Sept. 22, 1970 K. M. NUCKOLS, JR 3,530,027

THERMO ADHESIVE TAPE APPLICATOR

Filed Aug. 8, 1968

2 Sheets-Sheet 1

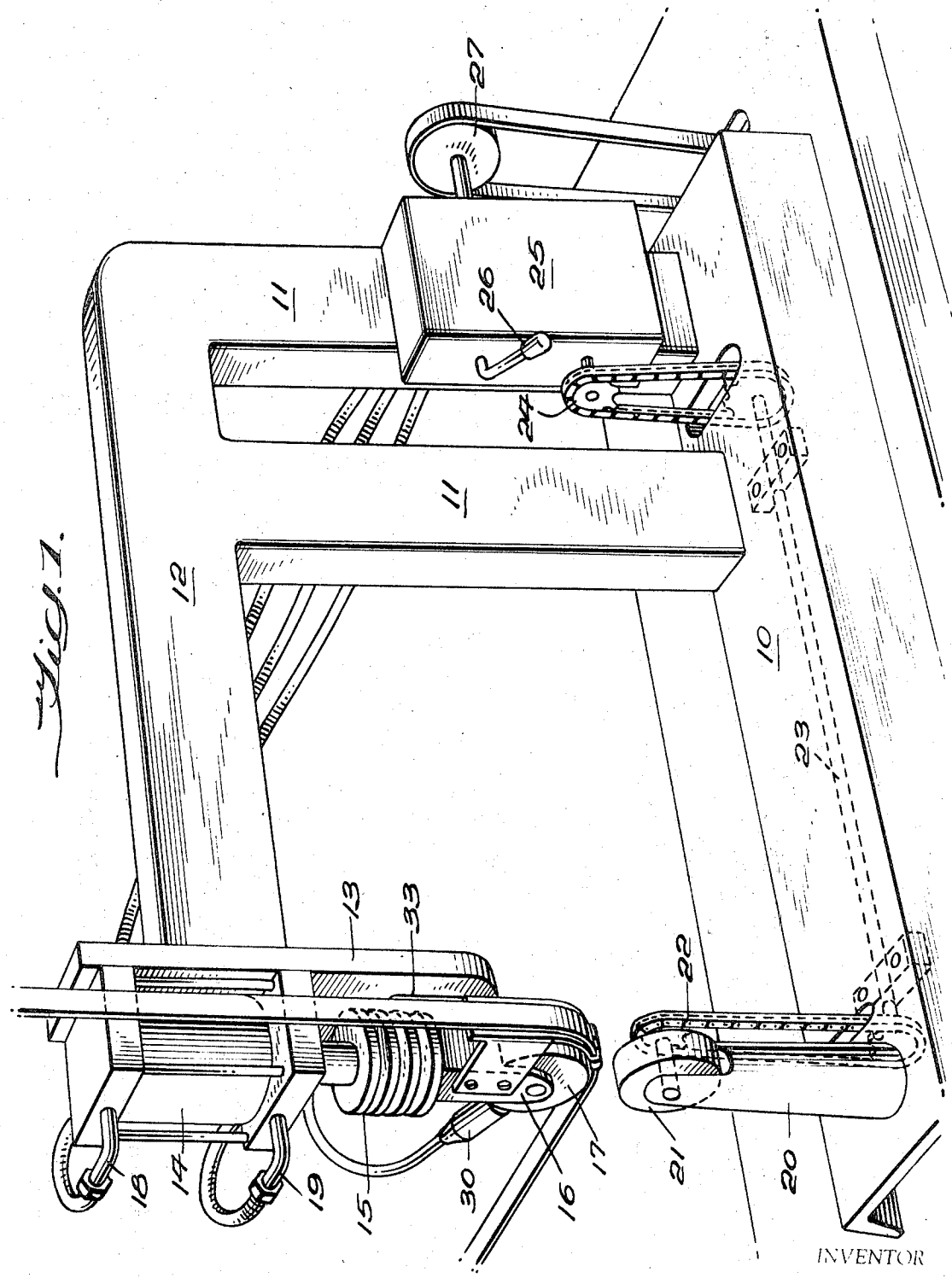


Fig. 1.

INVENTOR

KENTON MALIOTE NUCKOLS, JR.

