United States Patent [19]

Lamming

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[54] DEVICE FOR MEASURING COINS AND WRAPPING THEM IN ROLLS

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[52] **U.S. Cl.** ..... **53/213,** 133/1 R

[51] **Int. Cl.** **B65b 11/04,** G07d 9/06

[58] **Field of Search** ....53/212, 213, 32; 133/1 R, 1 A

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[57] **ABSTRACT**

An open-end tube is filled to the top with coins, forming a stack of predetermined number, and is placed between two parallel rollers on the device, with a wrapping paper interposed between tube and rollers. The roll is centered between the ends of the device by a stationary pin at one end engaging the top coin, and a spring-loaded pin at the other end engaging the bottom coin through a hole in the tube bottom. The spring-loaded pin extends over the end of the device and bends downwardly in a 180° turn, extending back under the rollers where it is connected to spring means. The tube is removed endwise from the coins, and has a slot in its bottom and side wall to pass the downwardly bent portion of the spring-loaded pin. The stack is then revolved on the rollers while the paper is wrapped around the coins. The wrapped stack is then removed and the ends of the wrapper flattened down over the ends of the coin roll.

7 Claims, 11 Drawing Figures

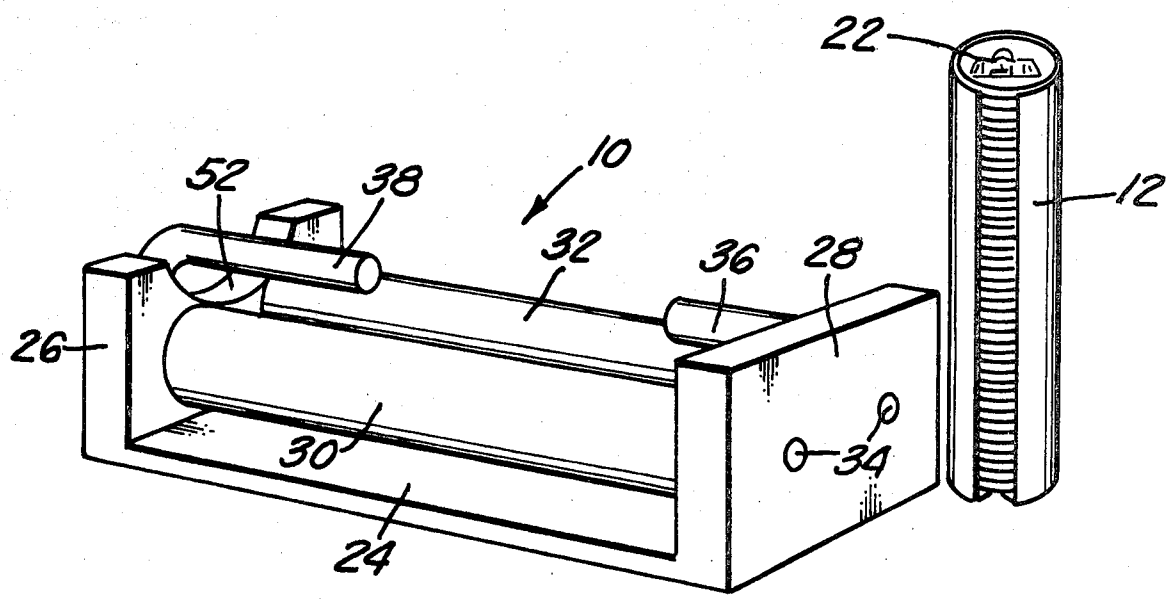


FIG. 1.

