5 Sheets—Sheet 1.

A. NELSON.

TENEMENT HOUSE.

No. 184,417. Patented Nov. 14, 1876.

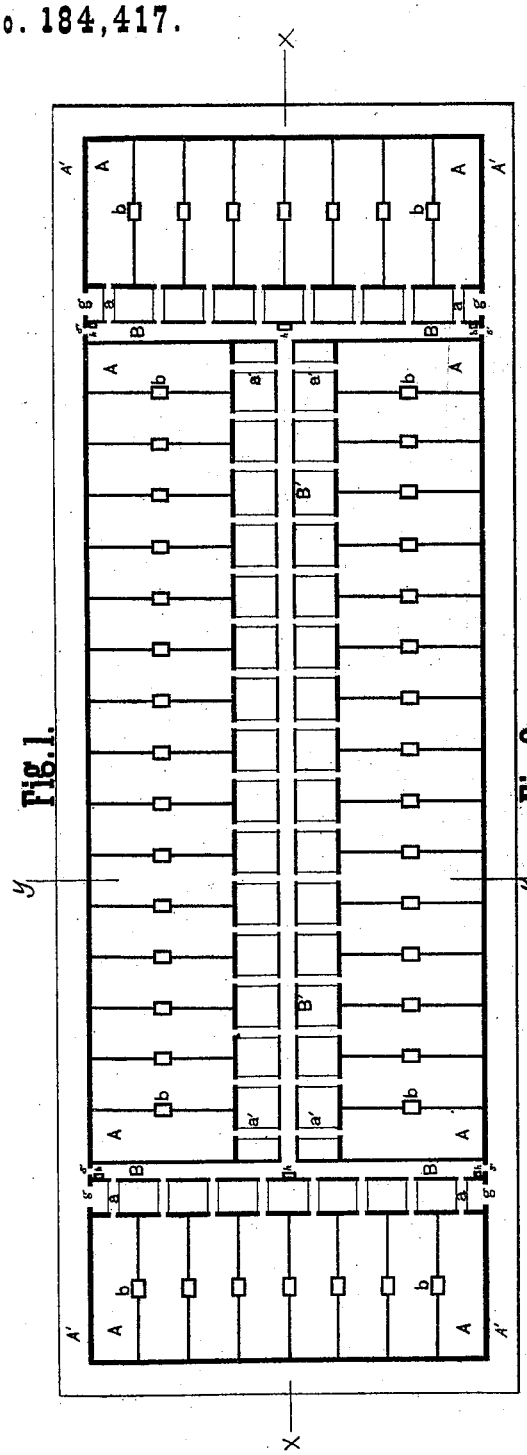

Fig. 1.

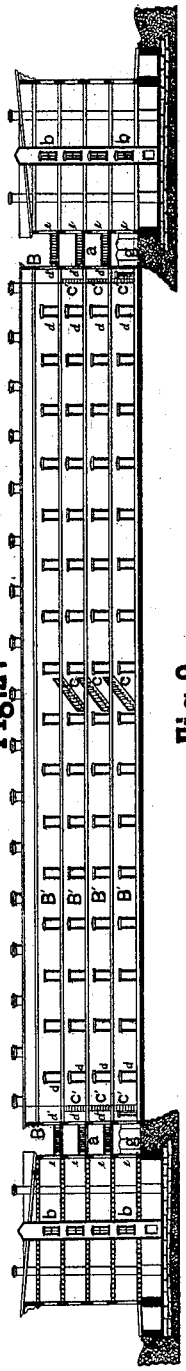

Fig. 2.

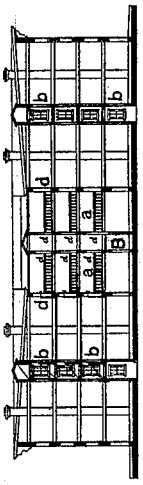

Fig. 3.

