(No Model.) 2 Sheets—Sheet 1.

S. RICHARDS.

FIRE SHIELD.

No. 274,976. Patented Apr. 3, 1883.

Fig. 1.

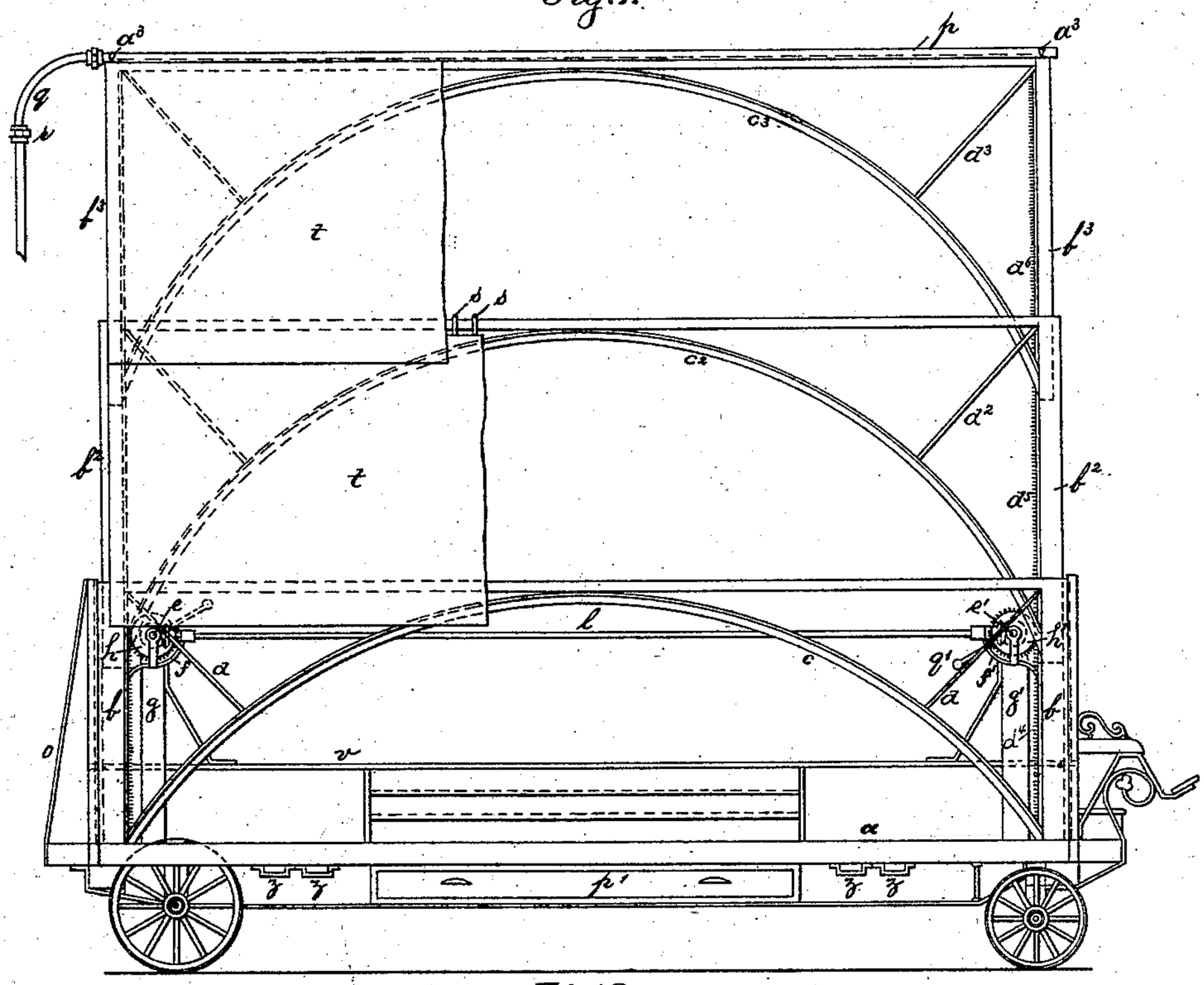


Fig. 2.

