Nov. 4, 1930. E. C. OTIS 1,780,716

SHINGLE STACKER

Filed Feb. 26, 1927 2 Sheets-Sheet 1

Fig. 1.

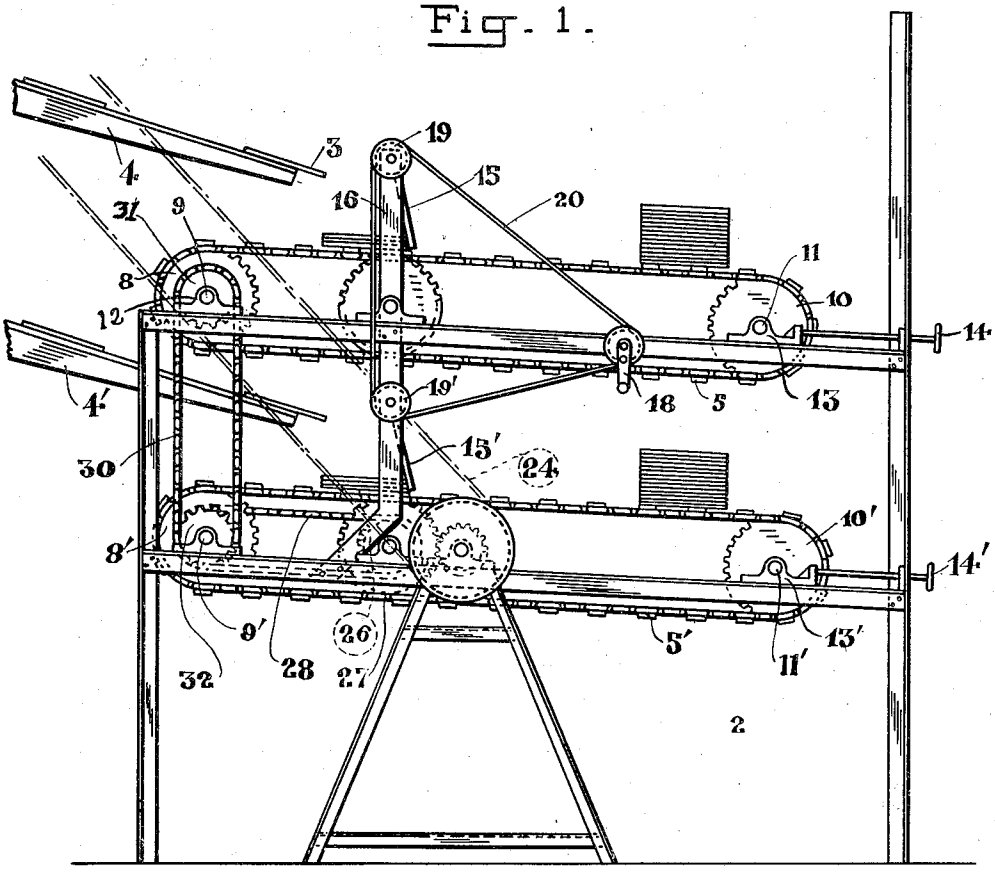
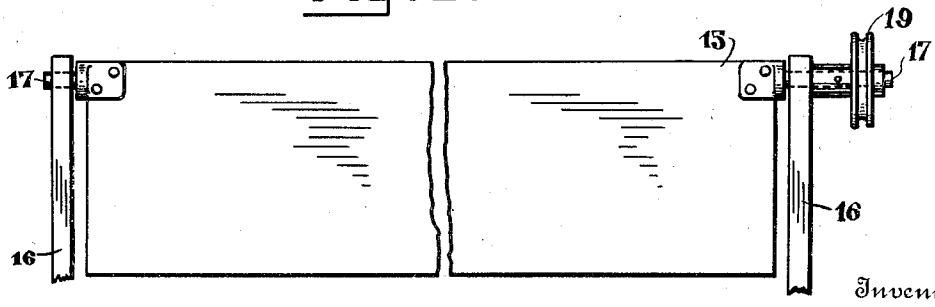


Fig. 3.



