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REVERSING MECHANISM FOR RECIPROCATING MEMBERS

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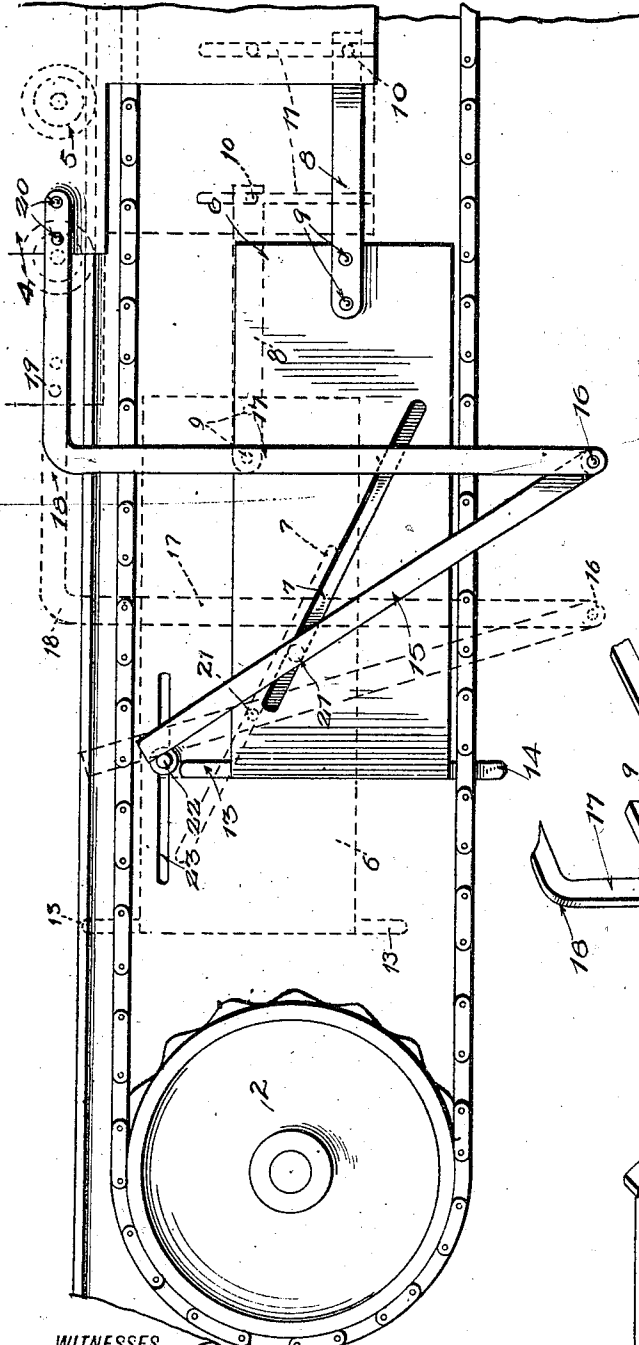


Fig. 1.

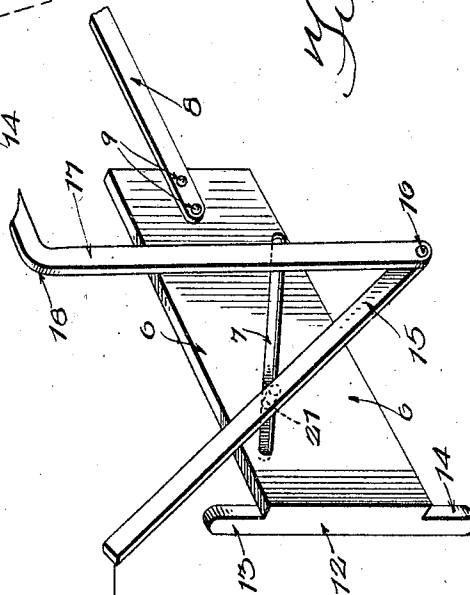


Fig. 2.

