

H. H. CRAMER.

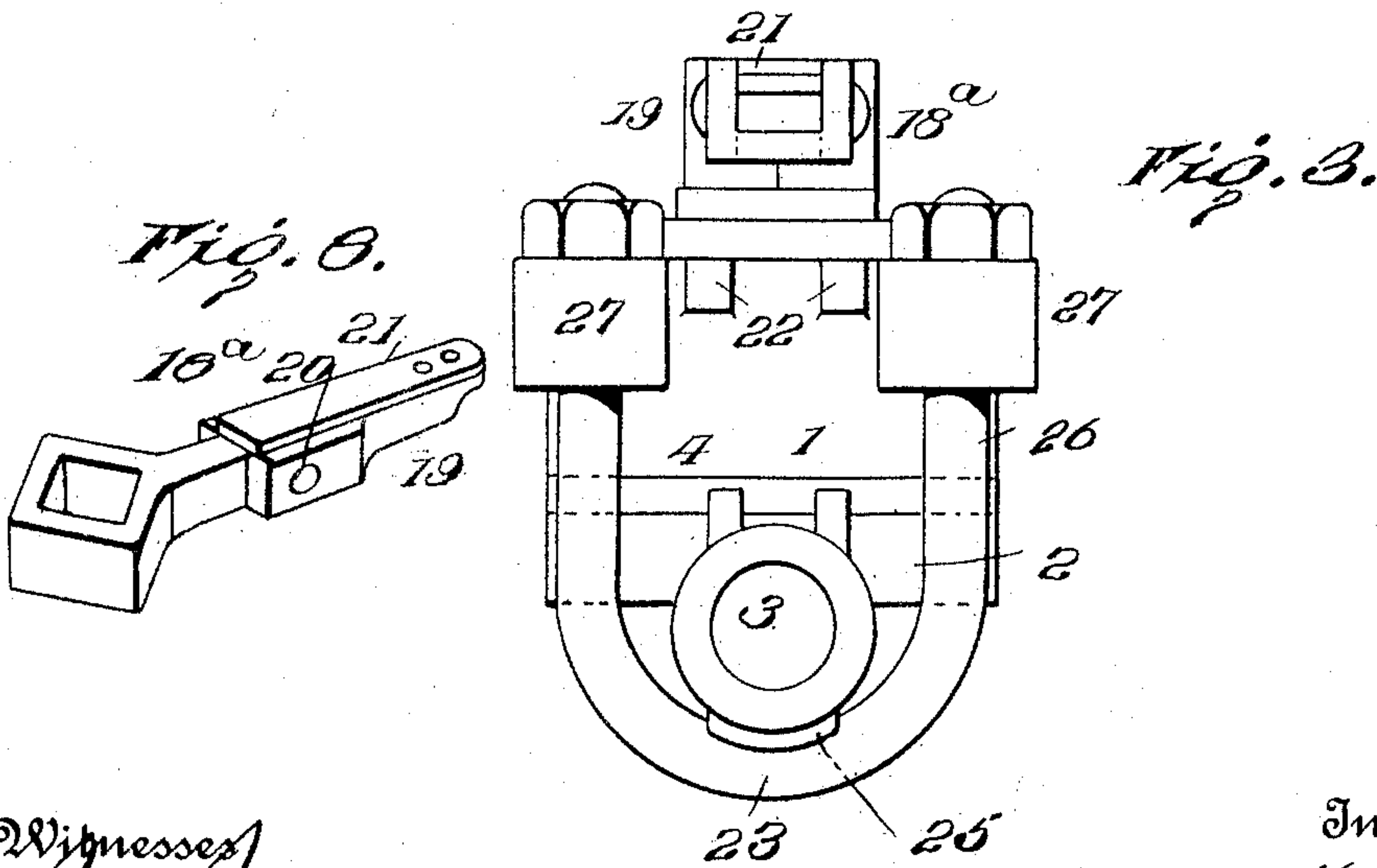
