Feb. 22, 1944. H. M. JAMPOL 2,342,471

FEEDING CONVEYER

Filed Jan. 24, 1940 2 Sheets-Sheet 1

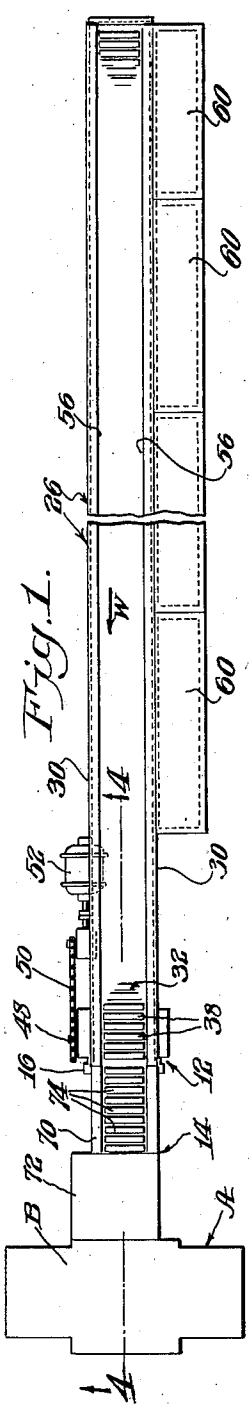


Fig. 1.

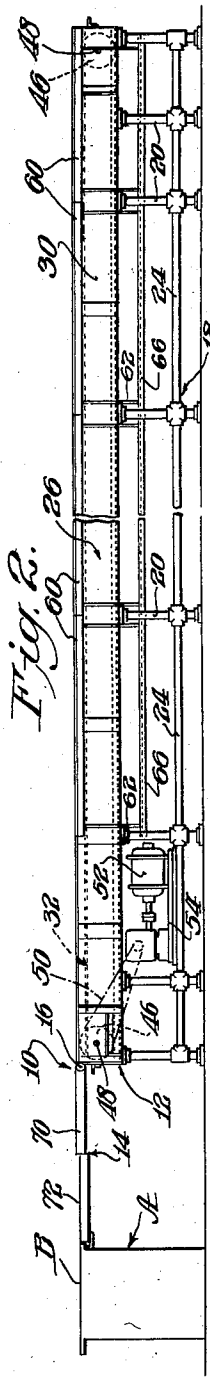


Fig. 2.

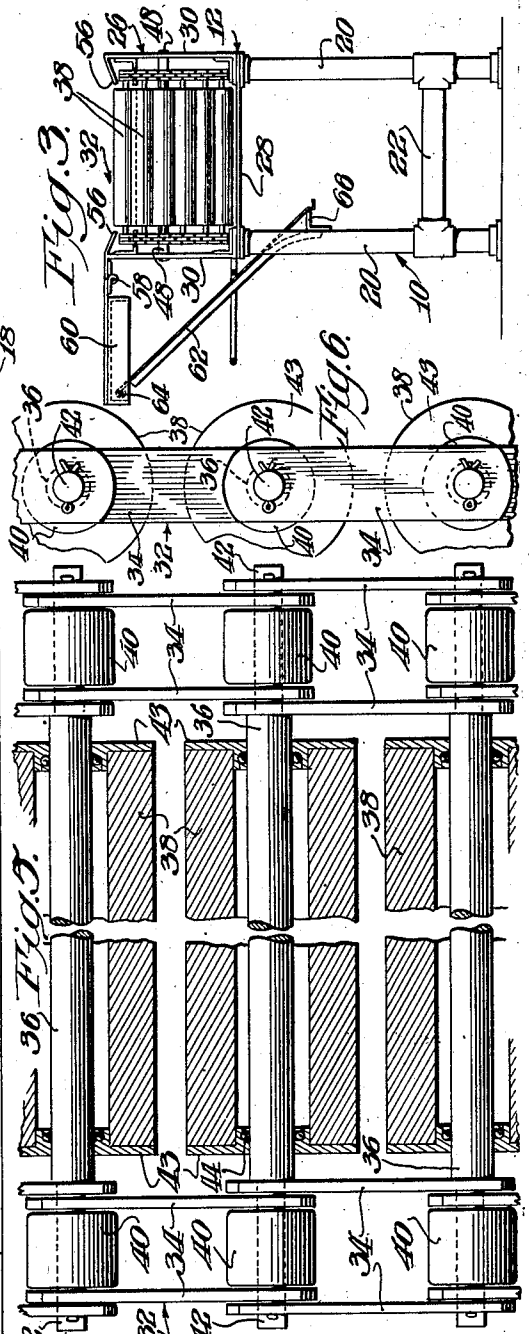


Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

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Fig. 8.

