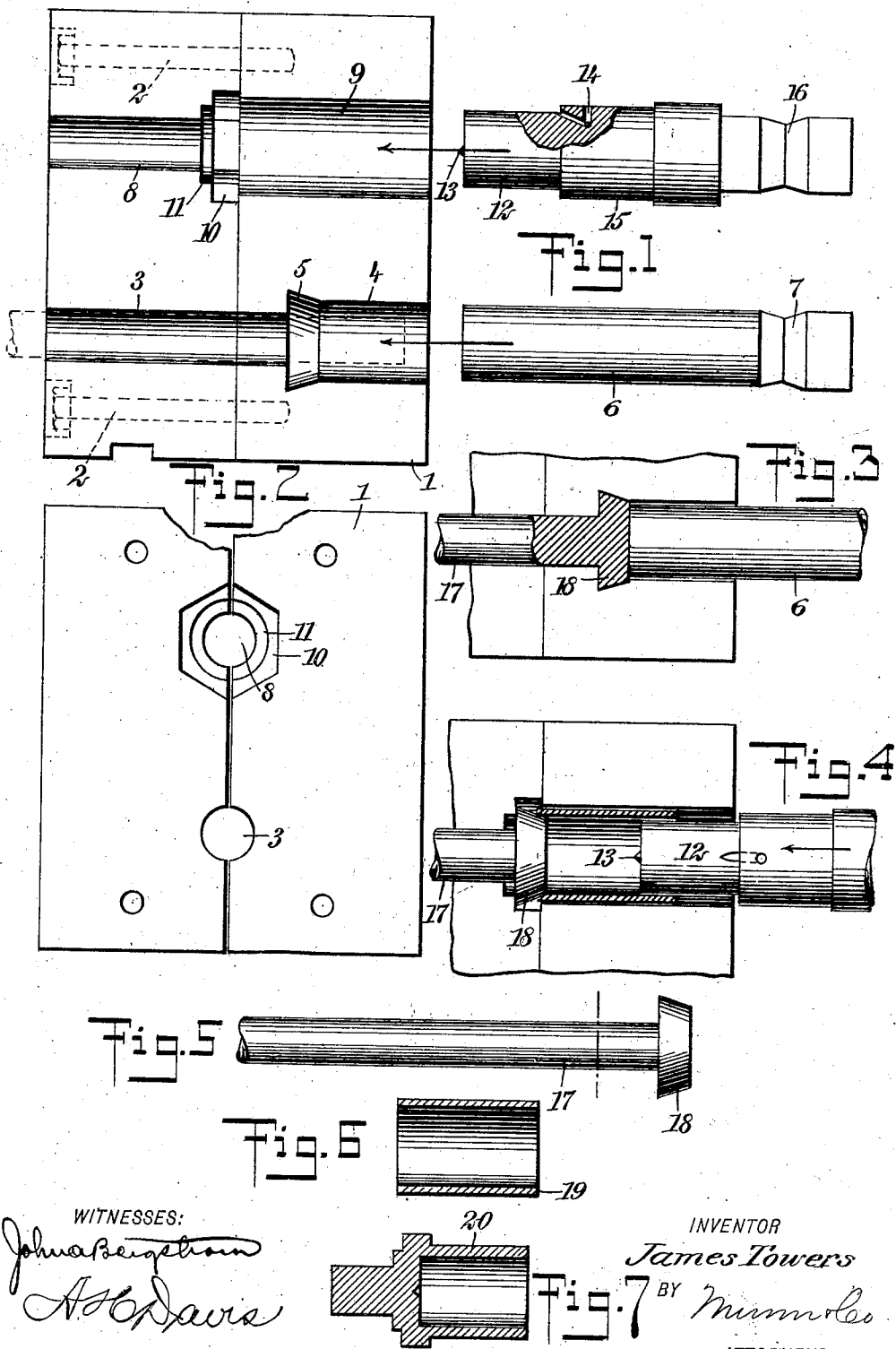


No. 845,492.

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J. TOWERS.
PROCESS OF FORMING OIL CUPS.
APPLICATION FILED APR. 7, 1906.



WITNESSES:

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JAMES TOWERS, OF ALBUQUERQUE, TERRITORY OF NEW MEXICO.

PROCESS OF FORMING OIL-CUPS.

No. 845,492.

Specification of Letters Patent.

Patented Feb. 28, 1907.

Application filed April 7, 1906. Serial No. 310,467.

To all whom it may concern:

Be it known that I, JAMES TOWERS, a citizen of the United States, and a resident of Albuquerque, in the county of Bernalillo and Territory of New Mexico, have invented a new and Improved Process for Forming Oil-Cups, of which the following is a full, clear, and exact description.

