Feb. 2, 1932. J. W. CHALMERS 1,843,802

PACKING MACHINERY

Filed Dec. 23, 1929 2 Sheets-Sheet 1

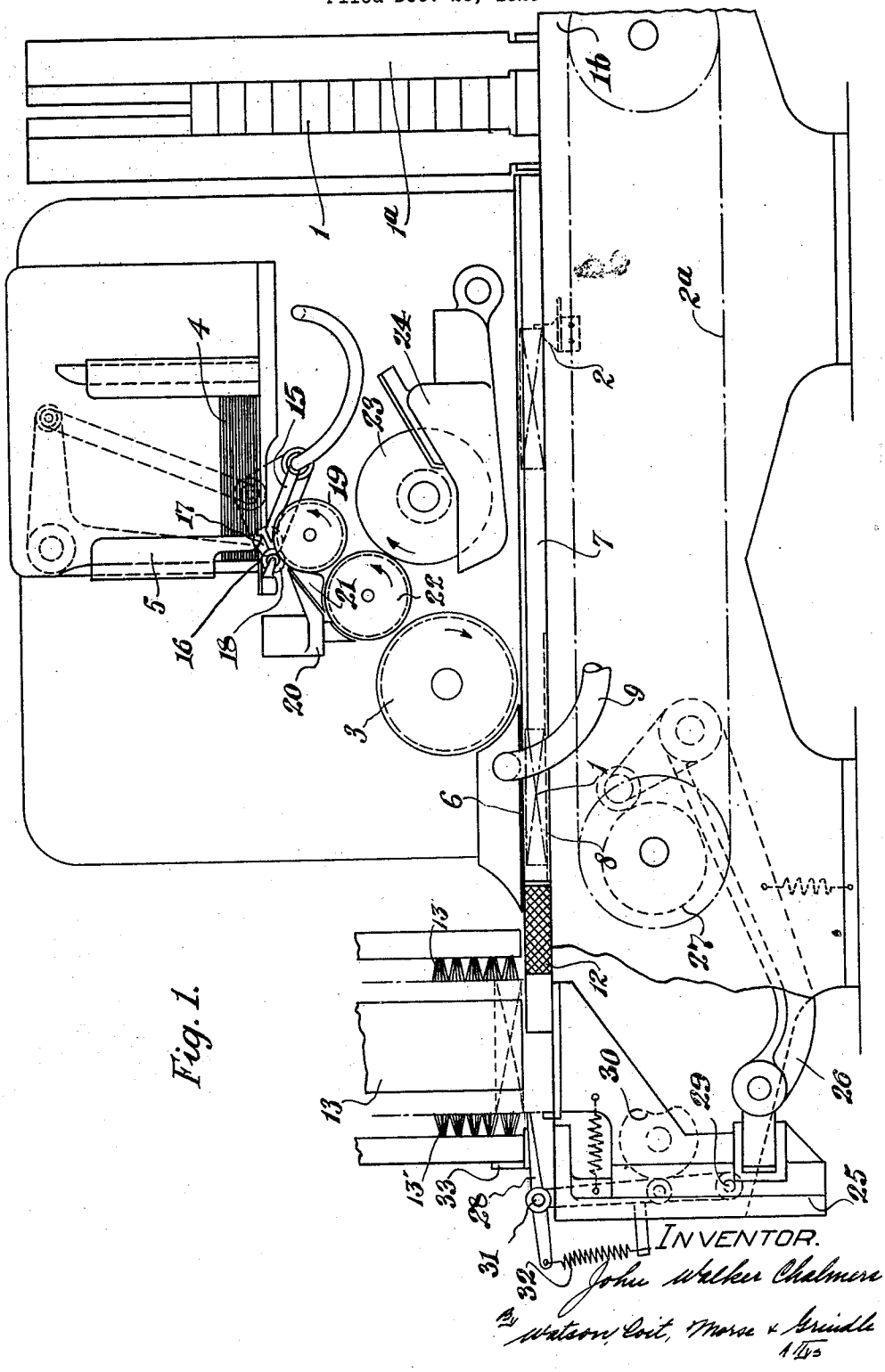

Fig. 1.

