June 21, 1932. J. S. HOLMES 1,864,305

VALVE FACING MACHINE

Filed Nov. 6, 1930 2 Sheets-Sheet 1

Fig. 1.

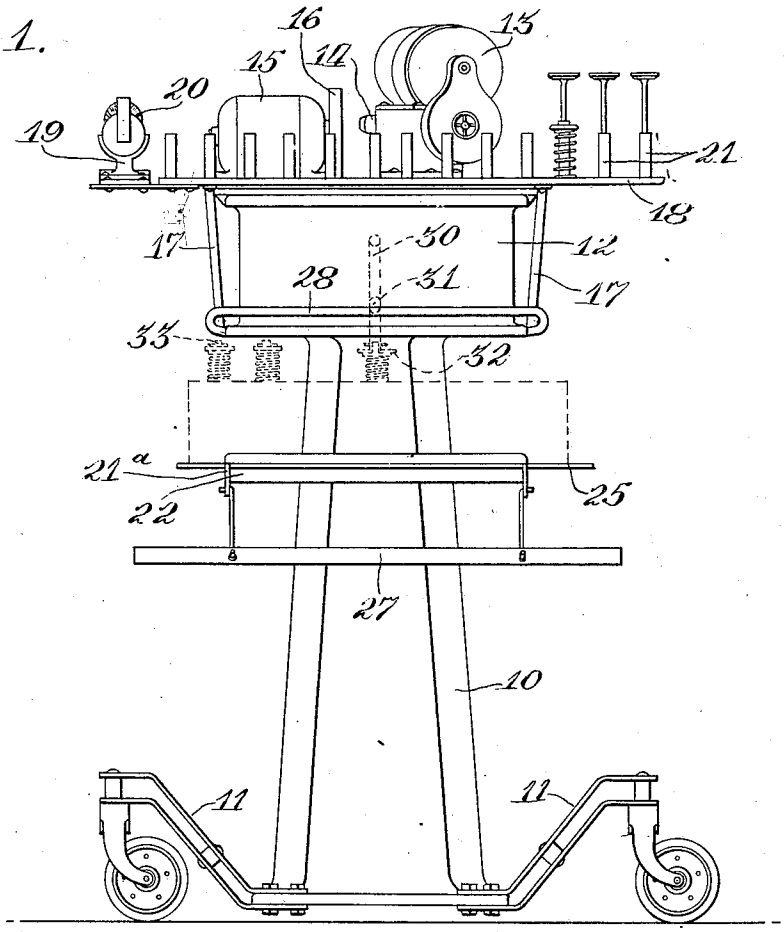


Fig. 5.

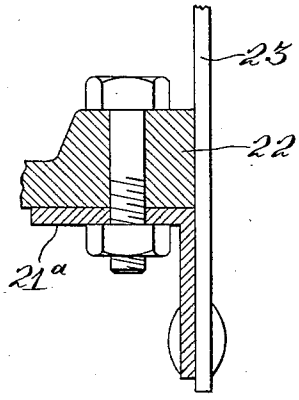


Fig. 6.

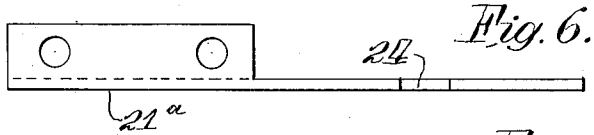
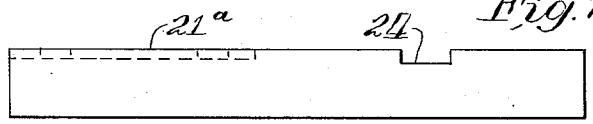


Fig. 7.



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VALVE FACING MACHINE

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Fig. 2.

