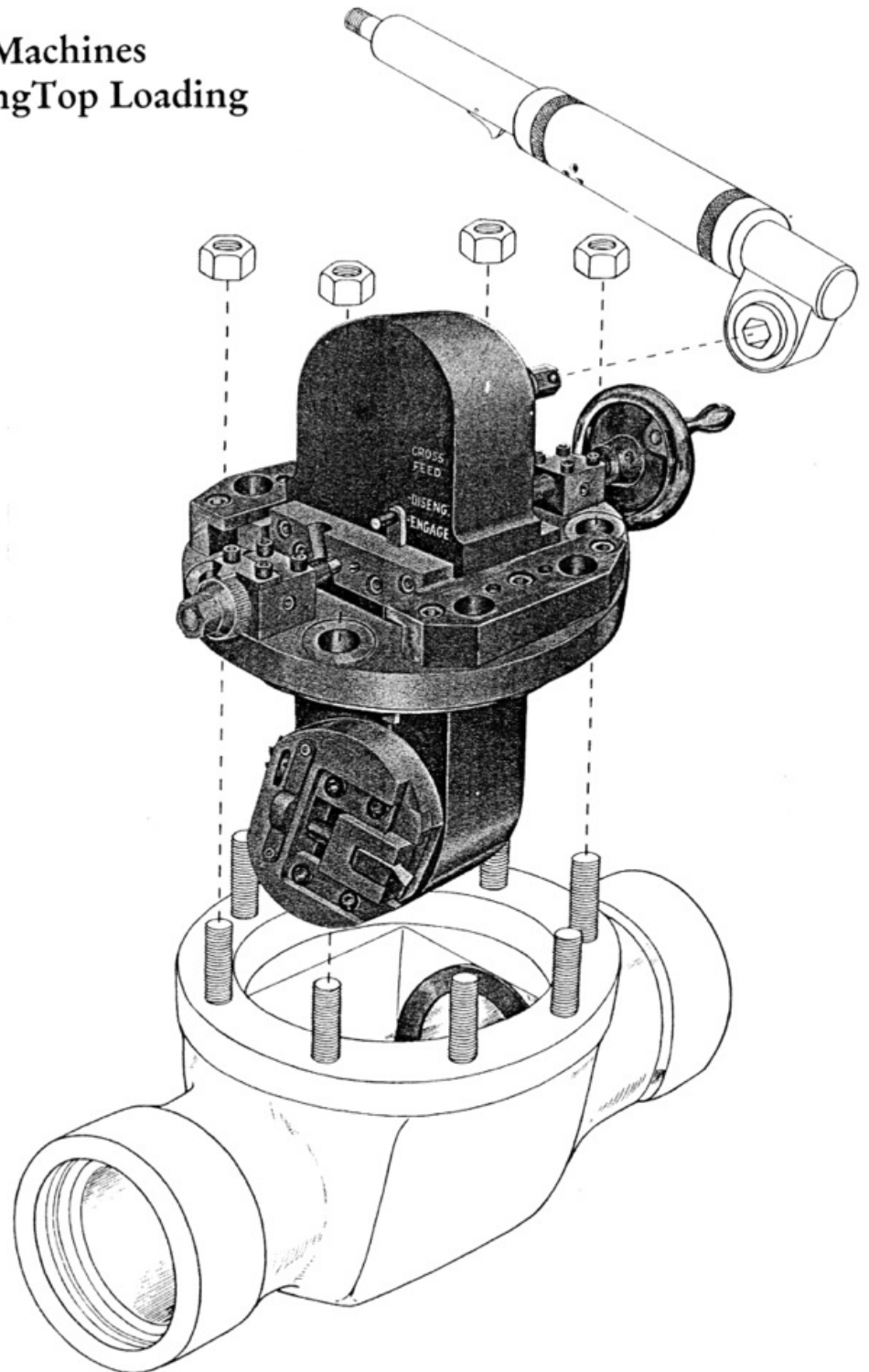


Grimsley's Portable Machines  
For Boring and Facing Top Loading  
Ball Valves  
HB Series  
Patent No. 4,114,483



**GRIMSLEY'S HOUSE OF TOOLS, INC.**

*Specializing in Portable Tools*

Grimsley's Portable Boring Bars  
HB Series  
For Boring and Facing Top Loading Ball Valves  
From 250 to 800 - 2.5" to 8"

Description

The HB series Portable Boring Bars are portable bars capable of boring and re-facing ball valves in-line, for removing porosity, cuts, or corrosion and /or re-boring and re-facing after weld build-up.

The HB series machines are designed for shipboard in-line work or work in the shop. The fast set up makes the HB series an ideal tool for use in the shop, having the required angle of degree built in.

The required angle of degree is always constant, eliminating the possibility of error and a long and costly set up time when using a boring mill.

