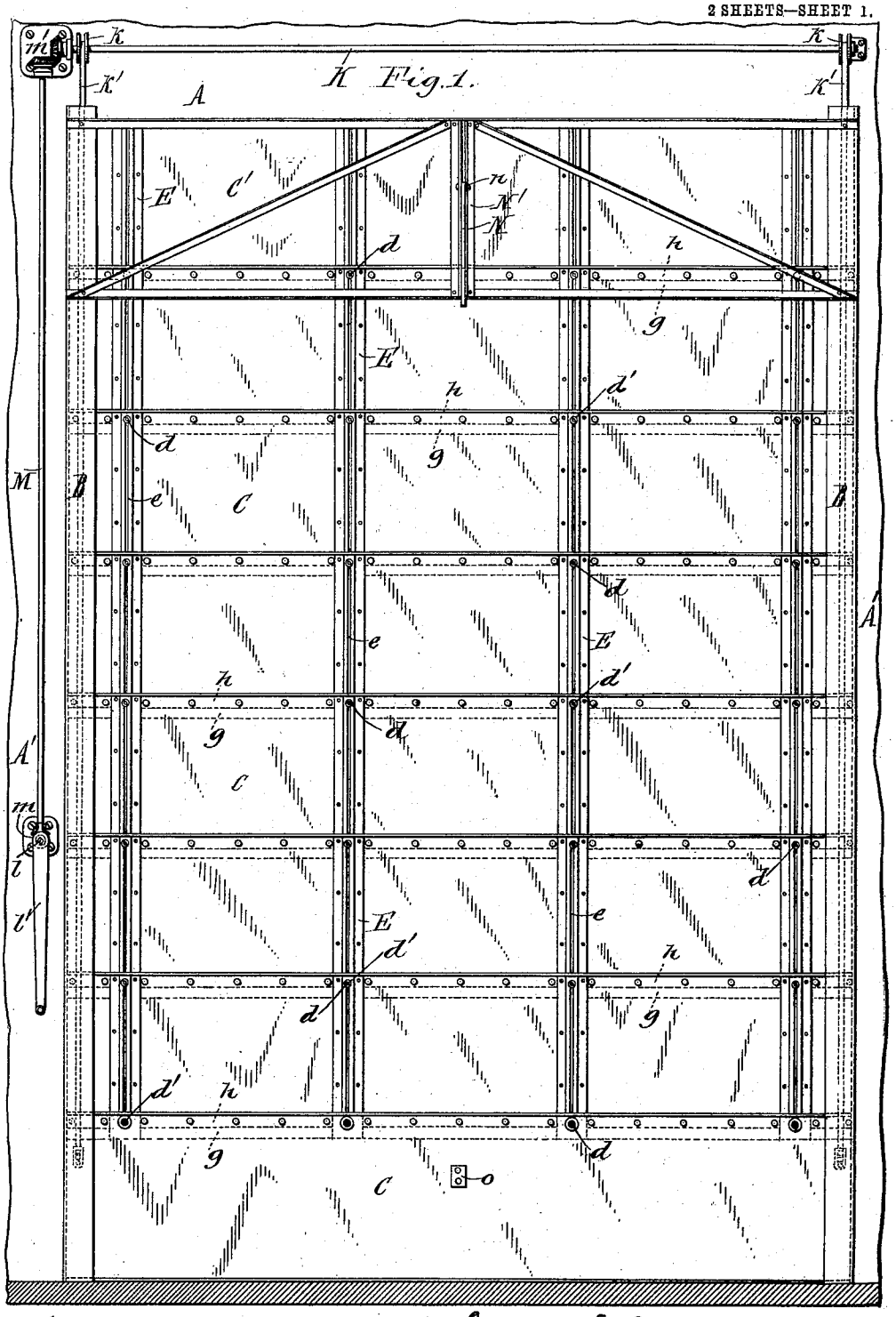
No. 782,534. PATENTED FEB. 14, 1905.

