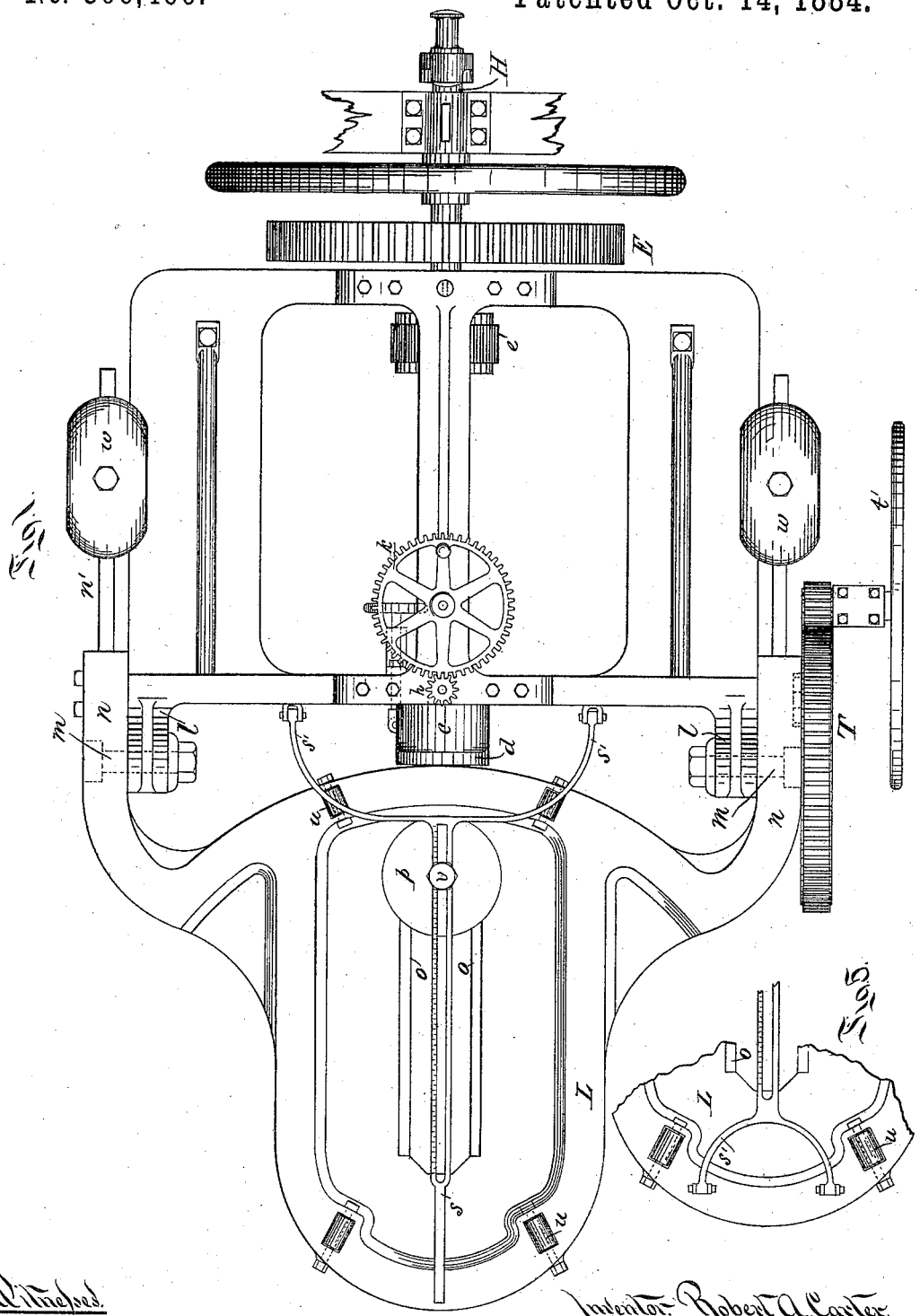
(No Model.)

2 Sheets—Sheet 1.

R. A. CARTER.

FLANGING MACHINE.

No. 306,466. Patented Oct. 14, 1884.