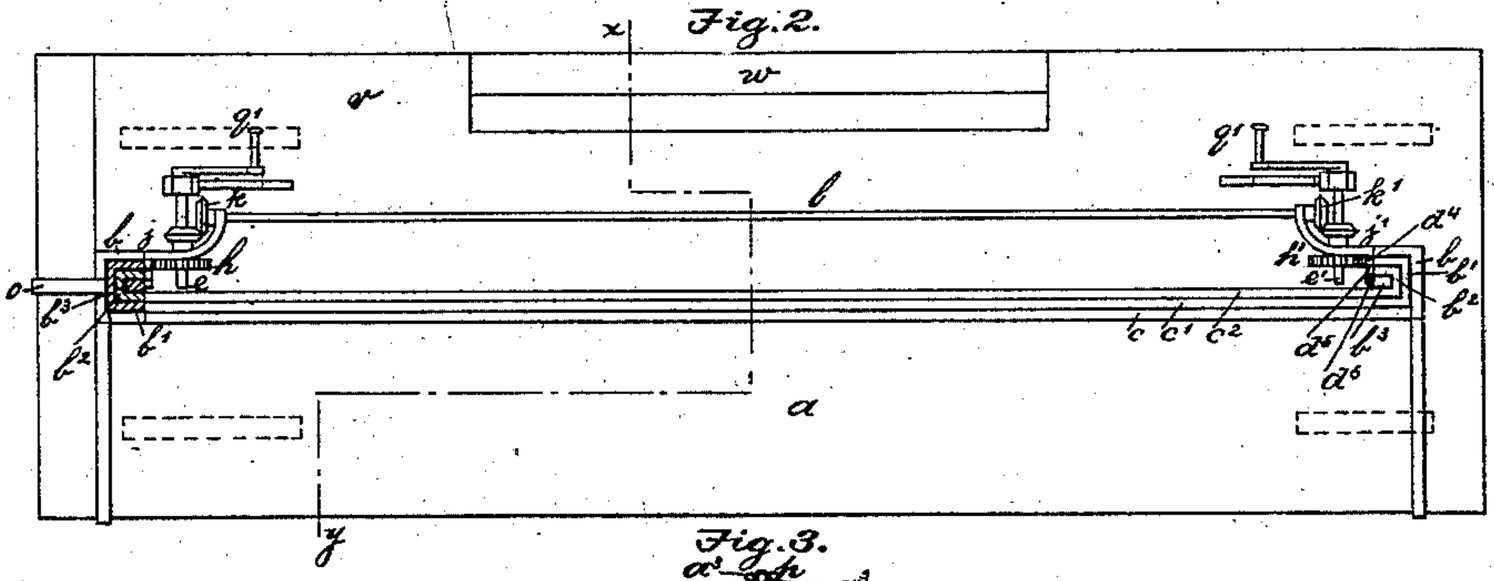
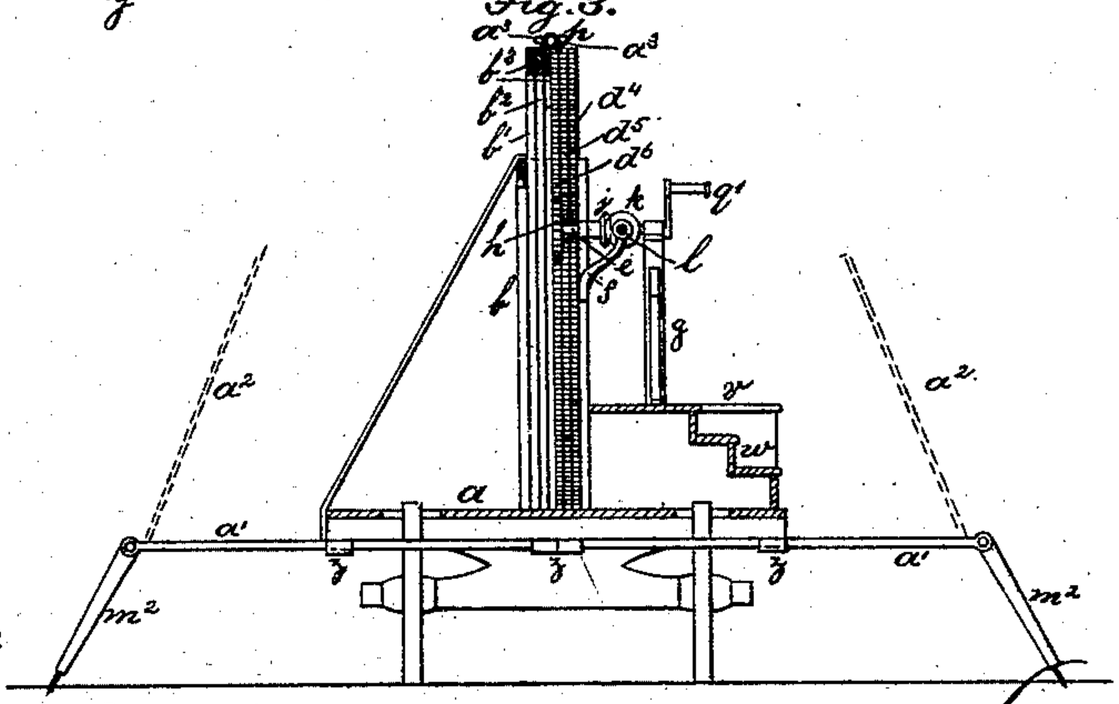


