

1,007,147.

L. SCRUGGS.
CONCEALED HINGE STOVE DOOR.
APPLICATION FILED JULY 22, 1910.

Patented Oct. 31, 1911.

Fig. 1.

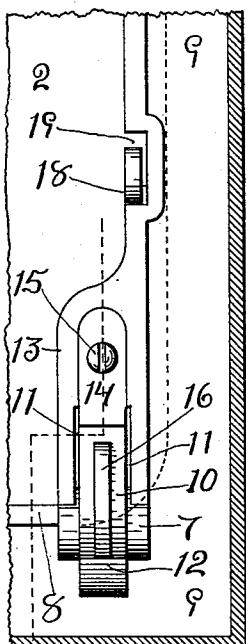


Fig. 2.

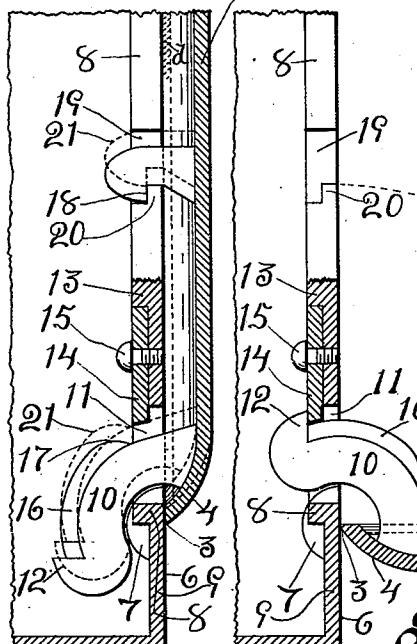


Fig. 2.

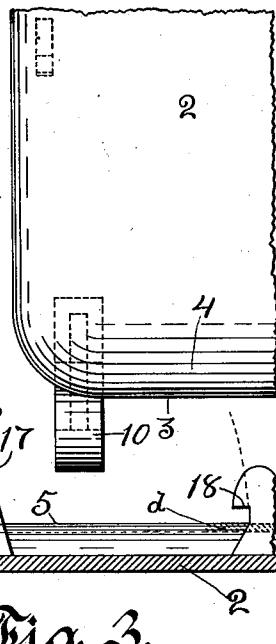


Fig. 3.

Fig. 5.

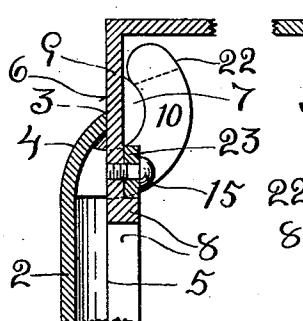
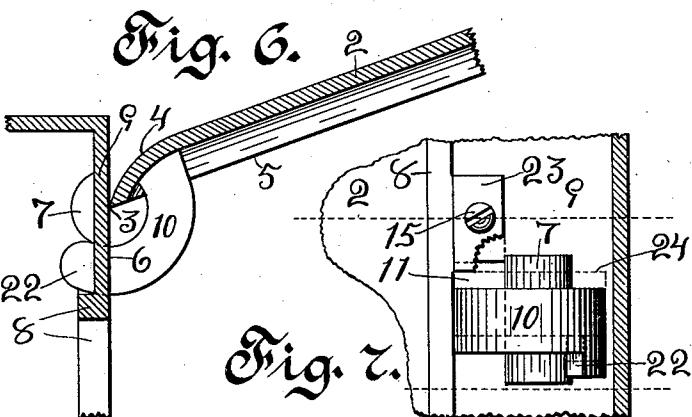


Fig. 6.



WITNESSES:

Hans Schumacher
J. E. Casper

Loyd Sernggs, INVENTOR.

BY *John Vaughan,*
his ATTORNEY.

UNITED STATES PATENT OFFICE.

LOYD SCRUGGS, OF OMAHA, NEBRASKA.

CONCEALED-HINGE STOVE-DOOR.

1,007,147.

Specification of Letters Patent. Patented Oct. 31, 1911.