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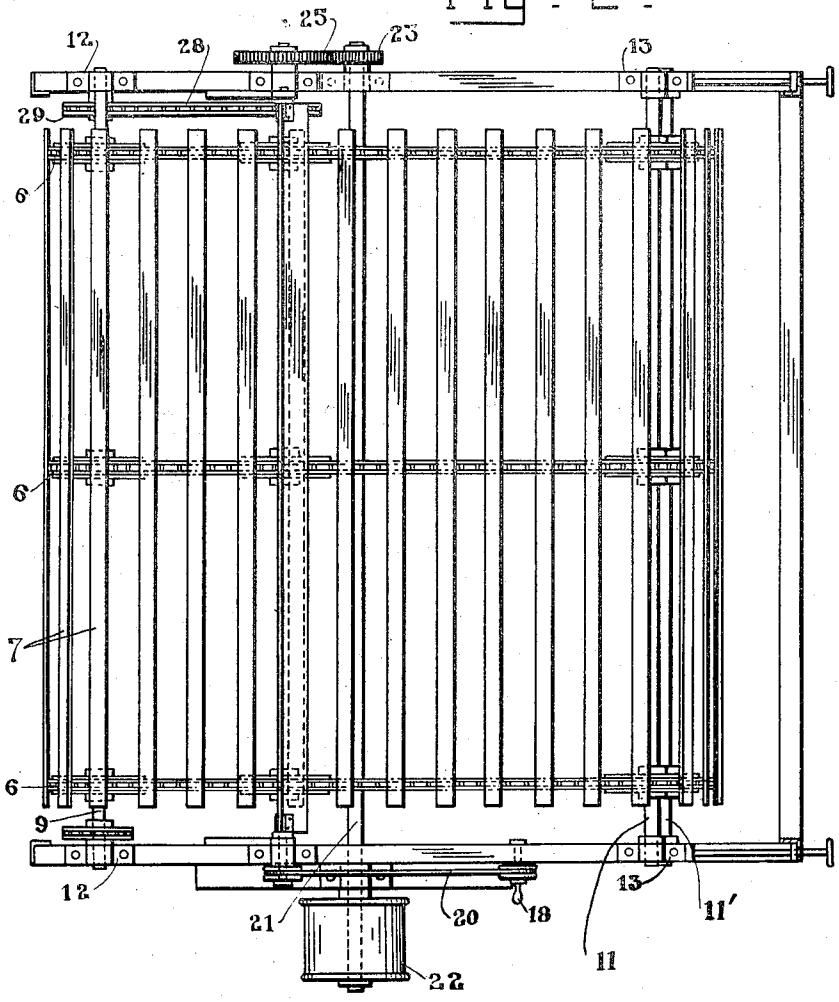
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Fig. 2.



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UNITED STATES PATENT OFFICE

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SHINGLE STACKER

Application filed February 26, 1927. Serial No. 171,230.

This invention relates to means for receiving and stacking sheet elements of uniform size after they have been fabricated and delivered from a manufacturing machine.

The invention consists in the features, combinations and arrangements, hereinafter described or claimed, for carrying out the above stated object, and such other objects as will hereinafter appear.

The invention may be readily understood by reference to one exemplification thereof described in the following specification, such exemplification comprising a receiving and stacking device positioned adjacent the delivery end of a roofing machine. This device is typified by a frame support on which is mounted a conveyor that receives the shingles and is then manipulated to convey them to any desired point. Means is provided adjacent the conveyor in the path of the shingles to intercept and stack them in a pile of predetermined size, after which said means is lifted from the path of the stack, and the conveyor is actuated to remove same to a point where it can be bundled. The means is then returned to original position to align the shingles until another stack has accumulated and the steps repeated to remove it.

In the accompanying drawings: Fig. 1 is a view in side elevation of a machine embodying my invention;

Fig. 2 is a top plan view of the stacking machine.

Fig. 3 is a detailed end view of the stop plate which aligns and stacks the shingles.

Referring to the drawings, the invention is typified by a shingle stacking machine denoted generally by numeral 2 which is positioned on the floor adjacent the delivery end of any suitable roofing machine to receive shingles 3 after they have been cut from a prepared roofing sheet into desired form and ejected from table 4.

The modification is an illustration of a stacking device adapted to be used with a double type roofing machine, wherein two roofing sheets are concomitantly prepared and cut, one of which is discharged from the upper table, previously referred to, and the other is ejected from a lower table 4^1. Since the roofing machine forms no part of the present invention only tables 4, 4^1 thereof are shown, these being those parts of the roofing machine from which the shingles are delivered to the stacking device.

The stacking machine is typified by a plurality of conveyors 5, 5^1, each of which are substantially horizontally disposed adjacent the tables. Upper conveyor 5 is positioned to receive the shingles from the upper table, and the lower conveyor is positioned to receive the shingles from the lower table. Inasmuch as both conveyors are similarly constructed and disposed in relation to the roofing machine, the description of one will suffice for the description of the other. Conveyor 5 is composed of a plurality of sprocket chains 6 to which cross slats 7 are attached, said chains being arranged to circumvolve a series of sprocket wheels 8 on shaft 9 and another series of sprocket wheels 10 on shaft 11. The ends of shaft 9 are journalled in a set of fixed journal boxes 12 and the ends of shaft 11 are journalled in a set of movable journal boxes 13, both sets of journal boxes being mounted on some part of the frame. The movable journal boxes are adapted to be adjusted by any conventional regulating means, represented by hand rod 14, to tension the conveyor. Additional sprocket wheels may advantageously be interposed intermediately in the conveyor sprockets to provide further support for the cross slots, said sprockets being preferably fixed on some part of the driving mechanism hereinafter described.

