J. JUDELSON.

DRIER.

APPLICATION FILED JAN. 21, 1909.

924,164.

Patented June 8, 1909.

2 SHEETS—SHEET 1.

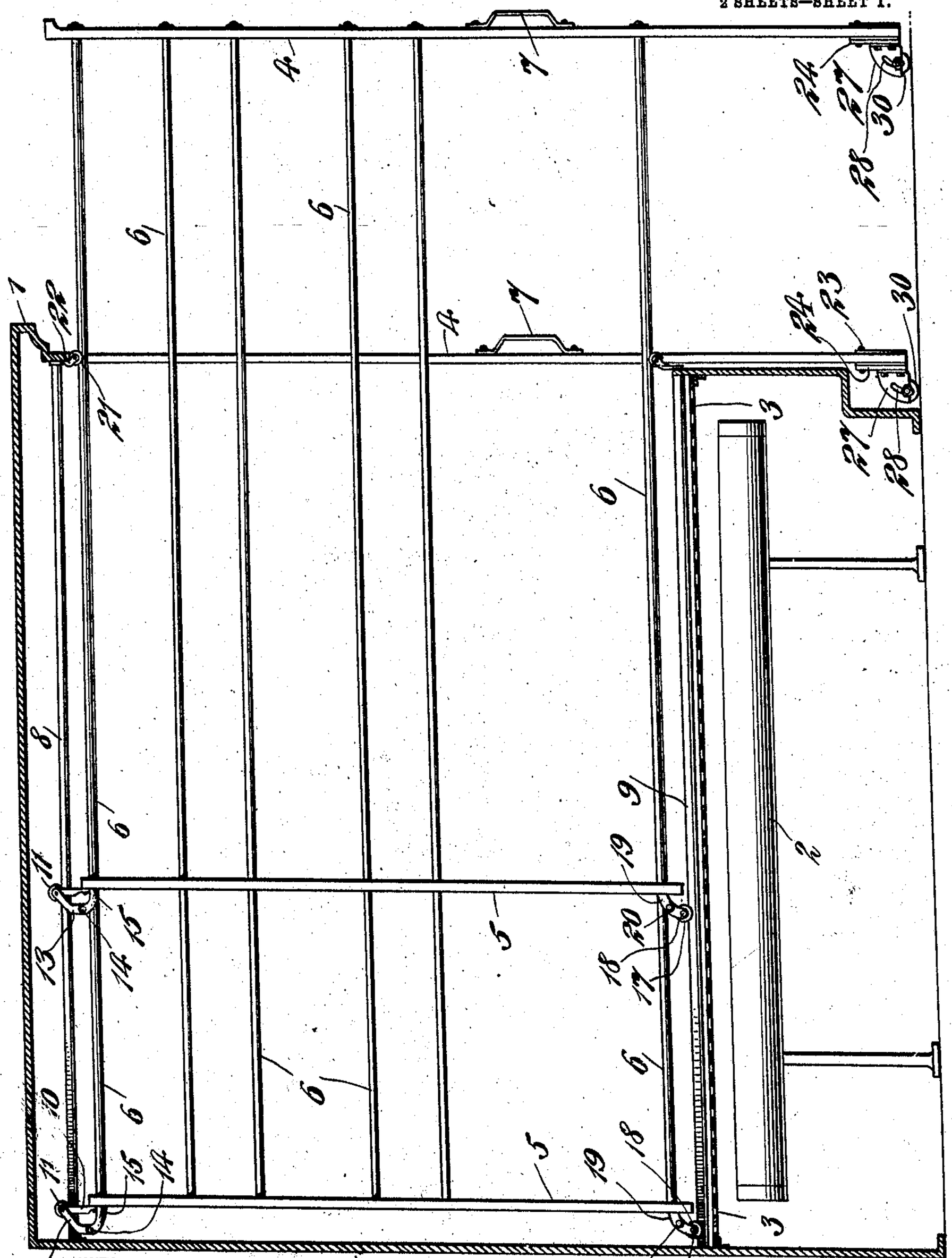

Fig. 1.

