

Nov. 3, 1925.

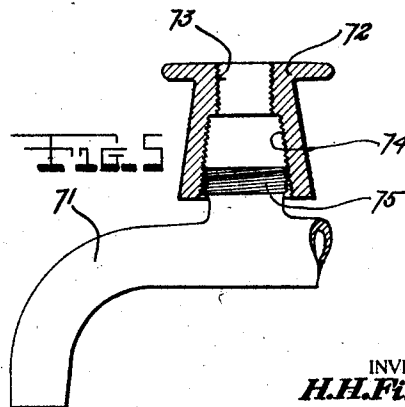
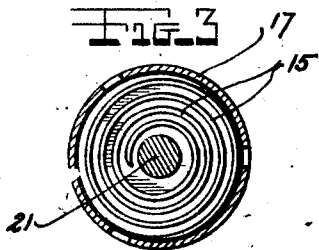
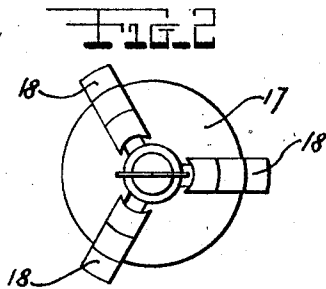
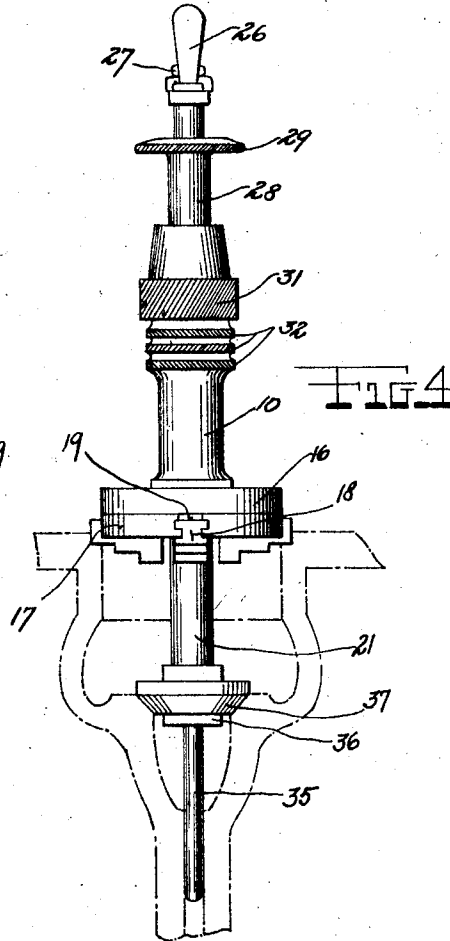
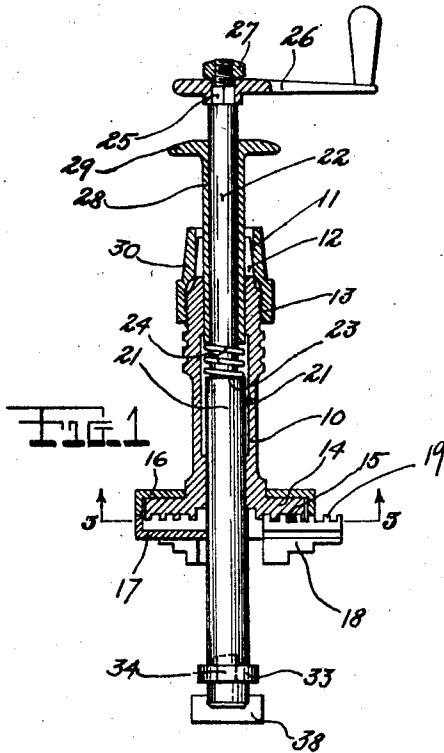
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H. H. FINGERLE

