United States Patent

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[54] **FABRIC MEASURING AND CUTTING TABLE**
5 Claims, 5 Drawing Figs.

[52] **U.S. Cl.** **83/522,** 83/649, 83/614, 242/62, 33/129
[51] **Int. Cl.** **B26d 7/28**
[50] **Field of Search** 83/649, 650, 614, 522; 242/62, 55.53, 58; 33/128, 129

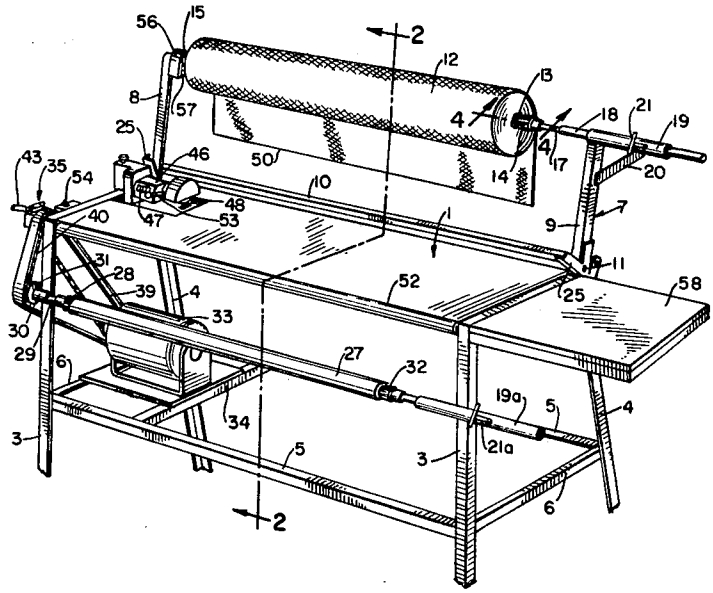
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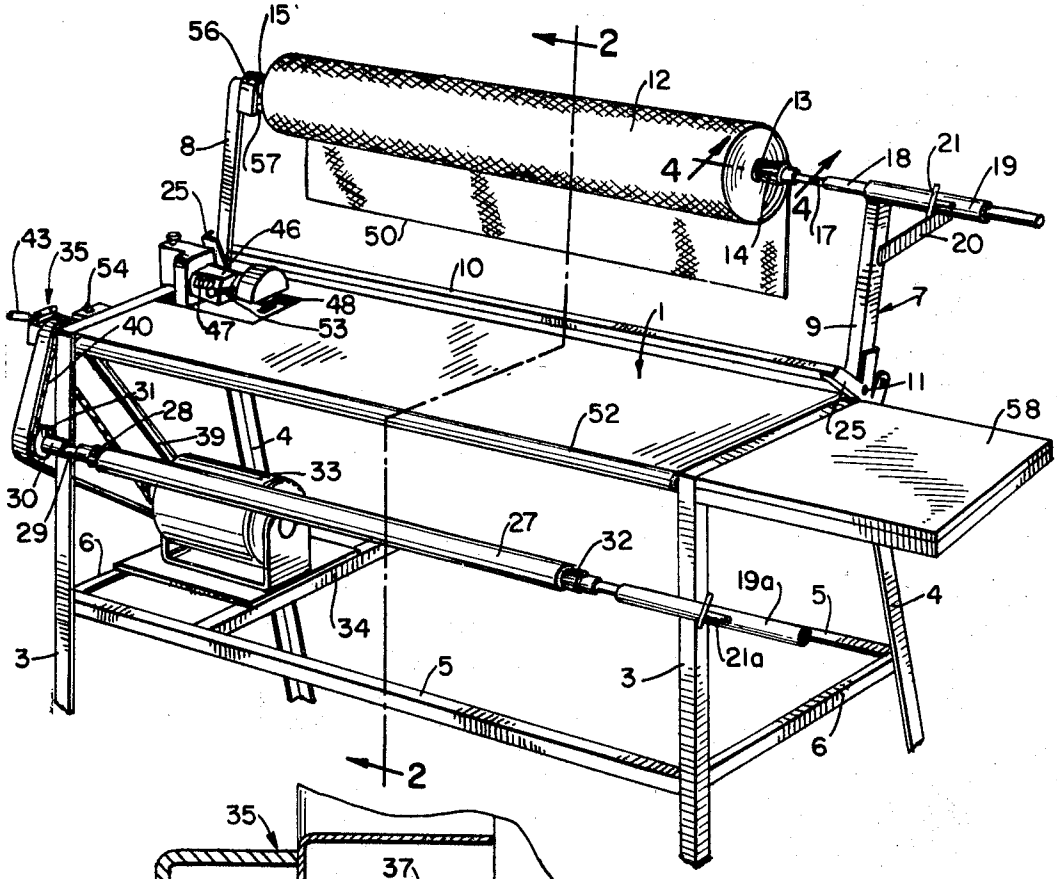
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ABSTRACT: A fabric supply roll is rotatably supported above and at the rear of a table. The fabric is passed downwardly from this roll and threaded around a guide roller at the rear of the table, thence over the table's surface and into engagement with a yardage meter and then downwardly over a second guide roller at the front of the table to a takeup roll mounted on a controllable power driven shaft.



