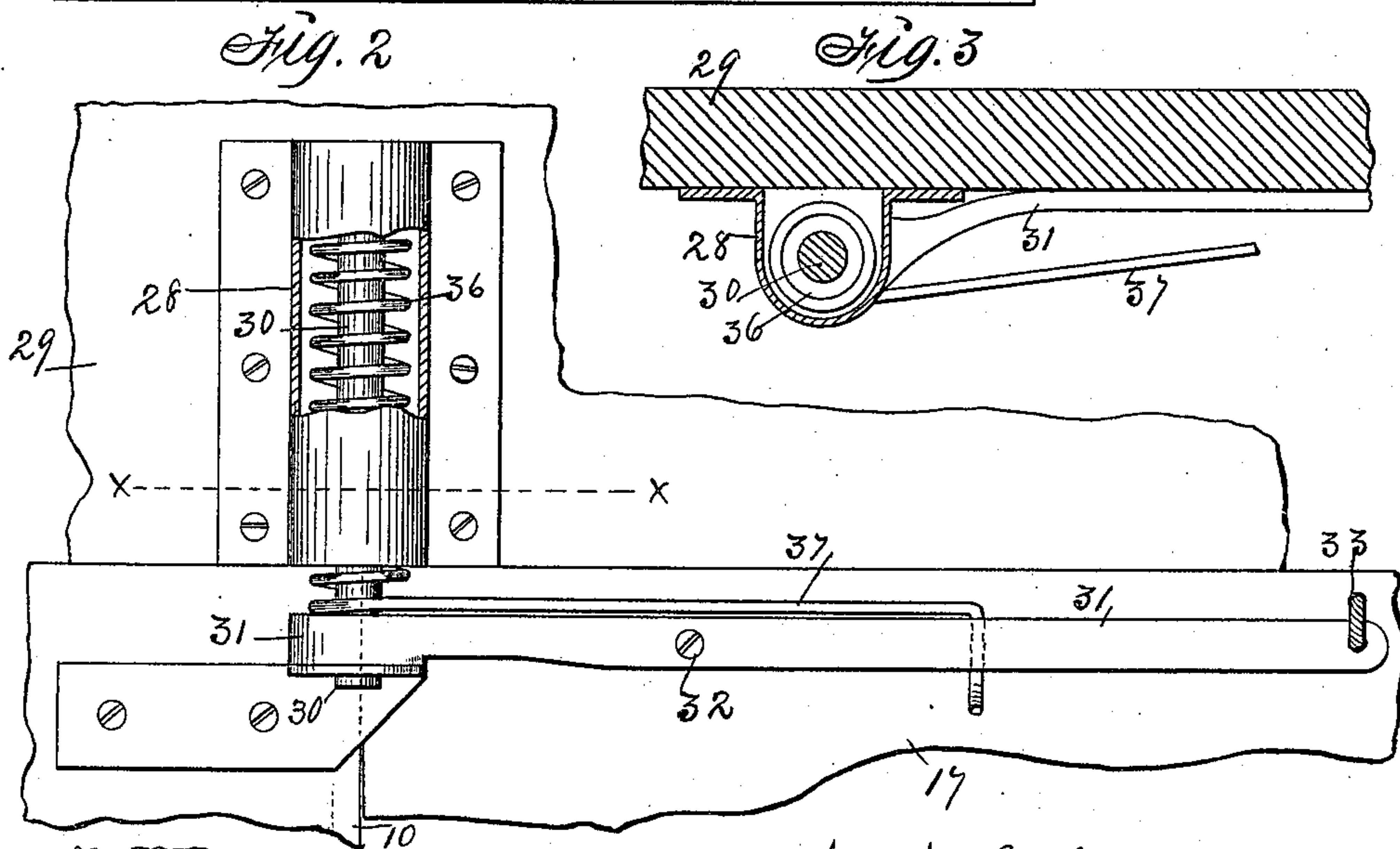
