

July 6, 1937.

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2,086,147

MACHINE FOR MAKING POUCHES

Filed April 27, 1936

2 Sheets-Sheet 1

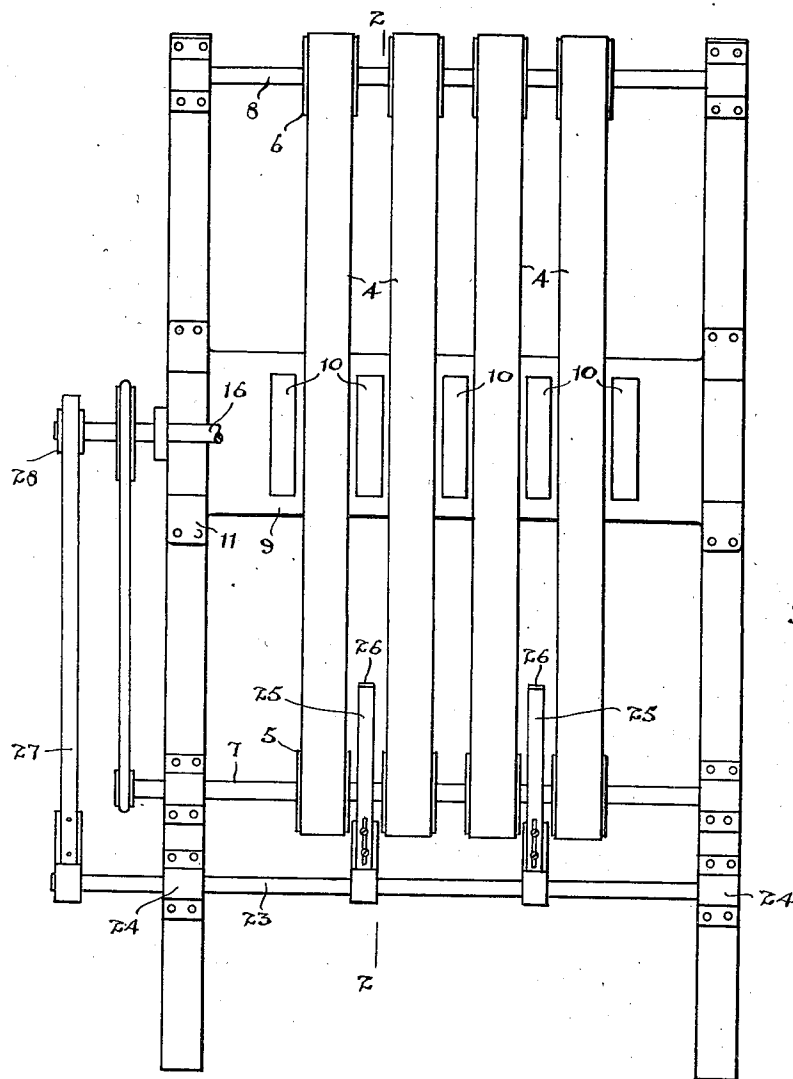


Fig. 1.

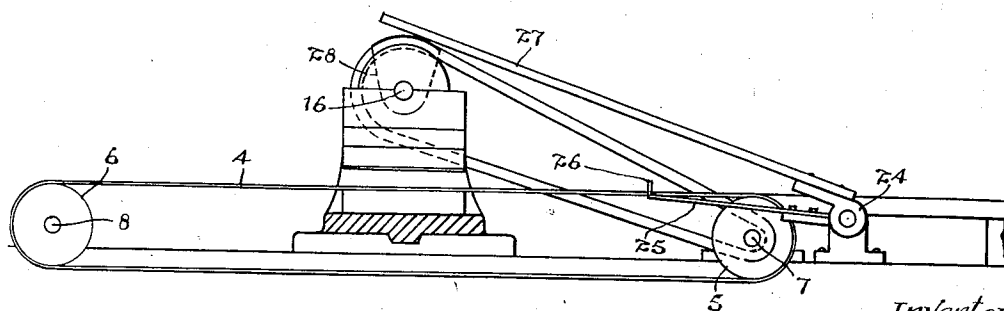


Fig. 2.

