

(No Model.)

J. H. WESSON.
PERCUSSION GAS LIGHTER.

No. 323,893.

Patented Aug. 4, 1885.

fig 2

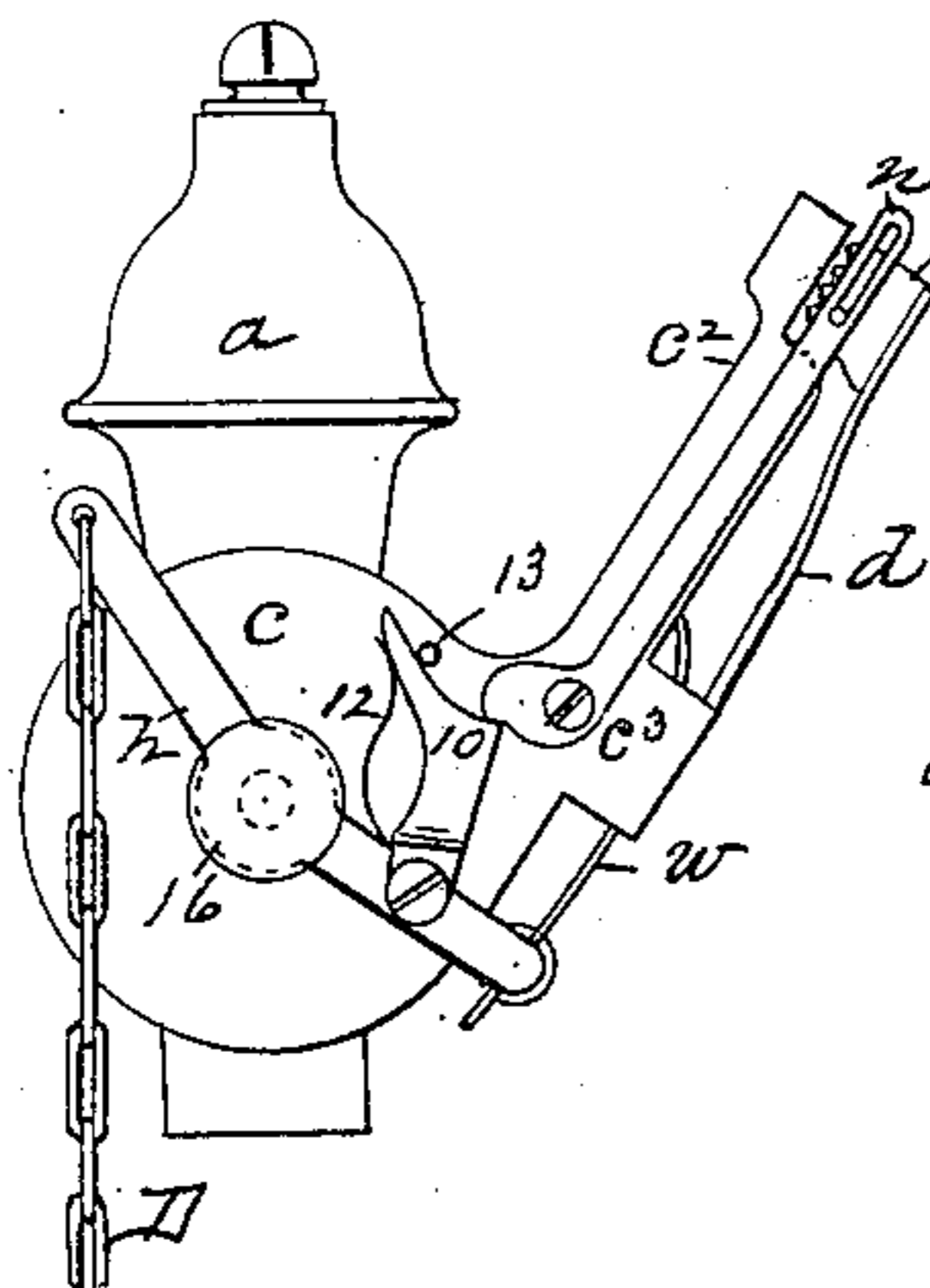


