Dec. 15, 1931. A. W. WERNER 1,836,213

SHEET ALIGNING CONVEYER

Filed June 24, 1929

Fig. 1.

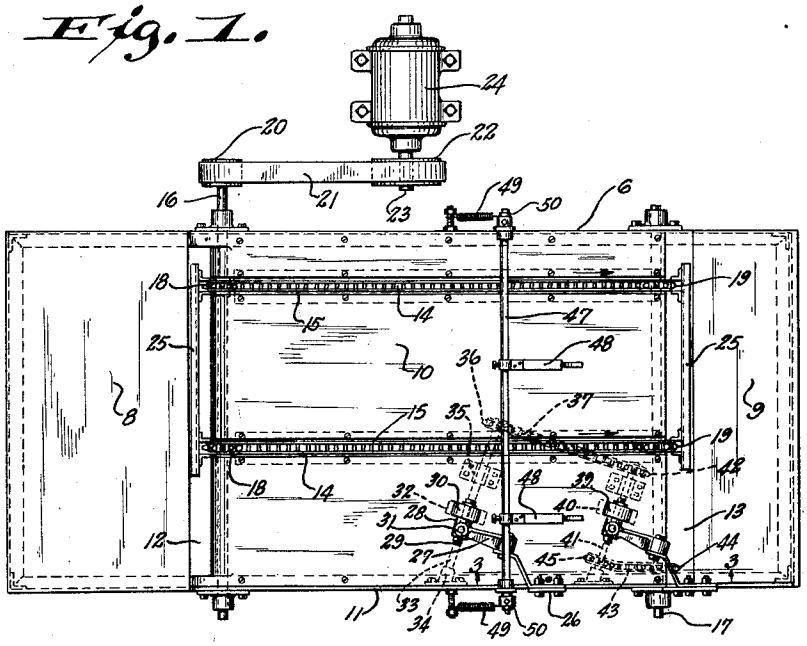


Fig. 2.

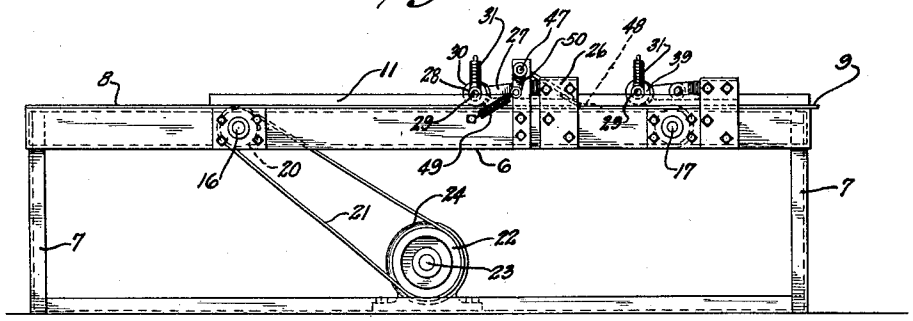
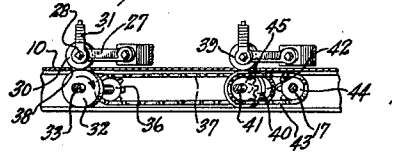


Fig. 3.



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SHEET ALIGNING CONVEYER

Application filed June 24, 1929. Serial No. 373,330.

This invention relates to improvements in sheet aligning conveyers.

In conveyers for flat sheets of material, the sheets are often fed to the conveyer in an indiscriminate manner with the result that the sheets are in an uneven and disorderly arrangement on the conveyer. If the sheets are being conducted by the conveyer to a machine to be operated on thereby, it is necessary that the sheets be aligned on the conveyer prior to their entrance to the machine so that they will be fed thereto in a line and in uniform position.

It is, therefore, the primary object of the present invention to provide a sheet material conveyer having means thereon for automatically aligning the sheets of material being carried therealong.

A further object of the invention is to provide a sheet material aligning device for conveyers which will automatically align the sheets by crowding the same toward and against a side rail of the conveyer.

A further object of the invention is to provide a sheet material aligning device with which any form of sheet material conveyer may be readily equipped without any material alteration thereof.

A further object of the invention is to provide a sheet aligning conveyer which is of very simple construction, is inexpensive to manufacture and install, is strong and durable, and is well adapted for the purposes described.

With the above and other objects in view the invention consists of the improved sheet aligning conveyer, and its parts and combinations as set forth in the claim, and all equivalents thereof.

In the accompanying drawings in which the same reference characters indicate the same parts in all of the views:

Fig. 1 is a plan view of the improved sheet aligning conveyer;

Fig. 2 is a side view thereof; and

Fig. 3 is a detail sectional view taken on line 3—3 of Fig. 1.

