No. 859,985. PATENTED JULY 16, 1907.

E. G. SMITH.

CLOTHES DRIER.

APPLICATION FILED NOV. 26, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

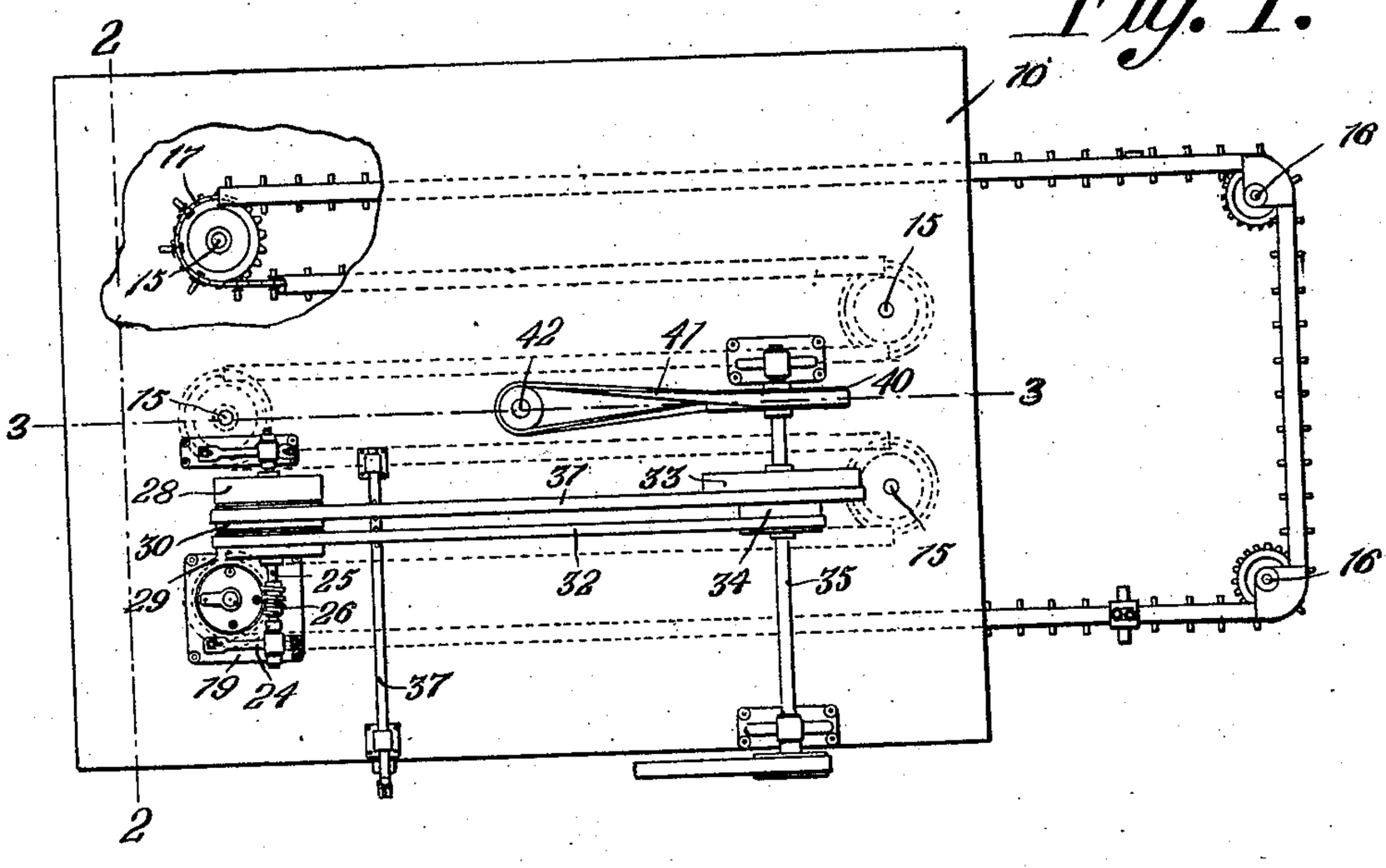


Fig. 4.

