(No Model.)

J. K. CLARK.

WRENCH.

No. 342,824. Patented June 1, 1886.

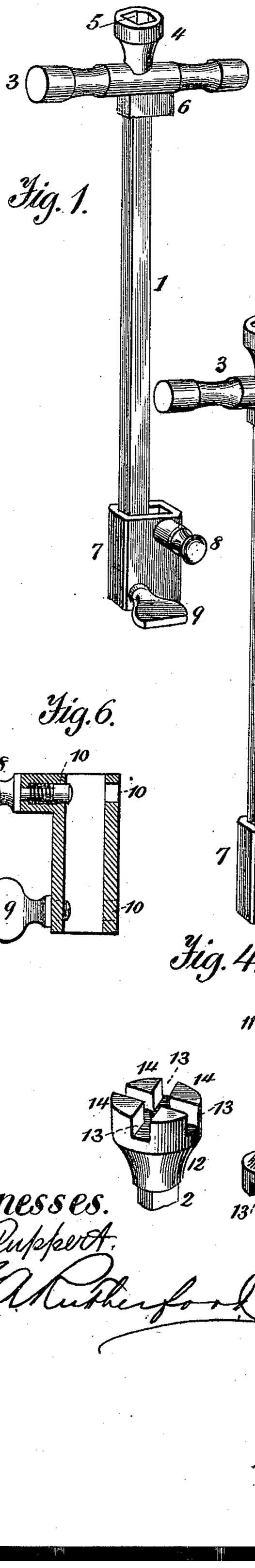

Fig. 1.

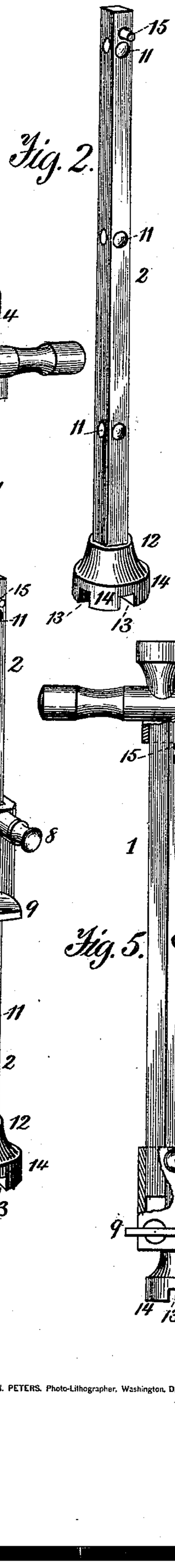

Fig. 2.

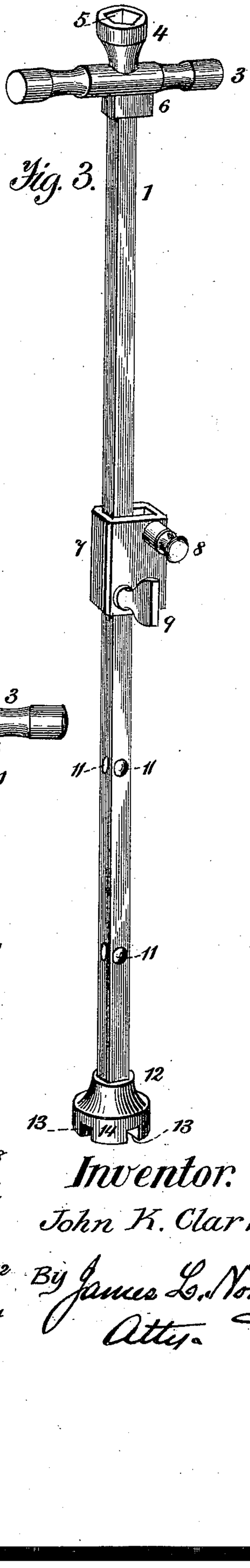

Fig. 3.

Fig. 6.

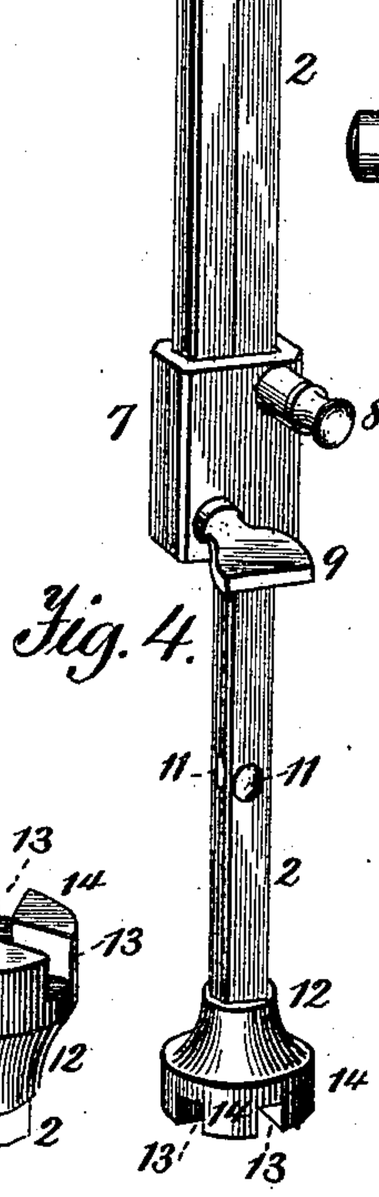

Fig. 4.

