J. H. GAVIN.

VALVE STEM FOR THE VALVES OF COMPRESSION COCKS AND THE LIKE.

APPLICATION FILED MAY 19, 1919.

**1,392,411.** Patented Oct. 4, 1921.

Fig. 1

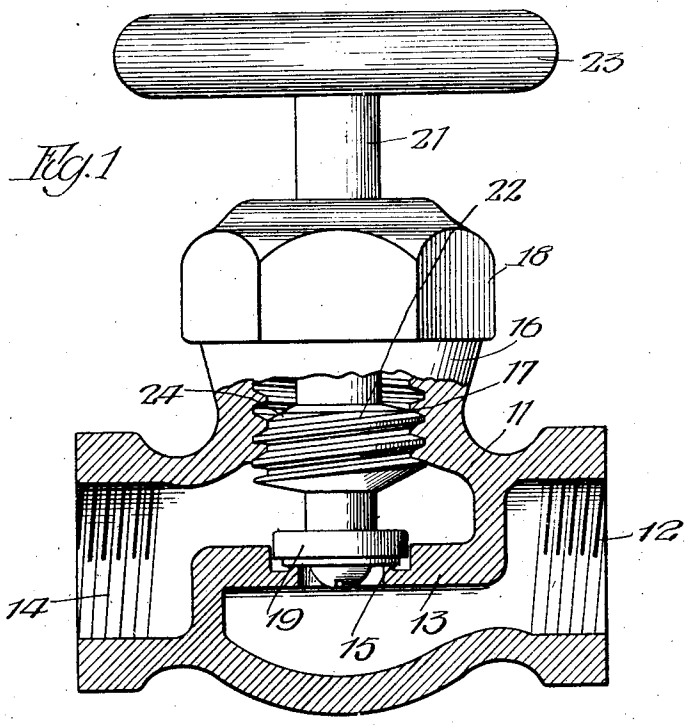



Fig. 3

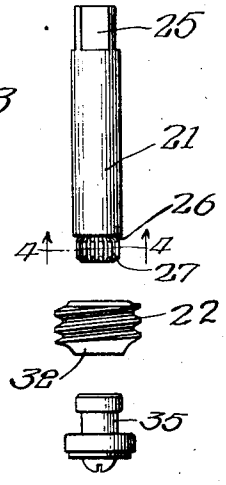



Fig. 2

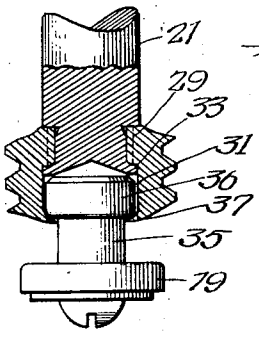
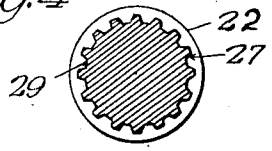



Fig. 4




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# UNITED STATES PATENT OFFICE.

JOHN H. GAVIN, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO WOLFF MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

## VALVE-STEM FOR THE VALVES OF COMPRESSION-COCKS AND THE LIKE.

1,392,411. Specification of Letters Patent. Patented Oct. 4, 1921.

Application filed May 19, 1919. Serial No. 298,041.

*To all whom it may concern:*

Be it known that I, JOHN H. GAVIN, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Valve-Stems for the Valves of Compression-Cocks and the like, of which the following is a specification.

This invention relates in general to valves and valve stems particularly adapted for use in compression cocks, bibs, faucets and other like constructions, and has for its principal object certain improvements in the construction of articles of this character, and the art of producing the same.

The valve stems of the ordinary compression cocks and like valves and articles have consisted of a round stem portion of relatively small diameter which extends outside the valve casing, usually protruding through a stuffing box, and an integral portion disposed within the valve casing of larger diameter and having threads in engagement with the threads of the casing to cause the valve to approach and recede from the valve seat upon turning of the part without the casing. Devices of this character have usually been made from a single piece of material either by turning down a rod of diameter great enough to provide the larger threaded part or by casting and machining. My invention contemplates the provision of a valve stem for this and other uses, which will be so constructed that it may be readily produced from standard rod stock without the waste of material and through the use of automatic machinery.

I contemplate the use of a rod of one diameter for the stem portion proper and a rod or tube of larger diameter for the thread carrying part, the parts being so shaped and formed that they may be cheaply and easily made and secured together with the necessary strength of connection.

Numerous other objects and advantages of the invention will be apparent as it is better understood from the following description when considered in connection with the accompanying drawing illustrating a preferred embodiment thereof.