D. W. ADAMS.

FIREPROOF CURTAIN.

APPLICATION FILED JULY 18, 1904.

2 SHEETS—SHEET 1.



Witnesses:
Louis W. Gratz.
Robert Waitkenbach

David W. Adams, Inventor
By Geyer & Popp
Attorneys

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2 SHEETS—SHEET 2.

Fig. 1.

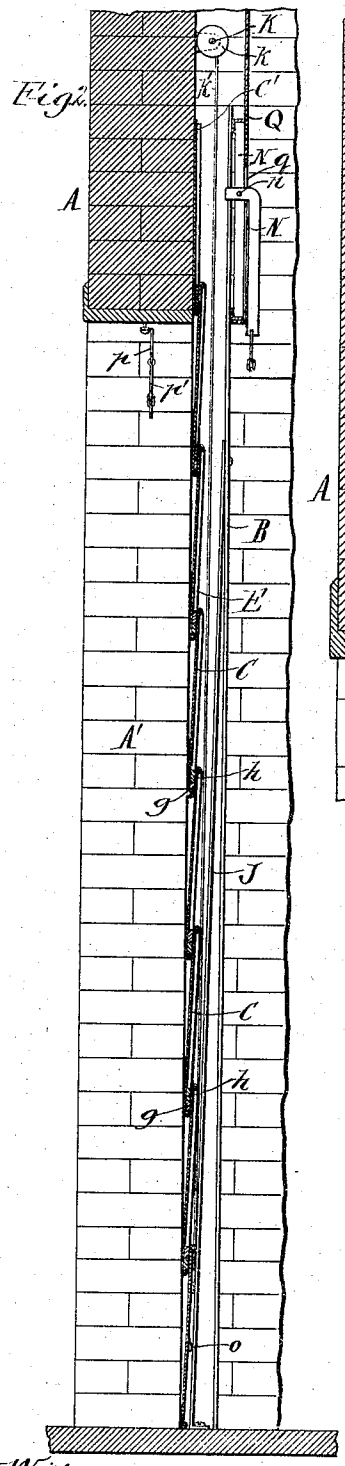


Fig. 3.

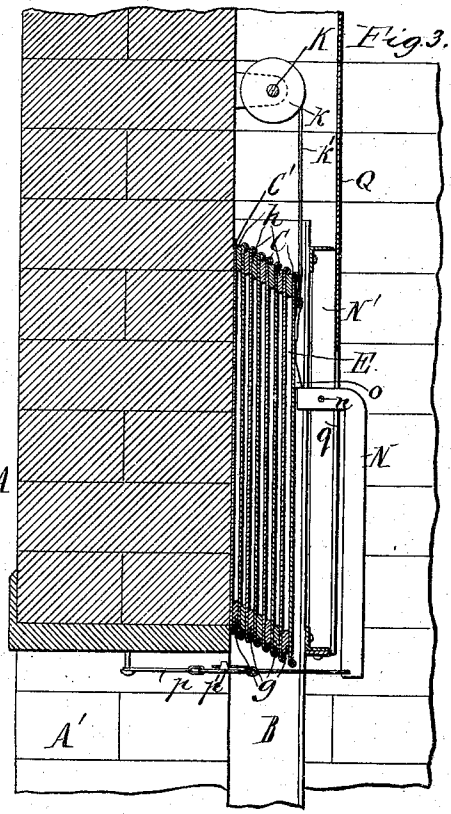


Fig. 5.

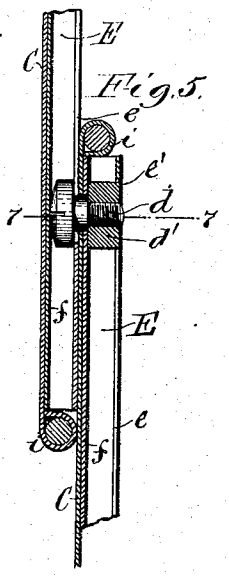


Fig. 6.

