

No. 775,252.

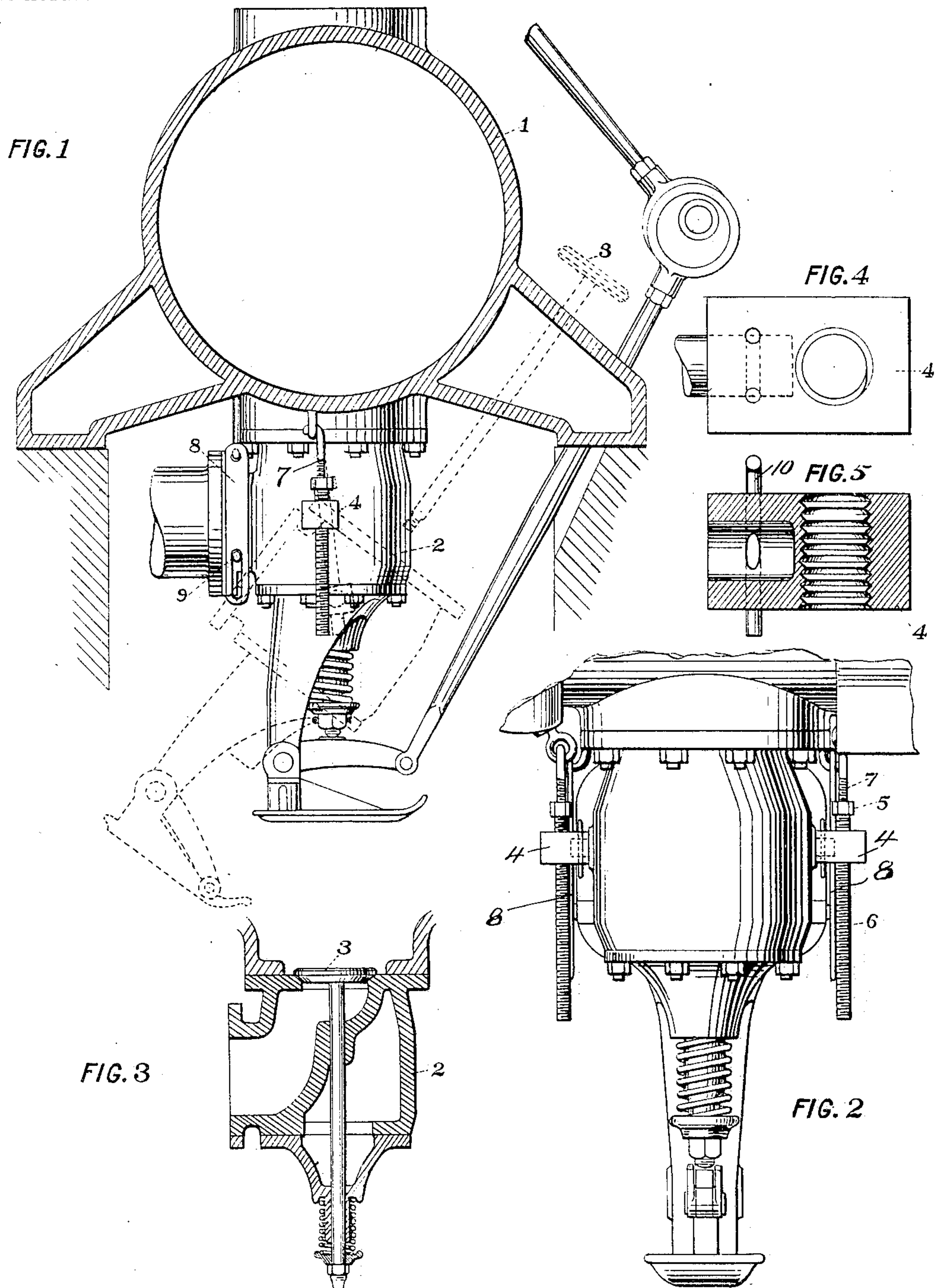
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F. G. J. SCHULZE-PILLOT.

DISCONNECTING SUSPENSION DEVICE FOR HEAVY MACHINE PARTS.

APPLICATION FILED NOV. 16, 1903.

NO MODEL.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## DISCONNECTING SUSPENSION DEVICE FOR HEAVY MACHINE PARTS.

SPECIFICATION forming part of Letters Patent No. 775,252, dated November 15, 1904.

Application filed November 16, 1903. Serial No. 181,352. (No model.)

*To all whom it may concern:*

Be it known that I, FRIEDRICH GERHARD JOSEPH SCHULZE-PILLOT, a subject of the Emperor of Germany, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Disconnecting Suspension Devices for Heavy Machine Parts, of which the following is a specification.

My invention relates to "disconnecting suspension devices for heavy machine parts." By this term I mean a device which permits heavy hanging parts of machines to be disconnected from their support, so as to make their interior accessible for any purpose and without removing them entirely and without the use of cranes, lifting-jacks, or other independent holding means.

