

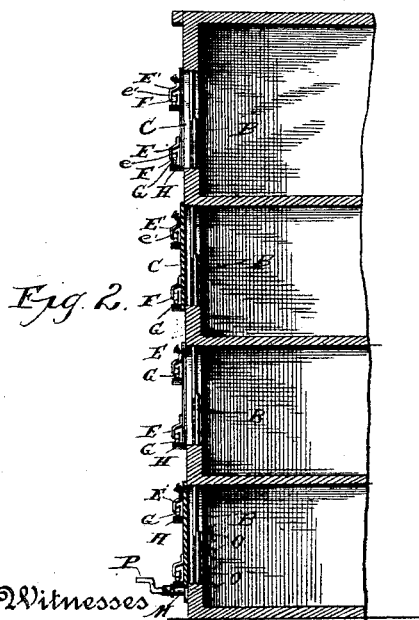
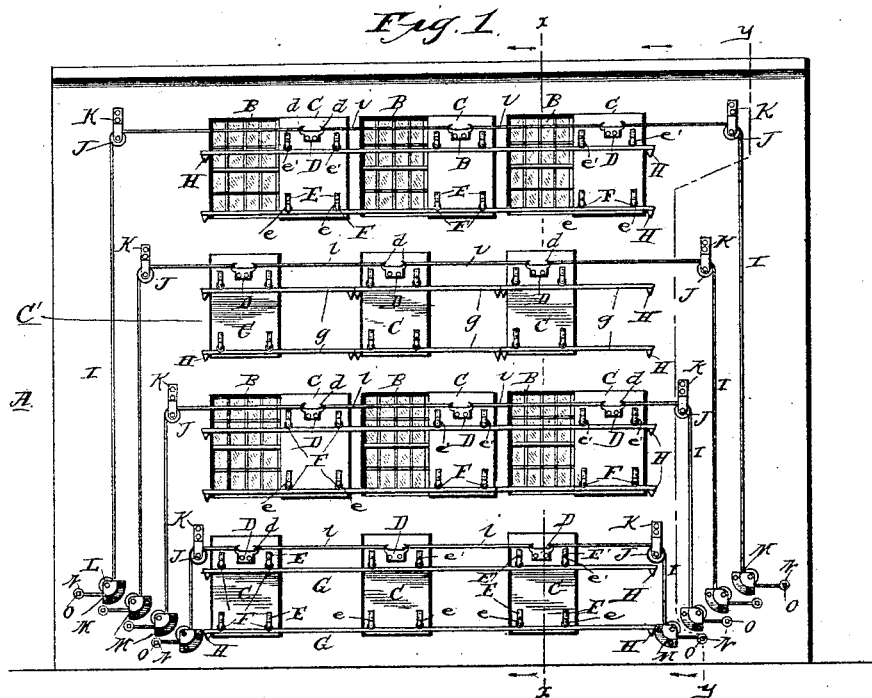
(No Model.)

W. C. JARVIS.

SHUTTER OPERATING DEVICE.

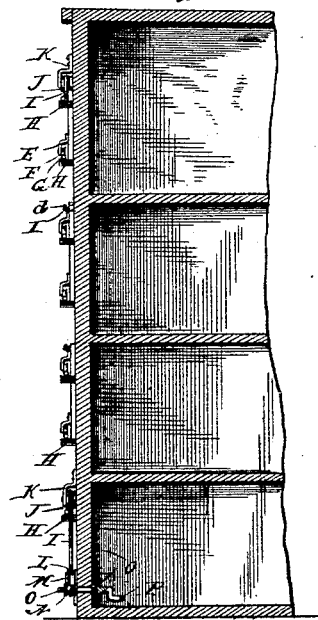
No. 453,640.

Patented June 9, 1891.



Witnesses

*W. C. Jarvis*  
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# UNITED STATES PATENT OFFICE.

WALTER C. JARVIS, OF KANSAS CITY, MISSOURI.

## SHUTTER-OPERATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 453,640, dated June 9, 1891.

Application filed November 3, 1890. Serial No. 370,200. (No model.)

*To all whom it may concern:*

Be it known that I, WALTER C. JARVIS, of Kansas City, Jackson county, Missouri, have invented certain new and useful Improve-  
5 ments in Devices for Opening and Closing Sliding Shutters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

10 My invention relates to appliances for operating the fire-shutters of warehouses and other buildings; and the objects of my invention are, first, to provide means whereby one or more rows of shutters can in case of fire  
15 be either opened or closed from a point remote from the flames, and, secondly, to provide means for effectively and quickly connecting or disconnecting any one of the shutters of a story from the others.