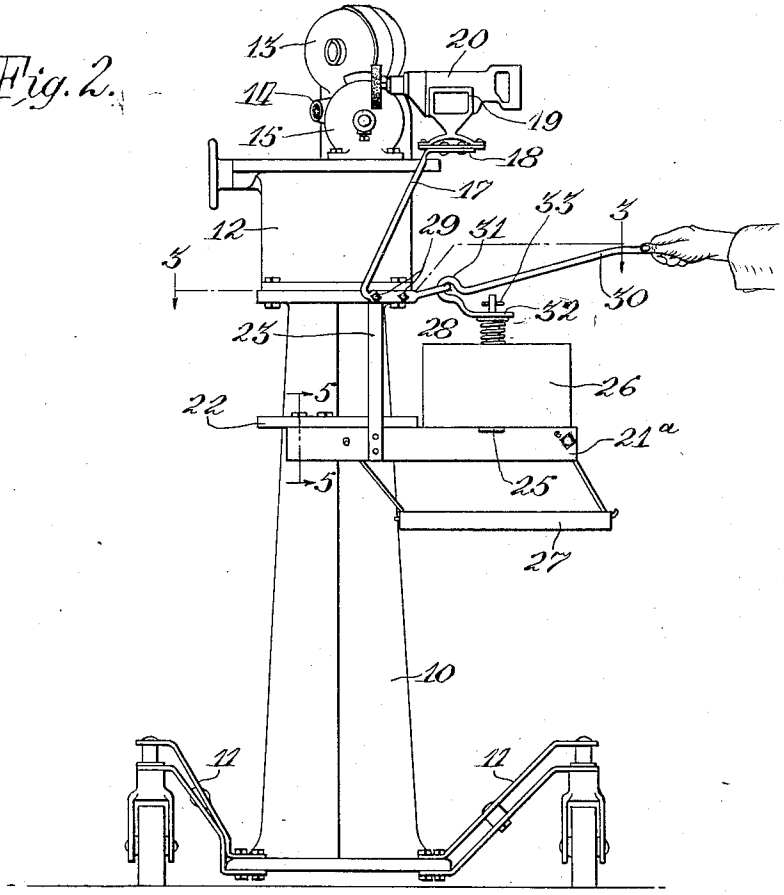


Fig. 3.

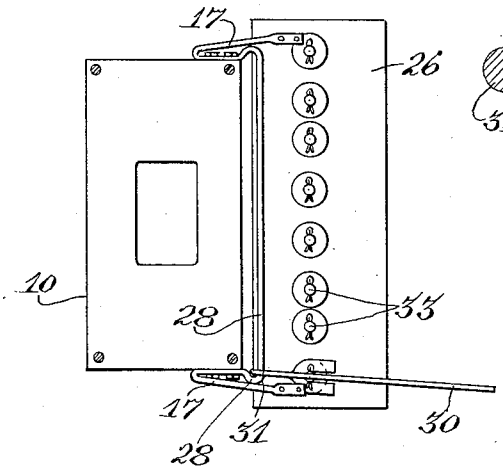
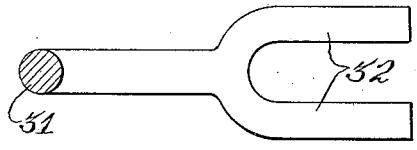


Fig. 4.



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UNITED STATES PATENT OFFICE

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VALVE FACING MACHINE

Application filed November 6, 1930. Serial No. 493,770.

The invention relates to a valve facing machine to be used in automotive service stations.

In overhauling engines the heads thereof are taken down to permit removal of the valves. The valve parts usually become objectionably scattered as they must be taken from one machine to another for different treatments, such as brushing, grinding, etc. It is highly desirable therefore that a unitary structure be provided which carries the various valve treating accessories, supports the engine head or block, and provides means for storing the valve parts so that they will not accidentally become mislaid. It is also desirable that such valve machine be portable to enable taking it to a position conveniently adjacent each job to be handled.

Accordingly the primary object of the invention is to provide a valve facing machine that will be a unitary composite structure, including means to support a motor head, means to compress the valve springs to enable removal thereof, means to store separated valves and valve springs and such machine carrying conveniently the necessary accessories for refacing the valves.

Other objects will become apparent to those skilled in this art as the disclosure continues.

Briefly such desirable objects may be achieved by the illustrative example of the improved machine shown in the accompanying sheets of drawings, wherein:

Figure 1 is a front elevational view of the machine;

Figure 2 is a side elevational view of the machine;

Figure 3 is a horizontal sectional view taken along the line 3—3, appearing in Figure 2;

Figure 4 is a plan detail view of the valve spring compressor fork;

Figure 5 is a vertical detail view, partly in section, showing a fragment along section line 5—5, appearing in Figure 2; and,

Figures 6 and 7 are respectively top and side view detail showings of the brackets which support the engine head on the machine.

The improved machine embodies a body or standard 10 mounted, if desired, on a castering wheel carriage 11. The standard 10 carries an accessory supporting head 12, supporting an electric motor 13 for driving a valve holding chuck device 14. Similarly another electric motor 15 drives a rotary grindstone 16. Bolted to the body are upstanding brackets 17 which carry a shelf 18 in a convenient position adjacent the front side of the head 12. Said shelf carries a cradle 19 serving as a rest for a drill device 20 used in removing carbon from the valves. At spaced intervals this shelf 18 carries fixed, short length tubes 21 made of pipe stock, said pipes serving as a place to store valve stems by inserting them down thereinto as shown on Figure 1, while the valve springs are threaded around and over these pipes for storing said springs. Thus, a convenient means is provided for storing disassembled valve parts to prevent them from getting scattered or misplaced.