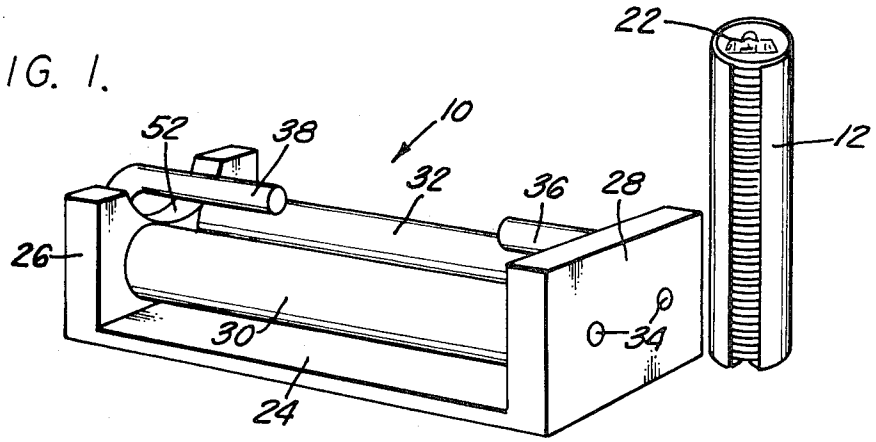


FIG. 2.

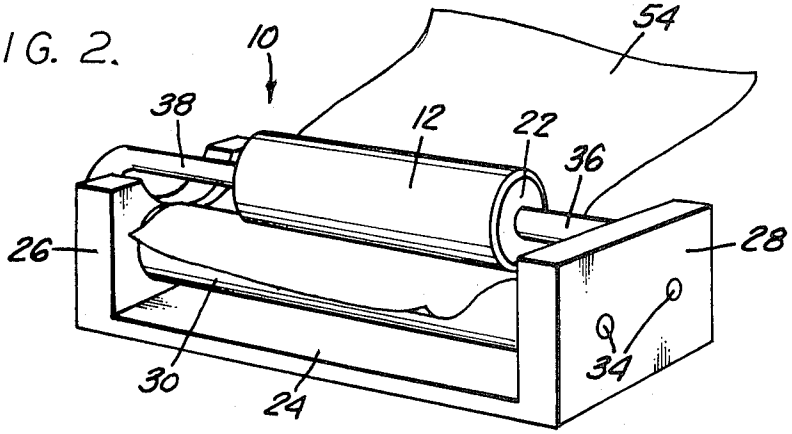
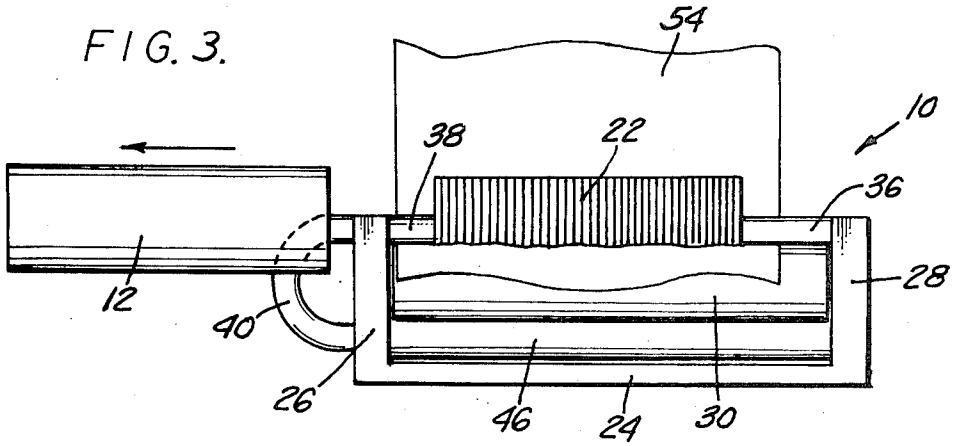


FIG. 3.



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FIG. 4.