WITNESSES

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2 SHEETS—SHEET 2.

Fig. 2.

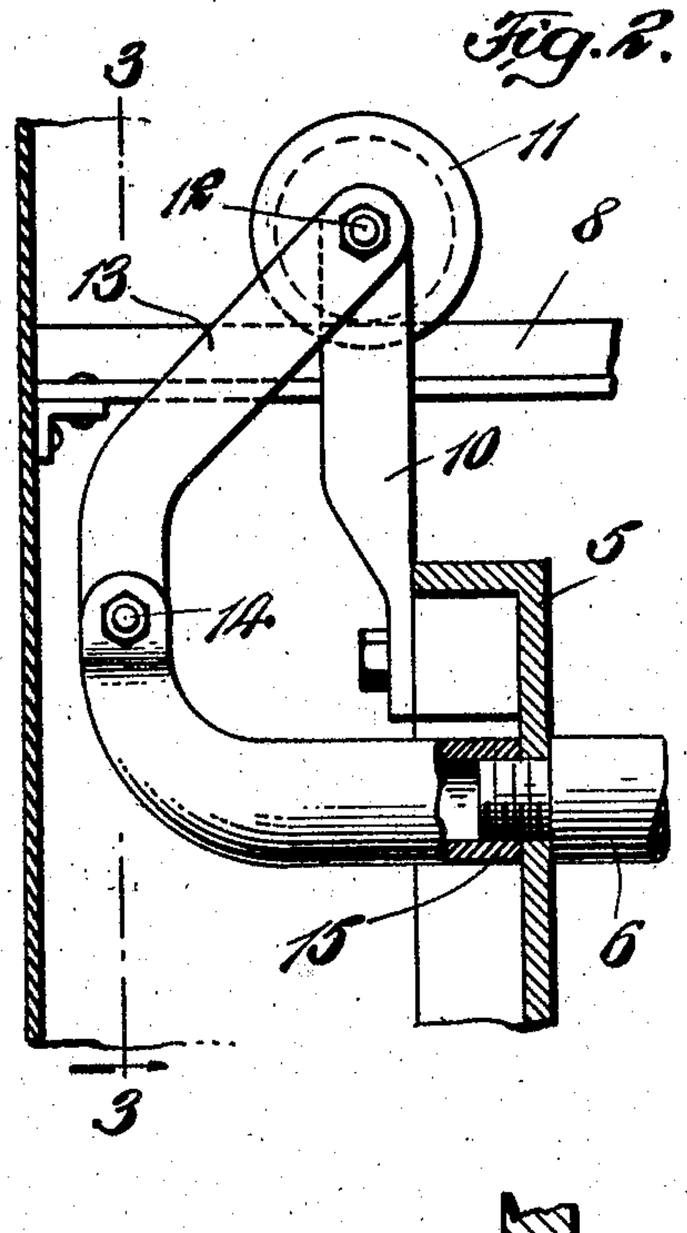


Fig. 3.