fig 3

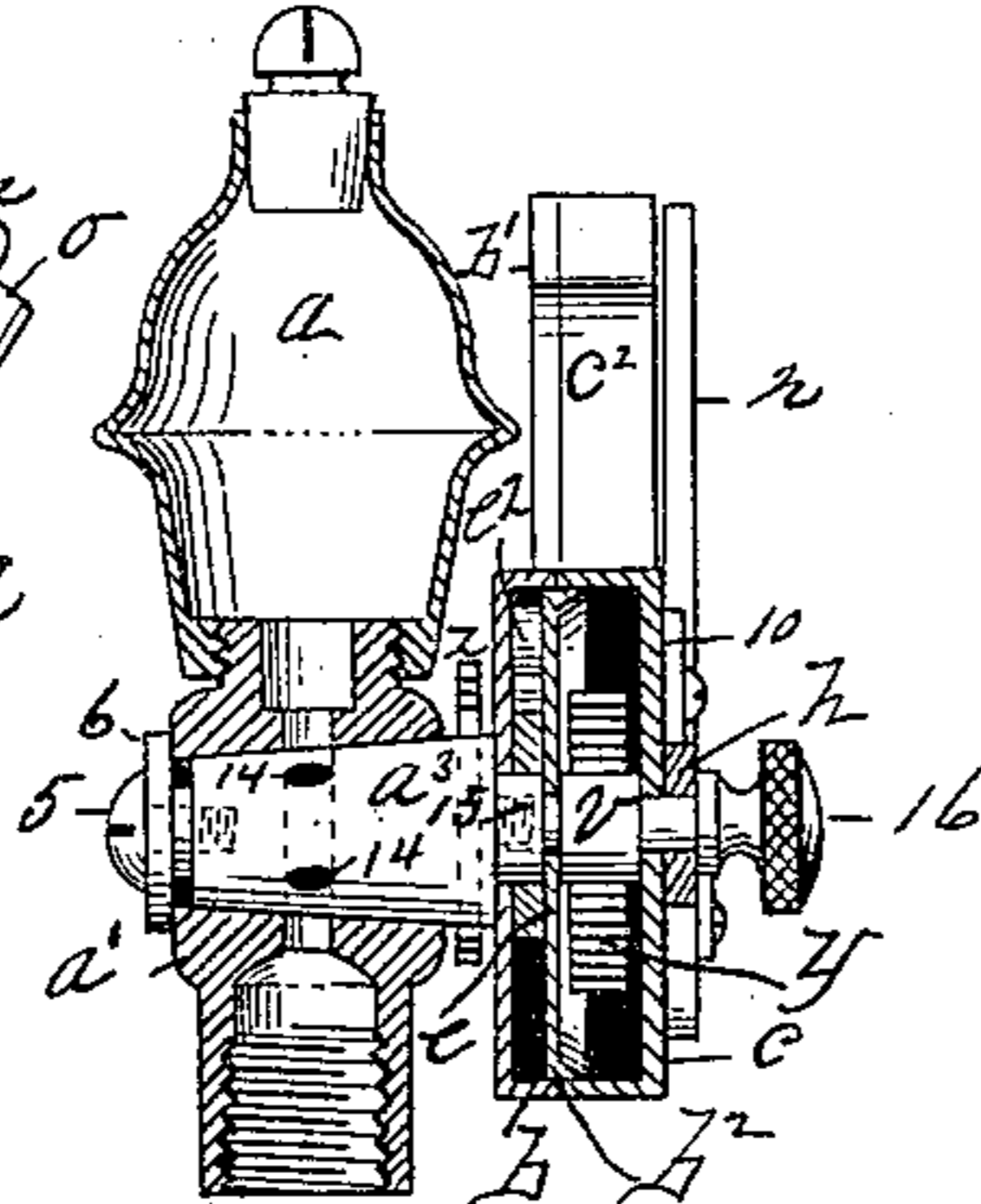


fig 4