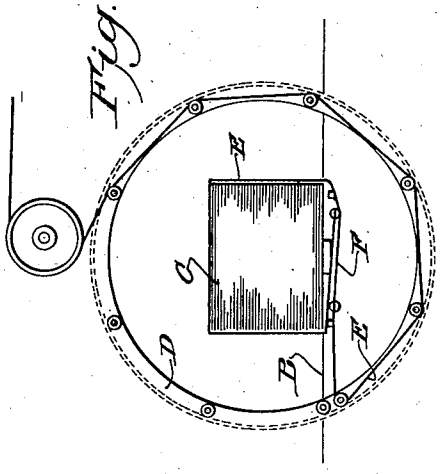


Fig. 7.

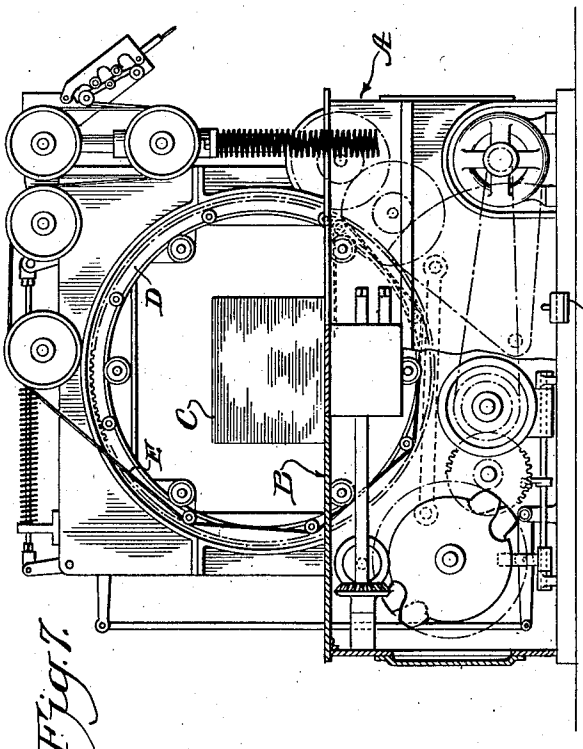
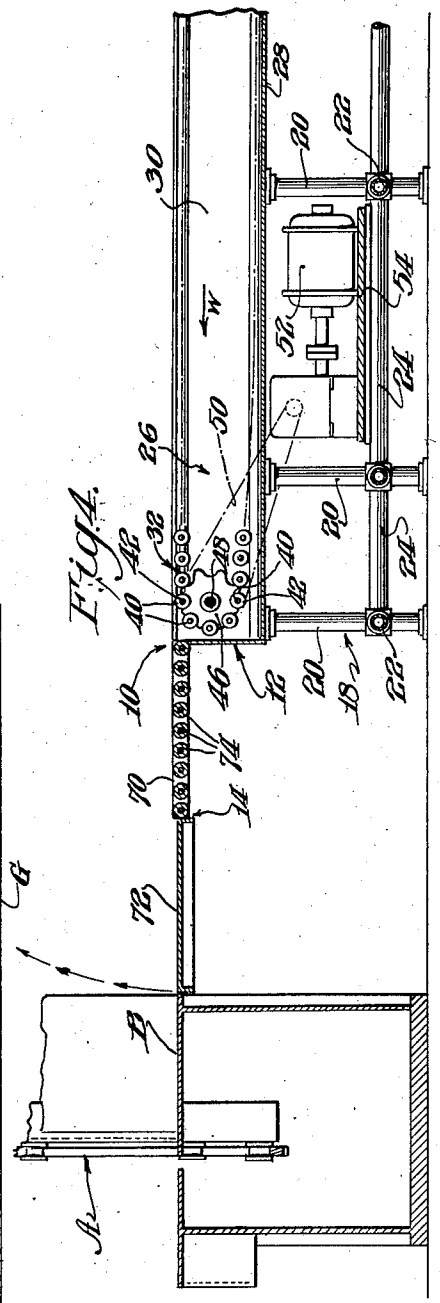


Fig. 4.



