Aug. 4, 1959 M. SCHMIDT 2,898,105

PALLET FOR SHEET FEEDING MACHINE

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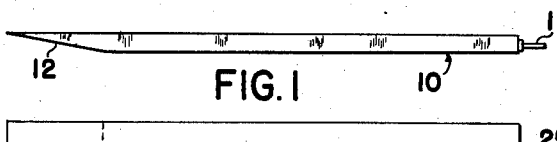


FIG. 1

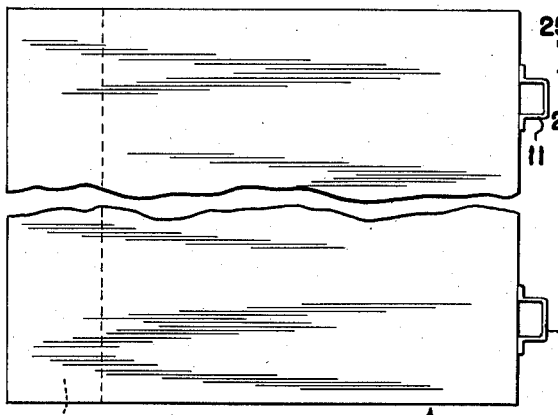


FIG. 2

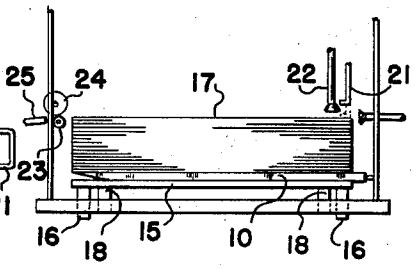


FIG. 4

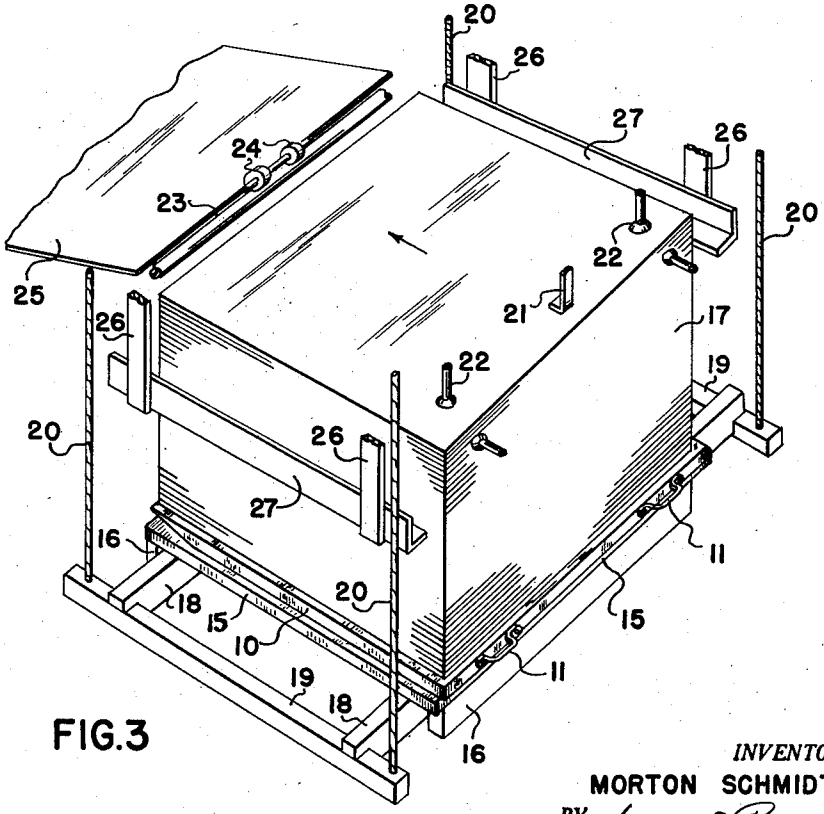


FIG. 3

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FIG.5

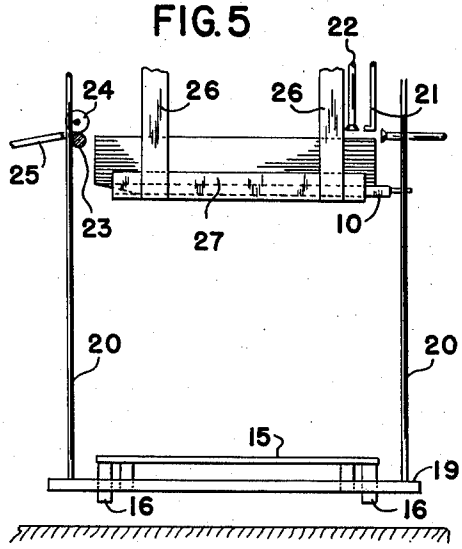
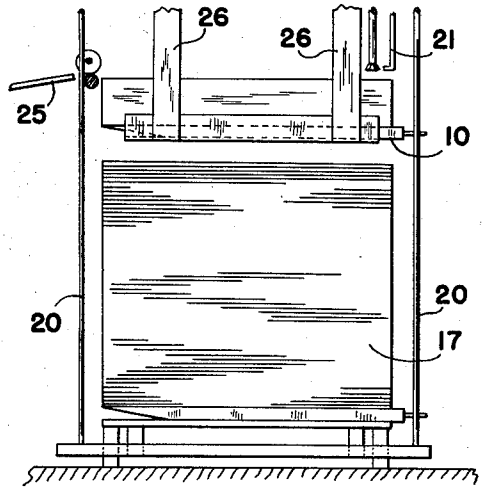


FIG.6



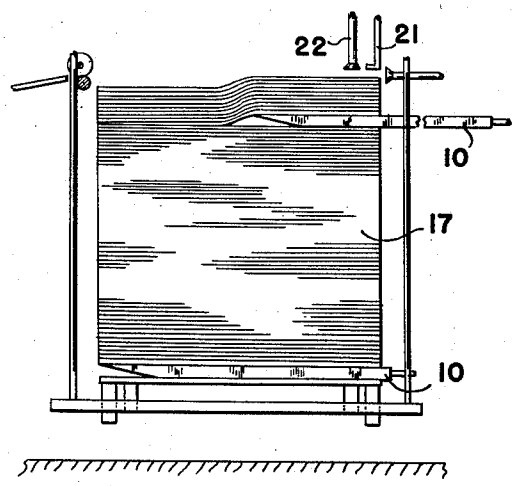


FIG.7

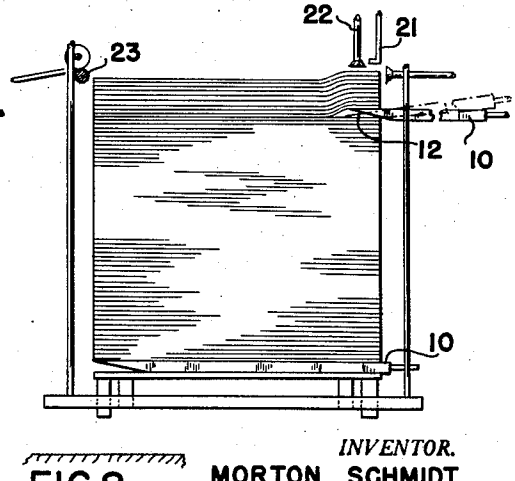


FIG.8

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PALLET FOR SHEET FEEDING MACHINE

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Application November 16, 1955, Serial No. 547,281

2 Claims. (Cl. 271—62)

This invention relates to improvements in pallets for sheet feeding machines for use in continuous feed sheet feeders.

One of the objects of the invention is the provision of a pallet formed with a wedge shaped forward edge, which pallet when supporting a depleted pile may be withdrawn slowly enabling the wedge shaped edge to lower the depleted pile, and more especially the rear portion of the depleted pile, gradually so that the mechanism for raising the new pile step by step will bring that pile into supporting position for the depleted pile while maintaining the latter pile within the range of the sheet separating mechanism.

Another object of the invention is the combination of a pallet of the character described with a pile feeder having pile height gauge means and sheet separating means disposed over the rear part of the pile.

