United States Patent

[11] 3,577,918

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[21] Appl. No. 672,506
[22] Filed Oct. 3, 1967
[45] Patented May 11, 1971
Continuation-in-part of application Ser. No. 500,866, Oct. 22, 1965, now abandoned.

[54] MARKING-MEASURING DEVICES
26 Claims, 46 Drawing Figs.

[52] U.S. Cl. 101/328, 101/375, 101/74, 33/141, 74/567
[51] Int. Cl. B41k 1/22
[50] Field of Search ..... 101/375-377, 328—331, 111, 122, 35, 73—75; 33/141 (A) (E) (F), 141.5; 74/(Inquired)

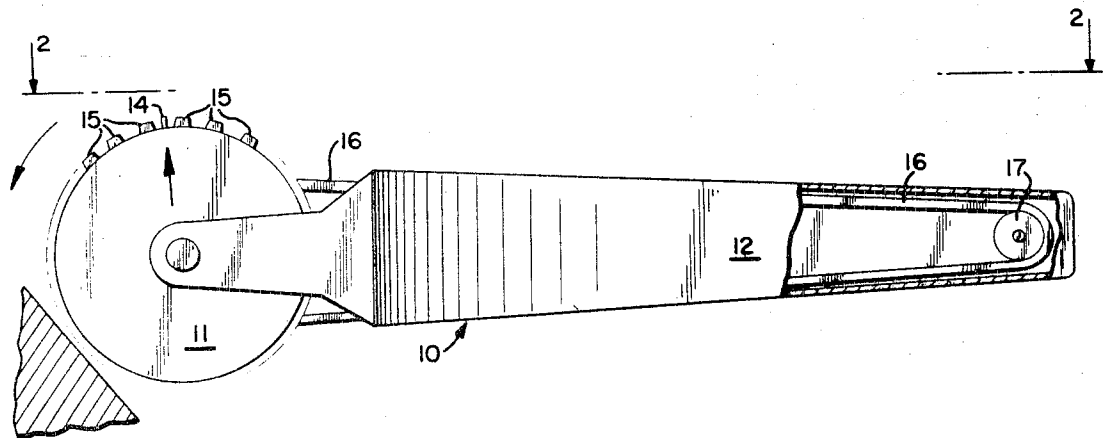
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Primary Examiner—Robert E. Pulfrey
Assistant Examiner—Clifford D. Crowder

ABSTRACT: A portable, hand-operated tool which includes a printing pressure roller for marking a surface in precise linear segments, each of the segments being of a length greater than the circumference of the printing pressure roller.