Fig. 3.



WITNESSES:

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W. F. Kircher

INVENTOR:

Samuel Richards

(No Model.) 2 Sheets—Sheet 2.

S. RICHARDS.

FIRE SHIELD.

No. 274,976. Patented Apr. 3, 1883.

Fig. 4.

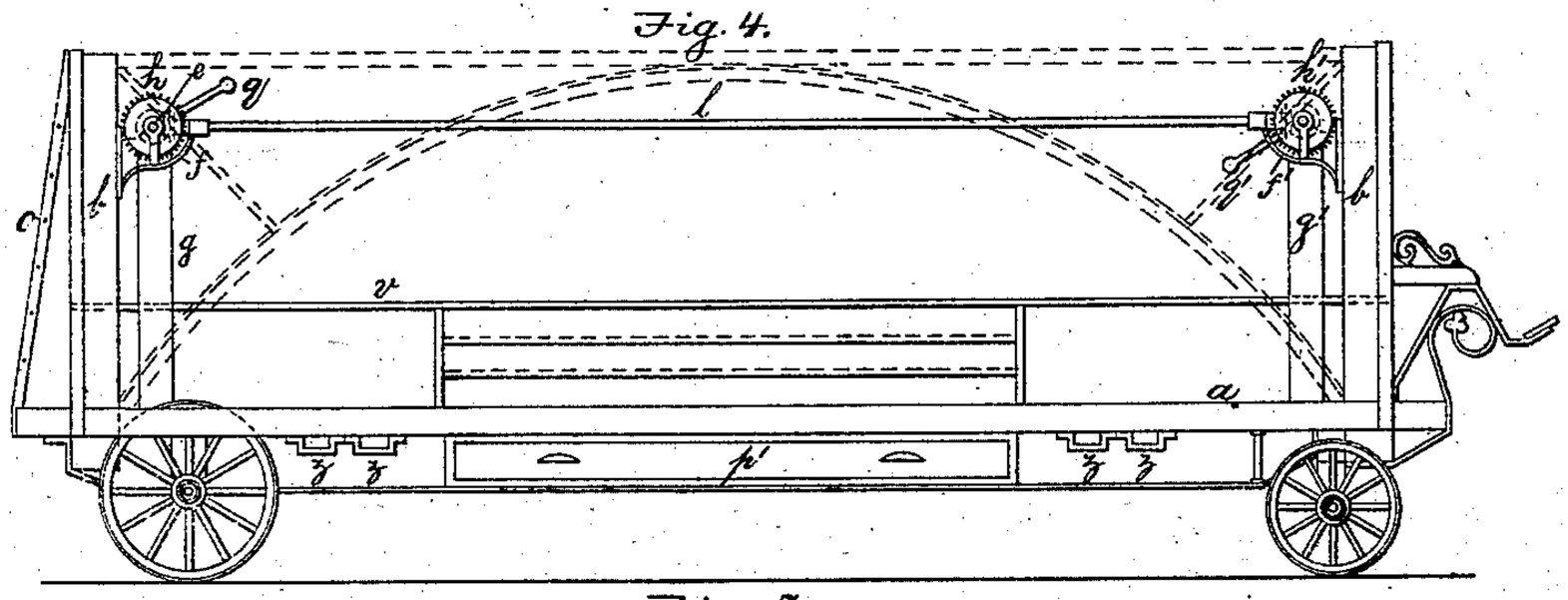


Fig. 5.