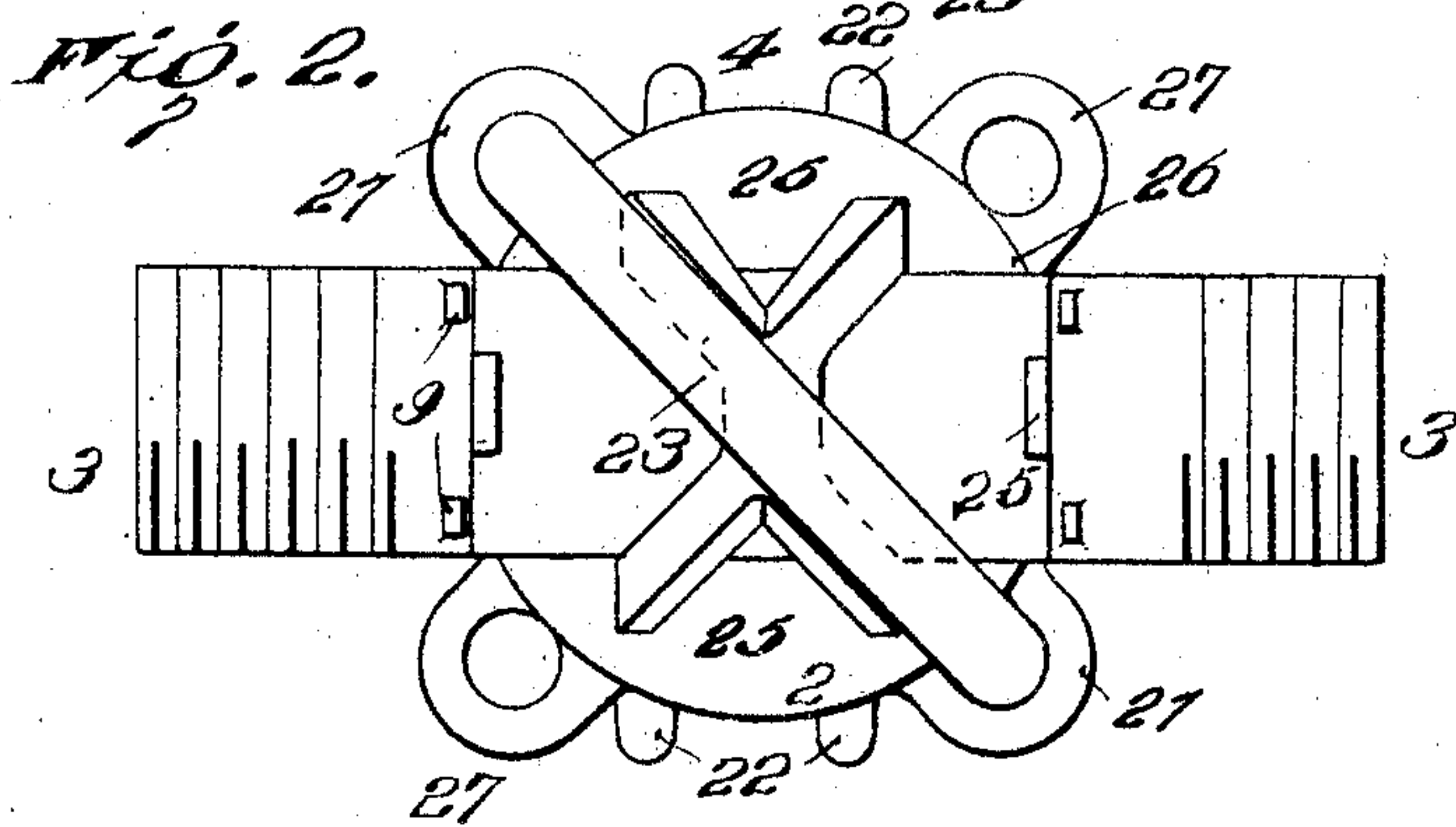
