Aug. 23, 1927. 1,640,036

J. T. HUECKEL

OVEN DOOR MECHANISM

Filed Aug. 30, 1926

Fig. 2.

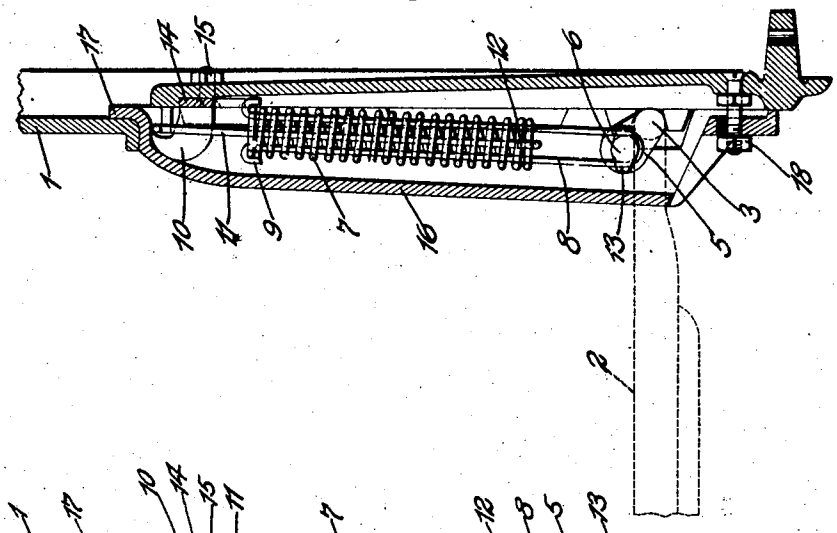


Fig. 3.

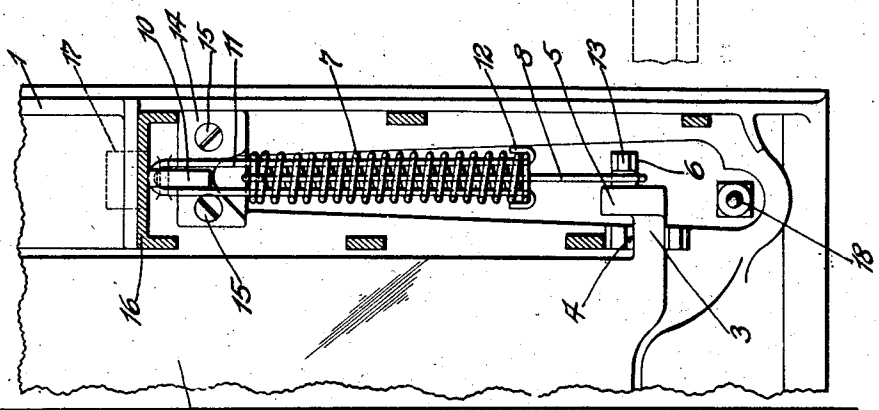
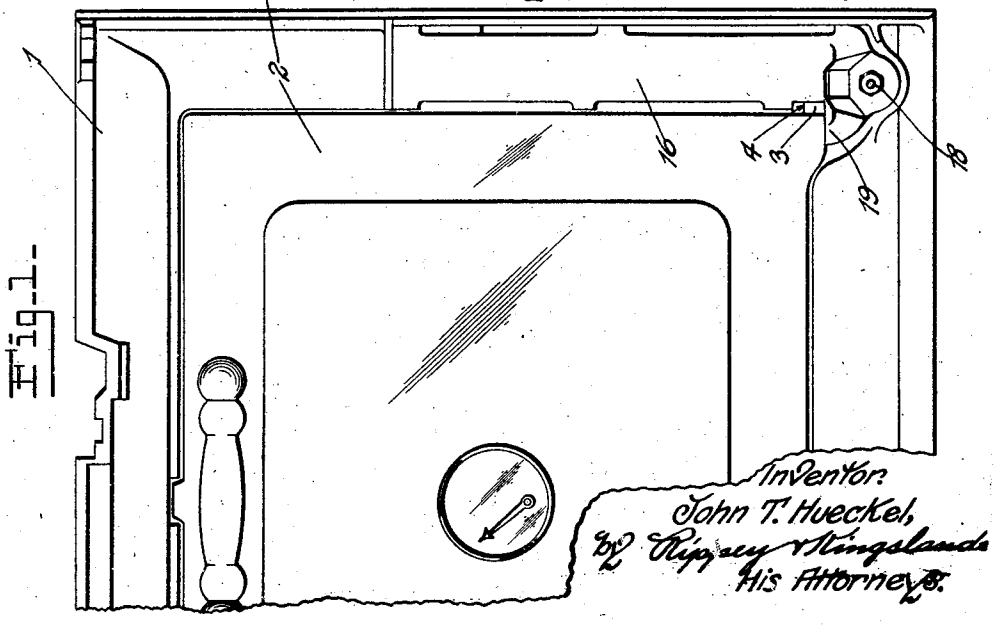