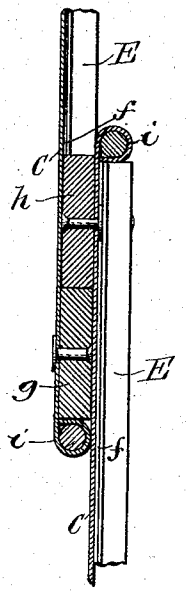


Fig. 4.

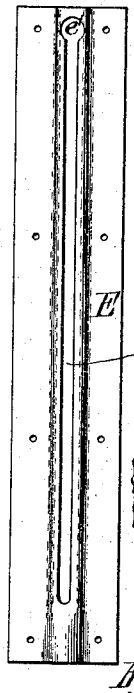
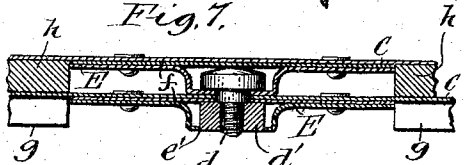


Fig. 7.



Witnesses:
Louis W. Gratz.
Robert Weitkemeyer.

David W. Adams,
Inventor
By Geyer & Popp
Attorneys

No. 782,534. Patented February 14, 1905.

UNITED STATES PATENT OFFICE.

DAVID W. ADAMS, OF BUFFALO, NEW YORK.

FIREPROOF CURTAIN.

SPECIFICATION forming part of Letters Patent No. 782,534, dated February 14, 1905.

Application filed July 18, 1904. Serial No. 216,987.

To all whom it may concern:

Be it known that I, DAVID W. ADAMS, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Fireproof Curtains, of which the following is a specification.

This invention relates to a fireproof curtain adapted to be applied to the door or window of a building or the sides of an elevator-shaft for preventing the spreading of a fire from one room or floor to another or from one building to another, and more particularly to curtains of this class which are composed of a number of overlapping horizontal slats capable of sliding upon one another and adapted to be normally held up near the ceiling and to be lowered in case of fire. A curtain of this character is shown and described in Letters Patent of the United States No. 519,990, granted May 15, 1894, to E. F. Clark.

The principal object of my invention is to improve the construction of such curtains with a view of rendering them lighter, stronger, and more durable, relieving the connecting-bolts of the slats from undue strains, and insuring the easy sliding of the slats upon one another.

A further object is to provide the curtain with simple and reliable means for automatically releasing and lowering it in case of a fire on the premises.

In the accompanying drawings, consisting of two sheets, Figure 1 is a face view of my improved curtain applied to a doorway and showing the same lowered. Fig. 2 is a transverse central section thereof. Fig. 3 is an enlarged transverse section of the upper portion of the doorway and the curtain, showing the latter locked in its raised position. Fig. 4 is a detached face view of one of the slotted guide-strips of the slats. Fig. 5 is a fragmentary transverse section, on an enlarged scale, of a pair of adjoining slats, the plane of the section being through one of the connecting-bolts. Fig. 6 is a similar section taken at a point between adjacent guide-strips and bolts of the slats. Fig. 7 is a fragmentary horizontal section, on an enlarged scale, in line 7 7, Fig. 5.

Similar letters of reference indicate corresponding parts throughout the several views.