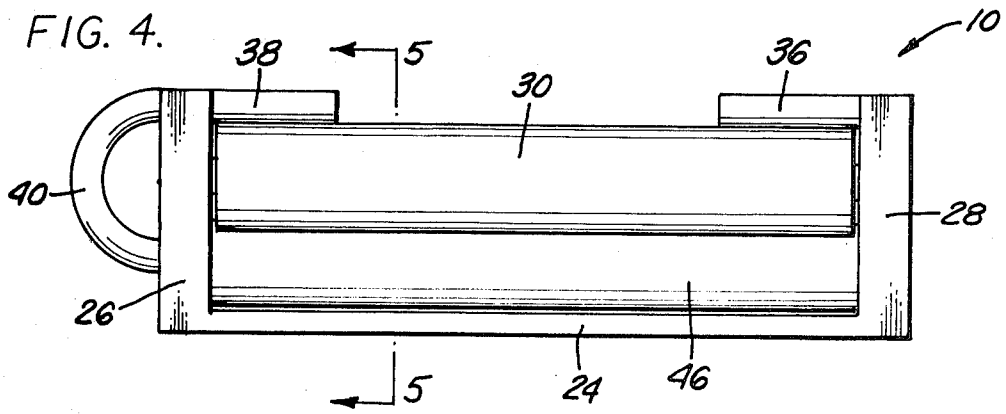
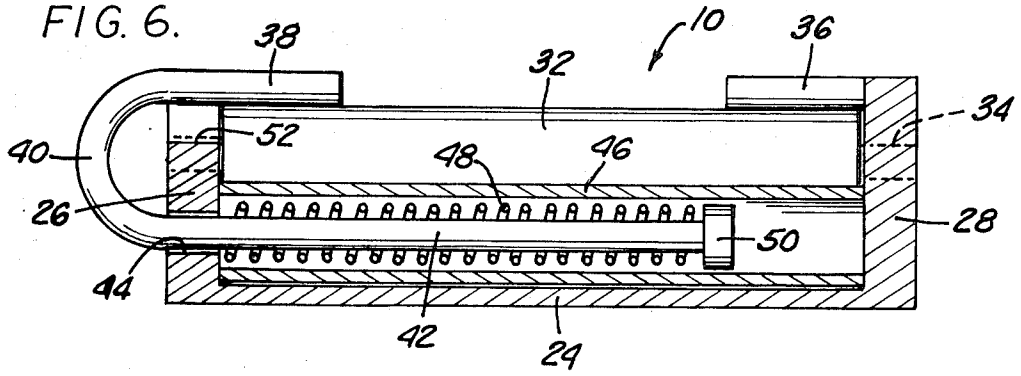


FIG. 6.



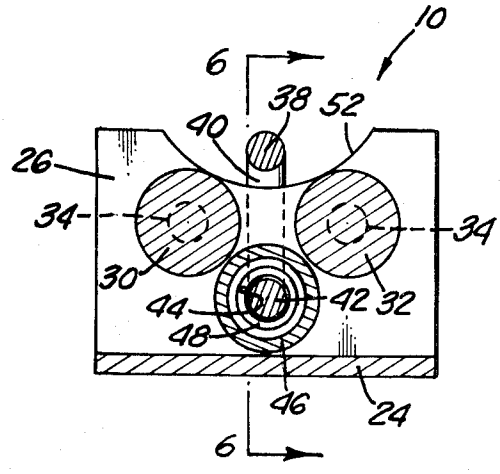


FIG. 5.

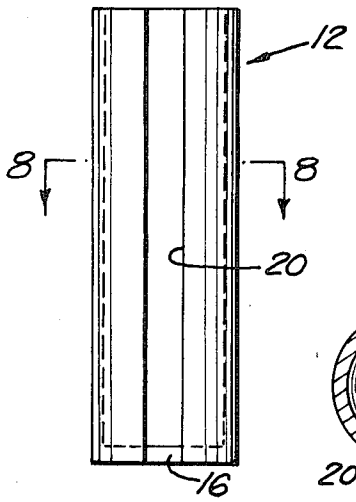


FIG. 7.

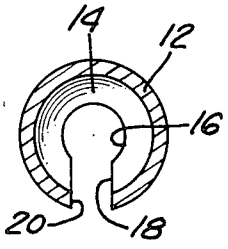


FIG. 8.

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FIG. 9.