Witnesses.
C. M. Clarke
Dennis S. Wolcott

Inventor. Robert A. Carter.
By Attorney. George H. Christy

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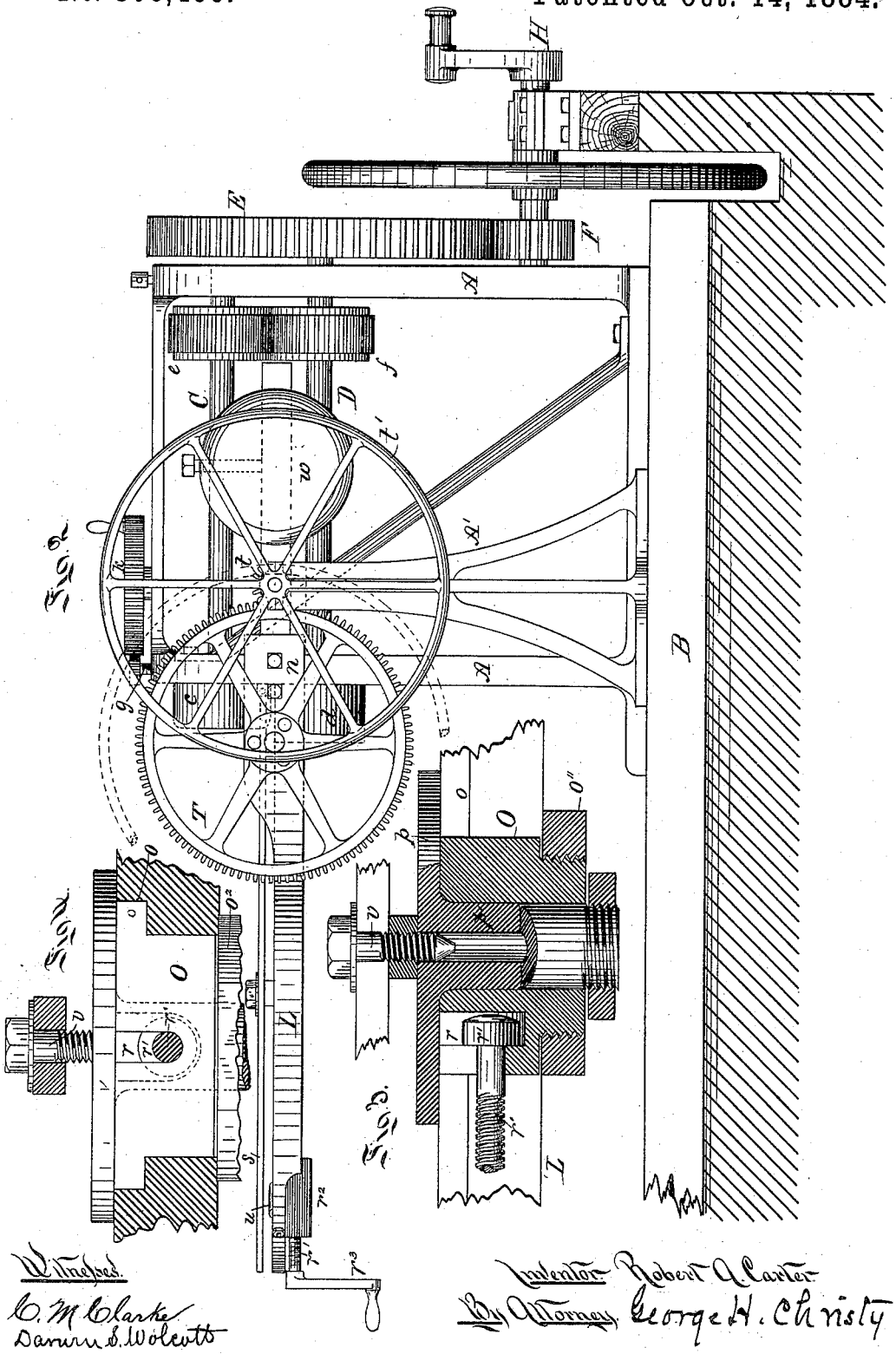

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By Attorney George H. Christy

UNITED STATES PATENT OFFICE.

ROBERT A. CARTER, OF PITTSBURG, PENNSYLVANIA.

FLANGING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 306,466, dated October 14, 1884.

Application filed October 25, 1883. (No model.)

To all whom it may concern:

Be it known that I, ROBERT A. CARTER, a citizen of the United States, residing at Pittsburg, county of Allegheny, State of Pennsylvania, have invented or discovered a new and useful Improvement in Flanging-Machines; and I do hereby declare the following to be a full, clear, concise, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—like letters indicating like parts—

Figure 1 is a plan view of my improved flanging-machine. Fig. 2 is a side elevation of the same. Fig. 3 is a detail view, certain parts being shown in section. Fig. 4 is a sectional view of the table on the line *x x*, Fig. 1; and Fig. 5 is a detail showing the centering device pivoted to the table.

My invention relates to machines for flanging the heads of boilers and other like articles; and it consists, in general terms, in the construction and combination of parts, all as more fully hereinafter described and claimed.

A A are suitable standards mounted on a bed or foundation, B.

In suitable slots in the standard A are mounted the journal-boxes of the shafts C D of the flanging-rolls *c d*. On these shafts C D are secured the gear-wheels *e f*, which mesh with each other, and on the lower shaft, D, is secured the gear-wheel E, which is driven by a gear, F, mounted on a suitable power-shaft. The upper flanging-roll is supported by a spring, (not shown,) interposed between the front journal-boxes of the shafts C D, and is forced down by the screw *g* passing through a threaded aperture in the head of the standard A.

