March 29, 1938. R. G. ROSS 2,112,347

WARDROBE FOR SCHOOLS

Original Filed Sept. 6, 1935 2 Sheets-Sheet 1

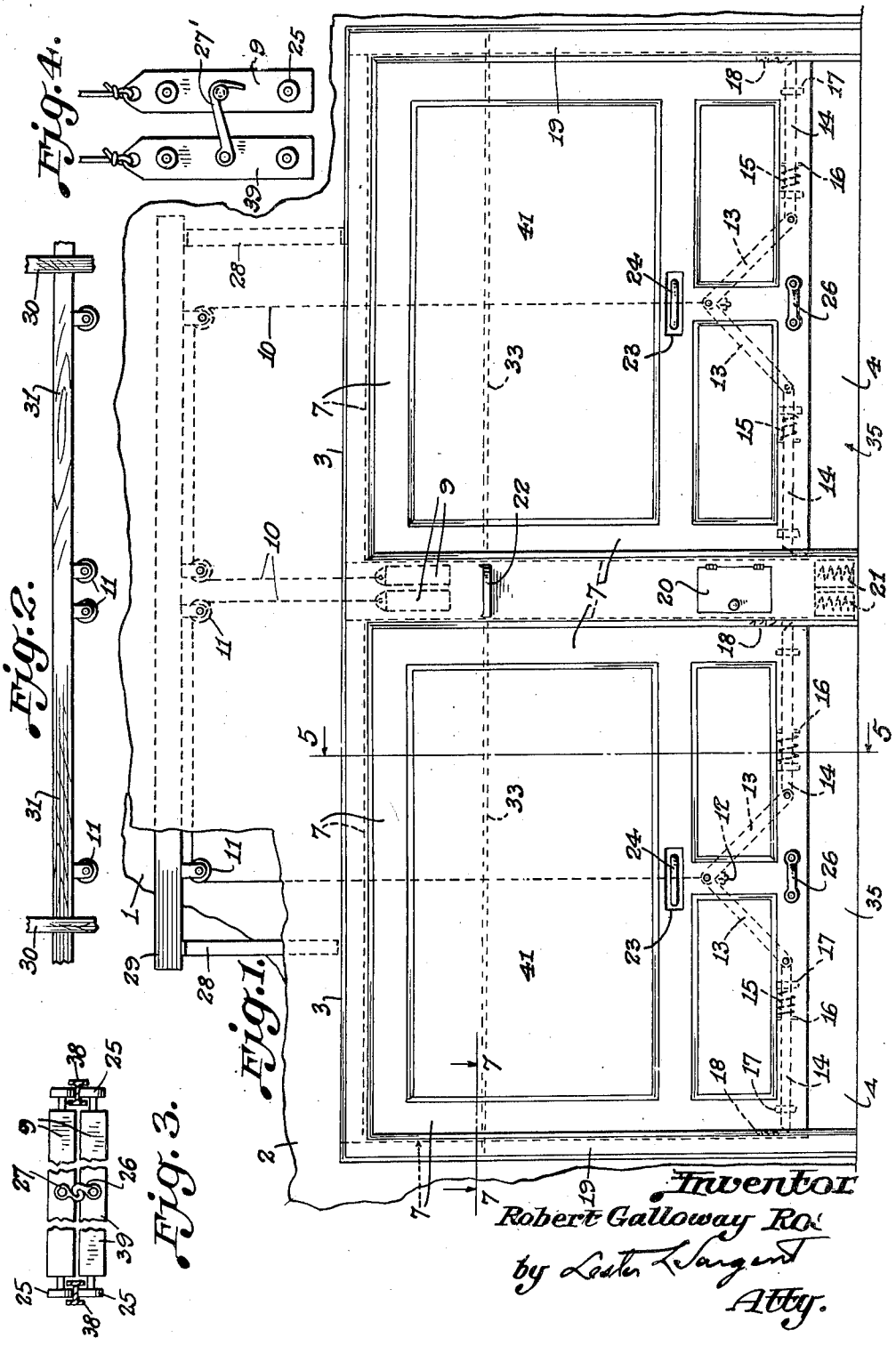


Fig. 1.

Fig. 2.

Fig. 4.