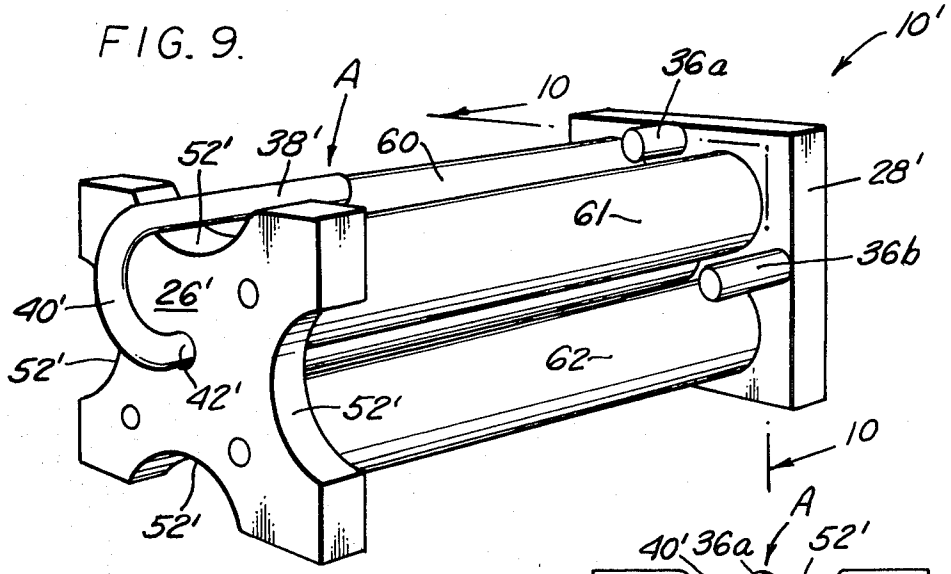
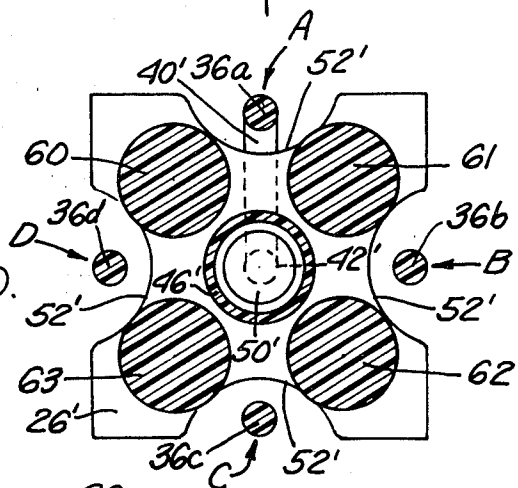


FIG. 10.



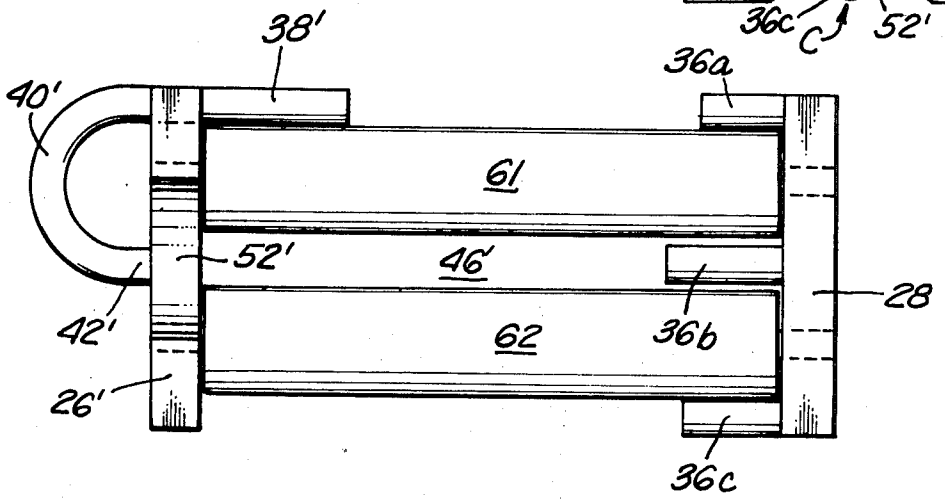


FIG. 11.

