H. J. SNOOK.

FIRE ESCAPE APPARATUS.

APPLICATION FILED AUG. 1, 1916.

1,238,588.

Patented Aug. 28, 1917.

2 SHEETS—SHEET 1.

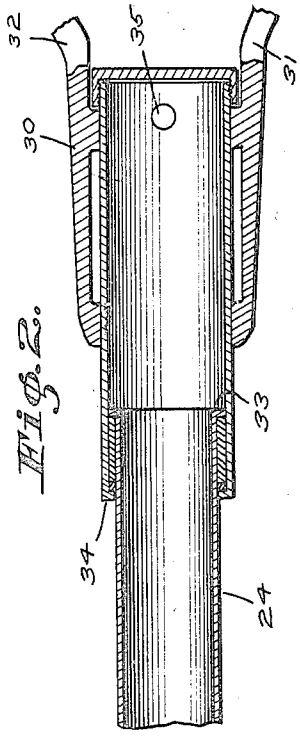


Fig. 2.

Fig. 1.

INVENTOR

HENRY J. SNOOK

BY Hazard Berry & Miller

ATTORNEYS

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Fig. 4.

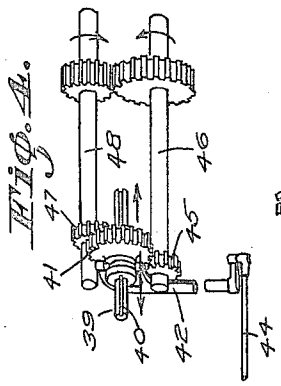


Fig. 3.

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HENRY J. SNOOK, OF ATOLIA, CALIFORNIA.

FIRE-ESCAPE APPARATUS.

1,238,588. Specification of Letters Patent. Patented Aug. 28, 1917.

Application filed August 1, 1916. Serial No. 112,536.

To all whom it may concern:

Be it known that I, HENRY J. SNOOK, a citizen of the United States, residing at Atolia, in the county of San Bernardino and State of California, have invented new and useful Improvements in Fire-Escape Apparatus, of which the following is a specification.

This invention relates to a fire escape apparatus and particularly pertains to a portable apparatus by which various points upon a building may be reached.

It is an object of this invention to provide an apparatus for rescuing persons from burning buildings, which apparatus will be universal in its action and may be readily manipulated to reach various floors of a building as well as various openings therealong.

Another object of this invention is to provide the escape apparatus with a mounting upon a motor vehicle, said vehicle adapted to supply power to the apparatus as well as to an air compressor by which several of the elements are manipulated.

Another object is to provide suitable means whereby the vehicle and apparatus may be adjustably braced against the weight of the rescued passengers.

Another object is to provide a pneumatically operated telescoping tower which may be universally controlled by a single operator stationed upon an operating platform.

Another object is to provide simple means whereby a hoisting cage may be controlled in relation to the fire tower, said controlling means being mounted in a manner to eliminate maximum strains upon the tower.

Another object is to provide a tower control mechanism which will adjustably support the tower throughout a vertical plane and will at the same time brace it against side thrust.

Another object is to provide a turn-table upon which the apparatus is adapted to be mounted and which will be counter-balanced by the mechanism thereon to insure that the device will be rigidly held against undue strains at all times.

Another object is to provide means whereby all the elements of the apparatus may be simply and speedily controlled.

Another object is to provide means whereby the engine of the motor vehicle may be used to operate an air compressor while the vehicle is standing idle and to further provide a storage receptacle for said compressed air so that the apparatus may be instantly used upon arrival at the scene of action.

A further object is to provide simple means operable by the power of the vehicle engine whereby the tower may be supported as it is swung to be raised or lowered by the manipulation of a single positively acting clutch.

Other objects will appear hereinafter.

The invention is illustrated in the accompanying drawings in which:

Figure 1 is a view in side elevation of the complete fire escape apparatus as assembled and ready for action.

Fig. 2 is a fragmentary sectional view as seen on the line 2—2 of Fig. 1.

Fig. 3 is a view in plan illustrating the apparatus as mounted upon its turn-table, and with parts broken away to more clearly illustrate the vital elements of the apparatus.

Fig. 4 is a perspective view in plan illustrating the gear shift mechanism by which the vertical movement of the tower is controlled.

Referring to the drawings more particularly, 10 indicates a vehicle chassis which is constructed with a suitable frame 11 supported upon front and rear axles 12 and 13. The axles are provided with suitable supporting springs and wheels. Mounted upon the forward end of the frame 11 is an internal combustion engine 14 which transmits its power through transmission gears 15 to a propeller shaft 16. The propeller shaft is mounted at its rear end within the differential case of the vehicle axle 13 and thus supplies power of traction for the vehicle. All of the foregoing parts may or may not be of common construction and design. They, however, afford a portable mounting for a fire escape apparatus with which the present invention is concerned.

The apparatus is mounted upon a turn-table 17 which is mounted upon a pivot substantially positioned over the rear axle of the vehicle. The turn-table is formed with a circular body portion and a rectangular extension platform 18 upon which hoisting drums 19 and 20 are mounted. A retaining flange 17′ is positioned above the edge of the turn-table to suitably support the table as it moves and against the weight of the

drums. The drums are provided with cables 21 and 22 which are led upwardly and are secured within a single mounting member 23 to the upper terminating end of a telescoping fire tower 24 and act to adjustably support the tower. The fire tower 24 is adapted to be actuated by compressed air delivered it from a storage tank 25 by means of a flexible conduit 26, the storage tank having been supplied air under pressure by a compressor 27, as will hereafter be explained. The tower 24 is pivotally mounted upon bearings 28 and 29 secured to the turn-table and spaced upon diametrically opposite sides of the center of rotation of the table. A yoke fitting 30 is rigidly secured to the lower end of the tower 24 and connects with the bearings 28 and 29 by means of arms 31 and 32 suitably pivoted within these bearings. The mounting of the tower within the fitting is particularly shown in Fig. 2 of the drawings. This view further discloses the tower as composed of a series of telescoping sections which are provided with out-turned flanges 33 at their lower ends and in-turned flanges 34 at their upper ends. The space between said flanges is substantially the amount of movement allowed each individual section and the combined distances between the flanges of adjacent sections will be the amount of elongation afforded the tower when distended by the air delivered from the compressor tank 25 through the inlet opening 35 to the inner chamber of the tower.