Witnesses

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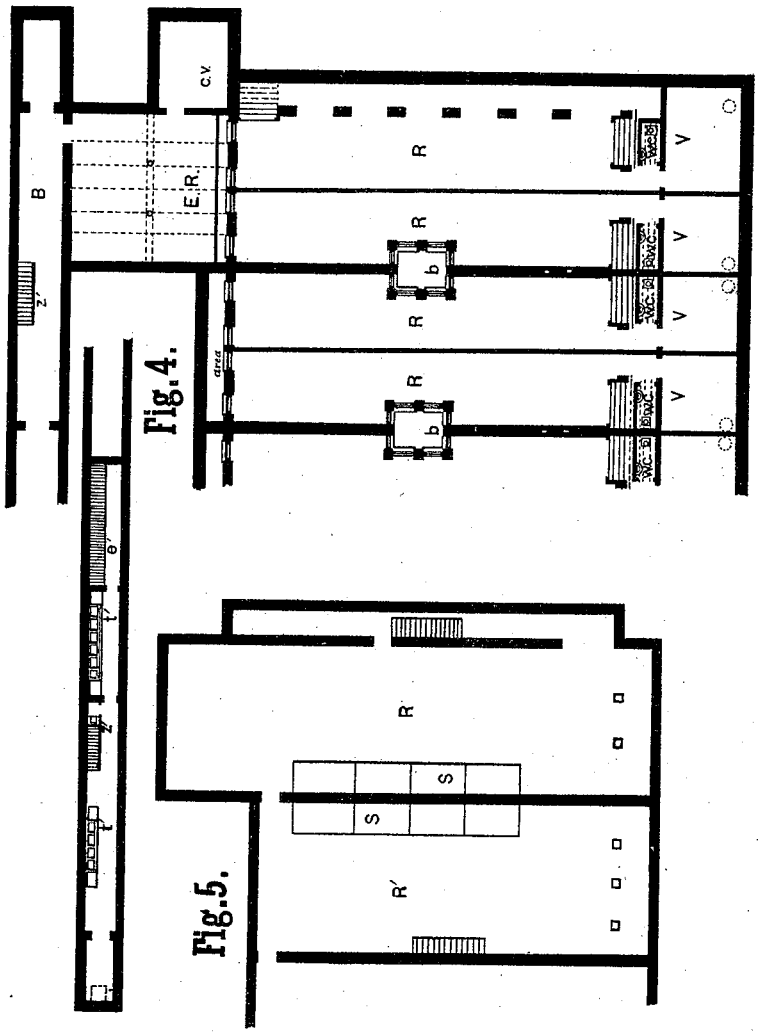

Fig. 4.

Fig. 5.

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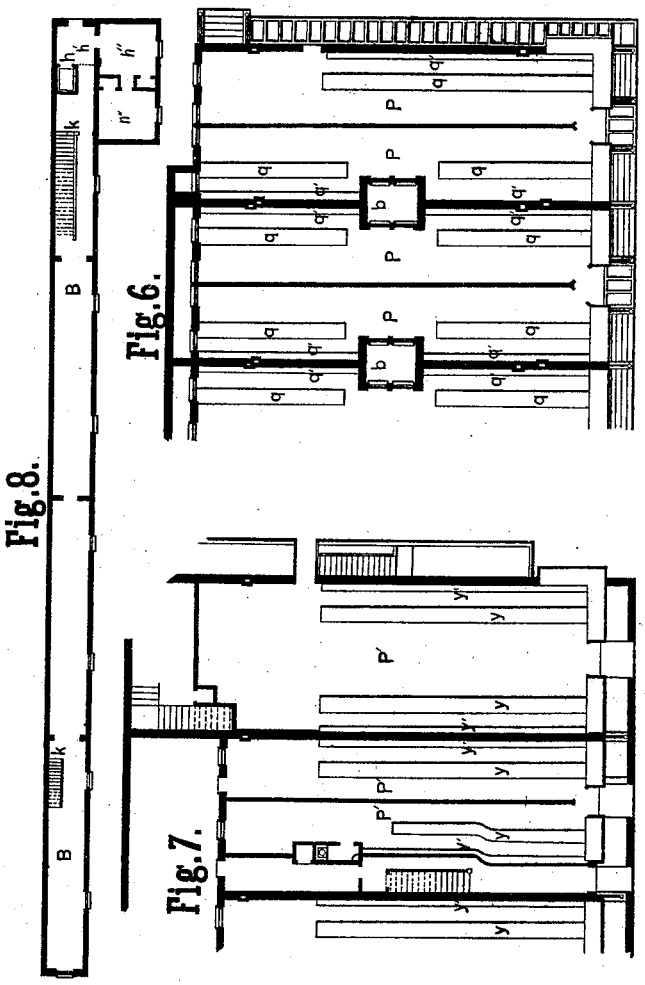