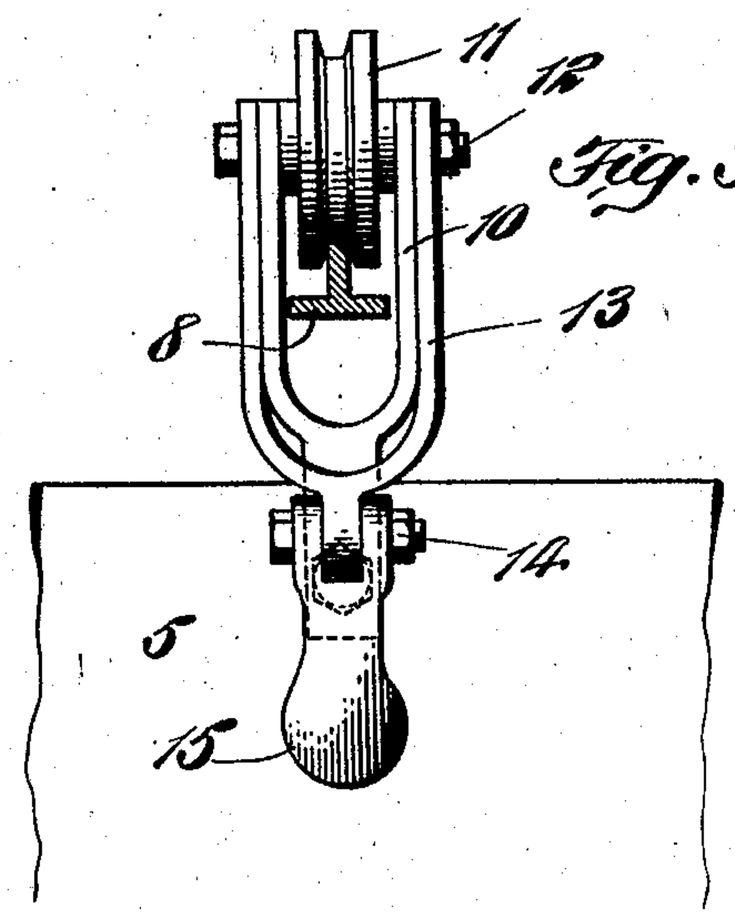


Fig. 4.

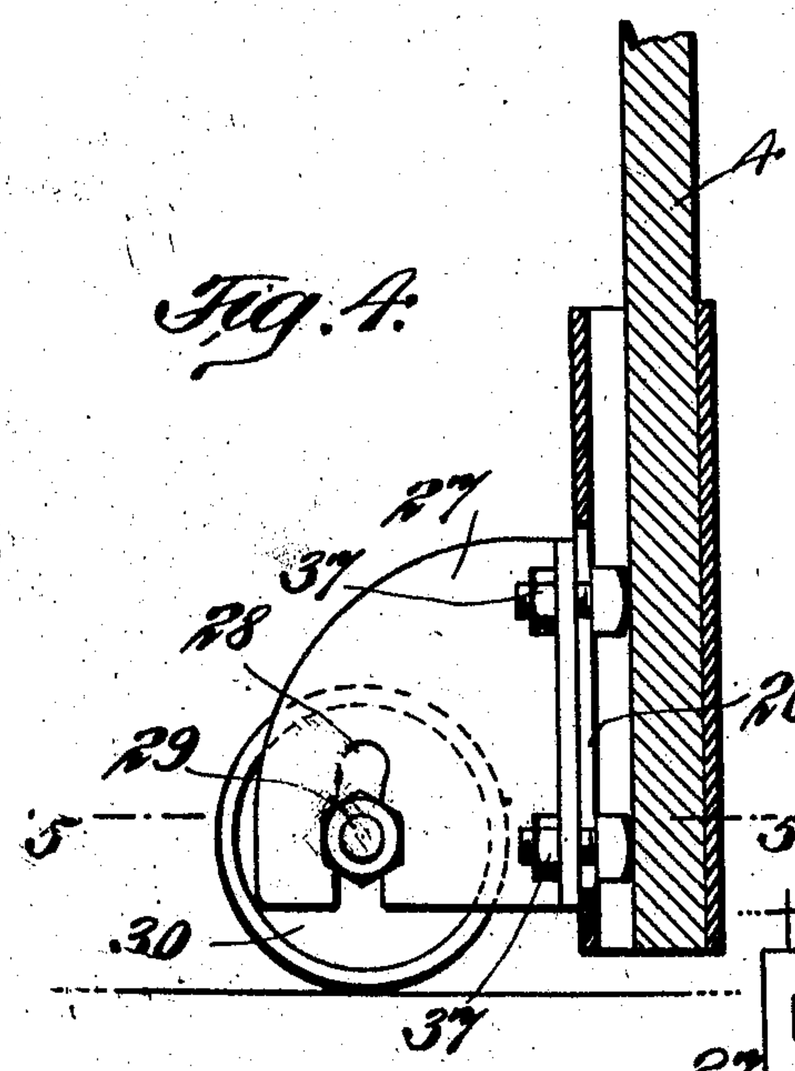


Fig. 5.