WITNESSES

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REVERSING MECHANISM FOR RECIPROCATING MEMBERS.

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To all whom it may concern:

Be it known that I, WALTER M. BARKER, a citizen of the United States, and a resident of Portland, in the county of Multnomah and State of Oregon, have invented certain new and useful Improvements in Reversing Mechanisms for Reciprocating Members, of which the following is a specification.

My invention relates to reversing mechanisms for reciprocating members, and it consists in the combinations, constructions and arrangements herein described and claimed.

An object of my invention is to provide automatic means for reversing the direction of movement of a reciprocating member at predetermined points along its line of travel.

A further object of my invention is to provide a device of the character described whereby the length of the path along which a reciprocating member travels may be varied within certain limits at will.

A still further object of my invention is to provide a device of the character described which is designed primarily for attachment to machines for forming felt, wherein the distance of travel of a reciprocating member must be changed frequently to meet the requirements of the service for which employed.

A still further object of my invention is to provide a device of the character described which is of simplified construction, which can be operatively applied to machines of various types of construction without any extensive changes in the construction of the latter being required, and which is effective for the purpose intended without requiring any further attention after being initially adjusted in a predetermined manner.

Other objects and advantages will be apparent from the following description, and the novel features of the invention will be particularly outlined in the appended claim.

My invention is illustrated in the accompanying drawings, forming a part of this application, in which:

Fig. 1 is a fragmentary side elevational view, showing more or less diagrammatically a practical embodiment of the invention operatively applied, and

Fig. 2 is a perspective view showing a traveler comprised in the embodiment of the invention exhibited in Fig. 1, together with certain elements associated therewith.

In the drawings, a driving mechanism in-

cludes a chain 1 in engagement with sprockets, such as indicated at 2, which sprockets are rotatably supported upon a frame 3 so that portions of the chain will travel in opposite directions substantially in parallel planes located at different levels, one of such portions of the chain being positioned directly above a portion of the chain moving in a direction opposite to that of the first portion. The frame 3 may be a part of any machine or apparatus, such as a felting machine, which includes a carriage 4 movably supported upon the frame, as by means of the wheel and track arrangement indicated generally at 5 to travel in a path extending substantially in parallelism with the portions of the chain 1 which move in opposite directions, as stated. A fragmentary portion of the carriage 4 is illustrated more or less diagrammatically in the drawings. It is to be understood that the parts described so far may vary considerably from the construction illustrated and form no part of my invention except in so far as they cooperate with the parts which will now be described.

A traveler 6, preferably has the form of a plate provided with a guide slot 7 formed therethrough to extend diagonally thereof, the guide slot being inclined toward the forward end of the traveler, as will presently appear. A draw bar 8 is fixedly secured at 9 in any suitable known manner to the traveler 6 to extend rearwardly of the latter. The draw bar 8 is attached to the carriage 4 in such manner as to permit of the traveler 6 being moved at right angles to its longitudinal axis relatively to the carriage while holding the traveler 6 against movement axially relatively to the carriage. Any suitable known means for attaching the draw bar to the carriage to attain the object stated, may be employed, as for instance the draw bar 8 may be provided with a laterally extending stud or projection 10 working in a slot 11 extending in the carriage 4 substantially at right angles to the longitudinal axis of the traveler 6.

The traveler 6 is provided at its end remote from the carriage with an enlargement 12 which extends transversely thereof and projects laterally of the traveler. The enlargement 12 has aligned end portions 13, 14 of bar-like formation which respectively extend beyond the opposite sides of the traveler and substantially at right angles

to the longitudinal axis of the latter. The extensions 13 and 14 are preferably rounded at their ends and are of such size as to be adapted to be projected through links of the chain 1. It is to be noted at this point that the distance between the oppositely moving portions of the chain 1 is greater than the length of the enlargement 12 from the end of one extension thereto to the end of the other extension. In consequence, the traveler 6 will be drawn in the direction of the portion of chain to which attached through the agency of one of the extensions 13, 14. It will be apparent that the carriage 4 will be moved along the track when the traveler 6 is moved in the direction of its longitudinal axis.