Fig. 5.

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UNITED STATES PATENT OFFICE.

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SPECIFICATION forming part of Letters Patent No. 342,824, dated June 1, 1886.

Application filed October 20, 1885. Serial No. 180,464. (No model.)

To all whom it may concern:

Be it known that I, JOHN K. CLARK, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Adjustable Keys or Wrenches, of which the following is a specification.

This invention relates to an adjustable key or wrench for gas, water, or steam stop-cock boxes, and generally for turning a valve located either at a considerable height or at a great distance below ground.

Stop-cock boxes for water, gas, and steam pipes, where it is desirable to conceal the valve and protect it from peing tampered with, are usually made in either of two well-known forms—one having a stationary rod permanently attached to the valve and designed to be operated with a short key applied to the upper end of said rod, while in the other form the stationary rod is dispensed with, thus requiring a long key for operating the valve or stop-cock. Such long keys are commonly six feet in length and unwieldy to handle or carry through the street; and, as in some cities both of the above-mentioned kinds of stop-cock boxes are used, it frequently becomes necessary for a plumber to carry both a long and a short key at great inconvenience.

For many reasons it is preferable to locate the stop-cocks of gas, water, and steam house-service pipes at a considerable distance below ground, and to dispense with the ordinary permanent rod attachment with which such valves or stop-cocks are sometimes provided. By this means the valve will not be exposed to tampering or unwarranted handling; but a long key or wrench, or one capable of being extended to a proper length, will be required to reach and actuate a valve made and located in this way. In order to meet these requirements and provide a key or wrench that can be conveniently carried and handled, it is desirable to make the said key or wrench adjustable as to length, so that when shortened it can be readily carried about, and when lengthened or extended will be sufficiently long to reach and operate a valve located at a distance.

My invention consists of a portable stop-cock, key, or wrench, the shank of which is formed in two or more adjustable sections, with means for securely connecting said sections at any desired point, the lower section of said key or wrench being provided at its lower end with radial slots or grooves, each arranged at a right angle with the longitudinal axis of the key or wrench shank for the purpose of facilitating a speedy engagement with the distantly-located valve; and the upper section of the key or wrench being provided with a handle by which it is actuated in turning the valve or stop-cock.

The invention also consists in certain peculiarities in the construction and combination of parts, as will be hereinafter more fully set forth.

The invention is clearly illustrated in the annexed drawings, in which Figure 1 is a perspective view of the upper section of my improved stop-cock key or wrench. Fig. 2 is a similar view of the lower section of the key or wrench. Fig. 3 represents the upper and lower section of the key or wrench connected in a direct axial line, thereby forming a long key. Fig. 4 represents the key or wrench partially extended, one section being parallel with the other. Fig. 5 shows the key or wrench shortened or closed in compact form for transportation or for use as a short key. Fig. 6 is a sectional detail view of the sleeve for connecting the sections, and the fastening devices by which they are secured together.

In the drawings above referred to, the numeral 1 is employed to designate the upper section of the key or wrench shank, and 2 the lower adjustable section.

At the upper end of the shank-section 1 is a cross-bar or handle, 3, by which the implement is turned in order to oparate a valve or stop-cock.

On the extreme upper end of the section 1 is a wrench-head, 4, having the usual five-sided opening, 5, or an opening or cavity otherwise formed, for engaging the headed bolt by which the top of a stop-cock box is sometimes secured.

Beneath the cross-bar or handle 3 is a ferrule or housing, 6, which partially surrounds the upper portion of the section 1, and is adapted also to receive the upper end of the lower section, 2, when the key or wrench is shortened or adjusted to its most compact form.

The handle 3, wrench-head 4, and ferrule or housing 6 may be made in one piece of brass, malleable iron, or other metal, and be riveted or otherwise secured to the shank-section 1; or they may be formed separately, if desired, and be secured to the wrench-shank in any suitable or convenient manner.