Patented May 11, 1971 3,577,918

5 Sheets-Sheet 1

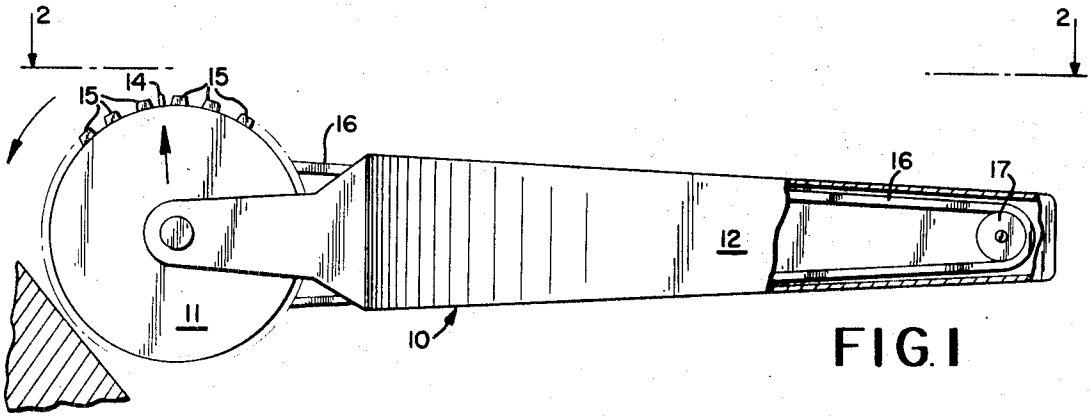


FIG. 1

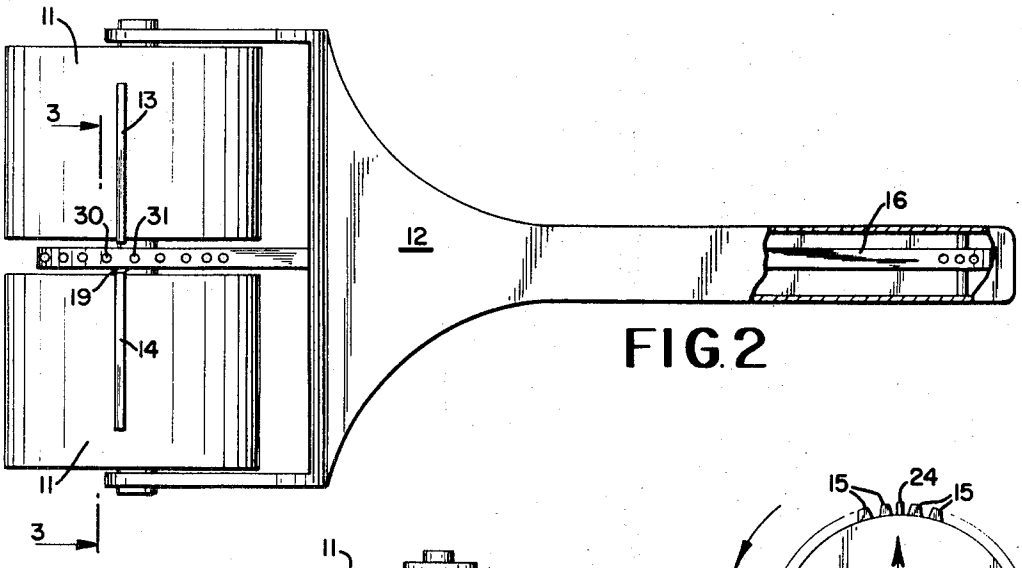


FIG. 2

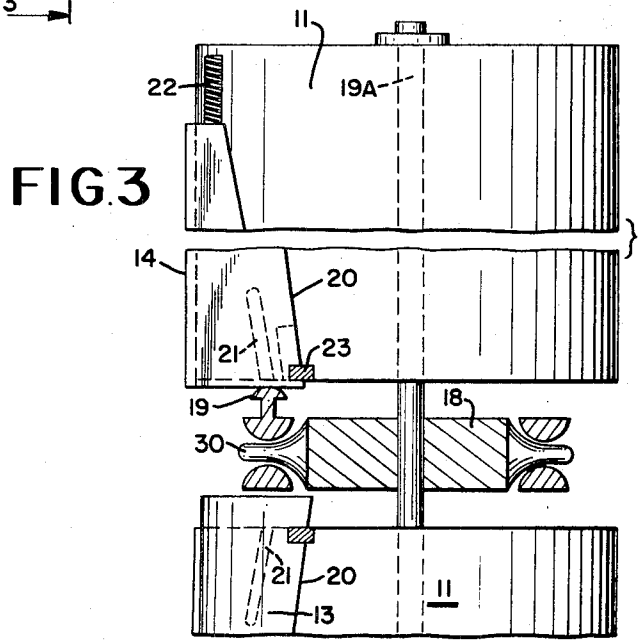


FIG. 3

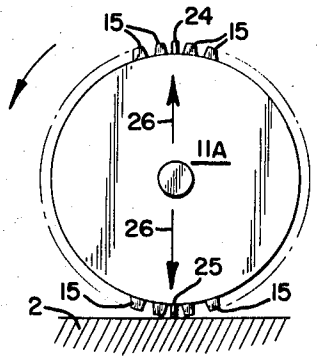


FIG. 4