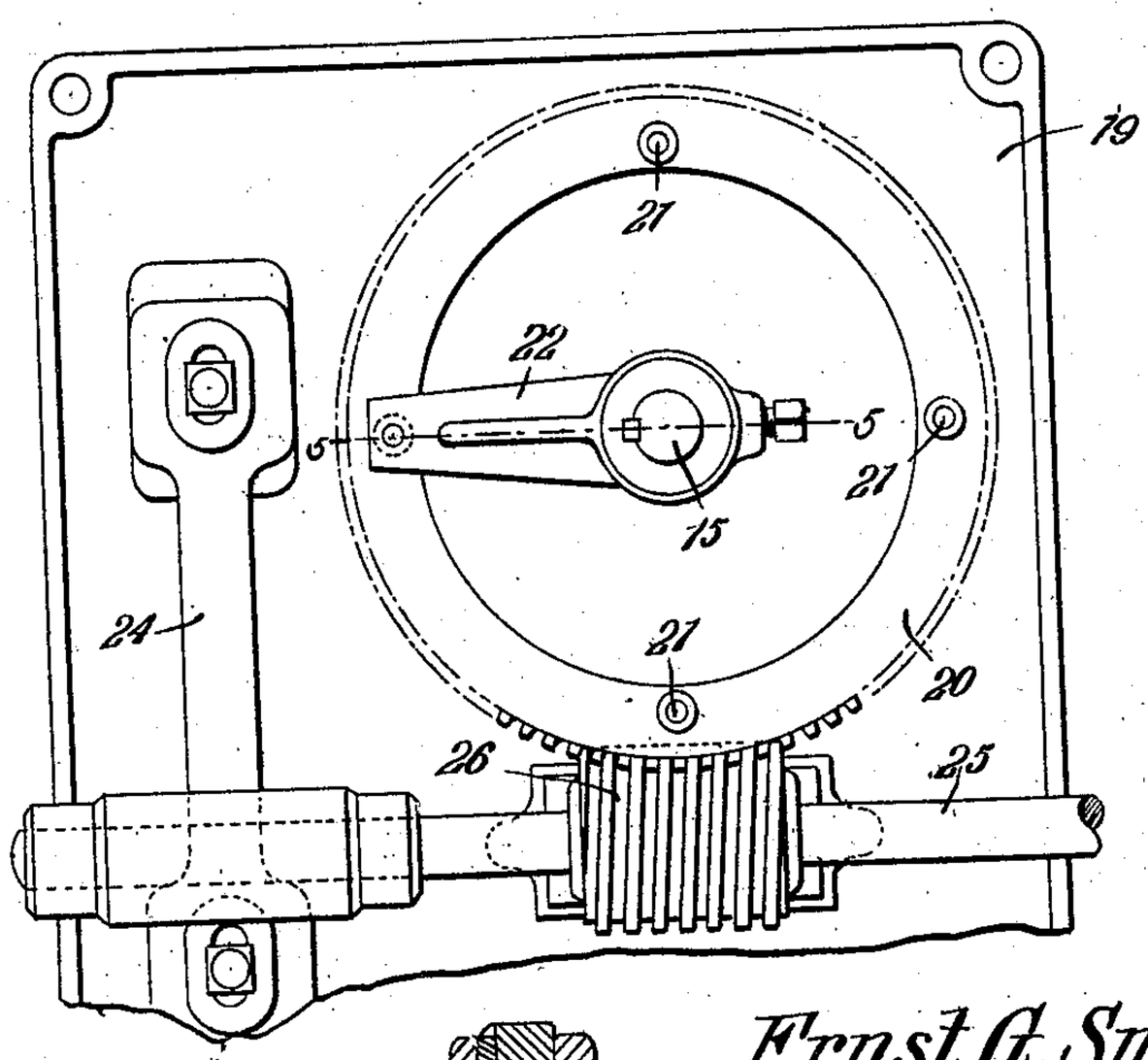
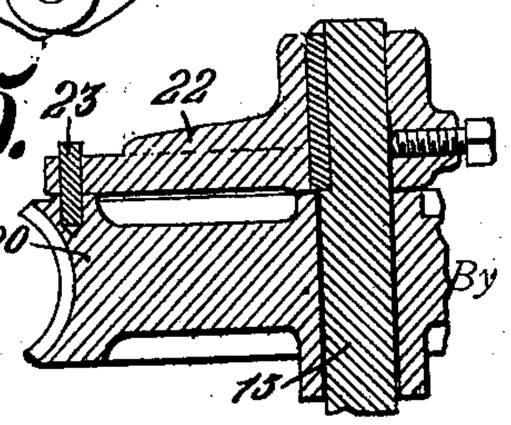