On the end of the screw *g* is secured a pinion, *h*, which meshes with a pinion, *k*, which is mounted on a pin secured to a cross-bar connecting the two standards A.

To the pinion *k*, near its periphery, is attached a handle, *i*, by which said pinion is turned. By making the pinion *k* much larger than the pinion *h*, the workman is enabled to effect the adjustment of the upper roll with more ease and rapidity than if a handle were attached directly to the screw *g*, as is usual.

On the first standard, A, are formed ears or lugs *l*, which are bored out to receive the pivot-pins *m*. On these pivot-pins are mounted the arms *n* of the swinging table L, on which the plate to be flanged is placed. In this table L is formed a longitudinal slot, the sides of which form ways *o* for the adjustable bearing-block O. The bearing-block is provided with flanges *o'*, which rest on the ways *o* of the table L, and is held from upward movement by the nut o^2, which extends across the slot on the under side of the table. This bearing-block is further provided with a recess, *r*, in which rests the head of the screw *r'*, said screw passing through a nut, r^2, formed on the under side of the table L, and to the end of this screw is attached a handle, r^3, by which the screw is rotated for the purpose of adjusting the bearing-block. On the bearing-block rests the plate *p*, which is provided with a central perforated boss, *p'*, said boss fitting into a hole in and extending below the bearing-block, and held in place by a nut, p^2.

To the rear ends of the arms *n* are attached bars or rods *n'*, on which are adjustably mounted the weights *w*, which act as a counter-balance to the table or the table and plate being flanged. These weights, in addition to counterbalancing the table, serves to steady its vibratory movements.

I do not confine myself to the means shown for connecting the counter-weights to the swinging table, but consider any equivalent mechanical means known in the art as within the scope of my invention.

To turn the table up and down, I attach to one of the arms *n* in line with the pivots *m* a gear-wheel, T, which meshes with a gear, *t*, secured to a shaft mounted in bearings in a standard, A'. On the outer end of this shaft is secured a hand-wheel, *t'*, by which the shaft and gears *t* and T are rotated and the table swung either up or down. If operating on small light plates, I may dispense with hand-wheel and gear *t'* and *t* and substitute a hand-wheel for the gear T.

Heretofore in flanging plates great trouble and delay have been caused by the difficulty encountered in centering the hot plates to be flanged, over the bearing-block. To obviate

this difficulty I attach a plate-centering device to the frame of my machine. This centering device consists of a long slotted bar, *s*, which is pivoted by its arms *s' s'* to suitable lugs on the front of the machine. Within the slot in this arm is mounted the adjustable centering-pin *v*, and the sides of the slot are graduated, as shown. The size of the plate to be flanged being known, the centering-pin is moved along the slot until it has reached the position which the center of the plate is to occupy during the flanging operation. The centering device having been adjusted, the bearing-block and plate *p* may then be moved until the centering-pin *v* drops into the hole in the bearing-block. The centering-pin and the bearing-block being properly adjusted, the bar *s* is turned up and the heated blank is placed on the table. Then the bar *s* is turned down, the point of the centering-pin resting on the blank. The blank is then moved until the centering-pin enters the hole in the center of the blank, the bar *s* is again turned up, and a locking-bar is inserted through the blank and the hole in the bearing-plate and its boss. Power is then applied to the shaft F, thereby rotating the flanging-rolls. The workman then turns the hand-wheel *t'*, thereby rotating the table L on its pivots. As the weight of the table and blank is counterbalanced by the weights *w*, no more power need be applied to the wheel *t'* than is necessary to bend the blank.

In place of hinging the centering device to the frame of the machine, I may hinge it to the front end of the swinging table L, as shown in Fig. 5.

When the centering device is hinged to the front end of the table, I may so form the centering-pin *v* that it will serve as a locking-bar to secure the blank to the swinging table.

In the face of the table I mount a series of friction-rollers, *u*, which support the blank while being rotated during the flanging operation.

I claim herein as my invention—

1. In a flanging-machine, the combination of a table and a pivoted centering device, substantially as set forth.

2. In a flanging-machine, the combination of a table, an adjustable bearing-block, and a pivoted centering device, substantially as set forth.

3. In a flanging-machine, the combination of a table, the pivoted and slotted arm *s*, and the adjustable pin *v*, substantially as set forth.

4. In a flanging-machine, the combination of the swinging table, the bars *n'*, secured to said table, and the adjustable weights, substantially as set forth.

5. In a flanging-machine, the combination of the table pivoted to the frame of the machine, the wheel T, secured to said table with its center in line with the center of the pivoting motion of the table, and gear mechanism for rotating said wheel independent of the mechanism for revolving the flanging-rolls, substantially as set forth.

In testimony whereof I have hereunto set my hand.

ROBERT A. CARTER.

Witnesses:

DARWIN S. WOLCOTT,

R. H. WHITTLESEY.