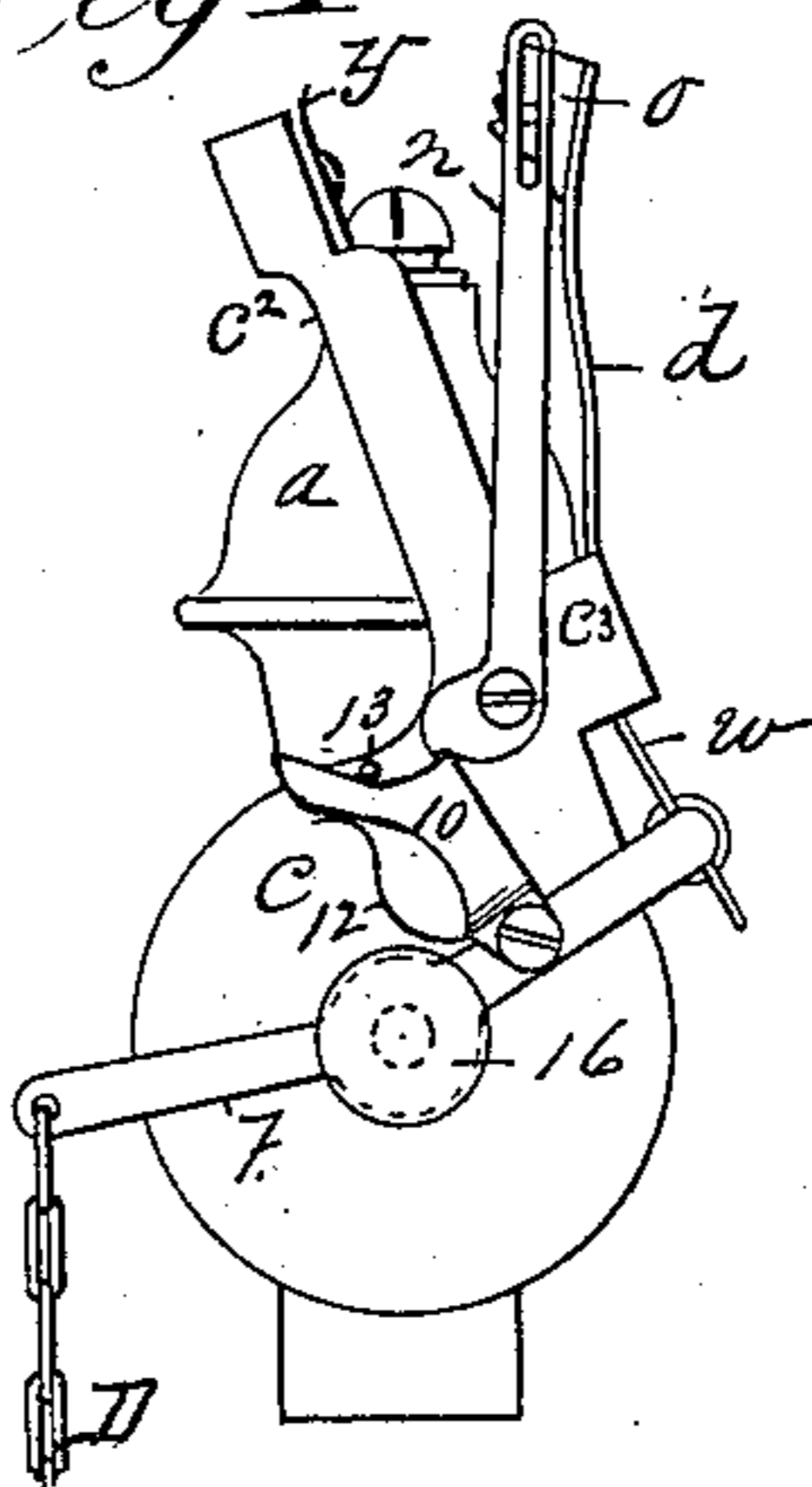


fig 1

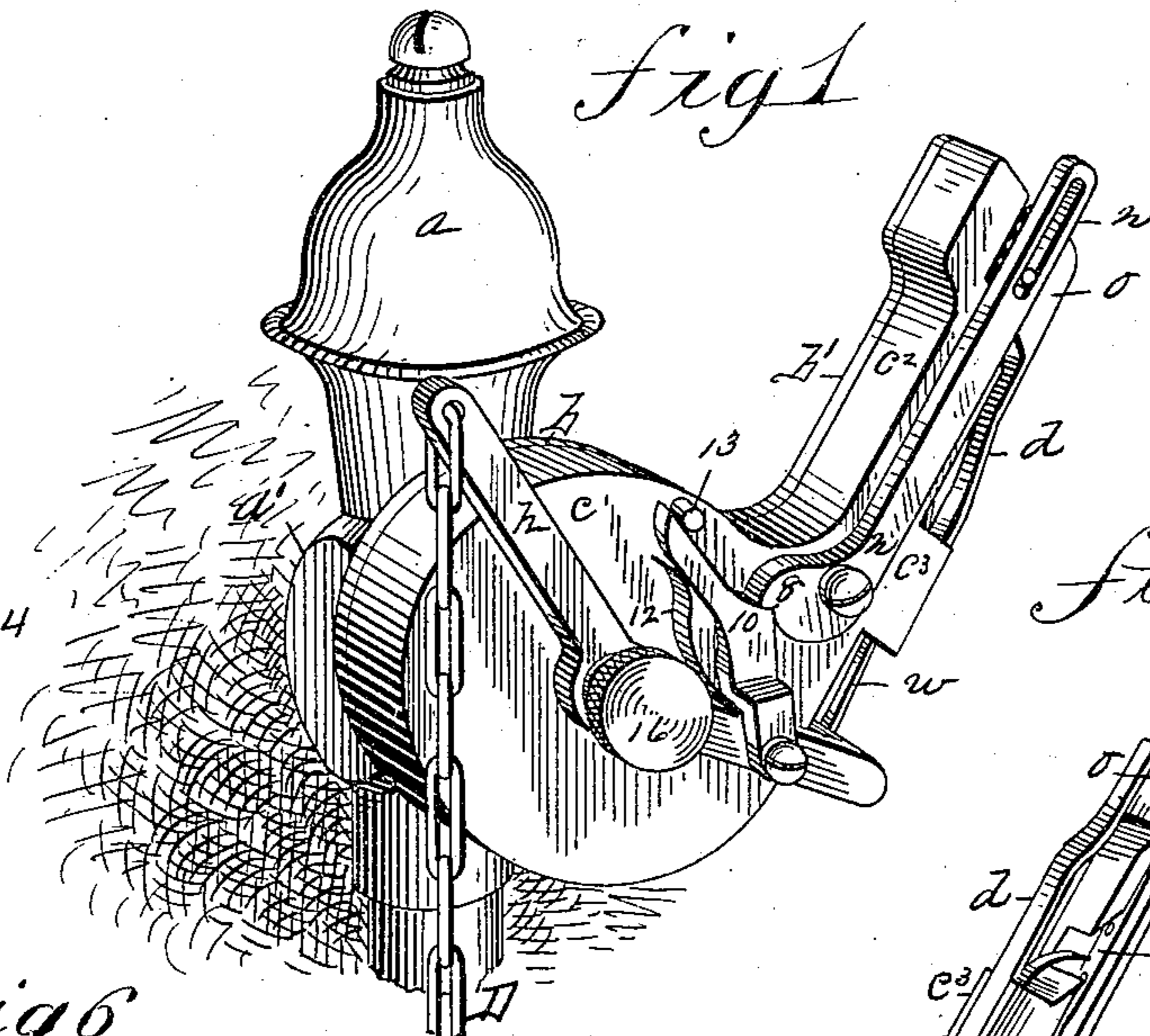