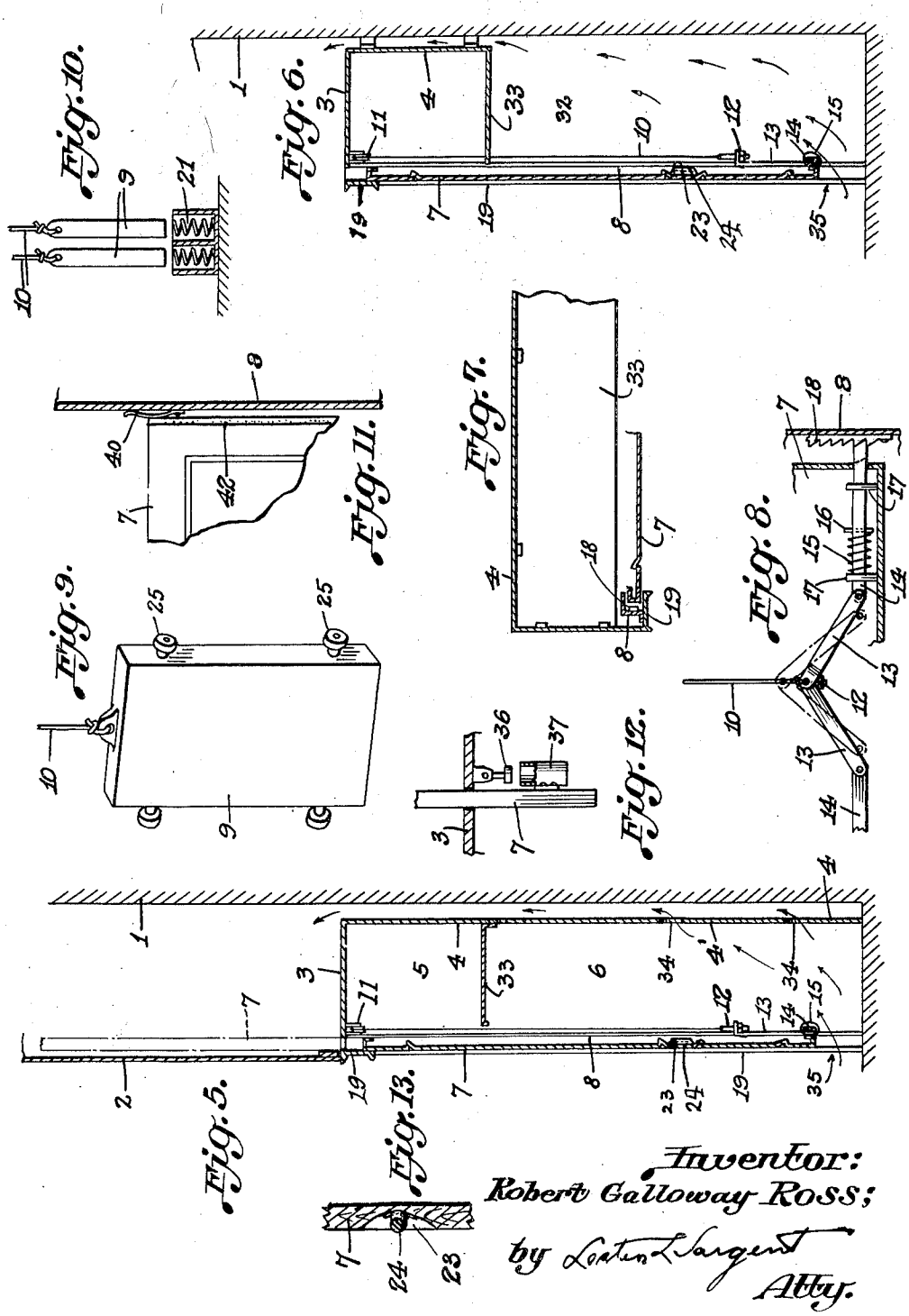
Fig. 3.

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WARDROBE FOR SCHOOLS

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Application September 6, 1935, Serial No. 39,468
Renewed August 10, 1937

5 Claims. (Cl. 312—189)

The object of my invention is to provide an improved wardrobe for schools, consisting of a complete and self-contained metal cabinet with novel means for facilitating and regulating the opening of the doors to the cabinet; to provide novel means for causing the doors to operate either independently or simultaneously and cooperatively, as desired; to provide mechanism for supporting the door balancing weights from a frame carried by the cabinet itself; to provide novel means for preventing banging of the doors as they roll; to provide improved means for ventilating the cabinet and for preventing dust from getting into the upper portion of the cabinet; and to provide a novel modification of the cabinet, especially suited for cabinets which are constructed of wood instead of metal.