On the drawing,

Figure 1 is a view, partially in section and partially in elevation, of a compression cock embodying my invention;

Fig. 2 is a similar section through a part of the stem;

Fig. 3 shows the rod, collar and valve member arranged for assembling; and

Fig. 4 is a section taken above the collar.

The structure shown on the drawings and selected as the at present preferred embodiment of the invention, is chosen merely for the purpose of illustration and it will be readily apparent that various other forms and embodiments are possible and may be used without departing from the spirit and scope of the invention.

Describing the embodiment shown on the drawing in detail reference character 11 indicates the casing of a compression cock having an inlet opening 12, a valve partition 13 and an outlet opening 14. The valve partition is provided with a valve seat 15 in axial alinement with a valve carrying elbow or part 16 of the casing. This part of the casing is threaded at 17 and may be closed if desired by the usual stuffing box 18. The valve member in the present instance consists of a loose head 19 which may close against the seat 15. The valve member 19 is manipulated by a valve stem 21 through threads 22 engaging the threads 17 of the casing and adapted upon turning of a hand disk or wheel 23 to move the valve from opened to closed position and vice versa. I am aware that valves of the general character shown on the drawing are old but in the past it has been usually the custom to provide the threads 22 upon a relatively large end of a one-piece stem. In the present instance, however, I form the stem 21 of a piece of rod of diameter equal to that of the stem in the finished product and secure upon its end a larger head member 24 which carries the threads, the parts 21 and 24 being readily secured together in the finished valve into a single unitary member. In the present instance the member 21 is constructed of a piece of rod flattened or milled at one end at 25 to enter the handle 23 and at the other end reduced slightly in diameter to form a shoulder 26 and therebeyond a number of serrations or projections 27.

The collar 24 is of course provided with threads 22 and is formed internally in its upper half to provide serrations or projections 29 matching with the serrations 27 of

the rod. The projections or serrations 29 extend preferably only part way through the collar and the collar is provided with a larger internal diameter as indicated at 31 therebeneath. Its lower edge preferably extends outwardly as indicated at 32 for a purpose to be presently described.

In assembling the structure the collar is slipped on the end part 21, the parts being so dimensioned that the lower end of this rod part extends beyond the ends of the projections or serrations 29. The extremity of the rod, *i. e.* the part extending beyond the projections 29, is then spun or riveted over to form a shoulder 33 for locking the collar on the end of the rod. The valve member 19 has a short stem 35 extending up to an integral head 36 of larger diameter and of appropriate size to enter into the part 31 of the passage through the collar. This head is next inserted in the collar and the edge or protruding part 32 thereof is bent or spun over into a lip or shoulder 37 holding the head loosely and rotatably in place within the collar.

Both the collar and the rod part 21 may be formed on automatic machinery and readily connected together in the manner described. No material is wasted in turning down the stem part 21 and the special casting and patterns usually required for this work in the past together with uncertainties resulting from the casting operation are eliminated.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. A valve stem for the valve of a compression cock or the like, comprising a rod forming the body of the stem, and a thread carrying collar secured on said rod, said collar and rod having interlocking surfaces holding the collar against movement independently of the rod.

2. A valve stem for the valve of a compression cock or the like, comprising a rod forming the body of the stem, and a collar mounted thereon, said collar and rod having interengaging projections holding the parts against relative movement.

3. A valve stem for the valve of a compression cock and the like, comprising a rod having a reduced part at one end, a collar fitting said part and against independent rotation, the end of the rod forming a shoulder to coöperate with the shoulder formed adjacent the reduced end to lock said collar against longitudinal movement.

4. A valve stem for the valve of a compression cock and the like, and a thread carrying collar embracing the same, interengaging faces of said collar and stem having matching serrations to lock the collar against rotation independent of the stem.

5. A valve for compression cocks and the like, comprising a rod forming the body of the stem, a thread carrying collar, and a valve member, said rod and said valve member extending into the collar and both locked against longitudinal movement thereof.

6. A valve for compression cocks and the like, comprising a rod forming the body of the stem, a thread carrying collar, and a valve member, said rod and said valve member extending into the collar, said rod being locked both against relative rotative and longitudinal movement with respect to the collar and said valve member being rotatably locked therein.

7 The method of constructing a valve stem for the valves of compression cocks and the like, comprising forming a collar adapted to embrace a rod and bear against a shoulder, positioning said collar and spreading the end of the rod within the collar to embrace the collar between the shoulder thus formed and the first mentioned shoulder to provide a single unitary construction.

JOHN H. GAVIN.