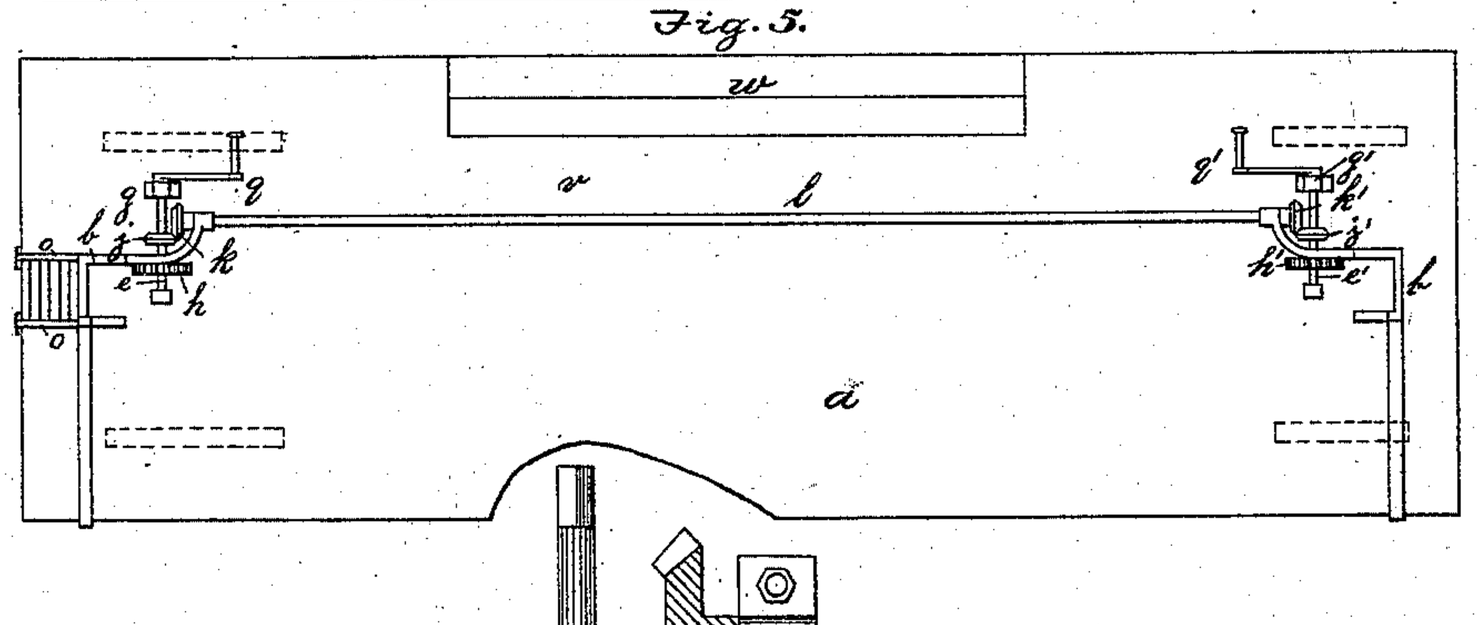


Fig. 6.

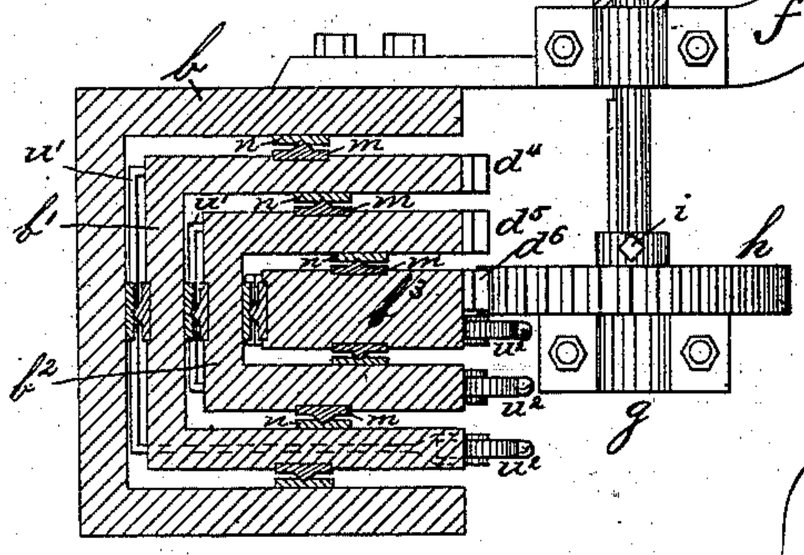


Fig. 7.