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FIG.5

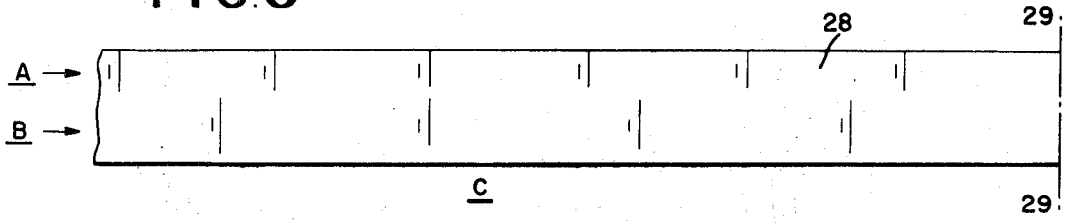


FIG.8

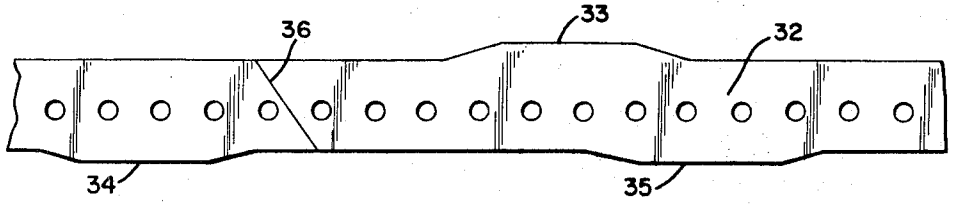


FIG.6

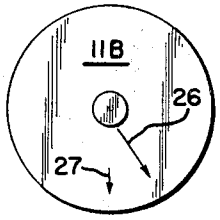


FIG.7

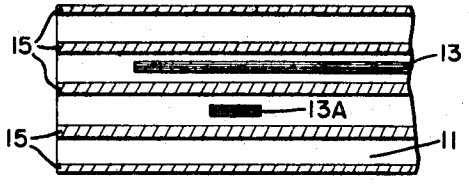
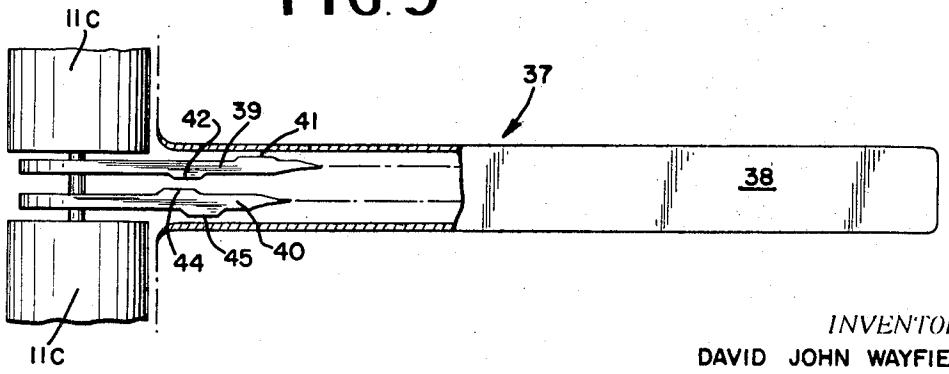