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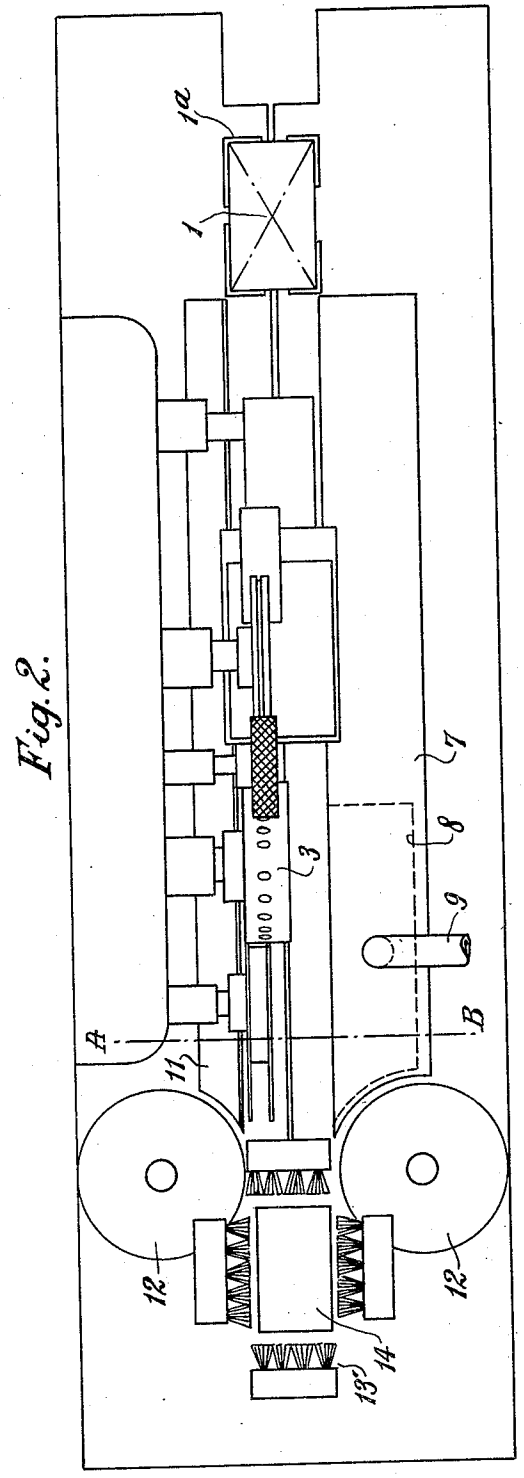

Fig. 2.

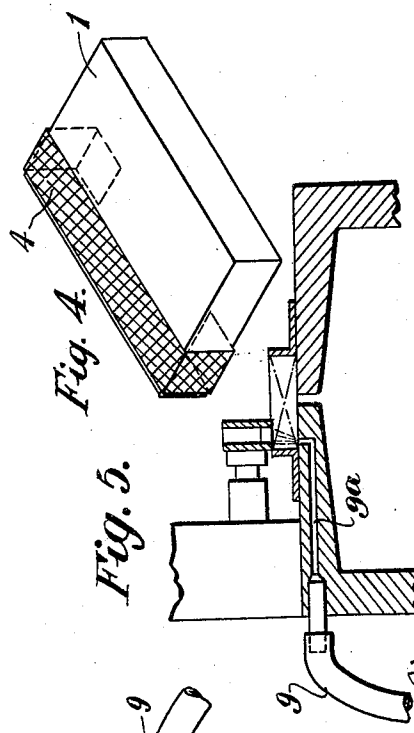

Fig. 4.

Fig. 5.

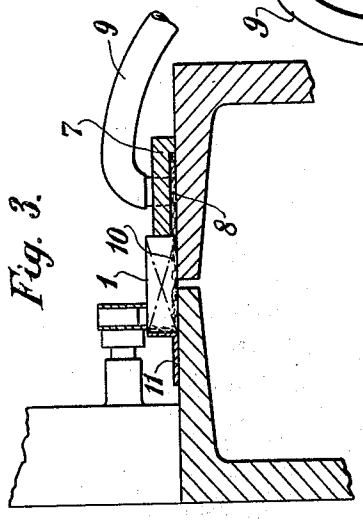

Fig. 3.

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UNITED STATES PATENT OFFICE

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PACKING MACHINERY

Application filed December 23, 1929, Serial No. 416,179, and in Great Britain December 27, 1928.

This invention is for improvements in or relating to packing machinery wherein bands, stamps or the like are automatically wrapped around, or partly around packets, for example packets of cigarettes, and has for its object the provision of a machine wherein a band or stamp is removed from a pile so that the bands or stamps may be applied to the packets at a greater speed, and more efficiently than has been the practice hitherto.

