

**Feb. 17, 1931.**

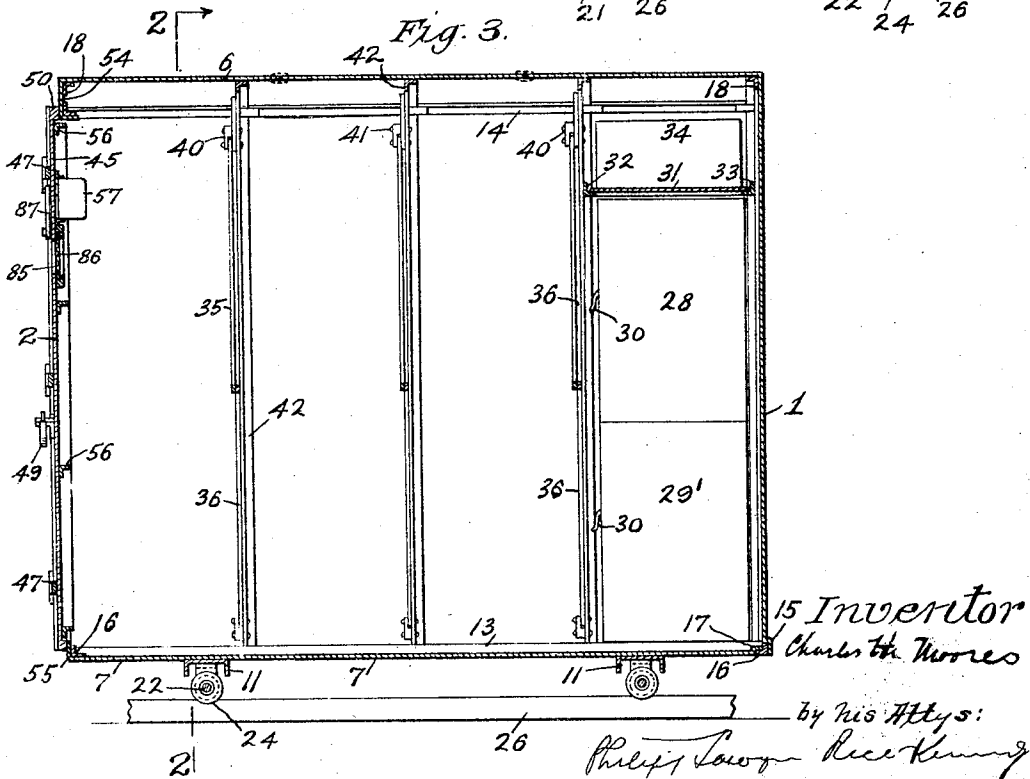
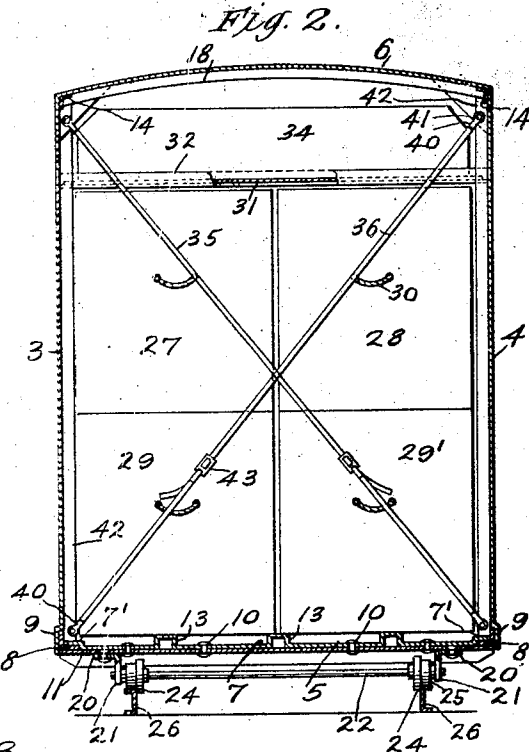
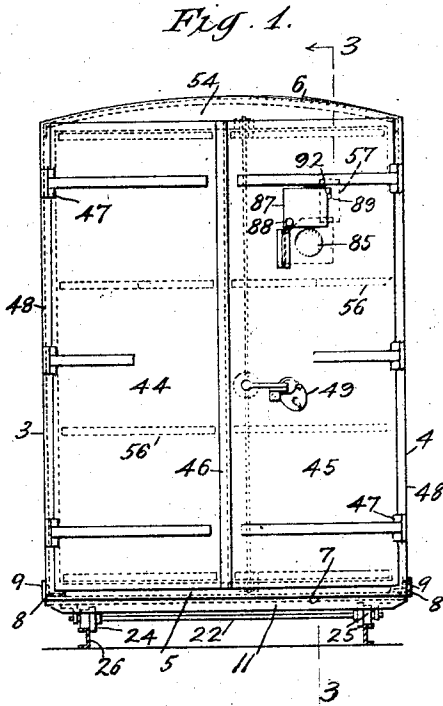
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**1,793,118**