BY R. Lloyd Faust

ATTORNEY

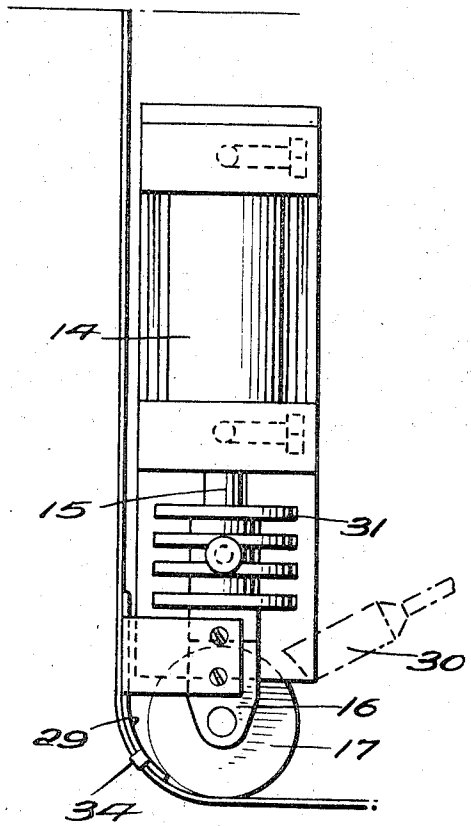
Sept. 22, 1970 K. M. NUCKOLS, JR 3,530,027

THERMO ADHESIVE TAPE APPLICATOR

Filed Aug. 8, 1968

2 Sheets-Sheet 2

Fig. 2.



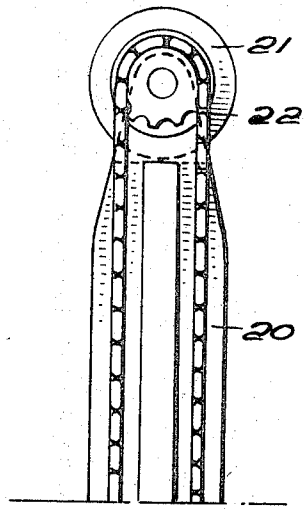
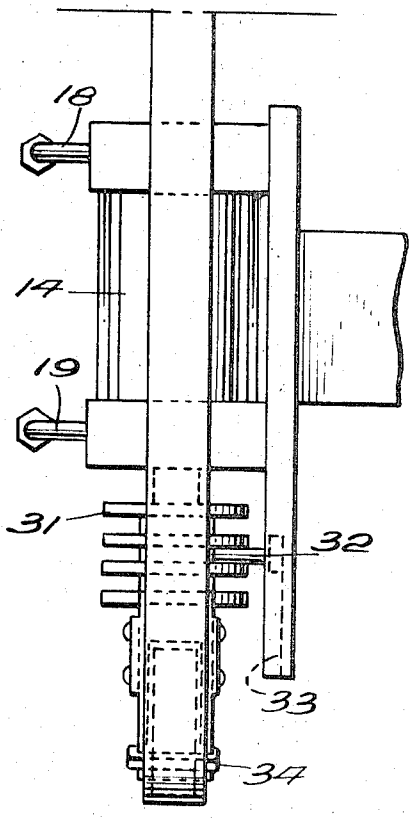
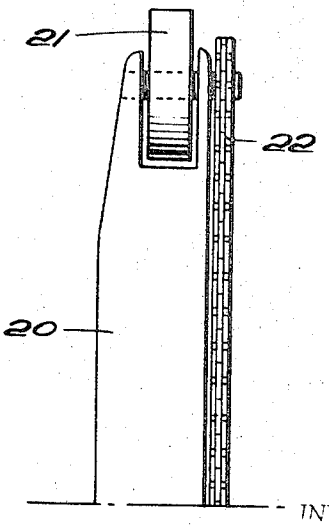


Fig. 3.





INVENTOR

KENTON MALIOTE NUCKOLS, JR

BY K. Lloyd Gould,

ATTORNEY

United States Patent Office 3,530,027 Patented Sept. 22, 1970

3,530,027

THERMO ADHESIVE TAPE APPLICATOR

Kenton Malicote Nuckols, Jr., Richmond, Va., assignor to M & B Headwear Co., Inc., Richmond, Va., a corporation of Virginia

Filed Aug. 8, 1968, Ser. No. 751,090
Int. Cl. B32b 31/10, 31/20
U.S. Cl. 156—582 4 Claims

ABSTRACT OF THE DISCLOSURE

A machine to apply adhesive seam covering types to a stitched article such as a hat that provides a driving wheel that is speed controlled and a driven heated, tape applying presser wheel movable toward and away from the driving wheel for leading, unleading and controlling the machine.

In making waterproof hats, the application of the tapes to the hat body is excessively time consuming and requires a high degree of manual dexterity and experience in order to produce the finished hat at an acceptable cost.

While machines are known to apply tapes to other articles, a search for such a machine that could be used to produce waterproof hats at a satisfactory rate was not successful. Visibility, accessibility of the tool to each part of the hat, reliability of preparation of the tape for application, availability of pressures required to press the tape into place, accuracy of the machine under manipulation of a workpiece so the tapes are accurately and neatly placed, controllability of both speed, pressure, and heat have each been provided in the machine of the present invention, and the provision of each are principal objectives of the invention.