A indicates the top and A′ the sides of a doorway, and B indicates upright stationary guides or ways arranged at opposite sides of the doorway and in which the fireproof curtain slides in being raised and lowered. The curtain is composed of a series of overlapping transverse slats C C′ of fireproof material. Comparatively thin sheet metal is preferred for this purpose; but asbestos or other suitable material may be employed, if desired. The uppermost slat C′ forms a support for the remaining portion of the curtain and is rigidly secured to the top of the doorway. Each of the remaining slats C is connected to the slat immediately above it by a number of transverse bolts *d*, projecting rearwardly from its upper edge and sliding, respectively, in vertically-slotted guide-strips E, riveted or otherwise secured to the slat next above it. In the preferred construction shown in the drawings the central portion of each guide-strip E, which contains the slot *e*, is raised or channeled, and the slot is narrower than this raised portion, so as to form practically an undercut groove, which receives the head of the corresponding connecting-bolt *d*, as best shown in Figs. 5 and 7. The bolt-head is inserted through an enlargement *e′*, formed at the upper end of the slot *e*, as shown in Fig. 4, and when the several slats are assembled the enlargement of each guide-slot is closed by the nut *d′* of the bolt secured to the same slat, thereby confining the bolts of the slat next below in their guide-slots. The heads of these bolts preferably bear against sheet-metal backing-strips *f*, interposed between the guide-strips and the slats, as shown in Figs. 5 and 7, so as to stiffen the slats and cause the bolts to slide smoothly in the guide-strips. These backing-strips may, however, be omitted, if desired, and the heads of the bolts allowed to bear directly against the faces of the slats.

Each slat, except the lowermost one, is provided on its front side at or near its lower edge with a stop, bar, or cleat *g*, which is riveted or otherwise secured thereto, and each slat, except the uppermost stationary one, C′,

is also provided on its rear side at or near its upper edge with a similar cleat or stop-bar *h*. Each of these cleats consists of intermediate sections of sufficient length to fit between adjacent guide-strips E of the slats and end sections of the proper length to extend from the outer guide-strips to the outer edges of the curtain-slats, as shown by dotted lines in Fig. 1. When the curtain is lowered, the upper rear stop-cleat *h* of each slat encounters the lower front stop-cleat *g* of the slat next above it and rests thereon, as shown in Fig. 6, thereby bringing the weight of the curtain and the shock or impact incident to the descent of its slats principally or entirely upon these cleats instead of upon the connecting-bolts and avoiding bending or breakage of the bolts. The latter thus serve principally to connect the slats and hold them in their proper relative positions, and binding of the slats, which results when the bolts become bent, is effectually prevented. The contiguous stop-cleats also form close joints between the slats when the curtain is lowered, rendering the curtain practically tight and solid and preventing the passage of smoke and fire through the same. In order to perform this additional function, the thickness of the stop-cleats should be substantially equal to that of the raised portions of the slotted strips E, as shown in Figs. 6 and 7. To form still more reliable smoke and fireproof joints, the slats are preferably rolled and wired at their upper and lower edges, as best shown at *i* in Figs. 5 and 6, thus forming enlargements which close the joints between the slats and their lower cleats *h*. These rolled edges and the cleats, guide-strips E, and backing-strips *f* also greatly reinforce and stiffen the slats, permitting comparatively light stock to be used in the construction of the curtain. By forming the guide-slots *e* in separate raised strips secured to the faces of the slats the latter are left intact and at the same time strengthened by the strips. These strips can be cheaply stamped of sheet metal.

The lateral guideways B of the curtain are preferably narrowed or tapered toward their lower ends to correspond to the gradually-decreasing thickness of the curtain as its slats are successively lowered or extended, by which construction the lower portion of the curtain, as well as its upper portion, is prevented from swinging out of place. In the construction illustrated in the drawings the front and rear walls of the guideways B are parallel, and an oblique strip or false wall J of the proper inclination is arranged in each guideway and suitably fastened in place therein, as shown in Fig. 2.

Any suitable means may be employed for raising and lowering the curtain. The mechanism illustrated in the drawings consists of a horizontal shaft K, arranged above the curtain and carrying grooved drums *k*, elevating bands or cords *k'*, wound upon said drums by the rotation of the shaft and secured at their lower ends to the lowermost slat of the curtain, a horizontal shaft *l*, located within convenient reach from the floor and having a hand-crank *l'*, and an intermediate upright shaft M, which transmits motion from the crank-shaft *l* to the drum-shaft K by bevel-gears *m m'*, as shown in Fig. 1.

