March 19, 1935. A. RUSH 1,994,834

OVERHEAD DOOR

Filed June 21, 1929 2 Sheets-Sheet 1

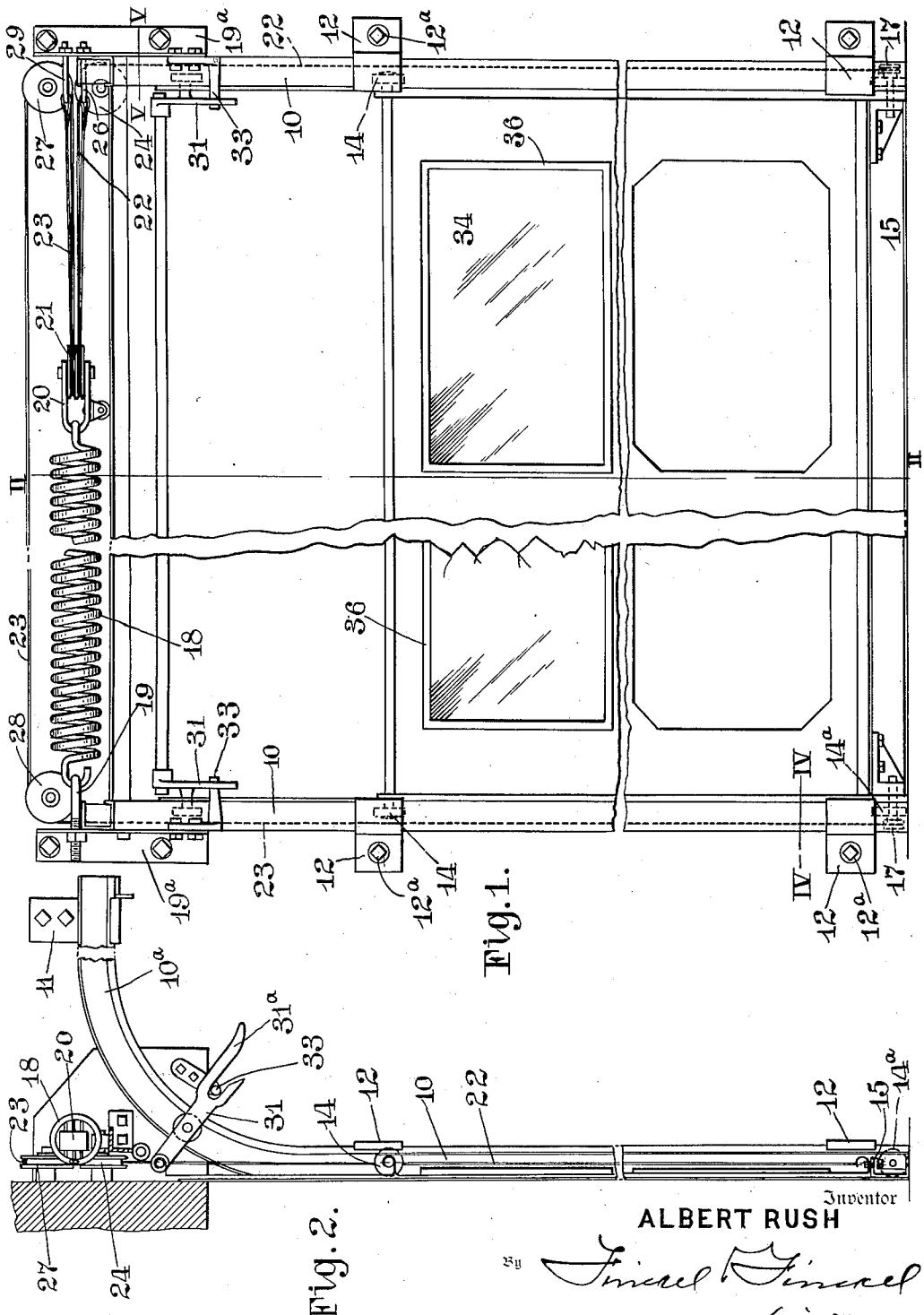


Fig. 1.