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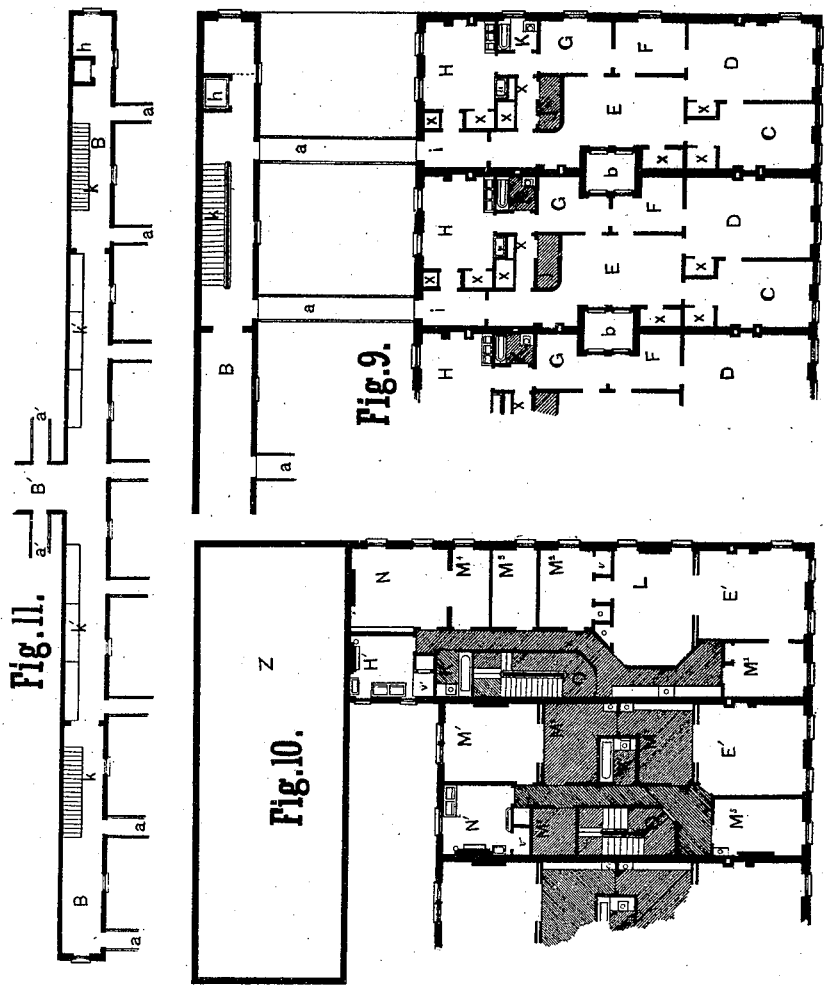

