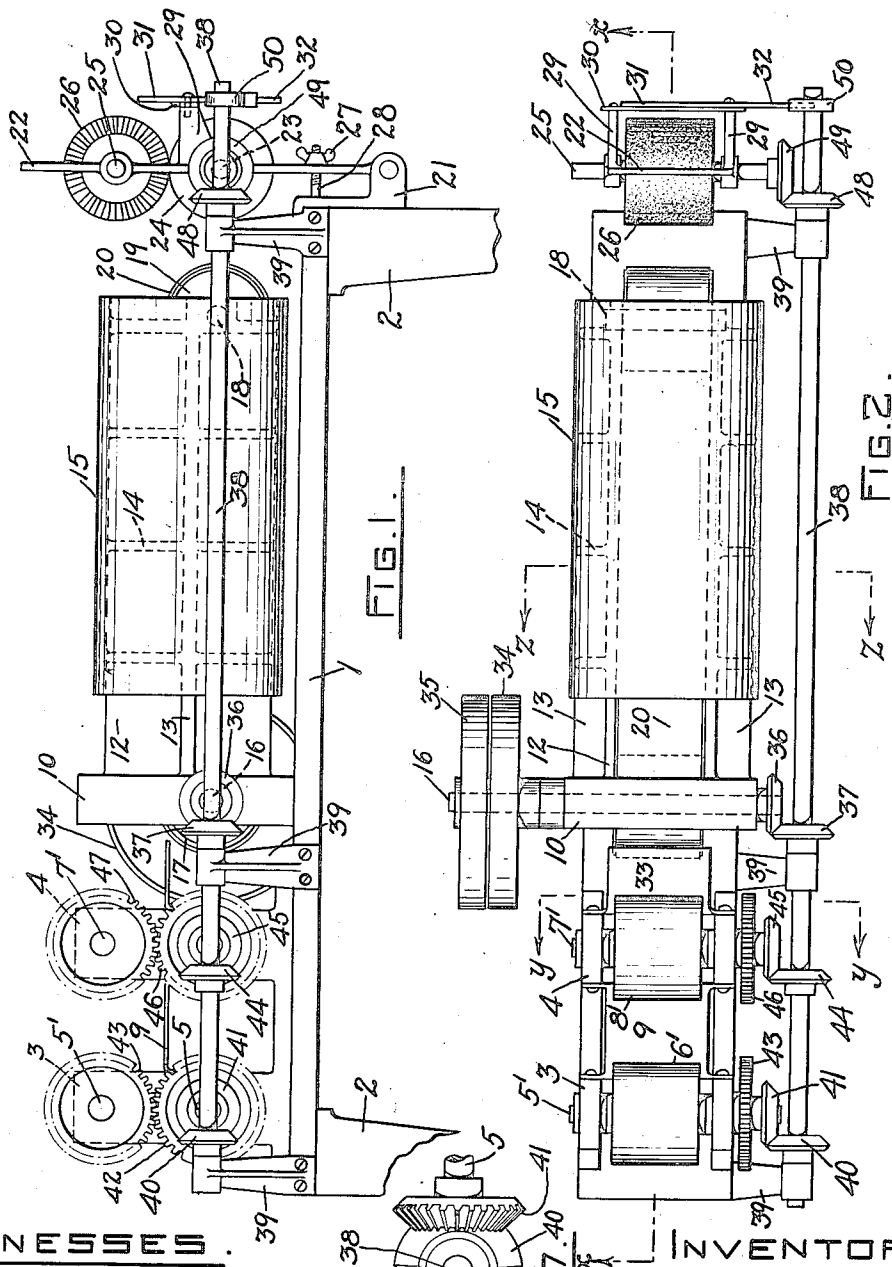


G. H. HARDMAN.
 MACHINE FOR MANUFACTURING SANITARY NAPKINS.
 APPLICATION FILED OCT. 19, 1912.

1,204,153.

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 2 SHEETS—SHEET 1.



WITNESSES.

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MACHINE FOR MANUFACTURING SANITARY NAPKINS.

1,204,153.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GEORGE H. HARDMAN, of the city of Fall River, in the county of Bristol and State of Massachusetts, have invented a certain new and useful Machine for Manufacturing Sanitary Napkins; and I do hereby declare the following specification, taken in connection with the accompanying drawings, forming a part of the same, to be a full, clear, and exact description thereof.