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FIG. 1



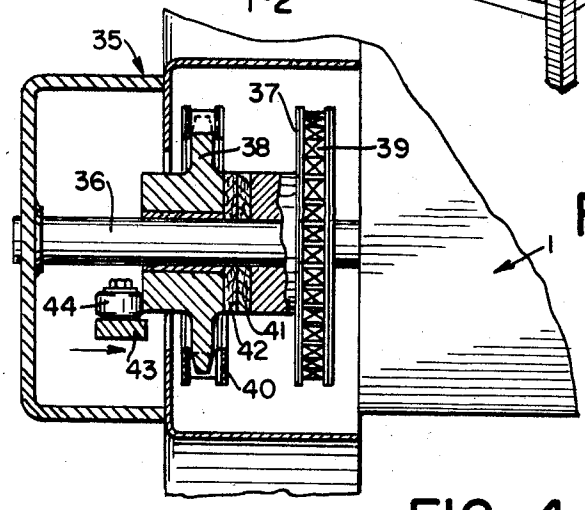
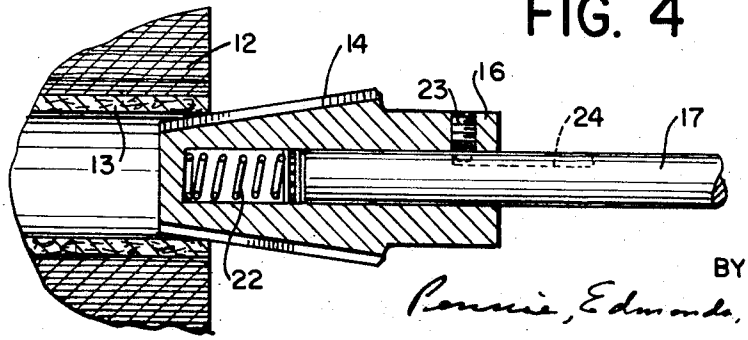