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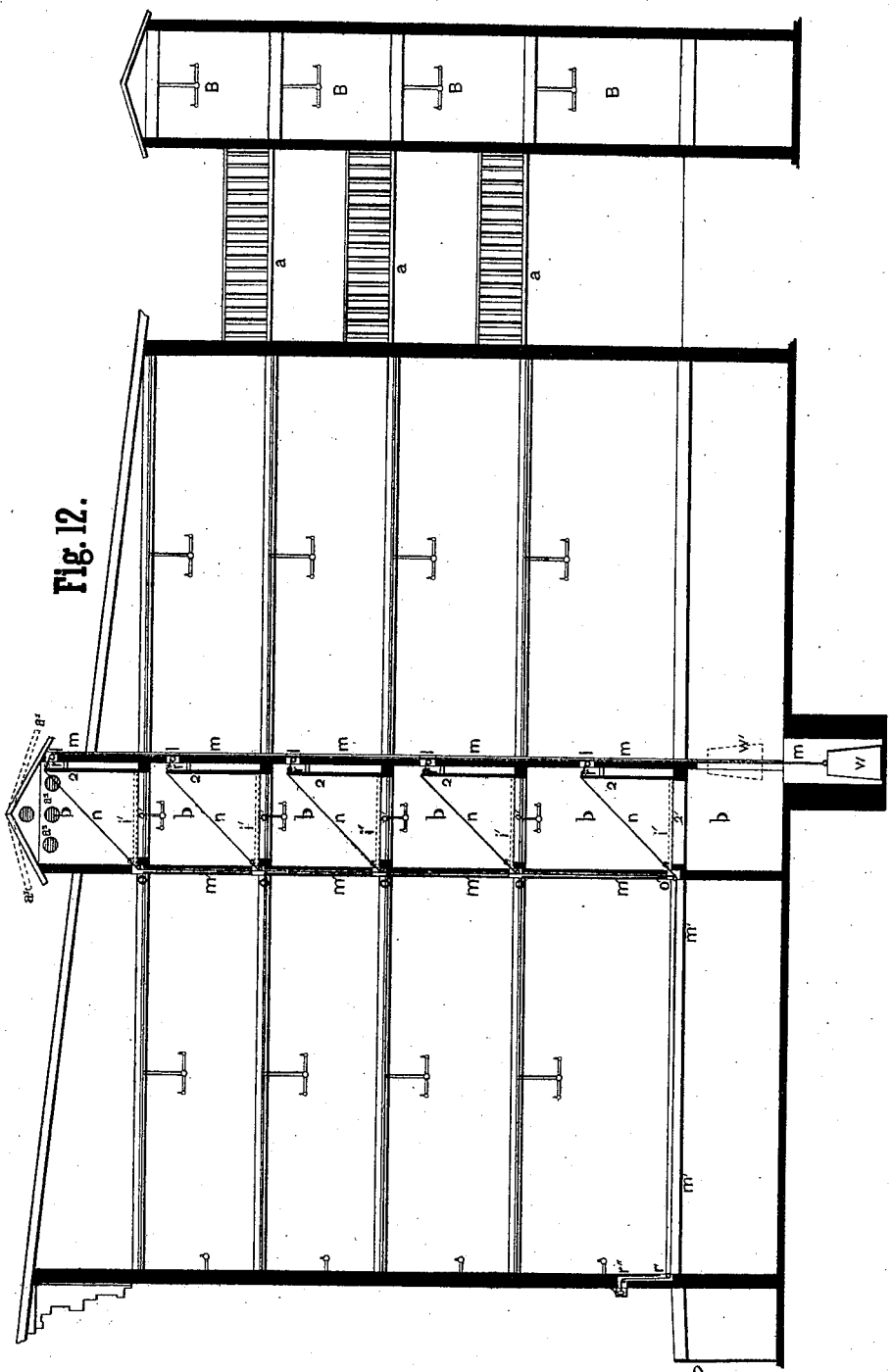

Fig. 12.

Witnesses

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UNITED STATES PATENT OFFICE.

ALFRED NELSON, OF NEW YORK, N. Y.

IMPROVEMENT IN TENEMENT-HOUSES.

Specification forming part of Letters Patent No. **184,417**, dated November 14, 1876; application filed April 12, 1876.

To all whom it may concern:

Be it known that I, ALFRED NELSON, of the city, county, and State of New York, have invented some new and useful Improvements in Compartment or Tenement Houses; and I do declare that the following specification is an exact description thereof, being fully illustrated in the accompanying drawings.