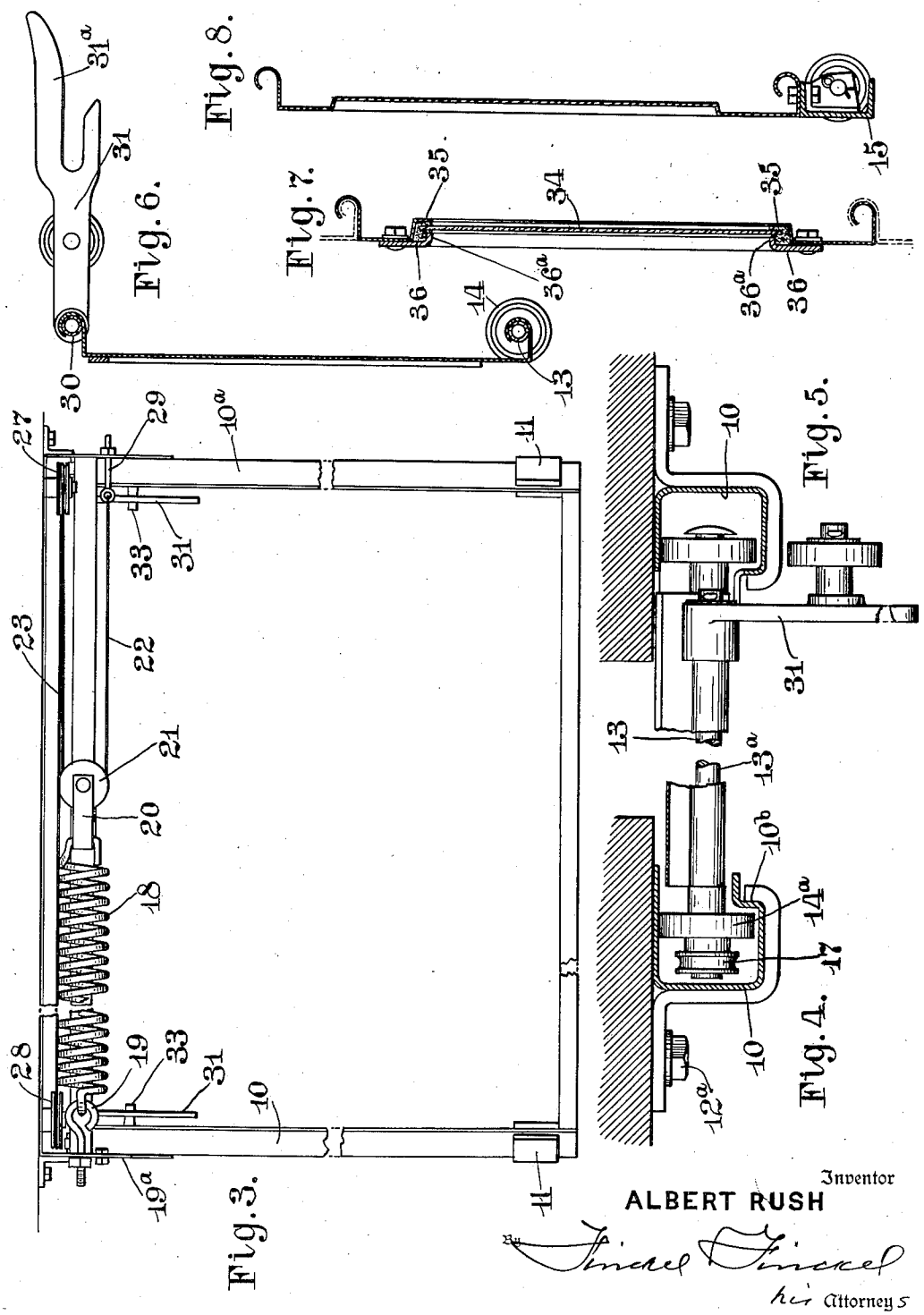
Fig. 2.

Inventor
ALBERT RUSH
By Finnell & Finnell
his Attorneys

March 19, 1935. A. RUSH 1,994,834

OVERHEAD DOOR

Filed June 21, 1929 2 Sheets-Sheet 2



Inventor
ALBERT RUSH
By Finnegan Finnegan
his Attorneys

Patented Mar. 19, 1935 1,994,834

UNITED STATES PATENT OFFICE

1,994,834

OVERHEAD DOOR

Albert Rush, Columbus, Ohio; Alphonse Roesch, administrator de bonis non of said Albert Rush, deceased, assignor to The Kinnear Manufacturing Company, Columbus, Ohio

Application June 21, 1929, Serial No. 372,755

5 Claims. (Cl. 20—20)

This invention relates to what are called "overhead" doors that is structures of the type in which the door proper is composed of slats or sections hingedly united and are caused to travel in parallel tracks or grooves, said tracks extending at the top in a horizontal-like direction so that when the door is raised it largely occupies such horizontal-like track portions and when lowered occupies the vertical portions of the tracks.