The present invention consists of a machine for applying bands, stamps or the like to packets which comprises means for applying adhesive to at least one side of the band, stamp or the like, means for applying the said band, stamp or the like to one side of a packet and means for supporting the overhanging gummed underside of the band, stamp or the like prior to the same being folded around the end of the packet.

The invention will be hereinafter described with reference to the accompanying drawings, in which:—

Fig. 1 shows a front elevation of a stamp applying machine constructed in accordance with the present invention.

Fig. 2 is a plan view of Fig. 1.

Fig. 3 is a section of Fig. 2 on the line A—B.

Fig. 4 is a perspective view of a packet having a stamp applied thereto in accordance with the present invention, and

Figure 5 is a sectional view corresponding to Figure 3 but illustrating a modified arrangement.

Referring to the drawings, packets 1 are stacked in a magazine 1^a and carried along the bed 1^b of the machine by a pusher piece 2 carried upon an endless conveyor 2^a beneath a suction operated stamp applying wheel 3.

The stamps 4 are fed from a magazine 5 by an oscillating suction member 15 which is adapted to move periodically into engagement with the lowermost band of the pile.

Due to the fact that the bands are supported at their leading corners upon a ledge 16 formed at the front of the magazine, the initial movement of the sucker is to bow the leading edge of the first band downwardly, whereupon a support 17 is automatically moved between the bowed edge of the band and the remaining bands in the pile so as to support the same.

The support 17 is wedge shaped and is provided at the thickest portion of the wedge with a roller 18, which, as the support passes between the separated band and the remaining bands of the pile, forces the separated band into engagement with a continuously rotating roller 19, and the band is fed down a narrow slot between the fixed guides 20 and 21.

The band then passes over a roller 22 which is supplied with gum from a gum wheel 23 rotating in a gum bath 24. The band is carried forward by the adhesion of the gum on the roller 22 through half of a revolution, whereupon the rotating suction wheel 3 strips the band by means of suction and carries it through half of the revolution and presents the gummed surface of the band to the packet which is being moved along the bed by the conveyor, as previously mentioned.

The suction roller 3 is arranged to apply a stamp to the upper surface of a packet so that one or both ends overhang one or both ends of the packet. In order to prevent the overhanging end or ends of the stamp from falling and sticking on to the bed of the machine there is provided a blower which causes a draft of air to impinge upon the underside of the stamp and hold the same out of contact with the bed of the machine as shown in Fig. 1 where the stamp is represented by a thick line 6.

In the form of the invention shown in the drawings, the guide 7 is made hollow at one end and furnished with an aperture for the air current as indicated at 8. A pipe 9 is arranged to communicate with the hollow portion 8 and is attached to a rotary pump or the like (not shown).

Referring to Fig. 3, it will be observed that the air current indicated by 10 travels from the guide 7 across the bed of the machine and impinges upon the guide 11 where it is deflected upwardly on to the underside of the free end of the over hanging portion

or portions of the stamp to support the same in a substantially horizontal position until the packet is moved into engagement with mechanism which folds the free end or ends of the stamp downwardly around the end or ends of the packet. By this arrangement it is possible to vary the distance between the guides 7 and 11 so as to enable the machine to deal with packets of varying width without in any way affecting the position or arrangement of the upwardly directed air current relatively to each size of packet. The necessary adjustment may be effected by moving either or both of the guides 7 and 11 away from the center of the bed, but it is preferable to move the guide 7 only when the necessary adjustment is small. Regardless of the degree of adjustment of the guide 7 the air current will be directed beneath this guide and will be deflected upwardly upon striking the guide 11 so that the operation of the current of air is not affected by the size of the packet which is being operated upon.

In the machine shown in Fig. 1, the packet is removed from the conveyor by a pair of rotary wheels 12 which feed the same beneath a vertical magazine 13, the latter including a plurality of brushes having inwardly extending bristles 13′ for smoothing down the stamps and guiding the packets.

A reciprocating table 14 (Fig. 2) is adapted to lift the packet into the magazine so that the free ends of the stamp are pressed downwardly upon the packet, and as the reciprocating table falls a cam operated tucker tucks the projecting end of the stamp beneath the leading edge of the packet. The table 14 slides in a guide 25 formed in the frame of the machine and is reciprocated vertically by a bell crank lever 26 operated by a cam 27. The tucker 28 for tucking the leading projecting end of the stamp is carried on a lever pivoted to the frame at 29 and operated by a cam 30.

