

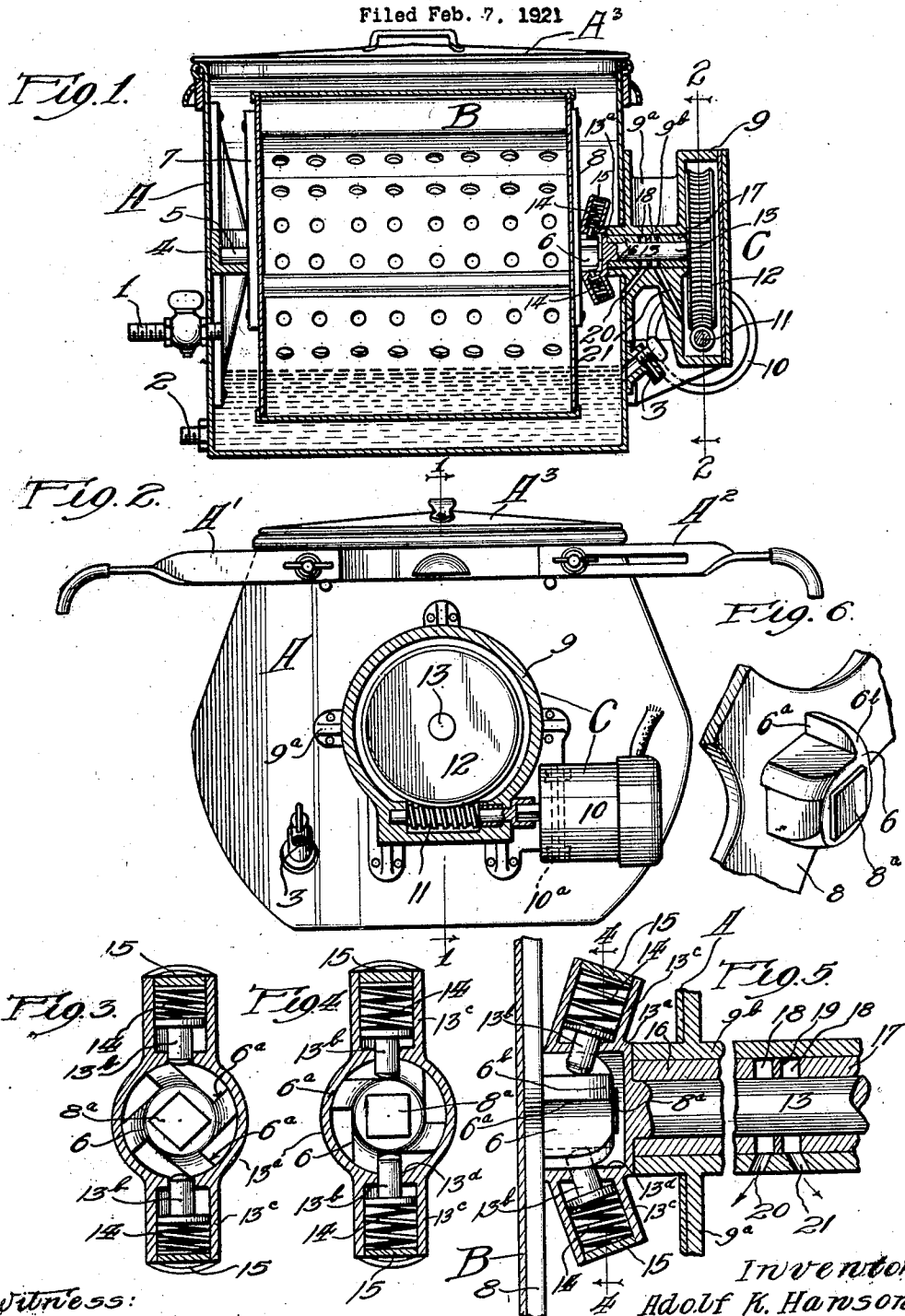
April 8, 1924:

1,489,758

A. K. HANSON

WASHING MACHINE

Filed Feb. 7, 1921



Witness:

Stephen K. Kenna

Inventor

Adolf K. Hanson

by *Dyers, Smith, Chilton & Wiley*, Attys.