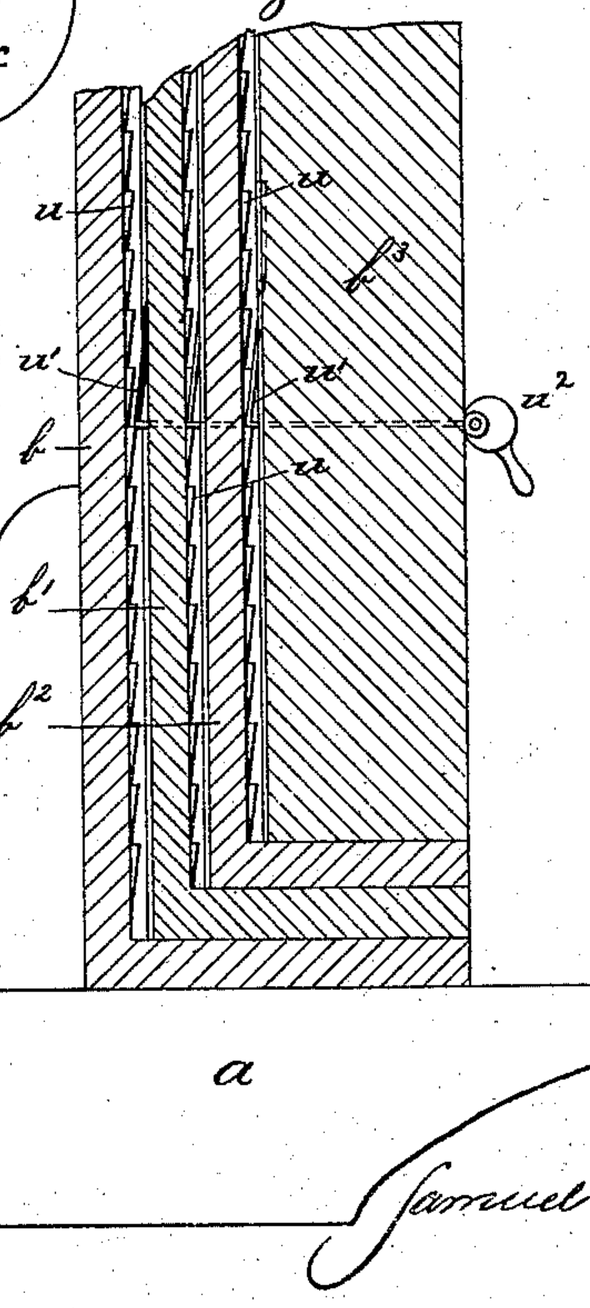
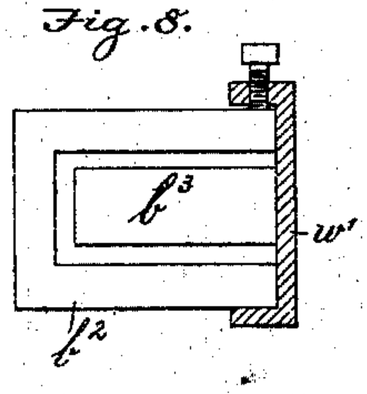


Fig. 8.



WITNESSES:

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UNITED STATES PATENT OFFICE.

SAMUEL RICHARDS, OF PHILADELPHIA, PENNSYLVANIA.

FIRE-SHIELD.

SPECIFICATION forming part of Letters Patent No. 274,976, dated April 3, 1883.

Application filed December 21, 1881. Renewed September 6, 1882. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL RICHARDS, of Philadelphia, Pennsylvania, have invented a new and useful Improvement in Fire-Shields, of which the following is a specification.

The object of my invention is to prevent the spread of fires in cities and towns, and to afford protection to firemen against the heat of the fires while engaged in the discharge of their duties.

My improvement in fire-shields consists chiefly of the combination, with a carriage, of a frame mounted thereon, supporting a blanket or cloth which covers said frame and carriage, and a water-distributer, which is arranged at the top of said frame and adapted for connection with a water-supply.