It is important that automatic means should be provided to disconnect the traveler 6 from one portion of the chain 1 when the carriage 4 has been moved a desired distance in one direction and to effect a driving connection between the traveler 6 and an oppositely moving portion of the chain 1 so that the carriage will be reciprocated between predetermined limits. To this end, a shifter arm 15 is pivotally attached at its lower end, as at 16, to an arm 17 of a suspension member 18 which is of right angular form and has an arm portion 19 fixedly secured at 30 to the carriage 4. The arm 17 of the suspension member extends transversely of the traveler 6 and of the oppositely moving portions of the chain 1 between which the traveler 6 is movable and crosses the guide slot 7 at a point somewhat nearer to the lower end thereof than to its upper end. The shifter arm 15 is provided with a laterally extending stud or projection 21 working in the guide slot 7. The stud 21 is located intermediate of the length of the shifter arm and the upper end of the latter extends beyond the corresponding side of the traveler 6 when the latter is in either its uppermost or lower position. A stop 22 is carried by the frame 3 in position to be contacted by the upper end portion of the shifter arm 15 when the carriage and traveler 6 have been moved a predetermined distance in one direction, which in the embodiment of the invention illustrated, is toward the left hand side of the sheet. The stop 22 is preferably adjustably supported as by having a shank extending through a slot 23 formed in the frame in parallel relation to the longitudinal axis of the traveler 6, the stop being releasably held at any predetermined point along the slot 23 by any suitable known means, as for instance a wing nut 24 in threaded engagement with the portion of the stop projecting through the slot and operating to clamp the stop to the frame. From the foregoing description of the vari-

ous parts of the device, the operation thereof may be readily understood. The stop 22 is set to engage the shifter arm 15 when the carriage and traveler have been moved a predetermined distance in one direction. When the shifter arm 15 contacts the stop 22, the former will be moved from the full line position in Fig. 1 to the dotted line position in the same view. On account of the engagement of the stud or projection 21 with the inclined slot 7, the traveler 6 will be moved bodily from the full line position of Fig. 1 to the dotted line position of the same view. In the full line position of the traveler, the extension 14 is in engagement with the lower portion of the chain 1 and when the traveler has been moved to the dotted line position, the extension 14 will have been moved out of engagement with the lower portion of the chain 1 and the extension 13 will be in engagement with the upper portion of the chain 1. Since the parallel upper and lower portions of the chain 1 are moving in opposite directions, the effect of shifting the traveler 6 in the manner described, will be to reverse the direction of movement of the latter, thereby reversing the direction of movement of the carriage 4. It will be understood that stops adapted to engage the shifter bar to swing the latter about the pivot 16 in opposite directions, are provided in practice, the stop 22 illustrated being one of a pair of cooperating stops defining the limits between which the traveler 6 and the carriage 4 may be reciprocated.

Obviously, I do not care to be restricted to the details of construction exhibited in the accompanying drawings, but consider as my own, all such modifications and adaptations thereof as fairly fall within the spirit and scope of the invention as disclosed in the foregoing and as outlined more particularly in the appended claim.

I claim:—

The combination with a moving chain supported with portions substantially in parallelism and moving in opposite directions in respect to each other, of a traveler arranged between the oppositely moving portions of the chain and having oppositely extending portions for engaging the chain releasably, said traveler being formed with a slot extending diagonally in respect to the parallel portions of the chain, and a pivoted shifter arm supported to move with said traveler and having a projection working in the slot of the traveler whereby the traveler will be shifted between the oppositely moving portions of the chain when the shifter arm is moved relatively to the traveler.

WALTER MONROE BARKER.