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DEVICE FOR MEASURING COINS AND WRAPPING THEM IN ROLLS

BACKGROUND OF THE INVENTION

The present invention relates to a device for quickly and easily measuring a number of coins of the same denomination and wrapping them in rolls. The invention is particularly useful for any individual or small business establishment whose normal business transactions involve the handling of large numbers of coins. Heretofore, such individuals or business establishments have usually found it necessary to count the coins by hand, after which rolls of a specified number of coins are wrapped in paper wrappers by hand. Hand-counting of coins is tedious and time-consuming, and subject to error. Hand-wrapping the rolls of coins is slow and awkward until the individual has acquired a high degree of manual dexterity by long practice.

Machine counters and wrappers are available, and these are used by banks and large retail business establishments handling extremely large numbers of coins, but such machines are quite expensive, and are not economically justified for the smaller business establishment or individual whose volume of coins handled might amount to a few thousands per week instead of the tens of thousands handled by the average bank or large retail business.

SUMMARY OF THE INVENTION

The primary object of the present invention is to provide a simple, inexpensive device that enables an individual to quickly and easily measure out coins into stacks of a predetermined number, and then wrap the stacks of coins with paper wrappers.

Another object of the invention in one of its embodiments is to provide a device of the class described which can be used to measure and wrap rolls of coins of several different denominations, which are all different from one another in their dimensions, by merely turning the device so that one or another of its several different sides face upwardly to receive the rolls of coins.

These objects are achieved in the present invention by providing a two-part device consisting of a cylindrical tube and a roller device, said tube being open at one end to receive coins so that when filled to the top with coins of a specified denomination, it forms a roll containing a predetermined number of coins. The tube, loaded with coins, is then placed on the device, where it is cradled between two parallel rollers, with a paper wrapper interposed between the rollers and the tube. The tube is centered between the two ends of the device by two opposed locating pins, one of which is stationary and the other spring-loaded. The spring-loaded pin passes through a hole in the center of the tube bottom, and passes over the end of the device to make a 180° turn downwardly and back under the rollers, where it is attached to a spring. The tube has a lengthwise extending slot formed in one side and reaching to the hole in the tube bottom, and when the tube has been properly centered between the pins, it is withdrawn endwise over the spring-loaded pin. The slot in the tube allows the downwardly bent portion of the spring-loaded pin to pass freely along its length, from one end of the tube to the other. The roll of coins, now held between the stationary and spring-loaded pins, is revolved on the rollers, while the paper wrapper is wrapped around it. The wrapped roll is then removed from the device, and the ends of the paper wrapper are crimped down.

In a second embodiment of the invention, the device has parallel pairs of rollers on each of its four sides, and stationary pins on each side, of different lengths, so that rolls of different denomination coins, which vary considerably in length, are each centered with respect to opposite ends of the device. Thus, the rolls are centered in their respective paper wrappers, while the wrappers are centered by the ends of the device. This embodiment of the invention is thus able to wrap coins of four different denominations without manually shifting the rolls of coins to center them on the paper wrappers. As in the first embodiment, separate tubes are required for the different coins.

Other objects and advantages of the invention will become apparent to those skilled in the art from the following detailed description of two illustrative embodiments thereof, with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of one form of the invention, showing the cylindrical tube loaded with coins and standing at one end of the rolling device;

FIG. **2** is an other perspective view, similar to FIG. **1**, showing the loaded tube cradled on the rollers and lightly clamped between opposed stationary and spring-loaded pins, there being a paper wrapper interposed between the tube and the rollers;

FIG. **3** is a side elevation of the device, showing the tube being removed endwise from the roll of coins;

FIG. **4** is a side elevation of the rolling device, by itself;

FIG. **5** is a transverse sectional view, taken at **5—5** in FIG. **4**;

