Oct. 13, 1925.

1,557,534

J. G. SWAB

GUMMING MACHINE

Filed Aug. 16, 1923

2 Sheets-Sheet 1

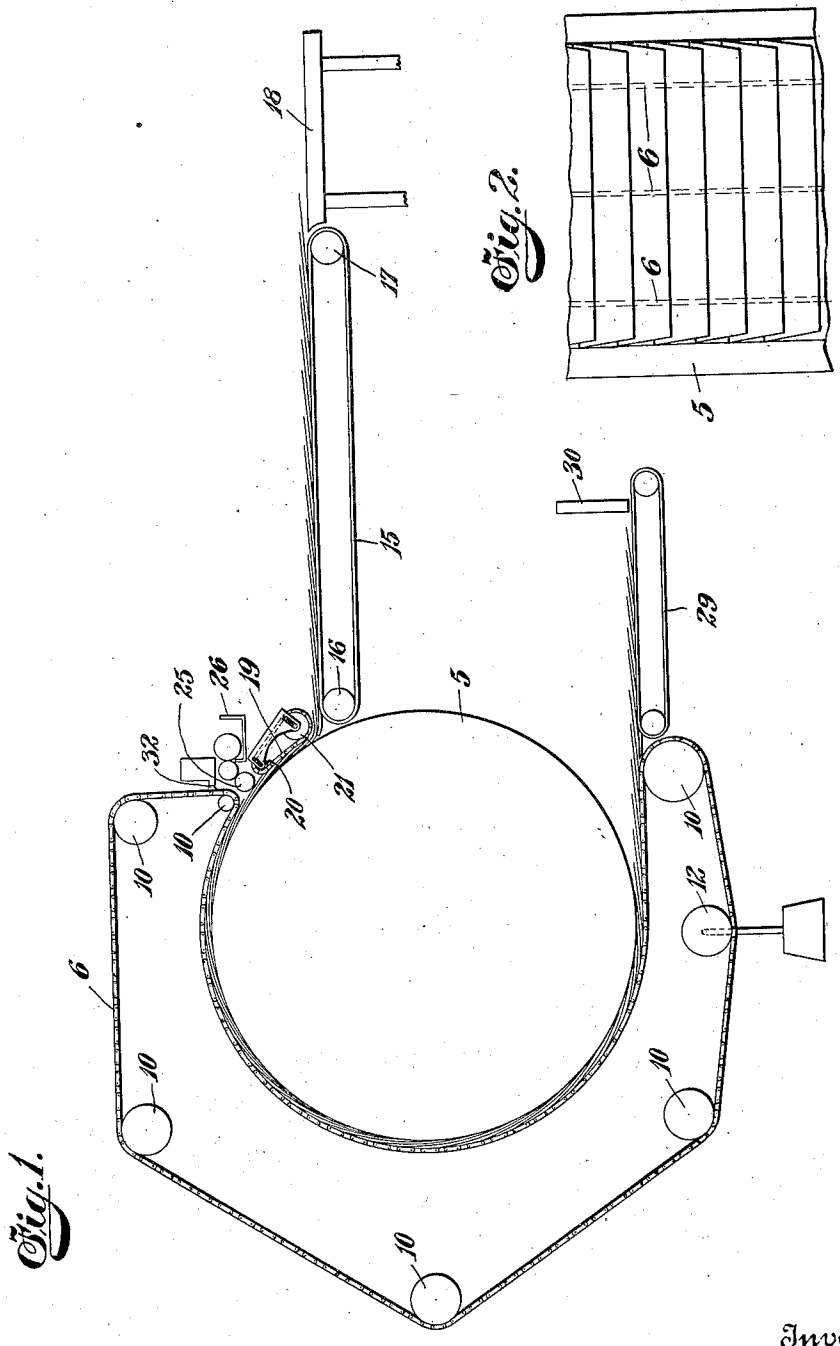


Fig. 1.

Fig. 2.

