

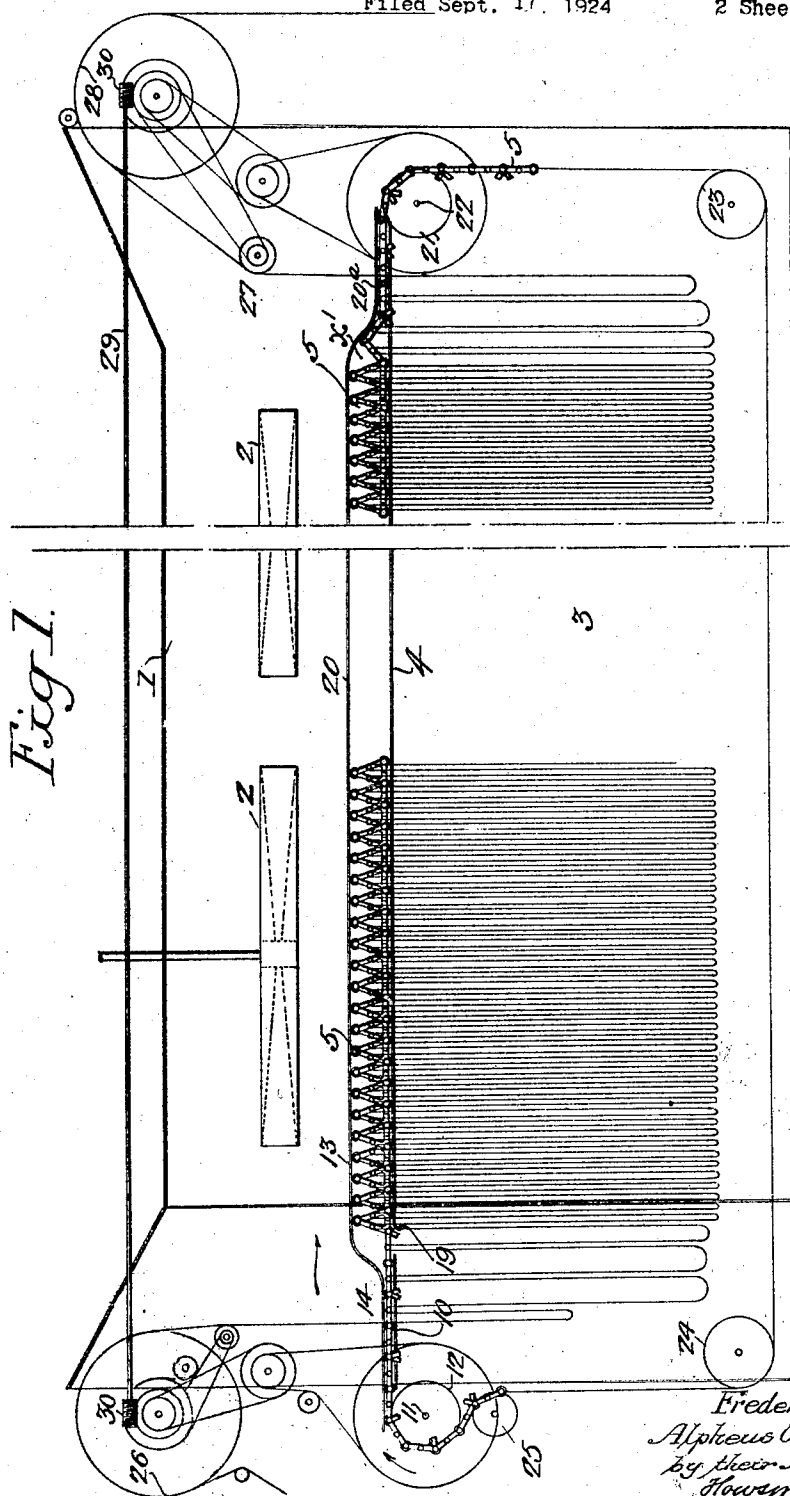
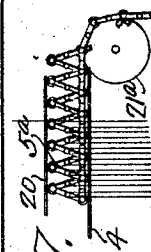
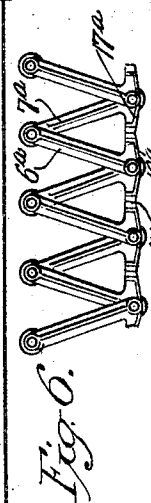
Oct. 13, 1925.

