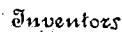


APPLICATION FILED DEC. 10, 1907.

3 SHEETS—SHEET 1.



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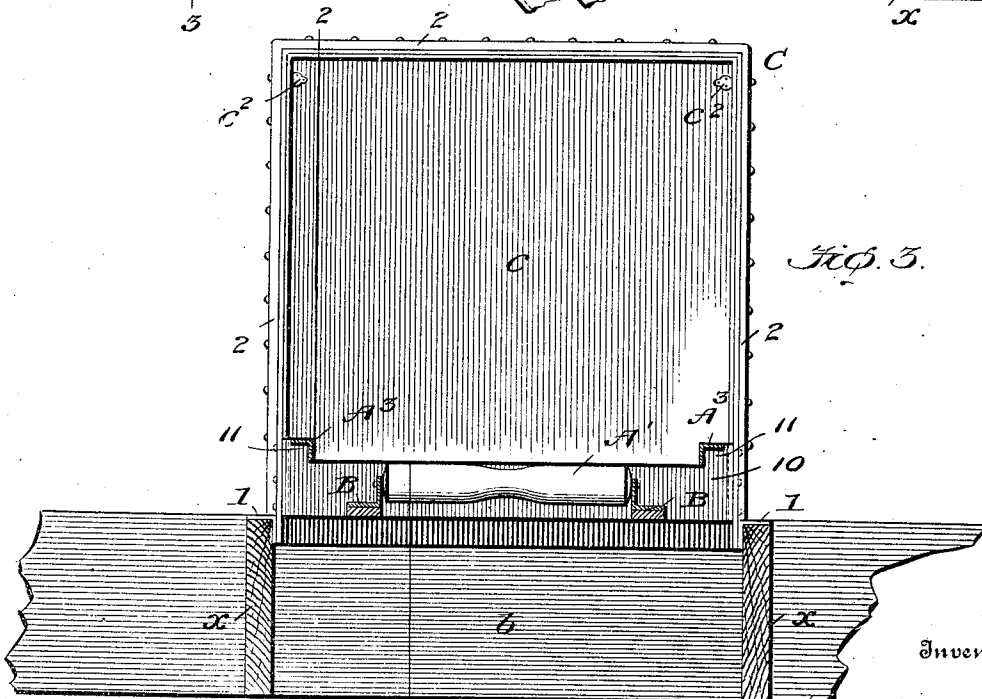
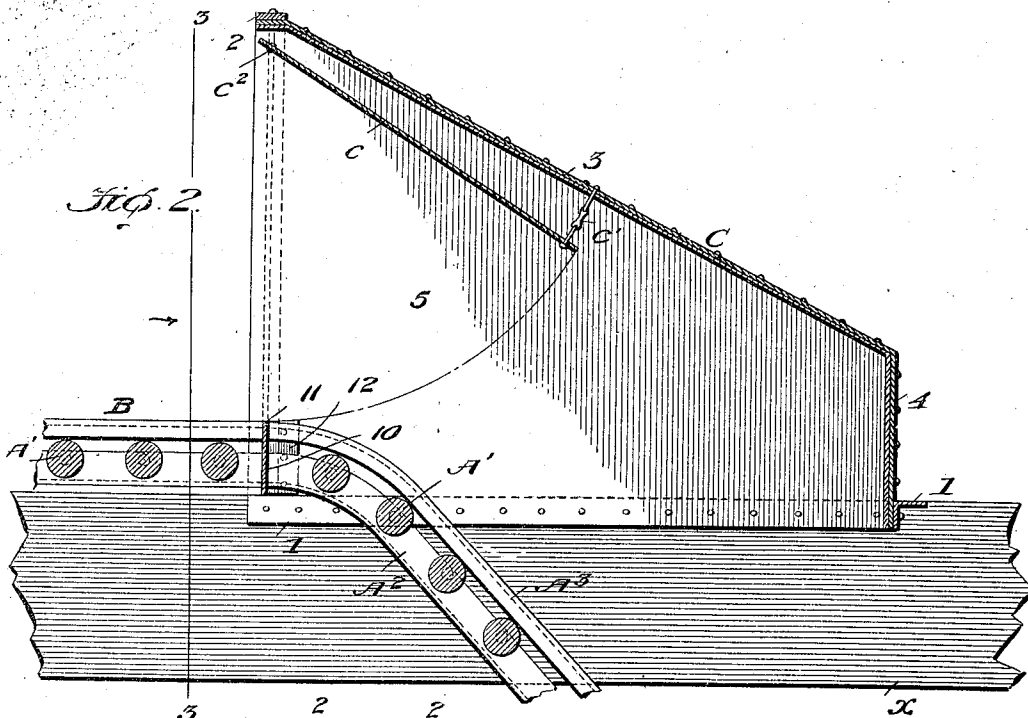
PACKAGE CONVEYING SYSTEM.