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2 Sheets-Sheet 2

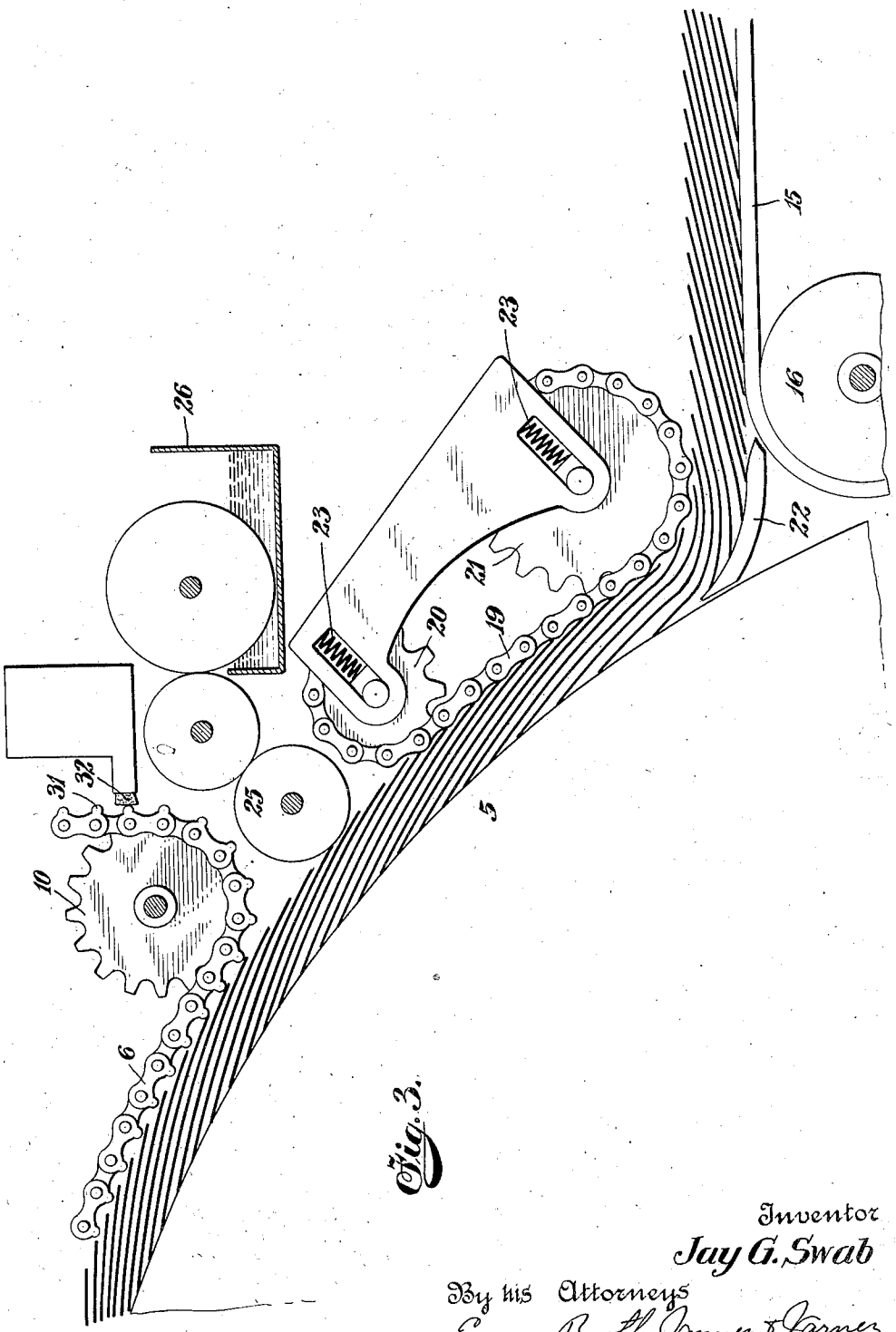


Fig. 3.

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UNITED STATES PATENT OFFICE.

JAY G. SWAB, OF BROOKLYN, NEW YORK, ASSIGNOR TO HENRY TRENCHARD, JR., OF BROOKLYN, NEW YORK.

GUMMING MACHINE.

Application filed August 16, 1923. Serial No. 657,688.

To all whom it may concern:

Be it known that I, JAY G. SWAB, a citizen of the United States, and a resident of New York city, borough of Brooklyn, Kings County, New York, have invented an Improvement in Gumming Machines, of which the following is a specification.

The present invention relates generally to apparatus for gumming sheets and the like and more particularly to conveyor mechanism for carrying the gummed work through the apparatus.