fig 7

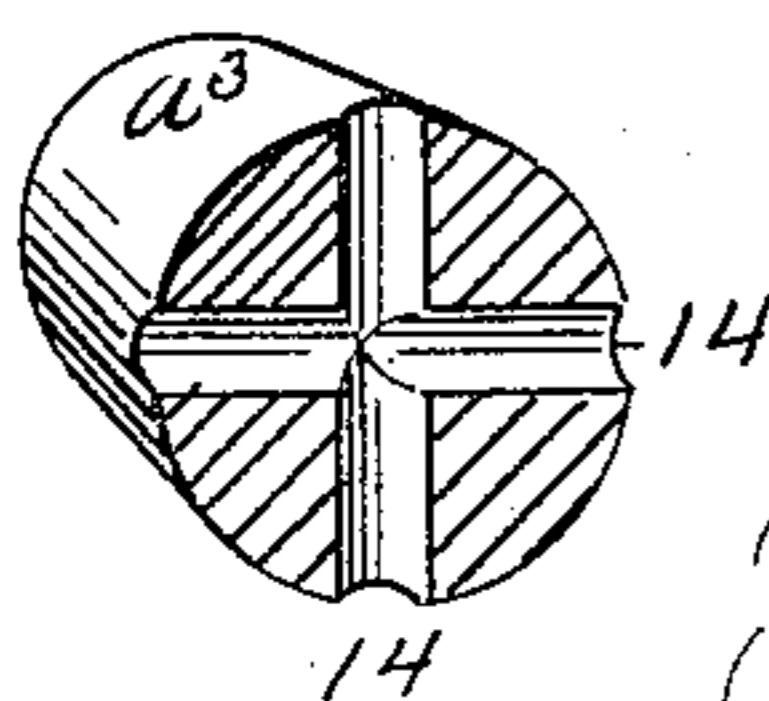


fig 5