FIG.9



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FIG. 10

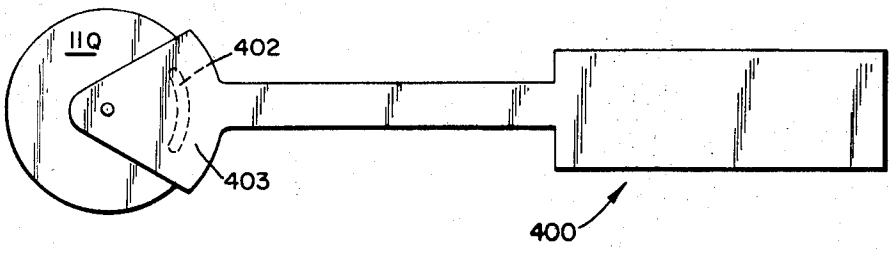


FIG. 11

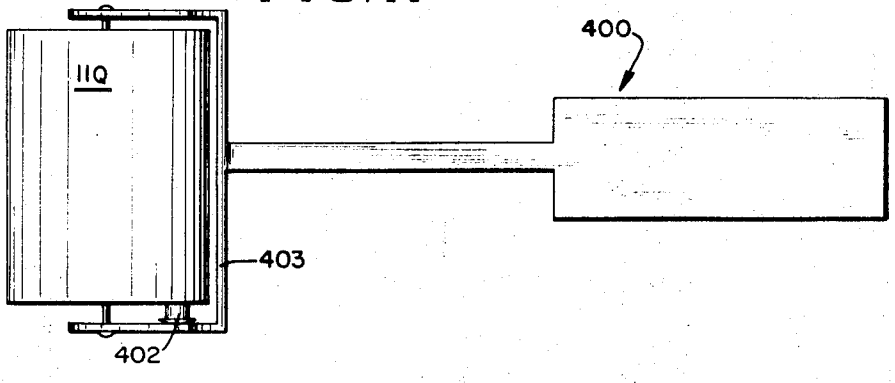
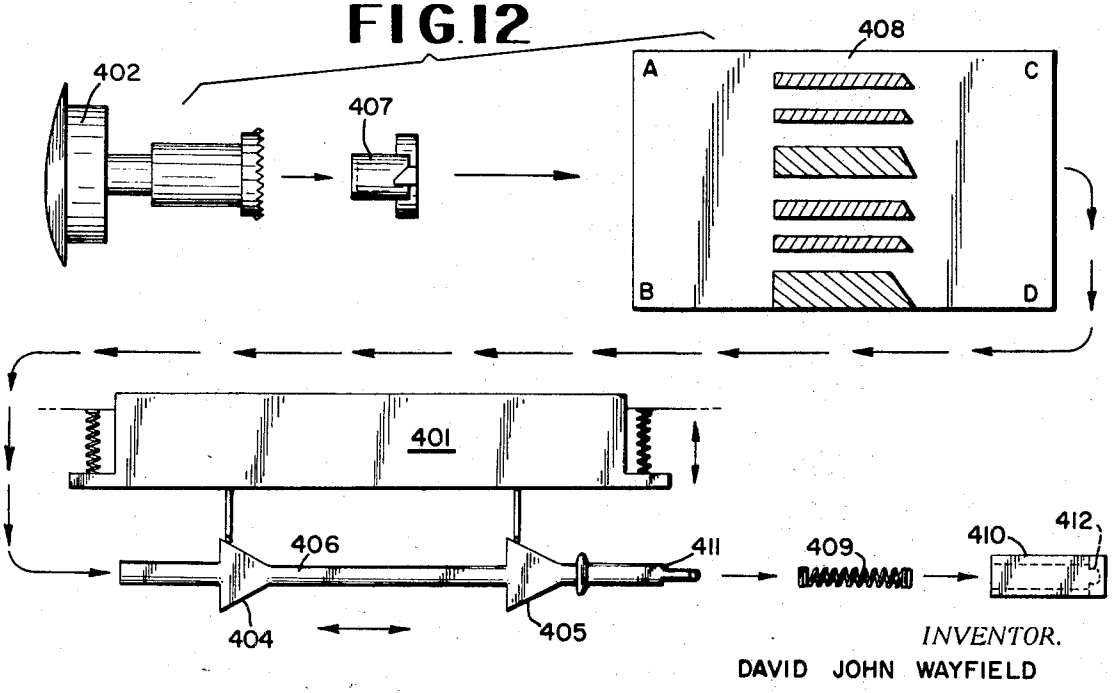