The present embodiment of the invention has been developed in connection with apparatus for applying gum to the flaps of envelops and drying said gum before stacking the envelopes, and such an apparatus will be described for the purpose of illustrating the principles of the invention and indicating the manner in which the same may be applied.

Apparatus for applying gum to the flaps of envelopes and drying the same for example in the case of envelopes of the larger sizes has commonly been so arranged that the envelopes are held between conveying devices while passing through a drying region and thereafter the envelopes are suitably delivered to a stacking mechanism. A common form of such apparatus includes a drum having a plurality of parallel cords encircling the drum and holding the envelopes thereagainst while the drum rotates in front of a fan, heater or other drying device. In such apparatus, however, the cords when they engage the gummed area of the envelope leave a permanent mark thereon which is considered objectionable by the trade and there is a demand for envelopes not so marked. Furthermore the cords become stiff as the gum adheres thereto and frequently they break under the weight of the envelopes, a weight which may amount to 40 or 50 pounds when envelopes of the larger sizes are being operated upon. Such breakage usually spoils a considerable amount of work, interrupts the work of the machine and causes inconvenience and work for the operative.

It is an object of the present invention to provide an improved conveying mechanism for conveying articles having gummed surfaces which will not objectionably mark or injure the gummed surfaces and which will be strong and durable in use.

The nature and objects of the invention will be better understood from a description of a particular illustrative embodiment thereof, reference being had to the accompanying drawings wherein is shown a selected illustrative embodiment of the invention and in which:—

Figure 1 is a somewhat diagrammatic view in side elevation of a dryer apparatus for drying freshly gummed envelop flaps.

Figure 2 is a view in rear elevation showing a number of envelops carried by the conveyor apparatus and the relative position of the conveyor chains.

Figure 3 is an enlarged detail view of a portion of the apparatus.

In the apparatus to be described for the purpose of illustrating the invention, gummed work is supported between a rotatable drum element and a cooperating flexible conveying element partially encircling the drum element one of which elements is provided with a plurality of projections to provide relatively small areas or points for engaging the gum. As shown, it is the flexible element which engages the gummed surfaces and is provided with projections.

In the arrangement shown, a conveyor or drying drum 5 is partially encircled by a plurality of chains 6 between which chains and the drum freshly gummed envelops are carried arranged in overlapping relation with the flap of one envelop extending a certain distance beyond the flap of the next adjacent envelop.

From delivery position the chains are doubled back around guide rolls 10, 10 to feeding position where they again cooperate with the drum. A tensioning roll 12 carrying a weight, of for example 60 pounds or more, maintains the chains under sufficient tension as a greater or less supply of envelops are carried between the drum and chains. The envelops or other articles are fed to position against the drying drum by means of a canvas conveyor belt 15 carried by rolls 16, 17. A work table 18 is positioned conveniently adjacent the conveyor 15, and the envelops may be there "fanned

out" by hand and placed on the conveyor belt in suitable overlapping relation. Chains 19 extend around the rolls 20, 21 which are positively driven to guide and feed the envelops to the drying drum 5 and to hold them in established overlapping relation. Skids or guides 22 are positioned between the conveyor belt 15 and the drum to properly direct the envelops in their travel. The yieldable rolls 20, 21 are urged toward the skids and drum by springs 23 so that the envelops are substantially gripped between the chains 19 and the skids 22 and between the chains and drum as they pass forward to and around the drying drum 5.

A suitable gumming means is provided for applying gum to the envelop flaps as they are conveyed forward to the drying region. The means shown consists of a gumming roll 25 suitably supplied with gum from a gum box 26. Ordinarily the gumming roll need not be positively driven.

After the envelops are dried they pass from between the drying drum and chains to a suitable stacking means. As herein shown the stacking means comprises a conveyor belt 29 positioned to receive the envelops from the chains and carry them against a stop 30 which holds back the envelops causing them to pile up for removal by the operative.

The chains 6 may be of any suitable construction. As shown, they are of the common sprocket chain type, sufficiently wide to prevent lateral turning and bending thereof, and they provide, upon their envelop engaging faces, relatively small projections which present a smooth, preferably polished, relatively small face to the gummed surfaces.