In the annexed drawings, Figure 1 is a side view of the apparatus, showing two (b^2 and b^3) of the adjustable frames elevated; Fig. 2, a top view, partly sectional, of the apparatus; Fig. 3, a sectional elevation on the line $x\ y$ of Fig. 2, the spaces for the guides m between the frames not appearing; Fig. 4, a side view, and Fig. 5 a plan, of the carriage-platform with the lowermost frame permanently fixed thereon, the other frames being removed; Fig. 6, a sectional plan, on an enlarged scale, of the ends of the frames, showing the telescopic arrangement of the several frames $b'\ b^2\ b^3$ when lowered down within the fixed frame b; Fig. 7, a vertical section, on an enlarged scale, of either end of the several frames, showing the ratches and spring-pawls by which the frames are kept up when elevated; Fig. 8, a plan, on an enlarged scale, of the ends of the frames b^2 and b^3, showing in section a loose clamp, w', such as may be applied to each frame near the bottom thereof after such frame has been elevated, to keep the frame from spreading and give additional strength to the structure.

A represents a platform mounted on wheels, forming a carriage resembling an ordinary hook-and-ladder carriage.

$b\ b'\ b^2\ b^3$ are open frames for supporting blankets or cloths made of wool or other fibrous materials. These frames are strengthened by arched braces $c\ c^2\ c^3$ and corner-braces $d\ d^2\ d^3$, the frame b', which is not shown elevated, being strengthened in a similar manner. The frame b, which is the bottom and outside frame, is permanently fixed in its upright position on the platform, as shown in Figs. 4 and 5. The frame b' is arranged to rest within the frame b, and, in like manner, each interior frame within the next exterior frame when lowered down to the platform, as shown in Fig. 6.

$d^4\ d^5\ d^6$ are racks secured to the inner edges of the opposite ends of the frames, respectively, as shown in Fig. 1.

e and e' are shafts supported by the standards g and g'. The shafts e and e' are angular in cross-section, and they carry the pinions h and h', which are adjustable thereon lengthwise, being moved in front of, so as to engage with, the racks $d^4\ d^5\ d^6$ on the different frames, as it is desired to elevate such frames, respectively. The pinions h and h' are fixed in place by thumb-screws i, Fig. 6. The shafts e and e' also carry the fixed bevel-gears j and j', which engage the bevel-gears $k\ k'$, which are fixed on the shaft l, which is supported by standards g and g', projecting up from the platform a, and by brackets f and f', Figs. 2 and 3, attached to the outside of the lowermost frame, b, as shown in Fig. 3.

p, Figs. 1 and 3, represents a pipe fastened to the frame b^3. It is slotted or perforated on the under side, and provided with an elbow, q, and a union-joint, r, for connecting it with hose leading to a water-supply.

Blankets or cloths t are applied to the top rails of the several frames by ordinary hooks, as shown at s, Fig. 1. The cloths t of the frames b^2 and b^3 are shown in Fig. 1 partly broken away. The cloth of the lowermost frame, b, hangs down to the ground, in order to protect the carriage. The cloth of frame b' hangs down sufficiently to cover this frame and overlap the joint between it and the frame b. The cloth of the frame b^2 hangs down sufficiently to cover this frame and overlap the joint between it and the frame b', and the cloth of the frame b^3 hangs down sufficiently to cover this frame and overlap the joint between it and the frame b^2.

v is a platform placed on top of the carriage-platform a, extending along one side of the frame b for the whole length of the carriage, and provided with steps w, by which said platform v is reached.

Several staples (marked z, Fig. 1) are at-

tached to platform *a* underneath, on each side. Through these staples bars—such as *a'*, Fig. 3—slide under the bottom of the platform *a* when the apparatus is out of use, and are drawn out, as shown in Fig. 3, when the apparatus is in use.

m^2 represents detachable stay-rods, which are hooked into eyes in the ends of the bars *a'*. The pointed ends of the rods m^2 enter the ground, the bars *a'* and stay-rods being used for the purpose of widening the base of the apparatus when the adjustable frames are elevated. Drawers for containing the cloths, when packed up, are located underneath the platform *a*, on opposite sides of said platform. One of these drawers (marked *p'*) is shown in Fig. 1.

o, Figs. 1 and 7, is a ladder, by which the top of the fixed frame *b* is reached when required for any purpose.

m are V-shaped guides formed on metallic plates attached permanently to the respective frames, and extending from the top to the bottom thereof. The guides slide in corresponding grooves, *n*, formed in metallic plates fastened to the frames opposite said guides, all as indicated in Fig. 6.

u are ratches fastened to the inside of the fixed or bottom frame, *b*, and to the adjustable frames *b'* and b^2.

u' are springs attached to the frames *b'* b^2 b^3, opposing and fitting into the teeth of said ratches for the purpose of holding the frames at any degree of elevation required.

u^2, Figs. 6 and 7, are pivoted cams, connected by rods or wires to the springs *u'*. When the cams are turned up the springs *u'* are drawn in, thus allowing the opposing frames to slide down.

