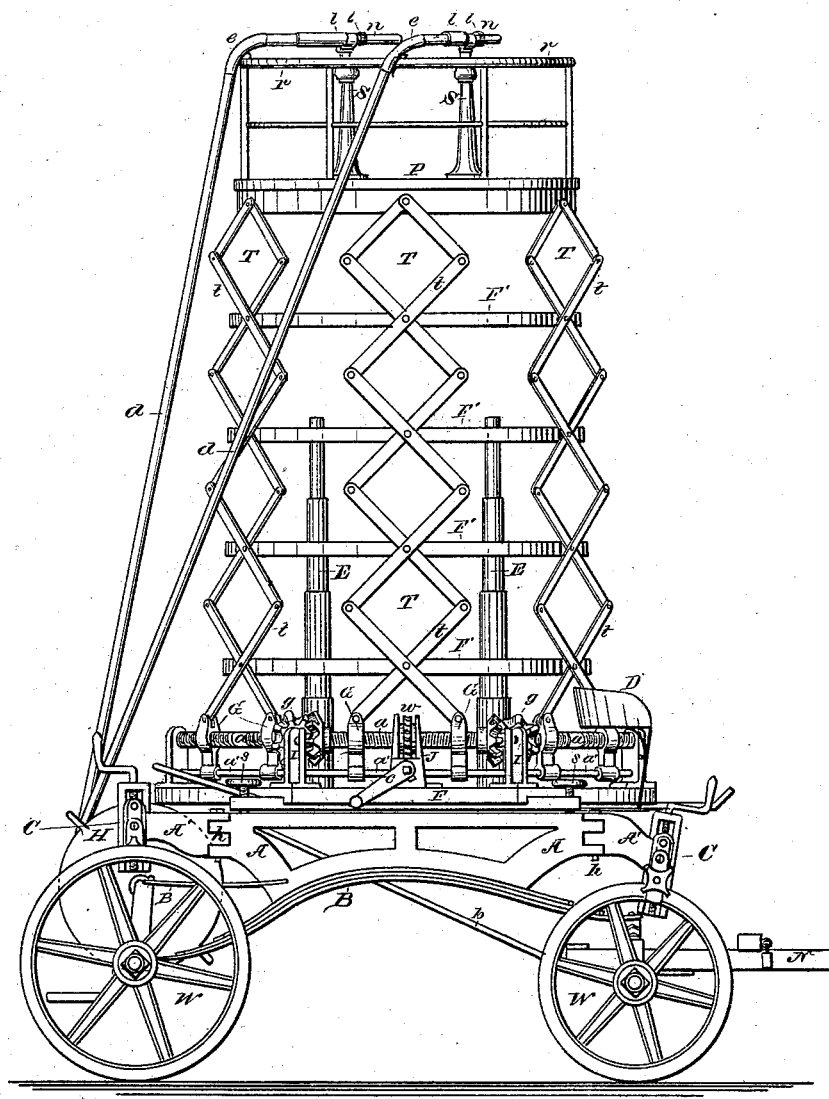


N. ZIMMERMANN.
Portable Fire-Tower.

No. 217,439.

Patented July 8, 1879.

Fig: 1



WITNESSES
P. H. Moorkey
Jesse Lee Jr

INVENTOR
Nicholas Kimmelmann
Per M. E. Dayton
Attorney.

N. ZIMMERMANN.
Portable Fire-Tower.

No. 217,439.

Patented July 8, 1879.

Fig. 2.