Other objects and features of novelty will appear as I proceed with the description of that embodiment of the invention which, for the purposes of the present application, I have illustrated in the accompanying drawings, in which:

Fig. 1 is a side elevational view of a pallet embodying the invention.

Fig. 2 is a plan view of the same.

Fig. 3 is a perspective view, more or less schematic in character, of a pile feeder embodying the pallet of this invention.

Fig. 4 is a fragmental side elevational view on a smaller scale of the feeder with a depleted pile.

Fig. 5 is a similar view showing the depleted pile supported by auxiliary means and the pile elevating means lowered for the reception of a new pile.

Fig. 6 is a view similar to Fig. 5 but with a new pile in place upon the pile elevating means.

Fig. 7 is a side elevational view showing the new pile raised into engagement with the pallet of the depleted pile, with the auxiliary supporting means withdrawn laterally and with the pallet being withdrawn rearwardly, and

Fig. 8 is a view similar to Fig. 7 but with the pallet nearing complete withdrawal, its wedge shaped edge resting on the rear corner of the new pile, the rear part of the depleted pile being partially lowered relative to the new pile.

The pallet of this invention is shown in Figs. 1 and 2. It carries the general reference numeral **10**. Preferably it is made hollow for the sake of light weight. Its top and bottom surfaces are preferably metallic and they are made as smooth as possible so as to present a minimum of friction when the pallet is pulled rearwardly from between superposed piles. In order that the pallet may be grasped by an operator when it is to be withdrawn, I may attach handles **11** to its rear edge. The forward end of the pallet is wedge shaped across its entire width. This is effected by providing the top or bottom surface or both, preferably the bottom one, with a bevel or inclination **12** of substantial length.

Referring now to Fig. 3 which shows one pallet in place at the bottom of a full pile, **15** indicates a mill skid or pile board having parallel rails **16**. The pallet **10** at the bottom of a pile of sheets **17** is supported upon the skid. The rails **16** are of sufficient height to support the skid a distance above the floor upon which the skid rests. Consequently lifting bars **18** may be slid into position beneath the skid. The outer ends of these bars are notched to receive beams **19** to the ends of which are attached cables or chains **20** forming part of a conventional pile lifting and lowering mechanism of which other parts are not herein shown. Such mechanism includes a pile height gauge **21** of any suitable character and means for lifting the pile of sheets step by step an increment at a time to maintain the top of the pile at a level less than a predetermined distance beneath sheet separating and forwarding mechanism which may be of conventional character and is illustrated generally herein by suckers **22**. The sheet separating mechanism is of the type which operates within fixed high and low limits while the pile is raised intermittently in normal operation to maintain the distance between the top sheet and the separating mechanism within the predetermined range of the separating mechanism.

Each sheet is lifted by suckers **22** or their equivalent and its forward edge advanced into the bight of pull-out rolls **23**, **24** which function to start the sheet down a feed board **25** preferably provided with driven tapes, not shown.

When a given pile is depleted to an extent somewhat as shown in Fig. 5, it becomes necessary to bring up a new pile of sheets onto which the depleted pile may be deposited while the feed of sheets continues uninterruptedly from the top of the depleted pile. Means to facilitate this operation is disclosed in Patent 2,701,136 issued to Leonard F. Raynaud and myself on February 1, 1955. In that patent a pair of hangers **26** depends from an overhead frame on each side of the machine. The hangers on each side are joined by an angle iron bar **27**, the horizontal flanges of which are adapted to engage beneath the sides of a pallet protruding laterally from the sheets of the depleted pile. These angle irons are normally withdrawn laterally away from the pile to permit the pallet to rise past them. Thereafter, the hangers may be caused to move inwardly by suitable mechanism to engage beneath the pallet and to thereby support it and the depleted pile carried thereby. Such a pile so supported is illustrated in Fig. 5 of the drawings.

As explained in Patent 2,701,136 the hangers **26** may be elevated an increment at a time by overhead mechanism while sheets are being fed off the depleted pile and while a new pile is moved up, but such a provision may be dispensed with if the raising of the new pile to engage beneath the upper pallet is carried out promptly and the automatic pile elevating mechanism for the new pile then brought into place.