The compressor 27, which is provided to supply air under pressure to the tank 25, is actuated by the engine through a chain 36 which connects with it and is positively connected with a sprocket detachably mounted upon the shaft 37 of the transmission unit and optionally controlled by a clutch lever 38 conveniently positioned alongside the driver's seat.

As a means for mechanically operating the drums 19 and 20, a drive shaft 39 is provided and mounted at one end within the case of the transmission gears. This end of the shaft is formed with a key-way 40 upon which a driving gear 41 is splined and adapted to be reciprocally moved by a shifting yoke 42 which is controlled by a lever 43 operatively connected therewith by a connecting link 44. Movement of this gear in one direction causes it to mesh with a gear 45 mounted upon shaft 46 of the transmission and will cause the drums to wind their cables upon them. Movement of the gear 41 in the opposite direction will cause it to become enmeshed with gear 47 mounted upon the reverse shaft 48 of the transmission and will thus tend to unwind the cables and lower the tower.

It will be noted that the end of the shaft 39 which is adjacent the center of the turn-table transmits its power through bevel gears to a vertically disposed drive-shaft 49 around which the turn-table is pivoted. Secondary horizontal drive-shafts 50 and 51 are positively connected with the drive-shaft 49 by bevel gears and transmit power to the drums by suitable miter-gears. The shafts 50 and 51 are provided with clutches 50′ and 51′ by which the driving power is discontinued when required. This peculiar arrangement of the driving mechanism has been necessitated by the fact that the table 17 rotates upon its center and that the drums are operative at all times. The table is rotated by means of a compressed air motor 52 which is mounted with its driving shaft extending vertically and having one end projecting beneath the table. This end of the driving shaft of the motor 52 is fitted with a spur gear 53 adapted to mesh with teeth upon a sector rack 54 which is formed with teeth around its inner perimeter. Thus it will be seen that the turn-table is positively actuated and may be controlled without difficulty while loaded.

The tower 24 is provided to support a hoisting basket 55 which is made of a light fire-proof material of sufficient strength to support the weight of several passengers. This basket is dependent upon a hoisting cable 56 which is led over a pulley 57 journaled upon the end of the tower. The free end of the cable is secured to a drum 58 mounted near the lower end of the tower and upon the yoke fitting 30. Rotation of this drum is had by means of a shaft 59 which is connected by bevel gearing to an auxiliary drive-shaft 60 controlled by a clutch 61. A universal joint 62 transmits the power from the shaft 59 to the drum regardless of the angularity of the tower.

As a means for supporting the turn-table regardless of its angular position upon the vehicle, a pair of telescoping legs 63 and 64 are pivotally secured at an angle to and upon the edge of the turn-table supporting frame. These legs are inflated by means of compressed air delivered to them by hose connections 65 and 66 which lead from the storage tank 25 and are controlled by a control valve 67.

In view of the foregoing description, it is evident that the apparatus may be transmitted to any desired location and there operated as follows:

Compressed air, which has previously been stored within the tank 25, is now turned into the tower by means of control valve 68. At the same time, the clutches 50′ and 51′ are released and allow the drums 19 and 20 to supply the proper lengths of cable to accommodate the elongation of the tower, suitable brakes being positioned upon the shafts 50 and 51 to control the movement of the cables in accordance with the ex-

tended length of the tower and thereby adjustably support it as it moves upwardly. When the tower has reached the desired height, the brakes are locked and the drums thus held against rotation. The turn-table 17 may now be swung at an angle to the center of the truck by means of the motor 52 and the gearing connected therewith. The basket or cage 55 may then be hoisted within reach of the persons to be rescued and may be controlled by the actuating clutch 61 which in turn rotates the hoisting drum 58. Reversal of the preceding operation will restore the apparatus to its original normal position. An added operation, however, is required in the return movement, that being the release of the brakes upon the clutches 50′ and 51′ and the engagement of their complementary parts so that the driving mechanism connected with the shafts 50 and 51 will act to rewind the cables upon drums 19 and 20 as the tower collapses.

It will thus be seen that the apparatus here provided may be conveniently transported from one place to another and that it may be operated as a complete unit without dependence upon other apparatus.

I claim:

1. In a fire escape apparatus, the combination with a vehicle having a power plant thereon, of a turn-table mounted on the vehicle, a tower mounted on the turn-table, pneumatic telescoping braces for and carried with the turn-table, and means whereby the power plant extends the braces.

2. In a fire escape apparatus, a portable tower, pneumatic telescoping braces for engaging the ground and supporting the tower and means for operating the braces.

3. In a fire escape apparatus, the combination with a vehicle having a power plant thereon, of a turn-table mounted upon the vehicle, a tower mounted on the turn-table, pneumatic telescoping braces carried by the turn-table and adapted for engaging the ground and supporting the tower, an air tank mounted on the vehicle and connected to the braces, and means operated by the power plant for supplying air to the tank.

In testimony whereof I have signed my name to this specification.

HENRY J. SNOOK.