The invention relates to a machine for manufacturing sanitary napkins and has for its object to produce a machine of this character which automatically inserts a predetermined amount of cotton, or other suitable absorbent material, into a fabric casing, then folds or flattens said casing and then severs the casing into predetermined lengths.

To this end the invention consists in the novel features of construction and arrangement of parts hereinafter shown and described and more particularly set forth in the claims.

In describing the invention in detail reference will be made to the accompanying drawings, in which—

Figure 1 is a side view of my novel machine. Fig. 2 is a plan view of the same. Fig. 3 is a longitudinal section on line $x-x$, Fig. 2. Fig. 4 is a transverse section on line $y-y$, Fig. 2. Fig. 5 is transverse section on line $z-z$, Fig. 2. Fig. 6 is an end view. Fig. 7 is a detail.

Referring to the drawings, 1 represents the bed of the machine which is supported upon suitable legs or standards 2. Mounted upon the bed 1 at one end are two pair of uprights 3 and 4, which are spaced any desired distance apart depending upon the length of filling desired for the napkin. Journalled in the uprights 3 are two shafts 5 and 5', upon each of which is secured a friction feed roll 6 and 6' respectively and journalled in the uprights 4 are two shafts 7 and 7', upon each of which is secured a friction feed roll 8 and 8', respectively. Extending between the uprights 3 and 4 in line with the top surfaces of the bottom rolls 6 and 8 is a table or support 9.

Mounted upon the bed 1 adjacent the upright 4 is an upright block 10 which extends across said bed transversely and is provided with a central rectangular opening 11 extending through the same, as shown in Figs.

3 and 5. Secured upon one side of the block 10 and upon opposite sides of the opening 11 are two elongated arms 12 arranged parallel to each other and to the bed 1. Formed upon the outer side of each of the arms 12 is a horizontal rib 13 and a series of vertical ribs 14, as shown in Figs. 2 and 5. Removably held by friction upon the arms 12 is a tube 15.

Journalled in the block 10 and extending through the opening 11 is the main driving shaft 16, which carries a pulley 17 mounted to rotate in the opening 11 and having its upper surface in line with the upper surface of the feed rolls 6 and 8, as shown in Fig. 3. Journalled in the free ends of the arms 12 is shaft 18 which carries a loose pulley 19, which cooperates with the pulley 17 to drive a conveyer belt or apron 20.

Secured upon the end of the bed 1 adjacent the free ends of the arms 12 is a bracket 21, to which is pivoted an upright adjustable frame 22 in which is journalled a shaft 23 which carries a feed roll 24, the upper surface of which is arranged in line with the upper portion of the conveyer belt 20. Also journalled in the frame 22 directly above the shaft 23 is a shaft 25 which carries a circular brush 26 arranged to cooperate with said feed roll 24. The frame 22 is held in adjusted position by a thumb nut 27 and bolt 28 secured in the bracket 21. Secured upon brackets 29 extending from the frame 22 is a fixed knife member 30 and pivoted upon said fixed knife member 30 is a movable knife member 31 having a tail portion 32, as shown in Fig. 6. Secured to the brackets in line with the upper surface of feed roll 8 is a table or support 33, the free end of which is arranged in line with and in close proximity to the upper surface of pulley 17.

The mechanism for driving the various parts of the machine will now be described.

Secured upon one end of the main driving shaft 16 is a fixed driving pulley 34 and a loose pulley 35. Upon the opposite end of the main shaft 16 is a bevel gear 36 which meshes with a bevel gear 37 secured upon a shaft 38 which is journalled in brackets 39 and extends the entire length of the machine, as shown in Figs. 1 and 2. Secured upon the shaft 38 adjacent one end is an intermittent bevel gear 40 arranged to co-

operate with an intermittent bevel gear 41 secured upon the end of shaft 5. Also secured upon shaft 5 is a gear 42 which meshes with a gear 43 upon shaft 5'. Secured upon shaft 38 is a bevel gear 44 which meshes with a bevel gear 45 upon shaft 7 and secured upon shaft 7 is a gear 46 which meshes with a gear 47 on shaft 7'. Secured upon the shaft 38 adjacent the opposite end is a bevel gear 48 which meshes with a bevel gear 49 upon shaft 23. Also secured upon the shaft 38 adjacent the bevel gear 48 is a cam 50 which is arranged to cooperate with the tail portion 32 of the movable knife member 31 to open and close the same. Said tail portion 32 is held against the face of cam 50 by a spring 32'.

