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Patented Apr. 24, 1900.

F. H. AMES & W. F. BRYSON.
FIRE ESCAPE.

(Application filed May 10, 1899.)

(No Model.)

2 Sheets—Sheet 2.

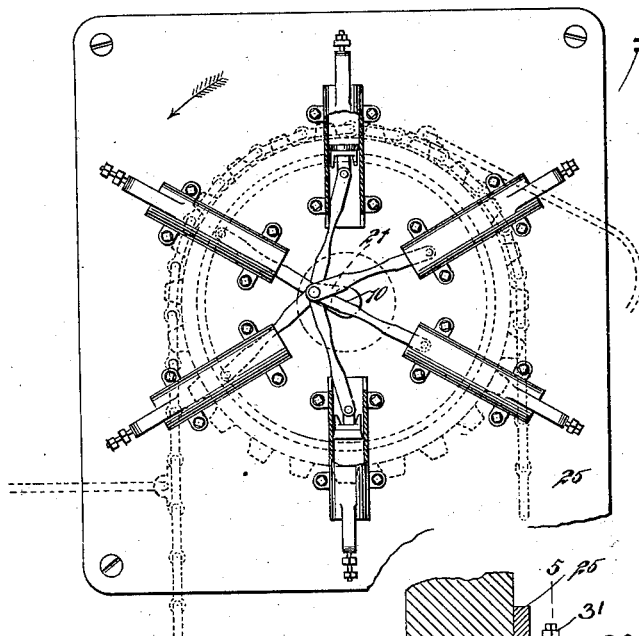


Fig. 4.

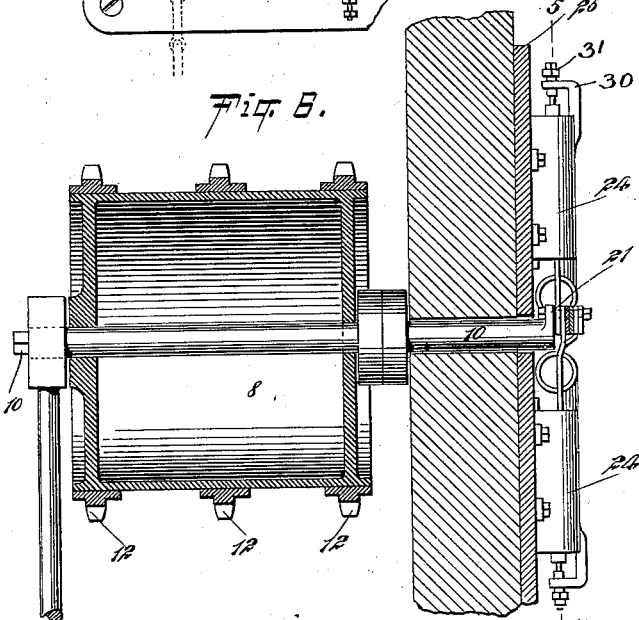


Fig. 6.

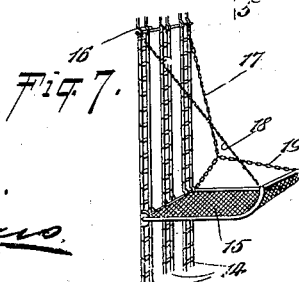


Fig. 7.

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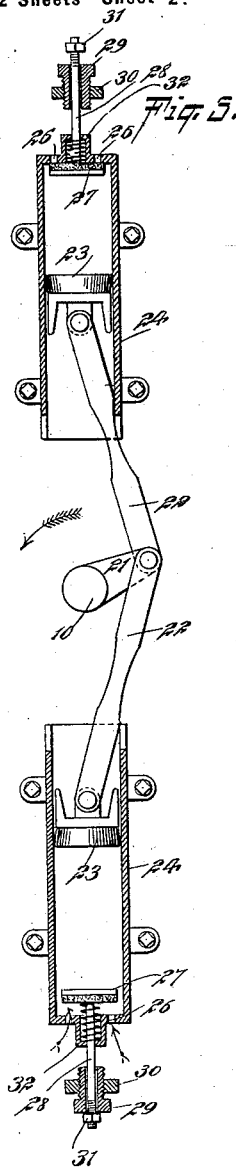


Fig. 5.

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FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 648,327, dated April 24, 1900.

Application filed May 10, 1899. Serial No. 716,230. (No model.)

To all whom it may concern:

Be it known that we, FREDOUS H. AMES and WILLIAM F. BRYSON, of Fort Wayne, in the county of Allen and State of Indiana, have invented a new and Improved Fire-Escape, of which the following is a full, clear, and exact description.

This invention relates to a fire-escape of that class in which flexible ladders or analogous structures are mounted on the outer walls of the building, so that persons within the building may descend by the outside thereof in case of a fire.

The invention is also applicable for use in lowering goods in buildings, such as warehouses and factories.