VALVE RESEATER

Filed Jan. 8, 1924

2 Sheets-Sheet 1



INVENTOR
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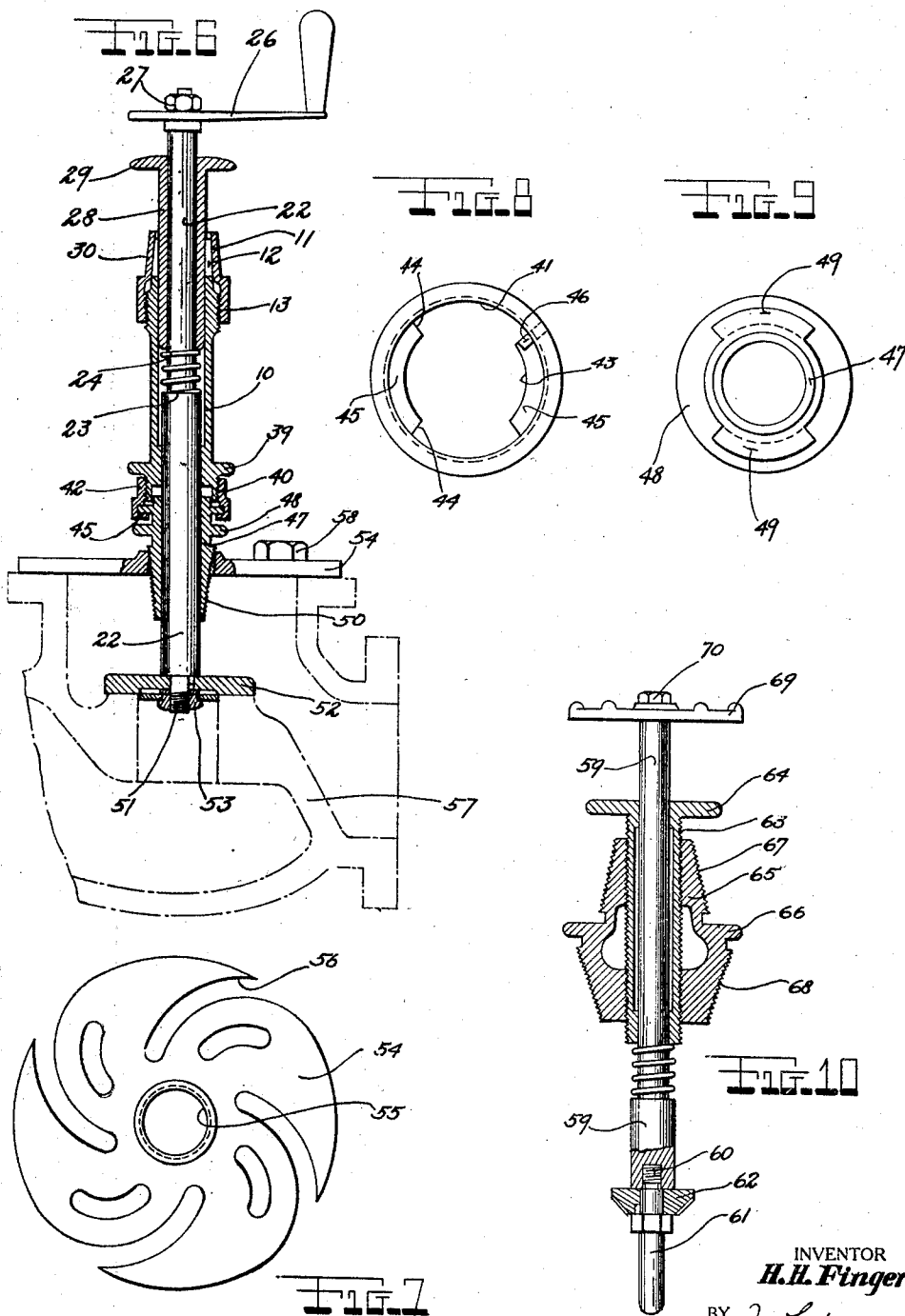
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UNITED STATES PATENT OFFICE.

