(No Model.)

W. H. BRODIE.

FIRE PROTECTING SHUTTER.

No. 480,394. Patented Aug. 9, 1892.

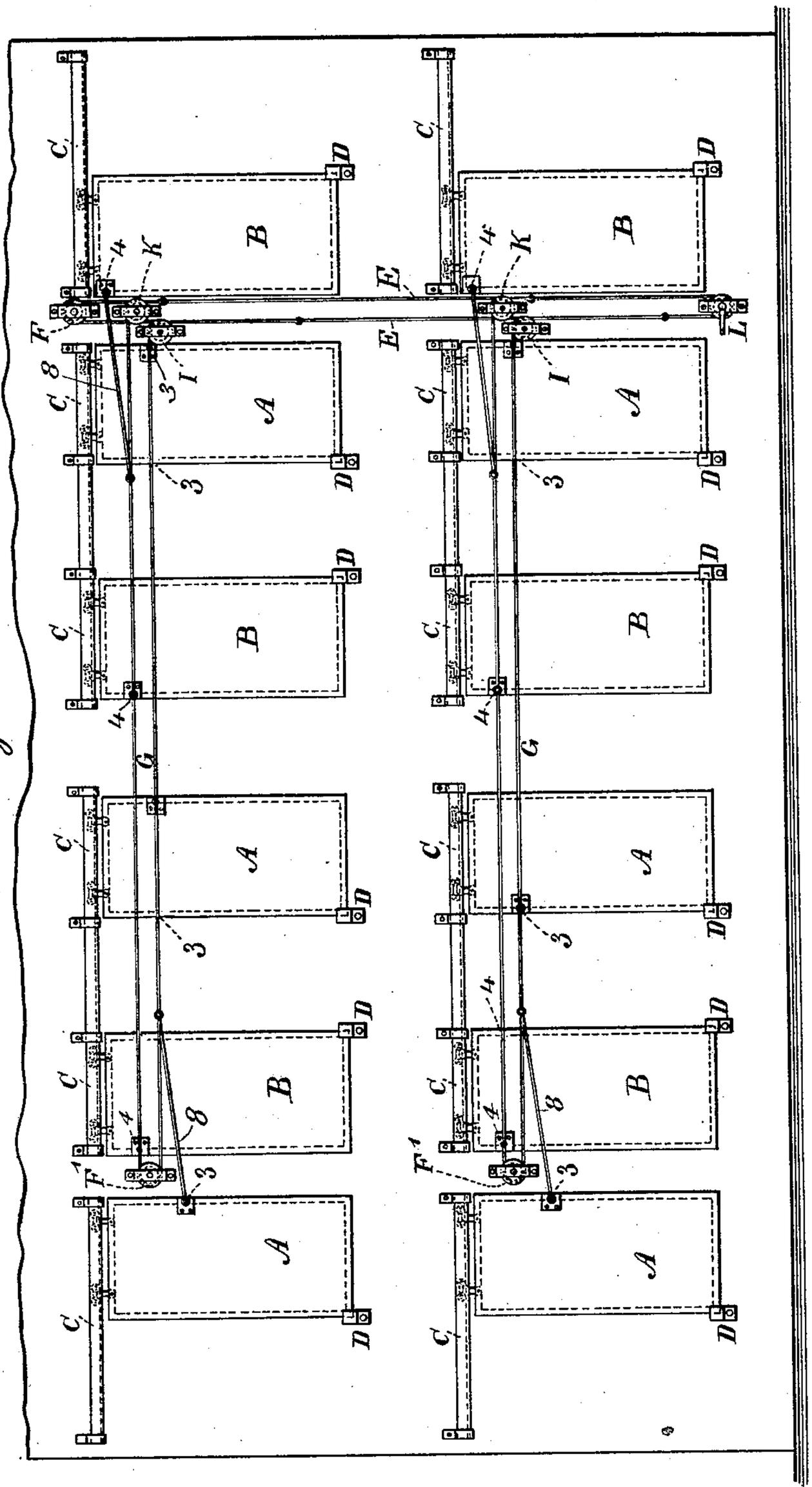

Fig. 1.

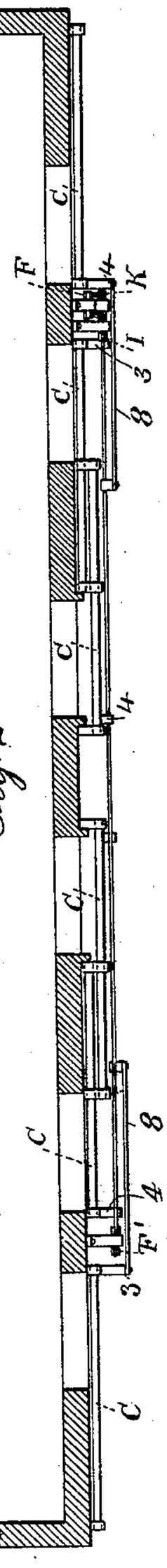

Fig. 2.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM H. BRODIE, OF PLAINFIELD, NEW JERSEY.

