

NASA TECH BRIEF

Marshall Space Flight Center



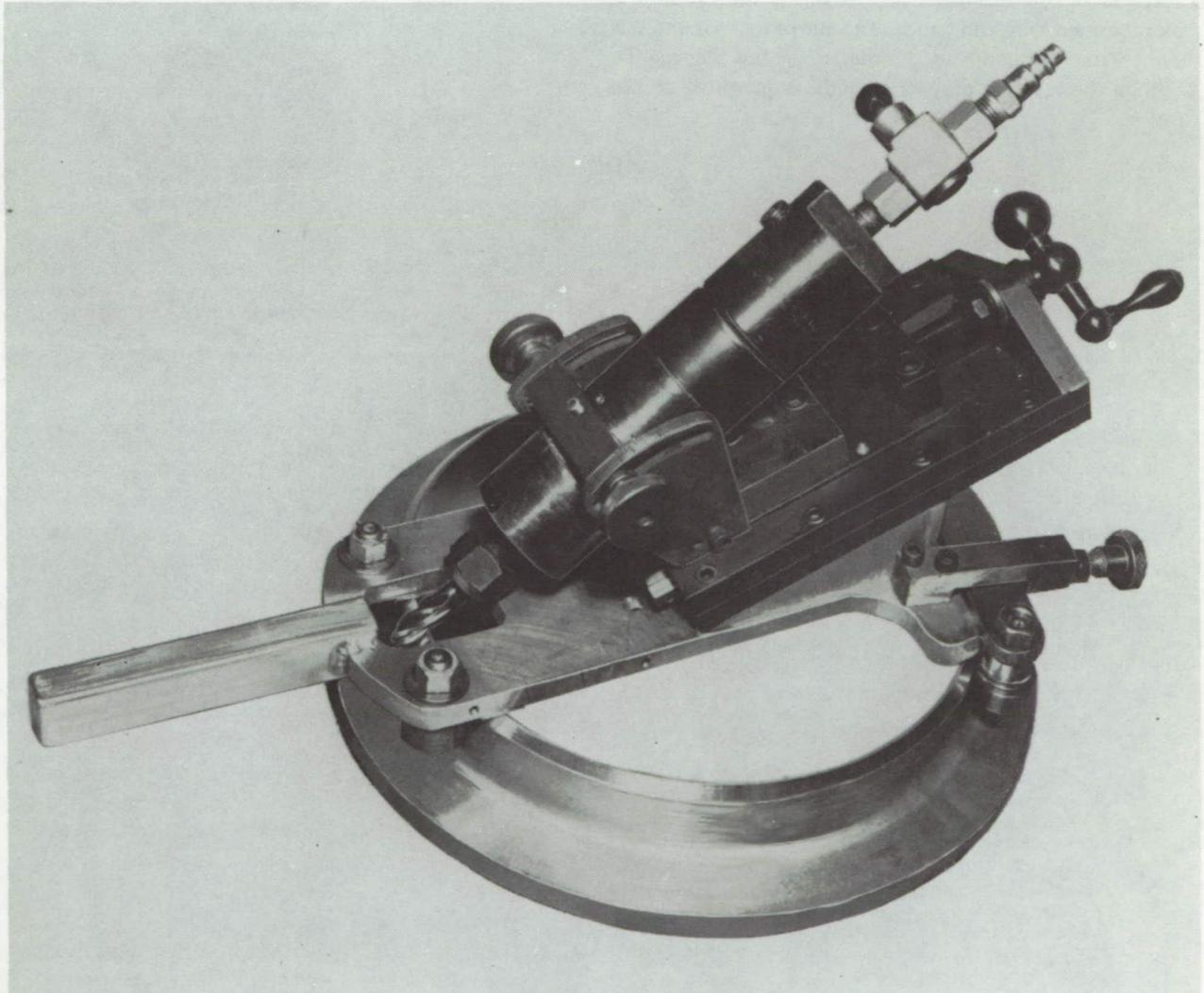
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Portable Beveling Tool

The problem:

Currently, the fabrication of an elbow assembly requires mating the flange and elbow by fusion butt welding. This requires scarfing a 40 degree bevel on the

outer edges of the abutting end surfaces of the components. When done manually, it is time consuming and does not produce uniform results or consistent quality.



(continued overleaf)

The solution:

A portable beveling tool has been designed to semi-automatically bevel the end surfaces of tubular or cylindrical components.

How it's done:

As shown in the figure, the tool is positioned with respect to the flange by means of four roller elements and held rigid by the base. Also mounted on the base is an air driven motor with a cutting element attached to its shaft. The cutter extends through the aperture where it makes contact with the workpiece. To adjust the cutter angle in relation to the workpiece a pair of calibrated scales are provided. Their position is locked in place by means of two knobs.

In operation, the tool, adjusted for the desired cutting angle, is placed on the workpiece as shown in the figure. The rear roller spring is adjusted to avoid any erratic movements. A source of compressed air, controlled by a valve, is attached to the motor. By means of the feed screw handle, the rotating cutter is slowly moved until it makes contact with the flange. The entire tool assembly is then rotated around the perimeter of the flange. To facilitate the rotating process a handle is provided on the base.

To bevel the inside edge of the flange an end mill type cutter can be used. By controlling the feed screw adjustment, the depth of cut is limited.

Note:

Requests for further information may be directed to:
Technology Utilization Officer
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Reference: B72-10678

Patent status:

NASA has decided not to apply for a patent.

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