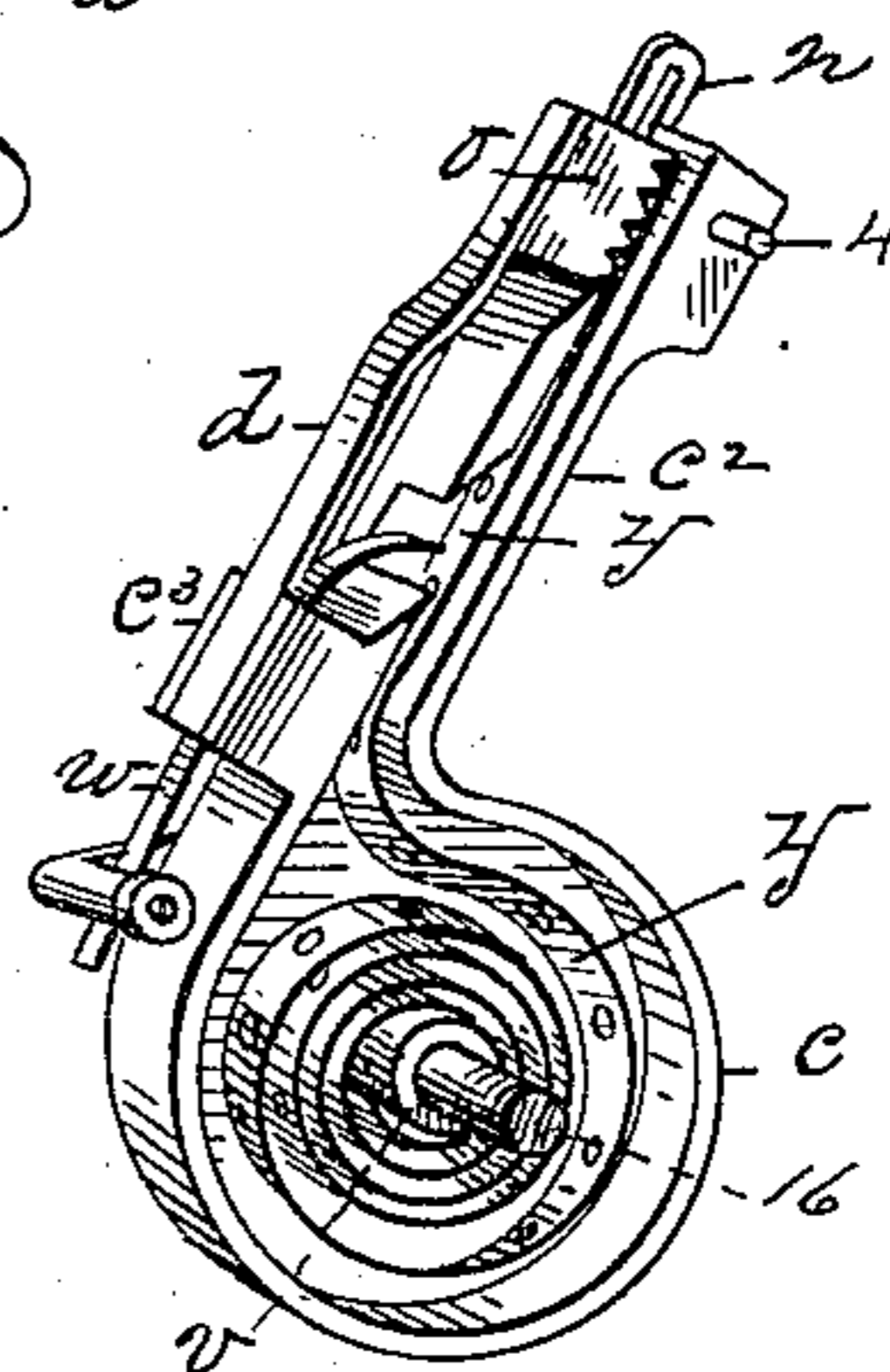
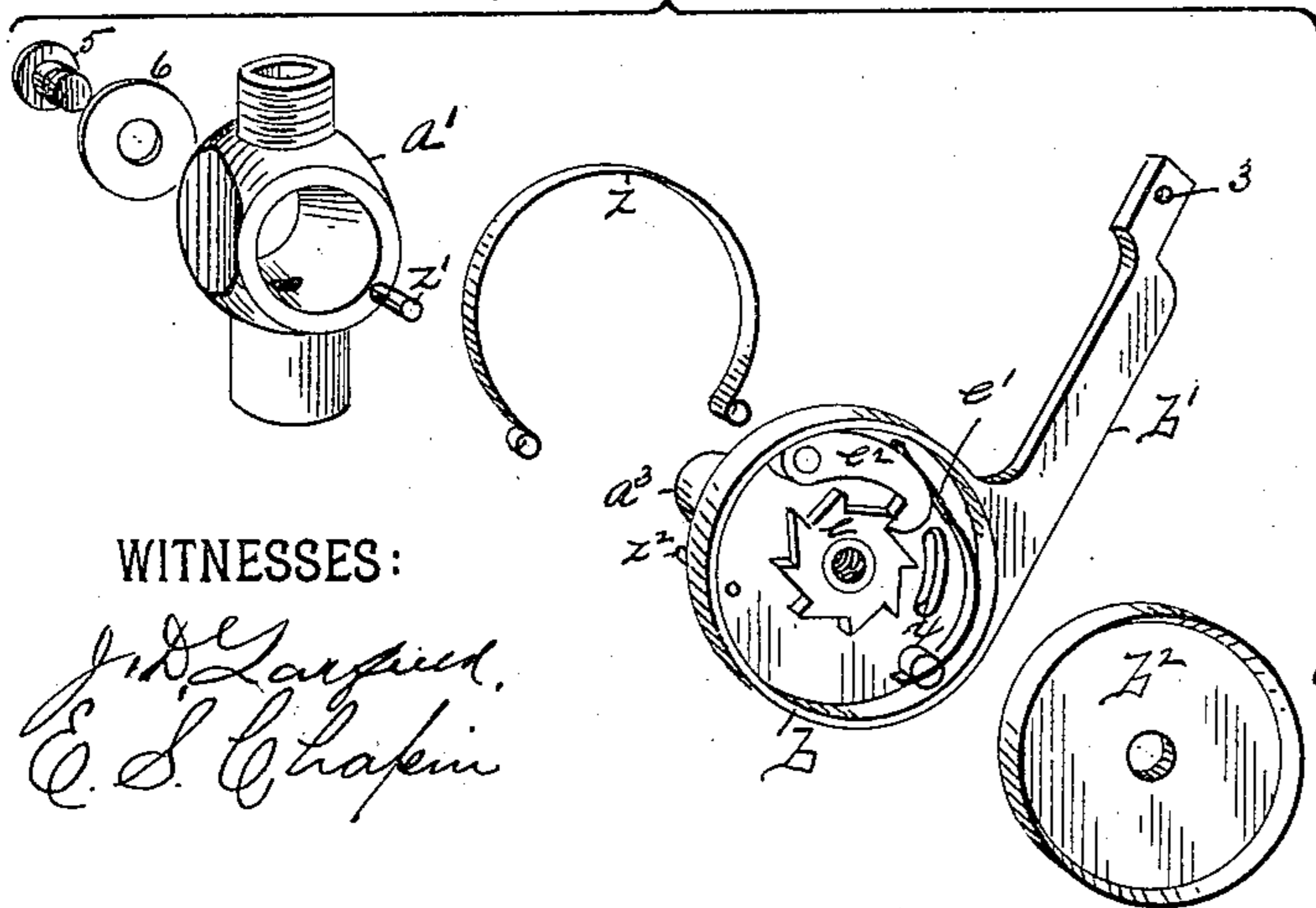