Each HB machine is equipped with a micrometer fitting, making it possible to adjust the cut to any amount necessary from .001" to as much as required.

The micrometer is also used to assure that an equal amount of metal is removed from both faces of the valve seats. It ensures that the ball is centered in the seat of the valve when new stacks are installed.

These machines are capable of boring the metal surfaces and / or the epoxy and stainless steel seats, holding dimensions within .001 of an inch.

These machines are built to specific valve sizes and styles, thereby always assuring that specified dimensions and angles are as originally designed.

|        |   |
|--------|---|
| HB-250 | 2-1/2" Top Loading Straight Line                      |
| HB-300 | 3" Top Loading Straight Line                          |
| HB-320 | 3" Top Loading Straight Line Ball Valve               |
| HB-330 | Bliss-Portland 3" Valve                               |
| HB-400 | 4" Top Loading Straight Line                          |
| HB-500 | 5" Top Loading Straight Flow                          |
| HB-600 | 6" Straight Line Top Loading                          |
| HB-800 | 8" Straight Line Top Loading and 8' Swing Check Valve |
| HB-444 | 4 x 4 x 4, 3-Part, 2 or 3 Position                    |
| HB-555 | 5 x 5 x 5, 3-Part, 3 Position                         |
| HB-666 | 5" Top Loading Stop Swing Check Valve                 |

HB KITS includes machine, pneumatic motor, tool bits, allen wrenches and carrying case.

### Operation

1. After removing operating mechanism, remove the ball from the valve and plug both intake and discharge openings.
2. Clean flange and interior of valve of all grease and / or debris.
3. Inspect valve for damage and determine amount of metal, epoxy, shim, or welding needed to bring valve back to original size.
4. Select the best valve seat for first alignment, i.e., for lining up machine to assure a parallel face.
5. Measure down from face of mating flange on the machine to the bottom of bore in the valve. This eliminates time in setting tool bit for the initial cut.
6. To set tool bit for first cut in bore, use a 12" machinist square to measure from mating flange on machine (turn boring head so that the tool bit will be directly opposite the vertical body of the machine). Run the feed screw out so that the cutting tool bit will be within approximately 1/32" of the bore size.
7. After cutting tool bit has been set, making sure that there is clearance between tool bit and bore, lower the machine into the valve body (making sure that the flange on the machine and the valve are perfectly seated.)
8. Tighten the four holding nuts on four equally spaced flanged studs very lightly so that the machine can be backed up against the alignment pins and the valve face. When both alignment pins are hard up against the valve face with no side play, tighten the four nuts down tight to be sure the machine will not change position when cutting actions starts.
9. Run the compound or cross feed forward by using the hand wheel until even with the beginning of the bore. Run the vertical feed out until it is in a position to take a very light cut out of the bore.
10. Feed the cross feed by hand, cutting the bore the required amount up to the face of the seat. When the tool bit has reached the face, stop, cross feed, set the micrometer up against the body of the machine, then back the micrometer away from the body of machine the amount to be removed from the face (each graduation on the micrometer is .001 of an inch).
11. Start the machine, feed cross feed (with hand wheel), until the machine again comes in contact with the micrometer. This should be the amount to be removed from the valve seat (face).
12. While machine is continuing to run, hold down the automatic facing feed until the tool bit has completed the facing cycle.
13. Do not move the micrometer setting until enough metal has been removed to give a good finish to the face. If for any reason, more has to be taken from the valve face, leave the micrometer setting as is and reset the tool bit to the diameter of the bore.
14. As in steps 7 and 8, back the machine stops (alignment pins) against the face of valve bore, as at first set up, tighten down machine and again feed the machine in with cross feed handle until body is again up against the micrometer. Back micrometer away from the body of the machine the additional amount you wish to remove and feed the cross feed in until the machine again comes into contact with the body of machine. Hold down automatic facing feed until the additional amount has been removed from the face.
15. When the last cut has been made to the first face, leave micrometer setting as is. Remove the machine from the valve, turn the machine 180 degrees and repeat the process. This will bring the ball back to the center of the valve. With a minimum amount of instructions an operator can become very efficient with the ball valve machines.

Maintenance

The Ball Valve Machines are made with all working parts except the boring head enclosed thereby eliminating all but very minor maintenance requirements. Upon completion of boring and facing, remove all chips or moisture from the area of the tool holder and feed screw. Check tool bit for wear and re-sharpen or hone if necessary.

Equipment should be thoroughly cleaned after each use sprayed with water displacing rust inhibiting chemical before storing in storage case. If machine is to be used in a contamination area, clean in accordance with Government specifications.

GRIMSLEY'S HOUSE OF TOOLS, INCORPORATED WILL NOT BE RESPONSIBLE FOR  
DAMAGE CAUSED BY IMPROPER USE OF STORAGE OF THEIR EQUIPMENT.

CALL FOR DEMONSTRATION OR SERVICE  
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