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2 Sheets-Sheet 2

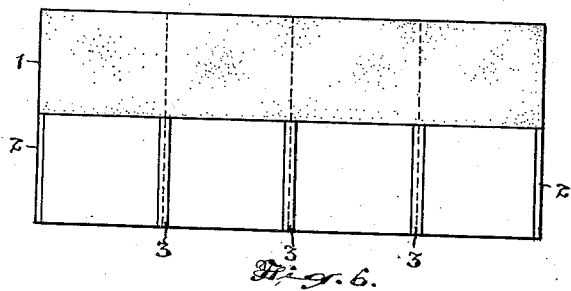
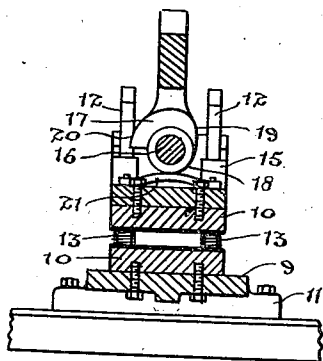
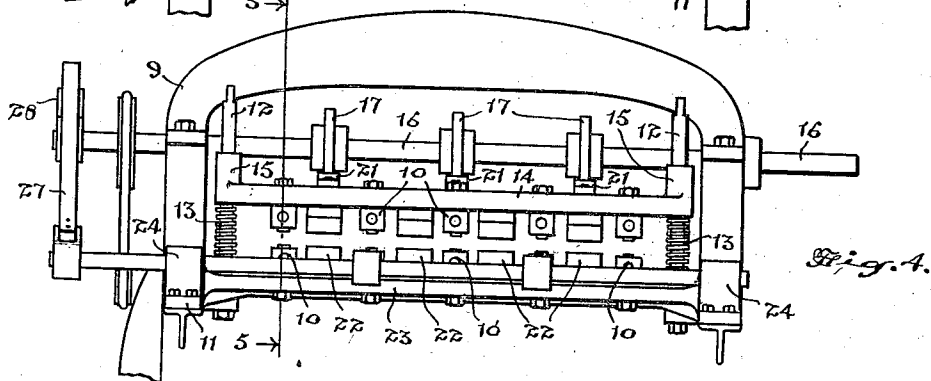
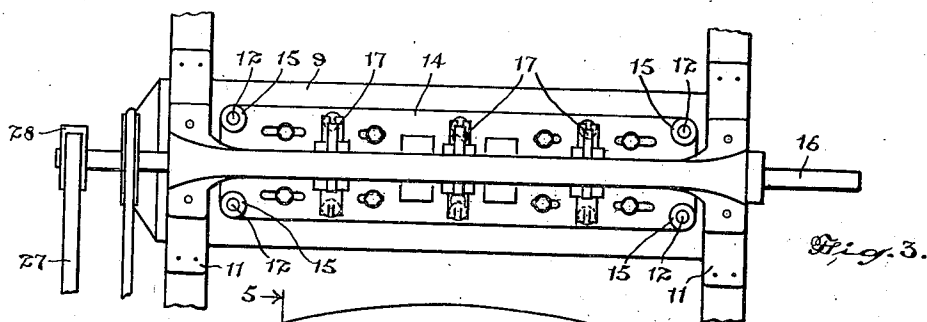


Fig. 5.

Fig. 6.

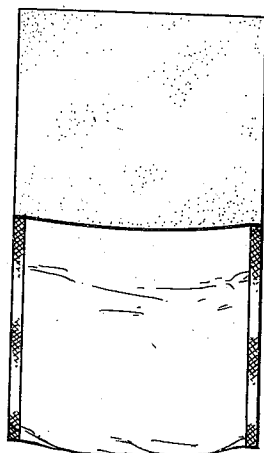


Fig. 8.



Fig. 7.

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UNITED STATES PATENT OFFICE

2,086,147

MACHINE FOR MAKING POUCHES

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Application April 27, 1936, Serial No. 76,609

7 Claims. (Cl. 18—19)

The principal objects of this invention are to devise a method of manufacturing pouches, particularly adapted for the packaging of tobacco which may be produced at a cost within reasonable range of the cost of the ordinary form of packaging and will provide a convenient pouch for the use of the smoker until the quantity of the packaged tobacco is exhausted.

A further and important object is to provide a machine for sealing the ends of the fabric, from which the pouches are constructed, in a very effective and convenient manner and which will be very easily operated.

The principal features of the invention consist in the novel method of folding a sheet of rubber-coated fabric and pressing and sealing the folded portions together to close the ends of a pouch and further, in the novel construction and arrangement of a plurality of heated dies and means for periodically applying pressure against said heated dies to seal the coated folded fabric arranged therebetween.