The operation of the machine will be readily understood. A supply of cotton or other absorbent material A is fed from a can or other receptacle between the feed rolls 5 and 5' which rotate intermittently. A supply of tubular fabric B is placed upon the tube 15 and said tube is placed upon the arms 12. The machine is now ready to be started. As the feed rolls 5 and 5' revolve, the cotton is fed along on the table 9 and between the continuously rotating feed rolls 7 and 7'. When now the intermittent feed rolls 5 and 5' cease to operate, the feed rolls 7 and 7', which continue to rotate, will sever the cotton A at the point where it is gripped by the feed rolls 5 and 5' and continue to feed said severed portion C, which constitutes the amount required for a filling for one napkin. Said filling C is then fed by the feed rolls 7 and 7' along the table 33 and onto the conveyer belt 20, which continues to feed it along the interior of the tube 15. Just before said filling C reaches the outer or free end of said tube 15, the end of the tubular fabric B is fed between the feed roll 24 and brush 26. The filling C is then fed by the conveyer belt 20 into said tubular fabric B and between the feed roll 24 and brush 26, thence between the fixed knife 30 and movable knife 31 which is operated by the cam 50 to sever the tubular fabric and a finished napkin D is deposited from the machine.

It will be seen that after the tubular fabric has once been inserted between the feed roll 24 and brush 26, the action of the machine is entirely automatic and said machine will continue to deposit completed napkins until the supply of stock is exhausted. When the supply of tubular fabric B is exhausted, the empty tube 15 is removed from the arms 12 and a loaded tube is slipped upon said arms where it is held by the friction of ribs 13 and 14.

It will be understood that various changes in the form, proportions, size and minor details of the machine may be made without departing from the spirit and scope of the invention and that the length of the filling A

and completed napkin can be varied by simply changing the size of the bevel gears upon shaft 38 so as to increase or decrease the speed of the feed rolls, as desired.

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

1. In a machine of the character described, the combination with a suitable frame, of a support for a tubular fabric casing and a conveyer extending within said tubular fabric casing.

2. In a machine of the character described, the combination with a suitable frame, of a support for a tubular fabric casing and a conveyer mounted to rotate within said support and casing.

3. In a machine of the character described, the combination with a suitable frame, of a pair of intermittent feed rolls, a pair of constant feed rolls, a tube, an endless belt rotating within said tube, and a pair of feed rolls adjacent the outer end of said tube.

4. In a machine of the character described, the combination with a suitable frame, of a pair of intermittently rotating feed rolls, a pair of constantly rotating feed rolls, a tube supported upon its interior, an endless belt adapted to rotate within said tube, a pair of feed rolls adjacent the outer end of said tube, and a knife adjacent said feed rolls.

5. In a machine of the character described, the combination with a suitable frame, of a pair of intermittently rotating feed rolls, a pair of constantly rotating feed rolls adjacent thereto, a tube supported upon its interior, an endless belt mounted to rotate within said tube, a feed roll and cooperating feed brush adjacent the outer end of said tube, and a fixed and movable knife member adjacent said last mentioned feed roll.

6. In a machine of the character described, the combination with a suitable frame, of a pair of intermittently rotating feed rolls, a pair of constantly rotating feed rolls placed a predetermined distance from said first mentioned feed rolls, a table between said feed rolls in line with the upper surface of the bottom roll, a block mounted upon said frame adjacent the constantly rotating feed rolls, a table between said feed rolls and block, an opening through said block, a pair of arms extending longitudinally from said block, a pulley mounted in the free ends of said arms, a pulley mounted in the opening in said block, a belt surrounding said pulleys, an elongated tube mounted upon said arms by friction, a pair of constantly rotating feed rolls adjacent the outer end of said tube, and fixed and movable knife members in line with the upper surface of the bottom roll.

7. In a machine of the character described, the combination with a suitable frame, of means for feeding a supply of cotton filling, means for severing a predetermined amount

of said filling from said supply and means for conveying said severed portion within a tubular fabric casing:

8. In a machine of the character described, the combination with a main frame, of a tube removably mounted upon said frame, a supplemental frame pivotally mounted upon said main frame adjacent one end of said

tube and a pair of feed rolls and fixed and movable knife members carried by said supplemental frame. 10

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Witnesses:

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