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To all whom it may concern:

Be it known that I, LOYD SCRUGGS, citizen of the United States of America, residing at Omaha, in the county of Douglas 5 and State of Nebraska, have invented certain new and useful Improvements in Concealed-Hinge Stove-Doors, of which the following is a specification.

This invention relates to stove doors, and 10 particularly to the hinges that are used for mounting stove doors.

One object of my invention is to provide a stove door which is so constructed that the hinges are completely concealed or hidden 15 from view when the door is closed.

Another object is to provide a stove door of the character described which is so constructed that it cannot bind or become accidentally displaced or shifted during the 20 operation of opening and closing it.

Another object is to provide a stove door having a concealed hinge which is so designed that no slot or opening will be formed between the hinged edge of the door 25 and the door frame when the door is opened.

Another object is to provide a stove door having a concealed locking device and hinges of novel construction. And still another object is to provide an inexpensive 30 concealed hinge stove door that can be mounted and dismounted easily.

Other objects and desirable features of my invention will be hereinafter pointed out.

Figure 1 of the drawings is a vertical sectional view taken through the upper warming oven of a cooking range provided with one of my improved doors, said figure showing the inner side of the oven door 35 and the inner side of the door frame in elevation; Fig. 2 is a vertical sectional view of the door and the door frame, the hinge members on the door and on the frame being shown in elevation; Fig. 3 is a similar view showing the door open; Fig. 4 is a front elevational view of a portion of the door; Fig. 5 is a horizontal sectional view illustrating my invention embodied in a door that swings in a horizontal plane; 45 Fig. 6 is an inverted horizontal sectional view of such a structure showing the door open; and Fig. 7 is a rear elevational view of the parts shown in Fig. 5.

Referring to Figs. 1 to 4 of the drawings 55 which illustrate the preferred form of my invention, 2 designates an oven door whose

lower edge portion is hinged to a door frame 9 that forms part of the front wall of the oven, said door being provided with an inner lining *d*. The lower edge portion 60 4 of the door curves inwardly toward the door frame, as shown in Fig. 2, and terminates in a comparatively sharp lower edge 3, and the peripheral edge 5 of the door is so shaped that it bears snugly 65 against the outer face 6 of the door frame when the door is closed. The door 2 is so proportioned that it laps over the portions of the door frame 9 which lie adjacent the edges of the door opening, and 70 the hinges on which the door is mounted are so designed and arranged that they are completely concealed or hidden from view when the door is closed, as shown in Fig. 2.

In the preferred form of my invention 75 as herein shown, a pair of hinge members 10, which consist of downwardly curved arms, project inwardly from the lower edge 80 of the door through slots or guide-ways 11 in the door frame and engage co-operating hinge members 7 which consist of semi-cylindrical-shaped lugs that are preferably formed integral with the door jamb 8. These hinge members 7 are so proportioned 85 that the transverse axes of same are located at the point where the lower edge 3 of the door terminates, and the arms 10 are concentric with the lower edge 3 of the door and are of the same radius as the lugs 7 90 so that they will slide over the convex surfaces of said lugs without changing the axis about which the door turns or revolves. Consequently, the lower edge 3 of the door will remain in engagement with the front 95 face 6 of the door frame when the door is swung downwardly or opened, as shown in Fig. 3. This is a very desirable feature in the construction of stove doors, especially doors for warming ovens for it prevents soot, dirt and other foreign matter from escaping from the oven and dropping downwardly onto the top of the stove as would be apt to occur if the lower edge of the door moved away from the front face of the door frame when the door moved into its open 100 position.