One of the objects of the invention is to provide an improved, simplified and economical construction of such a door, and another object is to provide improved and simplified means for operating such a door. Other objects will appear from the disclosure herein.

The invention is embodied in the example herein shown and described, the features of novelty being finally claimed.

In the accompanying drawings—

Figure 1 is a view in elevation, broken out in two directions, looking at the door from the interior of the building with some parts omitted.

Fig. 2 is a section on the line II—II Fig. 1, looking to the right.

Fig. 3 is a top plan view broken out in two directions.

Fig. 4 is a larger scale section on the line IV—IV Fig. 1.

Fig. 5 is a similar view on the line V—V Fig. 1.

Fig. 6 is a detail in vertical section and on a larger scale of the uppermost slat and a locking lever attachment therefor.

Fig. 7 is a similar view of a "window" slat.

Fig. 8 is a similar view of the bottom slat with an anti-friction roller attached thereto.

The construction is the same at each side of the door.

In the views 10, 10, designates parallel tracks or guides that are secured to the vertical sides of the doorway of the building in which the structure is to be installed. These tracks are made of metallic U-bar in cross section with one margin bent angularly inward as seen at 10^b the grooved sides of the track facing each other. The channel portions at the top extend horizontally and are supported by brackets 11 on the building, said vertical and horizontal channel portions at each side being connected by curved track portion at 10^a. The said tracks are held in their vertical portions by means of plate hooks 12 that are secured by bolts 12^a to the building and said hooks embrace the tracks and extend into the bent portion 10^b so that said tracks are held from any horizontal movement by said hooks and the wall without other fastenings.

The door proper is composed of metallic rectangular sheets of metal suitably ornamented, if desired, said sheets having their horizontal edges 2 and 3 bent and rolled to form hinging joints when the lower roll of one slat or section is slid longitudinally into the upper roll of another slat or section as illustrated for example by broken lines at the top and bottom portions of Fig. 7.

Extending through each hinging joint of the sections is a rod 13 on the projecting ends of which are anti-friction rollers 14, 14, that travel in the guides 10 when the curtain is raised or lowered. These rods 13 carry anti-friction rollers, as hereinafter described, to brace the door against pressures imposed on it and prevent injury to the hinging joints.

The lower edge of the lowermost slat has bolted thereto a U-bar 15 called a "bottom bar" and secured in the ends of said bar are brackets 16 in which are journaled a rod 13^a similar to the rod 13 and on the ends of said rod 13^a are rollers 14^a similar to those designated 14. On the ends of the rod 13^a are lugs or spools 17 to which operating cables are tied, as hereinafter described.

The curtain or door is counterbalanced to an extent necessary to make its operation easy by means of a single coil spring 18 fastened at one end to an eye bolt 19 that in turn is fastened to one end bracket 19^a. Attached to the opposite end of the coil spring 18 is a yoke 20 between the arms of which is journaled a double sheave 21. Tied to the spools 17 at opposite ends of the lower door section are cables 22 and 23, one of said cables, 22, extending over sheave 24 and around one groove of the double pulley 21 to an eye bolt 26 to which the cable is attached; and the other cable 23 extending over sheaves 27 and 28 and around the other groove of the double pulley 21 to an eye bolt 29.

When the door is lowered in the vertical channel 10 the spring 18 is stretched and placed under added tension thereby increasing the counterbalancing effect on the part of the curtain in said channels.

The upper roll edge of the uppermost door section or slat has in it a shaft or rod 30 and to each end of said rod is attached a lock lever 31 having a bifurcate free end 31^a. Intermediate the ends of each of the levers 31 is journaled an anti-friction roller 32 traveling in the adjacent channel. Fixed on each of the end brackets 19^a is a pin 33 adapted to be engaged by the bifurcate end of lever 31, when the curtain is nearly closed.