FIG. 3

FIG. 4



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FIG. 2

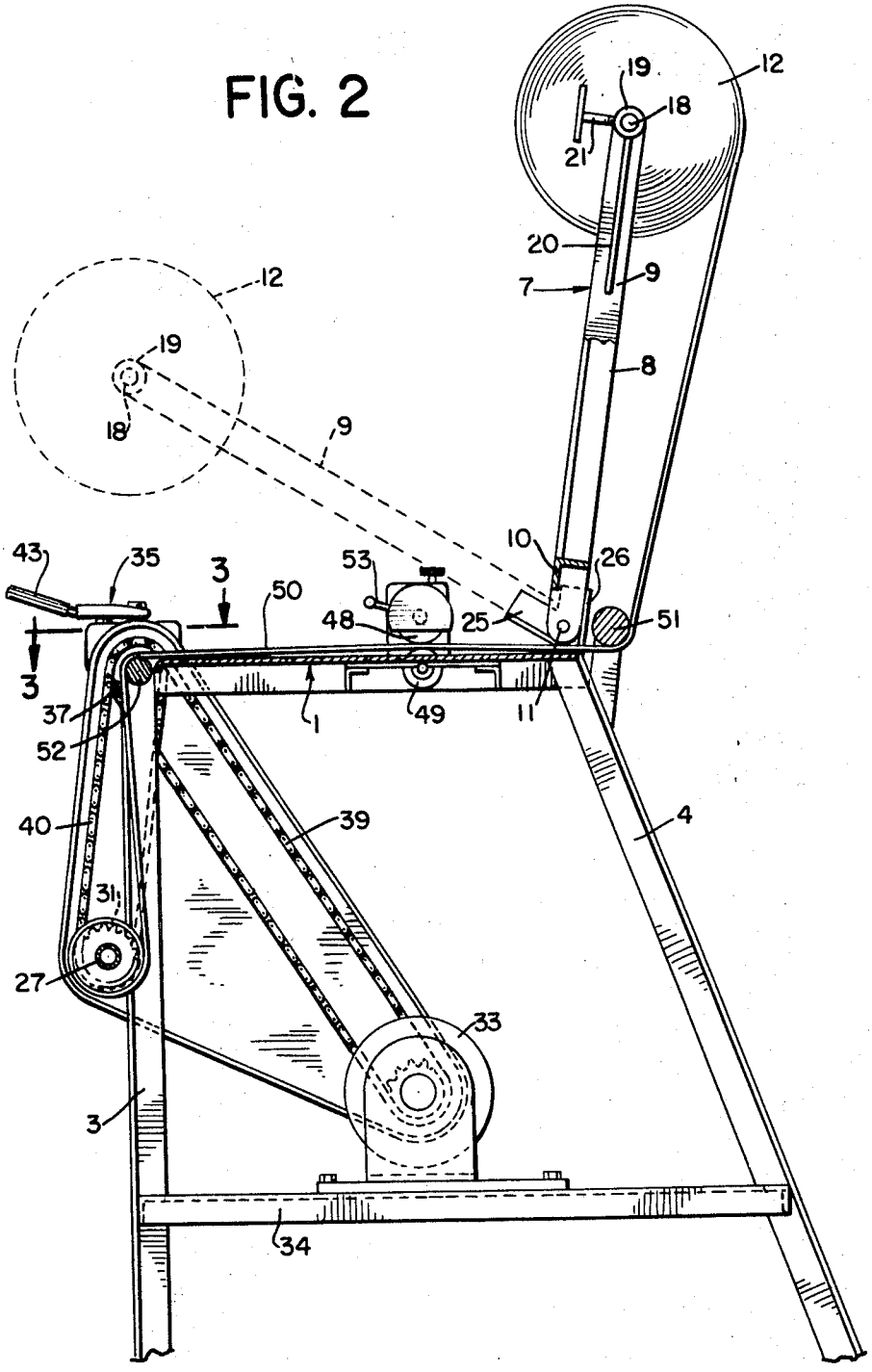
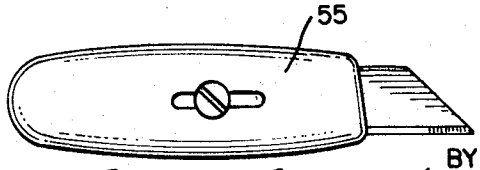


FIG. 5



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FABRIC MEASURING AND CUTTING TABLE

SUMMARY OF THE INVENTION

A table is supported in horizontal position and provided with a frame structure pivotally mounted at its rear edge for supporting a supply roll of fabric to be cut into sections of the desired length. The frame structure has two parallel equal length arms which are rigidly connected together near their common pivot and these arms can be rocked to a forward position for convenience in mounting the fabric supply roll between them. A takeup roll is rotatably supported below the front edge of the table on a shaft which is power driven from a suitable motor and through a manually operated clutch. A freely rotatable guide roller is mounted at the rear of the table and a similar roller at the front of the table. A yardage meter is arranged on the upper surface of the table. In operation the fabric from the supply roll, after rocking the frame structure from its forward to its upright position, is threaded around the guide roller at the rear of the table, then over the table's surface in engagement with the yardage meter, then downwardly over the roller at the front of the table and onto the takeup roll. The section or "length" of fabric which has been measured by the yardage meter is cut off by the operator who draws a razor sharp knife along the front of the table, the knife being guided in a groove formed by the front guide roller and the front edge of the table.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an isometric view of the measuring and cutting table of the invention;

FIG. 2 is a view of the table in central vertical section taken on line **2-2** of **FIG.** 1 looking in the direction of the arrows;

FIG. 3 is a horizontal section taken on line **3-3** of **FIG.** 2 showing a detail;

FIG. 4 is a section taken on line **4-4** of **FIG.** 1 showing another detail; and

FIG. 5 is a side view of a cutting knife.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to these drawings the horizontal table is shown at **1** and may be made of a flat metallic plate having its forward edge curved downwardly from end to end somewhat as shown in **FIG. 2.** The table is supported in horizontal position at the desired working height above the floor in any convenient manner. As shown the table is supported by a framework consisting of steel angle bars and it has two vertical front legs **3** and two rear legs **4** which slope downwardly toward the rear to give the structure greater stability. The four legs are interconnected by front and rear bars **5** and by end bars **6.**

Extending along the rear edge of table **1** there is a supply roll supporting structure indicated generally by reference numeral **7** and having two upright parallel arms **8** and **9** which are rigidly joined together at their lower ends by a horizontal bar **10.** This supporting structure **7** is pivotally mounted in parallel relation to the rear edge of table **1** in any suitable manner such as indicated by the pivot pin or rod **11.**