F. KERSHAW ET AL

LOOP DRIER

Filed Sept. 17, 1924

2 Sheets-Sheet 1



Inventors:

Frederick Kershaw
Alpheus O. Hurxthal.
by their Attorneys.
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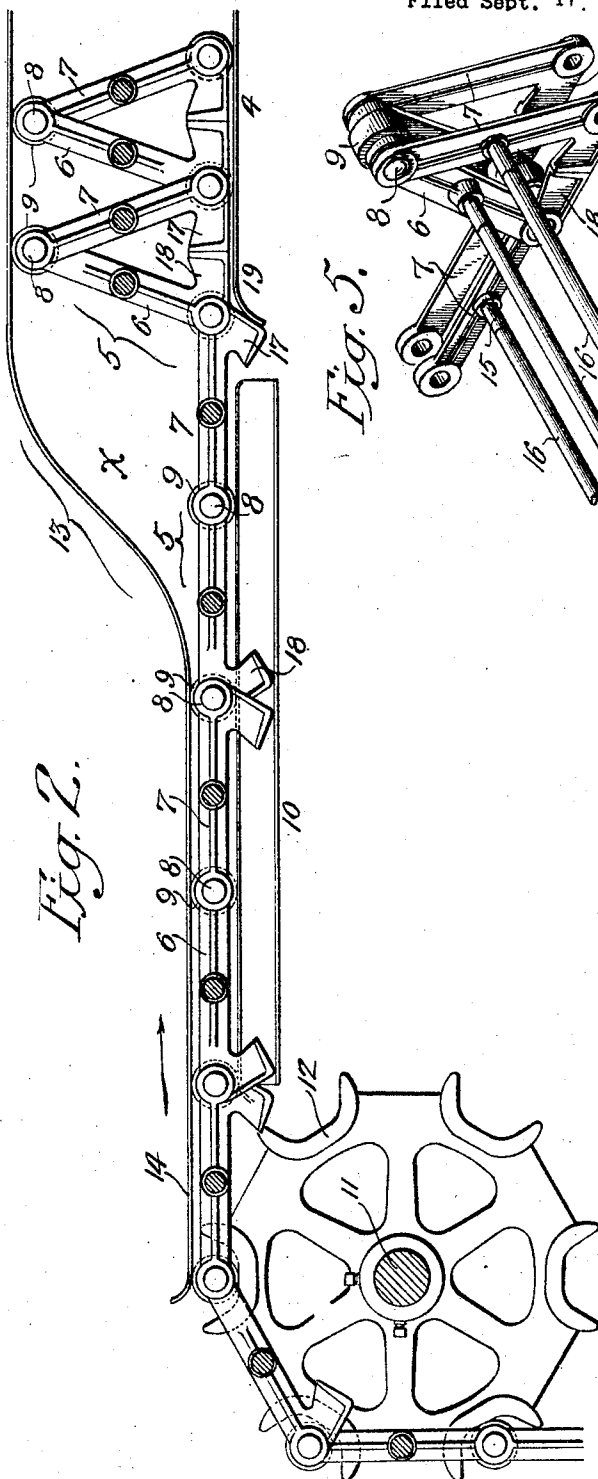
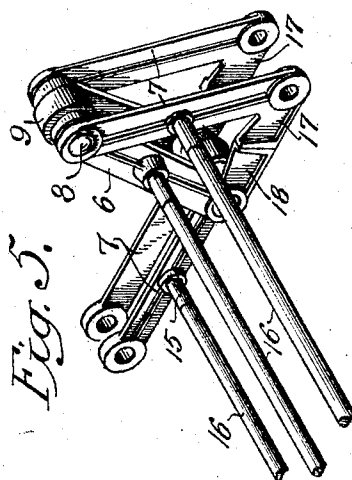
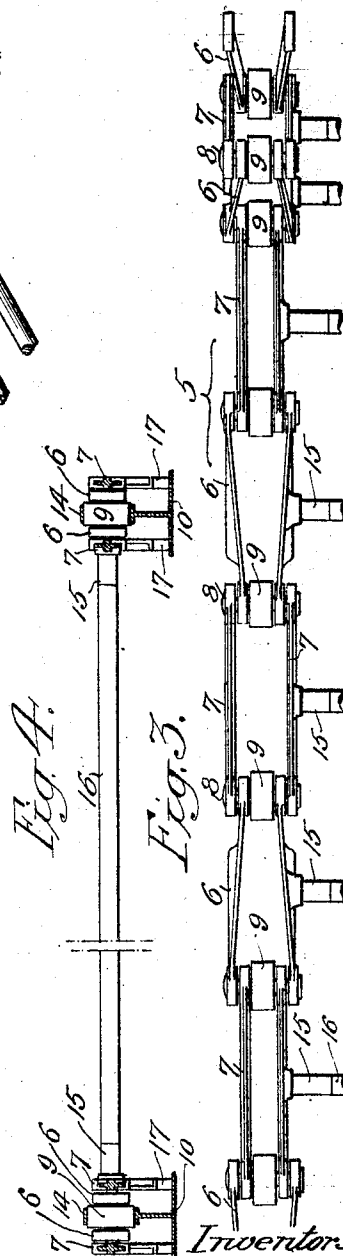
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1,557,368

LOOP DRIER

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2 Sheets-Sheet 2



Inventors:
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Patented Oct. 13, 1925.