In the accompanying drawings, Figure 1 is a plan view of a machine constructed in accordance with this invention.

Figure 2 is a sectional elevational view taken on the line 2—2 of Figure 1.

Figure 3 is a detail plan view of the sealing mechanism.

Figure 4 is a detailed elevational view of the sealing mechanism.

Figure 5 is a vertical cross sectional view of the sealing mechanism taken on the line 5—5 of Figure 4.

Figure 6 is a plan view of the pouch strip as sealed in the machine.

Figure 7 is a plan view showing the pouch as severed from the strip shown in Figure 6.

Figure 8 is a plan view of a pouch packed with tobacco.

Tobacco pouches are usually formed of a strip of suitable material having one end folded over a portion of the remainder and the edges of the folded-over portion are secured usually by stitching.

The present invention has to do with a pouch which is made for a single service only, that is to say, it is expected only to last during the use of the original quantity of tobacco packed therein and a material has been developed for the use of such purpose, of a sheet of paper or very light fabric, over one face of which a surface coating of rubber is placed.

According to the present invention a sheet of paper or other fabric, rubber-covered on one side and of a width sufficient to form a plurality of pouches, is doubled over as shown in Figure 6, the doubled-over portion being approximately one third of the length.

The outer edges 2 of the doubled-over strip

are then sealed, as also are strips 3 intermediate of the width of the main sheet and it is the method and means for sealing these strips to which the present invention applies.

In the apparatus shown in Figures 1 and 2, a plurality of endless carrier belts 4 are mounted upon pulleys 5 and 6 carried on shafts 7 and 8 respectively, mounted horizontally in suitable bearings on a suitable frame or support. Intermediate of the length of the belts 4, that is, approximately midway between the pulleys 5 and 6, is arranged a frame structure 9, in which are mounted between the upper reaches of the belt and outside of the outer one, the die blocks 10, which are rigidly secured to the base 11 of the frame 9. These die blocks are preferably heated by means of electric resistances embedded therein which will maintain a uniform temperature of said die blocks throughout their operation.

At either end of the base and close to the end supports of the frame 9 are arranged pairs of upright rods 12 which are encircled by coil compression springs 13 arranged between the base 11 and the die-holding bar 14 which is provided with bosses 15 encircling the upright rods.

A shaft 16 is horizontally journaled in the frame 9 centrally above the bar 14 and on this shaft are mounted a plurality of cams 17 which are formed with the concentric portion 18 diverging eccentrically in the portions 19 to the larger concentric portions 20. These cams engage arched spring members 21 mounted on the die bar 14 and upon the cams being rotated the eccentric portions 19 press the die bar downwardly into close engaging contact with the heated dies mounted on the base.

The belts 4 being arranged between the respective die blocks, are supported, so that their upper surfaces are slightly above the top surfaces of the die blocks 10, by blocks 22 which are preferably of wood and a sheet of material placed on these belts and extending across the same will be carried over the die blocks, so that when the cams 17 move downwardly they will engage the top surface of the sheet of material being carried by the belts and will press same down tightly against the bottom die blocks.

A shaft 23 mounted in journal bearings 24 at either side of the machine forward of the shaft 7, has mounted thereon a pair of adjustable arms 25 which are formed with upturned lugs 26 at their extremities which project upwardly between the belts and form stops, against which the strips of material to be operated upon are placed.

A bar 27 is rigidly secured to the shaft 23 at one end and rests upon the top of a cam 28 mounted on one end of the shaft 16. This cam is adapted to raise and lower the stop arms 25, the lowering period being gauged in definite relation to the location of the cams 17 in respect to

the upper die block, so that a sheet of material placed upon the belt, will be released to travel with the belt at a predetermined period, so that when the sheet reaches the proper position between the die blocks, the dies will descend thereon and grip them securely and when the cams 17 release the die block bar 14 the springs 13 lift the same to clear the sheets and the belts carry them away from the dies.

This device is particularly adapted to the manufacture of pouches for packaging tobacco. Sheets of material surfaced with unvulcanized rubber are folded as shown and described in respect to Figure 6 and the folded sheets are placed one at a time upon the belts 4 to engage the stop lugs 26 of the arms 25. As the shaft 16 rotates the cam 28 lowers the bar 27, thereby lowering the arms 25 so that the lugs are withdrawn below the upper surfaces of the belts and the folded sheet is allowed to move forwardly with the belts toward the dies.

