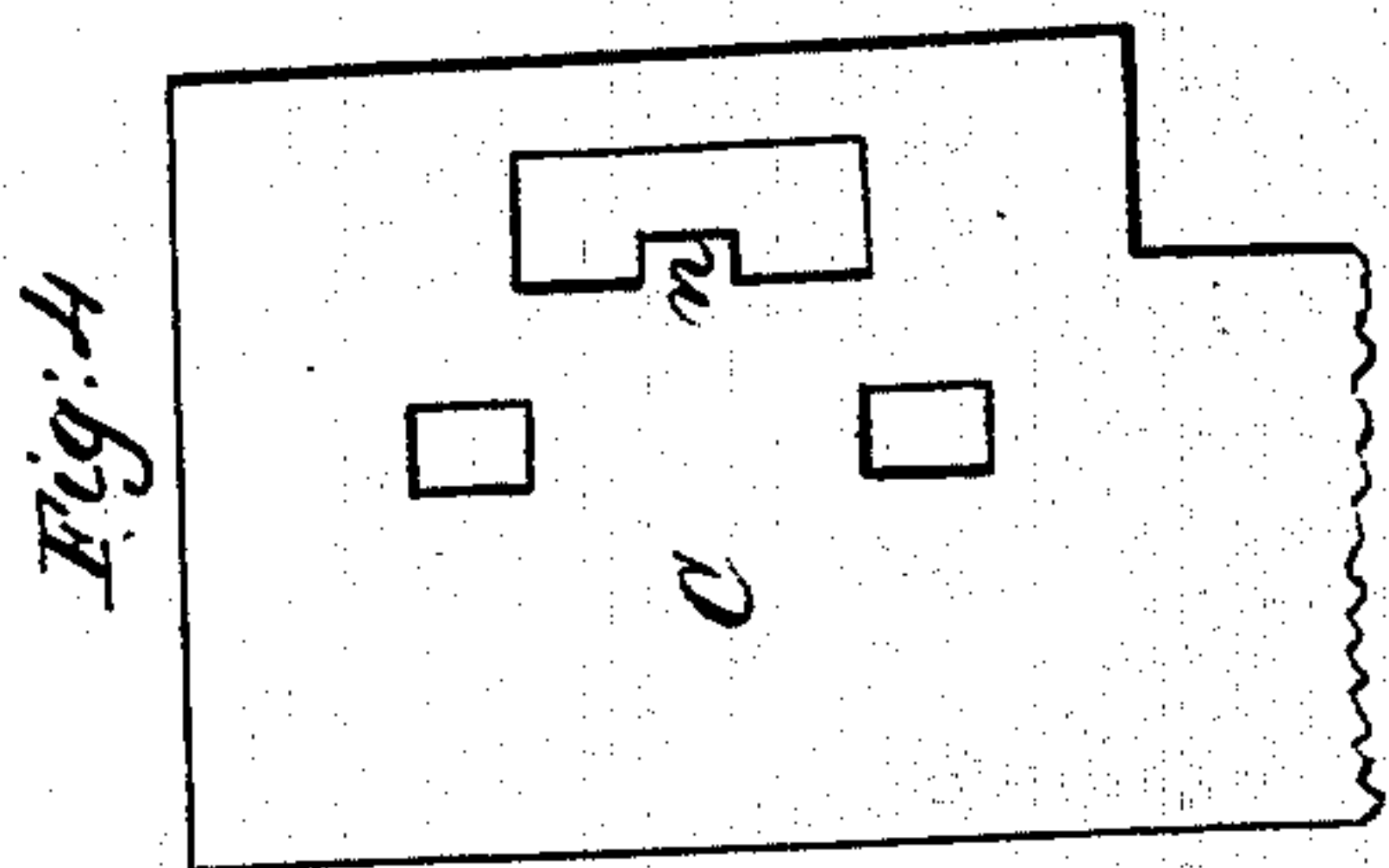