As soon as the depleted pile is supported by the hangers **26** the cables **20** may be lowered as illustrated in Fig. 5, and when the rails **16** reach the floor a new pile supported upon a second pallet **10** may be mounted upon the skid as indicated in Fig. 6. Next the cables **20** are drawn upwardly by conventional means until the top of the new pile engages the bottom of the upper pallet beneath the depleted pile. Then the auxiliary support consisting of hangers **26** and angle irons **27** is moved laterally out of the way, leaving the depleted pile with its pallet resting upon the new pile, after which operation of the automatic pile elevating mechanism is resumed. Now the operator may withdraw the upper pallet rearwardly, that is in a direction opposite the direction of feed. The first part of the withdrawal action up to and beyond the position illustrated in Fig. 7 can take place at reason-

able speed, the forward portion of the depleted pile being deposited on the new pile. While the upper pallet is being thus withdrawn to the extent indicated in Fig. 7, the height relation between the sheet separating and forwarding means on the one hand and the top of the depleted pile on the other hand is not affected. It is important however that as the rear end of the depleted pile is lowered by the withdrawal of the pallet, this action should proceed slowly enough to enable the pile elevating mechanism to maintain the distance of the sheet separating means from the top of the pile within the range of movement of the latter means. This may be accomplished readily by reason of the wedge shaped forward end of the pallet, that is to say after the operator pulls the pallet to the position where its inclined surface reaches the rear corner of the new pile, he moves it quite slowly. If desired, the operator may tilt the pallet upward slightly as shown in dotted lines in Fig. 8 to ease the remaining pile gently onto the new pile. As it moves backward the inclined surface 12 engaging the top corner of the new pile moves the rear end of the depleted pile down vertically. During the normal operation of the feeder the automatic intermittent elevation of the pile takes place only once in several cycles of the feeder, but during the final portion of the pallet withdrawal the height gauge will cause the elevating mechanism to function more frequently, thereby maintaining the height of the depleted pile beneath the separating means within the range of action of the latter means. The slow withdrawal of the pallet and the relatively rapid action of the pile elevating mechanism then act together to permit the depleted pile to descend into engagement with the top of the new pile without disturbing the proper action of the sheet separating means.

Having thus described my invention, I claim:

1. A continuously operating sheet feeding machine comprising main and auxiliary pile supports, main and auxiliary control means for raising and lowering each support independently of the other, a pallet for temporarily supporting a remnant pile of sheets on said auxiliary pile support to enable the main pile support to be lowered to receive a new pile and then raised until the top of the new pile is in juxtaposition with the underside of the pallet, pile height gauging means engageable with the top of the remnant pile along its rear edge for controlling the auxiliary control means, said auxiliary control means maintaining the top of the remnant pile at a normal operating level while sheets are being fed therefrom, sheet separating means mounted on said sheet feeding machine for operating upon the rear top edge of the pile within limits defined by the normal operating level and a predetermined lower limit and being adapted to lift the top sheet vertically from the pile for subsequent forwarding to a sheet handling machine, said pallet having a main body portion of a thickness greater than the distance between the normal operating level and the lower limit of operation of the separating means and also having a wedge-shaped forward end extending transversely at least the width of the auxiliary pile support, said auxiliary pile support comprising arm means for supporting the pallet at its sides in a fashion such that the pallet may be withdrawn rearwardly from between the piles by first moving the pallet to remove the main body portion rapidly to deposit all of the remnant pile but that portion below the gauging means and separating means onto the new pile and by next moving the pallet to remove the wedge-shaped forward end slowly to combine the remainder of the piles, and additional means for raising the main pile support as the wedge-shaped end gradually lowers the supported portion of the remnant pile to maintain that portion of the pile between the normal operating level and the lower limit of operation of the sheet separating means during withdrawal of the wedge-shaped end.

2. A machine according to claim 1 wherein the additional means for raising the main pile support is operated by the pile height gauging means.

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