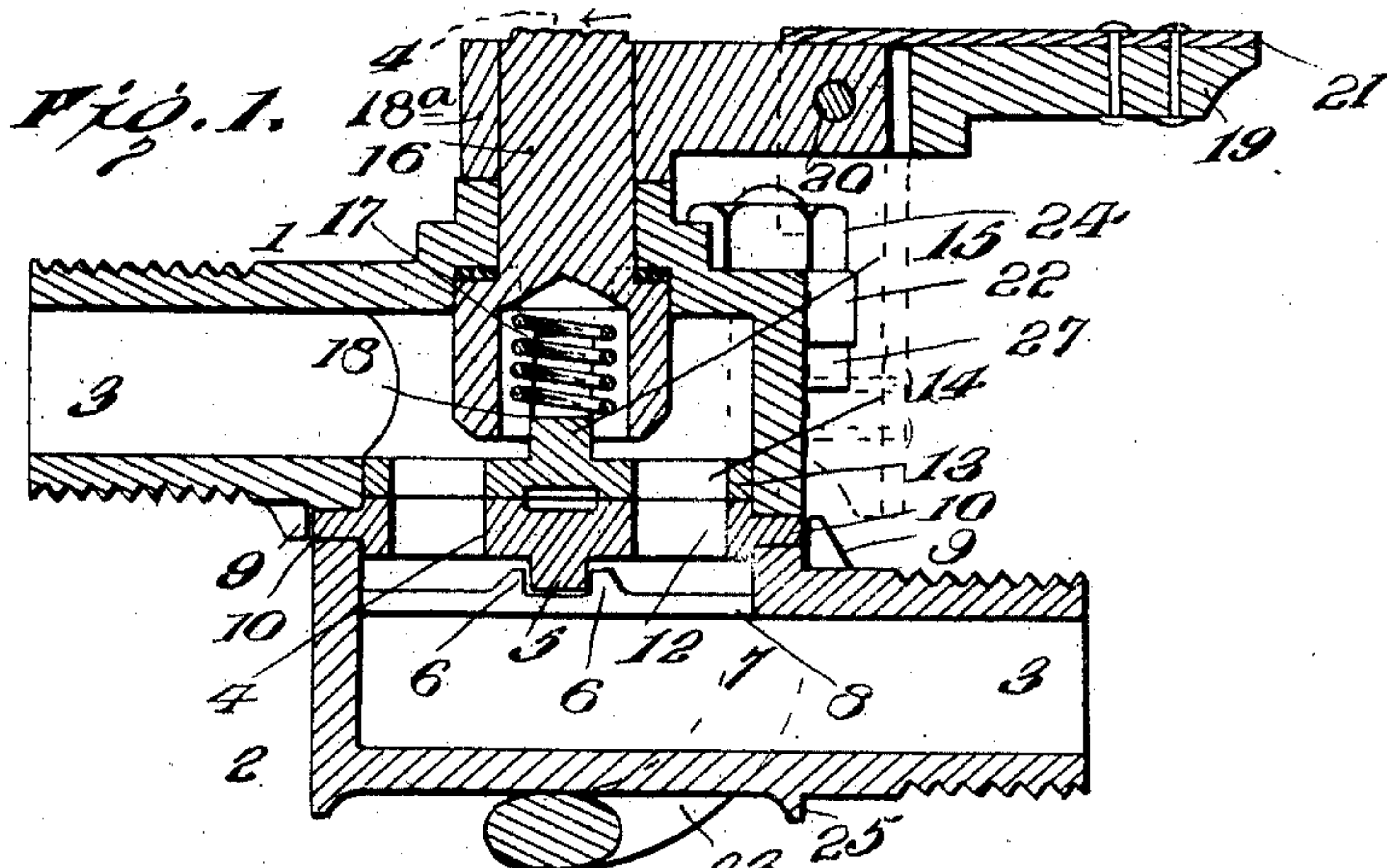
VALVE.