fig 6



WITNESSES:

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JOSEPH H. WESSON, OF SPRINGFIELD, MASSACHUSETTS.

PERCUSSION GAS-LIGHTER.

SPECIFICATION forming part of Letters Patent No. 323,893, dated August 4, 1885.

Application filed February 5, 1885. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH H. WESSON, a citizen of the United States, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Percussion Gas-Lighters, of which the following is a specification.

This invention relates to improvements in percussion gas-lighters, the object being to provide improved mechanism for such devices, whereby their operation is made sure and effective and the latter are reduced to such dimensions as obviate any inconvenience from shadows cast thereby.

In the drawings, forming part of this specification, Figure 1 is a perspective view of a gas-lighting device embodying my invention and a gas-burner, the two being there combined and arranged as in practice, the parts, however, being shown enlarged. Fig. 2 is a side elevation. Fig. 3 is an elevation partly in section. Fig. 4 is a similar view to Fig. 2, but showing the lighter parts in the positions they occupy when about to act to light the gas. Fig. 5 is a rear side elevation of the ribbon-chamber and parts immediately connected therewith. Fig. 6 illustrates detail parts. Fig. 7 is a section of the burner-plug.

The gas-burner *a* is screwed on to the cock-barrel *a'* in the usual manner, the plug *a³*, in which are formed the four-way gas passages 14, being secured in the barrel by the usual screw, 5, and washer 6. A neck, 15, is formed on the outer end of plug *a³*, and is tapped to receive the end of the screw 16, and a ratchet-wheel, *e*, is fixed on the end of the neck 15, provided with eight teeth. A ratchet-and-pawl case, *b*, having an arm, *b'*, in which is a pin-hole, 3, is hung to have a reciprocating rotary motion on the plug-neck 15, between the ratchet *e* and the end of the plug. The interior of the case *b*, whose circular portion is cup shape, has pivoted therein the hook-pawl *e²*, to engage with the teeth of wheel *e*, a spring, *e'*, bearing upon said pawl. The case *b* has a curved slot, *x*, in it, into which the end of the pin *z'* extends when the plug *a³* is placed in the barrel *a'*, whereby the said reciprocating rotary motion of the case *b* is limited to the length of said slot. The normal position of the case *b* and other parts di-

rectly attached thereto relative to the burner *a* is that shown in Fig. 1 when at rest, and to so hold the same and to return them to that position after having been brought to that shown in Fig. 4. The spring *z*, Fig. 6, has one end attached to pin *z'* on the barrel *a'*, and its opposite end is coiled around to the left and attached to the pin *z²*, which projects from the rear side of case *b*. The partition disk *b²*, having a slightly-projecting border, fits into the case *b*, covering the above-mentioned devices within it, and separates the latter from the ribbon *y* in case *c*. A ribbon-case, *c*, having its central circular portion of cup shape, and having a hollow arm, *c²*, leading therefrom, constitutes a receptacle for a coiled fulminate or percussion ribbon, *y*, and a channel through which one end of said ribbon is conducted outward, as hereinafter set forth. A thumb-screw, 16, passes freely through the side of case *c*, and has a collar, *v*, fixed thereon, said screw passing through the lever *h* on the outside of the case. The case and said lever are, by said collar, secured on the screw; but the latter turns freely, and the case and the lever are free to vibrate thereon when the screw is held stationary. One end of lever *h* has secured to it a flexible spring-pawl, *w*, which passes through a hollow block, *c³*, near the lower end of arm *c²*, and its curved free end passes through an opening in the side of said arm, and bears upon the end of the ribbon *y* therein, as shown in Fig. 5. A hammer, *o*, having its face serrated, is secured on the end of a flat spring, *d*, the opposite end of the latter being fixed to the block *c³*. A hammer-lever, *n*, having a slot in it to receive the end of a pin in the side of hammer *o*, is pivoted on the side of the arm *c²*. The lever *n* has an enlarged circular part below its pivot, on which is formed a sear-catch, 8, with which the sear 10, which is pivoted on lever *h*, engages. A spring, 12, holds the sear 10 against the lower end of lever *n*. The said sear has its free end extending beyond its point of engagement with said notch or catch on lever *n*, under a pin, 13, in the side of case *c*. The case *c*, including its directly-attached parts above named and the ribbon *y*, is secured against the side of and to the case *b* by the screw 16, which, as aforesaid, enters the end of neck 15 of the plug of the

gas-cock, the pin 4, near the end of arm c^2 , entering as a dowel the hole 3 in the arm b' on case b .

Fig. 1 clearly shows the relative positions of the cases b and c and their exterior parts when assembled together as above described, the screws 16 constituting an extension of the neck 15 or axis of the plug a^3 . The ribbon y is provided with fulminate in the form of wafers attached thereto, or otherwise suitably arranged to be exploded when struck by the serrated face of hammer o and produce an instantaneous flash of flame.