Fig. 1.



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UNITED STATES PATENT OFFICE.

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OVEN-DOOR MECHANISM.

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This invention relates to oven door mechanism designed and arranged to function in connection with a downwardly swinging or drop door of an oven to counterbalance or support in part the weight of the door.

An object of the invention is to provide improved mechanism for use in connection with oven doors of the drop type which will function to support the door in closed position and to yield to permit the door to be opened and, during movement of the door to open position, will counterbalance or support in part the weight of the door and prevent the door from moving to its supporting abutment with such force as to damage or break any of the parts, and which also acts on closing movement of the door as an actuator to aid in the movement of the door to closed position.

Another object of the invention is to provide an improved counterbalance mechanism for oven doors mounted in connection and combined therewith in such a way that the mechanism is readily accessible for any desired purposes, such as replacement or repair of damaged parts.

Another object of the invention is to provide an improved mechanism for use in connection with oven doors comprising a compression spring having a novel connection with the oven door and functioning in the advantageous manner herein disclosed, reference being had to the accompanying drawing, in which

Fig. 1 is a front elevation of a part of an oven door and door frame having my invention in connection therewith.

Fig. 2 is an enlarged view, the spring housing being in section.

Fig. 3 is an enlarged sectional view at right angles to that of Fig. 2.

The door frame 1 and door 2, except for their novel connection and association with the present invention, are of usual construction, the door being hinged to the frame at its lower edge for downward and outward swinging movement from closed to open position. In the present case one of the door hinge projections 3 is pivotally seated in a notch 4 in the door frame and on its outer end is provided with an integral crank web 5 from which the crank arm 6 extends. In closed position of the door the web 5 inclines upwardly and toward the front of the door and swings downwardly with the door when the door is opened. In open position the door is approximately horizontal as indicated by dotted lines in Fig. 3.

The coil spring 7 is of the compression type and is connected with the crank arm 6 by an approximately U-shaped wire 8, the loop of which engages the arm 6 and the two arms of which wire extend through the spring 7 and are provided with hooks 9 on their ends engaging the opposite end of the spring 7. Similarly the spring 7 is connected with a stationary support 10 by a U-shaped wire 11, the loop of which engages said support 10 and the arms of which extend through the spring 7 and are connected with the opposite end of said spring by hooks 12. Thus, it will be seen that the power of the spring 7 is exerted to support the door in closed position and to resist the tendency of the door to drop when the door is swung downwardly to open position.

The support 10 is in the form of a hook (Fig. 3) which prevents the wire 11 from becoming disconnected, and the end of the crank 6 is provided with projections 13 preventing the wire 8 from becoming detached from said crank. The hook 10 is rigid or integral with a plate 14 secured to the frame of the door by stove bolts 15.

This entire mechanism is confined in a housing of which the frame 1 forms one wall, the other wall comprising a removable dished plate 16 having its upper end provided with a projection 17 engaging under an adjacent part of the door frame and having its lower end attached to the door frame by a stove bolt 18. The side of the housing wall 16 that is toward the door serves to prevent displacement of the pivot 3 from its seat 4 and to permit free action thereof in opening and closing the door. The lower end of the housing plate 16 is provided with an abutment shoulder 19 extending laterally to position to function as an abutment whereon the door is supported in approximately horizontal open position. The housing plate is readily removable to afford access to the enclosed mechanism.