The object of my invention is to construct tenement or compartment houses in such a manner that each compartment, flat, or story will be entirely isolated, or the same as if each were a separate house; and it therefore consists, first, in a building, designed for habitation or for other purposes, having its stairways in a separate structure, so far removed from the main building as to leave an intervening clear space, sufficient for the escape of smoke in case of conflagration, said intervening space being crossed by bridges separately connecting each story or compartment with said stairway structure, whereby, in case of fire, the occupants of each story or each compartment may have free way of escape to a stairway which cannot be obstructed by the smoke of the fire, nor immediately involved in the same conflagration. The said main building may be unprovided with stairways, and the space usually so occupied may, therefore, be appropriated to other uses. Second, in well-lights located in the party-walls, whereby, in a series of tenements, the required number is less by one than the number of tenements, and said wells do not obstruct the floor-space. Third, in dampers located in said wells, level with the several floors, for the purpose of entirely isolating the several floors in case of fire. Fourth, in an arrangement of counter-weights and cords, whereby the said dampers may be operated from the outside of the building.

Figure 1 represents a plan view of a block of tenements, or compartment-houses, built upon my improved method or system. Fig. 2 is a vertical longitudinal section, cutting through the entire block between two avenues. Fig. 3 is a vertical cross-section, cutting the block at right angles to Fig. 2, or between two streets. Fig. 4 represents the basement plan of the buildings fronting the avenues, as built on my plan, and to be used as stores. Fig. 5 represents one style of basement plan now in use. Fig. 6 is a plan of stores as built on the new system. Fig. 7 is a plan showing how stores are constructed on the old system. Fig. 8 represents the ground plan of covered passage-way in the rear of the buildings surrounding the block, or a part of the buildings thereof. Fig. 9 is a plan of compartments or flats, representing the new style. Fig. 10 is a plan representing the most improved modern style of tenement compartments or flats. Fig. 11 represents a covered way or walk in the rear of the buildings, fronting the avenue, and extending across the block, or from street to street. Fig. 12 is a view of the section of a building, showing a shaft for interior light.

Like letters designate corresponding parts in all of the figures.

That others may fully understand my invention, I will particularly describe the same, and, so far as necessary, contrast it with methods heretofore in common use, so as to distinguish it clearly from what is old; and, for the purpose of enabling any one skilled in the art to construct a building after my plan, I have inserted dimension-figures, &c.; but it is evident the same can be varied without departing from the gist of the invention.

In the plan view, Fig. 1, A A represent a block of buildings; A′, a sidewalk surrounding the blocks. B B are two plans of a series of inclosed passage-ways, one above another, communicating with compartments within the buildings A A by means of the railed and covered platform *a a*. B′ B′ is a plan of a series of inclosed passage-ways running lengthwise of the block, being connected to the series B B, and communicating with the compartments in the buildings fronting the streets by means of the platforms a^1 a^1.

b b represent shafts or wells for admitting light into the interior rooms of the compartments throughout the buildings. *h h* are elevators for carrying passengers and merchandise to the series of landings within the covered passage-ways. S′ S′ are the public entrances to the covered passage-ways B B B′ B′, whereby all the compartments within the buildings of the block are entered. *g g* are gateways leading to the courts, between the rear of the

buildings A A and the covered passage-ways B B B′ B′.

Fig. 2 represents a longitudinal section on line *x x*, Fig. 1, cutting through the center of a block of buildings, exposing the interior of the compartments of the two buildings fronting the avenue; also, a cross-section of the covered passage-ways B B, and a longitudinal section of the passage-ways B′ B′.

d d are doors leading to the platforms *a′ a′*. (See Figs. 1 and 3.) *d′ d′* are entrances or doors, by which communication is had with the compartments or flats through corresponding doors *e e* by means of the connecting-platforms *a a*. *b* is a well, provided with windows opening into each compartment or flat, for the purpose of giving light and ventilation to the interior rooms. *c c* are stairs, affording communication between the covered passage-ways B′ B′. *c′ c′* are stairs leading to the elevated passage-way in B B.

Fig. 3 is a view showing a vertical cross-section of a block of buildings on line *y y*, Fig. 1.

B′ represents an inclosed series of passages, corresponding with the several compartments or flats within the buildings on opposite sides of a block.

In order that others may become skilled in the construction of buildings upon my system, I have introduced the three following plan views: The basement, store or ground floor, and a suite of rooms, which constitute what is known as a "French flat," the remaining stories being duplicate flats.

As a difference exists between my plans and those now in use, I have introduced corresponding plans, upon the same sheet of drawings, of the most modern and improved styles now in use, so that this difference may be readily seen.