I attain these and other objects of my invention by the apparatus illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of the invention with a portion of the wall structure surrounding the cabinet broken away to show the supporting mechanism for supporting the door balancing weights;

Fig. 2 is a detail modification of a supporting mechanism arranged to be attached to the building structure instead of to the cabinet;

Fig. 3 is a detail top plan of the weights and guides for same and also of one form of weight-linking device;

Fig. 4 is a side elevation of the weights with an illustration of another form of linking the weights together for simultaneous operation of the doors;

Fig. 5 is a vertical section of the complete metal cabinet on line 5—5 of Fig. 1;

Fig. 6 is a similar vertical section of a preferably wooden cabinet, with the lower portion of the back elevated;

Fig. 7 is a horizontal section on line 7—7 of Fig. 1, member 14 being omitted from this view;

Fig. 8 is a detail vertical section through the cabinet showing the improved safety device in front plan, the dotted line illustration showing the mechanism in its unlocked position;

Fig. 9 is a detail perspective view of one of the weight members;

Fig. 10 is an edge elevation, reduced size, of the weights and of springs 21 at the bottom of the cabinet to prevent banging of the doors in opening;

Fig. 11 is a detail edge elevation of a modified type of spring for preventing banging of the doors in opening same;

Fig. 12 is a side elevation, partly in section, of a door check used to prevent banging of the doors in opening same; and

Fig. 13 is a detail sectional view through the door of one of my cabinets showing my preferred type of handle 24 disposed in a recess 23, whereby the handle does not project beyond the plane of the outer surface of the door.

Referring to the accompanying drawings, the rear wall of the compartment of the building structure in which the wardrobe is to be placed is designated as 1, while the front wall above the compartment is designated as 2. In this compartment is placed the preferably metal cabinet 3, the member 4 designating the upper portion of the back wall which, with shelf 33, forms the upper compartment 5; and 4' designating the lower back wall which, with shelf 33, forms the lower compartment 6. I provide a suitable vertically sliding door 7 for the cabinet. I also provide a vertical track 8, which is Z-shaped in cross section. I provide a weight 9 attached to cable 10, which is threaded over pulleys 11, the other end of the cable 10 being fastened at 12 to the safety arms 13 of the safety device carried on any suitable portion of the door. The arms 13 are pivotally connected at their lower ends to the inner ends of the horizontally extending arms 14 which are beveled at their ends, as shown, and adapted to releasably engage in the rack bars or safety catches 18, the said rack bars 18 being mounted on the element 8 in both Figs. 7 and 8. The element 8 is fastened to the inside facing of the front of the cabinet. I provide springs 15 fastened to mounting bars 17 and having their other ends fastened to the safety lock bars 14 to normally hold said members in retracted position.

As shown in Fig. 1, the cabinet is provided with a facing 19 which constitutes an extension of wall 2, as shown in Fig. 5, and which seats snugly against the outer portion of the vertically sliding door 7 to make the upper part of the cabinet substantially dust-proof, as it is substantially closed when the door is in proper position. The cabinets are arranged in pairs. On the facing which intervenes between each pair of cabinets is a door 20 for affording access to the weights 9 and springs 21. On the compartment between the cabinets I provide a plurality of springs 21 positioned to connect with the bottom of weights 9 when said weights are lowered as the door nears the limit of its upward range of movement, thereby preventing banging of the door of the cabinet as it is opened.

Numeral 22 designates a suitable chalk rail as

the panel 41 of the cabinet may be either a conventional panel or may be a black board.

As shown in Figs. 1, 5 and 6, I provide a curved recess portion 23 in which is mounted a rubber handle 24. The members 23 and 24 are positioned part way upon the cabinet door so that the user of the cabinet can grasp same without stooping and raise the doors sufficiently to grasp the conventional metal handle 26 at the bottom of the doors. The shape of this recess 23, as shown more clearly in the enlarged view of Fig. 13, is such that the fingers will be pushed out and not caught and mashed should the operator allow his hand to remain on the flexible handle 24 until the hands or fingers came in contact with the top door jamb.

As shown in Fig. 9, wheels or rollers 25 are mounted on the opposite narrow sides of weight 9. These rollers travel in the track of the I beam 38, as shown in Fig. 3. Also as shown in this figure, I provide a pair of hooks 26 and 27 adapted to engage each other and hold the weights together for simultaneous operation in controlling both doors of a pair of cabinets. As an alternative or modified construction, I may provide the hook 27' mounted on the sides of the weights and engaging a suitable pin, as shown in Fig. 4.

As shown in Fig. 1, I provide vertical supports or legs 28 affixed to the tops of a pair of cabinets and carrying beam 29, on which the pulleys 11 which carry the cable 10 are suspended.

In Fig. 2 there is illustrated a modification of the invention in which a similar beam 31 is fastened to studs 30 on the building structure, instead of being mounted directly on the cabinets themselves.

Referring to Fig. 6 of the drawings, there is illustrated a modified form of the invention in which a lower back wall 4' is eliminated, leaving the portion of the cabinet below the shelf 33 open at the back. The cabinet is spaced from the wall 1 of the building and fastened to the building by suitable brackets affixed to the upper back of the wall 4 of the cabinet, as illustrated.