A supply roll **12** of fabric to be measured and cut is supported between the upper ends of arms **8** and **9.** The roll **12** is wound upon a central carrying tube **13** in a conventional manner. Roll **12** is supported at its opposite ends by two conical members one of which, **14,** is shown in **FIG.** 4 in detail and engages the tube **13** at the right-hand end of the roll. The cone at the left-hand end of the roll is only slightly visible and is indicated by numeral **15.** These cones are alike and each is provided with a cylindrical shank portion **16.**

Cone **14** at the right (**FIG.** 1) is slidably mounted on a shaft **17** and this shaft in turn rotates within a stationary sleeve **18** adjustably mounted in a cylindrical member **19** which is welded to the outer end of arm **9.** A brace **20** welded at one end to arm **9** and at its opposite end to the lower surface of member **19** strengthens the support of this member on arm **9.** Sleeve **18** is lengthwise shiftable in member **19** and arranged to be clamped in adjusted position by means of a clamping screw **21** which is threaded in an opening in the side of member **19.** This construction permits of the support of rolls **12** of various widths or lengths by the arms **8** and **9.**

Conical member **15** at the left end of roll **12** is rotatably supported on a shaft or pin (not shown) which is secured to arm **8,** cone **15** being non-shiftable in its position. However, as shown in **FIG.** 4 cone **14** at the right end of roll **12** is mounted on shaft **17** in such a way as to be yieldable lengthwise and is urged or biased towards the left by means of helical compression spring **22.** The cone is held on shaft **17** by means of a dog-pointed screw **23** which is threaded in an aperture in the side of shank portion **16,** the inner end of screw **23** being received in a longitudinal slot **24** in shaft **17.**

When it is desired to mount a fabric roll **12** in position between the supporting arms **8** and **9** sleeve **18** is first adjusted lengthwise in member **19** according to the length of the roll **12.** Then the left end of the roll is applied to the non-shiftable conical member **15,** and the spring pressed conical member **14** at the right end is manually shifted to the right in **FIGS.** 1 and 4 so as to allow the aperture of tube **13** to be received upon the sloping surface of cone **14.**

It will be understood that the mounting operation of roll **12** just described is accomplished while the supporting structure including arms **8** and **9** is swung forward about its pivot **11** to the forward position shown in **FIG.** 2 where the outer ends of arms **8** and **9** are conveniently accessible from the front of table **1.** The roll supporting structure is held in this forward position by means of rigid stop members **25,** only one of which is visible in the drawings, which are welded or otherwise rigidly mounted on the framework which supports table **1.** A similar pair of stop members **26** hold the arms **8** and **9** in thier operative position as shown in full lines in **FIGS.** 1 and 2 where the arms and roll **12** are at the rear of the gravitational dead center of pivot **11.**

The takeup roll **27** (shown as a tube similar to tube **13**) is supported in a similar way to supply roll **12.** For such support a nonshiftable cone member **28** is arranged at the left and is mounted on a rotatable shaft **29** which rotates in a bearing **30** mounted on framework leg **3.** Shaft **29** has a driving sprocket **31** secured to its outer end. At the right end of tube **27** there is a second cone **32** which is mounted in the same way as cone **14** except that the cylindrical supporting member **19a** of this assembly is fixed to the right front leg **3** by welding or otherwise. The position of cone **32** can be shifted for different tube lengths by adjusting clamping screw **21a.** Cone member **32** is spring mounted in the same way as cone **14** so as to be yieldingly urged against the end of takeup roll **27.**

In order that takeup roll **27** may be power driven an electric motor **33** is mounted partly on left end bar **6** of the table framework and partly on a parallel bar **34** which extends between the front and rear bars **5.** To rotate shaft **29** and the takeup roll **27** and at the same time be able to control such rotation a friction clutch mechanism indicated generally by numeral **35** is mounted on the framework of the machine at its left-hand end. This clutch mechanism includes a stationary shaft **36** on which rotate a driving sprocket **37** and a driven sprocket **38.** An endless chain **39** operated from the shaft of motor **33** drives sprocket **37,** and a shorter endless chain **40** interconnects sprocket **38** with sprocket **31** on shaft **29.**

Friction clutch members **41** and **42** are mounted on adjacent ends of enlarged hubs provided on the sprockets **37** and **38** respectively, and sprocket **38** is shiftable along stationary shaft **36** by means of a lever **43** which is pivotally mounted on the clutch mechanism **35.** A roller **44** which rotates on a pin projecting from one side of lever **43** engages the hub of sprocket **38.** Manual pressure on lever **43** forces the friction members **41** and **42** of the clutch into engagement with each other and causes the rotation of takeup roll **27.**