Fig. 4 is a plan of the basement. (New style.) R R represent store-rooms, eleven and one-half by sixty feet, two stores being on one twenty-five foot lot. *b b* is the well-light, which extends from the top of the building to the subcellar beneath. V V are vaults beneath the sidewalk. C V is a coal-vault; E R, engine-room; B, basement plan of the inclosed passages; *m*, rear of buildings; *t′*, wash-room; *e′*, drying-room; *i′*, stairs; Fig. 5, plan of basement, (old style;) R′ R′, cellars; S S, coal-bins.

Fig. 6 represents a plan for stores (new style), P P being two stores within the same building, which is on a twenty-five foot lot. These stores are eleven and a half by sixty-two feet. *q q* are counters. *q′ q′* represent shelves; *b b*, the well-light, which is six by eight feet area. Corresponding stores in Fig. 7 are represented by P′ P′, counters by *y y*, and shelves by *y′ y′*.

In Fig. 8, I represents the ground plan or first story of the rear covered passage-ways; *k k*, stairs; *h*, elevator, four by five feet; *h′*, conciergé's room, ten by ten feet; *h″*, conciergé's living-room; *n″*, conciergé's bed-room.

Figs. 9 and 10 represent floor-plans above first story. Fig. 9 is the new, and Fig. 10 the old, plan. In Fig. 9, D D are two chambers, twelve and a half by twenty; C C, chamber ten and a half by fifteen feet. E E are parlors, eleven by nineteen; F F G G, bed-rooms, eight by eleven, four and a half by six and a half. H H are kitchens, eleven by fourteen and a half feet; K K, bath-rooms; J J, store-rooms, three and a half by eight feet; *i i*, vestibule, five and a half by ten feet; X X X X, closets; *b b*, well-light, space six by eight feet.

B represents the plan of rear elevated covered passage-way, being on the same plane with, and connected by, the platform *a a* to the flats or compartments of the second story of a block of buildings; *k k*, stairs; *h*, elevator.

In Fig. 10, E′ E′ are two parlors, fourteen and a half by eighteen feet, and fourteen by seventeen and a half feet. L is a sitting-room, thirteen by eighteen and a half; N, dining-room, thirteen by fifteen and a half; M^1, dining-room, twelve and a half by fifteen feet; H′, kitchen, nine and a half by ten feet; N′, kitchen, ten and a half by eleven feet; K′, bath-rooms, five and a half by seven feet; M^1, bed-room, eight and a fourth by thirteen feet; M^2, eight and a half by thirteen; M^3, seven by thirteen; M^4, six by thirteen; M^5, nine by fourteen and a half; M^6, seven and a third by seven; M^7 M^8, bed-rooms, eight and a half by twelve and a half; V V, closets; O, stairway; Z, building on side street.

Fig. 11 represents a full-length plan of a covered passage-way in rear of second story of a row of buildings fronting on a street or avenue. B B represent the passage-way; *a a*, platforms extending therefrom. K K represent stairs. K′ K′ represent coal-bins. B′ is a central passage-way between two rows of buildings; *a′ a′* are platforms extending therefrom, and each one connecting with an adjacent flat within the tenement-building.

Fig. 12 is a vertical longitudinal section of a tenement-house, its rear passage-ways B B, and connecting-platforms *a a*. *b b* is the well-light extending through the height of the buildings. Q Q are dampers made to fit within the well-space at every floor or story of the building. The dampers are made to fall or rise, as circumstances may require. The movements are obtained by means of cords or wires, pulleys, and weights or power. *l l* represent a series of pulleys, over which the cords *m m* run while swinging the damper upward. These cords are attached to a staple, *r*, within the upper edge of the damper. *o o* is another series of pulleys, over which the cords *n n* pass while in the act of closing the damper. *t′ t″* are two guide-pulleys, over which the cord *n* runs. The end of this cord is attached to a bell-pull, or its equivalent, on the outside of the building next to the street or corners.

The following describes the construction,

use, and advantages of my invention. Any ordinary building material is used. The foundations are laid in the usual manner, and the superstructure erected thereon.