To overcome the possibility of the door jamming or becoming displaced or shifted accidentally during the operation of opening and closing same I have provided means 105 for holding the arms 10 on the lugs 7 which act as seats for same when the door is being

moved into its open or closed positions. Said means is herein shown as consisting of plates 14 arranged on the inner side of the door frame in such a manner that the 5 lower ends of same bear upon ribs 16 on the arms 10 during the time the door is moved from its closed to its open position and vice versa, said plates also coöperating with stops 12 on the inner ends of the arms 10 so as to 10 limit the outward movement of the door and hold the door in a substantially horizontal position, as shown in Fig. 3. The plates 14 extend into the guideways 11 or lap over said guideways, and they are detachably connected to the door frame so that they can be 15 removed when it is desired to mount the door or dismount it, the plates 14 being preferably arranged in recesses in lateral extensions 13 on the door frame and secured to 20 the frame by means of bolts 15 or other suitable fastening devices. It will thus be seen that the plates 14 perform two functions, namely, they prevent the arms 10 on the door from moving upwardly off the lugs or 25 seats 7 when the door is being opened and closed, and they also prevent the door from being removed or disconnected from the door frame.

The means for locking the door or retaining it in its closed position is also hidden from view when the door is closed, and in the form of my invention herein shown said means consists of a hook 18 on the inner side of the door that is adapted to enter an opening or recess 19 in one of the vertical side portions of the door jamb and engage a shoulder or lug 20 that extends across the bottom or lower edge of the opening 19. The door has to be raised slightly so as to permit the 35 hook 18 to enter or withdraw from the opening 19, as indicated by the broken lines 21 in Fig. 2, and I have therefore formed the ribs 16 on the arms 10 in such a manner that the door can be raised bodily in a vertical plane when it is closed or nearly closed, the front ends of the ribs 16 being curved at 40 and terminating at such a point that the plates 14 do not bear upon said ribs when the door is closed or nearly closed. To open 45 the door it is only necessary to raise it slightly so as to disengage the hook 18 from the shoulder 20 and then move the door downwardly until the stops 12 on the inner ends of the arms 10 strike the plates 14, said 50 plates bearing upon the ribs 16 on the arms 10 and thus preventing the arms from rising upwardly off the lugs 7 on the door frame.

In a construction of the character above described, the hinge members on both the 55 door and on the door frame are completely hidden from view when the door is closed, and the openings or guideways in the door frame through which the hinge members on the door pass, are also concealed because said 60 hinge members are connected to the door in

such a manner that the lower edge of the door always projects downwardly over said hinge member guideways. There is no liability of the door jamming or shifting accidentally out of position when it is being 70 opened and closed because the devices 14 on the door frame prevent the hinge members 10 on the door from rising upwardly off the curved coöperating hinge member 7 on the door frame, and as the lower edge 3 of the door always fits snugly against the front face 6 of the door frame and never moves away from same, it is impossible for dirt or food to drop downwardly between the lower edge of the door and the door frame. Consequently, a door of the construction above described is admirably adapted for use on an upper warming oven for the door can be used as a shelf whose rear edge fits tightly against the front wall of the oven. The 80 catch or fastening device which locks the door in its closed position is also concealed from view when the door is closed so that the entire structure presents a neat and ornamental appearance, which is not marred by hinge members or other projections on which dirt can collect. The door can be mounted or dismounted easily by simply removing the plates 14 on the inner side of the door frame, and as the coöperating hinge 85 members on the door and on the frame are preferably formed integral with the parts which carry same the structure can be manufactured at a comparatively low cost. 90

In Figs. 5, 6 and 7 I have illustrated my 100 invention embodied in a door that swings in a horizontal plane, one of the vertical side edges of the door being hinged to the door frame. The door is provided at one of its side edges with laterally projecting curved 105 arms 10 that project inwardly through slots or guideways 11 in one of the vertical side pieces of the door frame 9, and semi-cylindrical-shaped lugs 7 are arranged on the inner side of the frame so as to coöperate with the arms 10 on the door, said arms and lugs being so arranged that the side edge 3 of the door forms the axis about which the door turns. The slots or guideways 11 are of the same width as the arms 10 on the door but the height of said slots is greater than the thickness of said arms so as to provide for the stops 22 on the inner ends of the arms which control the outward movement of the door, said stops being preferably arranged 110 on the under side of the arms 10, as shown clearly in Fig. 7. Removable plates 23 are arranged on the inside of the door frame adjacent the guideways 11 so as to prevent the door from becoming accidentally detached from the frame, and the lower edges of said plates 23 are spaced far enough above the arms 10 to permit the door to be raised bodily, as indicated by the broken line 24 in Fig. 7, when it is closed or nearly closed 115 120 125 130 135

