

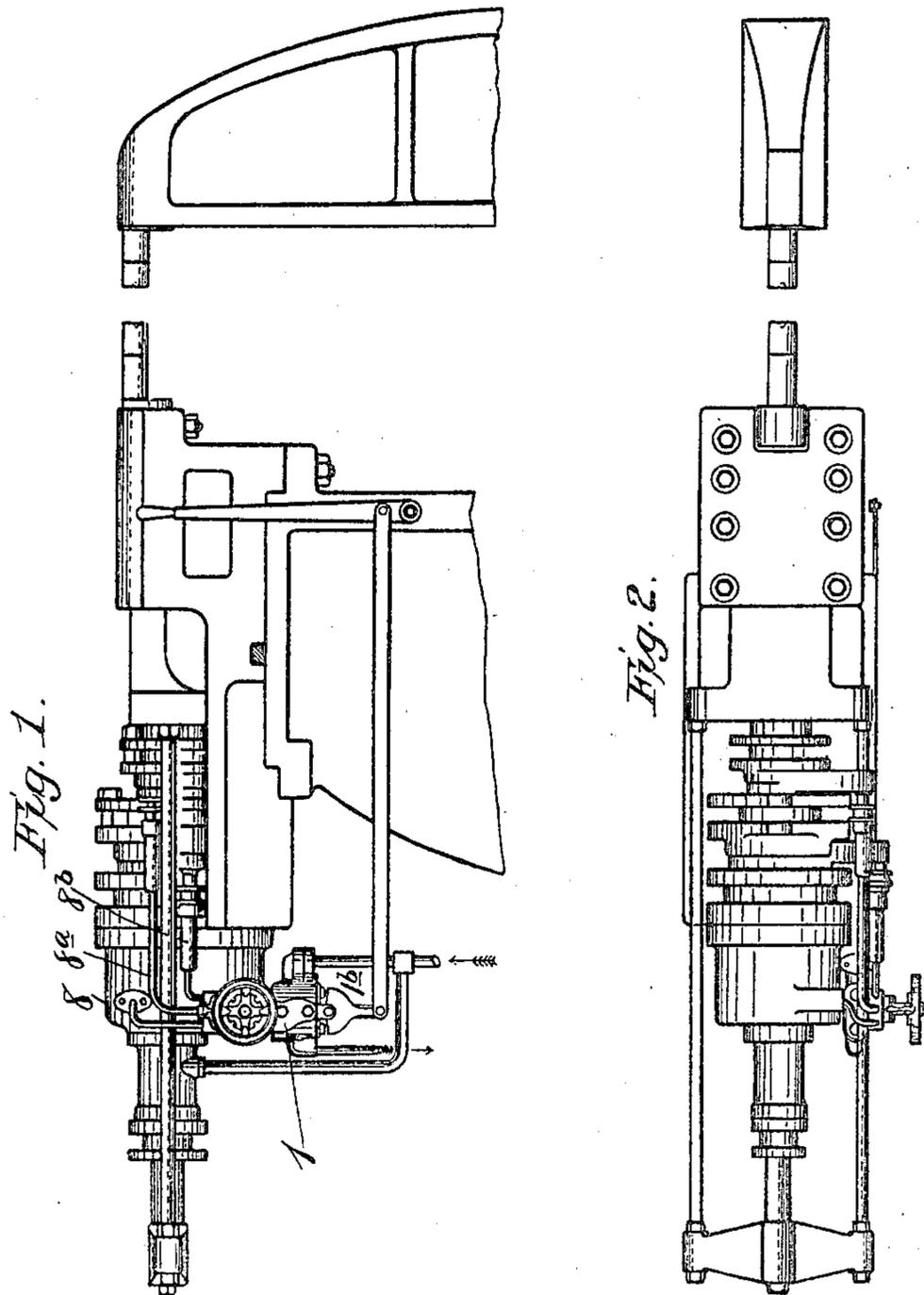
No. 812,628.

