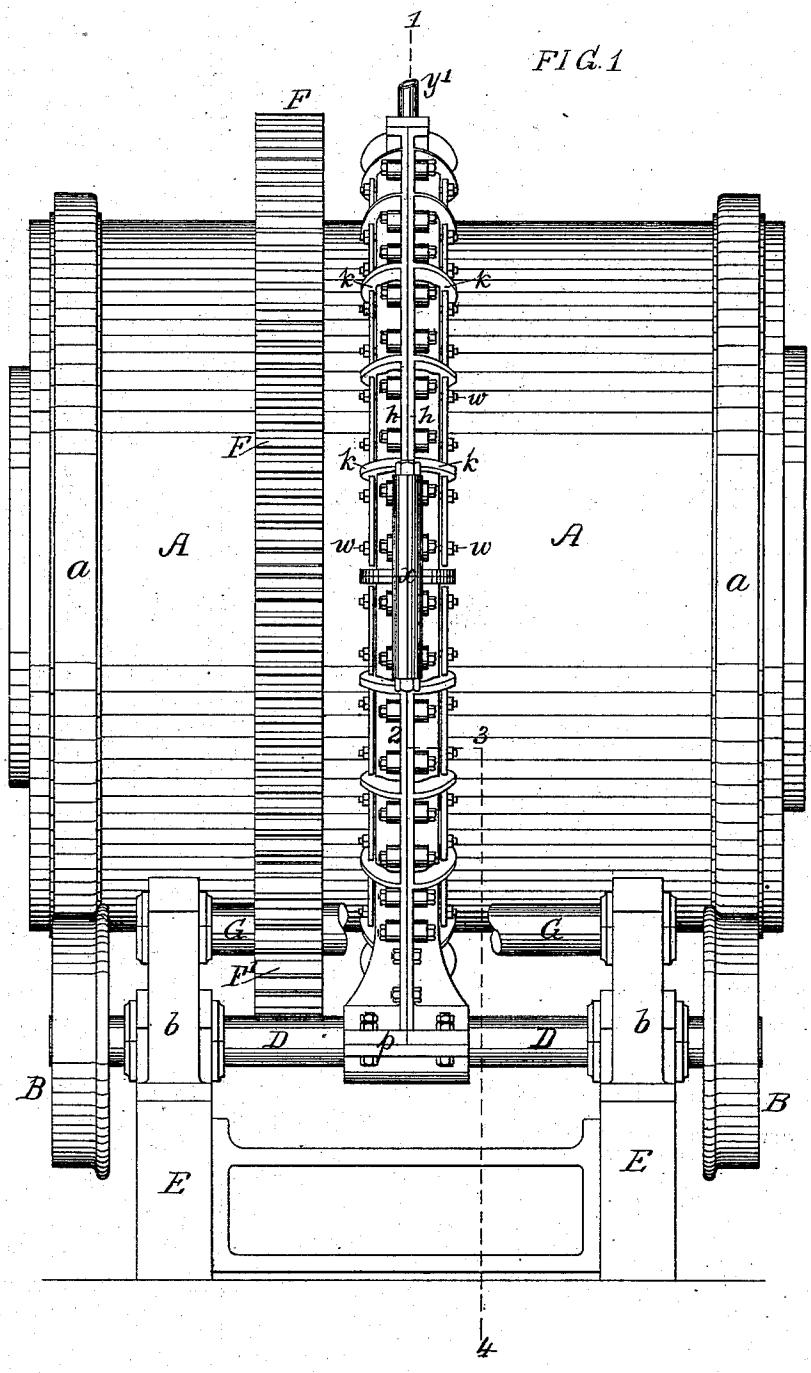
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J. GRIFFEN & J. HALL, Jr.

WATER JOINT FOR ROTARY PUDDLING FURNACES.

No. 295,867. Patented Mar. 25, 1884.