APPLICATION FILED DEC. 10, 1907.

1,022,525.

Patented Apr. 9, 1912.

3 SHEETS—SHEET 2.



Inventors

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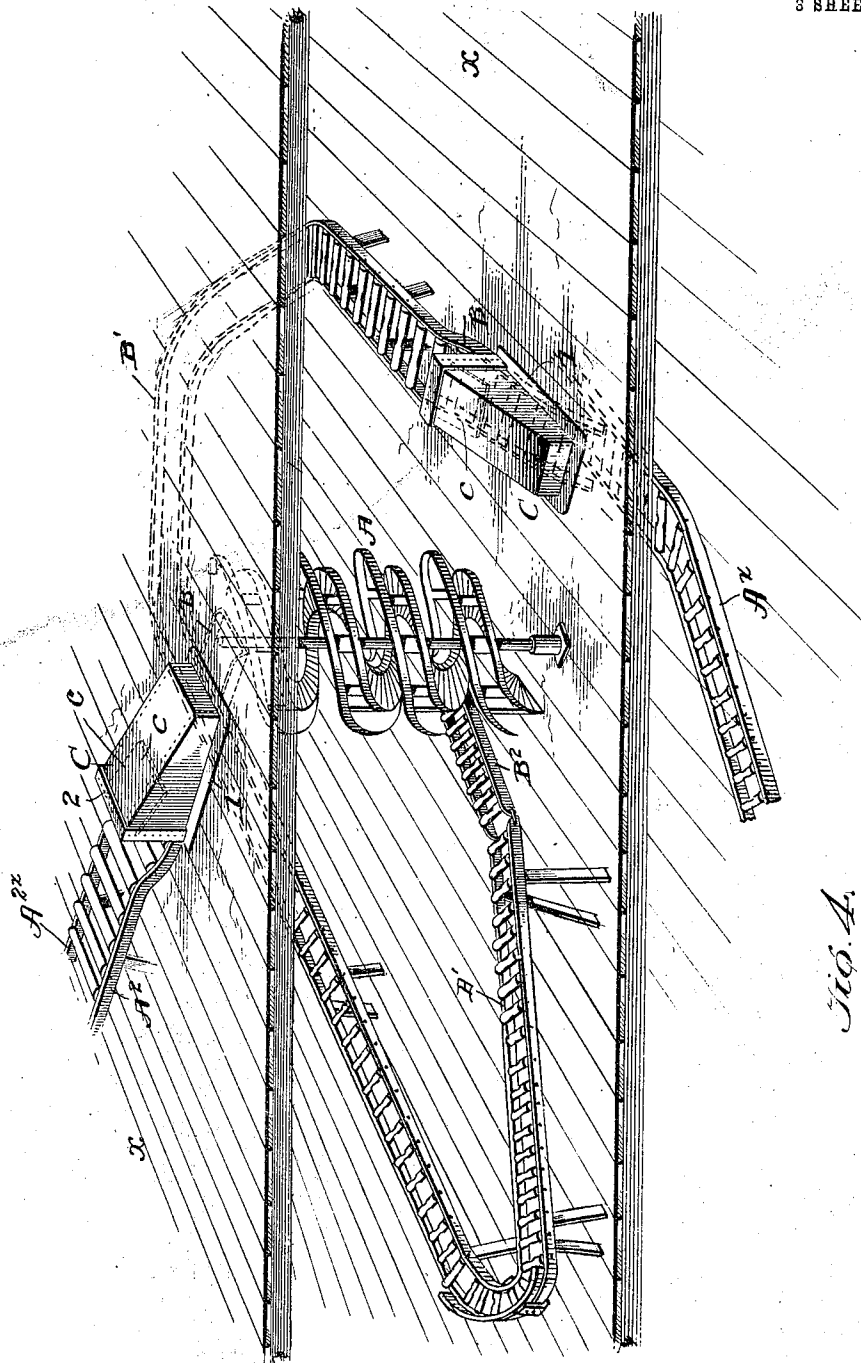
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 PACKAGE CONVEYING SYSTEM.
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