APPLICATION FILED MAY 13, 1905.

Patented Dec. 22, 1908.

2 SHEETS—SHEET 1.

907,130.



Witnesses
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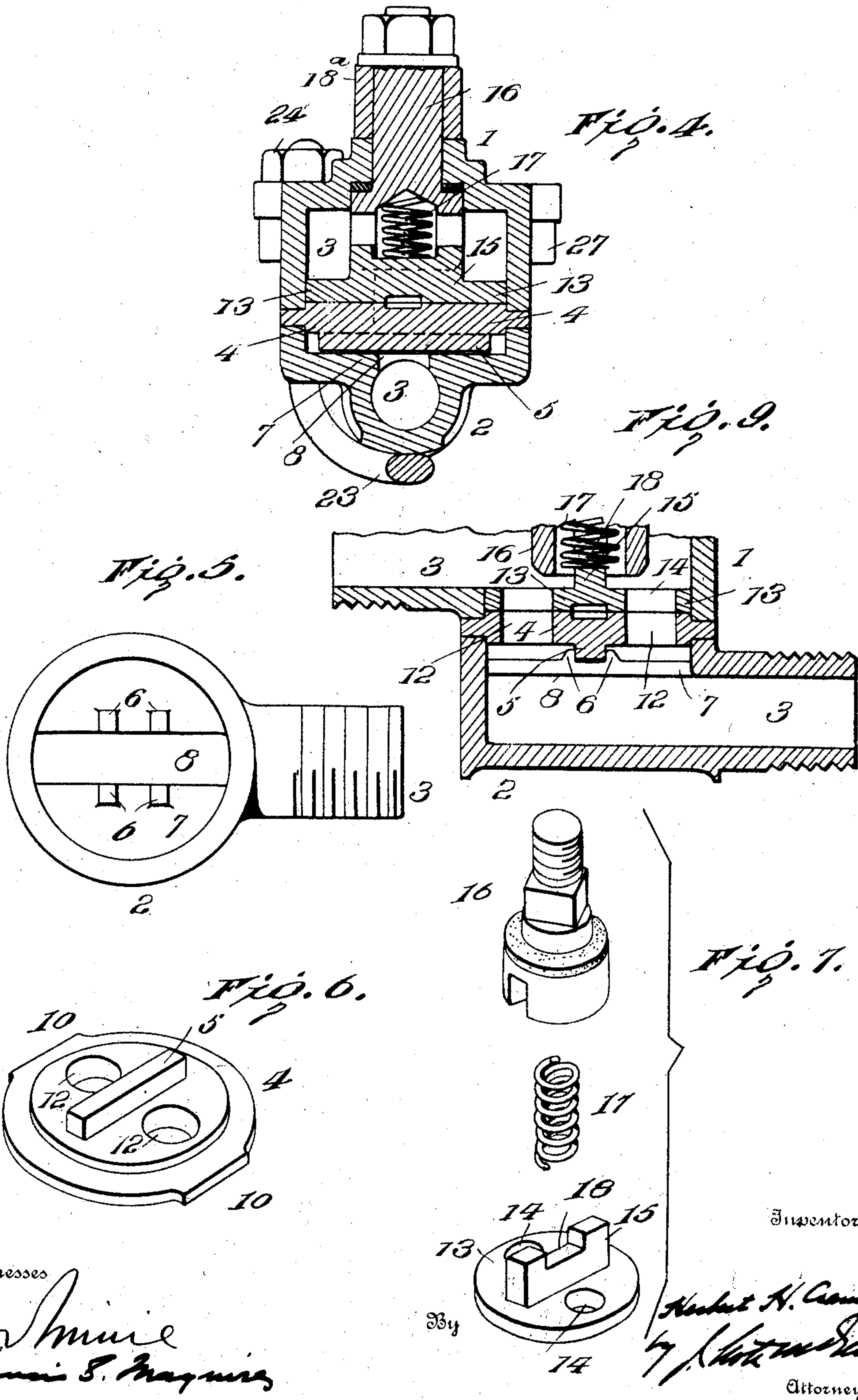
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UNITED STATES PATENT OFFICE.

HERBERT H. CRAMER, OF ASPEN, COLORADO.

VALVE.

No. 907,130.

Specification of Letters Patent.

Patented Dec. 22, 1908.

Application filed May 13, 1905. Serial No. 260,232.