FIG. 12



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FIG. 13

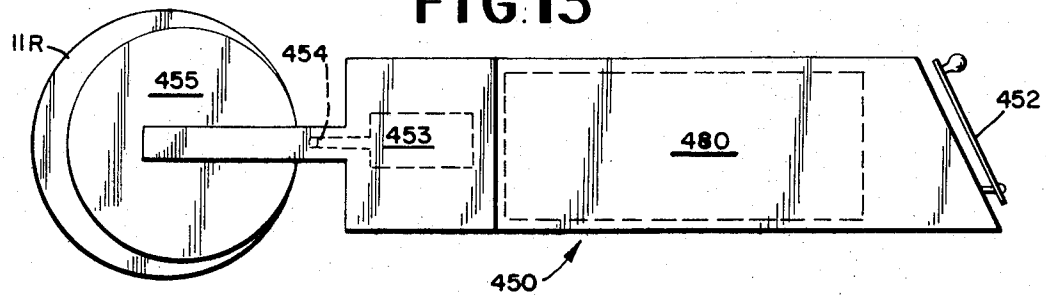


FIG. 14

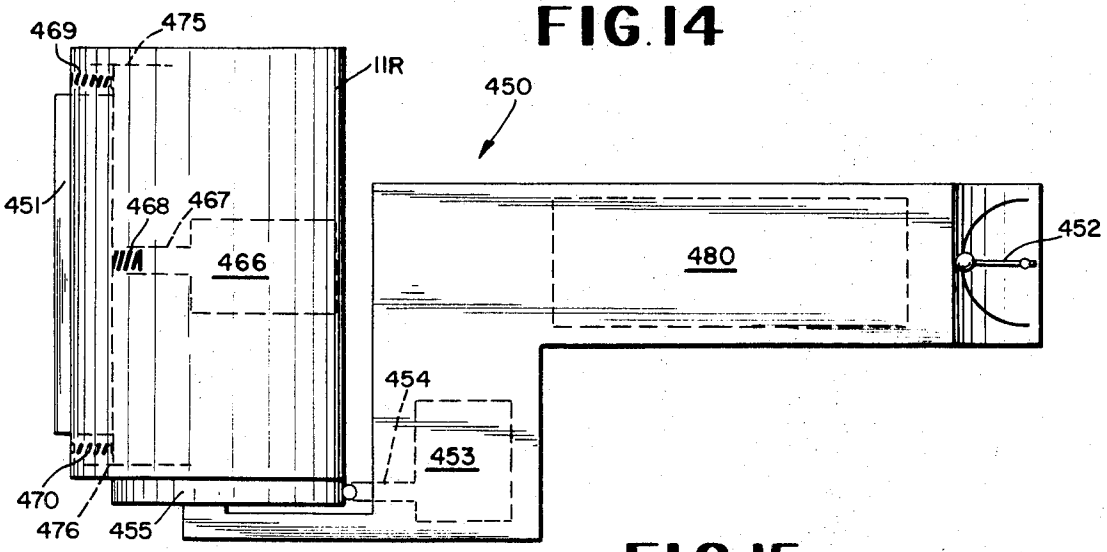
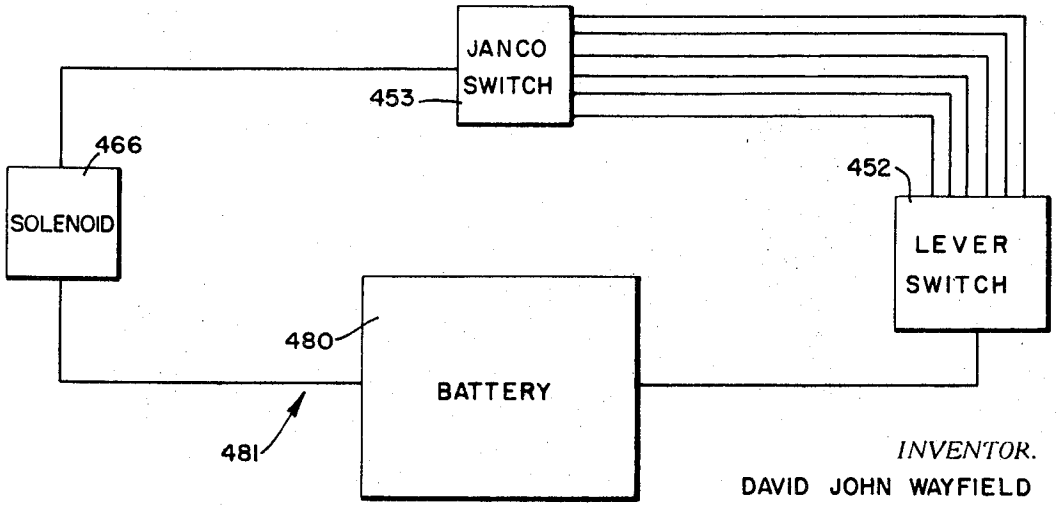