BENJAMIN H. ALVEY AND MORRIS U. BERNHEIM, OF LOUISVILLE, KENTUCKY,
ASSIGNORS, BY MESNE ASSIGNMENTS, TO THE ALVEY-FERGUSON COMPANY, OF
OAKLEY, CINCINNATI, OHIO, A CORPORATION OF OHIO.

PACKAGE-CONVEYING SYSTEM.

1,022,525.

Specification of Letters Patent.

Patented Apr. 9, 1912.

Application filed December 10, 1907. Serial No. 405,916.

To all whom it may concern:

Be it known that we, BENJAMIN H. ALVEY and MORRIS U. BERNHEIM, citizens of the United States, residing at Louisville, 5 in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Package-Conveying Systems, of which the following is a specification.

10 This invention has relation to improvements in conveyers or systems of conveyers for transferring packages from one room or floor to another, particularly of the type thereof illustrated for example in the pat- 15 ents issued for the invention of B. H. Alvey, as follows, to wit: No. 714,432, dated November 25, 1902; No. 790,776 dated May 23, 1905 and No. 790,811 dated May 23, 1905.

The main purpose of the present invention 20 is to provide for such conveyers or systems, a means which will safeguard the workmen against the dangers to life and limb arising from an open hatchway in the floor of the room, and will obviate the necessity for 25 manually closing the hatchway to prevent draft therethrough from one room to another, in case of fire. This main purpose of the invention is accomplished by providing, as a covering for the floor opening, a 30 shield or hood preferably of fire-proof or fire-resisting material which will permit packages to travel from one room to another through it and through the opening which it covers, and will effectually and auto- 35 matically prevent, in case of fire, the creation of a draft through said opening.

Other purposes of the invention will appear from the hereinafter description: the invention consisting in certain peculiarities 40 in the construction and arrangement of parts and in certain novel combinations of elements substantially as hereinafter described and particularly set forth in the subjoined claims.

45 In the accompanying drawings exemplifying the present invention: Figure 1 is a sectional perspective view of a portion of a gravity conveying system embodying our present improvements. Fig. 2 is a vertical 50 sectional view on the plane of the line 2—2 of Fig. 3. Fig. 3 is a section on the plane of the line 3—3 of Fig. 2, viewed in the direction of the arrow, and Fig. 4 is a perspective view of one form of a gravity sys- 55 tem embodying the present improvements.

The same characters of reference designate the same parts in the several views.

In Fig. 4 of the accompanying drawings we have, for the purpose of exemplifying the utility of the present invention, shown it 60 as embodied in a gravity system which comprises as the portions or elements by which the packages are conveyed from the ceilings toward the floor, main ways or runs A or A* of spiral and non-spiral form, respec- 65 tively, which are located on different floors of the building. These ways or runs A and A* are connected with each other by a run which embodies a supplemental way, section or chute B which extends through the floor opening *b*. To the topmost way or 70 run (A), a run A*, comprising a similar chute B leads downward through a floor opening *b* and delivers to said way or run A packages from the floor or room above 75 the same. Thus, in the system referred to, there is shown in the topmost room a run A*, which is broken off in said figure but may and preferably does extend around the room and terminates in a chute B which 80 extends inclinorily downward into the room below through an opening *b* in the floor of the upper room. In the lower room referred to there is a spiral chute A having its upper 85 terminal at or near the ceiling and its lower terminal at or near the floor *a*. It is arranged at one side of the opening *b* in the floor of the room above it. This chute is preferably of the construction shown in the patent which was granted to B. H. Alvey, 90 May 23, 1905, and is numbered 790,776. Leading off from a portion of the spiral section or run A suitably above the floor is a switch B² which is connected with a 95 run B' which extends around the room below the upper one and terminates in or is connected with the delivery chute or section B which extends through the floor *a* to the section A* in the room below. A portion only 100 of this section A* is shown, but it will be understood that in practice it runs from the ceiling to the floor, in a direct path, or through an indirect path as shown in the patent granted to Alvey, November 25, 1902, No. 714,432. 105