One of the slats or door sections can be provided with an opening 34 closed with a pane of glass, transparent or otherwise, to admit light or permit a view through the door either from the interior or exterior. For this purpose the section is formed with an inwardly depressed seat 35 around the opening into which is placed putty, felt or other suitable material with the glass and on the outer side of the section is bolted a confining ring 36 having a lip 36^a reaching inward to retain the glass and the sealing material in place. One advantage of this construction is that it sheds water and prevents or delays the destruction of the sealing material.

The operation is as follows:

The door as commonly designed can be raised by hand the projecting joints between the slats or sections affording a handhold. If the door is to be raised from the exterior any common handle for this purpose can be applied to the exterior of a slat or section. When the door is raised lever 31 rocks over and the upper section therefore guided toward horizontal position as the lever approaches the horizontal parts of the channels. When the uppermost door section passes into substantially horizontal position the lever 31 is held with its forked end facing toward the door opening and the pin 33.

When the door is to be lowered to closed position the forked end of the lever 31 reengages the pin 33 and forces the uppermost door section into vertical position and against the lintel and holds it there by the cooperation of the pin 33 with said lever 31.

The forms of the parts can be changed without departing from the gist of the invention as claimed.

What I claim is:

1. In a movable door structure made up of a plurality of connected sections, guides for said door structure, said guides consisting of vertical channels of substantially U form in cross-sections with the outer margin thereof bent inwardly, means for securing said channels in position against the jambs of the doorway in such a manner as to prevent lateral movement thereof, said means consisting of brackets adapted to embrace said channels and to firmly hold them against the door jambs, said brackets having a portion extending into said bent-inward margin.

2. In an overhead door structure, a door comprising a plurality of sections hingedly connected together, trackways for guiding said door between open and closed positions, said trackways comprising substantially vertical portions, substantially horizontal portions, and intermediate substantially arcuate connecting portions, means on said door adapted to cooperate with said trackways in guiding said door therealong between opened and closed positions, the uppermost section of the door being mounted in such a manner that it may swing away from the trackways, and means other than said trackways and said guiding means on the door for causing the upper section of the door to swing away from the trackway towards horizontal position during the initial upward movement of the door and to swing said uppermost section during completion of the downward movement of the door into vertical position in firm contact with the jambs and lintel of the doorway, said means comprising a lever pivotally carried on the upper section of the door, and a pin mounted on a support adjacent the upper end of the doorway, said lever being composed of a single arm having a portion adapted to fit around said pin when the door is in certain positions of adjustment, and said lever having a member thereon adapted to operate in said trackway.

3. In an overhead door structure, a door comprising a plurality of sections hingedly connected together, trackways for guiding said door between open and closed positions, said trackways comprising substantially vertical portions, substantially horizontal portions, and intermediate substantially arcuate connecting portions, means on said door adapted to cooperate with said trackways in guiding said door therealong between opened and closed positions, the uppermost section of the door being mounted in such a manner that it may swing away from the trackways, and means other than said trackways and said guiding means on the door for causing the upper section of the door to swing away from the trackway towards horizontal position during the initial upward movement of the door and to swing said uppermost section during completion of the downward movement of the door into vertical position in firm contact with the jambs and lintel of the doorway, said means comprising a lever pivotally carried on the upper section of the door, and a pin mounted on a support adjacent the upper end of the doorway, said lever being composed of a single arm having a portion adapted to fit around said pin when the door is in certain positions of adjustment.

4. In an overhead door structure, a door comprising a plurality of sections hingedly connected together, trackways for guiding said door between open and closed positions, the uppermost section of the door being mounted in such a manner that it may swing away from the trackways, and means for causing the upper section of the door to swing away from the trackways towards horizontal position during the initial upward movement of the door and to swing said uppermost section during completion of the downward movement of the door into vertical position in firm contact with the jambs and lintel of the doorway, said means comprising a lever pivotally carried on the upper section of the door, and a pin mounted on a support adjacent the upper end of the doorway, said lever being composed of a single arm having a portion adapted to fit around said pin when the door is in certain positions of adjustment.

5. In an overhead door structure, a door, trackways for guiding said door between open and closed positions, means for causing the upper end of the door to swing away from the trackways towards horizontal position during the initial upward movement of the door and to swing said upper end during completion of the downward movement of the door into vertical position in firm contact with the jambs and lintel of the doorway, said means comprising a lever carried on the upper end of the door, and a pin mounted on a support adjacent the upper end of the doorway, said lever being composed of a single arm having a portion adapted to fit around said pin when the door is in certain positions of adjustment.

ALBERT RUSH.