HERMAN H. FINGERLE, OF NEW YORK, N. Y.

VALVE RESEATER.

Application filed January 8, 1924. Serial No. 684,938.

To all whom it may concern:

Be it known that I, HERMAN H. FINGERLE, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Valve Reseaters, of which the following is a specification.

This invention relates to valve reseaters, and the main object is to provide a grinding and milling device suitable for repairing leaky steam or water cocks or valve seats without dismounting the same from their installation. The device enables any one to repair valve seats in a very short time without dismounting or remounting on a lathe. This results not only in a saving of time and interruption of work, but, in addition, absolute precision of refacing the valve seats is accomplished.

Another object is to provide a reseating device comprising an adjustable milling spindle in which adjustment of the spindle is effected rapidly and without screwing. These valve reseaters presented on the drawing in several modifications are provided with screw bases for general type of work, the bases being precise and self-centering.

These and other objects will become apparent in the description below, in which characters of reference refer to like-named parts of the drawing.

Referring briefly to the drawing, Figure 1 is a sectional elevational view thru a valve reseating apparatus.

Figure 2 is a bottom plan view of the same.

Figure 3 is a sectional elevation view thru the chuck body, and is taken on line 3-3 of Figure 1.

Figure 4 is a front elevational view of the valve reseater, illustrated in Figure 1, showing the same in position for refacing the valve.

Figure 5 is a fragmentary elevational view of a spigot, showing the thread base for supporting one of the modified types of valve reseaters on an external thread.

Figure 6 is a sectional elevational view thru a modified type of valve reseater, showing the same in position to face the valve surface of a globe valve.

Figure 7 is a bottom plan view of the face plate used for anchoring the valve reseating device to a globe valve.

Figure 8 is a bottom plan view of the

locking member of the threaded sleeve by means of which the threaded base is attached to the reseating device.

Figure 9 is a top plan view of the upper portion of the threaded base.

Figure 10 is a sectional elevational view of the simplest form of valve reseating device used for reseating cocks and spigots.

Referring in detail to the drawing, the numeral 10 indicates the body of the valve reseater. This body is provided with a conical top 11, in which slits 12 are provided. Below the conical portion, threads 13 are formed. At the lower end of said body, a flange 14 is provided integral therewith, the face of said flange being provided with a spiral thread 15. An annular casing 16 is rotatably mounted at the lower end of said body and encloses the flange 14. Another casing 17, a duplicate of member 16 is rigidly attached to the latter and has radial slots therein in which jaws 18 are slidably mounted, the upper face of said jaws having teeth 19 thereon which engage the spiral threads 15 on the flange 14. The main body 10 has an opening passing longitudinally and axially therethru. This opening rotatably receives a spindle 21, the spindle being movable longitudinally in the body. The upper end of said spindle has a reduced periphery 22 which forms a shoulder 23 intermediate the length of the spindle, and upon said shoulder a coil spring 24 is seated. At the upper end of the reduced position of the spindle, a square length 25 is provided on which a crank handle 26 is mounted, the crank handle being retained on the spindle by a nut 27. A sleeve 28 envelopes the reduced portion of the spindle above the spring 24, the sleeve having a knurled flange 29 at its upper end. A threaded sleeve 30 engages the threads 13 at the upper end of the body, and an extending interior conical hub engages the outer surface of member 11 at the upper end of the body and constricts the same thru the medium of the slits 12, thus serving to retain the sleeve 28 rigidly in the desired position. The lower portion 31 of the cap is knurled to provide a grip surface, and the upper portion of the body beneath the cap has similar knurled surfaces 32 which serve a similar purpose. The extreme lower end of the spindle is provided with a facing flange 33 and has an axial threaded hole into which a threaded stem 34 may