To all whom it may concern:

Be it known that I, HERBERT H. CRAMER, of Aspen, in the county of Pitkin and State of Colorado, have invented certain new and useful Improvements in Valves; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The primary object of this invention is to enable the valve disk and valve seat to be removable and permit of their being easily held while being filed or ground without danger of defacing by the holding means; secondly, to provide improved means for binding together the sections of the valve casing and guard against unevenness on the valve seat; thirdly, to provide improved means for locking the casing sections, and permit the inlet and outlet branches to be positioned either at right angles to each other or in opposite directions; fourthly, to enable the valve to be locked in either its opened or closed positions; and, finally, to construct a valve, especially adapted for controlling the passage of compressed-air, which shall be simple in construction, inexpensive and durable, and which may be readily taken apart and secured together without difficulty.

The invention will be hereinafter fully set forth and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical longitudinal sectional view, the handle being shown locked in dotted lines. Fig. 2 is a bottom plan view, Fig. 3 is an end view showing a modified connecting means. Fig. 4 is a transverse sectional view on line 4-4, Fig. 1. Fig. 5 is a plan view of the lower casing section. Fig. 6 is an inverted view in perspective of the valve seat. Fig. 7 shows the valve, its stem and spring. Fig. 8 is a view of the handle removed. Fig. 9 is a sectional view showing a slight modification.

Referring to the drawings, 1 and 2 designate the two parts or sections of the valve casing, each having a chambered portion and a lateral branch 3, one branch serving as the inlet and the other as the outlet.

4 designates a removable valve-seat in the form of a circular disk fitted between the contiguous edges of the two casing parts,

such disk being built up or thickened so as to form extended portions projecting into the upper and lower parts of the casing, such upper part constituting the valve seat. As pointed out in my application for patent filed December 7, 1903, Serial No. 184,131, the advantage of having this raised valve seat is that it may be readily filed in the event of unevenness of wear. From the underside of this valve disk projects a rib which serves a double function. Primarily it forms the means with which a vise may engage for holding the disk while it is being filed, thereby avoiding any injury to the edge or face of the disk. This rib serves a further function of holding the valve seat in place by engaging with lugs 6 projecting from the face of a diaphragm 7 in the casing part 2, such lugs being on opposite sides of an opening or passage way 8 formed in such diaphragm. (See Fig. 5.) As a further means of holding the valve seat in place I have shown in Fig. 1 stop lugs 9 projecting in opposite directions from the two casing parts, with which lugs opposite straight portions 10 (see Fig. 6) on the periphery of the seat disk are designed to engage. But as these stop lugs 9 are not absolutely essential, I have shown them as omitted in Fig. 9, in which event the straight portions are unnecessary. The seat disk is formed with ports 12 on opposite sides of rib 5, which ports coincide with the passageway 8.

13 designates the valve proper, shown in the form of a disk conforming to the raised portion of seat 4, said disk having ports 14 which are designed to coincide with the ports 12 when the valve is opened. From the upper face of the valve disk projects a rib by which the valve may be held in a vise for filing the same as the seat disk. This rib is engaged by the lower slotted cylindrical end of valve stem 16 which is passed upwardly through casing part 1. The cylindrical portion of said valve stem incloses a spring 17 which bears in a recess in the center of rib 15, the tension of such spring being sufficient to hold the valve disk to the seat. The upper end of the valve stem is squared, and carries a handle 18^a, preferably removably secured to such stem. This handle is composed of an inner rigid section and an outer section 19, pivoted to the former by pin 20, and to the upper face of the section

19 is secured a plate spring 21 which serves to retain it in its extended position, by spanning the meeting edges of the two sections as shown in full lines, Figs. 1 and 8, and also in its bent position, as indicated in dotted lines, Fig. 1. When in this latter position the outer section 19 of the handle engages between lugs 22 of the valve casing, thus serving to lock the valve either opened or closed. By reference to Fig. 2 it will be seen that the handle may be turned either to the right or to the left and locked in the manner stated when the valve is closed, as well as being locked when the valve is opened.