STORAGE BOX

Filed Aug. 25, 1925

2 Sheets-Sheet 1



15 Inventor  
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2 Sheets-Sheet 2

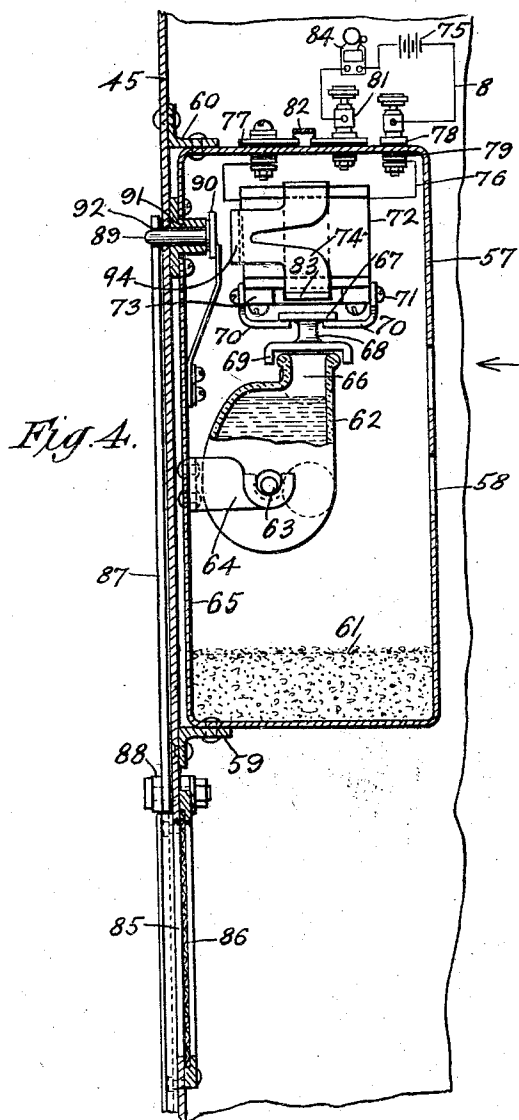


Fig. 4.

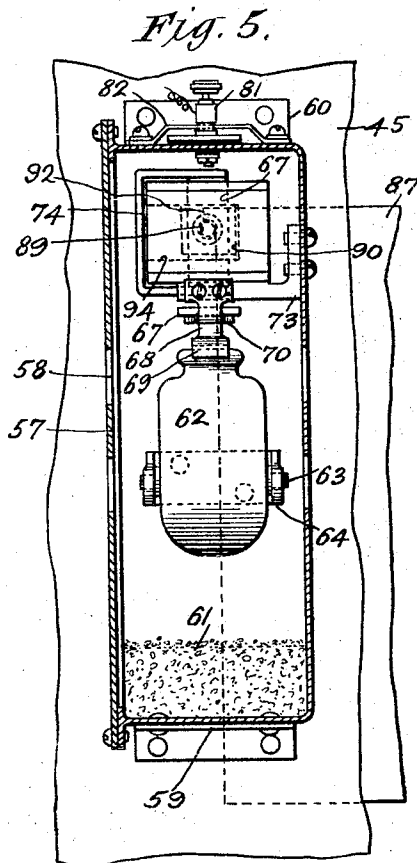


Fig. 5.