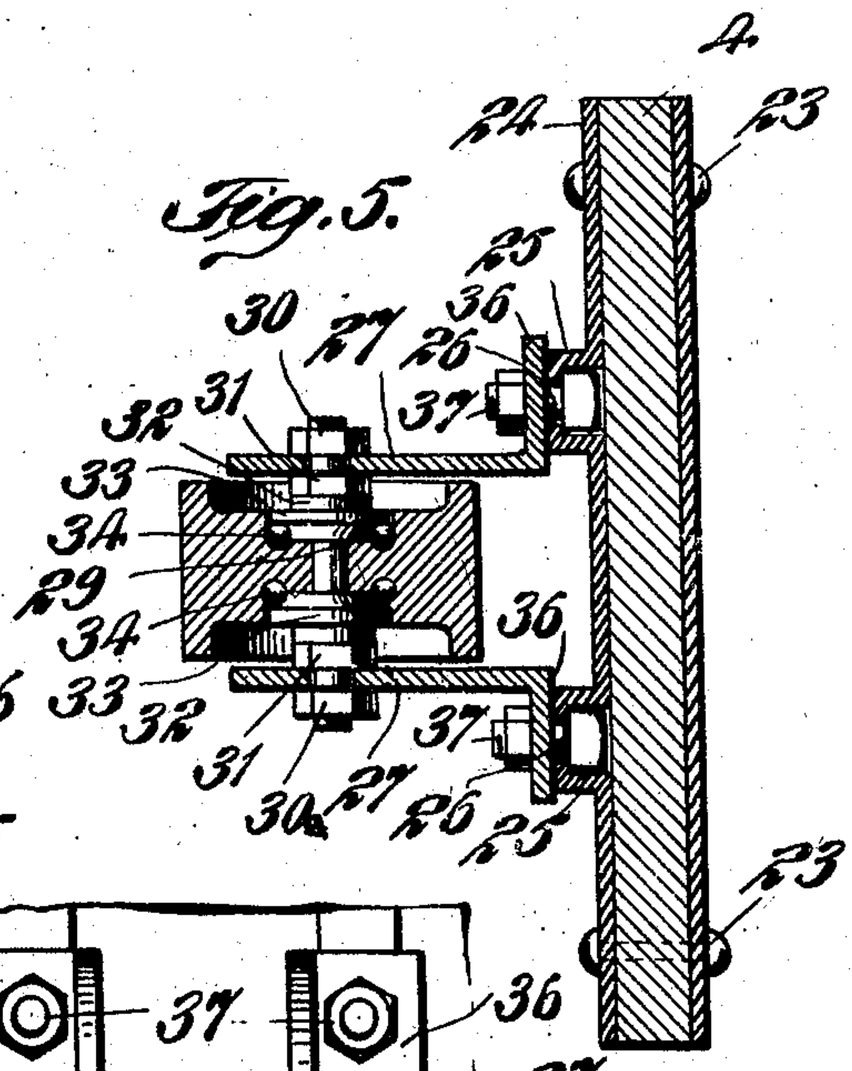
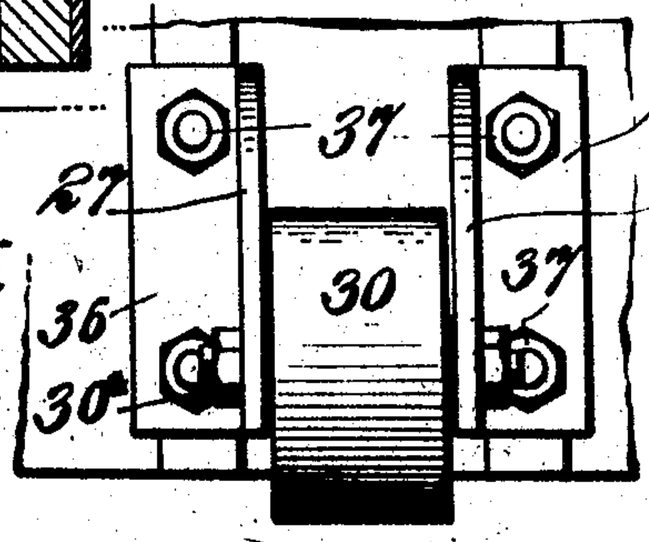


Fig. 6.