From the foregoing it will be seen that my invention functions to obtain all of its intended objects and purposes, may be manufactured and installed without great cost, and any of the parts thereof that become worn or damaged may be easily replaced.

The specific construction, relationship and dimensions of the parts may be varied as required to meet the needs for which the invention is intended and without departure from the nature and principle of the invention.

I claim:

1. The combination with an oven door frame and a door hinged in said frame, of a crank rigid with the door and extending laterally above the plane of the hinge axis, a hook rigid with the frame, a spring, and compression devices for said spring connected with said crank and said hook respectively.

2. The combination with an oven door frame and a door hinged in said frame, of a crank rigid with the door and extending laterally above the plane of the hinge axis, a hook rigid with the frame, a compression spring between said crank and said hook, and compression devices connected with the opposite ends of said spring and extending longitudinally through said spring and connected with said crank and said hook, respectively.

3. The combination with an oven door frame and a door hinged in said frame, of a crank rigid with the door and extending laterally above the plane of the hinge axis, a projection rigid with the frame, a coiled compression spring having one end toward said crank and the opposite end toward said projection, and compression devices connected with the ends of said spring and extending longitudinally through said spring and connected with said crank and said projection, respectively.

4. The combination with an oven door frame and a door hinged in said frame, of a crank rigid with the door and extending laterally above the plane of the hinge axis, a projection rigid with the frame, a coiled compression spring having one end toward said crank and the opposite end toward said projection, compression devices connected with the ends of said spring and extending longitudinally through said spring and connected with said crank and said projection, respectively, a housing for said spring attached to the frame, and a supporting abutment for the door adjacent to said housing.

5. The combination with an oven door frame and a door hinged in said frame, of a crank rigid with the door and extending laterally above the plane of the hinge axis, a projection rigid with the frame, a coiled compression spring between and having its ends toward said crank and said projection respectively, and compression devices for said spring connected with said crank and said projection respectively, the compression device connected with the crank being connected with the end of the spring toward said projection and the compression device connected with said projection being connected with the end of the spring toward said crank.

6. The combination with an oven door frame and a door hinged in said frame, of a crank rigid with the door and extending laterally above the plane of the hinge axis, a projection rigid with the frame, a coiled compression spring between and having its ends toward said crank and said projection respectively, compression devices for said spring connected with said crank and said projection respectively, the compression device connected with the crank being connected with the end of the spring toward said projection and the compression device connected with said projection being connected with the end of the spring toward said crank, and a housing for said spring attached to said frame.

7. The combination with an oven door frame and a door hinged in said frame, of a crank rigid with said door and extending laterally above the plane of the hinge axis, a projection rigid with the frame, a coiled compression spring between and having its ends toward said crank and said projection respectively, compression devices for said spring connected with said crank and said projection respectively, the compression device connected with the crank being connected with the end of the spring toward said projection and the compression device connected with said projection being connected with the end of the spring toward said crank, a housing for said spring attached to said frame, and a supporting abutment for the door rigid with said housing.

8. The combination with an oven door frame and a door hinged in said frame, of a crank rigid with the door and extending laterally above the plane of the hinge axis, a projection rigid with the frame, a coiled compression spring between and having its ends toward said crank and said projection respectively, compression devices for said spring connected with said crank and said projection respectively, the compression device connected with the crank being connected with the end of the spring toward said projection and the compression device connected with said projection being connected with the end of the spring toward said crank, and a housing for said spring removably attached to the frame and holding the door in hinged connection with the frame.

9. The combination with an oven door frame and a door hinged in said frame, of a crank rigid with the door and extending laterally above the plane of the hinge axis, a projection rigid with the frame, a coiled compression spring between and having its ends toward said crank and said projection respectively, compression devices for said

spring connected with said crank and said projection respectively, the compression device connected with the crank being connected with the end of the spring toward said projection and the compression device connected with said projection being connected with the end of the spring toward said crank, a housing for said spring removably attached to the frame and holding the door in hinged connection with the frame, and a supporting abutment for the door integral with said housing.

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