FIG. **6** is a longitudinal sectional view, taken at **6—6** in FIG. **5**;

FIG. **7** is a side elevational view of the coin-measuring and roll-forming tube;

FIG. **8** is a sectional view of the same, taken at **8—8** in FIG. **7**;

FIG. **9** is a perspective view of another embodiment of the invention;

FIG. **10** is a sectional view of the same, taken at **10—10** in FIG. **9**; and

FIG. **11** is a side elevation of the same.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The embodiment of FIGS. **1–8** will be described first. The invention comprises a two-part apparatus consisting of a roll-wrapping device **10** and a coin-measuring and roll-forming tube **12**. The tube **12** is cylindrical in shape and is open at the top end to receive coins of a particular denomination. The inside diameter and length dimensions of the tube are such that coins of the specified denomination fit snugly, yet freely, within the tube, and when the tube is filled to the top, there will be an exact predetermined number of coins contained therein. Thus, for example, a tube for pennies would contain 50 coins; for nickles, it would be 40; for dimes, it would be 50; and for quarters it would be 40. These are the numbers of U.S. coins that are contained in

standard bank rolls. Since rolls of these four coins are different from one another in diameter and length, there would be four different tubes for the four coins mentioned. Coins of other countries would have their own tubes **12** to measure them out into rolls of a specified number.

The bottom of the tube is formed by an inwardly projecting, annular shoulder **14**, which defines a central aperture **16**. The aperture **16** is connected by a short radial slot **18** to a lengthwise extending slot **20** formed in the one side of the tube, the purpose of which will become apparent hereinafter. The tube **12** is filled with coins **22**, which come exactly to the top of the tube when the specified number of coins is contained therein. Thus, it is not necessary to count the coins one by one, and the tube can be filled as rapidly as the coins can be funneled into it. When the tube has been filled to the top, it is cradled between rollers on the roll-wrapping device, as shown in FIG. **2**.

The device **12** consists of a flat, rectangular base **24**, having parallel upstanding end plates **26** and **28**. Extending between end plates **26**, **28** are two laterally spaced, parallel rollers **30** and **32**, each of which has bearing pins **34** at its ends, which are journaled in bearing sockets provided in the ends **26**, **28**. Projecting inwardly from end plate **28** midway between rollers **30**, **32** and slightly above the latter is a stationary locating pin **36**. At the other end of the device **10** is an opposing spring-loaded pin **38**, the free end of which is axially aligned with pin **36**. The ends of pins **36**, **38** are positioned so that they engage the end coins in the tube **12** at about the center of the coins, pin **36** abutting against the top coin at the open end of the tube, and pin **38** pressing against the bottom coin in the tube, through aperture **16**.

As best shown in FIG. **6**, the spring-loaded pin **38** has the general shape of the letter J, and after passing over the top edge of end plate **26**, bends downwardly in a 180° turn and becomes an elongated shaft **42** extending parallel to the axes of the rollers **30**, **32**, midway between and somewhat below the rollers. The shaft **42** passes through a hole **44** in end plate **26**, and enters a hollow tube **46**, the ends of which abut against and are joined to end plates **26**, **28**. Tube **46** is parallel to rollers **30**, **32** and somewhat below them, as best shown in FIG. **5**.

Surrounding the shaft **42** is a helical compression spring **48**, one end of which bears against the end plate **26**, while the other end bears against the annular shoulder formed by an enlarged-diameter head **50** at the end of shaft **42**. Spring **48** urges the shaft **42** to the right as viewed in FIG. **6**, causing the pin **38** to press against the end of the roll of coins. Where the pin **38** passes over the top of end plate **26**, the latter has an arcuate cut-out **52** to provide clearance for the tube **12** when the latter is removed endwise from the device, as shown in FIG. **3**.