As the folded-over portion comes between the die blocks, the cams 17 force the die bar 14 downwardly so that the dies clamp the folded portion tightly down against the heated bottom die blocks and hold the folded sheet tightly in contact with the heated die blocks a sufficient length of time for the thin rubber coatings of the adjacent surfaces of the folded sheets to be vulcanized together between the contacting surfaces of the dies, which thus vulcanize the narrow edge strips 2 and the wider intervening strips 3.

Immediately upon the cams 17 releasing the die bar 14 the springs 13 move the bar upwardly and remove the upper dies from contact with the folded sheet and the belts, which are constantly in operation and which slip under the sheet while it is being held by the dies, or which slip on a friction clutch on the pulley drive, then move the sheet onward and the composite sheet is then severed along the dotted line bisecting the vulcanized portions 3 and each sheet is divided into a plurality of pouches which are then ready to receive the packing of tobacco in the folded-over portion.

The device is extremely simple, but is very effective in its operation, performing the function of pressing and vulcanizing dividing areas in a folded-over sheet.

It will be understood that the surfaces of the dies may be cross-lined or corrugated to more intimately press the contacting surfaces together along the sealed portion and thus form a more secure union of the surfaces.

What I claim as my invention is:—

1. A machine for making pouches, comprising a plurality of narrow heated die blocks spaced apart, means for guiding a sheet of material over said die blocks, a plurality of dies arranged individually one adjacent to each of said heated die blocks, and means for moving one of said die sets into pressure contact with the other of said die sets to compress and heat a sheet of material placed therebetween.

2. A machine for making pouches, comprising a rigid base having a plurality of narrow die blocks arranged thereon and spaced apart, means for applying heat to said die blocks, a bar extending over said die blocks and having dies secured thereto, means for moving said bar to bring the dies thereon into engaging pressure contact with the dies arranged on said base, and means for raising said die bar and dies to clear the heated dies periodically.

3. A machine for making pouches comprising a base, a plurality of heated dies mounted on said base and spaced apart, guides arranged at each end of said base, a die bar slidably mounted on said guides, compression springs arranged to hold said die bar in a raised position, dies secured to said die bar in alignment with the heated dies mounted on the base, cams mounted to engage said die bar to press same against said compression springs and to bring the surfaces of the upper dies into pressure contact over the lower dies.

4. A machine for making pouches, comprising a base, a plurality of heated dies mounted thereon having narrow top faces, travelling belts arranged between said dies and adapted to carry a sheet over said dies, vertical guides extending upwardly from the base, a die bar slidably mounted on said vertical guides having die blocks registering with the die blocks on said base, compression springs arranged between said die bar and the base to hold the die bar above said belts so that the dies are clear of the sheet carried thereby, a shaft extending over said die bar, cams mounted on said shaft engaging said die bar and having eccentric portions adapted to move the die bar downwardly, and concentric portions adapted to hold the die bar in its downward position to squeeze a sheet of material carried by said belts between said dies.

5. A machine for making pouches as claimed in claim 4 having contact springs mounted on the die bar to be engaged by said cams to apply a spring pressure upon a sheet held between the dies.

6. A machine for making pouches, comprising a plurality of spaced-apart dies, a plurality of endless belts spaced apart and extending between said spaced dies adapted to carry a sheet thereover, arms having stop lugs arranged between said belts, a movable die support arranged above the aforesaid dies having die blocks to register with the aforesaid dies, means for periodically moving said die-supporting member to engage a sheet carried over the lower dies by said belts, and means operated by said upper die-operating member for periodically lowering said stop arms to release a sheet held thereby in timed relation to move said sheet by said belt to a predetermined position to be engaged by the die-operating cams.

7. A machine for making pouches comprising a plurality of spaced dies, a plurality of travelling belts extending between said dies to carry a sheet thereover, a shaft extending transversely of the machine having arms extending between said belts, said arms having stop lugs thereon extending above the belts and to form a stop to hold a sheet placed on said belts, a vertically movable die member adapted to be moved into engagement with the aforesaid dies, a shaft extending over said die member, cams mounted on said shaft for moving said die member into engagement with the aforesaid dies and having concentric portions adapted to hold said dies in close engaging contact, a cam mounted on said latter shaft, and an arm mounted on the aforesaid shaft for engaging said latter cam to lower said stop arms in predetermined relation to the movement of the die-operating cams.