

Aug. 16, 1927.

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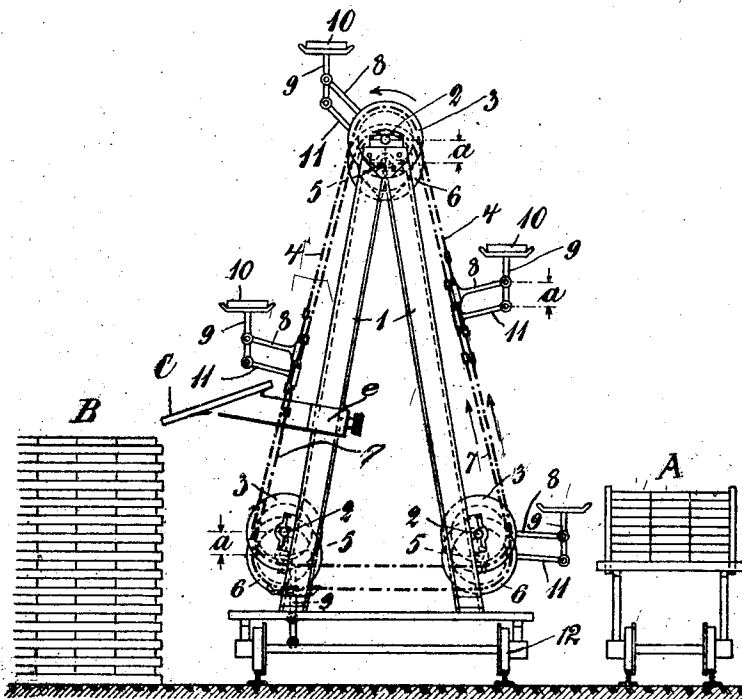
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CONVEYING AND PILING APPARATUS

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Fig. 1.



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Fig. 2.

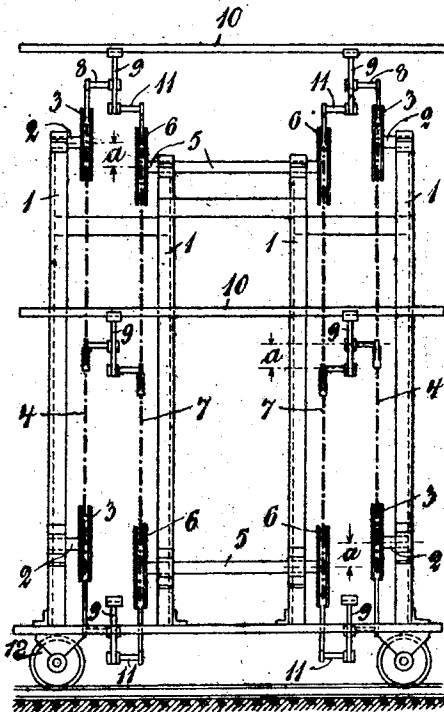
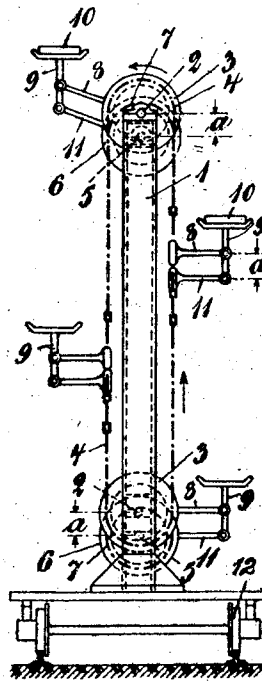


Fig. 3.



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CONVEYING AND PILING APPARATUS.

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Such conveying apparatus are previously known in which groups of endless conveying members work over a number of wheels so located that said members form congruent geometrical figures, which are in each group located at different heights, carrying surfaces being located between the same which are during the movement positively held in the same direction. Hitherto, it has not been possible to utilize this known construction of conveying apparatus as piling apparatus for boards due to the fact that one has not succeeded in obtaining a construction which makes it possible to have the carrying surfaces for the boards located sufficiently out of reach of the chains during the whole movement of the same and at the same time be positively held in the same direction. Therefore, in the piling apparatus hitherto known the supporting surfaces for the boards have turned over in the uppermost position so that the boards are forced to change position thus easily falling down before they reach the pile.

My present invention has for its object a piling apparatus based on the above mentioned known principle and which is provided with arrangements making it possible to positively hold the supporting surfaces in a horizontal direction during the whole movement of the endless conveying members at the same time as said surfaces are held at a sufficiently great distance from the chains for making it possible to utilize the same for piling boards.