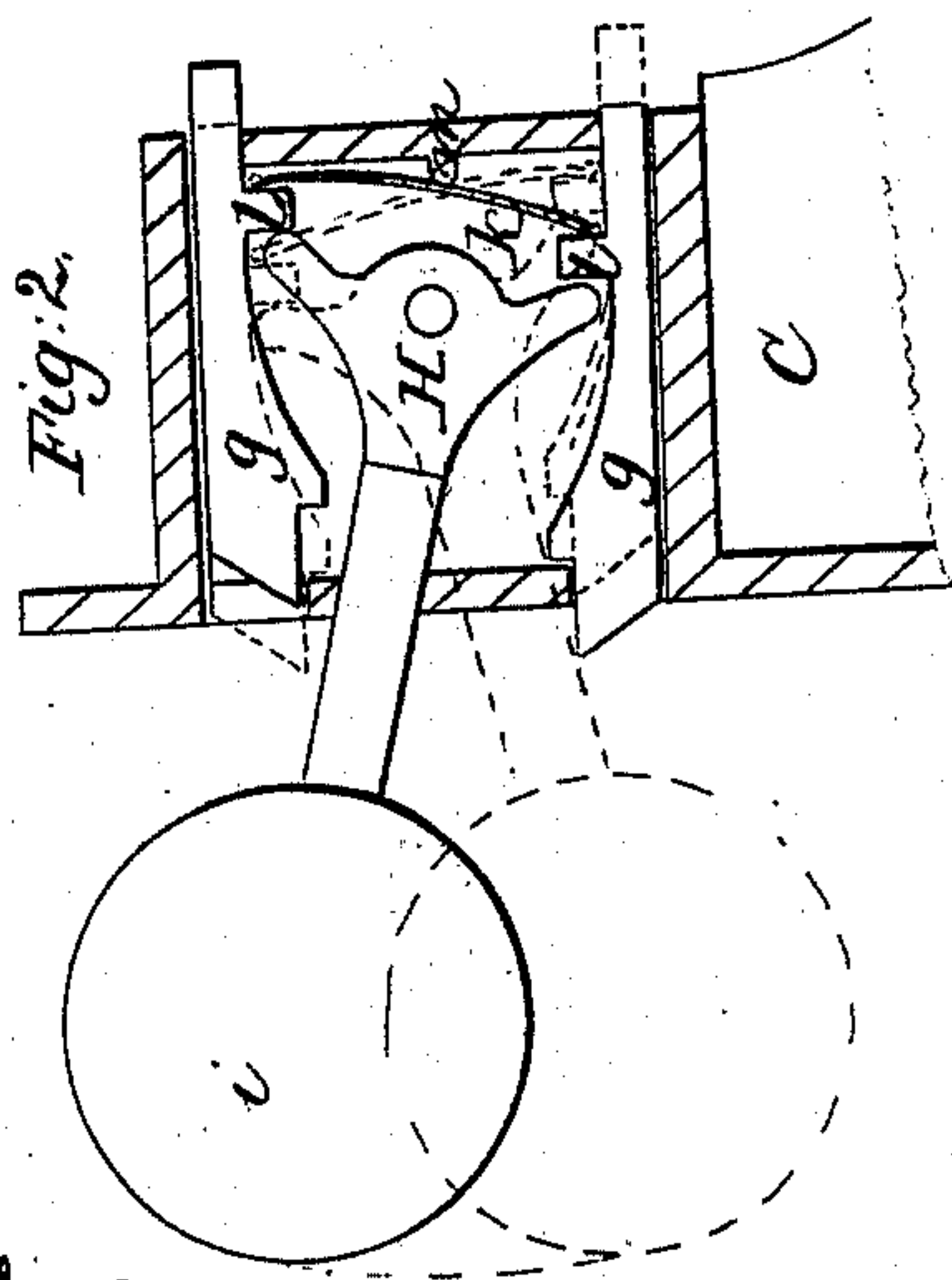