FIG. 1



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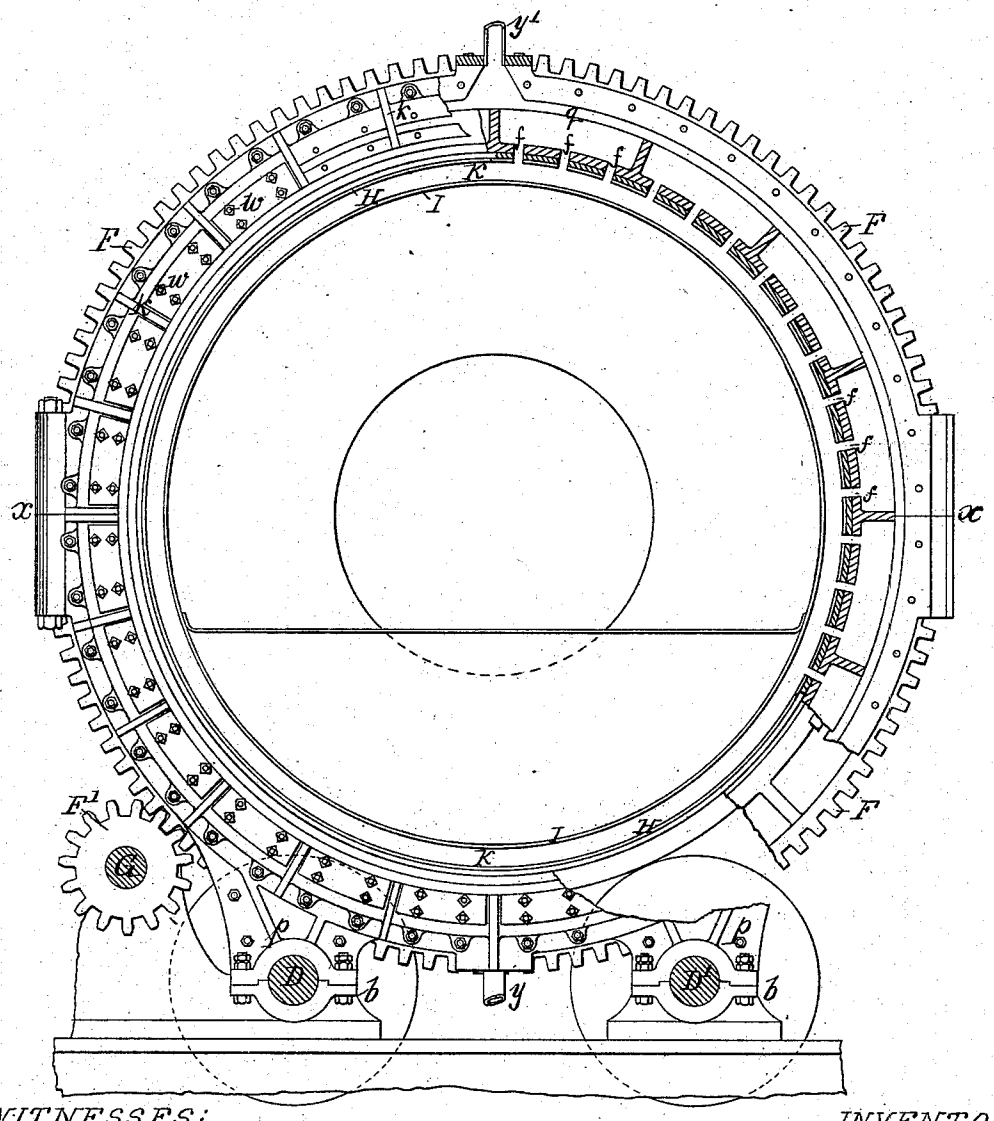
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WATER JOINT FOR ROTARY PUDDLING FURNACES.

No. 295,867. Patented Mar. 25, 1884.