PATENTED FEB. 13, 1906.

W. H. WOOD.
HYDRAULIC DISTRIBUTING VALVE.

APPLICATION FILED MAR. 15, 1905.

2 SHEETS—SHEET 1.



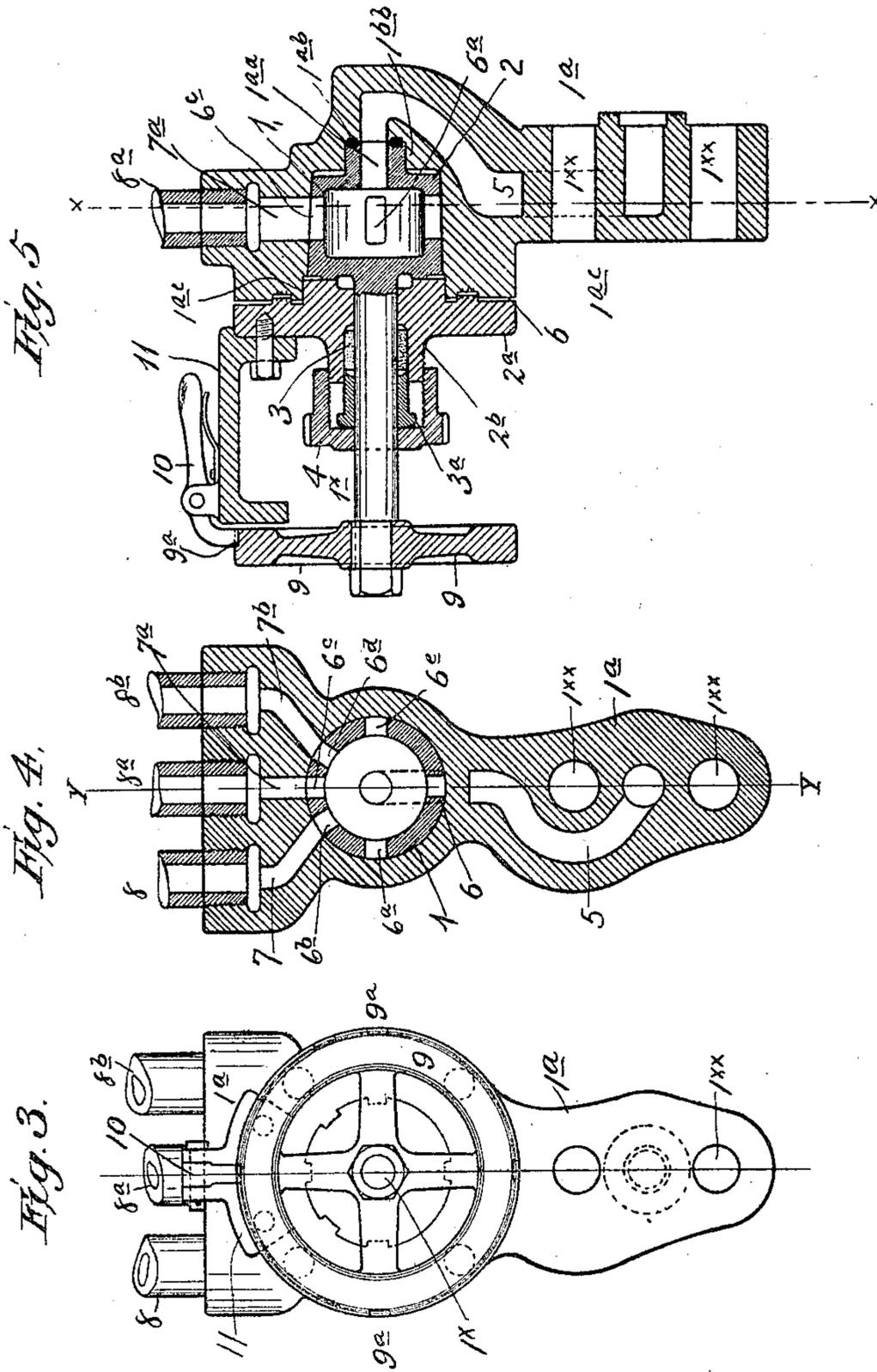
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HYDRAULIC DISTRIBUTING VALVE.