Fig. 5.



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2 SHEETS—SHEET 2.

Fig. 2.

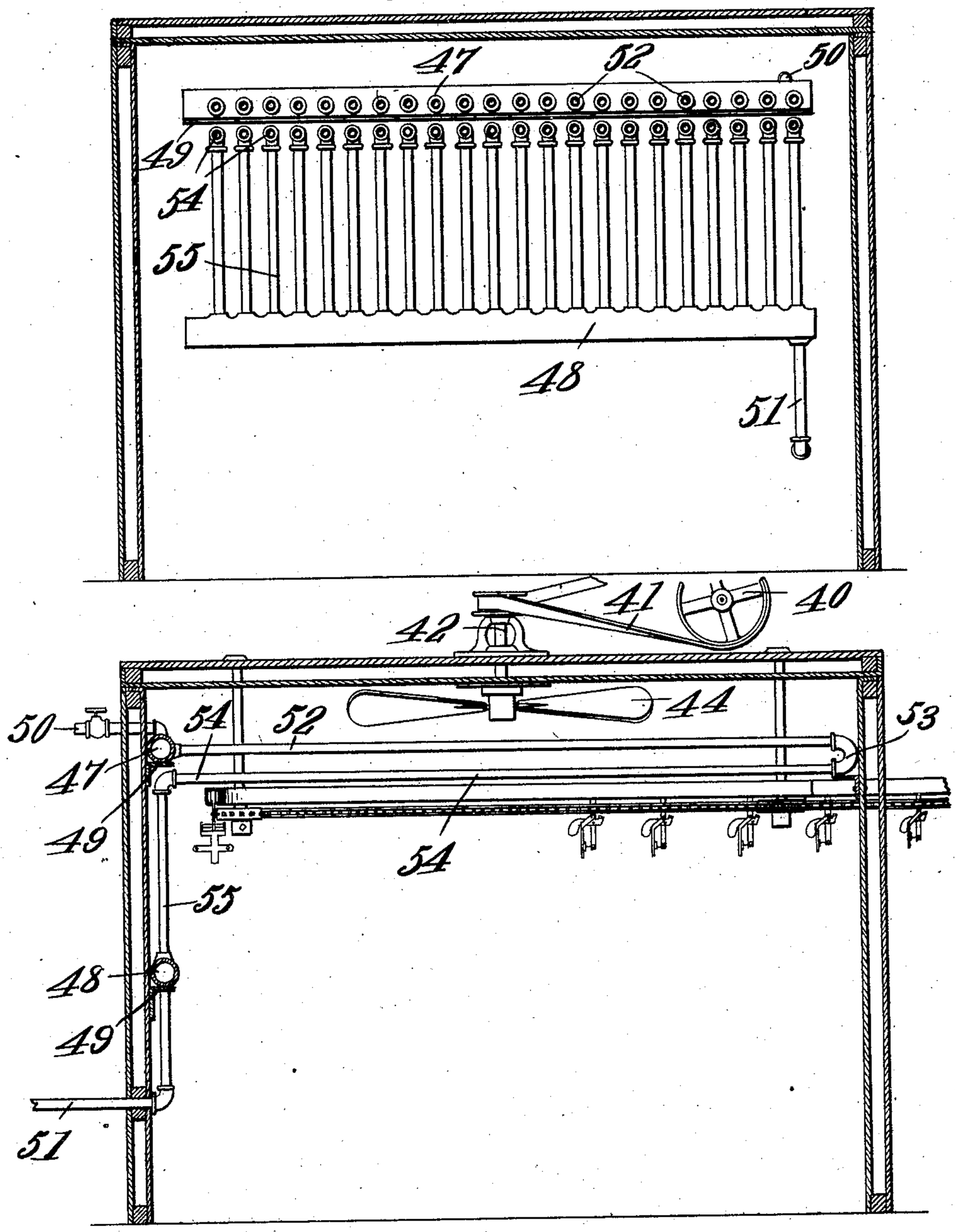

Fig. 3.

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ERNST G. SMITH, OF COLUMBIA, PENNSYLVANIA.

CLOTHES-DRIER.

No. 859,985. Specification of Letters Patent. Patented July 16, 1907.

Application filed November 26, 1906. Serial No. 345,126.

To all whom it may concern:

Be it known that I, ERNST G. SMITH, a citizen of the United States, residing at Columbia, in the county of Lancaster and State of Pennsylvania, have invented a new and useful Clothes-Drier, of which the following is a specification.

This invention relates to clothes drying machines, and especially to machines of that class employed in laundries for the drying of collars, cuffs, shirts and other articles.

One object of the invention is to secure a more effective hot blast against the clothes as they are carried through a drier by a peculiar arrangement of the steam pipes and fan.

A further object of the invention is to provide a mechanism by which a positive motion may be imparted to the endless carriers, on which the clothes holders are supported.

A still further object of the invention is to provide an improved machine in which a give-way or breakable connection is arranged in the driving mechanism, so that in case of accidental stoppage of the apparatus, no damage will result.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings:—Figure 1 is a plan view of a drying machine illustrating the arrangement of the driving connections through which movement is imparted to the endless carrier and the fan. Fig. 2 is a transverse sectional view of a portion of the same on the line 2—2 of Fig. 1, the view being on a somewhat larger scale. Fig. 3 is a longitudinal section on the line 3—3 of Fig. 1. Fig. 4 is a plan view of a portion of the mechanism showing more particularly the worm gearing through which motion is imparted to the endless carrier. Fig. 5 is a transverse sectional view of a portion of the same on the line 5—5 of Fig. 4.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The dry room 10 is constructed of any suitable material, and is provided with steam pipes arranged in the manner hereinafter described.

At the top of the dry room are bearings for a plurality of short vertical shafts 15, and at a point outside the dry room are bearings for vertical shafts 16. These shafts are provided with suitable sprocket wheels for the reception of a link belt 17 which passes continuously around said sprocket wheels in order to convey the articles of clothing into and through the dry room where they are subjected to the action of currents of hot air. As a rule, movement is imparted to the link belt through one of the outside sprocket wheels but as the link belt engages with only ninety degrees of the wheel, the driving is more or less uncertain, the movement not being as positive as it should be.

To provide for the more positive movement of the carrier, one of the inner sprocket wheels is employed, and for this purpose the shaft 15 of said sprocket wheel is extended up through a bearing opening formed in a metal plate 19 at the top of the casing. On this shaft is mounted a loose worm wheel 20, the upper face of which is provided with a plurality of openings 21. To the extreme upper end of the shaft is secured an arm 22, and this arm has an opening which may be moved into vertical alinement with any one of the openings 21, and through the openings is passed a pin 23 which may be formed of wood or other readily breakable material, so that in case of accidental stopping of the carrier, the pin may break and thus prevent damage to the apparatus.