The lower end of the upper shank-section, 1, is riveted or otherwise secured within a sleeve, ferrule, or housing, 7, which also receives the lower or adjustable shank-section. This sleeve, ferrule, or housing 7 may be made of brass, malleable iron, or other metal, and is provided with one or more spring bolts or catches, 8, or set-screws or thumb-screws 9, or other fastenings, for engaging and holding the adjustable lower section, 1, either when the implement is extended or shortened. These fastenings may be arranged on one or both sides of the ferrule 7, as preferred, openings 10 being formed therein to receive said fastenings and enable them to engage the adjustable section of the shank.

In order to facilitate the engagement of the adjustable shank-section with its fastenings, and render the connection more certain and secure, said shank-section is provided on each side with a series of indentations or depressions, 11, arranged at suitable intervals. When the lower shank-section, 2, is slipped into the ferrule 7 in line with the spring-catch 8, the latter can be made to engage one of the depressions 11, and so hold the shank-sections in secure connection, or they may be engaged in like manner by means of a set-screw, a thumb-screw, as 9, or other suitable fastening. The lower end of the adjustable shank-section 2 is provided with a key or wrench head, 12, which may be formed of brass, malleable iron, or other metal. The lower face of this wrench-head or key 12 is provided with radial cross slots or grooves 13, arranged at right angles with the longitudinal axis of the shank of the implement. By thus providing the lower end of the implement with cross-grooves 13, instead of forming it with a single opening or groove, it is obvious that the chances of speedily bringing it into proper engagement with the valve are doubled, thus saving much time that is commonly consumed in turning the implement back and forth until it "gets on" to the valve. When the head 12 is formed in this way with cross-grooves 13, it will also be found that the intervening lugs 14 on the lower face of the head afford strong bearing-points for contact with the valve, and besides greatly strengthen the wrench or key head.

If desired, the adjustable shank-section 2 may be provided near its upper end, above the sleeve 7, with a stop pin or lug, 15, or with a spring projection, to prevent accidental separation of the shank-sections in case the ordinary fastenings should become disengaged from the lower section. This stop 15 may, however, be dispensed with. It will be understood that this adjustable stop-cock key can be arranged for use as shown in Fig. 3, in which the shank-sections are connected in a direct axial line, or said sections may be arranged to lap by each other, as shown in Figs. 4 and 5.

In the drawings the shank-sections 1 and 2 are shown in the form of rods having a square or rectangular cross-section; but it is obvious that they can be made in any other suitable form. These shank-sections are preferably composed of wrought metal, and are each about three feet long.

A stop-cock key or wrench having a shank formed in sections connected by a slip-joint and provided with suitable fastenings, as described, whereby the said sections can be adjusted and secured to form an implement of various lengths, will be found to possess many important advantages as compared with both the long and short keys heretofore in use. It obviates the ordinary necessity of employing separate keys of varying length for the different kinds of stop-cock boxes, it is compact and easily carried about without inconvenience, and it is capable of being readily and quickly adjusted for use. Besides it is light, durable, and comparatively inexpensive, and by reason of the peculiar formation of the lower wrench-head or key it can be quickly applied to a valve or stop-cock at a considerable distance below ground.

What I claim as my invention is—

1. An adjustable stop-cock key or wrench having a shank formed in sections connected by a slip-joint and provided with fastenings, whereby the implement can be adjusted to various lengths, substantially as described.

2. In a stop-cock key or wrench, the combination, with an upper shank-section having a handle at its upper end and provided at its lower end with a ferrule, as 7, of a lower adjustable shank-section provided at its lower end with a key or wrench head, and fastenings for securing said lower section in the ferrule attached to the end of the upper section, substantially as described.

3. In a stop-cock key or wrench, an upper shank-section having a handle at one end, in combination with a lower adjustable shank-section provided at its lower end with a key or wrench head, substantially as described.

4. In a stop-cock key or wrench, a lower shank-section carrying a key or wrench head at its lower end and provided on its sides with a series of indentations or depressions, in combination with an upper shank-section having a ferrule or housing for receiving said lower section and provided with fastenings for engaging said depressions or indentations, substantially as described.

5. In a stop-cock key or wrench, the combination of an upper shank-section having a ferrule or housing, 7, at its lower end, a lower adjustable shank-section adapted to slide in said housing and provided at its upper end with a stop pin or projection, and fastenings attached to said housing and adapted to en-

gage and hold the lower shank-section at various points, substantially as described.

6. A stop-cock key or wrench provided at one end with a head having cross-grooves arranged at right angles with the longitudinal axis of the key-shank, substantially as described.

7. The combination of the upper shank-section, 1, having a handle, 3, wrench-head 4, and ferrules or housings 6 and 7, the lower shank-section, 2, provided on its sides with depressions 11, and having at its lower end a key-head, 12, and fastenings attached to the housing 7 and adapted to engage the depressions in the sides of the lower section, substantially as described.

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

JOHN K. CLARK.

Witnesses:

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WILLIAM T. KIP.