The manner of using the invention is as follows: Tube **12** is filled to the top with coins **22** of the same denomination, and the loaded tube is then laid down on the device **10** so that it is cradled between rollers **30**, **32**, as shown in FIG. **2**. The open end of the tube **12** faces toward end plate **28**, and stationary pin **36** abuts against the top coin in the tube. Spring-loaded pin **38** passes through the aperture **16** in the bottom of tube **12**, and bears against the bottom coin in the tube. Interposed between the rollers **30**, **32** and the tube **12** is a paper wrapper **54**, the width of which is about a half-inch less than the inside distance between end plates **26**, **28**, to allow for a certain amount of adjustment.

The tube **12** is now removed endwise from the roll of coins, as indicated by the arrow in FIG. **3**. To do this, the tube is turned so that slot **20** is at the bottom. As the tube passes over the arcuate cut-out **52** in end plate **26**, downwardly bent portion **40** of pin **38** passes through the short radial slot **18** in the tube bottom and then travels along the length of slot **20**. Removal of the tube leaves the roll of coins resiliently confined between the locating pins **36** and **38**, which center the roll with respect to the wrapper **54**. One end of the paper wrapper **54** is now wrapped over the top of the roll of coins, and the roll is revolved on the rollers **30**, **32** to complete the wrapping. Upon completion of the wrapping, the roll of coins is lifted out of the device **10**, and the ends of the wrapper are pressed down flat against the ends of the roll. Since the stack of coins is held together by the pins **36**, **38** while rolling the wrapper **54** around it, there is no manual dexterity required to hold the coins together with one finger of each hand, while simultaneously rolling the stack and manipulating the paper wrapper to carry it around the coins. As a result, even the most inexperienced and unskilled operator can wrap rolls of coins with speed and dexterity. Moreover, filling the tube **12** to the top with coins is a fast and extremely accurate way of measuring coins to ensure that the exact required number is contained in the roll, without counting the coins one by one. The entire apparatus for producing wrapped rolls of coins would, of course, include several tubes **12** of different inside diameters and lengths, in order to accommodate coins of different diameters and thicknesses, which are also packed in different numbers of coins to produce rolls of specified value.

Another embodiment of the invention is shown in FIGS. **9**, **10** and **11**, to which attention is now directed. This form of coin wrapper, designated generally by the reference numeral **10'**, has four sides that can be used to wrap rolls of coins of four different denominations. The device comprises two generally square end plates **26'** and **28'**, which are fixed to opposite ends of a central tube **46'** housing the spring and shaft **42'** of the spring-loaded pin **38'**. Disposed symmetrically around the tube **46'** are four parallel rollers **60**, **61**, **62** and **63**, all of the same diameter and length, and all spaced the same distance apart from their adjacent rollers. The rollers are rotatably supported at their ends in the end plates **26'**, **28'**. End plate **26'** has four arcuate cut-outs **52'** in its four sides, and the spring-loaded pin **38'** can be pulled out until its end clears plate **26'**, at which point the pin can be turned to any one of the four sides of the device, as desired. FIG. **10** shows the four positions of the pin **38'** at A, B, C and D.

Projecting inwardly from the end plate **28'** midway between each pair of rollers on the four sides thereof are four stationary pins **36***a*, **36***b*, **36***c* and **36***d*. These pins are of varying lengths to accommodate the different lengths of coin rolls made with coins of different denominations. For example, a roll of **50** dimes is 2.60 inches in length; a roll of 40 quarters is 2.76 inches long; a roll of 50 pennies is 2.90 inches long; and a roll

of 40 nickels is 3.00 inches long. In some cases the paper wrappers for all four coins are of the same width, and the wrapper is centered in the device by the end plates **26'**, **28'**, which are spaced apart only slightly more than the width of the wrapper. In order to center rolls of all four coins with respect to the end plates **26'**, **28'**, pins **36***a*, **36***b*, **36***c* and **36***d* are made shorter or longer, as the case may be. Thus, the shortest pin **36***a* (for the longest roll, of 40 nickels) is made 0.20 inch shorter than the longest pin **36***b* (for the shortest roll, of 50 dimes), while the other two pins, **36***c* and **36***d*, are in-between lengths, one of them being 0.12 inches shorter than **36***b*, for rolls of 40 quarters, and the other being 0.05 inches shorter than **36***b*, for rolls of 50 pennies. The differences in length are exaggerated in the drawings for illustrative purposes.