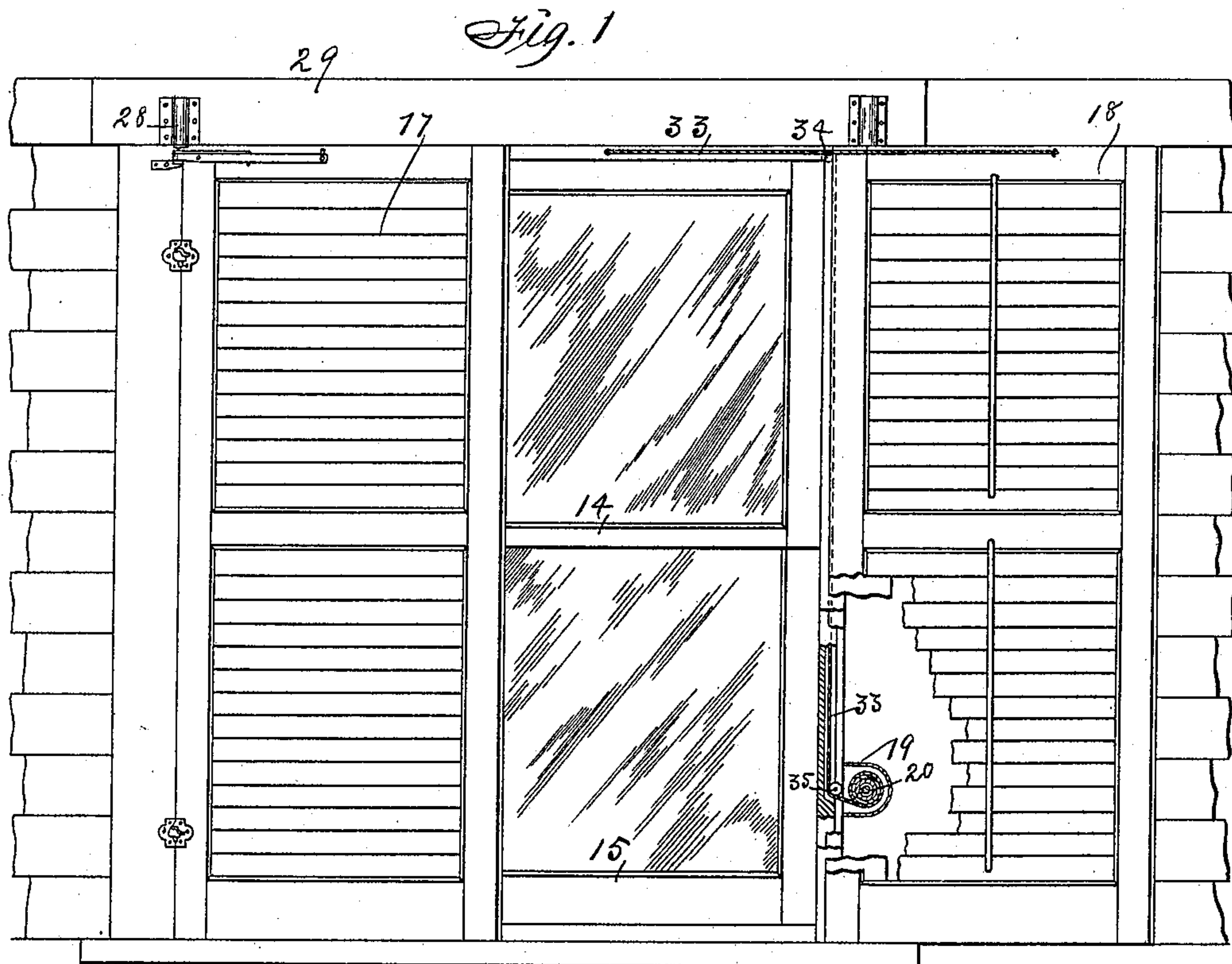