WITNESSES

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UNITED STATES PATENT OFFICE.

JULIUS JUDELSON, OF NEW YORK, N. Y.

DRIER.

No. 924,164. Specification of Letters Patent. Patented June 8, 1909.

Application filed January 21, 1909. Serial No. 473,503.

To all whom it may concern:

Be it known that I, JULIUS JUDELSON, a citizen of the United States of America, residing at New York city, New York, have invented certain new and useful Improvements in Driers, of which the following is a specification.

The present invention relates to improvements in driers, and has especial reference to the class of driers constituted of one or more drier frames adapted to support the articles to be dried, said drier frames being movable into and out of a containing casing.

The invention contemplates the improvement of existing driers in numerous structural details, certain of which will be pointed out in comparison with the existing state of the art.

One object of the invention, and perhaps the most important one, is to facilitate the reciprocation of the drier frame in its casing. Heretofore the means generally employed for such movement of the frames consisted of overhead pipes upon which rollers, secured to the drier frames, were designed to revolve. These overhead pipes are usually of considerable length and weight, and are anchored in the ceiling or some other fairly substantial support. They are unsightly, and owing to the considerable weight placed thereon they frequently bend or tear loose from their retaining support necessitating frequent and expensive repairs. Moreover such overhead pipes occupy space which could, as a rule, be more advantageously employed for other purposes. Attempts have been heretofore made to eliminate these overhead pipes by supplying the lower part of the front door of the drier frame with rollers, but this method has been entirely abandoned as a failure. The nonsuccess of this method of construction is due partly to the fact that owing to uneven floors the drier frames would not run true and would frequently catch in being drawn out of or pushed back into the casing, and partly to the fact that considerable heat was permitted to escape from the casing when one of the frames was drawn out.

I overcome the several objectionable features above pointed out, by providing a simple and efficient drier frame suspension system, contained within the casing, whereby the drier frames may be smoothly and easily moved out of and into the casing, eliminating all overhead pipes, and causing the drier frame to run absolutely true. In general terms, the mechanism for accomplishing this consists of suitable supporting means, such as upper and lower T-rails, upon which ball bearing rollers run, the latter being held and guided by flexible curved arms secured to the drier frames. In addition to these features I also prefer to provide upon the front door of each drier frame a suitable ball bearing roller which is both vertically and horizontally adjustable, whereby the roller may be so fixed as to allow for any unevenness or inequalities of the floor and still run smoothly.

Another object of my invention is to prevent the escape of heat from the interior of the casing when one or more of the drier frames are drawn out therefrom. A drier frame consists of a front and rear upright, door, or section, several feet apart, carrying spaced clothes supporting and drying pipes, upon which the articles to be dried are suspended. As now constructed the front door is considerably wider than the rear door or section, due to the fact that the frames "wabble" or interfere with each other when pushed in or out, and unless the rear sections were narrower than the front sections, the frames would catch when moved. As a result, when a frame is pulled out of the casing its entire length, the rear door or section does not cover the entire width which had been theretofore occupied or spanned by the front door and hence a very considerable quantity of heat is permitted to escape at both longitudinal edges of the rear door.

According to my invention, both the front and rear doors of the frame are made precisely the same width, and I am enabled to do this because of the fact that, when employing the suspension system above referred to, the drier frames run absolutely true, no one encroaching on, or interfering with, the other, and when the frames are drawn out, or pushed in they run in a perfectly straight line, so that when a frame is drawn

out its entire length the rear door will extend the entire width theretofore occupied by the front door and completely prevent escape of heat from the drier. It has also been customary to provide a wooden guide bar at the front of the drier, which bar was perforated to receive and guide the lowermost pipe in each drier frame. Owing to the high degree of heat developed within the drier, these wooden bars were a source of danger from fire, and another object of my invention is to eliminate the use of a bar of this kind, the same becoming superfluous when my suspension system is employed.