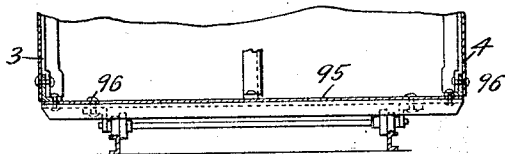


Fig. 7.

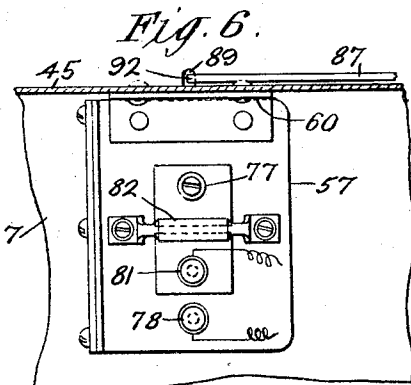


Fig. 6.

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# UNITED STATES PATENT OFFICE

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## STORAGE BOX

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This invention relates to certain improvements in storage boxes or cases for storing goods individually in storage warehouses and like repositories.

5 In certain methods of handling goods for storage it is desirable that the goods of an individual depositor be kept separate and boxes or cases are employed for this which are approximately a van load size. These  
10 boxes with the goods stored therein are loaded on a truck and conveniently stored in the warehouse, or if it is desired to ship goods from one part of the country to another they may be loaded on a railroad train.

15 It is the special object of the present invention to provide an improved box or case for the individual storage of goods, as furniture or the like, of approximately a van size which shall be strong so that it will stand  
20 handling in the warehouse or during any transportation so that no liability of injury to the goods will occur, and in which the interior of the box is so arranged that the articles placed therein may be held securely  
25 in position without danger of shifting about, thereby avoiding injury to the goods either in storage or in transit.

It is a further object of the invention to provide a fireproof box and a box in which  
30 if a fire should occur within the box, due to spontaneous combustion or other reason, a fire extinguisher will be brought into action automatically to produce an atmosphere which will act to smother any fire that may  
35 start.

With these and other objects not specifically referred to, the invention consists in certain novel parts, arrangements and combinations which will be described in connection  
40 with the accompanying drawings and the novel features pointed out in the claim hereunto annexed.

Referring now to these drawings,—

45 Figure 1 is an end elevation of the door end of the improved box;

Figure 2 is a sectional view on a somewhat enlarged scale, the section being taken on line 2—2 of Fig. 3;

50 Figure 3 is a longitudinal vertical sectional view taken on the line 3—3 of Fig. 1;

Figure 4 is a detail view on an enlarged scale of the one type of automatic fire extinguisher which can be employed in this box, the view being partly in section and partly  
55 broken away;

Figure 5 is a sectional side view of the construction shown in Fig. 4, the view being taken in the direction of the arrow 5 of that figure;

Figure 6 is a plan view of the construction  
60 shown in Fig. 5, and

Figure 7 is a detail sectional view similar to Fig. 2, partly broken away, showing a modification which may be employed in assembling the bottom of the box.

Referring now to these drawings, the improved box will include a rear end 1, a front or door end 2, side walls 3, 4, a bottom 5 and a top 6. In the best constructions and as shown, see Fig. 2, the side walls 3, 4 and the  
70 top may be integral, being rolled out of a sheet of metal. It will be understood, however, that the sides and the top of the box may be in sections, the top and sides of each section, however, being integral, the sections  
75 being spot welded together or secured in other suitable manner, this construction being indicated by the dotted lines in the longitudinal view of Fig. 3. Of course, if desired, the top may be formed separately  
80 from the walls of the box, being secured thereto in any suitable manner.

The bottom 5 of the box may take various configurations. Referring first to the construction shown in Fig. 2, to strengthen the  
85 box and to provide for supporting the goods therein so that they may be readily handled, the bottom is a double one. As shown, there is provided a lower plate 7, the ends of which are upturned and form flanges 7' which may  
90 be welded to one of the flanges of angle irons 8 or may be secured in any other suitable manner, as by riveting. Preferably, as shown, the lower edges of the sides 3, 4 are slightly outturned to form flanges 9 which  
95 are secured to the other flanges of the angle irons 8. Secured, as by rivets 10, to the bottom plate 7 there are two angle beams 11 which will be referred to later on. The plate 7 is provided with a series of upstanding ribs 100

13, three such ribs being shown spaced apart and extending longitudinally of the box, this construction affording a firm and rigid support and facilitating the handling of the goods when loading or removing from the box. If desired, the top of the box may be strengthened at the sides by angle irons 14.