This specification is the disclosure of one form of our invention, while the claim defines the actual scope thereof.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a front elevation of the invention in operative position. Fig. 2 is an edge elevation of the invention, showing portions of the building in section on the line 2 2 of Fig. 1. Fig. 3 is a detail view of the brake. Fig. 4 is a view showing the pneumatic retarding device. Fig. 5 is a fragmentary section of this device on the line 5 5 of Fig. 6. Fig. 6 is a section taken through the upper shaft and drum of the apparatus, and Fig. 7 is a detail perspective view showing the arrangement of the steps or seats on the ladder.

The improved fire-escape has an upper drum 8 and a lower drum 9, respectively mounted on shafts 10 and 11. The drum 9 may be either fast or loose on the shaft 11; but the drum 8 should be fast to the shaft 10 thereof, for purposes which will hereinafter appear. The drums 8 and 9 are provided with a number, preferably three, of annular lines of sprocket-teeth 12, respectively engaging three sprocket-chains 14, which form the stringers of the ladder referred to. These chains pass over the drums, so that the persons in the building may move with the chains. The chains 14 are connected with each other to move in unison by means of platforms 15 and bars 16. The platforms 15 are formed of a framing supporting stout wire-netting, and

the rear bars of the frames of the platforms are pivotally joined to the chains, as shown best in Fig. 7, so that the platforms may swing out to operative position at the descending runs of the chains 14, as shown at the right of Fig. 1, and so that the platforms may swing down to folded position, as shown at the left of Fig. 1, in which latter position the platforms are ascending with the chains. For holding the platforms 15 in operative positions we provide two chains 17 and 18, fastened to the respective ends of the adjusting-bar 16. The chains 18 are passed out to the ends of the platforms and fastened thereto at one side thereof, while the chains 17 are each rigged with a bridle 19, the ends of which are respectively attached to the inner and outer portions of the corresponding platforms. These chains not only serve to support the platforms in operative position, but also form a means for holding on the platforms the persons escaping. The shafts 10 and 11 are held at their outer ends by means of brackets 20, as shown best in Figs. 1 and 2.

The shaft 10, having the drum 8 fast thereto, is passed loosely through the wall of the building and provided with a crank 21 at its inner end. This crank 21 has its wrist-pin pivoted to a number of rods 22, each carrying a valveless piston 23, and the pistons respectively working in cylinders 24, mounted at the inner wall of the building. If desired, a plate 25 (see Figs. 4 and 6) may be provided for this purpose, as shown. The cylinders 24 are open at their inner ends to permit the free passage of the rods 22, which are pivoted to the pistons and have a swinging movement thereon, as will be readily understood. The chains 14 being thus in connection with the pistons 23 and the pistons 23 being arranged in their cylinders so as to move only with great resistance, the chains are thus held from running away and the weight of a great number of persons may be placed on the chains without preventing the chains from safely carrying them to the ground. Each cylinder has its outer end provided with a head having bores 26 therein, which bores are commanded by a valve 27, situated within the cylinder. The valves 27 are respectively connected with stems 28, which pass out of the cylinder and which slide loosely in thread-

ed sleeves 29, held in arms 30, rigid on the respective cylinders. The outer end of each stem 28 is provided with a nut 31. Expansive springs 32 engage the valves 27 and bear
5 against portions of the cylinders, tending thus to throw the valves inward to open position. As the pistons 23 work in the cylinders the outstrokes of the pistons will cause the valves 27 to seat, and the instrokes of the pistons
10 will permit the valves to be unseated by the springs 32. This, as may be seen, will effectively retard the movement of the shaft 10. The sleeves 29, working with the nuts 31, may be adjusted to limit the opening move-
15 ments of the valves.

We have devised a brake which is applied to the shaft 10 and by which it is possible to arrest the movement thereof. This brake, as shown best in Figs. 1 and 3, is formed of two
20 arms 33, pivoted to a bracket 34, standing out from the upper bracket 20. The free ends of the arms 33 each carries a link 35, to which links is connected a short lever 36, the free end of which carries a line 37, passing
25 down to the ground. The arms 33 are respectively provided with shoes 38, which bear against a small drum 39, fastened to the shaft 10. By drawing on the line 37 the lever 36 is thrown to move the arms 33 together, thus
30 forcing the shoes 38 against the drum 39 and applying the brake. An expansive spring 40, bearing between the arms 33, serves normally to throw the arms out of operative position.

In practice alarms, such as bells or gongs, will be placed in the various rooms along the
35 walls where the escape is located for the purpose of alarming the inmates of the rooms; but we have not deemed it necessary to illustrate the alarms and their application.

Having thus described our invention, we
40 claim as new and desire to secure by Letters Patent—

In a fire-escape, the combination of a revoluble shaft, means connected therewith for carrying the person escaping, such means
45 causing the revolution of the shaft, a crank attached to the shaft, a number of rods pivoted to the crank, stationary cylinders for each rod, the cylinders being disposed radi-
50 ally to the shaft, a valveless piston working in each cylinder, the pistons being respectively pivoted to the rods, a valve commanding an orifice in the outer end of each piston, a stem attached to the valve and projecting
55 outside of the piston, a spring engaging the valve, normally to open the same, an arm attached rigidly to each cylinder, and threaded sleeves working in the arms and having the stems of the valves passed therethrough, whereby to regulate the movement of the
60 valves.

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Witnesses:

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