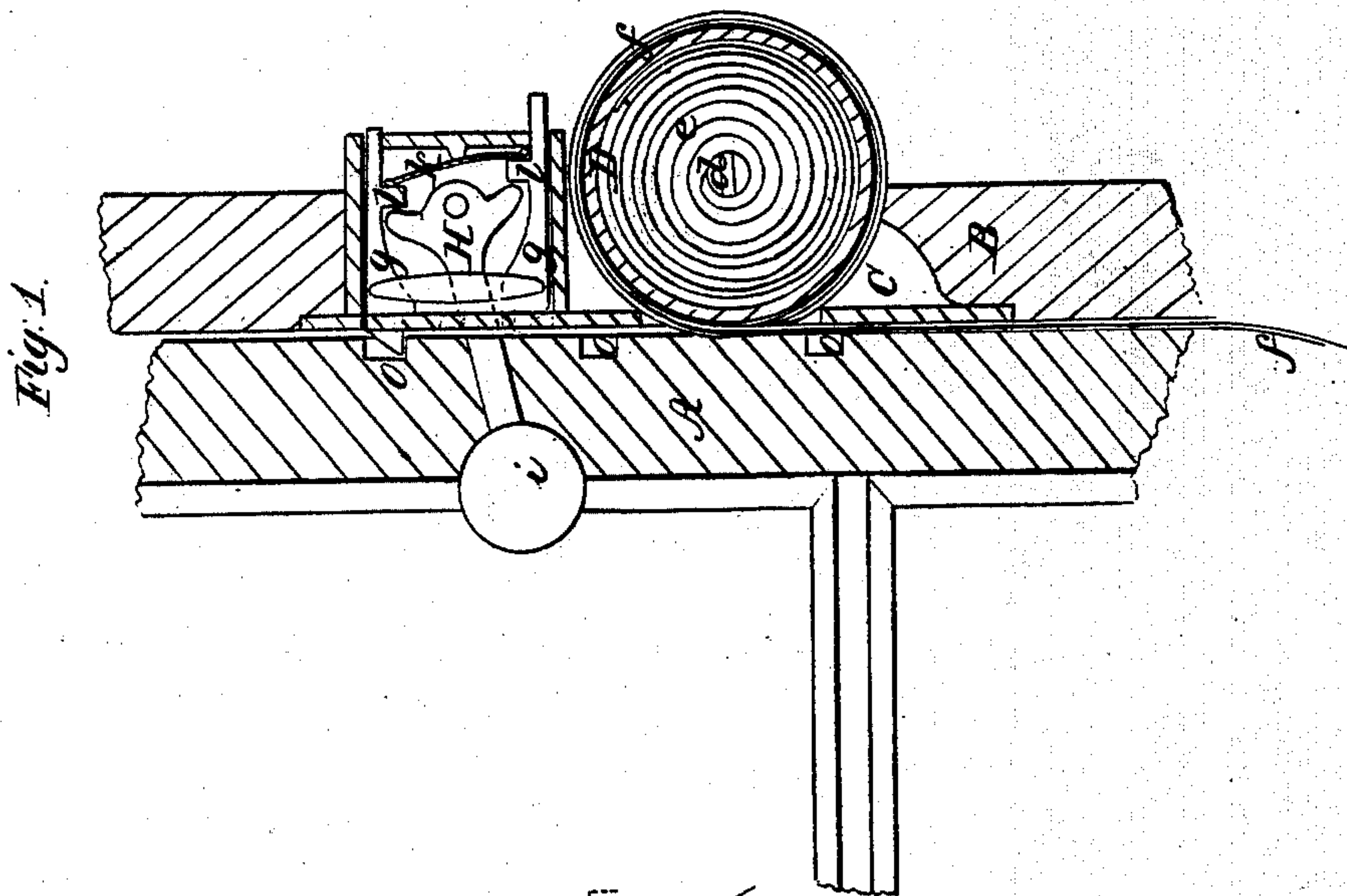