The device is shown as applied to an exhaust-valve casing of a large gas-engine in the following drawings, in which—

Figure 1 is a vertical section through the cylinder, showing the valve-casing with the suspension device and the disconnected position in dotted lines. Fig. 2 is a slightly-enlarged view of the valve-casing and suspension device on the longitudinal plane of the cylinder. Fig. 3 is a section through the valve-casing, showing the valve proper. Figs. 4 and 5 are details of the connection between the suspension device and the casing.

In these machines it is sometimes necessary to obtain access to the interior of the casing and to the valve itself in order to clean, re-grind, or replace the valve. In several designs of modern large-unit gas-engines the exhaust-valves and their casings are placed below the cylinder and extend below the level of the foundation. It is therefore very difficult to disconnect these casings and suspend them while the valve is being removed or the necessary repairs made. This difficulty becomes all the more apparent when the enormous weights which must be handled are taken into consideration. In a modern blast-furnace gas-engine of from one thousand to three thousand horse-power capacity the exhaust-valve casing weighs from five thousand to ten thousand pounds. This weight must be handled

in the pit of the engine foundation and must be replaced in an exact position. In order to overcome these difficulties, a means has been devised whereby by simple manipulation of screws the casing may be lowered sufficiently to clear the studs and cylinder attachment and will then be caused to tip by its own weight, so that the interior presents itself at an angle and becomes easily accessible without completely disconnecting the parts.

As shown in the drawings, the valve-casing 2, containing the valve 3, is suspended from the bottom of the cylinder 1 by studs and nuts, as shown. Sufficient space for these parts is provided within the foundation, as shown. When the casing is connected up to the cylinder, the suspension device is not in use and may be removed entirely, if desired, so that a single set of parts may be used for all of the valve-casings, only the necessary attachment being provided on each one.

On a pin connected to each side of the casing is mounted a rotatable block 4 by means of a semicircular groove in the pin and a U-shaped dowel-pin in the block, as is shown more plainly in Figs. 4 and 5. This block is threaded for the reception of a compound screw 5, which consists of a sleeve 6, threaded in one direction, either right or left, and having within it a rod 7, threaded in the other direction, left or right. The sleeve is provided with an enlargement for applying a wrench or other turning means. The rod 7 terminates in a hook, which fits into a ring fastened to or integral with the cylinder. At one side of and approximately in line with the compound screw is a link 8, loosely suspended from a hook carried by the cylinder-casing. At its lower end this link has a slot in which is guided a pin 9 on the valve-casing. This pin is located to one side and below the center of gravity of the casing, as shown. It will be noted that the elements above described are duplicated on both sides of the valve-casing.

The operation of my device is as follows: If it be desired to gain access to the interior of the valve-casing, the nuts are first removed from the studs. The compound screws are



then turned in a direction to cause the casing to be gradually lowered until the pins 9 rest in the bottom of the slots of the links 8. As these pins are located below and to one side of the center of gravity of the valve-casing, further turning of the screws in the same direction will cause the casing to slowly swing around the axis of the pins. It will therefore assume the position shown in dotted lines, thus making it possible to remove the valve, as shown. In order to reassemble the parts, the operation described above is reversed.

I do not wish to limit myself to the particular application shown, as the device may be used on any machines having heavy hanging parts the interior of which must be gotten at from time to time—such as, for instance, presses, stamps, brewing and bleaching apparatus, &c.

What I claim as my invention is—

1. In a device of the character described, a stationary part, a removable part supported therefrom, an extensible connection between fixed points of the two parts permitting movement of the removable part with relation to the stationary part without destroying the support, and means for arresting the longitudinal movement only of the removable part at a determined point of the movement, substantially as described.

2. In a device of the character described, a stationary part, a removable part supported therefrom, and an extensible connection between fixed points of the two parts permitting movement of the removable part with relation to the stationary part without destroying the support, corresponding links pivoted at one end to the stationary part at points outside of the center line of the removable part and above its center of gravity, and provided with slotted openings in the other ends, and pins fixed to the removable part below its center of gravity and guided in said slots, substantially as described.

3. In a device of the character described, a

stationary part, a removable part supported therefrom, compound screws pivotally supported by their inner parts from the stationary part, nuts for the outer parts of said screws pivoted on the removable part, and means for arresting the longitudinal movement only of the removable part at a determined point of the movement, substantially as described.

4. In a device of the character described, a stationary part, a removable part supported therefrom, compound screws pivotally supported by their inner parts from the stationary part, nuts for the outer part of said screws pivoted on the removable part, corresponding links pivoted at one end to the stationary part at points outside of the center line of the removable part and above its center of gravity, and provided with slotted openings in the other end, and pins fixed to the removable part below the center of gravity and guided in said slotted openings, substantially as described.

5. In a gas-engine, a cylinder, a valve-casing supported therefrom, fastening means between said parts and supplemental extensible supporting connections between the casing and cylinder supporting said casing when the fastening means are removed and permitting its lowering, substantially as described.

6. In a gas-engine, a cylinder, a valve-casing supported therefrom, fastening means between said parts and supplemental extensible supporting connections between the casing and cylinder, supporting said casing when the fastening means are removed and permitting its lowering, and means attached to the parts for causing tipping of said casing when lowered to a certain point, substantially as described.

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

FRIEDRICH GERHARD J. SCHULZE-PILLOT.

Witnesses:

C. G. SPRADO,  
A. S. HAWKS.