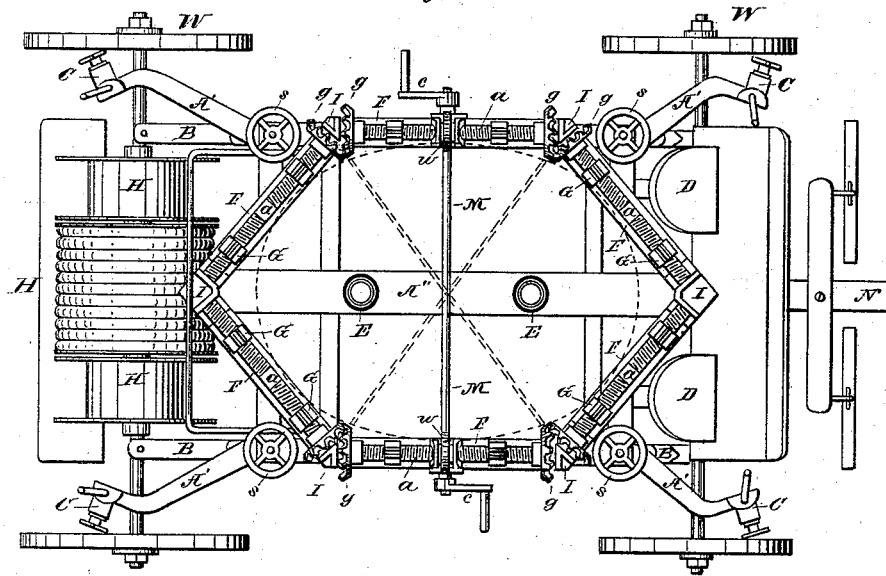


Fig:3

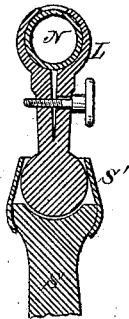


Fig: 1

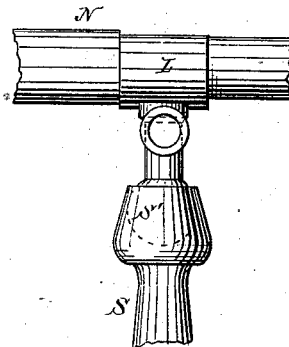
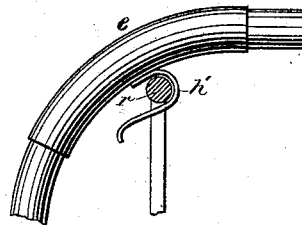


Fig. 5



WITNESSES
P. E. Woodley
Jesse Lee Jr.

INVENTOR
Nicholas Kimmernann
Per M. E. Dayton
Attorney.

N. ZIMMERMANN.
Portable Fire-Tower.

No. 217,439.

Patented July 8, 1879.

Fig: 6

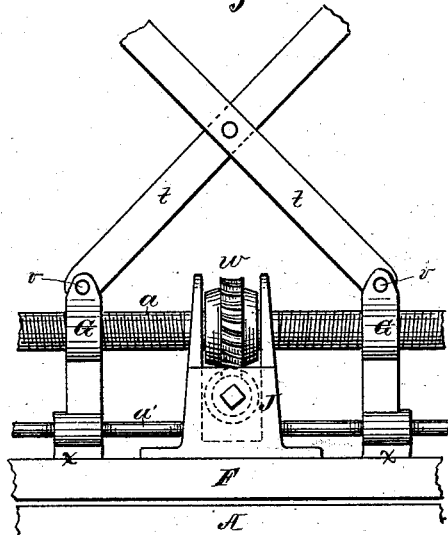


Fig: 7

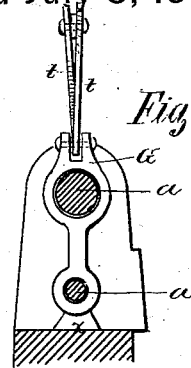


Fig: 8

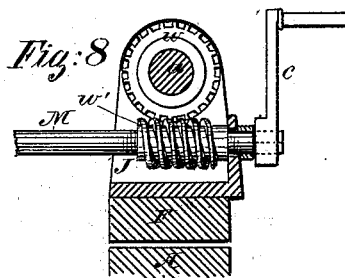


Fig: 9

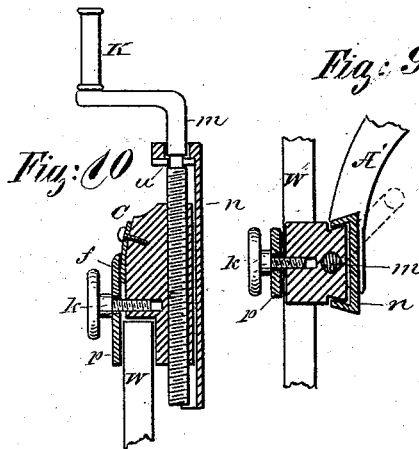


Fig: 10

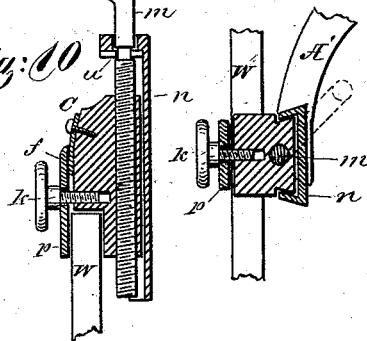


Fig: 11

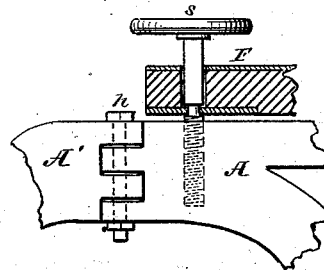
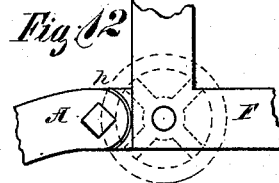


Fig: 12



WITNESSES
P. E. Wooley
Jesse Lee Jr.