The back of the box may be secured to the top, sides and bottom in any suitable manner. In the particular construction shown this is effected by forming the lower edge of the back with an outset part 15 which receives an upstanding flange of an angle iron 16. The end of the plate 7 is secured to the other flange of the angle iron 16 by a flange 17 formed on the end of the plate 7. Similarly at the top the rear end of the box may be secured to the cover or roof by an angle iron indicated at 18.

In the best constructions these storage boxes are provided with small wheels so that they can be readily rolled around and also so that they can run on tracks in the storage warehouses. As shown, therefore, depending from the under side of the angle beams 11 are brackets 20 having depending legs 21 which form bearings for axles 22, 23 on which the wheels are mounted. These wheels in the best constructions are two part wheels having a high flange 24 and a low flange 25. With this construction the high flange may run on the floor of the truck and the low flange on tracks on the floor of the building, as indicated at 26.

These storage boxes or cases are, as previously stated, particularly designed for holding household goods, the box being capacitated to hold an average van load or the contents of a small house or apartment. In the best constructions, therefore, the box will be provided with a compartment where such valuables as silver or glass may be stored, and a compartment where ornaments, as china or the like, may be stored. In the particular construction shown the end of the box is provided with a number of small compartments, such compartments being shown marked 27, 28, 29, 29', these being in the form of boxes having handles 30 and are stacked on each other. Above these boxes there is provided a base 31 supported on front and rear angle irons 32, 33 on which is a compartment 34 which may be used for the storage of silver or the like, this compartment extending across the box.

The rest of the box or case is designed for receiving large articles, as furniture, rugs, etc., and in the best constructions the box will be provided with means for both strengthening the box and for securely packing the articles in place as they are stored in the box so as to prevent any substantial movement of the articles during transit. While these means may be of various characters, they will be such that they can be temporarily moved

out of the way so that the articles may be stowed in the box. In the particular construction shown these supporting and securing devices are in the form of crossed straps marked 35, 36, these straps being provided in sets longitudinally of the box, three such sets being shown, marked 37, 38, 39. These supporting straps may be of any suitable character, but preferably they will be somewhat flexible so that they will yieldingly engage the articles stored in the box, and a good material for this purpose is canvas reinforced by wire mesh or the like. Each strap, as shown, is a two part strap, being secured to fasteners 40 riveted, as shown, at 41 to angle bars 42 secured to the side walls 3, 4, before referred to. The straps are united by turn-buckles 43 by which the ends of the straps are secured together and by which any desired tension may be put on the straps in use after a number of articles have been stored in the box. The straps of a set are secured together and then the turn-buckles turned up to put the desired tension on the straps. This puts the straps under a tension and forms a bracing for the inside of the box and also acts to hold the articles securely in place.

The front door 2 of the box is made of sheet metal and may be a two part door, indicated by the numerals 44, 45. These parts of the door preferably overlap, as indicated at 46 in Fig. 1, and are hinged at 47 to side flanges 48 formed by bending in the vertical edges of the side walls 3, 4, before referred to. A padlock or other suitable locking means 49 is provided for securing the parts together. At the top and bottom the edges of the door are thickened, as indicated at 50 in Fig. 3, and abut against a flange 54 turned down from the top 6, before referred to, and a flange 55 on the bottom 7, before referred to. If desired, strengthening ribs in the form of angle bars 56 may be provided to strengthen the parts of the door.