Each section of the system has its floor preferably composed of rollers A' like those of the Alvey patent dated November 25, 1902, hereinbefore referred to, having their ends journaled to freely rotate in side bars 110

A² and above which side bars are guard rails A³ supported by spaced strips A⁴ which extend transversely of the section.

One of the floor-openings *b* being shown as arranged at one side of and above, (*i. e.* as being offset from the end of) the spiral section or way A permits, in conjunction with the chute B, packages to be delivered from the upper to the lower room without carrying the spiral section itself through the floor and ceiling between the rooms. The other floor-opening *b* is similarly illustrated as above being offset from the end of the section or way A² in the room below. The sections or portions, therefore, in the several rooms may be of the character and in the locations best suited to the end in view and the architecture of the building.

It will be understood that in practice these conveyers or systems are variously embodied, to suit varying requirements, the installations sometimes including gravity conveyers on one or more floors, a spiral conveyor or conveyers leading downward from one floor to another and elevators leading upward between the floors, all connected: while other installations include only one or more gravity conveyers and a spiral or spirals, still others one or more gravity conveyers and one or more elevators, while others may include only gravity conveyers, or indeed only an elevator or only a spiral. It is therefore to be understood that the illustrated system is merely intended to exemplify the type of conveyers with which the present invention is related, and to show how such conveyers have connection with a room above or below through an opening in the floor or ceiling of such room, and is not intended to restrict the invention to the details of the several conveyers illustrated or to particular combinations of the several conveyers, further than is necessary to make practicable and useful the employment therewith of a separate hood C for each floor-opening, adapted to cover said opening and the section of conveyor therein and to permit packages on said sections to pass therethrough between conveyers above and below the opening, or to or from a conveyor above or below it.

Hoods of the character contemplated by the present invention are illustrated in the accompanying drawings, which shows one of each of the same mounted upon each floor, and covering the opening *b* therein and the section B in said opening. Each of these hoods is of such internal dimensions as to permit the packages to travel within the same from one room to another, and each has an opening in its front or other suitable side for the admission of the packages therein and is open at the bottom for the exit of packages therefrom. One or both of these openings is closed by a hinged or piv-

oted door *c*. This door is herein shown as covering the inlet opening of the hood. Thus, when the door is closed communication between the rooms through the floor-opening *b* is prevented and all draft from one room to another through such opening is effectually cut off, a fire hood being thereby provided, and at all times, whether the door is open or not, the danger arising from an open well in the floor is obviated. This hood is preferably made of fire-proof or fire-resisting material to increase its effectiveness as a fire-hood.

The door *c* may be normally closed, in which event it should be so hinged or pivoted that it will freely be opened inward by the pressure of the packages traveling on the chute or section B: or it may be held in normally open position by a fusible or other suitable holding means which will automatically release the same when the temperature rises above a predetermined degree, such as would occur in case of fire. A suitable means for the purpose last mentioned is shown in Fig. 2 and comprises a fusible link *c'*. The door pivots or hinges are indicated at *c''* in all the figures.

If the door is to maintain normally closed position and to be opened automatically by the pressure of a package against it, a proper relative arrangement or disposition should be made by which this result may be accomplished. The door may be properly counterweighted so as to open and close very readily, or springs or other suitable means for a similar purpose may be employed, or as an accessory thereto, or substitute therefor, the portion of the conveyor which leads to the door may be given an incline of sufficient degree to give an additional impetus to the package as it approaches the door. This is clearly shown in Fig. 4. The door opens in the direction of movement of the package entering the hood.