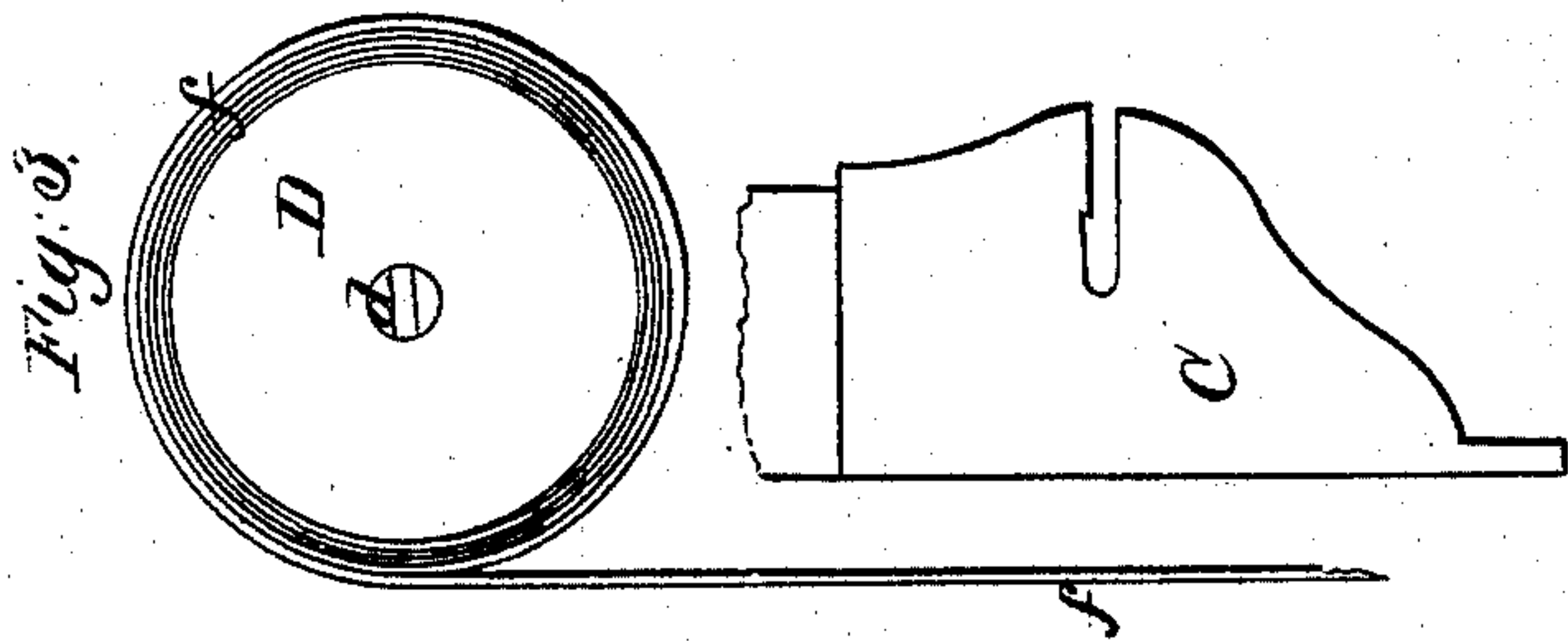