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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

WILLIAM H. WOOD, OF MEDIA, PENNSYLVANIA.

HYDRAULIC DISTRIBUTING-VALVE.

No. 812,628.

Specification of Letters Patent.

Patented Feb. 13, 1906.

Application filed March 15, 1905. Serial No. 250,281.

To all whom it may concern:

Be it known that I, WILLIAM H. WOOD, a subject of the King of Great Britain, (but having legally declared my intention to become a citizen of the United States,) residing at Media, in the county of Delaware and State of Pennsylvania, have invented new and useful Improvements in Hydraulic Distributing-Valves, of which the following is a specification.

My invention relates to improvements in hydraulic apparatus—as, for instance, riveting machines or presses, flanging-presses, &c.—more especially to what may be termed “distributing-valves” therefor.

It has for its object, among other things, principally to provide for requisitely delivering the motive or pressure liquid to the piston-cylinder, singly or severally at one operation or adjustment of the valve, and to effect this with facility and expedition.

Said invention consists of certain structural features, substantially as hereinafter fully disclosed, and particularly pointed out by the claims.

In the accompanying drawings, illustrating the preferred embodiment of my invention, Figure 1 is a side elevation of a hydraulic riveter, which is preferably of an approved type and to which is suitably applied the subject of my present invention. Fig. 2 is a plan view thereof. Fig. 3 is a face view of my invention upon an enlarged scale. Fig. 4 is a vertical section produced upon the line $x x$ of Fig. 5. Fig. 5 is a like section taken upon the line $y y$ of Fig. 4.

In the disclosure of my invention I suitably arrange in connection with the casting 1^a , preferably of bronze and connected up by suitable bolts inserted through holes 1^{xx} therein with the operating-valve 1^b , a chambered cylinder 1, constituting the distributing-valve proper and adapted to be received and turn within a corresponding chamber 2 of said casting with its open side closed by a separate plate-like casting or cover 2^a , suitably held in place, preferably by screws. Said cylinder or valve has its stem 1^x preferably integral therewith, although it may be separate therefrom and extending through and held in place in said cover or plate 2^a . Said latter part has a tubular extension or flange 2^b formed upon its outer surface concentrically with a line extending through the longitudinal center of the valve-stem-receiving opening, and which tubular extension re-

ceives a packing 3, fitting around said valve-stem liquid-pressure tight. An outer gland 3^a is also fitted upon or encompasses the valve-stem 1^x , its inner end entering the unoccupied portion of the tubular extension 2^b and forming a continuation of the packing 3, said outer gland being mainly housed and held in place by a cap-nut 4, slipped upon said stem and screwed upon said extension, as usually practiced for like purposes.

The valve or cylinder 1 has suitably extending therefrom oppositely to or in alignment with its stem 1^x an annular or hollow elongation or pivot 1^{aa} entering and suitably packed, as at 1^{ab} , within a corresponding socket 1^{bb} , produced in the casting 1^a . Said cylinder-valve member is practically balanced in position, it being inclined peripherally just enough to prevent its major inner end portion from binding or contacting with the opposite surface of the casting, and the packing 1^{ab} cushioning the valve against any endwise thrust in that direction, while oppositely said valve, having minimum annular surface of contact 1^{ac} with the cover 2^a , is cushioned against corresponding thrust in the opposite direction. Said hollow pivot elongation 1^{aa} , it will be noted, also serves as a supply or inlet port for the cylinder or valve member 1, the same establishing communication between the interior or chamber of the latter and an intake-passage 5, produced longitudinally in the casting 1^a , with whose outward-opening lower end the hydraulic pressure-supply pipe (not shown) is to be connected. Said cylinder or valve member has a number of ports $6 6^a 6^b 6^c 6^d 6^e$ produced through its perimeter or face at certain intervals apart, especially as disclosed by Fig. 4, and within the upper portion of the casting or member 1^a is provided a number of passages or ports, preferably three, $7 7^a 7^b$, with which the aforesaid ports are designed to register and with which and the respective piston-cylinders of the hydraulic riveter, press, or the like connection is in practice effected by pipes $8 8^a 8^b$ screwed, preferably, into the walls of enlargements of said passages or ports $7 7^a 7^b$, as shown.