The hood C herein shown is provided at its bottom with a frame-member 1, composed of angle-iron bent (or made in sections having their abutting edges secured together to form it) into approximately U-shape. This frame member fits snugly in the opening *b* and engages and is supported by the beams *x'* around said opening. The open front of the hood is provided with an approximately U-shaped frame 2 arranged in inverted position. This similarly may be of angle iron but it is herein shown as made of strap-form, or plane. It provides a rigid frame capable of supporting the door *c* which is herein shown as made of a plate of sheet metal, steel being preferred. The top wall 3, rear wall 4 and side walls 5 of the hood are made of sheet metal, assembled or bent, as desired, to the required shape.

In order that there may be no open spaces

between the side walls 5 of the hood C and the sides A² of the chute or section B, and between the rollers A', a plate or strip 10 is arranged across the front of the hood, between the floor of the room and the lower edge of the door c and constitutes a filler for the spaces mentioned. This filler has its ends 12 bent laterally and secured to the side walls 5 of the hood, and it is formed at its ends with upwardly extending flanges 11 which project to the plane of the guard rails A³ while its intermediate part has its upper edge arranged approximately in the plane of the upper surfaces of the rollers A' which form the floor of the chute or section B. The lower edge of the door is of form corresponding to the upper edge of the filler 10, being reduced at the ends to fit over the flanges 11 or guard rails A³ and having its intermediate part projecting to the plane of the intermediate part of the filler. Thus, the filler and door when the latter is closed, cooperate with each other and effectually close the front of the hood against any draft or egress of flame through the same.

Having thus described the invention, what we believe to be new and desire to secure by Letters Patent, is:—

1. A package conveying means comprising a plurality of connected sections, one of which extends inclinatorially through an opening in the room containing the other; and means for covering said opening, comprising a hood mounted over said opening, said hood being provided with a plurality of open sides, one of which registers with the opening, and with a closed side opposite the opening, said closed side being spaced from the opening a distance adapted to permit a package on the conveyer to pass therethrough from one section to the other, and a door for closing one of the open sides of the hood.

2. A package conveying means comprising a plurality of connected sections, one of which extends inclinatorially through an opening in the floor or ceiling containing the other; and means for covering said opening, comprising a hood which is mounted on said floor or ceiling over said opening and has an open bottom registering with the latter, a closed top spaced from the floor or ceiling a distance adapted to permit packages on the conveyer to pass through the hood, an open front having a door which affords access to its interior and a closed back and lateral sides.

3. A package conveying system, comprising a section in one room, a second section connected therewith and extending inclinatorially to another room, through an opening in the floor or ceiling between said rooms, said opening being off-set from the end of the first section; and means for covering said opening, comprising a hood mounted

over said opening, said hood being provided with a plurality of open sides, one of which registers with the opening, and with a closed side opposite the opening, said closed side being spaced from the opening a distance adapted to permit a package on the conveyer to pass therethrough from one section to the other, and a door for closing one of the open sides of the hood.

4. A package conveying system, comprising a spiral section in one room, a second section connected with the receiving end of the spiral section and extending off therefrom inclinatorially to another room through an opening in the floor or ceiling between said rooms, said opening being off-set from the end of the first section; and means for covering said opening, comprising a hood mounted over said opening, said hood being provided with a plurality of open sides, one of which registers with the opening, and with a closed side opposite the opening, said closed side being spaced from the opening a distance adapted to permit a package on the conveyer to pass therethrough from one section to the other, and a door for closing one of the open sides of the hood.

5. A system of package conveying elements having a plurality of sections respectively extending through floor or ceiling openings, and means for covering said openings comprising a separate hood for each of the same, each having an open front and bottom and being otherwise closed and provided with a door for closing communication through the floor or ceiling opening, said hood being of size adapted to permit packages to pass therethrough.