Stop means, represented by pivoted plate 15, is mounted on side supports 16 to intercept the shingles as they are ejected from the roofing machine and stacks them in alignment until a desired quantity has been accumulated. The plate is provided with trunnions 17 by means of which it can be rotated above the stack while said stack is being removed. A single windlass 18 may advantageously be employed to manipulate both stop plates 15, 15^1, each of which are provided with respective pulleys 19, 19^1 on the trunnions thereof and connected to the wind-

lass by means of belt 20. Means; such as a windlass, may be manipulated to lift the stop plate when a stack of the desired size has been accumulated on the conveyor.

Driving mechanism for actuating the conveyors comprises a drive shaft 21 provided at one end with a pulley 22 and at the other end with a gear wheel 23, the pulley being connected to any source of power by belt 24 and the gear wheel meshing with another wheel 25 which is fixed and rotates with sprocket wheel 26 on the single stub shaft 27. Sprocket 26 by means of belt connection 28 is in turn connected with sprocket wheel 32 on the shaft 9^1 which carries sprocket wheels 8^1 over which the lower conveyor revolves. The other conveyor 5 is driven by sprocket chain 30 connecting sprocket wheels 31 and 32 on the respective shafts 9 and 9^1.

Obviously the invention is not limited to the details of the illustrative embodiment above described, since these may be variously modified. Moreover, it is not indispensable that all the features of the invention be used conjointly, since certain features may advantageously be employed in various combinations.

Having described one embodiment of my invention, I claim:—

1. A stacker for sheet elements comprising an endless conveyor on which the sheet elements are accumulated, means against which the elements are projected for aligning said elements in a stack upon the conveyor, means for rotating the aligning means from the path of the stack when any number of elements have accumulated, and means for actuating the stack to a remote point.

2. A stacker for sheet elements comprising an endless conveyor on which the sheet elements are accumulated, an aligning plate against which said elements are projected for aligning them in an aligned stack, means for rotating the plate from the path of the stack when any number of elements have accumulated on the conveyor, and means for actuating the conveyor to remove the stack to a remote point.

3. A stacker for sheet elements comprising an endless conveyor on which said elements are accumulated while the conveyor is stationary, a depending pivoted plate for aligning the sheet elements on the conveyor, means for swinging the plate above the accumulated stack, and means for actuating the conveyor beneath the plate.

4. An apparatus for stacking roofing shingles comprising an endless conveyor disposed adjacent the delivery end of a roofing machine, a plate provided above the conveyor against which the shingles are ejected from the machine to accumulate them in a stack, means for raising the plate above the stack, and means for actuating the stack past the plate.

5. A stacker for collecting sheet elements comprising a plurality of conveyors disposed in substantially parallel relation, a stop plate for each conveyor against which the elements are ejected to accumulate them in stacks on the conveyors, a rotatable means for simultaneously actuating the stop plates, and means for actuating the conveyors to remove the stacks to remote points.

6. A stacker for collecting roofing sheets comprising a plurality of conveyors disposed one above the other in substantially parallel relation, a stop plate for each conveyor against which the sheets are ejected to accumulate them in stacks, means connected with the plates by which same are adapted to be raised, and means for actuating the conveyors.

7. A stacker for sheet elements comprising an endless conveyor, stop means pivotally suspended above said conveyor, means for turning said stop means on its pivots whereby a stack of sheet elements accumulated thereagainst is allowed to be removed by said conveyor.

8. A stacking apparatus for substantially rigid sheet elements comprising an endless conveyor, stop means pivoted above said conveyor, means for turning said stop means on its pivots, and means for actuating said conveyor whereby elements accumulated against the stop means are carried to a remote point.

9. Stacking apparatus comprising an endless conveyor, means for actuating said conveyor, stop means pivoted above said conveyor, said stop means being removable by actuation on its pivot whereby elements stacked thereagainst are released and allowed to be advanced by actuation of the conveyor.

10. A stacking machine comprising a tractor belt conveyor, means for actuating said conveyor, stop means pivotally suspended above said conveyor and means for turning said stop means out of the orbit of the stacked elements accumulated on said conveyor by said stop means while interposed to stop and stack said elements.

In testimony whereof, I affix my signature.

EDWARD C. OTIS.