G. R. RUFFIN.

DRIER.

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966,862.

Patented Aug. 9, 1910.

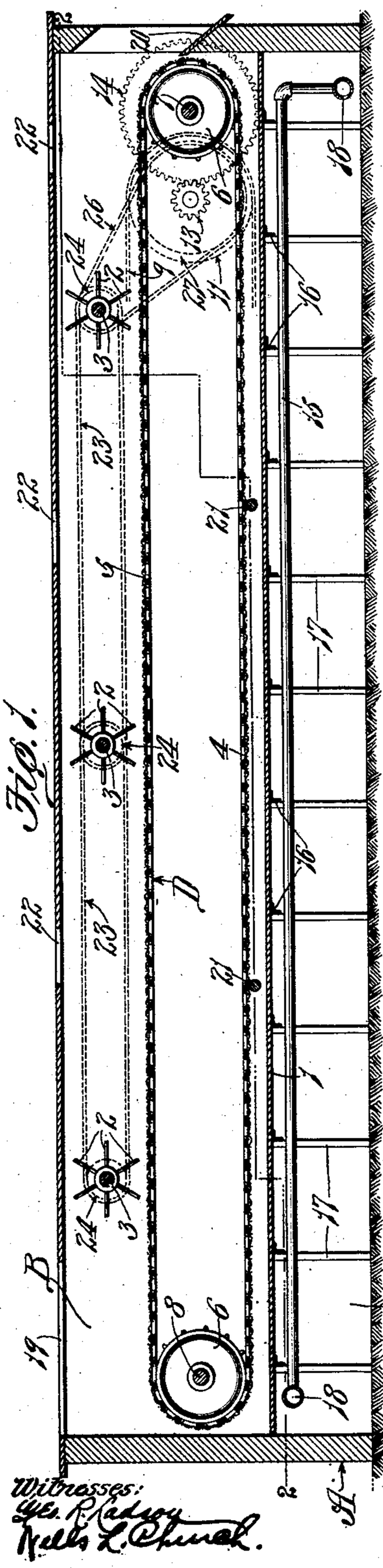

Fig. 1.