To meet the requirements of the invention, which are to build a house, or building, or block of buildings or houses, so as to economize space, and to give more available room or space on the same lot or ground-plot than is now obtained in the present construction of buildings, my method of economizing space in the construction of buildings is as follows: I construct buildings, of any usual number of stories in height, without a stairway or any other internal means therein of communication between the different compartments, external ingress being the only means by which all the compartments are entered, there being only one inlet and exit to a floor or flat, and that in the rear of the building. The flats and stores in the first story are provided with a street or front entrance where a store occurs. A floor on a twenty-five foot lot may be divided in the center, thus making two stores, with a door in the center and show-windows upon each side, as shown in Fig. 6. In consequence of there being no hallway and stairs, as is now the case in all old-style buildings, the extra space devoted to them is divided between the two stores. Thus a saving of from five to six feet is effected in the most valuable and desirable part of the building. In a block two hundred feet frontage sixteen stores are obtained, with a frontage of eleven feet ten inches each, or eight stores with a frontage of twenty-three feet eight inches each, which is forty-one feet and four inches of frontage more than the old style where hallways and stairs are in use. (See Fig. 7.)

The floors or flats above the first story are divided into rooms or compartments for household purposes, as seen in Fig. 9. This plan shows a building twenty-five feet front and sixty-six feet in depth, allowing one thousand two hundred and fifty square feet of available space, or twenty-four per cent. more room than the old style of same dimensions. There are but two dark rooms—J, a store-room, and *h* a bath-room—making but fifty-seven feet of darkness, while in a house of the old style of stairs and hallways of same dimensions, as shown in Fig. 10, there are but one thousand and eleven square feet of available room, of which amount six hundred and eighty-three square feet are in darkness, as seen in the drawing; therefore it will be seen that a decided advantage is gained in the new style over the old. I accomplish this result by dispensing with the stairway, whereby the available area is increased to the extent of what the stairs would occupy, and by the introduction of a shaft or well-light, as shown in the drawing.

This shaft is built into the dividing-wall of the building. Its dimensions are the depth or height of the building by six by eight feet area. The greater dimension of the area of the shaft is parallel with the division-wall, while the wall of the lesser dimension is at a right angle to the same, and is connected or built thereto, so that the well-space is equally divided between the two adjacent buildings. The walls of the shaft or well-light are provided with windows at every story of the building, through which light enters from the skylight above to all of the interior rooms through the building, with the exception above mentioned.

The uses of this shaft or well are threefold: First, it affords light to the interior rooms; secondly, it acts as a ventilator, affording perfect ventilation to all the contiguous rooms from the subcellar to the last or top story in the building; thirdly, by means of the dampers, the draft or current of air can be arrested whenever it becomes necessary to do so, as would be the case were a fire to occur on any of the floors or flats. The operation of these dampers is as follows: The dampers are all hinged upon one side of a projection or ledge extending around the inside of the shaft or well. The projections should extend about four inches from the wall, thus giving a good bearing-surface for the damper when closed. At or near the opposite edge of this damper a staple, *r*, or its equivalent, is secured. To these staples cords or wires *m m'* are attached. These cords pass over friction-rolls on pulley *l*, inserted into, or within, or without, the walls of the well-light, and may terminate in one cord or wire, which may pass through the depth of the building, and terminate with the weight W in the subcellar beneath. This weight should be heavy enough to counterbalance the combined weight of the dampers, and bring them into position, as shown in Fig. 12.

It is not necessary that the damper-cords should terminate in the single cord *m m*, as each cord can extend to the weight W, and be fully as effective as by the above-described arrangement; also, each cord may terminate in a weight of its own. These weights can be concealed within the walls in a similar manner to those employed in balancing windows, or springs may be used instead of weights. The cords *n n* are secured to the staples *r r*, or to some other convenient point about the dampers. They then pass over the friction-rolls *o o* and merge into a common cord or wire, *m m*. This cord *m* passes under a friction-roll or pulley, *o*, and then runs in a horizontal direction to the outside wall of the building, where it passes under and over the two friction-rolls *r' r''*, and terminates in an ordinary bell-pull, or an equivalent thereof. The bell-pull should be inclosed in a lock-box similar to those employed in the telegraphic fire-alarm signal-service. The keys of these boxes should be in the possession of the officers whose duties are to attend to fire-signal alarms, and whenever the fire-signal is given, acquainting the officer of the location of the fire within his beat, he should proceed to the

