizontal position the edge of the disk passes between them. The intermediate wheel F is now raised into such position that the teeth will mesh into wheel G, and if it is found that they do not properly interlock the slides I′ I′, which carry wheel G, may be moved back or forward. When wheel F is thus properly adjusted with wheel G it is made fast by the screw *e*. Then the rolls are nicely adjusted to the desired size of the required flange on the disk by the screw and crank *j l*.

The machine is now put in motion, and, as the table B and head R revolve, the edge of the disk passes between the rolls L L, which revolve by friction, and the gear-wheels receiving motion from the shaft D communicate it to the pinions P P, which begin to elevate the frame K and the rolls from a horizontal to a perpendicular position, or, in other words, to change their position to a right angle to the table and disk, and the edge of the disk being between the rolls is gradually bent up into a flange. When the flange is bent to a right angle the motion of the segment ceases as the number of cogs on it are made with relation thereto.

By reference to the drawings it will be seen that the movement of the carriage J on its axis is very slow compared with the movement of the table B.

Having thus described our invention and its operation, what we claim, and desire Letters Patent for, is—

1. The revolving table B in combination with shaft B′ and the rolls L L′, all constructed and operating as described, for the object set forth.

2. The rolls L L, frame K, segments M M, carriage J, and revolving table B, all combined, constructed, and operating as described, for the object set forth.

3. In combination with the segments M M, the pinions P P, gear-wheels E F G, as described, and for the object set forth.

4. The adjustable support O in combination with the revolving table B and the rolls L L, for the purpose of supporting the edge of the disks, when being flanged, which are of greater diameter than can be supported by the table, as described.

5. The sliding blocks I′ I′, adjusting-screws *g g*, shaft *m*, wheels *i h i h*, and crank *n*, in combination with the carriage J, constructed and operating as described.

6. The combination of table B, upright shaft B′, wheels C C′, main shaft D, wheels E F G, arm H, carriage J, frame K, rolls L L′, segments M M, shaft N, supporting-post O, pinions P P, slides I I, adjusting-screws *j g*, all constructed and operating as described, for the object set forth.

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JOSEPH BOLDON.

Witnesses:
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WM. M. CUTHBERT.