The mode of operation of this embodiment of the invention is essentially the same as in the preceding embodiment, except that the device **10'** is turned to use the appropriate side for whichever coins are being wrapped. As in the previous embodiment, there would be four different tubes **12** for the four coins of different denominations, said tubes being of the exact length to contain the precise number of coins for a roll.

Both the coin wrapper **10** or **10'** and tubes **12**, **12'** may be made of any suitable material, such as metal or plastic, and the shape of the several parts may differ from those shown. In the embodiment of FIGS. **9–11**, the four pairs of rollers on the four sides of the device may be spaced apart different distances, if desired, to raise or lower the rolls of coins so that the center of the roll coincides with the center of the aligned pins **36'**, **38'**.

I claim:

1. A device for measuring coins and wrapping them into rolls, comprising:

a tube open at one end and having an inside diameter to receive coins of a given denomination, said tube being of a length such that when filled to the top, there is an exact predetermined number of coins contained therein;

said tube having a bottom with a central aperture provided therein, a radial slot extending from said aperture to one side of the tube, and a lengthwise slot extending from said radial slot to the opposite end of the tube;

a wrapping device comprising a body having a pair of end plates and at least two parallel rollers rotatably supported thereon, said rollers receiving and cradling said tube with a paper wrapper interposed between the tube and the rollers;

a stationary first pin projecting from one of said end plates and abutting against the top coin at said open end of said tube;

a spring-loaded, axially movable second pin engaging the bottom coin in said tube through said central aperture, said second pin extending over the other of said end plates and bending downwardly; and

spring means connected to said downwardly bent portion and urging said second pin against said coins;

said tube being removable from said coins by positioning said lengthwise slot at the bottom and sliding said tube endwise off the roll of coins, over said other end plate, said radial and lengthwise extending slots permitting said downwardly bent portion of said second pin to pass through from one end of said tube to the other; and

said roll of coins being revolvable on said rollers so as to wrap said paper wrapper around said coins while the coins are resiliently confined between said first and second pins.

2. A device as in claim **1**, wherein said spring-loaded second pin includes an elongated shaft portion extending from said downwardly bent portion and passing below said rollers and between them, said spring means being attached to the end of said shaft portion.

3. A device as in claim **2**, wherein said elongated shaft portion and said spring means are enclosed within a hollow tube extending between said end plates.

4. A device as in claim **1**, wherein the top edge of said other end plate has an arcuate cut-out provided therein to provide clearance for said tube as the latter is removed endwise from the roll of coins.

5. A device as in claim **1**, wherein said wrapping device comprises a plurality of pairs of parallel rollers extending between and rotatably supported by said end plates, each of said pairs of rollers being adapted to receive a tube containing a roll of coins of a specified denomination, said rolls of coins being of different diameters and lengths, and said one end having a plurality of stationary pins projecting therefrom, each of which is centered between one of said pairs of rollers, said stationary pins being of different lengths so as to center their respective rolls of coins with respect to said end plates.

6. A device as in claim **1**, wherein said end plates are mounted on opposite ends of a hollow tube, and there are four parallel rollers located symmetrically around said tube, said rollers being arranged in four pairs on the four sides of the device, and each pair having a stationary pin projecting from said one end plate parallel to the rollers and midway between them, said spring-loaded pin including an elongated shaft portion extending from said downwardly bent portion and passing through the center of said hollow tube, said spring means being attached to the end of said shaft portion; and said spring-loaded pin being revolvable to engage a roll of coins cradled on any one of said pairs of rollers.

7. A device as in claim **6**, wherein said other end plate has arcuate cut-outs provided on all four sides thereof to provide clearance for said tube as the latter is removed endwise from the roll of coins on any one of said pairs of rollers.

* * * * *