INVENTOR
Nicholas Zimmermann
Per M. E. Dayton
Attorney.

UNITED STATES PATENT OFFICE.

NICHOLAS ZIMMERMANN, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN PORTABLE FIRE-TOWERS.

Specification forming part of Letters Patent No. **217,439**, dated July 8, 1879; application filed December 24, 1878.

To all whom it may concern:

Be it known that I, NICHOLAS ZIMMERMANN, of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Portable Fire-Towers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to a portable fire apparatus, in the nature of a tower, adapted to be raised in the neighborhood of a burning building for the purpose of giving elevated standing-place for hosemen; and consists in the several devices and combinations of devices hereinafter fully described, and pointed out in the claims.

The lazy-tongs are severally jointed to the sides of said platform, and at their central pivots they are also connected with a series of brace-frames, by which they are enabled to mutually support each other.

For the purpose of facilitating initial movement of the tongs in raising the platform the weight of the platform and jointed levers is counterbalanced, or nearly so, by springs operating through the medium of telescopic tubes, and bearing upward from beneath against the platform. The several right and left screws are geared together, so as to be simultaneously operated by a single transverse worm-shaft engaging worm-wheels on two opposite right and left threaded shafts mentioned.

The apparatus is made portable by being mounted on wheels, and, for the purpose of securing the same firmly in position when required to be elevated, hinged arms project from the main frame-work or bed of the machine, which arms are secured to the wheels by clamping-heads. These heads serve both to hold the wheels from turning and to make them the broad and rigid base of the elevated structure.

For the purpose of adjusting the tower to a perpendicular or to any desired degree of inclination, the clamping-heads are provided with devices whereby they may be moved vertically, bringing the bed to a level or

other desired position, whatever the inequalities of the ground upon which the apparatus stands.

Auxiliary adjustment is effected by screws located at the corners of the secondary bed or frame immediately supporting the superstructure, whereby said secondary bed or frame may be adjusted upon the main bed or frame before mentioned.

The length of hose intended to be always used upon the tower is provided with a curved metal casing at the point where the same passes over the rail of the tower-platform, which casing has a hook fitted to the rail, whereby its fall from the tower is prevented, and whereby the resistance to the reaction of the stream is thrown upon the rail.

For the further management of the hose, standards are fixed to the platform, having clamps, in which the nozzle may be held. These clamps have a universal movement, permitting the nozzle to be directed in any way with great ease and steadiness.

Figure 1 is an elevation of my apparatus, showing the platform partially raised. Fig. 2 is a plan view of the apparatus without the jointed levers and platform. The remaining figures are detail views.

A A is the main frame or bed, mounted by the springs B, or by other suitable means, on the axles of four wheels, W W.

F is a secondary horizontal frame, furnishing immediate support and attachment for the superstructure. This frame is preferably of hexagonal shape, either regular or oblong. Secured at the angles of the frame F are the standards I, which support the ends of the right and left screw-shafts *a a*. These shafts have the gears *g g*, by which their movements are made simultaneous in the same direction. The central opposite screw-shafts have the worm-wheels *a a*, and they are further supported by the double standards J J.

Through J, and beneath the worm-wheels *w*, passes a worm-shaft, M, Fig. 2, provided with the worm *w'*. (Better shown in Fig. 8.) This shaft is journaled in the standards J, or otherwise, to engage the worm-wheel *w*, and thus simultaneously rotate the several screws *a a*.

G G are heads threaded to fit the screws *a*,

two on each screw. They are held in a vertical position by means of the guide-rods *a'*, located beneath and parallel with the screws *a* and secured to the several standards *I* and *J*.

These rods pass freely but closely through the lower extremities of *G*, which preferably rest and slide upon the frame *F*, as shown at *xx*, Figs. 6 and 7. At the upper extremities of the heads *G* are pivoted the ends of the lower arms, *t*, of the lazy-tongs *T*, one section or set being thus connected with the head *G* of each screw *a*. At each central joint of the tongs *T* the latter is pivoted to one of the brace-frames *F'*, which together serve to hold the several sets of tongs in their proper relative positions, and to cause them to mutually support each other.