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2,342,471

UNITED STATES PATENT OFFICE

2,342,471

FEEDING CONVEYER

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Application January 24, 1940, Serial No. 315,301

2 Claims. (Cl. 198—19)

The present invention relates to handling mechanism for feeding newspaper stacks to bundle tying machines of the type adapted to wrap and secure a band, strip, or wire about a newspaper stack of predetermined limited dimension and, more particularly, to a roll feed mechanism therefor capable of receiving stacks of newspapers to progressively advance the same for delivery to the working platform of the bundle tying machine.

It is the custom in many newspaper plants to use a machine for the tying up of bundles or stacks of newspapers with wire. Heretofore, it has been the usual practice in such plants, after the newspapers leave the press, to carry the newspapers to the mailing room either by hand or by dispatch conveyer which carries the newspapers in a steady stream from where they are removed and arranged in stacks. These stacks are then piled up to be subsequently placed, one by one, in the tying machine to be bundled up thereby, ready for distribution. Such a practice not only brings about loss of time and added labor, but also often results in confusion, because constant and repeated handling of the newspapers in removing them from the dispatch carrier, arranging them in stacks, piling the stacks, and finally placing the stacks in the tying machine, cause disarrangement of the newspapers and spilling of the stacks. If the stacks are not piled up when the newspapers are removed from the dispatch conveyer, but placed immediately in the tying machine, then it often happens that the machine is not ready to tie up the stacks and, therefore, in order to prevent spilling of the newspapers fed from the dispatch conveyer in a steady stream as they emerge from the press, the latter must be shut down which, of course, is undesirable from the standpoint of production.

Therefore, it is one of the most important objects of the invention to provide a mechanism whereby the handling of newspaper stacks assembled from the dispatch conveyer is reduced to the utmost by feeding said stacks, upon being assembled, directly to the working platform or table of the binding machine for immediate tying up into bundles.

It is also a most important object of the invention to provide a newspaper stack feeding mechanism for bundle tying machines, said mechanism being so constructed that should the stacks arrive at the tying machine and the same is not ready to tie said stacks, the stacks will not be disarranged, causing the newspapers to spill on the floor.

Another meritorious feature of the invention resides in the provision of a mechanism for progressively feeding newspaper stacks incorporating a plurality of spaced rolls on carrying chains, said rolls being independently rotatable in relation to the carrying chains whereby when the stacks are prevented from progressive movement towards the tying machine, said rolls may continue to advance with the carrying chains without effect on the stacks, accordingly eliminating the necessity of stopping the feeding mechanism or the dispatch carrier and press.

Still another feature of the invention is found in the provision of a mechanism for progressively feeding newspaper stacks to a bundle tying machine and having a driven roll conveyer associated with an idling roll conveyer cooperating to feed and guide newspaper stacks onto a receiving table for passage into the bundle tying machine.

The invention is moreover characterized by the provision of conveyer mechanism for feeding newspaper stacks directly to the tying machine for immediate tying, but including means whereby in the event the tying machine and conveyer mechanism are incapacitated, said stacks may be stored on the conveyer until the tying machine and conveyer mechanism are cleared.

Other important objects and advantages of the invention will be in part obvious and in part pointed out hereinafter.

In order that the invention and its mode of operation may be readily understood by those skilled in the art, I have, in the accompanying drawings and in the detailed description based thereupon, set out a possible embodiment of the invention.

In these drawings:

Figure 1 is a top plan of the complete apparatus.

Figure 2 is a side elevation of the same.

Figure 3 is an end elevation of the conveyer assembly shown on an enlarged scale.

Figure 4 is an enlarged section taken on line 4—4 of Figure 1.

Figure 5 is an enlarged detail of the driven conveyer construction.