FIRE PROTECTING-SHUTTER.

SPECIFICATION forming part of Letters Patent No. 480,394, dated August 9, 1892.

Application filed October 19, 1891. Serial No. 409,090. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. BRODIE, a citizen of the United States, residing in Plainfield, in the county of Union and State of New Jersey, have invented an Improvement in Fire Protecting-Shutters, of which the following is a specification.

Grain-elevators and other large structures are very frequently exposed to fire from sparks passing in through the open ventilating-windows, and to close these openings by shutters has usually occupied considerable time, and efforts have been made to close such shutters by means of ropes or chains operated by one or more windlasses in accessible positions.

I have found that difficulty has been experienced in adapting any of the devices heretofore constructed to use in elevators or similar buildings where the spaces between the window-openings have been irregular, rendering it necessary to move adjacent shutters some in one direction and some in the other direction. My present improvements are made for accomplishing this object.

In the drawings, Figure 1 is an elevation illustrating the present invention as applied to two ranges of shutters. Fig. 2 is a sectional plan of the wall, illustrating the manner in which the shutters pass by each other and in which the connections are made so as to move shutters in the same range in opposite directions.

It will be borne in mind that the shutters may be either inside the building or sliding upon the outside thereof, and in grain-elevators it is often the most convenient to provide shutters upon the outsides of the building and to hang the same upon the upper edges by trolleys or trucks running upon tracks above the window-openings, and these fire-shutters are usually made of sheet metal—such as galvanized iron—upon suitable framework.

I have represented shutters at A B and the stationary tracks at C, and it is usually preferable to provide guides D at the lower ends of the shutters. The vertical halyards E extend from a windlass L, or other similar device in the basement or at any other convenient location, up to and around a stationary pulley F, which pulley is at the desired elevation for actuating one or more ranges or tiers of shutters, and I provide the lateral wire ropes or chains G, extending off adjacent to the shutters A B and passing around the stationary sheave or pulley F′, and the ends of this rope or chain G pass over the pulleys I K to the halyards E and are permanently secured to such halyards, one end being attached to one side of the halyard and the other end to the other side of the halyard. Hence when the halyards E are acted upon the rope or chain G will be moved simultaneously and one part thereof will be moving in one direction and the other part in the other direction, and in consequence of this lateral rope or chain G passing adjacent to the shutters A B, I am able to give to such shutters movements in the opposite directions simultaneously. I have shown such connections at 3 and 4, the connections 3 to the shutters A being upon the lower part of the rope G and the connections 4 to the shutters B being upon the upper part of such rope or chain G. Hence it will be apparent that where two shutters close together or close adjacent to a narrow pier or column such shutters can be drawn apart to open the windows or moved toward each other to close the windows, and this improvement can be applied to a new building or to the shutters of a building already constructed, and it is not necessary to provide for moving all the shutters in one range in the same direction; but, on the contrary, the shutters can be connected to whichever part of the rope or chain G that will give to such shutter a motion in the proper direction in relation to the other shutters. This arrangement can be extended to any desired number of floors or ranges of shutters, or the halyards E may pass up the middle portion of the building and the ropes or chains G be led off in both directions therefrom, so as to operate the ranges of shutters in whatever manner is desired. At the end shutters a rigid rod 8 is employed, pivoted at one end to the shutter and at the other end to the rope or chain at the part thereof that receives a motion in the proper direction at the proper time for opening or closing the shutter. I have shown such rigid connections to the two end shutters in each range of shutters.

I claim as my invention—

1. The combination, with two or more hori-

zontally-moving shutters for a building, of a rope or chain around a pulley, with the two portions of such rope or chain passing horizontally and adjacent to the shutters, and a connection from one part of such rope or chain to one shutter and from the other part to the other shutter for giving the shutter a positive motion in opposite directions in opening and closing the same, and a winch or other suitable connection for giving motion to such rope or chain, substantially as set forth.

2. The combination, with the fire-shutters and the tracks or supports for the same, of halyards passing up the building and over a sheave, a winch or other suitable mechanism for moving the same, one or more lateral ropes or chains with the ends connected to the halyards, pulleys for such lateral rope or chain, and connections from one portion or the other to the shutters, whereby such shutters can be opened or closed in opposite directions, substantially as set forth.

Signed by me this 14th day of October, 1891.

WILLIAM H. BRODIE.

Witnesses:
GEO. T. PINCKNEY,
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