20 To the above purposes my invention consists in certain peculiar and novel features of construction and arrangement, as hereinafter described, and pointed out in the appended claim.

25 In order that my invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

30 Figure 1 is a front elevation of a building with my improvements applied thereto. Fig. 2 is a transverse vertical section of the same on the line  $xx$  of Fig. 1. Fig. 3 is a section on line  $yy$  of Fig. 1.

35 In the said drawings, A designates one wall of a warehouse or other building, and B the windows thereof, there being a number of windows for each story and a number of stories to the building, either precisely as shown or more or less, as may be.

40 C designate a number of shutters, one of which is designed to close or open each of the windows B. To the lower portion of the outer side of each of these shutters are attached a number of brackets E, each of which is of angular form, so as to offset at its lower portion  
45 from the surface of the shutter, as shown at  $e$ , and each of which carries on the inner side of its lower end a grooved wheel or roller F. Along the outer side of the wall and about  
50 on the level of the sills of the windows B are placed a number of rods or tracks  $g$ , the ends of which are bolted or otherwise suitably se-

cured to supports H, which project horizon-  
tally outward from the wall of the building, and each of which is a bar or short piece of  
55 metal driven into or otherwise suitably secured to the wall. The rollers or wheels F run upon the uppersides of the rods or tracks  $g$ , and thus support the weight of the shutters. Upon the outer side of the upper portion of each shutter B is also secured a num-  
60 ber of angular brackets E', the lower parts  $e'$  of which also offset from the shutter, and which carry at the inner side of their lower ends grooved wheels or rollers F', similar to  
65 the rollers F above described. These upper rollers F' run upon rods or tracks  $g$ , similar to the rods or tracks above described and similarly supported at their ends by supports H; but the upper tracks extend along the up-  
70 per parts of the windows, and the wheels or rollers F', which run upon them, serve in addition to sustaining a portion of the weight of the shutters, the additional purpose of retain-  
75 ing the shutters in proper vertical position.

Upon the upper part of the outer side of each of the shutters C is secured by bolts or in other suitable manner a plate D, which is provided on its upper side with two opposite-  
80 ly-disposed hooks  $d$ . The several shutters of each story are connected together by short cables  $i$ , the ends of which are connected to the two adjacent hooks  $d$  of the succeeding shutters. To the outer hooks of the two end  
85 shutters of each story are connected the upper ends of two cables I, each of which extends laterally away from the row of shutters and is led over a pulley J. Each of these  
90 pulleys J is mounted in the lower part of a bracket or hanger K, bolted or otherwise secured to the outer side of the building. From the pulleys J the cables I extend downward in two sets at each end of the wall, and the lower end of each of said cables is passed be-  
95 neath a pulley L and is finally wound upon a shaft O, located adjacent to the said pulley L. It will be observed that there are a number of pulleys L and shafts O at each end of the wall, and that each pulley L has a companion shaft O, while the shafts and pulleys  
100 are located near the ground. Each pulley L is mounted in a hanger M, and each shaft O extends through the wall and is provided at each end with an angular portion adapted to

receive a crank-handle P. The inner ends of the shafts are designed to be in the watchman's apartment. It will thus be seen that in the event of a fire in the building all of the shutters in any one or all of the stories can be quickly closed from the ground or from a lower apartment of the building, and that as the fire progresses and it is desired to direct streams of water into one or more of the stories the shutters of each story can be opened and closed again at points so entirely remote from the fire as to avoid any exposure of the operator to danger. It will be further seen that the short cables *i* between each two inner shutters of each story not only facilitate the first application of the mechanism to buildings, but greatly simplify the construction and enable repairs to be made without deranging the entire working mechanism of a story.

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

An improved shutter-working mechanism

for fire-shutters, comprising a series of sliding shutters for the windows of each story of the building, upper and lower rods or tracks extending across the windows, and upper and lower rollers secured to the shutters and running upon said tracks, plates D, secured to the shutters, oppositely-disposed hooks *d* thereon, short cables connecting the hooks of the successive shutters, longer cables attached to the outer hooks of the outer shutters, winding-shafts O, journaled in the wall of the building and having both their outer and inner ends angular, whereby they may be operated from the outside or inside of the building, the said shafts receiving the lower ends of the longer cables, and pulleys secured on the wall, around which the cables pass, substantially as described.

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

WALTER C. JARVIS.

Witnesses:

G. G. THORPE,

H. E. PRICE.