The next important feature of my present invention resides in the means for detachably connecting the parts of the casing and locking the valve seat in place. The preferred form contemplates the use of a single U-shape bolt 23 passed diagonally beneath the casing part 2 (see Figs. 1, 2 and 4) with its threaded ends extended through apertured lugs of casing part 1, nuts 24 being secured on such ends. One such bolt so passed diagonally is sufficient, and for the purpose of bracing it and preventing any possibility of deflection, the lower semi-cylindrical portion of casing part 2 is formed with beveled ribs 25 against the opposite faces of which ribs the bend of the bolt is designed to bear. These ribs radiate from the axial center of the lower casing part, and widen as they extend outwardly. They are out of line with each other so that a bolt may rest against their opposed faces. In this way the pressure of the U bolt is applied directly to the center of the lower casing part (see Figs. 1 and 4) serving thereby to draw the two parts together uniformly, and preventing unequal binding of the valve seat. By this means the valve seat is so firmly held between the two sections that its peripheral portions 10 and lugs 9 on the casings may be dispensed with, as in Fig. 9. But if for any reason it be desired to employ two U-bolts, the single bolt may be removed and two bolts substituted, in which event they are arranged transversely of the valve casing. These are shown in Fig. 3. Or, the single bolt may be passed in either direction, instead of that shown in Fig. 2, since the upper casing part is formed with four apertured ears 27. Hence I employ two sets of beveled ribs 25 on the underside of the lower casing part. When access is desired to the interior of the valve it is only necessary to remove the single U-bolt, or the two U-bolts if two be employed, whereupon the valve seat and the valve may be readily withdrawn and either or both secured in a vise to permit of the filing of the faces thereof. Another advantage residing from the use of the single bolt, passed diagonally of the valve casing, is that it permits the inlet and outlet branches to be placed at right angles to each other, and furthermore

it involves the loosening and tightening of but two nuts. The single bolt is preferable when the valve is used for controlling low pressures, but the two bolts are desirable when operating under high pressures.

The advantages of my invention are apparent from what has been stated. Not only have I provided extremely simple and inexpensive means for uniting the parts of a casing, but by making the valve seat removable and providing it and the valve disk with the face ribs such parts may be held for filing without danger of defacement or injury thereto. It will also be seen that by means of the two-part handle the valve may be locked when opened and also locked when moved in either direction for closing or cutting off communication between the inlet and outlet branches, thereby avoiding all danger of accidental opening of the valve as when the engine or other machine is undergoing inspection or repair.

I claim as my invention:

1. A valve having its casing formed in separate parts or sections, the opposite parts being provided with lateral branches, and a U-bolt arranged diagonally of one of the casing parts and rigidly secured to the other casing part.

2. A valve having its casing formed in separate parts or sections, the opposite parts having lateral branches, one part having apertured lugs and the other beveled ribs radiating from its axial center, and a U-shaped bolt arranged diagonally of the casing and engaging the opposite faces of said ribs, and nuts for securing said bolt to said ears.

3. The combination with the casing having a diaphragm provided with lugs or stops on its upper face, of a removable valve seat designed to be supported by said diaphragm and having means for engaging said lugs or stops, said means permitting said valve seat to be held while being filed or ground.

4. The combination with the casing having a diaphragm formed with a passage and having lugs or stops on its upper face at opposite sides of said passage, of a removable valve seat designed to be supported by said diaphragm and having ports registering with said passage, and a rib on its under face designed to be accommodated between said lugs or stops, said rib providing means for holding said valve seat while it is being filed or ground.

5. A valve having a partition formed with lugs, and a removable valve-seat having a rib designed to engage with said lugs, said rib serving as means whereby the valve-seat may be held while being filed or ground.

6. The combination with the casing and valve disk, of a removable seat for said valve in the form of a disk having its periphery

interrupted by straight portions, and lugs on said casing for engaging said straight portions.

7. A valve casing having lugs on opposite sides thereof, a handle secured to the valve stem, and located above said lugs, the outer part of said handle being pivoted, and a spring plate secured to the upper face of said outer part and spanning the meeting edges of the two parts, said outer part being de-

signed to engage with said lugs when turned downwardly for locking the valve either opened or closed.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

HERBERT H. CRAMER.

Witnesses:

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VERNON E. WEST.