My invention relates to an improvement in golf club shafts. The invention is primarily designed for use in the manufacture of golf clubs. It involves the hermetic sealing of the outer end of the shaft after the column of air there in has been placed under pressure.

The valve herein shown, which is merely illustrative, consists of a domical valve-body 10 formed with an annular externally-threaded shoulder 11 adapting it to be screwed into the internally-threaded outer end of the said shaft 5. This valve-body 10 is formed with a valve-seat 12 receiving the point of a needle-valve 13 located at the inner end of a valve-stem 14 externally-threaded for being screwed into the said valve-body 10, which is internally-threaded for the purpose, the said valve-stem being formed with a longitudinal air-passage 15 and with a transverse passage 16 located at the inner end thereof and opening into the interior of the valve-body 10, as clearly shown in Fig. 3.

Near the outer end of the valve-stem it is faceted as at 16 for the application of a wrench, by means of which the stem is turned for seating the needle-valve 13 upon, or retracting it from, the valve-seat 12 in the body 10, but the outer end of the valve-stem might be adapted otherwise than by facets for turning it. To protect the outer end of the valve-stem, I provide a guard-cap 18, the inner end of which is reduced in diameter and externally-threaded for being screwed into the threaded outer end of the shaft 5. The guard-cap 18 is, in turn, enclosed and protected by a finishing-cap 19 of metal, wood, hard rubber, or whatever, sleeved over the guard-cap 18. As shown, two layers 20 of leather, or equivalent material, are spirally wound over the outer end of the shaft and the inner end of the cap 19 to provide the usual grip for the club.

But I would have it understood that I do not limit myself to the employment of such means as the plug 6, or such an air-tight valve as herein described, for hermetically sealing the opposite ends of the shaft after the column of air in the shaft has been placed under pressure. It is intended, of course, that after the column of air in the shaft has been placed under pressure, it will be permanently maintained under such pressure by means of the air-tight valve, whatever its specific construction.

The sealing in the steel tube of a column of air under pressure greatly increases its co...
efficient of elasticity and therefore its efficiency when the tube is utilized in golf clubs, fishing rods, canes, or in kindred situations in which a flexible hollow steel tube is employed.

As herein shown—and preferably—the valve-stem 14 is provided at its outer end with an externally-threaded nipple 21 for the application to it of a threaded detachable fixture of whatever character, forming the service-end of any convenient and suitable means for creating the pressure required within the hollow shaft.

Throughout the foregoing description I have referred to the hollow shaft as containing air, which is in itself but a gas. However, I would have it understood that if desired, the air may be replaced by any other gas or elastic fluid, such as neon, nitrogen, etc.

I claim:
A golf club comprising a hollow shaft hermetically sealed at one end and provided at its opposite end with an air-tight valve and also provided at its opposite ends with a golf-club head and a handle.

In testimony whereof, I have signed this specification.

JOHN MENZIES.