A. H. HULL.
SHUTTER OPENER.

No. 486,108.

Patented Nov. 15, 1892.



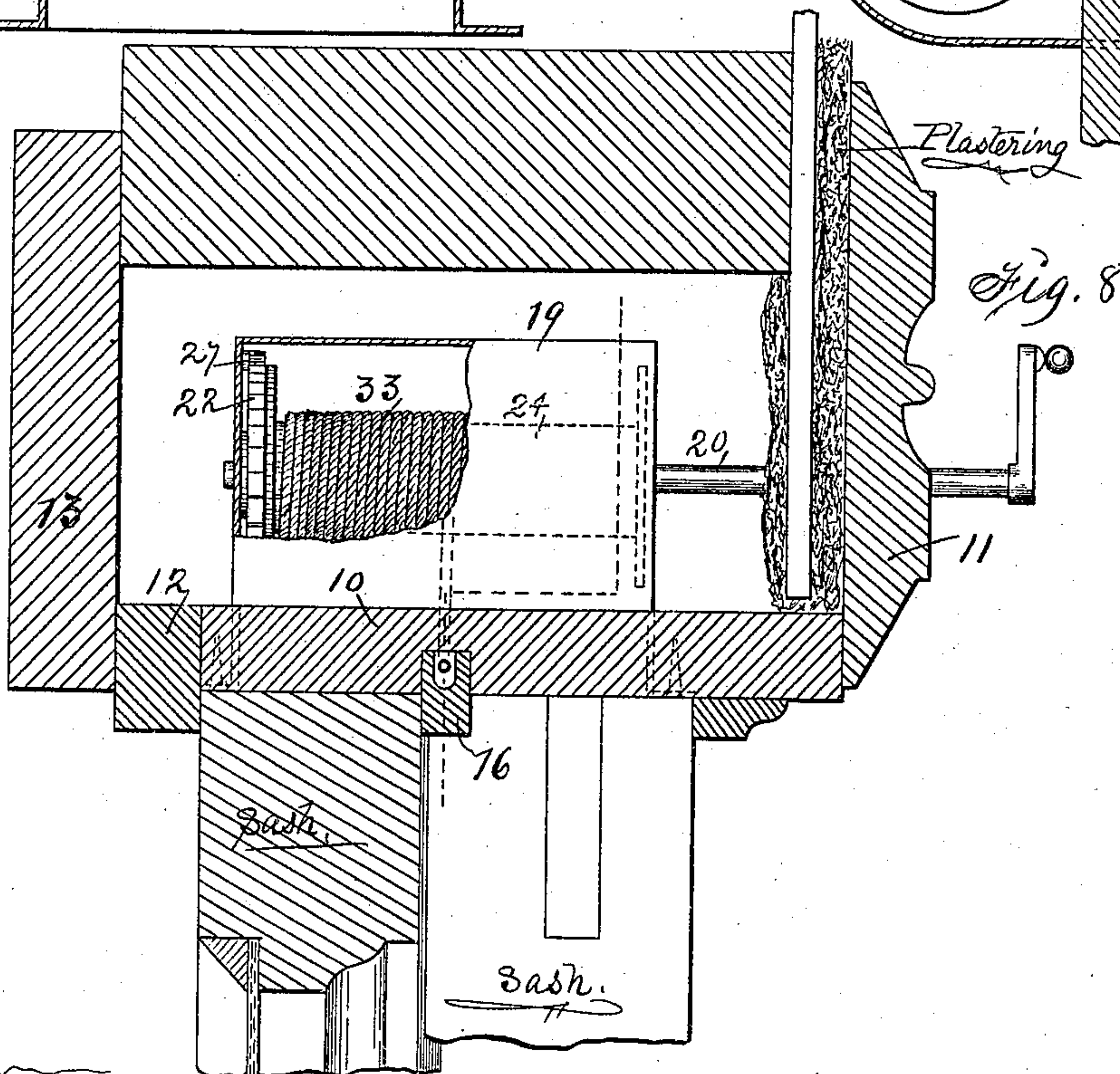
