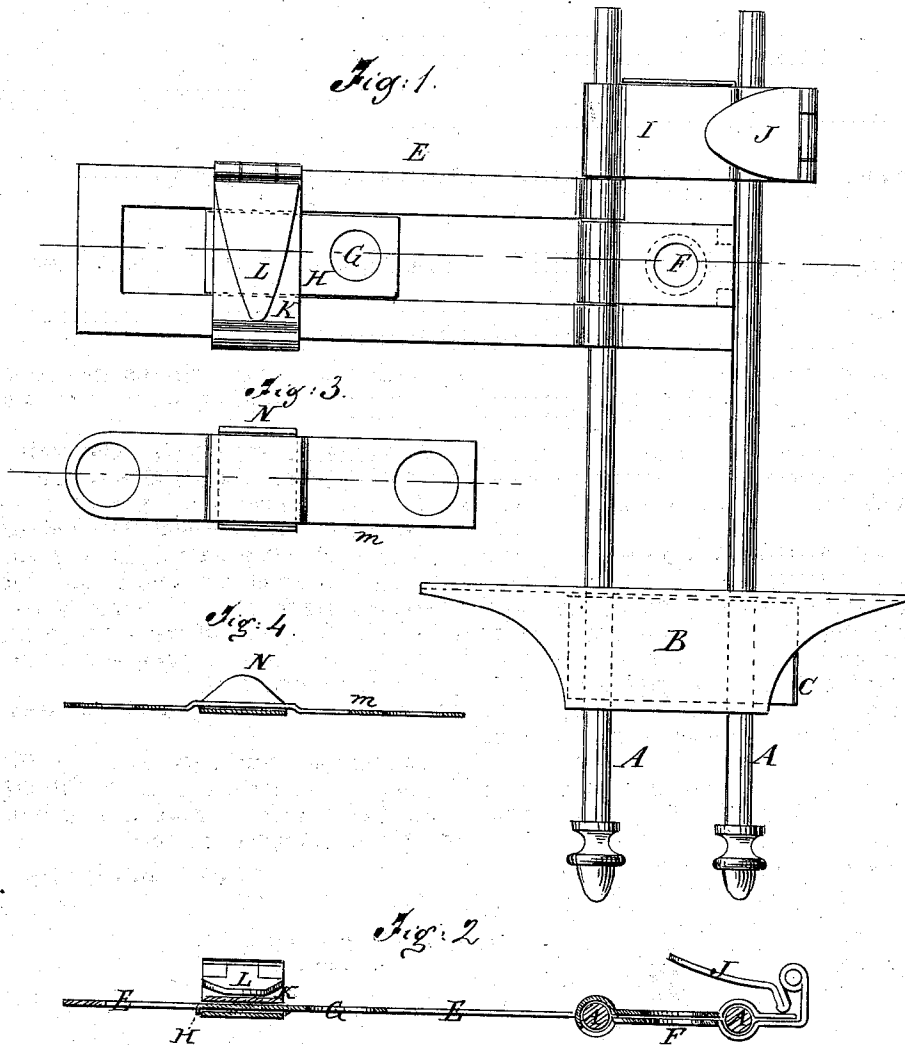


J. McPHAIL.

Iron Ship Builders' and Boiler-Makers' Gages.

No. 155,038.

Patented Sept. 15, 1874.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JAMES McPHAIL, OF ELLIS, KANSAS.

IMPROVEMENT IN IRON-SHIP-BUILDERS' AND BOILER-MAKERS' GAGES.

Specification forming part of Letters Patent No. **155,038**, dated September 15, 1874; application filed May 9, 1874.

To all whom it may concern:

Be it known that I, JAMES McPHAIL, of Ellis, in the county of Ellis and State of Kansas, have invented a new and useful Improvement in Iron-Ship-Builders' and Boiler-Makers' Gage, of which the following is a specification:

The invention will first be fully described, and then pointed out in the claim.

In the drawing, Figure 1 is a plan view; Fig. 2, a longitudinal section; Figs. 3 and 4, detail views in plan and longitudinal section.

A A are two guide-rods; B, a gage-head sliding on the rods, and fastened thereto by means of plate C and hinged clamp. E is a slotted hole-gage, held on the rods A A by clamp I J, having fixed hole F and slide-plate H, with a hole, G. The holes may, with it, be adjusted to any desired distance from each other.

The plate H is confined in any desired position on the piece E by clamp K L. M is a scratch-piece, connected with a lip-piece, N, and may be substituted for the slotted plate E when it is desired to mark the width of angle-iron

frames, which corresponds with distance from center of one hole to that of the other in said plate H.

The application is as follows: The boiler-plate is secured against the previously-adjusted guide B, so as to bring the lap-edge in position to have the location of holes determined by the hole-gage E. The plate H, having hole G, is moved to or from the hole F, and the whole instrument is then moved along the lap-edge until hole G comes where F had been, and thus the places for hole after hole are indicated at uniform intervals.

Having thus described my invention, what I claim is—

The combination, with rods A A, of the sliding guide B, stationary plate E, having hole F, and adjustable plate H, having hole G, as and for the purpose specified.

JAMES McPHAIL.

Witnesses:

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