Referring now more paticularly to the drawings it will appear that the numeral 6 indicates the conveyer table mounted on supporting legs 7 and having a horizontal entrance station 8 and a horizontal delivery station 9 at opposite ends. The mid-portion of the table is formed with a sheet metal covering 10 and along one side thereof is a longitudinal rail 11. Transverse spaces 12 and 13 are provided between the ends of the covering 10 and the stations 8 and 9 and the upper portions of a pair of elongated, endless conveyer chains 14 run in spaced apart longitudinal slots 15 in the covering 10.

For the purpose of driving the conveyer chains 14 a pair of transverse shafts 16 and 17 are journaled in the table at opposite ends of the covering 10 and said shafts have fast thereon spaced sprocket wheels 18 and 19 about which the chains 14 extend. The shaft 16 has mounted fast on one end portion a pulley 20 which is connected by a belt 21 with a pulley 22 fast on the drive shaft 23 of an electric motor 24. There are connected to the conveyer chains at spaced intervals transverse flights or conveying elements 25 which are adapted to move along the top surface of the covering 10 and push sheet material therealong.

There is secured to the side rail 11, intermediate the ends of the covering 10, an upstanding bracket 26 carrying an inwardly, angularly extending arm 27 formed at its end with a bearing portion 28 in which is journaled a short shaft 29 carrying a roller 30 and said roller, as shown, is disposed at an angle to the longitudinal plane of the covering 10 or at an angle to the line of travel of the conveyer chains. There is an upstanding portion of the bearing 28 on which weights 31 are mounted so as to hold the roller 30 downwardly in an engaging position.

Immediately below the roller 30 and parallel thereto is a slightly larger roller 32 mounted on a shaft 33 which is journaled at its end portions in brackets 34 and 35 disposed below the covering 10. The shaft 33 is positively driven and carries fast thereon a small sprocket wheel 36 engaged by a chain 37. The covering 10, adjacent the rollers 30 and 32 is provided with a small slotted opening 38 through which the peripheries of said rollers engage each other.

The mechanism just described constitutes what is known as a sheet crowder or aligner, and forwardly of said aligning mechanism is a duplication thereof including an upper angularly directed frictionally moved roller 39, and a lower positively driven roller 40 whose shaft 41 carries a sprocket wheel 42 engaged by the chain 37 for driving the shaft 33. Power is brought to the shaft 41 by a chain 43 connected to a sprocket wheel 44 on the shaft 17 which is driven by the conveyer chains, and the chain 43 in turn drives a sprocket wheel 45 on the inner end of the shaft 41.

To hold the sheets of material flatly on the conveyer, a drag mechanism is provided which includes a rod 47 pivotally mounted over the conveyer and transversely thereto, and longitudinally adjustably mounted on said rod are a pair of spaced drag fingers or arms 48 having their outer end portions slightly curved to permit the movement of sheet material thereunder. The drag fingers are yieldingly held in their downwardly directed engaging positions by springs 49 connected between cranks 50 on the ends of the rod 47 and portions of the conveyer table 6.

In the use of the sheet aligning conveyer, the conveyer chains are driven through the means described and sheets of material are fed from the station 8 to the covering 10 and are engaged by the flights 25 and carried along. The sheets may be pushed onto the conveyer indiscriminately and to align all of the sheets so they will be delivered onto the station portion 9 in proper order and alignment is the function of the crowding or aligning mechanisms previously described. The sheets must pass between the pairs of rollers 30—32 and 39—40 and said rollers being angularly disposed toward the side rail 11 of the table, and the driven rollers being rotated in a clock-wise direction in Fig. 3, the sheet material will be pushed or crowded thereby against the side rail 11, whereby the sheets carried by the conveyer will be properly aligned for delivery to another machine for further operations. The drag mechanism serves to hold the sheets firmly against the covering 10.

From the foregoing description it will be seen that the improved sheet aligning conveyer is both simple and novel, and is well adapted for the purposes described.

What is claimed as the invention is:

In a sheet material conveyer having a longitudinal rail along its conveying surface, an aligning device mounted thereadjacent, comprising a driven roller below the sheet material path to engage the undersurfaces of sheets and directed toward said rail and at an angle to the longitudinal plane of the conveying surface, a bracket arm, and an upper free roller freely revolubly carried by said bracket arm parallel to said driven roller, and variable weights carried by said bracket arm and spaced from said roller, said roller being held by said weighted bracket arm in frictional engagement with the upper surfaces of sheets moved by said conveyer.

In testimony whereof, I affix my signature.

ARTHUR W. WERNER.