This invention is an improvement in processes for making oil-cups, and has among other objects to produce a cup which shall be better than those formerly devised and which can be more speedily produced and at a smaller expense and form all of the cups with exactness and uniformity.

Generally stated, the process consists in taking a round bar of iron or steel, upsetting the end in a die of suitable fashion to form the base and stem of the cup, and thereafter welding a pipe thereto and further shaping the upset portion in a second set of dies to form the complete cup.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is an elevation of a set of dies used in carrying out my improved process, one half of the lower or female die being shown. Fig. 2 is a plan view of the female die with the upper half removed. Fig. 3 is a fragmentary sectional elevation of the dies and the work at the end of the first step in my improved process. Fig. 4 is a fragmentary sectional elevation of the other set of dies and the work at the beginning of the second step of my improved process. Fig. 5 is an elevation of the bar after the first upsetting operation. Fig. 6 is a section of a pipe forming the oil-cup body, and Fig. 7 is a longitudinal section of the parts shown in Figs. 5 and 6 after they have been welded and shaped to form the body portion of an oil-cup.

The numeral 1 indicates a pair of dies made up of four blocks, as shown in Figs. 1 and 2, the upper and lower quarters of each being respectively secured by bolts 2 2 with heads let into countersunk portions, as shown in Fig. 1. Near one end of the die halves thus secured together a hole 3 is bored, having a counterbored portion 4 at its upper end and an undercut portion 5 forming a conical recess where the borings 3 and 4

come together, thus producing a die in which the first step of my improved process takes place. Coöperating with this die is a male die 6, of such size as to fit the boring 4 and having a shank 7 at its upper end adapted to fit in a socket in the plunger of a steam-hammer or other suitable press. At the opposite end of the die a hole 8 is bored, similar to and of the same size as the hole 3 and leading into a counterbored portion 9 in the upper half of the die and of the size of which the body of the cup is intended. Between the borings 8 and 9 and in the lower half of the die is an undercut hexagonal portion 10, connecting with the hole 8 by a counterbored portion 11, giving the exact conformation desired for the base of the cup and forming a die in which the second step of my process is performed. Coöperating with this second die is a male die 12, of the diameter and length intended for the interior of the cup, having a centering-punch 13 at its lower end and an air-vent 14 extending through an enlarged portion 15 of the die and of a size to fit the boring 9 said die having a shank 16 similar to the shank 7 of the die 6.

In carrying out my process the female die-blocks are secured to the anvil-block of the machine and the male dies are secured in its plunger. A bar 17 of iron or steel heated to a welding heat is then inserted in the hole 3 and projects slightly above the conical undercut portion 5 of the first set of dies. When the die 6 descends, the end of the bar is upset, forming a conical head 18 on the bar, as shown in Fig. 5. This bar is placed in the second set of dies, as represented in Fig. 4, and a pipe 19, heated to a welding heat, is inserted in the counterbore 9 and rests on the periphery of the conical head slightly below the top of the undercut hexagonal portion 10 of the die-block. When the die 12 now descends, the pipe will be shortened and thickened to fit the male and female dies and the edges of the conical head 18 turned up to take the conformation of the hexagonal recess and weld the pipe to the head. The head 18 will also be recessed and centered for boring and the metal forced into the counterbored portion 11, thus finishing the cup, which is afterward cut from the bar 17.

By first upsetting the end of the bar 17 in the form of the conical head 18 I am enabled to form the cup by less labor, and only one heating is required for this part.

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

1. A process for forming oil-cups, which
5 consists in first heating and upsetting the end of a bar to form a conical head, placing said bar and its attached conical head in a pair of dies having the conformation of the finished cup, then inserting in the dies in contact with
10 the tapered portion of the conical head, a heated pipe to form the body portion of the cup, and upsetting said pipe and head, at a welding heat to weld them together.

2. A process for forming oil-cups, which
15 consists in heating a bar of iron or steel, forging a conical head thereon, placing the head in a set of dies, inserting a pipe to rest on the periphery of the conical head, upsetting the

two parts at a welding heat to weld them together, and then cutting the cup from the bar 20 for the purpose specified.

3. A process for forming oil-cups, which consists in forming at the end of a bar of iron or steel, a head, placing the head in a set of dies, inserting a pipe, having an outer diam- 25 eter less than the body portion of the finished cup which it forms, in the dies in contact with the head, and upsetting the pipe and head at a welding heat to weld them together.

In testimony whereof I have signed my 30 name to this specification in the presence of two subscribing witnesses.

JAMES TOWERS.

Witnesses:

M. C. NETTLETON.

GEORGE R. CRAIG.