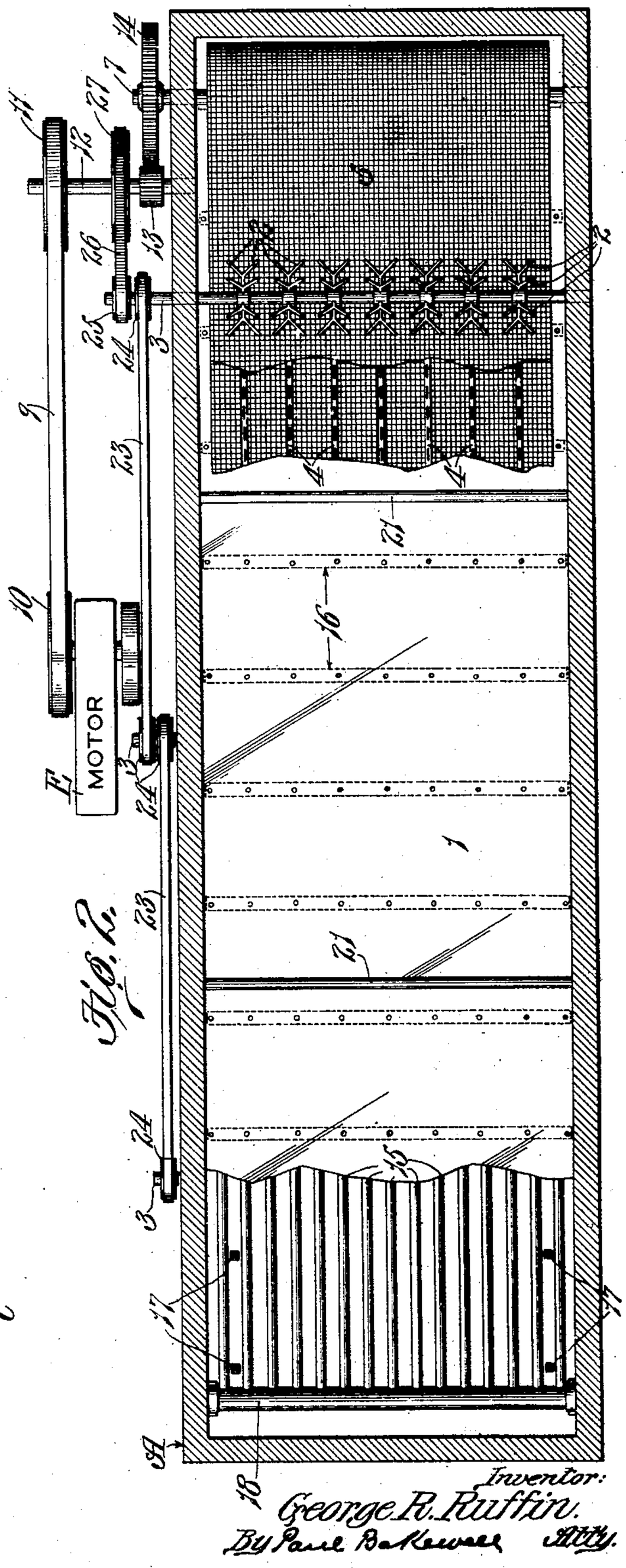

Fig. 2.

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By Paul Bakewell Atty.

UNITED STATES PATENT OFFICE.

GEORGE R. RUFFIN, OF SHREVEPORT, LOUISIANA.

DRIER.

966,862. Specification of Letters Patent. Patented Aug. 9, 1910.

Application filed April 14, 1910. Serial No. 555,553.

To all whom it may concern:

Be it known that I, GEORGE R. RUFFIN, a citizen of the United States, residing at Shreveport, Louisiana, have invented a certain new and useful Improvement in Driers, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to driers such as are used for drying hay, excelsior, seed cotton, and various other kinds of loose material.

The main object of my invention is to provide a drier which is so designed that hay and other loose materials can be completely dried in a comparatively short time.

Another object is to provide a drier that is absolutely fire-proof and which is so designed that the material being dried cannot come into direct contact with the heating devices which supply heat to the chamber or compartment in which the material is located. And still another object of my invention is to provide a drier of simple construction that can be maintained and operated at a low cost.

Figure 1 of the drawings is a vertical longitudinal sectional view of a drier constructed in accordance with my invention; and Fig. 2 is a horizontal longitudinal sectional view of said drier.

Briefly described, my improved drier consists of a long chamber or compartment in which an endless conveyer is arranged, means for supplying heat to said chamber, and means for agitating or separating the material while it is being conducted through said chamber or compartment by the conveyer.

Referring to the drawings which illustrate the preferred form of my invention, A designates a comparatively long and narrow building that is provided with a horizontally disposed partition 1 that separates the interior of the building into two compartments or chambers B and C.

An endless conveyer D is arranged in the upper compartment B for carrying loose material, such for example, as hay or excelsior, from one end of said compartment to the opposite end thereof, and means is arranged in said compartment for stirring or agitating the material that rests on the conveyer D so as to separate the material and thus enable the heat to penetrate through same. Said means preferably consists of arms or forks 2 that project radially from horizontally disposed shafts 3 that are arranged above the upper side of the conveyer, as shown in Fig. 1, but I wish it to be understood that my broad idea is not limited to the specific means herein shown for separating or loosening the material as various other means could be employed for this purpose. The conveyer D is so constructed that the heat can pass through same easily, and in the preferred form of my invention, as herein shown, the conveyer consists of a plurality of endless chains 4 on which an endless apron 5 of woven wire fabric is mounted. The chains 4 surround sprocket wheels 6 on two horizontally disposed shafts 7 and 8 arranged adjacent the opposite ends of the compartment B, and means is provided for positively driving one of said shafts, such, for example, as a belt 9 surrounding a pulley 10 connected to the drive shaft of a motor E, and a pulley 11 on a shaft 12 provided with a pinion 13 that meshes with a gear 14 on the sprocket wheel shaft 6 of the conveyer. The partition 1 that separates the drying compartment B from the heating compartment C is preferably made of metal so that it can be utilized to supply heat to the drying compartment.