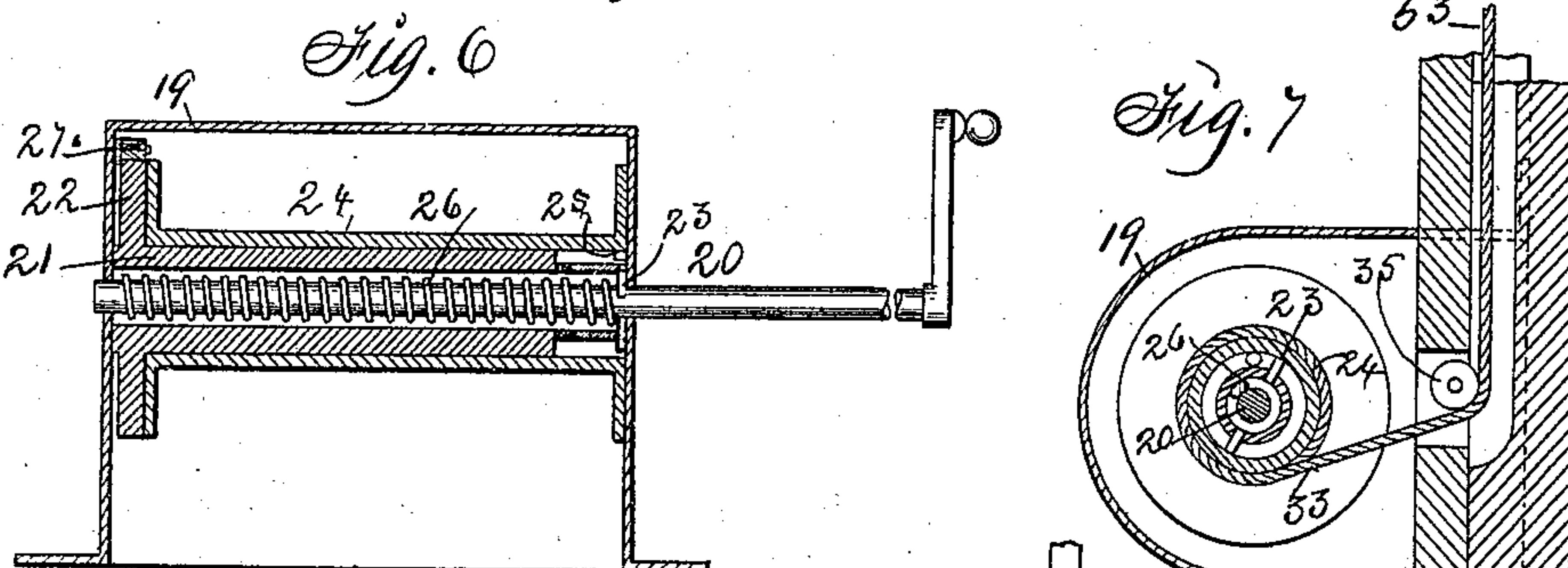
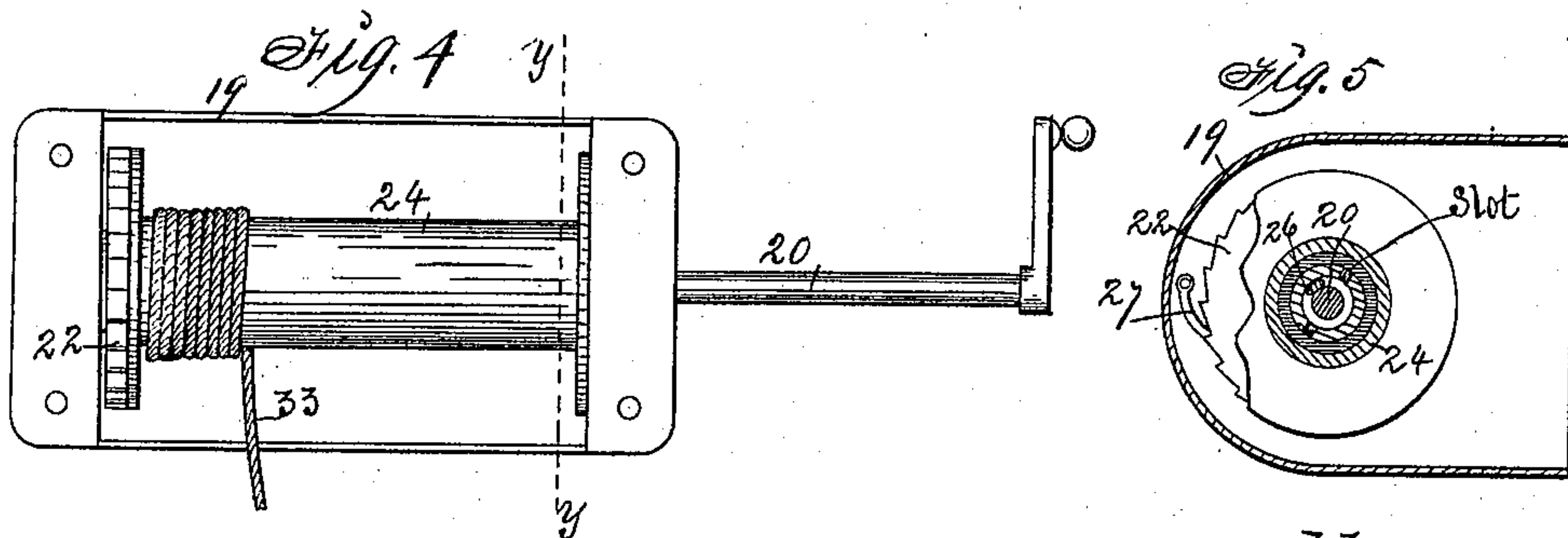
Witnesses:
W. J. Sankey.
R. H. Drwig