In the form of the invention shown in Fig. 5, I provide suitable ventilation openings 34 in the rear wall 4' of the cabinet. It will be noted that all of these ventilation openings are in a plane below that of the shelf 33. The front door 7 of the cabinet has a ventilation opening 35 at the bottom, the direction of air currents being indicated by arrows in Fig. 5. There is a similar ventilation opening 35 in the modified form of the cabinet shown in Fig. 6. The air circulates through the space 32 and back of the wall 4 of the upper part of the cabinet, as indicated by the arrows, or in a reverse direction, depending on temperature conditions.

Referring to Fig. 12, there is illustrated a detail of a modified means for preventing banging of the doors of the cabinet when they are raised, consisting of an air cylinder 37 and piston 36, which function as a door check to retard the movement of the door when it has nearly reached the end of its upward range of travel.

An alternative means for checking the movement of the door and preventing its being banged when it is opened is illustrated in Fig. 11, in which view there is shown a curved flat spring, one end of which is affixed to the track 8, which frequently engages the edge of the door to retard the movement of same.

Also, as shown in Fig. 11, I provide guide strips 42 on the vertical edges of the door, these guide strips being of hard fiber or similar material and serving to prevent metal to metal contact, thereby preventing the noise that would result from such metal contact.

Member 41 shown in Fig. 1 of the drawings may be either a conventional panel or a blackboard.

In actual practice the cabinet is customarily installed in units of two wardrobes, as shown in Fig. 1, the doors being counterweighted by the flat weights 9 which move up and down in the chamber between the wardrobes. These weights may either be put together so that the raising of one door may also raise the other door, or they may be unhooked and operated independently of each other, thus permitting of independent operation of the doors. To raise the door the user may grasp the upper rubber handle 24 and raise the door until the metal handle 26 is within reach.

The doors of the wardrobe are prevented from being banged by children by either of the three means which I have illustrated in the accompanying drawings, namely, the springs 21 on which the weights may rest when they have neared the end of their possible range of travel; or by means of a flat spring 40, as illustrated in Fig. 11 frictionally engaging the edge of the door and thus retarding its speed; or by a suitable door-check such as members 36 and 37 shown in Fig. 12 arranged to check the speed or movement of the door when it nears the end of its possible range of travel. The weights 9 are kept in proper position by the rollers 25 on the opposite narrow side of the weights, which rollers travel in the tracks 38, as shown in Fig. 3.

It will be observed that the rubber handles 24 are seated in concave recesses 23 of wooden doors, such as illustrated in Fig. 13, or in a similarly shaped curved portion 23 of the cabinets having metal doors 7, such as shown in Figs. 5 and 6.

The cables 10, which are connected to counterweights 9, are secured to pivotally connected links 13, which in turn are pivotally connected with the rods 14, which latter rods are actuated by the spring 15 to engage in the rack bar 18 to prevent accident or injury if the cable end should give way and allow the door to drop, since the spring 15 tends to move the rods 14 into operative engagement with the rack bar 18.

What I claim is:—

1. In wardrobes of the type described, the combination of a pair of adjacent cabinets, vertically sliding doors on said cabinets, cables fastened to the doors, pulleys over which the cables pass, means for supporting the pulleys, a counterweight secured to each of the cables, a hook element for detachably securing the counterweights together, whereby the doors of the two cabinets may be operated either simultaneously or independently depending on whether the weights are hooked together or disconnected, and a door on the weight compartment of the cabinet for gaining access to the weights.

2. In a wardrobe of the type described, the combination of a wardrobe having a door slidable within and in contact with one of its walls, said door having a recessed portion, and having an upper resilient handle to prevent the fingers of the operator being caught and mashed should he allow his hand to remain on the flexible handle until the fingers come in contact with the door jamb, said resilient handle being mounted and lying wholly within the recessed portion of

the door to prevent the handle from stopping the sliding movement of the door.

3. In a wardrobe of the type described, the combination with the wardrobe of a shelf positioned in the upper portion of same and extending substantially to the plane of the doors, a plurality of doors, counterweights for said doors, a cable connecting each door with a counterweight, means for supporting said cables above the wardrobe, means for operatively connecting or disconnecting the cables from each other for simultaneous or independent operation of the doors selectively substantially as and for the purposes described.

4. In combination with the wardrobe defined in claim 3, the wardrobe having one or more ventilation openings in the front wall near the bottom thereof, and having one or more ventilation openings in the rear wall near the middle portion thereof and in a plane substantially above the plane of the ventilation openings in the front wall of the wardrobe to divert a current of air from the ventilation opening of the front wall through the ventilation opening of the rear wall and away from the upper portion within the wardrobe, for the purposes described.

5. In combination with the wardrobe defined in claim 3, coil springs aligned with and disposed below the aforesaid counterweights to contact with same to gently check the movement of the doors as they near the end of their range of travel, to prevent banging of the doors when operated rapidly.

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