Rows of steam-pipes 15 are arranged in the compartment C under the partition 1 so as to heat said partition to a high temperature and thus cause heat to radiate from same up through the conveyer D. The partition 1 rests on cross-pieces 16 carried by standards 17, and the heating pipes 15 are preferably arranged longitudinally of the compartment C and are connected at their opposite ends to headers 18 to which steam or some other suitable heating medium is supplied from a heat-generating device, not shown.

The material to be dried is introduced onto the conveyer D through an opening 19 formed in one wall of the compartment B and located adjacent one end of said compartment, and after the material has traveled through said compartment it is automatically discharged from the conveyer through a discharge chute 20 at the opposite end of the drying compartment. If desired, supporting shafts or rollers 21 can be located below the under side of the conveyer so as to prevent the conveyer from drag-

ging on the partition 1 which forms the floor of the drying compartment, and ventilating openings 22 can be formed in the top wall of said compartment so as to permit the moisture to escape therefrom.

The shafts 3, which carry the arms or forks 2, project through one of the side walls of the drying compartment, and said shafts are connected up to one another by means of belts 23 that surround pulleys 24 on said shafts, one of said shafts being provided with a pulley 25 that is surrounded by a driving belt 26 which also surrounds a pulley 27 on the shaft 12, as shown clearly in Fig. 2.

The conveyer D is driven at a comparatively slow speed so that the material will remain in the compartment B a sufficient time to become thoroughly dried, and as the arms or forks 2 stir and loosen the material while it is on the conveyer, the heat which radiates upwardly from the floor 1 can penetrate through the material, the forks or arms 2 also operating to distribute the material uniformly over the conveyer.

A drier of the construction above described enables material to be dried quickly and at a low cost for no manual labor is required to loosen or separate the material being operated on. The material is merely dumped onto the conveyer and while it is being conducted through the drying chamber, the arms or forks 2 loosen the material and distribute it evenly over the conveyer so that the heat can penetrate through same easily. By the time the material reaches the opposite end of the drying chamber it will be dry enough to permit it to be baled, the material being discharged automatically from said chamber through the discharge chute 20. The metallic floor 1 that is arranged under the conveyer prevents the material from dropping onto the pipes which supply the heat and thus eliminates the possibility of the material catching on fire, and as said floor is perfectly smooth it can be kept clean easily.

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

1. A drier having a drying compartment that is provided with a metallic floor, means for heating said floor so as to cause heat to radiate upwardly therefrom, an endless conveyer of skeleton construction arranged above said floor, shafts arranged above said conveyer and provided with means for stirring or separating the material that rests on the conveyer, and mechanism for driving said conveyer and imparting rotary movement to said shafts.

2. A drier that comprises a long and narrow building whose interior is divided into a drying compartment and a heating compartment by means of a horizontally disposed metallic partition, heating pipes arranged in the heating compartment below said partition, an endless conveyer arranged in the drying compartment above said partition and provided with a woven wire supporting surface, and rotatable arms or forks arranged above said conveyer for stirring or separating the material that rests thereon.

3. A drier that comprises a long and narrow building whose interior is divided into a drying compartment and a heating compartment by means of a horizontally disposed metallic partition, heating pipes arranged in the heating compartment below said partition, an endless conveyer arranged in the drying compartment above said partition and provided with a woven wire supporting surface, rotatable arms or forks arranged above said conveyer for stirring or separating the material that rests thereon, a discharge chute arranged adjacent one end of said conveyer, and means for permitting moisture to escape from said drying compartment.

4. A drier that comprises a long and narrow building whose interior is divided into a drying compartment and a heating compartment by means of a horizontally disposed metallic partition, heating pipes arranged in the heating compartment below said partition, an endless conveyer arranged in the drying compartment above said partition and provided with a woven wire supporting surface, rotatable arms or forks arranged above said conveyer for stirring or separating the material that rests thereon, a discharge chute arranged adjacent one end of said conveyer, means for permitting moisture to escape from said drying compartment, a motor or propelling device, and mechanism for transmitting movement from said propelling device to said conveyer and rotatable arms.

In testimony whereof I hereunto affix my signature in the presence of two witnesses, this seventeenth day of December, A. D., 1909.

GEORGE R. RUFFIN.

Witnesses:
CHAS. LE BRETON,
EDWIN. V. SBISA.