Inventor: Abigail H. Hull,
By Thomas G. Orwig, Attorney.

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UNITED STATES PATENT OFFICE.

ABIJAH H. HULL, OF ODEBOLT, IOWA.

SHUTTER-OPENER.

SPECIFICATION forming part of Letters Patent No. 486,108, dated November 15, 1892.

Application filed April 26, 1892. Serial No. 430,675. (No model.)

To all whom it may concern:

Be it known that I, ABIJAH H. HULL, a citizen of the United States of America, and a resident of Odebolt, in the county of Sac and State of Iowa, have invented an Improved Shutter-Opener, of which the following is a specification.

The object of my invention is to provide improved means whereby a shutter may be closed, locked, released, and opened from the inside of a room without opening the window.

My invention consists in the combination, with a window-shutter normally held open by yielding-pressure devices, of a crank-shaft preferably located at one side of the window-frame and projecting within the room, a drum operated by said crank-shaft, and a rope connecting said drum with the shutter and the yielding pressure devices.

My invention consists, further, in the construction, arrangement, and combination of parts hereinafter set forth, pointed out in my claims, and illustrated by the accompanying drawings, in which—

Figure 1 is a front elevation showing my invention applied, portions of a shutter being broken away to show the working parts. Fig. 2 is an enlarged detail view of the yielding pressure devices. Fig. 3 is a sectional view on the line X X of Fig. 2. Fig. 4 is an inner face view of the supporting-clip, crank-shaft, and drum detached from the window-frame. Fig. 5 is a transverse sectional view on the line Y Y of Fig. 4. Fig. 6 is a vertical sectional view of Fig. 4. Fig. 7 is a detail view showing the supporting-clip secured to the jamb of the window. Fig. 8 is a transverse sectional view showing the device applied as required for practical use.

In the construction of the apparatus as shown the numeral 10 designates a window-jamb, 11 the face-casing, 12 the blind-stop, 13 the outside casing, 14 the upper sash, 15 the lower sash, 16 the parting-bead, 17 one shutter, and 18 the other shutter, all combined together forming the window.

The numeral 19 designates a supporting-case which is secured to the jamb 10 opposite to the sash. A shaft 20 is mounted in bearings in the ends of the clip 19 and extends longitudinally through said clip. A sleeve 21, having a wheel 22 thereon, is mounted on

the shaft 20 within the case 19, said wheel being provided with ratchet-teeth on its periphery. A transverse slot is formed on the end of the sleeve 21 opposite to the wheel 22 and is engaged by a pin 23, mounted transversely in the shaft 20. A drum 24 is loosely mounted on the shaft 20, outside of and concentric with the sleeve 21, and a pin 25 is fixed in and projects inward from said drum. A spiral spring 26 is mounted on the crank-shaft 20, between said shaft and the sleeve 21, and has an endwise pressure against the pin 23 at one end and the opposite end of the sleeve 21. A pawl 27 is pivotally mounted on the end of the clip 19, adjacent to the wheel 22, which pawl normally engages the ratchet-teeth on said wheel.