As the valve is shown, the three cylinders, as disclosed by Fig. 1, are in communication with the source of supply of hydraulic pressure. Turning the valve to the right brings the central and right cylinders into requisition. Turning it to the left from the initial

position, the central and left cylinders are put into service. By moving it in the same direction until the port 6^e is caused to register with port 7^b, the port 6^d being accordingly brought into coincidence with port 7, the right and left cylinders may be worked, and by the further movement of said valve in the same direction cause the port 6^e to register successively with ports 7^a and 7, working either of the corresponding cylinders separately and by the still further movement of said valve in the same direction bring the port 6 successively opposite the ports 7^b, 7^a, and 7, also working the corresponding cylinders separately.

A hand-wheel 9 is suitably keyed to the stem 1^x of the cylinder or valve member 1 of the distributing-valve to provide for the convenient turning or actuation of said valve and suitably indenting the periphery of said wheel in a number of notches or recesses 9^a, corresponding in number and arrangement with the ports 6, &c., in said valve member.

For the suitable retention of said valve at its required point of adjustment a spring-pressed detent or dog 10 is suitably pivoted or positioned upon a bracket 11, screwed or otherwise secured to the front plate 2^a.

It will be noted that by suitably actuating the hand-wheel 9, together with requisitely manipulating the dog or detent 10, any one or less number than all of the pistons may be brought into requisition, as is apparent. These sundry adjustments may be, if desired, designated by numerals upon the hand-wheel 9, corresponding with the position of ports in the valve 1 which of course serve as a guide in providing for adjusting or manipulating the valve for actuating any particular piston or any particular two pistons, as well as all of the same, as is obvious.

Latitude is allowed as to details herein, since they may be changed as circumstances suggest without departing from the spirit of my invention.

I claim—

1. In a device of the character described, a casing having three peripheral delivery-

ports and an inlet, a hollow rotary valve seated in said casing, between said ports and inlet, said valve being provided with a plurality of ports arranged to register simultaneously with the ports in the casing and other ports arranged to register singly with said ports in the casing, the valve and ports being constructed and arranged to enable any one, any two or three of the delivery-ports to be employed, and means for manually actuating the valve.

2. In a device of the character described, a casing having three peripheral delivery-ports and an inlet, a hollow rotary valve seated in said casing, between said ports and inlet, and having a central tubular extension bearing in said casing and communicating with said inlet, said valve being provided with a plurality of ports arranged to register simultaneously with the ports in the casing and other ports arranged to register singly with said ports in the casing, the valve and ports being constructed and arranged to enable any one, two or three of the delivery-ports to be employed, and means for manually actuating the valve.

3. In a device of the character described, a casing having three peripheral delivery-ports and an inlet, a hollow rotary valve seated in said casing, between said ports and inlet, said valve being provided with a plurality of ports arranged to register simultaneously with the ports in the casing and other ports arranged to register singly with said ports in the casing, the valve and ports being constructed and arranged to enable any one, two or three of the delivery-ports to be employed, means for accordingly moving or actuating said valve, and means for the retention of said valve at the requisite points of adjustment in its movement.

In testimony whereof I affix my signature in presence of two subscribing witnesses.

WILLIAM H. WOOD.

Witnesses:

WM. T. KOLP,

WM. H. TRICKER.