FIG. 2



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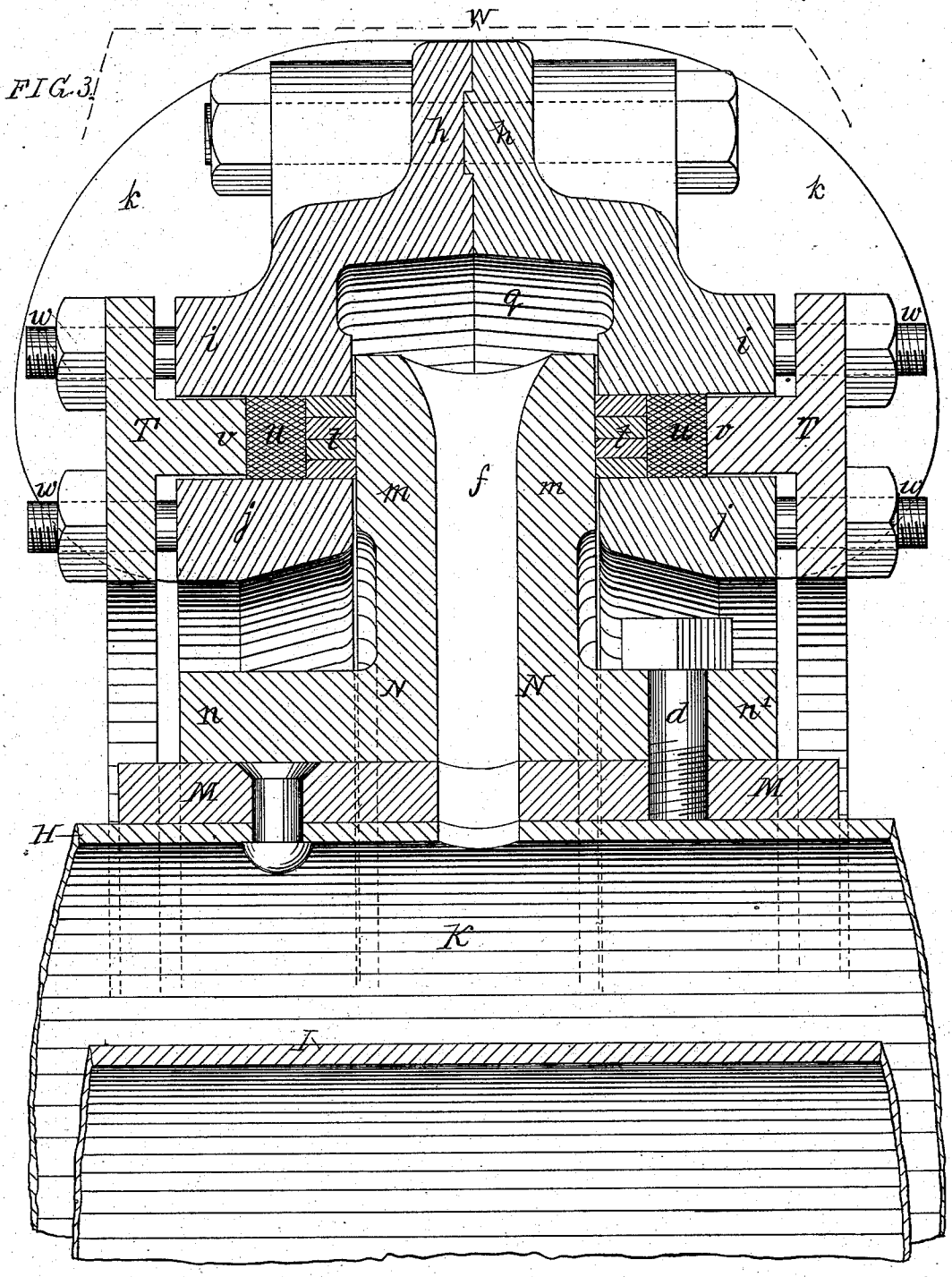
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J. GRIFFEN & J. HALL, Jr.

WATER JOINT FOR ROTARY PUDDLING FURNACES.

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FIG. 3.



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(No Model.) 4 Sheets—Sheet 4.

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WATER JOINT FOR ROTARY PUDDLING FURNACES.

No. 295,867. Patented Mar. 25, 1884.