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UNITED STATES PATENT OFFICE.

FREDERICK KERSHAW AND ALPHEUS O. HURXTHAL, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNORS TO PROCTOR & SCHWARTZ, INCORPORATED, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

LOOP DRIER.

Application filed September 17, 1924. Serial No. 738,167.

To all whom it may concern:

Be it known that we, FREDERICK KERSHAW and ALPHEUS O. HURXTHAL, citizens of the United States, residing in Philadelphia, Pennsylvania, have invented certain improvements in Loop Driers, of which the following is a specification.

The object of our invention is to construct the mechanism of a loop drier so that the girts, or transverse supports, for the looped material can be separated at the feed end of the drier to allow the material sufficient space to form a loop after which the material is pushed close together to increase the capacity of a drier of given dimensions.

This object we attain in the following manner, reference being had to the accompanying drawings, in which:

Fig. 1 is a longitudinal sectional view of a drier illustrating our invention;

Fig. 2 is a longitudinal sectional view illustrating the carrying chain at the feed end of the drier;

Fig. 3 is a plan view of the chain shown in Fig. 2;

Fig. 4 is a transverse sectional view showing two chains and the connecting girts;

Fig. 5 is a perspective view of a pair of links with the girts close together;

Fig. 6 is a view showing means for varying the distance between the girts; and

Fig. 7 is a view of a modification.

In the casing 1 of the drier are circulating fans 2 for circulating heated air in the drying chamber 3. Any suitable heating means may be employed and the fans may be located in any position, depending upon the size and general design of the drier.

Within the drying chamber 3 are two longitudinal tracks 4 for supporting the carrying chains 5. Each chain is made of a series of pairs of links 6 and 7 and are made as shown in Figs. 2 and 3. The links are connected together by pins 8, on which are wheels 9. These wheels travel on the tracks 4, 4 and also on short tracks 10, 10 at the feed end of the machine, Fig. 2.

Mounted on the driven shaft 11 are two sprocket wheels 12. These wheels are at the feed end of the drier and are directly in advance of the tracks 10. Above the tracks 10 and 4 are rails 13, which have depressed portions 14 that extend over a portion of each sprocket wheel 12, holding the links of

the chain extended and in alignment on the tracks 10 as the sprocket wheels 12 push the chains through the drier.

On each link, about midway of its length, is a socket 15 for a transverse support, or girt, 16. These girts extend from one side of the drying chamber to the other and support the material which is looped over them, as shown in Fig. 1. On each link 7 is a projection 17. On each link 6 is a corresponding projection 18.

Between the inner end of the depressed portion 14 of the holding down rails 13 and the feed end of the track 4 is a space x to allow the chain to buckle and to take the compacted form shown in Fig. 1. The feed end of each track 4 is rounded, as at 19, Fig. 2. This rounded portion is in the path of the projections 17 of the links 7 of the chain so that, when the chains are pushed forward, the projections 17 strike the portions 19 of the tracks 4 and, as the holding down rails are elevated at this point, the two links 6 and 7 are pushed up into the position shown at the right of Fig. 2—the two projections 17 and 18 of the links coming in contact with each other, holding the links in position and the transverse girts a given distance apart.

The portion 20 of the holding down rail 13 is located a sufficient distance above each track 4 so that the rollers of the raised portions of the chains travel on the rails and hold the buckled portions of the chains in position on the tracks 4 as they are pushed through the machine.

At the delivery end of the machine, the holding down rails 13 are again depressed, as at 20^a, in advance of the driven sprocket wheels 21. A space x' at each side allows the chains to assume an extended position again, as shown in Fig. 1, as the chains are drawn out by the driven sprocket wheels 21.

The sprocket wheels 21 are mounted on a shaft 22. The shaft 22 is driven at a speed to elongate the chains as they reach the delivery end of the machine. After the chains pass around the sprocket wheels 21, they pass under guide wheels 23 and 24 at the bottom of the drier and around a guide wheel 25 to the sprocket wheels at the feed end of the machine.

The material is fed into the drier over a drum 26, which is driven as shown in Fig.

1, then down between two rods carried by the extended portions of the chains, and is looped, as shown. As the chains are contracted, the loops of material are arranged close together and remain in this condition while passing through the drying chamber. At the delivery end of the drier, the chains are elongated again and the material is removed, passing around a guide roller 27 and drum 28. The two drums are driven in unison by any suitable mechanism.

