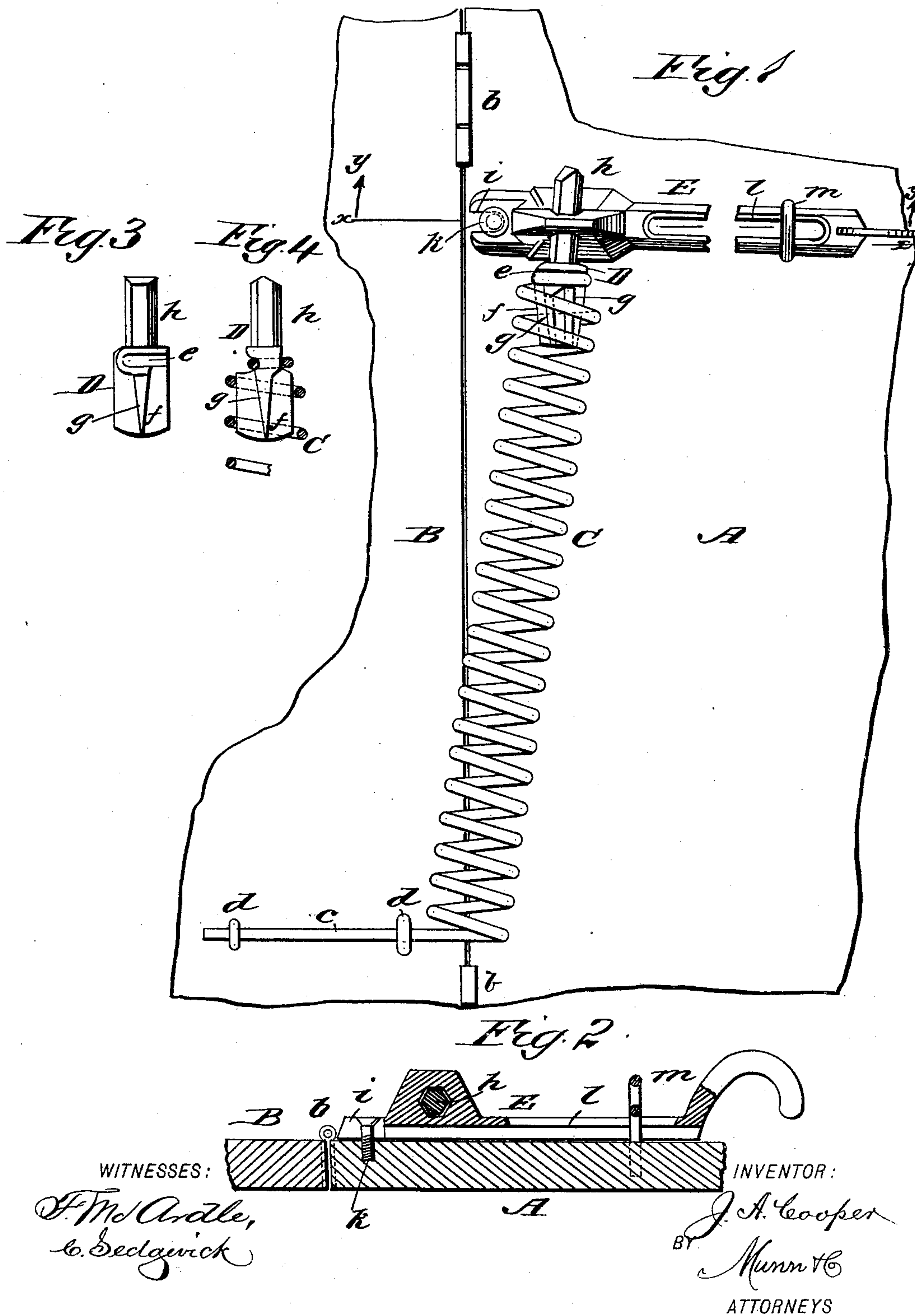


(No Model.)