Two forms of embodiment are schematically illustrated as examples on the accompanying drawing where Fig. 1 shows a piling apparatus in end view and Fig. 2 the same in side view. Fig. 3 shows another form of embodiment in end elevation.

In a frame 1 of any convenient construction there are at two opposite sides located three journals 2 on which are mounted chain wheels 3 round which endless chains 4 are located. The journals 2 on the one side of the frame are located coaxially in relation to the journals 2 on the opposite side of the same. According to the form of embodiment shown in said figures the journals are three on each side and located so that they form the corners of an isosceles triangle.

In the form shown there are also three shafts 5 each provided with two chain wheels 6 round which are located endless chains 7.

The shafts 5 are also located so as to form the corners of an isosceles triangle. The last mentioned triangle is congruent with the first mentioned one but is displaced for a certain amount in relation to the other one so that the journals 2 of one triangle (or other figure) are located at a higher level than the journals 5 of the other one, as is evident from Fig. 2 where the difference in height is designated by a . The chains 4 and 7 form two pairs or groups of cooperating chains one group at each side of the frame, the chains thus moving along paths which are uniform but situated at different heights. Motion is imparted to all chains in any convenient manner so that they are caused to rotate with the same speed. On the chains 4 are rigidly secured a number of angle shaped projections or arms 8 at the free ends of which are articulated carrying or supporting members 9 adapted to carry the boards 10 or other objects to be transported from one place to another. The chains 7 are in a similar manner provided with angle shaped projections or arms 11 the free ends of which are articulated to different points of supporting members 9. However, the connecting points between the supporting members and the arms 8 and 11 respectively are situated at a certain distance from one another, so that they will positively hold the supporting members in certain positions. The points where two cooperating arms 8 and 11 are attached to the chains are located at a distance a from one another in the vertical plane which is equal in size to the vertical distance a between the axis of the journals 2 and 5 and between the points where the inner ends of the arms 8 and 11 are articulated to the supporting members 9.

In Fig. 1 the direction of movement of the chains is indicated by the arrows and it ought to be understood from said figure how the apparatus works. During the whole movement the supporting surfaces of the carrying members 9 are held in horizontal position so that the boards 10 will maintain exactly the same position (horizontal) during the movement. A designates the transport wagon from which the boards should be transported to the pile of boards B. C designates a removing device, consisting of a number of bars or the like which are supported in any convenient manner so that

they occupy a position inclining towards the pile. The inner ends of the said bars may be fastened in any convenient manner in the piling apparatus as by movable device *e* so that they may be raised according as the height of the pile is increased, if boards are to be transported to the same. If boards are to be transported from the pile the chains are caused to move in opposite direction to that of the arrows in Fig. 1, and in such case the removing device *C* is located at the opposite side of the piling apparatus so as to transport the boards on to the wagon *A*.

The invention is not limited to a triangular form of the path of the conveying chains, as in Fig. 1, but any convenient form may be used for said purpose. Fig. 3 shows a form where each chain runs over two chain wheels 3, 3 and 6, 6 respectively only one wheel being situated at the top and one at the bottom of the apparatus in each group. The same reference figures are used as in Figs. 1 and 2 for corresponding parts.

The piling apparatus according to my present invention is fastened to the frame of a wagon 12 adapted to be transported on rails to the different piling places.

The invention may of course be applied to other conveying apparatus than piling apparatus and the detail constructions shown as examples may be varied within wide limits without departing from the scope of the invention.

I claim:

1. In piling apparatus for boards, the combination of a frame a number of wheels journaled in said frame, a number of groups of endless conveying members working over said wheels in such manner that said members in each group form congruent geometrical figures, which are located at different heights, a number of pairs of supporting arms the inner ends of which are rigidly fastened to certain of said endless members, the attaching points of the arms of each pair being located at a vertical distance from one another equal to the difference in height between the wheels, and a number of carrying members, each connected to a pair of arms so that the supporting surface of each member is thereby positively held in a horizontal direction during the working of the endless members and at a sufficient distance from said endless members for making it possible to pile boards.

2. A piling apparatus according to claim 1, wherein there is provided a removing device for the boards and a movable device on the frame for cooperating with the removing device and adapted to be raised or lowered according as the height of the pile is increased or decreased.

In witness whereof, I have hereunto signed my name.

HOLGER AUGUST ERIK NILSSON.