In raising the curtain the lowermost slat is first elevated, the same sliding upon the next slat until its connecting-bolts *d* strike the upper ends of the guide-slots *e* in the last-named slat, when the latter is likewise elevated until its bolts strike the upper ends of the guide-slots *e* in the third slat from the bottom of the curtain and elevate said slat, and so on until all of the slats are raised and stacked, as shown in Fig. 3.

The curtain may be held up by any suitable means—for instance, by a detent device of any well-known construction applied to the crank-shaft; but this is preferably accomplished by a suitable retaining device, which automatically releases the curtain and allows it to descend by gravity when the temperature in the vicinity of the curtain rises above a predetermined normal. The preferred means shown in the drawings consist of a vertically-swinging elbow-lever N, pivoted at *n* to a stationary frame or support N' and interlocking with a nose or projection *o*, arranged on the face of the lowermost slat in the raised position of the curtain, as shown in Fig. 3. The depending long arm of this locking-lever is connected with the top A of the doorway or other stationary member by a wire *p*, containing a fusible link *p'*, so that when this link is fused by an abnormal temperature the lever N is released and the nose *o*, under the weight of the curtain, deflects and clears the upper short arm of the lever, allowing the curtain to descend and closing the doorway. The upper side of the nose *o* is beveled to permit the same to ride over the short arm of the retaining-lever in raising the curtain. As shown in the drawings, the fusible connection *p* preferably extends across the lower edge of the curtain, so as to be exposed to a fire in either of the rooms connected by the doorway.

A covering-plate Q is preferably extended across the top of the doorway in front of the stationary upper slat C' and the frame N', so as to conceal the curtain when elevated, as shown in Figs. 2 and 3. This plate has a vertical slot *q*, which receives the locking-lever N.

I claim as my invention—

1. A fireproof curtain composed of a series of slats provided on one side with strips having raised portions containing guide-slots, and on their opposite sides with projections which engage with the slotted strips of an adjoining slat, substantially as set forth.

2. A fireproof curtain composed of a series

of slats, each of which except the lowermost one is provided on its front side with separate strips having raised portions containing guide-slots, and each of which slats, except the uppermost one, is provided on its rear side with bolts which interlock with the slotted strips of the slat next above it, substantially as set forth.

3. A fireproof curtain comprising a series of slats provided on one side with separate strips having raised portions containing guide-slots, and on their opposite sides with projections which engage with the slotted strips of an adjoining slat, and backing-strips interposed between the slats and said slotted strips, substantially as set forth.

4. A fireproof curtain composed of a series of slats provided on one side with strips having raised portions containing guide-slots, and on their opposite sides with bolts which engage with said slotted strips, said slots having enlargements at their upper ends and the nuts of the bolts being seated in the enlargements, substantially as set forth.

5. A fireproof curtain composed of slats provided with guide-slots and projections which engage with the slots of an adjoining slat, and coöperating stops applied to adjoining slats and arranged to limit the descent of the slats on one another for relieving said projections from shocks and strains, substantially as set forth.

6. A fireproof curtain composed of slats having guide-slots and projections which engage with the slots of an adjoining slat, the slats being provided on their front sides near their lower edges with stop-cleats, and on their rear sides near their upper edges with similar cleats adapted to rest upon the lower cleats of the adjoining slats, substantially as set forth.

7. A fireproof curtain composed of a series of slats provided on one side with strips having raised portions containing guide-slots, and on their opposite sides with headed projections which engage with the slotted strips of an adjoining slat, the slats being also provided on their front and rear sides near their upper and lower edges respectively with stop-cleats of the same thickness as the raised portions of said slotted strips, substantially as set forth.

8. The combination with a fireproof curtain composed of connected, overlapping slats capable of sliding on one another, the lowermost slat of the series having a projection, of an elbow-lever having its upper arm arranged to interlock with said projection, and retaining means connected with the lower arm of said lever, substantially as set forth.

Witness my hand this 13th day of July, 1904.

DAVID W. ADAMS.

Witnesses:
CHARLES F. ADAMS,
C. F. GEYER.