J. A. COOPER.  
DOOR SPRING.

No. 481,475.

Patented Aug. 23, 1892.



# UNITED STATES PATENT OFFICE.

JOHN A. COOPER, OF NASHVILLE, TENNESSEE.

## DOOR-SPRING.

SPECIFICATION forming part of Letters Patent No. 481,475, dated August 23, 1892.

Application filed December 29, 1891. Serial No. 416,444. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN A. COOPER, of Nashville, in the county of Davidson and State of Tennessee, have invented a new and useful Improvement in Springs for Doors, Gates, and the Like, of which the following is a full, clear, and exact description.

This invention relates to springs applicable to main doors, both light and heavy, screen-doors, yard and other gates, and the like; and it consists in the novel construction of the spring taken as a whole, including attachments thereto, substantially as hereinafter described, and more particularly pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 represents a back or face view of a hinged door with the framework to which it is hinged, in part, with my invention applied, a wrench attachment forming part of the invention being represented as broken away. Fig. 2 is a horizontal section upon the line *x x* in Fig. 1, looking in the direction of the arrows *y*; and Figs. 3 and 4 are opposite side face views of a socket or shank piece applied to the free end of the spring for operation by the wrench used to tighten or adjust the spring.

A indicates the door, in part, or similar device to be made self-closing by the spring, and B the adjacent framework, in part, to which the door is hinged, as at *b b*; or these two parts A and B may be reversed by making the part B the door and the part A the fixed framework.

C is the spring proper, which is a spiral one terminating in a straight or horizontal limb *c* below, held by and free to slide horizontally within or through looped staples *d*, attached to the framework B, that carries the spring. The upper or opposite and free end of the spring has its final coil entered within and held by a groove *e*, made in the one side of a loose socket or shank piece D. This socket or shank piece is constructed with a body part *f*, having ribs *g* on it, arranged to enter down within the upper coils of the spring

to guide and hold them, and with an angular shank *h* above. Engaging in a removable manner with the shank *h* of this socket or shank piece D and capable of being fitted on or over it is a wrench or wrench-piece E, that serves the purpose of tightening or adjusting the spring and controlling its free coiled end. Said wrench, which is applied to tighten or adjust the spring before it (the wrench) is applied to its place on the door, is connected with the door or part to which it is secured by constructing it with an open-ended slot *i* at its inner end, arranged to engage with a pin or screw *k* in the door and with a slot *l* along its after part, in which is fitted a turn-button *m*, secured to the door, to guide or hold said wrench in place. By this construction and application of the wrench E and by the sliding fit of the limb *c* of the spring within its holding-staples *d* said wrench may readily be slipped on or off the door on suitably turning the turn-button *m* to pass by its head through or across, as required, the slotted portion *l*. A door or other like spring attachment thus provided or constructed secures broad or extended bearings for the spring, so that it cannot work loose. It also provides for reversing the spring when required, and by means of the wrench, which is a component part of the fixture, the spring may also be tightened up or loosened, as desired, and in connection with the sliding manner in which the spring is attached or held at its lower or fast end the spring can readily be taken off the door or gate and be reversed, if necessary, and put on again without the aid of separate or special tools.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a door or gate spring attachment, the combination, with the spring proper having a terminal portion or limb at its fast end adapted to engage in a removable manner with fixed holders or staples, of a socket or shank piece adapted to enter within and engage with the opposite or free end of a spring and a removable wrench adapted to engage with said socket or shank piece and forming a part of the spring fixture, substantially as specified.



2. In combination with the coiled spring and  
socket or shank piece fitted within and engag-  
ing with the free end of said spring, the re-  
movable sliding wrench attachment con-  
5 structed to engage with said shank-piece and  
provided with an open-ended slot at its inner  
end adapted to engage with a fixed pin or

screw and a turn-button or device for holding  
said wrench in place and for releasing it when  
required, essentially as set forth.

JOHN A. COOPER.

Witnesses:

E. H. COOPER,

JNO. C. FERRISS.