When the apparatus has been drawn near the place of the fire it is made ready for use by first attaching hose to the slotted or perforated pipe *p*, then hooking the blankets, or cloths on the top rail of the middle frame, b^3, then, by means of the crank *q'*, raising said frame b^3, and then applying the blankets or cloths to the other frames and raising them up successively until the desired number of them has been elevated. Water is then admitted into the pipe *p*, and through the slots or perforations in the pipe the water runs down and saturates the cloths. As soon as the apparatus has thus been made ready it is drawn into the required position opposite the fire. The wet cloths form an incombustible barrier to the spread of the fire, and by sheltering the firemen from the heat enable them to get near to and continue at their work.

Guy-ropes (indicated by dotted lines a^2 in Fig. 3) may be attached to hooks a^3 at the top of the uppermost frame, and to the platform *a*, or to the bars *a'*, or to the ground, to stay the frames after they have been elevated.

The apparatus above described embraces one fixed and three adjustable frames; but the number of such adjustable frames may be increased or diminished by enlarging or lessening the size of the fixed frame, so that the adjustable frame shall fit and telescope within it when lowered, and by correspondingly increasing or diminishing the frame-racks and the length of the shaft of the pinion operating such racks.

I prefer to use blankets or cloths made of wool; but these cloths may be made of asbestus, cotton, or other fibrous materials.

Instead of the slotted or perforated pipe *p*, a slotted or perforated trough may be used as the water-distributer; but I prefer a pipe.

The water-distributer arranged above spread cloths and connected with a water supply, substantially as above described, for the purpose of keeping such cloths saturated with water, may be used to advantage in connection with a single supporting-frame with a carriage, and also in connection with the above-described fixed and adjustable frames modified in respect to the forms of these frames and the appliances for operating them.

The carriage *a* may be accompanied by any number of ladders, and when these are used as a fire-escape my apparatus becomes a valuable adjunct by shielding persons from the heat when escaping from the burning building.

The importance of mounting the blankets or cloths on a carriage, as above described, arises from the facility thus afforded not only for getting the apparatus where it is needed on sudden emergencies, but also, and more especially, for moving the apparatus about in proximity to the fire.

In country towns without water-works it is necessary to wet the blankets or cloths by playing upon them with the fire-engine, or by supplying the trough-distributer at the top of the frames with water by means of ladders and buckets.

Where it is desired to use but a single frame for the blankets or cloths, the blankets or cloths may be kept wet by the engine, the distributer being dispensed with, and in this case the frame may be either fixed upon the platform of the carriage, or, the platform having been provided with sockets for the uprights of the frame, the frame may be erected thereon when required for use.

I am aware that a fire-shield with telescopic extensible frames, forming supports for metallic plates, adapted to be raised and lowered, the whole mounted on a carriage, has been known previous to the date of my invention; but no distributing-pipes or means of supplying or distributing water to or on said plates were described in connection therewith. A shield so constructed would be impracticable.

I am also aware that a fire-shield consisting of blankets, in combination with supporting devices and a water-pipe, was known prior to the date of my invention; but in that instance the supporting devices were not mounted on a carriage.

I claim—

1. The combination of a carriage and frame

fixed thereon, one or more adjustable frames telescoping within said fixed frame, the blankets or other cloths applied to said frames, and the water-distributer arranged above said cloths, adapted for connection with a water-supply, forming a portable shield for preventing the spread of fires and protecting firemen while in the discharge of their duties, substantially as set forth.

2. The combination, with a carriage, of a frame mounted thereon, supporting a blanket or cloth which covers said frame and carriage, and a water-distributer, which is arranged at the top of said frame and adapted for connection with a water-supply, forming a movable fire-shield, substantially as set forth.

3. In combination, the fixed frame b, the adjustable frames b' b^2 b^3, the racks d^4 d^5 d^6, the pinions h and h', the shaft l, the guides m, ratches u, springs u', and pivoted cams u^2, in the manner and for the purpose substantially as set forth.

SAMUEL RICHARDS.

Witnesses:
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JOHN A. WIEDERSHEIM.