In boxes constructed in accordance with the best practice means are provided for automatically extinguishing any fire which may start in the box. While these means may be of various characters, a proper means includes apparatus for producing a smothering gas, such, for instance, as carbon dioxide. In the particular construction illustrated, therefore, there is provided a casing 57 which is provided with gas apertures 58. This casing is mounted on brackets 59, 60 secured to the inner base of one section of the door, as, for instance, the section 45. This casing forms a receptacle for holding the required amount of sodium carbonate, indicated at 61, and above this carbonate is mounted a receptacle for holding an acid, as, for instance, sulphuric acid. This receptacle is, of course, normally supported so as to hold the acid out of contact with the salt, the receptacle being held by a trip and so formed that it can rock up-

on release of the trip and pour the acid on the salt. As shown, the receptacle is in the form of a flask 62 pivoted on trunnions 63 supported in brackets 64 secured to the inner wall 65 of the casing. These trunnions, it will be observed, are located below the center of gravity of the flask so that when the trip is released the flask will rock, due to its own weight and the weight of the contained acid, and permit the acid to pour out of the mouth 66 of the flask onto the carbonate, and form carbon dioxide.

The trip mechanism may take various forms. In the particular construction shown a magnetic trip is employed. As shown, this trip includes a trip member having a head 67 and a shank 68 and a holding flange 69 adapted to fit over the pouring mouth 66 of the flask. This trip engages the flask loosely and is supported by a pair of bent arms 70, the inner ends of which engage under the head 67 of the trip, these arms being secured, as by screws 71, to the under side of a magnet box 72 supported on a bracket 73, see Fig. 5, suitably secured to the walls of the box. Mounted in the magnet box 72 is a multi-pole magnet 74 which is energized from a battery 75 through a circuit indicated at 76, the terminals of this circuit being marked 77, 78, suitably secured in the top of the casing 57 and insulated therefrom by insulation, indicated at 79. The terminal 78 is connected to a battery circuit indicated at 80, the other terminal for the battery circuit being indicated at 81. These terminals are normally out, that is, are not in circuit.

By means of a bridge-piece 82, of easily fusible metal, if a fire starts in the box, the heat melts this bridge-piece, which then connects the terminals 77, 81 and energizes the magnet 74. This magnet thereupon attracts the trip member and a pole 83 of the magnet attracts the head 67 of the trip lifting the flange 69 free of the mouth 66 of the flask and thus permitting the flask to tilt. The tilting of the flask pours the acid on the salt and generates the smothering gas which passes out through the gas openings 58 to the interior of the box. A neutral gas, such as carbon dioxide, is preferred, as such gas does not injure the contents of the box.

If desired, an alarm, indicated by a bell 84, may be provided in the battery circuit to sound an alarm in case of fire.

In the best constructions means are provided for ventilating the interior of the box and these means are shown as an opening 85, see Fig. 1, in one of the doors of the box, as the door 45, this opening being covered by a screen 86. Means are provided for closing this opening in case of a fire and these means are such that they will be automatically operated when a fire starts. In the construction shown these means are operated from the magnet 74, before referred to. As illustrated, these

means include a fire door of metal, 87, which is pivoted to swing on a stud 88 mounted in the frame of the door. This door is normally held in raised position, as shown in Fig. 1, by means of a pin 89 provided with a head 90 working in a bracket 91 secured to the wall 65 of the casing 57, before referred to. This pin engages a notch 92 in the edge of the door 87 and is pressed into engagement with this notch by a spring 93 secured to the inside of the wall 65 of the casing 57. When the magnet 72 is energized a pole-piece 94 draws back the pin 89, whereupon the door falls by gravity and closes the opening 85.

It will be observed that with the construction described a very strong box has been provided and one in which various articles may be stored and held in position against movement in transit and in which a simple means is provided for extinguishing any fire that may start.

If desired, the double floor shown in Figs. 1 to 6 inclusive may be slightly modified and such a construction is shown in Fig. 7 where the bottom marked 95 is shown as of a single sheet of metal riveted by rivets 96 through the side and end walls of the box.

While the invention has been shown and described in its preferred form, it will be understood that various changes may be made in the specific construction without departing from the invention as defined in the appended claim.

What I claim is:

A readily transportable storage box or case capacitated to hold articles for storage, comprising sheet metal sides, bottom, top and a sheet metal door, a compartment at the rear of the box extending across the same, a partition extending widthwise of the box for supporting the compartment, a plurality of boxes arranged in tiered relation below the upper partition, spaced angle irons secured to the sides of the box, and diagonal bracing secured to the angle irons, one of said bracings being arranged to be laid against the boxes for holding them in position and bracing the box.

In testimony whereof, I have hereunto set my hand.

CHAS. H. MOORES.