Other objects of my invention, and the details of construction thereof will become apparent from the following description by aid of the accompanying drawings, wherein—

Figure 1 is a side elevational view of a drier, having one side wall of the casing removed to show the interior construction, one drier frame being partly drawn out of, and the other entirely within, the casing; Fig. 2 is a side elevational view, parts being shown in section, of the flexible upper arm and roller secured to the frame; Fig. 3 is a rear elevational view of the structure shown in Fig. 2; Fig. 4 is a side elevational view of the roller adapted to be secured to the bottom of the front door or section; Fig. 5 is a horizontal sectional view on the line 5—5 of Fig. 4; and Fig. 6 is a rear elevational view of Fig. 4.

In the embodiment of the invention herein illustrated, 1 designates a preferably rectangular casing having heating coils 2 beneath the same, the lower wall 3 of the casing being constructed as a screen, the heat from the coils 2 passing upwardly therethrough and the drippings from the articles being dried falling through the same.

Designed to be contained within the casing, and to be reciprocated relatively thereto, are a plurality of drier frames, each of which comprises a front door 4, extending substantially to the floor, a rear door or upright section 5 equal in width to the door, 4, and a plurality of spaced drier bars 6, supported by, and extending between, the front and rear uprights 4 and 5. Each front door is also preferably provided with a handle 7 to enable the drier to be readily operated.

Extending longitudinally within the casing I preferably provide one upper T-rail 8 and a lower T-rail 9, each preferably having the stem of the T extending upwardly. Secured near the upper part of each rear upright 5 is a comparatively short bifurcated bar 10 (Figs. 2 and 3) which supports a ball bearing roller 11 designed to run on the T-rail 8. The roller 11 is mounted upon a spindle 12 which is engaged by the bifurcated flexible arm 13, jointed approximately at its middle through the medium of nut and bolt 14 and having its other end 15 suitably secured to one of the drier pipes 6. The rollers and arms just described form a flexible suspension device which assists in the back and forth movement of the drier frames. In addition to the suspension device I also provide what may be termed an auxiliary supporting system which consists of a roller 17 carried near the lower end of each upright 5, said rollers running on the lower T-rails 9. Each roller 17 is ball bearing and mounted on a spindle 18 which is engaged by a curved arm 19, jointed at 20 and secured at 21 to one of the drier pipes 6. There is no necessity for providing in connection with the lower rollers short bars 10, such as used in connection with the upper rollers, but if extra heavy drier frames are used, I may if desirable, also use such short bars 10 in connection with the lower rollers.

In the front wall of the casing 1 I provide additional rollers 21 vertically adjustable in angle irons 22. These rollers are also ball bearing and act in the nature of guides during the forward and backward travel of the drier frames.

Referring now to Figs. 4 to 6 a detailed description will be given of the rollers used on the lower part of the front doors or uprights. Secured by bolts 23 or other suitable fastening means near the lower end of each front door 4 is a casting 24 provided with two inwardly extending channel frames 25 longitudinally slotted at 26. These frames serve to support ears 27 each of which has a slot 28 in which the spindle 29 of a ball bearing roller 30 may be moved up or down and secured therein by means of nuts 30ª and 31, additional nuts 32 serving to hold the plates 33 of the roller against the balls 34 of the ball bearings 35. The ears 27 are provided with rear plates 36 turned at right angles to the ears 27 and these rear plates are designed to abut against the channel frames 25 and to be secured thereto by bolts 37 passing through perforations in the plates 36 and into the slots 25 in the frames 24. Through the medium of the slots 28 the rollers 30 may be adjusted vertically to a greater or less distance from the floor and through the rear plates 36 and slotted frames 25 they may be inclined from the horizontal and bolted in such inclined position, in this manner causing the roller 30 to accommodate itself to the irregularities and inequalities of the floor upon which it is to run.

I desire it to be understood that my invention is not limited to the precise details of construction herein described and illustrated, and that various modifications within the scope of the appended claims, may be

introduced, without departing from the spirit of the invention.

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

1. In a drier of the character described. the combination with a casing, of a plurality or drier frames reciprocable therein, flexible arms carried by said frames, and means for supporting and guiding said arms, substantially as described.