The group of jointed levers *T* is surmounted by the platform *P*, pivotally connected with the several series, as shown in Fig. 1. The tongs are simultaneously elongated or contracted and the platform elevated or lowered by the rotation of the worm-shaft *M*, which actuates the several screws *a* to proximate or separate the heads *G*. When the platform is lowered to its utmost it is very difficult to raise it, because the arms *t* are nearly horizontal and the draft of the heads *G* upon them is nearly in line with the central joint of the levers. To obviate this difficulty I arrange upon the strong frame-piece *A'*, Fig. 2, one or more series of vertical telescopic tubes, *E*, provided with powerful interior springs, adequate to the support of the platform, and, preferably, also, of the tongs-levers themselves. In being lowered, the platform strikes these tubes and the springs are compressed, serving as a counter-balance to the weight of the platform and levers *t*. The initial movements of the tongs is not more difficult than when the latter are partially elongated and the springs have ceased to act. By this means a comparatively uniform force will suffice to raise the platform.

A A' are strong arms of the frame or main bed *A*, hinged thereto at *h*, and adapted to swing out over the several wheels *W*. Each arm is provided with a head, *C*, adapted to be raised or lowered in the guide-piece *n* by the screw *m*, Fig. 10, and also with a clamping-plate, *p*, operated by the screw *k*.

However irregular the surface upon which the wheels stand, the clamps may be applied to the top of the wheels, serving not only to hold the wheels from turning on their axles, but also constituting them the broad rigid base of the tower when raised. After securing the clamps to the wheels the operation of the screws *m* permits the bed to be adjusted to a horizontal or any inclined position that may be desired.

Additional adjustment of the tower to a vertical or inclined position may be effected by means of the wheeled screws *s*, which are located at the four corners of the frame *F* and bear upon the main frame *A*.

When the apparatus is to be moved the tower is lowered and the clamps *C* are disengaged from the wheels and thrown inward out of the way, as shown in Fig. 2.

Upon the platform *P* are fixed the standards *S*, provided with a clamp or holder, *L*, adapted to receive the hose-nozzle. The clamp is secured to the standard by the ball-and-socket or other form of universal joint, *S'*, clearly shown in Figs. 3 and 4, which represent the nozzle in place within the clamp.

The nozzle is provided with collars or shoulders *l*, resting on either side, or on only one side, of the clamp *L*, so that the standard supports the same against all force from the stream that is being thrown.

Reaction of the stream caused by the bend of the hose is further provided against by the hook *h'*, Fig. 5, secured to the curved hose-case or elbow, embracing the hose at the point of its curvature over the rail *r*.

With these appliances for the support and control of the hose-nozzle, one man will be quite able to manage a single nozzle, giving it such direction as the case may require.

Special hose having the elbows *e* and hooks *h'*, and also the collared nozzles described, will be permanently retained in place upon the machine, and wound upon the separate reels *H H* when the tower is lowered. These hose-reels are preferably located, as shown in Figs. 1 and 2, at the rear of the main frame, and another reel may be added, as seen in Fig. 2, for the reception of additional hose.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. In combination with the frame *A* and wheel *W* of the portable apparatus, the arms *A'*, provided with clamping-heads *C*, or equivalent devices, whereby the frame may be made rigid with the wheels, substantially as and for the purposes set forth.

2. In combination with clamping-connections for securing the frame rigidly to the wheels, devices, substantially as shown, whereby the frame may be vertically adjusted at each wheel, for the purposes set forth.

3. The combination and arrangement of several series of connected levers forming lazy-tongs with each other, the platform *P*, the brace-frames *F'*, with the movable heads *G*, and with the devices for supporting and simultaneously actuating the heads, substantially as shown and described.

4. In combination with the series *T* of connected levers, actuated by force operating in a horizontal direction to proximate the lower ends of the lower levers, *t*, and with the platform *P*, the telescopic tubes *E*, provided with interior springs, substantially as described, and for the purposes specified.

5. In combination with the rail *r* of the platform *P*, the hose *d*, provided with the elbow *e*, having the hook *h'*, substantially as described.

6. The combination, with the main frame A, adapted to be made rigid with the wheels W, the auxiliary frame F, immediately supporting the superstructure, as set forth, and adapted to be adjusted upon the main frame, substantially as described.

In testimony that I claim the foregoing as

my invention I affix my signature in presence of two witnesses.

NICHOLAS ZIMMERMANN.

Witnesses:

M. E. DAYTON,
P. E. WOOKEY.