FIG. 4

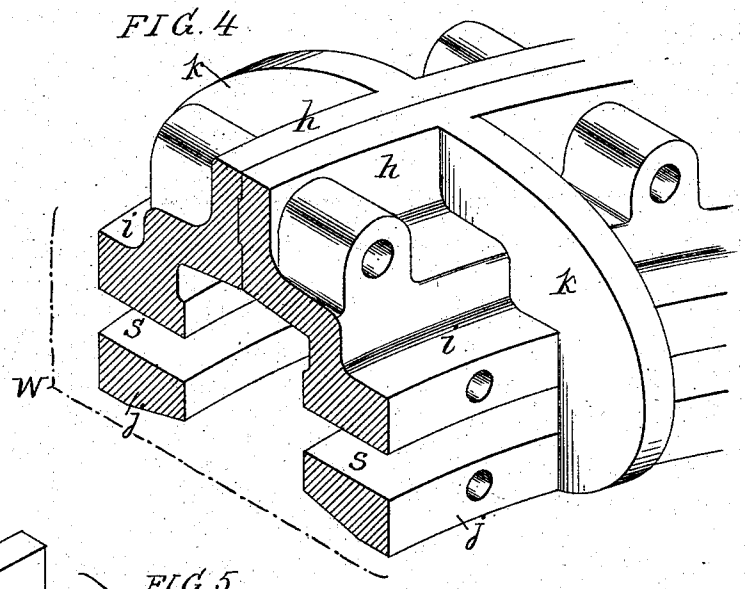


FIG. 5

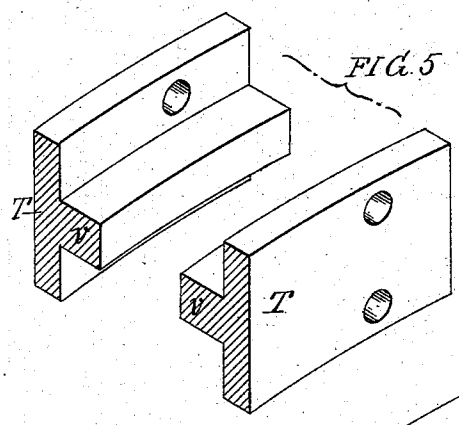
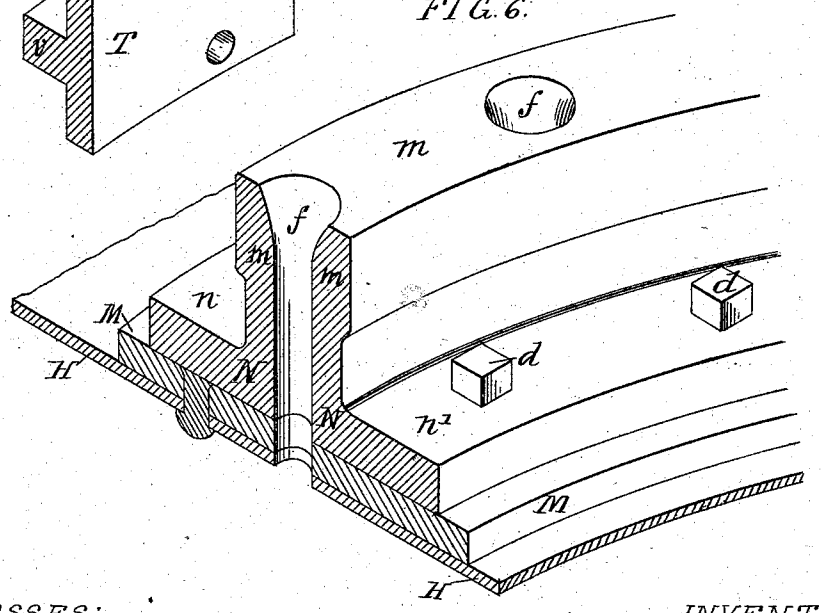


FIG. 6.



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UNITED STATES PATENT OFFICE.

JOHN GRIFFEN AND JESSE HALL, JR., OF PHŒNIXVILLE, PENNSYLVANIA, ASSIGNORS TO THE PHŒNIX IRON COMPANY, OF SAME PLACE.

WATER-JOINT FOR ROTARY PUDDLING-FURNACES.

SPECIFICATION forming part of Letters Patent No. 295,867, dated March 25, 1884.

Application filed June 22, 1883. (No model.)

To all whom it may concern:

Be it known that we, JOHN GRIFFEN and JESSE HALL, Jr., citizens of the United States, and residents of Phœnixville, Chester county, Pennsylvania, have invented certain Improvements in Water-Joints for Rotary Puddling-Furnaces, of which the following is a specification.

Our invention relates to certain improvements in what are known as the "water-joints" of rotary puddlers—that is, the joints which permit the free introduction of water to the water-jacket of the puddler while the latter is rotating—our improvements, which are fully described hereinafter, having been especially directed to the securing of a joint which will not leak, and to the maintenance of a constant supply of water in the jacket of the puddler.