A case 28 is fixed to the outside of the outer head-casing 29 at a point above the outer casing 13, and a vertical pivot 30, secured to the casing 13, extends vertically within said case. A lever 31 is pivoted on the pivot 30, below the case 28 at one end, and is secured to the outer face of the shutter-frame 17 by means of a pivotal pin 32. The end of the lever 31 opposite to the vertical pivot 30 is provided with a perforation, by means of which a rope 33 is secured to the said lever. The rope 33 passes from the point of attachment to the lever 31 through a perforation in the top rail of the shutter 17 a short distance above the said lever, thence around a pulley in the head-casing 29, thence along said head-casing to and over a pulley 34, thence downward along the jamb 10 to and over a pulley 35, mounted in said jamb, and thence through a perforation in said jamb to a point of attachment to the drum 24. A torsional spring 36 is mounted upon the vertical pivot 30 within the case 28, and a portion 37 of said spring projects laterally and downwardly therefrom outside of the case, as shown in Fig. 2, and being bent is confined beneath the lever 31 or otherwise connected with the shutter to aid in swinging the shutter and also to aid in keeping the interlocking hinges in engagement when the shutter is open.

Each of the shutters 17 and 18 is provided with the devices described, the operation of which is as follows: It will be observed that the pin 23 is normally held in engagement with the adjacent end of the drum 24 by the

resiliency of the spring 26, and a rotation of the shaft 20 will bring said pin into engagement with the pin 25 within the drum 24 and rotate said drum, thus winding the rope 33 on said drum. The operation of winding the rope 33 upon the drum 24 causes said rope to travel along and over the pulleys and through the perforations described, thus exerting a pull on the lever 31, elevating said lever and consequently the shutter to which it is attached, and closing said shutter against the resilience of the spring 36. When it is desired to open the shutter, the shaft 20 is moved longitudinally until the pin 23 is released from engagement with the pin 25, and the resilience of the torsional spring 36, exerted through the medium of the portion 37 thereof acting on the lever 31, will throw the shutter open and unwind the rope from the drum 24. Upon releasing the pressure required to move the shaft 20 longitudinally the resiliency of the spring 26 will cause said shaft to immediately resume its normal position in readiness to be rotated to wind the rope upon the drum. It will be observed, further, that the portion 37 of the spring 36, besides acting upon the lever 31 to throw the shutter open, acts in a downward direction upon said lever and assists in holding the two members of the self-locking hinges in mutual engagement when the shutter is open and prevents the shutter from being lifted and swung and closed accidentally by the wind.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent of the United States therefor, is—

1. In a shutter-opener, the combination, with a shutter and a rope connected thereto, of a supporting-case mounted on the window-jamb, a shaft rotatably mounted in said clip, a sleeve loosely mounted on said shaft, a pawl-and-ratchet mechanism adapted to prevent a reverse movement of said sleeve, a slot in the end of said sleeve, a pin mounted transversely in said shaft and engaged within said slot in said sleeve, a drum loosely mounted on said sleeve and shaft, a rope fixed to said drum and extending therefrom over pulleys

to and through a perforation in said shutter, a lever pivoted on said shutter, one end of which lever is pivoted on a vertical pivot secured on the casing, the remaining end of said lever being connected to the projecting end of the rope, and a torsional spring acting upon said lever to cause the same to turn upon the vertical pivot.

2. In a shutter-worker, the combination, with a shutter, of a pivot vertically secured to the window-casing, a lever pivoted at one end to said pivot, a pivotal connection between said lever and the shutter, a torsional spring mounted upon said vertical pivot and acting upon said lever to open the shutter, and a rope attached to the end of said lever.

3. In a shutter-worker, the combination, with a supporting-clip and a shaft rotatably mounted therein, of a sleeve rotatably mounted on said shaft, a ratchet-wheel formed on said sleeve, a pawl pivoted on said clip and engaging said ratchet-wheel, a spring interposed between said sleeve and the shaft, a slot formed in the end of said sleeve, a pin mounted transversely in said shaft and engaged in said slot, a drum rotatably mounted on said sleeve and provided with a pin projecting inward therefrom, and a rope forming a connection between said drum and a shutter, as and for the purposes set forth.

4. In a shutter-worker, a torsional spring secured to the window-casing and having an arm extending laterally and engaging with a lever pivoted to the shutter, as set forth.

5. In a shutter-worker, the combination, with a hinged shutter-blind, of a torsional spring mounted on a vertical pivot secured to the window-casing and having an arm to extend laterally to connect with a lever mounted on the same pivot and fulcrumed to the shutter to operate as set forth, for the purposes stated.

In testimony whereof I hereunto have set my hand, this 18th day of April, A. D. 1892, in the presence of two witnesses.

ABIJAH H. HULL.

In presence of—

W. K. SHAW,
C. D. MUXEN.