be inserted. Said threaded stem has a low-
 er guide stem 35 and a shoulder flange 36
 near its upper end serves to retain a mill-
 ing cutter 37 or similar article in place on
 the stem. The milling cutter and stem may
 be interchanged with a lapping tool 38 after
 a new seat has been formed on a valve. The
 modified form shown in Figure 6 is similar
 in most respects to the type just described
 and the same numerals will be used to in-
 dicate the corresponding parts. At the
 lower end of the modified type, however, a
 flange 39 below which a thread 40 is formed,
 encircles the lower portion of the body and
 is knurled. The threads 40 on said body en-
 gage similar internal threads 41 on a
 knurled cap 42, this knurled cap having
 an axial annular opening 43 and a pair of
 diametrically opposed symmetrical arcuate
 openings 44 communicating with the larger
 opening 43, thus dividing the flange 45 of
 said cap into two opposing sections. Ad-
 jacent one section of the flange, a pin 46
 extends radially inward from the periphery
 of the cap and its purpose will be more fully
 hereinafter described. A screw base 47 pro-
 vided with a knurled flange 48 has two op-
 posing blades 49 extending downwardly
 from its upper end, said blades being of
 such size as to register in the openings 44
 between the flange sections 45 of the cap
 42. The lower end of the screw base is
 formed into a conical sleeve on the surface
 of which tapering threads 50 are provided.
 The lower end of the spindle of the device
 shown in Figure 6 differs somewhat from
 the other type shown in Figure 1 in as
 much as the spindle used with this device
 has a threaded stud 51 thereon which regis-
 ters in an opening of a facing or milling
 cutter 52, the latter being retained by a
 nut 53. A relatively large annular face
 plate 54 is provided with this type of valve
 grinder and is provided with internal
 threads 55 which engage the tapering
 threads 50 of the base 47. This face plate
 has spiral slots 56 which are used when
 securing the valve reseating device to a
 globe valve 57, the face plate being mount-
 ed rigidly in place on the globe valve by
 bolts 58 which pass thru spiral slots 56.
 The valve reseater shown in Figure 10 dif-
 fers slightly in various respects from those
 just described, but the spindle 59 is of sub-
 stantially the same outline and has a thread-
 ed hole 60 at its lower end which receives
 a centering stud 61 on which a milling
 cutter 62 is mounted. The adjusting sleeve
 63 has its exterior length threaded and is
 provided with the usual knurled flange 64
 at its upper end. The threads of said
 sleeve engage internal threads of a thread-
 ed base 65 having an intermediate knurled
 flange 66 on both sides of which threaded
 conical surfaces 67 and 68 are provided. At
 the upper end of a spindle 59, a hand wheel
 69 is retained in place by a nut 70. The
 type of device shown in Figure 10 is used
 when reseating or refacing the valve seats on
 spigots or small cocks 71 which are pro-
 vided with internal threads. When exter-
 nal threads are formed on these spigots, a
 thread base 72 of slightly different design
 is used. This thread base has a threaded
 axial opening 73 in which the threaded
 sleeve 63 is engageable. This base has an
 internally threaded conical opening 74 en-
 tering from its opposite end which are
 adapted to engage external threads 75 of
 varying diameters on a cock or spigot 71.