In the accompanying drawings, Figure 1, Sheet 1, is a side view of a rotary puddler, showing our improved water-joint; Fig. 2, Sheet 2, a transverse section partly on the line 1 2 and partly on the line 3 4, Fig. 1; Fig. 3, Sheet 3, an enlarged sectional view of the water-joint; and Figs. 4, 5, and 6, Sheet 4, perspective views, illustrating the detailed construction of the several parts composing the joint.

The rotary puddler A has two rings, *a*, (one near each end,) for bearing on four flanged wheels, B—two wheels for each ring—one pair of wheels being secured to a shaft, D, and the other pair to a shaft, D′, the bearings *b* of which are secured to beams E E′, the latter forming parts of a permanent foundation or parts of a truck on which the puddler can be moved to and fro, as described in a separate application for a patent. A toothed rim, F, also surrounds the puddler, and into this gears a pinion, F′, on a driving-shaft, G.

As regards the detailed construction of the puddler, it will suffice for this application to remark that it consists of an outer casing, H, and an inner casing, I, lined with refractory material, and that there is a water-space, K, between the two casings, all as shown in the enlarged view, Fig. 3. A substantial band, M, surrounds and is riveted to the outer casing, H, midway, or thereabout, between the opposite ends of the puddler, and to this band is snugly fitted a ring, N, also extending round the puddler, and secured to the said band by set-screws *d*, Fig. 3. This ring N, composed of the annular rib *m* and flanges *n n′*, forms a permanent part of the puddler, and will be best understood by reference to the perspective view, Fig. 6, where it will be observed that at intervals holes *f* extend through the ring, these holes being continued through the band M and outer casing, H, of the puddler. Another ring, W, which is fixed, is adapted to the ring N, as shown in Fig. 3, and this ring is internally recessed, for a purpose rendered apparent hereinafter. The ring W is composed of two semi-annular parts, bolted together at *x x*, Fig. 2, and each part is composed of two segments bolted together. The peculiar construction of these segments will be best understood by reference to the perspective view, Fig. 4, where it will be observed that each segment has a vertical flange, *h*, a horizontal flange, *i*, and an annular rib, *j*, situated at a distance from the flange *i*, but connected to the same and to the flange *h* by a number of webs, *k*. When these two segments are bolted together, they form one-half of the ring W, the other half being composed of similar segments, excepting that they have projections *p p*, which embrace the two shafts D D′, this being the plan adopted in the present instance of making the ring W stationary.

Referring to Fig. 3, it will be seen that when the ring W is fitted over the annular rib *m* of the ring N there will be an annular chamber, *q*, which is in continuous communication with the water-space K between the two casings of the puddler through the holes *f*, above referred to.

On each side of the ring W, and between the flange *i* and rib *j*, there is an annular space, *s*, Fig. 4, in which is placed packing composed, preferably, of a series of rings, *t*, Fig. 3, of leather, backed by a mass of hemp, *u*, against which bear the ribs of the packing-segments T, the latter being secured to the ring W by stud-bolts *w*, on tightening the nuts of which the packing will be forced against the opposite sides of the annular flange *m* of the ring, thereby securing a perfectly tight joint, which permits the said rib *m* of the ring N to rotate with

the puddler, and within the ring W, without danger of any leakage of water introduced into the annular chamber *q*.

Owing to the presence of the webs *k*, each follower is necessarily made in comparatively short segments; but these segments are so near to each other that each follower composed of a number of segments has practically the same effect on the packing as a follower made of one continuous ring. Water is introduced under pressure into the chamber *q* through a pipe, *y*, at the lowest point of the ring W, and passes through the said chamber and through the holes *f* into the water-space K between the two casings of the puddler, the water escaping through a pipe, *y'*, at the highest point of the ring W—an arrangement by which the maintenance of the water-space K and the annular chamber *q* constantly full of water is assured, thereby enabling the inner casing of the puddler to withstand the heat to which it is subjected.

We claim as our invention—

The combination of a rotary puddler and its ring *m* with the ring W, composed of two semi-annular parts, each composed of two segments, and each segment having a flange, *i*, and rib *j*, situated apart from each other, but connected together by webs *k*, all substantially as specified.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOHN GRIFFEN.
JESSE HALL, JR.

Witnesses:
THOS. SHAFFER,
D. W. BROWER.