

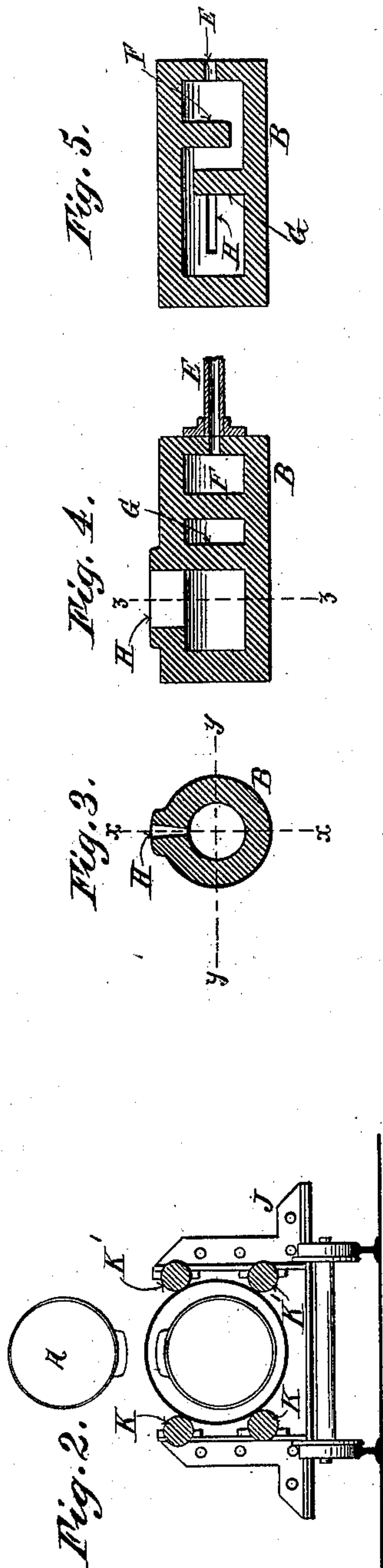
(No Model.)

T. F. ROWLAND, W. E. HILL & A. McLACHLAN.

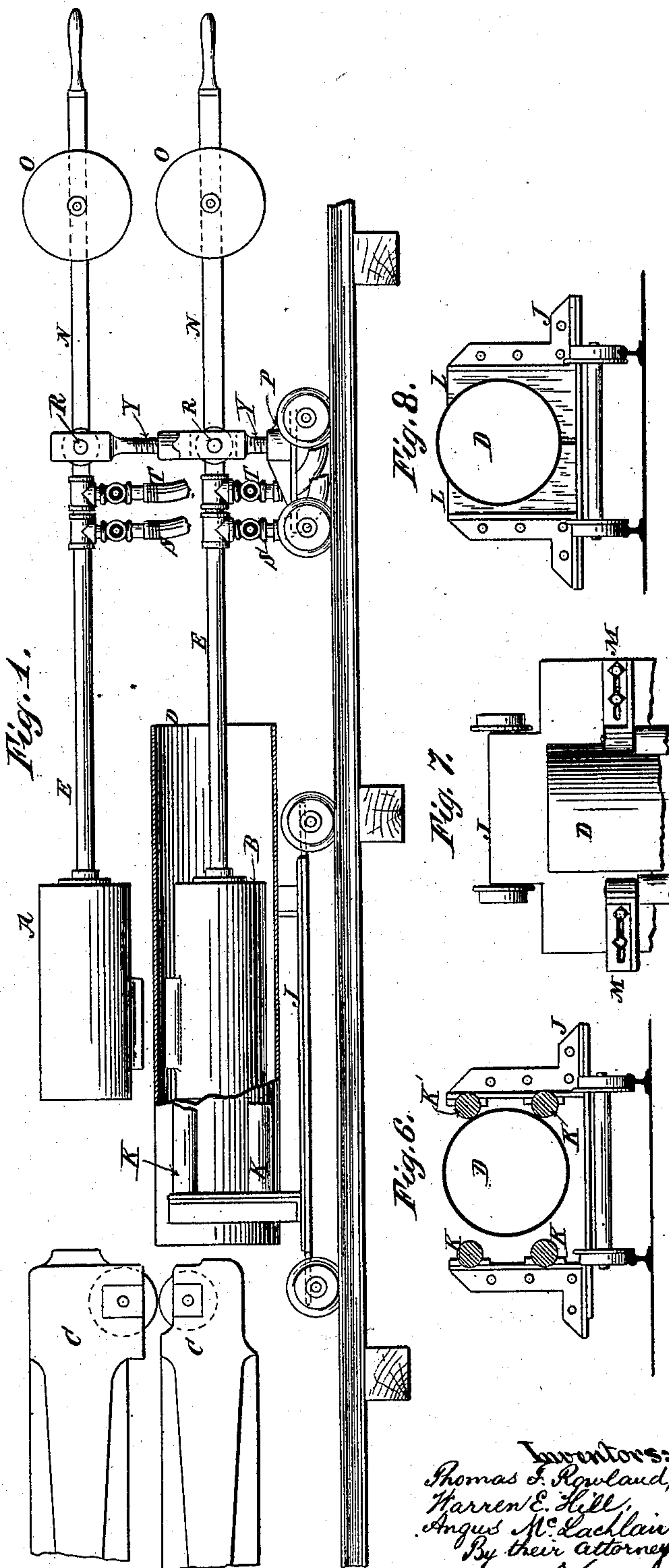
CYLINDER WELDING APPARATUS.