The various forms of valve reseaters just
 described are of substantially the same de-
 sign, but in order to permit application of
 the same to various classes of work, an at-
 taching means to the work causes slight
 changes in the design. Where a valve is to
 be refaced and the work is not provided
 with holes, the device shown in Figure 1 is
 used. As previously stated, this device has
 jaws which are adjustable by rotating the
 spiral threads 15, the latter moving the jaws
 inwardly or outwardly thru the medium of
 the teeth 19. These jaws are provided with
 shoulders which may engage the corner of
 an article of work such as shown in broken
 lines in Figure 4, by manipulation thru
 grasping the knurled portions 32 and rotat-
 ing the body 10. When the device has been
 centered in this way, adjustment of the spin-
 dle is perhaps necessary. This is accom-
 plished by unscrewing the cap 30 to permit
 the resilient conical top 11 to expand so that
 free longitudinal movement of the sleeve 28
 is permitted. The latter is urged down-
 wardly until the face of the cutter 37 con-
 tacts with the surface of the valve to be re-
 faced and a slightly greater depression of
 the sleeve is then given in order to permit
 the spring 24 to retain the milling cutter 37
 in cutting contact with the valve seat. The
 cap 31 is then tightened so that the resilient
 top 11 clamps the sleeve 28 in place. By ro-
 tating the crank 26 in the proper direction,
 the valve seat is refaced. Where globe valves
 or the like are to be refaced, the face plate
 such as that shown in Figure 7, is used in
 order to secure the valve reseater to the work
 as globe valves are usually provided with
 holes in their flanges. These face plates are
 threaded at 55 in order to receive the thread-
 ed base 47. These thread bases have conical
 diameters of various sizes which are prefer-
 ably made detachable from the body in a
 ready manner. Applicant accomplishes this
 by providing a threaded cap which secures
 to the lower end of the body in which arcu-
 ate openings 44 separate flanges 45. At the
 upper end of the threaded base 48, blades 49
 are provided which are of smaller area than
 the arcuate openings 44 and may be slipped

upwardly thru these openings. The threaded base is then rotated so that the blades 49 are rotated and are superposed in their locked position above the flanges 45, the pin 5 46 serving as a stop to the blades of the threaded base. The device shown in Figure 10 is used similar to the other forms of valve reseaters, but in this case, the base may be reversed to adapt the device to various sizes 10 of thread diameters. The remaining parts of this device function in the same manner as the other forms.

I claim:—

1. A valve reseater comprising a cylindrical 15 cal body having a conical upper end, said conical end being slitted to give resiliency thereto, a sleeve insertable in said body, a threaded cap adapted to secure the sleeve in place, a spindle rotatable in said sleeve and 20 body, a crank on said spindle, a spring on said spindle beneath the sleeve and adapted to urge said spindle downwardly, a hollow threaded base, the spindle passing thru said threaded base, diametrically opposed arcuate 25 blades on said threaded base, and means engaging said blades for securing the thread base to the body.

2. A valve reseater comprising a cylindrical 30 cal body having a conical upper end, said conical end being slitted to give resiliency thereto, a sleeve insertable in said body, a threaded cap adapted to secure the sleeve in place, a spindle rotatable in said sleeve and 35 body, a crank on said spindle, a spring on said spindle beneath the sleeve and adapted to urge said spindle downwardly, a hollow threaded base, the spindle passing thru said threaded base, diametrically opposed arcuate

blades on said threaded base, a cap engaging 40 said body, an annular flange on said cap, said flange being divided into sections by diametrically opposite arcuate openings, the openings in the cap being large enough to permit insertion of the blade on the thread 45 base, said blades when inserted thru said openings and rotated being adapted to lock said thread base to the body, and a milling cutter at the lower end of the spindle.

3. A valve reseater comprising a cylindrical 50 body having a conical upper end, said conical end being slitted to give resiliency thereto, a sleeve insertable in said body, a threaded cap adapted to secure the sleeve in place, a spindle rotatable in said sleeve and 55 body, a crank on said spindle, a spring on said spindle beneath the sleeve and adapted to urge said spindle downwardly, a hollow threaded base, the spindle passing thru said threaded base, diametrically opposed arcuate 60 blades on said threaded base, a cap engaging said body, an annular flange on said cap, said flange being divided into sections by diametrically opposite arcuate openings, the openings in the cap being large enough to permit insertion of the blade on the thread 65 base, said blades when inserted thru said openings and rotated being adapted to lock said thread base to the body, a stop pin above one of said flange sections, said pin adapted to limit rotation of the blades, a 70 conical threaded portion on said base, and a face plate adapted to receive the threaded portion of the base for supporting the valve reseater above the work.

In testimony whereof I affix my signature.

HERMAN H. FINGERLE.