Figure 6 is a side elevation of the same.

Figure 7 is a front elevation of a bundle binding and tying machine, with which the improved feeding mechanism is combined.

Figure 8 diagrammatically illustrates the tying of a newspaper stack by said machine.

Again referring to the drawings, illustrating one of the many constructions of my invention,

there is shown at A a bundle binding and tying machine of known construction, for instance, of the type shown and described in the United States Patent No. 2,088,133 granted to Charles E. Evans and dated July 27, 1937. This machine A has a top or platform B upon which a stack C of newspapers may be placed, and comprises mechanism in the form of a gear ring D encircling a newspaper stack and operable to draw off a required length of wire E, or the like, and wrap it tightly about the newspaper stack C so that the end portions of said wire overlap, as shown at F in Figure 8.

The machine A is moreover provided with mechanism to join the overlapped end portions of the wire E and finally to sever the wire so as to free the tied stack for removal from the machine. The machine is set in motion for a tying operation by actuation of a starting pedal G, but is automatically stopped at the end of each tying operation. The function of the machine, therefore, is intermittent and, for that reason, it has been found difficult, from a practical standpoint, to feed the newspaper stacks to the tying machine in a mechanical, progressive fashion. Such a mechanism for the progressive feeding of newspaper stacks is made practical by the present invention, a preferred embodiment of which, as shown in the drawings, will now be described:

The construction of the invention, as illustrated, primarily consists of a feed conveyer 10 including a main section 12 and an extension or auxiliary section 14 which are connected together as at 16 for pivotal movement so as to facilitate the operative association of the invention with types of tying machines now on the market. The main section 12 constituting the larger portion of the mechanism is preferably of substantial construction throughout and adapted to be permanently mounted relatively to the tying machine A.

To accomplish this desired result, the supporting frame 18 is built of rugged standards 20 interconnected by cross pieces 22 and longitudinal pieces 24. Upon the frame 18 is mounted a trough-like body 26 consisting of a bottom plate 28 and side plates 30 and forming an enclosure for an endless conveyer 32. The endless conveyer 32 is made up of links 34, shafts 36, rolls 38, and rollers 40, as will more clearly appear from Figure 5.

As illustrated in said Figure 5, the opposite end portions 42 of each shaft 36 are reduced in diameter and journalled in the opposed extremities of paralleling pairs of links 34, rollers 40 being mounted between the associated links of the pairs which thus form two sprocket-engaging chains, one at each side of the conveyer 32.

The intermediate portion of the shafts 36 carry rolls 38 preferably formed from seamless tubing and having their ends plugged by flanged plates 43 which may be provided with ball bearings 44 permitting said rolls 38 to rotate freely in relation to their carrying shafts 36. The entire endless conveyer 32 is positioned within the trough-like body 26 and is supported for movement therein by means of sprocket wheels 46 in engagement with the rollers 40 of the conveyer 32 and mounted on shafts 48 at the end sections of said body, one of said shafts 48 being suitably connected, for instance, as shown at 50 in Figure 1, to a driving motor 52 preferably disposed on a supporting base 54 on the frame 10 (Figures 2 and 4).

As will more clearly appear from Figures 1 and 3, the upper edges 56 of the side plates 30 of the trough-like body 26 are bent at an angle to project inwardly of said body and extend to a point in close proximity at the adjacent edges of the conveyer rolls 38. In this manner, the bent edges 56 of said side plates 30 constitute protective surfaces covering the sprocket-engaging chains, and moreover provide guides for the newspaper stacks travelling with the conveyer, so that said stacks are prevented from coming into contact with said chains and riding over the sides of the conveyer, thus obviating any possibility of disarrangement and spilling of the newspapers thereby.

In tying the newspaper stacks, it is often desirable to wrap the same in an outer protective wrapper, which is usually made up of old newspapers. In the use of the invention, the bottom wrapper may be placed on the conveyer and newspaper stacks deposited thereover. In this condition, the bent edges 56 of the side plates 30 of the trough-like body 26 perform the additional function of bending up the bottom wrapper so that, in its travel along the conveyer, the danger of moving parts of the latter catching said wrapper is eliminated.