In the illustrative embodiment shown in the drawing the projections 31 are not only formed to present relatively small surfaces to the gummed work but they are of substantial length to constitute spacing projections holding the body of the chain a substantial distance away from the gummed surfaces. These projections are shown as affording substantially point contact with the gum. It is desirable to lubricate the gum engaging projections with glycerin, or other equivalent substance, to further prevent gum from adhering thereto. For this purpose a fountain pad 32 may be provided, comprising a reservoir and a suitable felt mounted therein, the pad being mounted to be engaged by the chain as it passes along its idle run, over the guides to the envelop engaging parts of its travel. If preferred the pad may be simply cleaned and wiped with glycerin or other suitable lubricant once or twice each day.

The projections, especially when treated with glycerin, may bear against the gummed areas with sufficient pressure to hold the envelop firmly against the drum and yet they will not leave objectionable marking thereon. The chains may be made always of sufficient strength to entirely avoid breaking with the attendant difficulties and they may be tensioned to support any required load. The chains 19 may be of the same type as the chains 6 but in view of the fact that the envelops are not gummed when engaged by this chain and in view of the fact that this chain engages the envelops with considerable pressure a chain without such long and in one sense relatively sharp projections engaging the envelop 5 is preferred. The size and speed of the drying drum are such that by the time the envelops are delivered over the roll 12 the gummed flaps will be dry enough to prevent adherence to each other.

While I have described particularly only one embodiment of the invention for the purpose of illustration, it will be obvious that the principles of the invention may be applied in various ways without departing from the scope of the appended claims.

I claim:

1. A drying apparatus of the character described comprising, in combination, a rotatable drum, a chain partially encircling the drum to hold gummed articles thereagainst, said chain having flat links with their edges presenting narrow bearing faces arranged to engage the gummed areas substantially as described.

2. A drying apparatus of the character described, comprising in combination a rotatable drum, a chain partially encircling the drum to confine the work against the drum, and means for lubricating the work engaging face of the chain.

3. A drying apparatus of the character described, comprising in combination a rotatable drum, a chain partially encircling said drum and arranged to hold gummed work thereagainst, said chain being formed to engage the gummed surface of the work at spaced points, and means for tensioning said chain to hold the work firmly against the drum.

4. A drying apparatus of the character described, comprising in combination a rotatable drum element, and a chain conveying element partially encircling the drum, said two elements cooperating to confine the work therebetween, and one of said elements being provided with a plurality of projections to engage the gummed surface of the work.

5. A drying apparatus of the character described comprising a drum, a flat link chain partially encircling said drum, certain of the links of said chain having relatively small projections facing said drum.

6. A conveyor for gummed paper having a plurality of conveyor elements between which the gummed paper is carried with

one element engaging the gummed face and another engaging the opposite face, said first-mentioned element having relatively small spacing projections for engaging the gummed surface to hold the gummed face substantially away from the body of the conveyor element.

7. A conveyor of the character described comprising a drum, a flexible element partially encircling said drum to hold gummed articles against said drum with the gummed side out, said flexible element having relatively small metallic projections adapted to engage the gummed surface of the conveyed articles.

8. A drying apparatus of the character described for drying freshly gummed envelops comprising a drum and tensioned to hold gummed envelopes against the drum, a chain partially encircling said drum and means for feeding envelops in overlapped relation to and between the drum and chain with the gummed face engaging said chain, said chain being formed to provide spaced projections engaging the gummed faces of the envelops.

9. The method of handling gummed work which comprises holding the work between metal elements and lubricating the gum engaging metal face substantially as described.

10. The method of handling gummed paper which comprises engaging the gummed surface of the paper by means of elements lubricated with glycerin.

11. A conveyor of the character described comprising a drum, a flexible element partially encircling said drum to hold gummed articles thereagainst, said flexible element having relatively small metallic spacing projections standing out therefrom to engage the gummed surface of the conveyed articles and space the element therefrom.

12. A drying apparatus of the character described for drying freshly gummed envelops comprising a drum, a chain partially encircling said drum and having relatively small spacing projections engaging the gummed surfaces and spacing the chain therefrom.

13. In an apparatus of the character described a plurality of chains and guide means for said chains arranged to support a portion of said chain in horizontal position to support and convey a series of gummed articles resting thereon with their gummed surfaces against the chain, said chain being formed with relatively small projections engaging the gummed areas of the articles supported thereby.

In testimony whereof, I have signed my name to this specification this 14th day of August, 1923.

JAY G. SWAB.