and thus cause the hook or catch on the door to engage with or be disengaged from the co-operating shoulder on the door frame.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a stove, a door frame, a door arranged in engagement with the front face of said frame, inwardly projecting curved arms on said door which are concentric with the hinged edge of the door, curved members on the inner side of the door frame on which said arms slide, the door frame being provided with guideways for receiving said arms, and means for preventing said arms from moving out of engagement with said curved members while the door is moving from its open to its closed position and vice versa.
2. In a stove, a door frame, a door for closing the opening in said frame, inwardly projecting curved arms on said door which are concentric with the hinged edge of the door, the frame being provided with guideways for said arms which are so located that the door completely covers same when it is closed, curved members on the inner side of the door frame on which said arms slide, and removable devices on the door frame that lap partially over said guideways and operate to hold the arms on the door in engagement with the curved members on the frame when the door is being opened or closed.
3. In a stove, a door frame, a door for closing the opening in said frame, said frame being provided with slots or guideways which are completely concealed when the door is closed, curved arms on said door projecting inwardly through said guideways and being concentric with the hinged edge of the door, stops on said arms that limit the outward movement of the door, and removable devices on said frame which prevent the door from becoming accidentally detached from the frame.
4. In a stove, a door frame, a door that closes the opening in said frame, said frame having guideways which are completely concealed by said door when the door is closed, curved arms projecting inwardly from the hinged edge of the door and formed in such a manner that the hinged edge of the door always remains in engagement with the front face of the door frame when the door is opened, curved members on the inner side of the door frame upon which said arms slide, removable devices on the inner side of the door frame that hold said arms on said curved members when the door is being opened or closed, and stops on said arms that co-operate with said devices to limit the outward movement of the door.

5. In a stove, a door frame, a door for closing the opening in said frame, said frame having guideways which are completely covered by the door when the door is closed, curved arms projecting inwardly from said door through said guideways and being concentric with the hinged edge of the door, curved members on the inner side of the door frame upon which said arms slide, ribs on said arms, devices on the door frame which bear upon said ribs when the door is being opened or closed, a shoulder on the door frame, and a catch on the door that is adapted to engage said shoulder and thus lock the door in its closed position, the ribs on said arms being so designed that the door can be shifted bodily slightly when it is closed or nearly closed.

6. In a stove, a door frame, a door having its lower edge lapped over said frame, inwardly disposed arms on said door which are curved concentrically with the terminal lower edge of the door, semi-cylindrical lugs on said frame disposed in axial alignment with the terminal edge of the door so as to engage the inner curved surfaces of said arms, a catch, lug or shoulder on the door frame, a fastening hook on said door to engage said catch or lug, stops on said arms, devices on the door frame arranged to engage said stops and spaced above said arms a distance equal to the depth of the fastening hook on the door, and guide ribs on said arms which engage the devices on said frame so as to retain said curved arms seated on said semi-cylindrical lugs when the door is open.

7. In a stove, a door frame, a door having its lower edge portion lapped over the frame, inwardly projecting arms on said door that are curved concentrically with the lower edge of the door, guideways in said frame through which said arms pass, stops on the inner ends of the arms, semi-cylindrical lugs arranged on the inner side of the frame at the bottom of said guideways and in axial alignment with the lower edge of the door so as to form seats for said arms, a hook on said door, a co-operating shoulder on said frame, removable plates arranged on the inner side of said frame in such a manner that they co-operate with the stops on said arms to limit the outward movement of the door, and guide ribs on said arms that co-operate with said plates to hold said arms seated on the lugs on the door frame when the door is open.

In testimony whereof I affix my signature in presence of two witnesses.

LOYD SCRUGGS.

Witnesses:

JOHN W. PARISH,
ADOLF A. TENOPIR.