Any convenient distance below the head 12 the body carries at each side, a forwardly extending angle iron bracket 21^a, said bracket supporting a pan or shelf 22 surrounding the body to provide a receptacle for storing various items of equipment used in connection with the work of facing the valves. Strengthening braces 23 for the brackets 21^a are also provided. The bars 21^a are notched at 24 to receive a cross plate 25. Upon these brackets 21^a is placed the motor block indicated at 26, the valve heads lying on the plate 25 so that after the valve springs have been removed the valve stems will be held in position by the plate 25 to prevent said valves from falling out of the block. A drip and dirt catching pan 27 is removably suspended in any appropriate manner beneath the motor block support.

There remains for description the provision of means for depressing the valve springs to enable removal of the valves from the motor block. For this purpose a guide rail 28 is arranged forwardly of the standard 10 above the block 26, the rail 28 having curved ends appropriately connected by bolts at 29 to the said body or standard. If desired

this rail 28 may be integrally formed as a continuation of the end brackets 17 heretofore described. A valve spring compressor tool having a handle 30 is formed with a loop 31 to mount said tool for rocking and sliding movements on the guide rail 28, the loop portion continuing in a downward curve and merging with the spring engaging fork 32.

The machine in use will be moved, let us say, to a position conveniently adjacent a motor truck, the motor of which is to be overhauled. The valve facing machine in any appropriate manner will be anchored to the floor to prevent the same from accidentally rolling away on its casting wheel support. The motor head is next removed from the motor truck and placed on the support 21, the valve heads now resting on the plate 25 provided for that purpose. The compressor tool 30 is now slid into position along the rail 28 so that the fork 32 may engage the spring of the first valve to be disassembled. The operator now presses down the handle 30 to rock the presser tool causing the fork, as shown in Figure 2, to compress the valve spring. It is now possible to remove the usual pin 33. The spring can now be removed in an obvious manner. In this way each valve spring will be removed. When this has been accomplished the compressor tool is slid to an extreme end position on the guide rail 28 where it will be out of the way. The removed springs are threaded one on each pipe element 21 on the shelf 18 where they will be temporarily stored for safe keeping. The motor block 26 is then upended to bring the valve heads to the top side. The operator then removes each valve stem and stores them inside the pipe members 21 as shown in Figure 1. The various steps necessary to reface valves and seats are now conveniently achieved by the handy arrangement of the several accessory tools carried on the head shelf provided for them. The drip pan 27 catches dirt and oil to keep the service station floor clean.

From this detailed disclosure it must now be appreciated that an improved valve facing machine has been provided which achieves all of the desirable objects heretofore set forth.

It is the intention to cover herein all changes and modifications not departing from the spirit and scope of the invention as expressed in the following claims.

What is claimed is:

1. In a machine of the class described, a body standard, a support at the top of the standard carrying valve facing accessories, a shelf carried by the standard, said shelf provided with a series of spaced, vertically disposed short pipe elements for temporarily storing disassembled valve parts, and a bracket carried by the standard providing a support for a motor head or block.

2. In a machine of the class described, a body standard, a support at the top of the standard, carrying valve facing accessories, a shelf carried by the standard, said shelf provided with pipe elements to store valve stems and springs, and a support carried by the body for supporting a motor head or block.

3. In a machine of the class described, a body standard, a support at the top of the standard carrying valve facing accessories, brackets extending out from the standard, each bracket provided with a notch, a cross plate carried by the brackets, said cross plate lying in the notches flush with the top side of the brackets, said brackets constituting a motor head or block support, and the plate a means to hold the valves in the block.

4. In a machine of the class described, a body standard, means for supporting a motor block on the standard in convenient position to be worked upon, upright brackets at the sides of the body, a shelf carried by the brackets in a position above the motor block, said brackets formed integrally with a guide rail which spans the front side of the support adjacent and above the motor block, and a valve spring compressor tool slidingly mounted on said rail.

5. In a machine of the class described, a body standard, means for supporting a motor block on the standard in convenient position to be worked upon, upright brackets at the sides of the body, a shelf carried by the brackets in a position above the motor block, said shelf carrying rigidly mounted upright pipe elements to store valve parts, said brackets formed integrally with a guide rail which spans the front side of the support adjacent and above the motor block, and a valve spring compressor tool slidingly mounted on said rail.

In testimony whereof I affix my signature.

JOHN S. HOLMES.