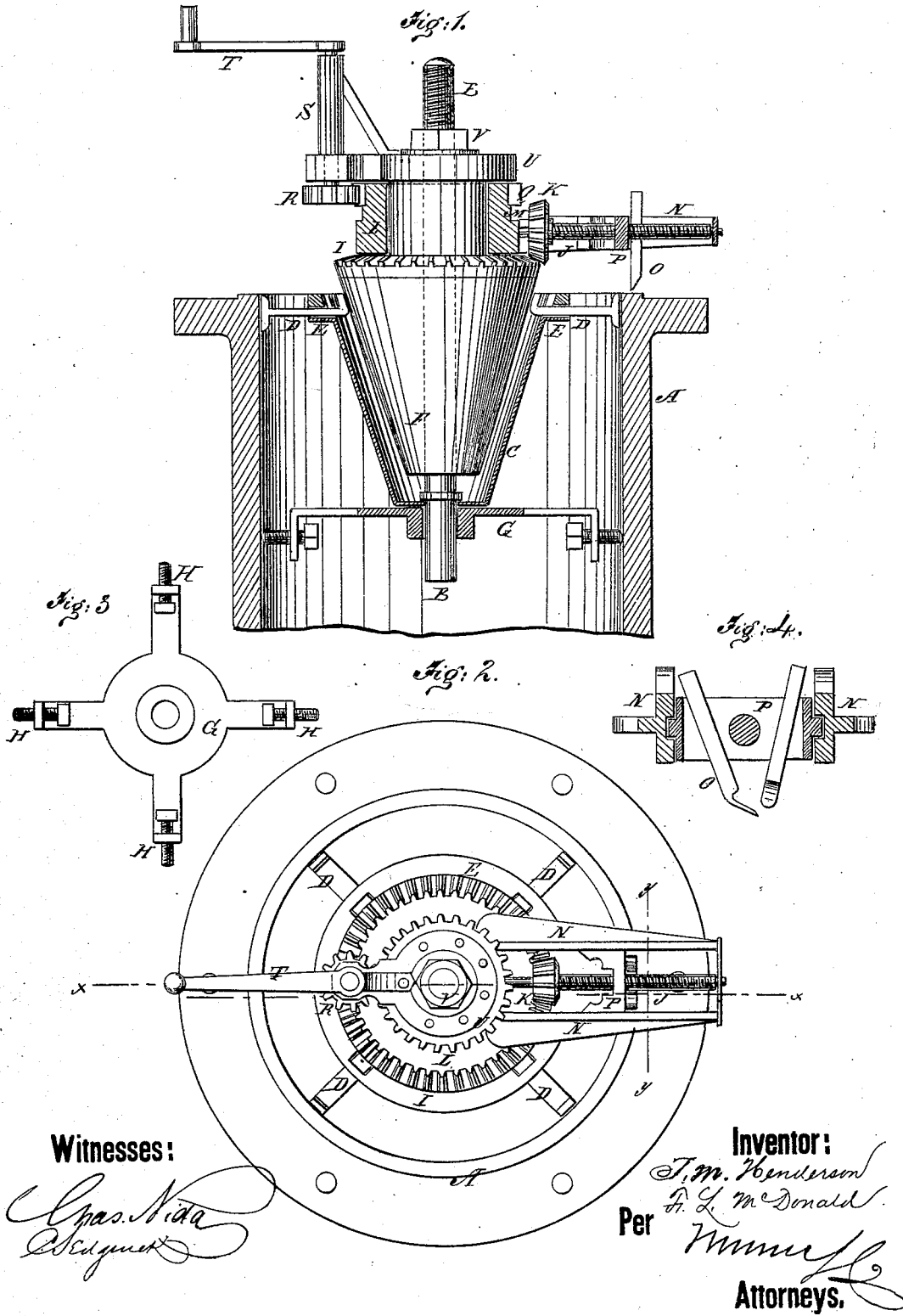


T. M. HENDERSON & F. L. McDONALD.
Machines for Facing Cylinders.

No. 145,103.

Patented Dec. 2, 1873.



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UNITED STATES PATENT OFFICE.

THOMAS M. HENDERSON AND FRANK L. McDONALD, OF OMAHA, NEBRASKA.

IMPROVEMENT IN MACHINES FOR FACING CYLINDERS.

Specification forming part of Letters Patent No. **145,103**, dated December 2, 1873; application filed March 29, 1873.

To all whom it may concern:

Be it known that we, THOMAS M. HENDERSON and FRANK L. McDONALD, of Omaha, in the county of Douglas and State of Nebraska, have invented a new and useful Improvement in Machine for Facing Steam-Cylinders, &c., of which the following is a specification:

The object of this invention is to provide convenient and efficient means for facing the ends of steam-cylinders, and cylinders for other purposes, where steam or water tight joints are required; and it consists in certain improvements in a machine constructed and operating substantially as hereinafter described.

In the accompanying drawing, Figure 1 represents a vertical section of the machine taken on the line *x x* of Fig. 2. Fig. 2 is a top view. Fig. 3 is a view of the spider for supporting the lower end of the vertical shaft. Fig. 4 is a section taken on the line *y y* of Fig. 2, showing the cutters and cross-head.

Similar letters of reference indicate corresponding parts.

A represents a steam or other cylinder. B is a central shaft. C is a cone, which is rigidly fastened to the shaft B. D represents four (more or less) arms, which pass through the projecting flange E, near the top of the cone C. F is a cone, through which the shaft B passes, and to which it is connected by a groove and a feather, but neither the shaft nor the cones revolve. The cone F forces the arms D outward against the cylinder, as seen in Fig. 1. The cone C is so arranged that the arms bear at or near the end of the cylinder. The lower end of the shaft is supported by the spider G, which is adjusted in a central position in the cylinder by means of the screws H. There may be other arms attached to the cone C, which may be adjusted by the inner cone F the same as the arms D, instead of the spider, if desired. On the top of the cone F is a bevel-gear, I, through the medium of which the feed-screw J is revolved. K is a pinion on the feed-screw, which meshes into the wheel L. L is a frame, consisting of a hub, M, and the two projecting arms N N, which support the

feed-screw and cutting-tool. O is the cutter, which is attached to a cross-head, P. This cross-head moves from and toward the center of the cylinder, in grooves in the arms N N. The feed-screw works through the cross-head as through a nut, and when revolving it carries the cross-head and cutter over the end of the cylinder. The frame L is revolved by means of the spur-gear wheel Q and pinion R, the gear-wheel being rigidly attached to the hub of the frame, and the pinion being on the end of the crank-shaft S. T is the crank. As the crank is turned the frame L (carrying the cutter) is revolved around the shaft, and at the same time the screw is turned for feeding up the tools. U is a collar for holding the frame L in place and supporting the crank-shaft S. V is a screw-nut on the shaft for keeping the collar in place.

The ordinary method of facing off the ends of a cylinder is to chuck the cylinder in a lathe, an operation that involves a great deal of time and labor, usually requiring two or three days to complete it. With this machine the operation may be performed in two or three hours and in the most perfect manner.

This machine may be made of any size and be applied to every description of cylinder or cylindrical-joint surface.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. A machine for facing cylinders, and for similar purposes, having a supporting cone or shell with central shaft and adjustable arms, an interior adjusting-cone, and revolving frame, feed-screw, and cross-head, arranged to operate substantially as shown and described.

2. The revolving frame L, in combination with the cones C and F, as and for the purposes described.

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Witnesses:

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