Disposed at one side of the trough-like body 26 and preferably hinged to one of the side plates 30, as more clearly shown at 58 in Figure 3, are drop leaves 60 adapted to be raised, at will, at any point along the length of said body for the purpose of providing shelf space for storing newspaper stacks thereon whenever found desirable or necessary for the reason to be hereinafter specified. The drop leaves 60 may be releasably locked in their raised position by means of braces 62 pivotally connected, as at 64, to the underside of said leaves and engageable with a bar 66 fixed to the frame standards 20.

The pivoted extension or auxiliary section 14 comprises a rectangular frame portion 70 and flat surface portion 72. The frame portion 70 rotatably carries a series of idle rolls 74 disposed in alignment with the rolls 38 of the endless conveyer 32. The flat surface portion 72 is adapted to be brought in adjoining relationship with the top or platform B of the typing machine A and thus form a continuation thereof. Because of the provision of the extension or auxiliary section 14, it will be appreciated that the newspaper stacks may be readily discharged from the conveyer 32 onto the rolls 74 which guide said stacks onto the flat surface portion 72 for passage through the tying machine.

In the operation of the mechanism, it will be appreciated that the newspapers, after being assembled into stacks, may be put immediately upon the conveyer 32 to be transported thereby towards the tying machine A, that is, in the direction of arrow W. However, should the typing machine and conveyer be incapacitated, the stacks need not be piled up, but may be deposited upon the shelves 60 to be later placed onto the conveyer as soon as the typing machine and conveyer are cleared.

If the newspaper stacks, in their progress of being advanced by the conveyer towards the tying machine, are prevented temporarily from further progress due to back pressure while a bundle is being tied, then the conveying rolls 38, capable of rotating in relation to the newspaper stacks, may continue to advance with the conveyer with-

out action on the newspaper stacks. The rolls 38, however, immediately upon disappearance of the back pressure, will again act on the newspaper stacks to continue their advance towards the tying machine.

It is, of course, to be understood that the construction of the mechanism herein shown and described is capable of certain modifications without departing from the gist of the invention. Therefore, any modifications which come within the scope of the sub-joined claims are to be considered within the spirit of the invention.

What I claim is:

1. For use with a newspaper bundling and tying machine having a horizontally disposed loading platform, a newspaper bundle conveyer structure comprising: a horizontally extending stationary main section and an auxiliary section, said main section consisting of a supporting frame including trough-like supports, sprocket wheels mounted at the ends of said supports, sprocket chains passing around said sprocket wheels, conveying rollers rotatably connected to said chains to travel therewith, and means for driving the sprocket wheels; and said auxiliary section consisting of a frame, spaced idle rolls rotatably supported by the frame, a flat surface portion connected to said frame and having its top surface operatively associated with the conveying surfaces of said idle rolls, and pivotal connections between said frame and the associated end portions of said trough-like supports whereby the auxiliary section may be swung upwardly or downwardly to properly align the top surface of said flat surface portion with the loading platform of said machine and, further, operatively associate the conveying surfaces of the idle rolls with the conveying surfaces of the rollers of the main section.

2. For use with a newspaper bundling and tying machine having a horizontally disposed loading platform, a newspaper bundle conveyer structure comprising: a horizontally extending stationary main section and an auxiliary section, said main section consisting of a supporting frame including trough-like supports, sprocket wheels mounted at the ends of said supports, sprocket chains passing around said sprocket wheels, conveying rollers rotatably connected to said chains to travel therewith, and means for driving the sprocket wheels; said auxiliary section consisting of a frame, spaced idle rolls rotatably supported by the frame, a flat surface portion connected to said frame and having its top surface operatively associated with the conveying surface of said idle rolls, and pivotal connections between said frame and the associated end portions of said trough-like supports whereby the auxiliary section may be swung upwardly or downwardly to properly align the top surface of said flat surface portion with the loading platform of said machine and, further, operatively associate the conveying surfaces of the idle rolls with the conveying surfaces of the rollers of the main section; and drop leaves hingedly connected to said trough-like supports whereby they may be raised and lowered to operative and inoperative position for supporting bundles of papers.

HOWARD M. JAMPOL.