2. In a drier of the character described, the combination with a casing, of upper and lower guide rails therein, a plurality of drier frames reciprocable within the casing, the flexible arms carried by the frames and adapted to be guided and supported by the rails, substantially as described.

3. In a drier of the character described, the combination with a casing, of T-rails at the upper and lower parts therein, a plurality of drier frames reciprocable within the casing, flexible arms carried by the frames, and a roller on each said flexible arm designed to travel on one of the said T-rails, substantially as described.

4. In a drier of the character described, the combination with a casing, of T-rails at the upper and lower parts therein, said T-rails being directed toward each other, a plurality of drier frames reciprocable within the casing, flexible arms carried by said drier frames, and a roller on each said arm designed to travel on one of the T-rails, substantially as described.

5. In a drier of the character described, the combination with a casing, of T-rails extending longitudinally thereof within the same, a plurality of drier frames adapted to be reciprocated within the casing, a roller carried by each drier frame adapted to travel on one of the T-rails, and a bifurcated, jointed arm extending upwardly from the drier frame to the roller and engaging the spindle of the latter, substantially as described.

6. In a drier of the character described, the combination with a casing, of upper T-rails and lower T-rails extending longitudinally of the casing within the same, a plurality of drier frames adapted to be reciprocated within the casing, a ball bearing roller carried by each drier frame near its upper and lower part, respectively, said rollers bearing upon said T-rails, and a flexible jointed arm extending from each drier frame into engagement with spindle of each roller, substantially as described.

7. In a drier of the character described, the combination with a casing, of upper T-rails and lower T-rails extending longitudinally of the casing within the same, upper and lower vertically adjustable rollers in the front wall of the casing, a plurality of drier frames adapted to be reciprocated within the casing, rollers carried by said drier frames adapted to run on the T-rails, and jointed arms extending from said drier frames into engagement with the spindles of said last named rollers, substantially as described.

8. In a drier of the character described, the combination with a casing, of upper T-rails and lower T-rails extending longitudinally thereof within the casing, a plurality of drier frames adapted to be reciprocated within the casing, a short bar secured to the rear upper part of each drier frame, a ball bearing roller mounted in said short bar and designed to travel upon one of the upper T-rails, a flexible jointed arm extending from the upper part of the drier frame into engagement with the spindle of said roller, an additional roller carried by each drier frame near its lower end, said roller being adapted to travel upon one of the lower T-rails, and a jointed arm extending from the lower part of the drier frame into engagement with the spindle of the roller carried thereby, substantially as described.

9. In a drier of the character described, the combination with a casing, of a plurality of drier frames each of which comprises a front section, a rear section and drier bars held therebetween, means for suspending the drier frames within the casing, and a vertically and horizontally adjustable roller carried near the lower end of the front section of each drier frame, substantially as described.

10. In a drier of the character described, the combination with a casing, of upper T-rails and lower T-rails extending longitudinally of the casing within the same, a plurality of drier frames each comprising a front section, rear section and drier bars held therebetween, rollers carried by the drier frames to travel on the upper and lower T-rails, and an additional vertically and horizontally adjustable roller carried near the lower end of each front section, said last named roller being designed to travel on the floor, substantially as described.

11. In a drier of the character described, the combination with a casing, and means therein for supporting and guiding drier frames, of a plurality of drier frames each comprising a front section, a rear section and drier bars held therebetween, channel frames secured near the lower end of each front section, ears adapted to be secured to said channel frames, and a vertically and horizontally adjustable roller held in said ears, substantially as described.

12. In a drier of the character described, the combination with a casing and means therein for supporting and guiding drier

frames, of a plurality of drier frames each comprising a front section, a rear section and drier bars held therebetween, slotted channel frames secured near the lower end of each front section, slotted ears having rear plates adapted to abut against and be secured in adjusted position to said channel frames, and a roller carried by, and adjustable in the slot formed in, said ears, substantially as described.

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

JULIUS JUDELSON.

Witnesses:

OTTO MUNK,

CLARISSA FRANCK.