building in which the fire is burning, and unlock the box, pull upon the cord or wire m'' until the dampers Q Q rest upon their respective ledges Q′ Q′, after which the cord or wire is secured. By this arrangement the draft in the shaft *b* is arrested, the fire is checked, and confined within the flat or compartment within which it originated.

By using the concealed weights, as above described, and by a slight modification of the arrangement of the wires *n n*, parties living on the flats can close the dampers of their respective floors irrespective of each other. The drafts at the top of the well-lights can be regulated by the skylights a^1 a^1 or by registers a^2 a^2 inserted in the walls of the well or shaft above the roofs of the buildings, as shown in Fig. 12. The dampers Q Q should be made of iron or other non-inflammable material, so as to resist the action of heat in case of fire. Everything in the interior of the shaft should be kept as white as possible, so that the occupants of the interior rooms can receive the full benefit of reflected light due to the whitened surfaces. Artificial light can be employed at night to light the interior of the shaft by locating gas or other fixtures *o′ o′*, as shown in Fig. 12. This light will be transmitted through ground-glass or whitened windows to the interior rooms.

The heat generated within the shaft will assist the natural draft; also, an artificial draft may be created by this means.

One of the great drawbacks of the present system, followed in the erection of apartment-houses, is the danger of contracting infectious or contagious diseases from the enforced contact of residents. In my plan this danger is greatly lessened if not entirely avoided, as the occupants have separate exits from the apartment which they occupy.

Another important and leading feature of my invention is the employment of a series of elevated passage-ways, one above another, open or inclosed in the rear of all apartment-houses built upon my plan, said passage-ways being connected to every compartment or flat by one or more corresponding elevated platforms or walks for each and every flat or compartment throughout the apartment-buildings of an entire block, as seen in Figs. 1, 2, and 3. The elevated passage-ways are provided with stairs leading from one to the other; also with elevators, whereby each passage-way can be reached with ease. Whenever these passage-ways are inclosed, as shown the drawing, doors are provided for each and every platform or walk leading to the compartment or flat beyond.

There are four entrances in the passage-ways, as shown in Fig. 1, but I do not confine myself to these entrances; others may be introduced at different parts of the block, which can be accomplished by the substitution of the first story of one of the buildings at or near the center of the street-fronts. Such an entrance will give ample room both for a carriage-way and for an inclosed or railed side-walk. A corresponding entrance should be provided in the structure for passage-ways, where an iron stairway should lead therefrom to all the passage-ways above.

I am aware that movable detached structures have heretofore been made for the purpose of being applied to burning buildings, as fire-escapes for the inmates, but these structures are unlike my invention, and incapable of substitution for it.

Having described my invention, what I claim as new is—

1. A building or block of buildings with floors, either undivided or divided into separate compartments, for habitations or other purposes, combined with a structure containing the stairways common to all the several floors or compartments, and so far separate and detached from said building as to leave a continuous intervening clear space for the escape of smoke, &c., in case of conflagration, crossed by separate bridges connecting each separate floor or compartment with said stairway structure, as and for the purpose set forth.

2. A system or block of buildings divided into separate compartments or habitations, both as to separate floors or flats, and as to divisions of the same floor, provided with wells located in the lines of the party-walls of said compartments, for the purpose of admitting light from said walls toward the interior of each tenement, and for common ventilation, in the manner set forth.

3. A building provided with wells in the lines of the party-walls, for common light and ventilation, combined with dampers Q Q, located in said well, opposite each floor, for the purpose of isolating the several floors, for the purpose set forth.

4. The dampers Q Q, arranged in the well *b* opposite each floor of the building, combined with the cords *m*, counter-weight W, and cords *n*, whereby said dampers may be operated by a person outside the building, to isolate the several floors, as set forth.

ALFRED NELSON.

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