Other and further objects and advantages will appear from the following specification taken with the accompanying drawing in which like characters of reference refer to similar parts in the several views, and in which:

FIG. 1 is a general perspective view of the machine;

FIG. 2 is a view looking to the left in FIG. 3; and

FIG. 3 is a side view of the wheel support and the presser wheel and its operating means.

As seen in FIG. 1, a base **10** is provided with a standard **11**, **11** at one end to support a cantilever arm **12** on which a vertical support **13** is mounted.

Mounted on support **13** is a pneumatic cylinder **14** in which a piston, not shown, is operable to move vertically. The piston is attached to the upper end of piston rod **15** that extends downwardly to a yoke **16** that casries a metal presser wheel **17**.

The presser wheel, then, may be raised and lowered by raising and lowering the piston rod **15** by operation of the cylinder and piston means **14**. This raising and lowering is effected by air under pressure through air connections **18** and **19** by means of a conventional air valve, not shown, that may be foot operated to admit air under pressure selectively to one or other of connections **18** or **19**, and vent the connection to which air is not admitted. Such conventional air valves, such as spool valves usually, and desirably, include a neutral position.

Directly below the wheel **17** is a support **20** having a yoke at its top in which is journaled a driving wheel **21** that may be of rubber or metal with a rubber "tire" or of metal or plastic, but must have a frictional surface to bear against the workpiece, as it is this wheel that operates to move the workpiece against heated wheel **17**. Driving wheel **21** is shown as driven by sprocket and chain **22** via shaft **23** and chain **24** from a variable gear box **25** which provides speeds from zero to a maximum r.p.m. While a handle **26** is shown to control the speed of drive delivered from the gear box **25**, this showing is

diagrammatic, and in practice this handle is connected through a standard mechanical movement device such as links and levers or pulleys and belts or strands to a pedal for the convenience of the operator. Power is supplied to gear box **25** from a motor, not shown, via a pulley **27** and drive belt **28**.

Mounted on yoke **16** at the lower end of piston rod **15** is a plate **29** forming a guide means over which a strip of adhesive faced tape is to be fed from a reel (not shown) supported above the air cylinder **14**. This plate leads the tape with its adhesive face out downwardly and then generally tangentially to presser wheel **17**.

Plate **29**, and presser wheel **17** are heated by a burner **30** supported to move upwardly and downwardly with the yoke and passes wheel assembly. This burner may use any convenient fuel.

Mounted on piston rod **15** above the yoke **16** are a plurality of cooling fins **31** to dissipate heat to the ambient air rather than have it be lead upwardly by conduction to the cylinder **14** which must clearly have a substantially air tight sliding connection with piston rod **15**.

A pin **32** is shown secured to the fins and extending into a vertical groove **33** to prevent rotation of piston rod **15** about its axis which would turn presser wheel **17** so its axis would no longer be parallel to the axis of driving wheel **21**.

A strap **34** is shown to retain the tape in position to be fed between rollers **17** and **21** as the machine is operated.

While only the preferred embodiment of the device is described and illustrated herein, it is understood that variations of the device may be made without departing from the scope of this invention defined by the following claims.

I claim:

1. A machine for applying a tape having a thermo adhesive face to an object such as a hat; said machine comprising a frame, a support extending upwardly from said frame, an arm extending to a position above said support, a pneumatic cylinder-and-piston means mounted on said arm, said piston means including a piston rod extending downwardly generally coaxially of said support, a driving wheel mounted on said support, power means to rotate said driving wheel, a presser wheel mounted on the lower end of said piston rod with its axis of rotation parallel to the axis of rotation of said driving wheel, guide means mounted adjacent said presser wheel on said piston rod to feed tape to said presser wheel, heating means mounted for movement with said presser wheel to heat said presser wheel and guide means, and pneumatic means to operate said piston and cylinder means to raise or lower said presser wheel.

2. The machine of claim **1** having a plurality of cooling fins mounted on said piston rod above said presser wheel to dissipate the heat from the heating means to prevent overheating of said piston rod.

3. The device of claim **1** in which said heating means is a fuel burner.

4. The device of claim **1** in which said power means includes an adjustable speed means.

References Cited

UNITED STATES PATENTS

2,941,576	6/1960	Schenkengel	156—582 X
3,206,911	9/1965	Carle et al.	53—137
3,223,574	12/1965	Childs	156—555 X

BENJAMIN A. BORCHELT, Primary Examiner

W. T. RIFKIN, Assistant Examiner

U.S. Cl. X.R.

53—137; 156—555, 580, 583