UNITED STATES PATENT OFFICE.

ADOLF K. HANSON, OF CHICAGO, ILLINOIS.

WASHING MACHINE.

Application filed February 7, 1921. Serial No. 442,955.

To all whom it may concern:

Be it known that I, ADOLF K. HANSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Washing Machines, of which the following is a specification.

This invention relates particularly to washing-machines of a type in which a rotary clothes carrier is located in a casing and actuated by mechanism mounted on the exterior of one end of the casing.

The primary object of the invention is to provide improved demountable connections for the rotary carrier of such character that the carrier may be rotated by the exterior mechanism and also may be capable of being turned independently of the exterior actuating mechanism.

The invention is shown in the accompanying drawings as embodied in a washing-machine adapted to be supported in a bath-tub. Such a washing-machine is adapted for use in apartments, or where the conveniences of an ordinary laundry can not be had.

In the accompanying drawing which illustrates the preferred embodiment of the invention—

Fig. 1 represents a vertical sectional view of the improved washing-machine; Fig. 2, a vertical sectional view taken as indicated at line 2 of Fig. 1 showing the gear-casing in section and the washing-machine in end elevation; Figs. 3 and 4, sectional views taken approximately as indicated at line 4 of Fig. 5 and showing details of the ratchet device employed, Fig. 3 illustrating how the rotary clothes carrier employed may be turned independently of the driving mechanism; Fig. 5, a broken longitudinal sectional view showing the ratchet device and the bearing for the actuating shaft of the rotary clothes carrier; and Fig. 6, a broken perspective view showing a fragment of a spider with which the clothes carrier is equipped at one end and a ratchet member mounted on said spider.

In the construction illustrated, A represents a casing which is equipped exteriorly at the upper portion of each end with a pair of foldably mounted arms A', A² having their

extremities adapted to engage the rim of a bath-tub in such manner as to stably support the casing and prevent shifting thereof; A³, a removable cover for the casing; B, a rotary clothes carrier demountably supported in the casing; and C, driving mechanism mounted on the exterior of one end of the casing.

The casing is shown provided at one end with a nipple 1 adapted to be connected by a flexible hose with the faucet of the bath-tub. The casing is further shown provided with a drain-port 2 and with an overflow-port 3. The casing is provided exteriorly at one end with a bearing 4 which is open at its upper side, or capable of admitting a journal through its upper side.

The rotary clothes carrier B preferably comprises a metal cylinder which is provided with perforations thru which water may pass freely. In practice, the carrier is provided with a closure (not shown) which can be opened to introduce or remove the clothes. Ordinarily, the closure constitutes a segment or sector of the cylinder. The carrier is provided at one end with a stub-shaft or journal 5 which is received by the open bearing 4; and the carrier is provided at the opposite end with a stub-shaft 6 which is formed to provide ratchet teeth 6^a. The shaft 6 has a round extremity and the teeth 6^a may be understood as cut therein, so that the outer end portions of the teeth are rounded, as indicated at 6^b in Fig. 6. The stub-shaft 5 projects from a spider 7 which is secured to one end of the carrier; and the stub-shaft 6 projects from a spider 8 which is secured to the other end of the carrier. In the illustration given in Fig. 6, the spider 8 is shown as provided with an integral square lug or projection 8^a which extends thru a corresponding opening in the member 6 and has its extremity riveted, so that the member 6, which preferably is of hard bronze, will be rigidly secured to the spider.

The driving mechanism C comprises a gear-casing 9 which is formed integrally with a bracket 9^a secured to the end wall of the casing, the supporting structure being provided with a tubular sleeve or bearing 9^b which extends thru the end wall of

the casing; an electric motor 10, secured by connections 10^a to the bracket 9^a; and a worm shaft 11 actuated by the electric motor and serving to actuate a worm-gear 12 mounted on a shaft 13 which has its inner end equipped with an open-ended tubular socket 13^a which is adapted to receive the stub ratchet 6 with which the end of the rotary carrier is equipped. The socket 13^a is equipped with dogs or pawls 13^b which are adapted to engage the teeth of the ratchet member 6. These dogs are in the form of small plungers which work in small inclined tubular radial members 13^c which are formed integrally with the tubular socket 13^a. The plungers are pressed inwardly by springs 14 which are held in position by means of discs 15 inserted in the outer ends of the tubular members 13^c and secured in position by compressing the outer ends of the tubular members upon the edges of the discs. The plungers 13^b work thru perforations in the bottom walls 13^d of the tubular members or spring-housings 13^c.