No. 384,082.

Patented June 5, 1888.



Witnesses:
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UNITED STATES PATENT OFFICE.

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CYLINDER-WELDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 384,082, dated June 5, 1888.

Application filed April 21, 1887. Serial No. 235,678. (No model.)

To all whom it may concern:

Be it known that we, THOMAS F. ROWLAND, of the city, county, and State of New York, and WARREN E. HILL and ANGUS McLACHLAN, both of Brooklyn, Kings county, New York, have invented a new and useful Improvement in Cylinder-Welding Apparatus, of which the following is a full, true, and complete description, reference being had to the accompanying drawings.

Our invention relates to an improvement in furnaces for welding metallic seams, and is especially useful for welding the seams of tubes.

Our invention will be readily understood from the accompanying drawings, in which—

Figure 1 represents a general longitudinal view of our apparatus; Fig. 2, a cross section through the same, showing the furnaces; Figs. 3, 4, and 5, details of the furnaces; Figs. 6 and 7, details of the carriage; Fig. 8, a view of a modified carriage.

The cylinder D to be welded is carried on the carriage J, running longitudinally on rails. When it has been heated, it is welded by the rolls C, or other suitable mechanism. The carriage J has adjustable sides carrying rollers K K' K'. These are made adjustable in any suitable way, but, as shown, are provided with slots and bolts M, as may be seen in Fig.

7. The cylinder to be welded being held roughly in position, as shown in Fig. 6, the sides are approached as shown in Fig. 2, and the cylinder is thereby supported. These rolls permit the revolution of the cylinder when desired. In Fig. 8, instead of rolls, suitable fixed supports are substituted.

The welding-furnaces A B are mounted on the carriage P, running on the same rails as the carriage J. They are counterbalanced by weights O, the furnace A being slightly underbalanced and the furnace B being slightly overbalanced by the weights O. The furnaces A B are carried upon the pipes E, which are then themselves supported on the carriage P, as shown. These pipes are pivoted on horizontal pivots R R, and can also turn laterally on the screws Y Y, by means of which, likewise, their relative positions may be somewhat adjusted by removing the pivots R R and adjusting the screws. The upper screw Y

screws into the head or upper part of the lower screw Y. Air and gas pipes S T communicate with both the pipes E.

The furnace is peculiar in structure, and is preferably made of fire-brick. Fig. 3 represents a vertical section through Fig. 4 on the line *z z*; Fig. 4, a longitudinal section through Fig. 3 on the line *x x*; Fig. 5, a horizontal longitudinal section through Fig. 3 on the line *y y*.

The inside of the furnace is substantially cylindrical in shape. It is provided with two or more deflecting-partitions or baffle-plates, F G, by means of which the gas and air are thoroughly mingled before they reach the burner H, which is made somewhat flaring in shape, as shown in Fig. 3. A considerable pressure of gas and air should be used, the air-pressure being greater than the gas. So long as the mingled gas and air is traveling under some pressure through the pipes E combustion does not occur, but occurs only in the furnace, in which the baffle-plates perform a very important function, for without them or their equivalent only a comparatively low degree of heat can be obtained.

In turning off the furnace it is very important to turn off the gas-supply before turning off the air-supply; otherwise an explosion in the furnace would ensue.

The operation of the apparatus is readily understood. The cylinder D being placed in position, the furnaces A B are withdrawn on the track, lighted, separated somewhat, brought within and without the cylinder, and allowed to come together, when the intense heat soon produces a welding condition in the metal.

We do not herein claim any invention described and claimed in our application, Serial No. 235,677, filed herewith.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The combination of the welding gas-furnaces A B, supported upon the same pivot, and a carriage, J, provided with adjustable mechanism for carrying cylinders of different diameters and bringing such cylinders in the proper relation to the welding gas-furnaces A B, substantially as described.

2. The welding gas-furnaces A B, carried

upon the carriage J, capable of longitudinal motion, substantially as described.

3. The welding gas-furnaces A B, combined with the pipes E and longitudinally-movable carriage P, substantially as described.

4. The counterbalanced gas-furnaces A B, pipes E E, air and gas pipes S T, and carriage P, substantially as described.

5. The welding gas-furnace B, provided with internal baffle-plates or partitions, and burner H, located beyond said baffle-plates in the flow of gas and air, substantially as described.

6. The combination of the gas-furnaces A B, having their burners H facing each other, the pipes E, and the gas and air pipes S T, substantially as described.

7. The combination of two furnaces having their burning-openings adjacent to each other and each provided with internal baffle-plates between the gas-supply and the burner, and means of introducing gas and air simultaneously to said burners, substantially as described.

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

THOMAS F. ROWLAND.

WARREN E. HILL.

ANGUS McLACHLAN.

Witnesses:

CHAS. F. HATHAWAY,

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