The plate 19 carries a bearing bracket for a worm shaft 25 to which is secured a worm 26, intermeshing with the worm wheel 20. This shaft is further provided with two loose pulleys 28 and 29, and an intermediate fast pulley 30, and these pulleys receive belts 31 and 32 which are constantly driven by a pair of pulleys 33 and 34 mounted on a counter-shaft 35. The pulley 33 is of larger diameter than the pulley 34, and when the belt 31 is in engagement with the fast pulley 30, the worm shaft will be driven at relatively high speed, but when the belts are shifted by the shifter rod 37, a smaller pulley 34 is connected to the fast pulley 30 by belt 32, and the worm shaft is driven at a lower speed.

The shaft 35 is driven from any suitable source of power, and carries a pulley 40 that is connected by a belt 41 to a pulley on the fan shaft 42, this shaft extending down through the casing and carrying a fan 44.

The steam heating arrangement includes a pair of manifolds or drums 47 and 48 that are mounted in parallel relation on angle bars 49 secured to the rear wall of the dry room, and steam is supplied to the upper manifold by a pipe 50 and exhausts from the lower drum through a pipe 51, so that all water of condensation will be carried off. Leading from the upper manifold 47 is a series of horizontally disposed pipes 52, which are connected at their outer ends by U's 53 to lower pipes 54, and thence at their rear ends are connected by vertical pipes 55 to the lower manifold 48. The arrangement is such that immediately below the fan there is a double row of horizontally disposed pipes through which a blast of air is directed by the fan, the

air being heated by contact with the pipes, and then coming into engagement with the clothing supported by the endless carriers.

The air is heated to such an extent as to evaporate the moisture in the clothing, and the latter will emerge from the casing thoroughly dried, and in suitable condition for finishing operations.

The endless carrier is positively driven and in case of sticking or jamming of any of the parts, the give way connection 23 will break, so that serious injury to the mechanism will be avoided. This give way connection being arranged at the top of the dry room is readily accessible, and a new pin may be placed in position without difficulty, and without the necessity of entering the dry room to make repairs.

I claim:—

1. In a clothes drying machine, a dry room, an endless carrier, means for actuating the same, a pair of manifolds, one having a steam supply connection, and the other an exhaust, pipes connecting said manifolds to each other, said pipes leading outward, and thence rearward over the endless carrier and down to the exhausting manifold, and a fan arranged above the steam pipes.

2. In a drying machine, the combination with a casing and an endless carrier, of a pair of manifolds, means for supporting the same at the rear of the casing, a steam supply leading to the upper manifolds, and a steam exhaust leading to the lower manifold, steam pipes leading outward from the upper manifold over the endless conveyer, a return pipe also arranged over the endless conveyer, a vertical pipe connecting the return pipe to the lower manifold, a fan arranged in the upper portion of the casing at a point above the steam pipes, and means for driving the fan.

3. In a clothes drying machine, the combination with a casing, of an endless carrier, sprocket wheels arranged within the casing and supporting said endless carrier, shafts carrying the sprocket wheels, one of said shafts being extended up through the top of the casing, a worm wheel mounted loosely on the shaft, an arm rigidly secured to said shaft, a give way connection between the wormwheel and the arm, and means for driving the worm wheel.

4. In a clothes drying machine, a casing, shafts arranged therein, one of the shafts being extended up through the top of the casing, sprocket wheels mounted on the shafts, an endless carrier supported by the sprocket wheels, a wormwheel mounted loosely on the vertically extended shaft, said wormwheel having a plurality of recesses in its upper face, an arm rigidly secured to the shaft and provided with a recess movable into alinement with any of the worm wheel recesses, a breakable pin adapted to the recesses and serving as a give way connection between the worm wheel and the arm, a worm for actuating the worm wheel, and means for driving the worm.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ERNST G. SMITH.

Witnesses:
JNO. W. GREENAWALT,
FRANCIS E. MEYER.