The tucker 28 is pivoted to the lever at 31 and one end is pulled downwardly by a spring 32 so that the working end bears against a metal plate 33. As the cam 30 causes the tucker to move in and out beneath the packet, the spring 32 keeps the tucker in contact with the plate 33 so that the working edge of the tucker moves horizontally. The next succeeding packet passing into the magazine folds the remaining projecting portion of the stamp beneath the packet.

It will be understood that various modifications may be made without departing from the spirit of the invention; for instance, a series of holes 9^a communicating with the pipe 9 as shown in Figure 5 may be drilled in the bed of the machine beneath the path of the band or stamp and air blown through these holes in a vertical direction. Such an arrangement is illustrated in Figure 5 of the drawings in which the air conduit 9 communicates with the passage 9^a drilled in the bed of the machine, this passage serving to direct the air upwardly against the projection portion of the gummed stamp or label as indicated.

Thus it will be seen that according to the present invention there is provided means which ensures that the free end of the overhanging portion of a stamp is supported during the transit of the packet carrying the same along the bed of the machine prior to the packet being moved into the vertical stacker where the free end or ends of the stamp are folded downwardly and around the packet.

What I claim as my invention and desire to secure by Letters Patent is:—

1. A machine for applying bands, stamps or the like to packets which comprises means for applying adhesive to at least one side of the band, stamp or the like, means for applying the said band, stamp or the like to one side of a packet, a continuous conveyor for moving the packets into contact with the stamp applying means and means for supporting the overhanging gummed underside of the band, stamp or the like during the movement of the packet by said conveyor and prior to the same being folded around the end of the packet.

2. The machine described in claim 1 in which said last named means includes a device for directing a current of air upon the overhanging gummed underside of the band, stamp, or the like to support the same.

3. In apparatus of the class described, the combination with means for applying a gummed band to one face of a packet with a portion of the band extending outwardly of the said face, of means for folding the outwardly extending portion of the band across the adjacent face of the packet, a conveyor for transferring the packet from the zone of operation of said first named means to the zone of operation of said second named means, and means for supporting the outwardly extending portion of the band while the packet is being transferred by the conveyor.

4. In apparatus of the class described, the combination with means for applying a gummed band to one face of a packet with a portion of the band extending outwardly of the said face, of means for folding the outwardly extending portion of the band across the adjacent face of the packet, a conveyor for transferring the packet from the zone of operation of said first named means to the zone of operation of said second named means, and means for supporting the outwardly extending portion of the band while the packet is being transferred by the conveyor, said last named means acting to establish a different air pressure above and below the outwardly extending portion of the band.

5. In apparatus of the class described, the combination with means for applying a gummed band to one face of a packet with a portion of the band extending outwardly of the said face, of means for folding the outwardly extending portion of the band across the adjacent face of the packet, a conveyor for transferring the packet from the zone of operation of said first named means to the zone of operation of said second named means, and means for supporting the outwardly extending portion of the band while the packet is being transferred by the conveyor, said last named means serving to direct a current of air against the inner gummed side of the outwardly extending portion of the band.

6. In apparatus of the class described, the combination of a conveyor for receiving and transferring packets, of means for applying gummed bands to the packets with one end of the band extending outwardly of the packet, means for folding the outwardly extending band about the packet, said first and second named means acting at points spaced with respect to the direction of movement of the conveyor, guides disposed laterally of the conveyor to retain the packets thereon, one of said guides being movable to vary the spacing therebetween to accommodate packets of different widths, and means acting in conjunction with said guides and independently of the spacing therebetween to support the outwardly extending band ends prior to the folding operation.

7. In apparatus of the class described, the combination of a conveyor for receiving and transferring packets, of means for applying gummed bands to the packets with one end of the band extending outwardly of the packet, means for folding the outwardly extending band about the packet, said first and second named means acting at points spaced with respect to the direction of movement of the conveyor, guides disposed laterally of the conveyor to retain the packets thereon, one of said guides being movable to vary the spacing therebetween to accommodate packets of different widths, and means acting in conjunction with said guides and independently of the spacing therebetween to support the outwardly extending band ends prior to the folding operation, said last named means comprising a device for introducing air under pressure through one of said guides and into the space between said guides.

In testimony whereof I hereunto affix my signature.

JOHN WALKER CHALMERS.