The lighting devices herein described and shown are adapted to be attached to gas-burners on the various descriptions of gas-fixtures, and the lever h is operated by seizing a pendent chain, D , and pulling down, or in any other convenient manner, and the operation of said devices is as follows: By pulling chain D , as aforesaid, lever h and the cases b and c are vibrated, together with the plug a^3 of the gas-cock, by the engagement of the pawl e^2 with the ratchet-wheel e , thereby opening the passage to let gas flow to the burner through one of the passages 14. The extent of said vibration is shown in Fig. 4, arm c^2 being stopped in that position, or when a fulminate spot on ribbon y stands about opposite the nib of the burner by the action of pin z' at the end of the slot x in case b . After arm c^2 comes to a stop, the lever h continues to swing on screw 16, driving the spring-pawl upward and feeding the ribbon y up to bring a fulminate pellet under hammer o , or between the latter and the adjoining side of arm c^2 , and at the same time the hammer is being thrown back by the action of lever h and the sear 10, and so moves until the sear is moved far enough against the pin 13 to cause it to be thrown away from notch 8 in lever n , when spring d throws the hammer forcibly against the fulminate on ribbon y , exploding it and lighting the gas. When chain D is released, the devices swing back, as in Fig. 1, actuated by the spring z , pawl e^2 slipping over a tooth on wheel e , and engaging with one farther back.

To turn off the gas, chain D is pulled to swing the arm c^2 up to about a vertical position, thereby turning the plug a^3 one-eighth over, and then letting the cases swing back to the point of starting, without having caused a blow to be struck by the hammer, as aforesaid. The parts b and c rotate quite freely by drawing upon the long arm of lever h , spring z constituting the principal resistance, until the lower end of slot x in case b strikes pin z' on barrel a' ; and such free movement provides means for turning the plug a^3 , to turn the gas on or off without causing the lighting devices to be operated, since it requires additional force to be applied to lever h after the posts swing to the position shown in Fig. 4, to operate the hammer o . When a new fulminate-ribbon is to be put in the case c , the latter is taken off from the side of case b by un-

screwing screw 16 and turning the case to the position shown in Fig. 5. The aforesaid limit of movement of the case b , provided for by the slot x in the latter and the pin z' on barrel a' , is equal to the distance that the pawl e^2 must move to engage with one tooth at a time on wheel e , the latter and the plug a^3 of the cock being adapted to be turned one-eighth of a revolution at each reciprocating movement of the cases b and c , so that if gas be flowing through the plug, one-eighth of a turn will shut it off, and the next eighth of a turn will open the cock, letting gas pass through one of the passages 14 in the plug.

What I claim as my invention is—

1. The combination, with the barrel and plug of a gas-burner cock, said plug having a neck thereon, of a screw constituting a removable extension of said neck, a cup-shaped ribbon-case hung on said extension, having a hollow arm on one side thereof, a fulminate-ribbon, substantially as described, a spring-hammer attached to the ribbon-case, a two-armed lever pivoted on said neck-extension at the side of said case, a spring-pawl secured to one arm of said lever, having its free end entering said hollow arm, a hammer lever pivoted on said case, having one end engaging with the hammer and provided with a sear-notch at its opposite end, a sear pivoted on said two-armed lever and engaging with the hammer-lever, and a sear-tripping pin on said case, substantially as set forth.

2. The pawl and-ratchet case b , pawl e^2 , the plug a^3 , having a ratchet-wheel fixed thereon, the ribbon case c , having a spring-hammer hung thereon, the extension-screw 16, lever h , the pawl w , the lever n , sear 10, spring 12, slot x , and pin z^2 , and pin 13, combined with the burner a , and operating substantially as set forth.

3. In combination with the burner a , plug a^3 , and the barrel a' , the case b , the spring z , secured to said case and said barrel, the pawl e^2 , ratchet e , the case c , carrying the fulminate-ribbon y , the hammer o , pawl w , lever n , sear 10, spring 12, slot x , pin z^2 , and lever h , substantially as set forth.

4. In a percussion gas-lighting device, the lever h , pawl w , hammer o , lever n , sear 10, spring 12, slot x , and pin z^2 , and the ribbon-case c , combined with the burner a , case b , having the arm b' thereon, and operating substantially as set forth.

5. In combination, the burner a , the cock-barrel a' , having the usual gasway through it, the plug a^3 , having the transversely-intersecting gasways 14 through it, the cases b and c , the ratchet-wheel e , the pawl e^2 , lever h , spring z , pawl w , hammer o , lever n , sear 10, spring 12, slot x , and pin z^2 , and the ribbon-case c , substantially as described.

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Witnesses:

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