6. A package conveying system comprising a plurality of connected sections adapted to be arranged in different rooms of a building, and a fire hood covering the junction of said sections and provided with a door for giving access to its interior, one of said sections extending through the door opening.

7. A package conveying system comprising a plurality of connected sections adapted to be arranged in different rooms of a building, and a fire hood covering the junction of said sections and provided with a door for giving access to its interior, one of said sections extending through the door opening, and said door arranged to open in the direction of movement of the package entering the hood.

8. A package conveying system having a main section, in combination with a plurality of supplemental sections connected with the main section and adapted to extend through openings in the rooms adjacent to the same, and a plurality of fire-hoods adapted to cover said openings and provided with doors and openings through which the supplemental sections extend.

9. A package conveying system comprising a plurality of non-incased sections or runs, a section connecting the same with each other and a fire hood over the last mentioned section.

10. A package conveying system comprising a plurality of non-incased sections or runs and an incased section connecting the same with each other, the casing of said section comprising a fire-hood having a door-opening to which its section extends and a door for closing said opening.

11. A floor having an opening, a pair of non-incased conveyer sections terminating at diametrically opposite sides of the floor opening and respectively arranged above and below the floor, a connecting section extending inclinatorily through the floor opening from the discharging end of one of said non-incased sections to the receiving end of the other of said non-incased sections and adapted to convey packages between said conveyers, and a hood mounted over said connecting section and covering said floor opening, said hood being adapted to permit packages to travel on the connecting section and through the floor opening.

12. In combination with a section of a conveyer, adapted to extend through an opening in a room, means for closing said opening comprising a filler extending across said section, a fire hood adapted to cover said opening and having an open side, and a door cooperating with said filler in closing the side of the hood.

13. In a package conveying system, comprising an element which is adapted to extend through an opening in the room containing said element and is provided with freely-rotatable rollers upon which the packages travel; a filler extending across said element and having its upper edge approximately in the plane of the upper surfaces of the rollers, a fire-hood adapted to cover said wall-opening and having an open side through which said element extends and a door which cooperates with said filler in closing the open side of the hood.

14. In a package conveying system, comprising an element which is adapted to extend through an opening in the room containing the same, and a hood which is adapted to cover said opening and through which said element extends, said hood comprising a bottom frame by which it is supported and having an open front and bottom and closed sides, back and top, and a door for said front.

15. In a package conveying means, comprising an element which is adapted to extend through an opening in the room containing the same, and a hood which is adapted to cover said opening and through which

said element extends, said hood comprising a bottom frame by which it is supported and having an open front and bottom and closed sides, back and top, a door for said front and a filler extending across said front beneath said door.

16. A package conveying means comprising a non-incased section or run and an incased section or run communicating therewith, the casing of the incased section or run comprising a hood having a bottom supporting frame, an open front and bottom and closed sides, back and top, and a door for said front.

17. A package conveying means comprising a non-incased section or run and an incased section or run communicating therewith, the casing of the incased section or run comprising a hood having a bottom supporting frame, an open front and bottom and closed sides, back and top a filler which extends across the section or run at the front of the hood and a door for the front of the hood.

18. A non-incased conveyer one end of which is adapted to extend through an opening in a room which contains the conveyer, and a hood arranged over the portion of the conveyer in said opening and covering the opening and adapted to prevent egress of flame therethrough.

19. A conveyer having a plurality of non-incased sections adapted to be arranged in different rooms of a building and a third section arranged between the first mentioned sections and connecting the same with each other, said third section adapted to extend through an opening in the building, combined with a hood arranged over the third section and covering said opening and adapted to prevent egress of flame therethrough.

20. A package conveying system comprising a section in one room, a second section extending beyond the end of the first section inclinatorily through an opening in the room containing said first section and a means for covering said opening comprising a hood mounted over the same and having an open bottom and open front and being otherwise closed, the top of the hood being so arranged with respect to the second section as to admit packages between the same, and a door for closing one of said openings.

In testimony whereof we affix our signatures, in presence of two witnesses.

BENJAMIN H. ALVEY.
MORRIS U. BERNHEIM.

Witnesses:

H. E. WILLIAMS,
ROY R. WORRALL.