In the drawings, is shown a longitudinal driving shaft 29, having worms 30, which mesh with worm wheels on the shaft of the drums 26 and 28. The two shafts 11 and 22, on which are the sprocket wheels for the chains, are driven from the drum shafts.

In some instances, the chains 5^a may be elongated only at the feed end for the free passage of material. The material is removed from the girts while the links are in the buckled condition, as shown in the modification, Fig. 7. The chains, in this instance, are elongated as they pass around the sprocket wheels 21^a.

In Fig. 6 is shown a means for varying the distance between the girts attached to the projections 17^a and 18^a of the links 7^a and 6^a, respectively. The spacers 31 may be of any thickness desired and are secured to the links in any suitable manner.

We claim:

1. The combination in a loop drying machine, of two tracks spaced apart; an endless chain arranged to travel over each track; girts connecting the chains; a driven sprocket wheel arranged to push the chains over the tracks; means for holding the chains in an elongated position with the girts spaced a considerable distance apart; and means allowing the chains to be buckled so that the girts will be arranged close together.

2. The combination in a loop drying machine, of a casing enclosing a drying chamber; tracks extending through the drying chamber; sprocket wheels at each end of the tracks; chains consisting of a series of links; girts extending from one chain to the other; and a guard rail over each track, each rail having a depressed portion at the feed end of the machine to hold the links of the chain in an elongated position with the girts spaced a considerable distance apart to allow material to be hung upon the girts.

3. The combination in a looping machine, of a casing enclosing a drying chamber; tracks at each side of the chamber; driven sprocket wheels at the feed end of the machine; a carrier consisting of two chains spaced apart and arranged to travel on the tracks; girts extending from one chain to the other, each chain consisting of a series of links; means for holding the chains in a flat, extended position at the feed end of

the machine to allow material to be looped upon the girts; means for allowing the chains to buckle so that the girts will be arranged close together; and a projection on each link acting to space the links when the chains are buckled.

4. The combination in a loop drying machine, of two tracks spaced apart; a chain arranged to travel on each track, each chain being composed of a series of links; pivot pins connecting the links; rollers on the pivot pins, one series of links having projections extending in one direction, the alternating links having projections extending in the opposite direction; girts extending from one chain to another; means for elongating the chains to space the girts a considerable distance apart; and means for allowing the chains to be buckled to bring the projections of one series of links in contact with those of the other series of links.

5. The combination in a loop drying machine, of two longitudinal tracks spaced apart; short sections of track spaced from the feed end of each longitudinal track; sprocket wheels beyond the short sections of track; a rail above each longitudinal track, said rails having depressed portions above the short sections of track; chains, composed of a series of links, arranged to travel upon each track; girts connecting the chains, the depressed portions of the rails holding the chains in the extended position while the chains are traveling over the short sections of track, the raised portions of the rails allowing the chains to buckle as they commence to travel upon the longitudinal tracks; and means for spacing the girts apart.

6. The combination in a loop drying machine, of two longitudinal tracks spaced apart; a short section of track spaced from the feed end of each longitudinal track and aligning with said tracks; a driven shaft at the feed end of the machine; sprocket wheels on the shaft in line with the tracks; driven sprocket wheels at the discharge end of the machine, also in line with the tracks; a chain arranged to travel on the tracks at each side of the drier, transverse girts connecting the chains, each chain consisting of a series of links having projections, the projections on one set of links extending in one direction and the projections on the other set of links extending in the opposite direction and abutting those of the other set of links when the chains are buckled, rails mounted above the tracks, said rails having depressed portions above the short sections of track to hold the chains in an elongated position, the rails above the longitudinal tracks being raised to allow the chains to be buckled; and means for feeding material onto the girts when the chains are in an elongated position.

7. The combination in a loop drying machine, of two tracks spaced apart; a chain arranged to travel on each track, each chain consisting of a series of links; girts extending from the links of one chain to the links of the other chain; means for pushing the chains over the tracks; means for retaining the chains in a flat position at the feed end of the machine; means for feeding material onto the girts while the chains are in a flat position; and means for allowing the chains to buckle, when the material is on the girts, to bring the girts close together.
8. The combination in a loop drying machine, of a drying chamber; longitudinal tracks at each side of the drying chamber; a carrier consisting of two chains connected by a series of girts, said carrier being arranged to travel on the tracks; means for increasing the distance apart of the girts of the carrier to allow material to be looped onto the girts; means for allowing the chains to be buckled as they travel through the drying chamber; and means for extending the carrier as it passes from the discharge end of the machine and returns to the feed end.

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