The table **1** has a rectangular aperture near its left end and within this aperture a yardage meter **46** is mounted. The figures indicated by the yardage meter appear through a window **47.** The yardage meter is operated by upper and lower cooperating rollers **48** and **49.**

In the operation of the apparatus, with a supply roll of fabric **12** in position the web **50** of the fabric is brought downwardly and threaded around a guide roller **51** supported by the machine framework and mounted for rotation adjacent pivot **11** for the supply roll supporting framework and with its lower surface positioned horizontally just above the surface of table **1**. The web **50** is carried over the surface of table **1** to the front thereof where the web is turned downwardly aroung a second guide roller **52** which is similar to roller **51** but somewhat smaller in diameter. It is like roller **51**, supported for rotation by the framework of the machine, and its upper surface is in approximately the same horizontal plane as the lower surface of roller **51**. The threading is completed by securing the end of web **50** to the takeup tube **27** in a conventional manner so that when this tube is rotated the web will be wound up on it.

Before passing the end of the web over table **1** the rollers **48** and **49** of the yardage meter are separated by moving an actuating lever **53**. Immediately after the end of the web passes beneath these rollers they are returned to their actuating position so as to measure the length of the web between the meter and the takeup tube **27**, or between the meter and the front edge of table **1** where the cutting takes place. It will be understood that before the end of the web is secured to takeup tube **27** clutch lever **43** is operated to release the clutch so as to allow the cone member **28** and the tube **27** to rotate freely during the operation of securing the web to the tube.

After the threading of web **50** has been completed the machine is ready for operation. A manually operable switch **54** arranged in the circuit of motor **33** is closed to place the motor in operation. The operator presses clutch lever **43** to cause the motor **33** to feed the web across table **1** and onto takeup roll **27**, the operator watching the yardage meter **46** until the desired length of web section has been measured. When the desired section length has been reached clutch lever **43** is operated to stop further advance of the web. In order to promptly stop the rotation of supply roll **12** a friction brake or retarding device is arranged at the left hand of the roll mounting. As shown this is in the form of a small fabric strap **56** which is carried by a stationary block **57** and positioned to engage the cylindrical surface of shank **16** of the left-hand conical roller **15**.

The measured section is cut or severed transversely of the web, for example, by means of a knife **55** such as shown in **FIG. 5** which may be operated in the channel formed between the front guide roller **52** and the downwardly curved edge **2** of table **1**.

For convenience an extension **58** may be mounted at the right end of table **1** to receive various articles needed in the operation of the machine such as store orders, tickets, a tape dispenser etc. Obviously in using the machine in a production operation a quantity of webs of the same length will be measured and cut, whereas, if desired, each of the severed sections may be different in length.

We claim:

1. In apparatus of the class described, a horizontal table, means for supporting the table at working height above the floor, a supply roll supporting structure having two spaced parallel arms for supporting between them a supply roll of fabric to be cut into measured sections, means for pivotally mounting the roll support at the rear edge of the table with the arms projecting upwardly, at least one stop member rigidly secured to the table supporting means for engaging the roll support to hold the arms extending upwardly in operating position, at least one second stop member similarly arranged to hold the roll support when swung forward to a loading position above the front edge of the table, means for supporting a takeup roll for rotation below the front edge of the table, power means for turning said roll, a fabric guide roller mounted for rotation and extending along the rear edge of the table adjacent the roll supporting structure, and a second fabric guide roller mounted for rotation adjacent the front edge of the table and with its surface approximately level with the surface of the table.

2. Apparatus of the class described as set forth in Claim **1** in which the supply roll supporting structure is provided with arms which are fixed in position at a predetermined horizontal spacing, and the supporting means for one end of the roll is mounted for lengthwise adjustment with respect to the supporting arm on which it is mounted whereby supply rolls of different lengths may be accommodated.

3. Apparatus of the class described as set forth in Claim **1** in which the supply roll supporting structure is held in operating position by engagement of the arms thereof against fixed stop means and by moving the roll while supported by said arms beyond the gravitational dead center with respect to the pivot mounting of the roll supporting structure.

4. Apparatus of the class described as set forth in Claim **1** wherein the table includes a meter for measuring the length of the fabric transferred from the supply roll to the takeup roll and also wherein the surface of the front guide roll forms with the front edge of the table a slot for guiding a knife blade in severing the measured portion of the fabric.

5. Apparatus of the class described as set forth in Claim **1** wherein the power means is connected to drive the takeup roll through a manually operated clutch device.