The construction and arrangement are such that the rotary carrier can be introduced into the casing, the ratchet member 6 inserted in the socket 13^a, and the journal 5 dropped into the bearing 4. Because of the slightly inclined radial position of the plunger-like pawls 13^b and the rounded end of the stub-shaft forming the ratchet member 6, the insertion is readily made and the pawls will quickly find their position in engagement with the ratchet member 6. The construction permits the rotary carrier to be turned in one direction by the driving mechanism, and permits the rotary carrier to be turned independently of the driving mechanism when the motor is stopped, the ratchet teeth being suitably formed, as will be understood from Figs. 3 and 4, to permit the pawls to ride over the teeth when the rotary carrier is turned ahead of the driving mechanism. This permits the carrier to be turned readily to a proper position to bring its closure to the upper side of the carrier, regardless of the position in which the carrier may stop when the motor stops.

The bearing-sleeve 9^b is considerably larger than the shaft 13 and has inserted therein inner bearing sleeves 16 and 17 whose adjacent ends are separated by a space 18. Located centrally in the space 18 is a felt or metal washer 19. A drain passage 20 leads from the space 18 at one side of the spacer or packing 19 to the interior of the casing or tube; and a drain passage 21 leads from the space 18 at the opposite side of the packing 19 to the interior of the gear-casing. The construction provides a simple method of journalling and packing the shaft 13. Should any water work into the casing

through the passage 20; and should any oil work into the space 18 on the opposite side of the packing 19, it will drain through the passage 21 into the gear-casing.

The construction described provides a simple and effective method of demountably supporting a rotary carrier in the casing of a washing-machine and establishing a driving connection between the rotary carrier and the driving mechanism which is mounted on the exterior of the casing, such driving connection enabling the carrier to be actuated thru the medium of the motor and also enabling the carrier to be turned independently of the motor. Obviously, it would be difficult or impossible in a construction where the electric motor is geared down to the driving shaft of the rotary carrier, and especially where a worm-drive is employed, to turn the motor thru the medium of the rotary clothes carrier when it is desired to bring the carrier to the proper position to enable it to be opened.

The foregoing detailed description has been given for clearness of understanding only, and no unnecessary limitations should be understood therefrom, but the appended claims should be construed as broadly as permissible in view of the prior art.

What I regard as new and desire to secure by Letters Patent is—

1. In a washing-machine, the combination of a casing, a shaft journaled in an end wall thereof and equipped at its inner end with a socket and with a dog, an interior bearing at the opposite end wall of said casing adapted to admit a journal at its upper side, and a rotary clothes carrier in said casing having one end equipped with a stub-shaft received by said socket and provided with ratchet teeth adapted to be engaged by said dog and having the opposite end equipped with a journal received by said bearing.

2. In mechanism of the character set forth, the combination of a casing, a motor mounted exteriorly on one end thereof, a shaft journaled in the end of said casing and geared to said motor, said shaft having its inner end provided with an open-ended tubular socket, a spring-pressed dog carried by said socket and projecting into the interior thereof, and a demountable rotary carrier in said casing having one end equipped with a toothed ratchet member received by said socket and having the other end equipped with a journal mounted in an interior bearing with which the casing is provided.

3. In mechanism of the character set forth, the combination of a casing, a shaft extending thru an end wall thereof and equipped at its inner end with a tubular socket provided with substantially radial spring-housings, plungers working in said spring-housings and projecting into said

socket, springs in said spring-housings bearing on said plungers, and a rotary carrier in said casing having one end equipped with a stub-shaft provided with ratchet 5 teeth, said stub-shaft being received in said socket and the ratchet teeth thereof engaged by said plungers, a journal at the opposite end of said carrier received by a bearing carried by the adjacent end wall of said casing, and a motor mounted on the exterior 10 of said casing and geared to said first-named shaft.

ADOLF K. HANSON.