S. Cooper,
Balance & Lock for Window Sash,
No. 26,653. Patented Jan. 3, 1860.



Witnesses
S. B. Allen
Chas. L. Souville

Inventor;
Samuel Cooper
By his attorney J. Fraser

UNITED STATES PATENT OFFICE.

SUMNER COOPER, OF WINDSOR, CONNECTICUT.

WINDOW-SASH SUPPORTER.

Specification of Letters Patent No. 26,653; dated January 3, 1860.

To all whom it may concern:

Be it known that I, SUMNER COOPER, of Windsor, in the county of Hartford and State of Connecticut, have invented a new and Improved Balance and Lock for Window-Sash; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a vertical section of a part of the jamb or casing of a window, showing the apparatus applied, the front plate being removed to expose the working parts. Fig. 2 is an enlarged view of the lock separately shown. Fig. 3 is a view of the drum D, and strap *f* with a portion of the frame C, detached. Fig. 4 shows a portion of the front of the case C, with holes for the bolts *g g* and lever shank H.

Similar letters refer to like parts in all the figures.

As shown in the drawings A represents the sash and B a portion of the casing with a mortise in which the metallic frame C is placed. In this frame are arranged the balancing and locking devices. The former consists of a drum D, containing a flat coiled steel spring *e* arranged in the same manner as the main spring of a watch. Coiled upon the periphery of the drum is a flexible band or strip *f*, of thin sheet metal, one end being firmly secured to the drum and the other attached to the edge of the sash. The act of drawing down the sash uncoils the band *f*, and coils up the spring *e* more closely around the stud *d*, which forms the stationary arbor of the drum. The force of the spring exerted by its tendency to uncoil itself is designed to be about equal to the weight of the sash, so that it raises it with ease when started. For the metallic band I prefer to use copper, though other thin sheet metal, such as brass, zinc, or iron, will answer the purpose. From the slight elasticity which it possesses, however flexible, it has a tendency to straighten when wound up and bend when straightened, which qualities assist in starting the sash more easily, both down and up. It is so thin as to render grooving of the sash unnecessary, and it does not require more space than is ordinarily left between the sash and jamb, while it is smooth and occasions no material friction on the wood where the surfaces are in contact, and its stiffness is such that it can never kink or double up between

the two, as cords frequently do, occasioning much trouble thereby. Its rigidity will cause the drum to revolve and thus wind up itself if the spring should fail, a result unattainable where cords or other similar materials are used.

The lock operating in connection with the balance consists of two sliding bolts, *g, g*, operated by the double-headed lever H and spring *k* conjointly. The knob *i* of the lever projects from the casing and by raising it one of the heads of the lever, acting against a projection *l* on the upper bolt, *g*, presses it back, so that its head falls within the case, and it becomes inoperative. The spring *k*, which is arranged to vibrate against the point or fulcrum *m*, by having its upper end thrown back, presses forward the lower bolt by the projection *l*, and throws it into action. The heads of these bolts have faces oppositely inclined, so that when one bolt is in operation the sash may move in one direction, but in the other is held by the head taking into notches *o o* in the edge thereof. Thus if the knob *i* is turned down as in Fig. 1, the upper bolt is in action and the sash may be drawn down at pleasure, but is firmly locked at whatever point it may be left where there is a notch, against any effort to raise it. By raising the knob *i*, as in Fig. 2, the action is reversed, and the sash will slide up but not down. This is a great convenience, as it is often desirable to leave a sash partially raised or lowered for ventilation or other purposes, and yet have it locked securely against all efforts to raise or lower it further.

A stop, *n*, is formed in the front plate of the case C, shown in Fig. 4, with recesses on either side in which the lever, H, rests when at either position for operating the bolts. The spring *k* by always pressing against the bolt in operation causes it to act as a spring or snap catch. The lever H is held firmly in the recesses above and below the stop *n* by a bent spring *r*, Fig. 1. By drawing the knob forward before attempting to move it, it passes the stop readily.

I am aware that coiled springs have been employed in connection with a drum for balancing sash as exhibited in a patent granted to me May 17th, 1859, and this I do not claim, but

I claim as my invention, and desire to secure by Letters Patent,

1. My improved reversible acting lock

and balance, consisting of the double headed knob-lever H, double inclined bolts *g, g*, oscillating spring *k*, working against the stops *l l* and *m*, strap *f* and spring drum D, arranged and operating substantially in the manner and for the purpose shown and described.

2. I also claim the employment of the metallic strap or band *f*, acting by its flexi-

bility and elasticity to aid in starting the sash, and requiring no grooving of the sash, in combination with drum D, and coiled spring *e* substantially as and for the purposes herein set forth.

SUMNER COOPER.

Witnesses:

R. H. PHELPS,

I. E. PHELPS.