FIG. 15



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FIG. 16

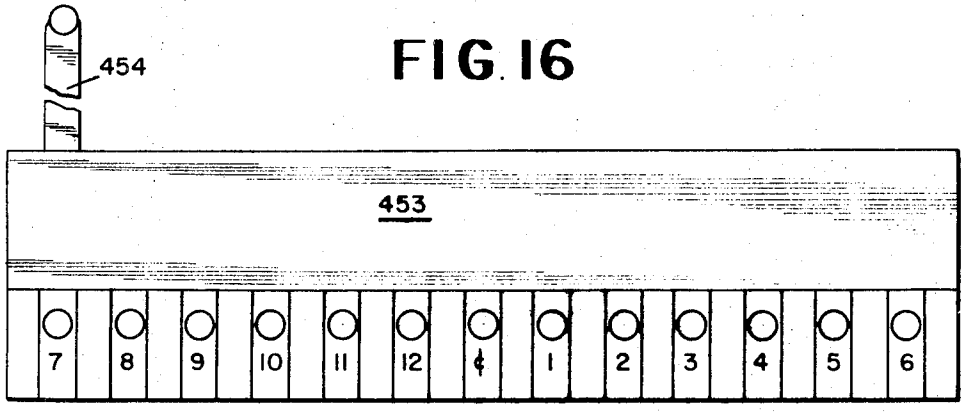


FIG. 17

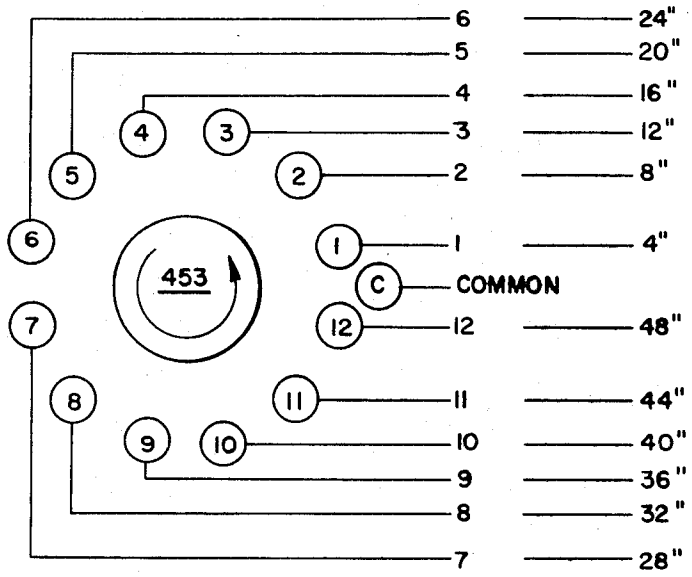


FIG. 18

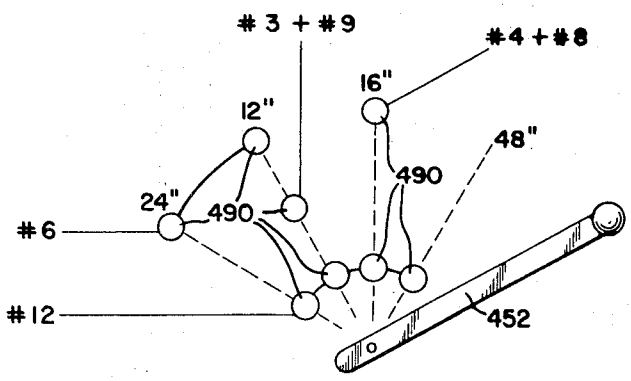
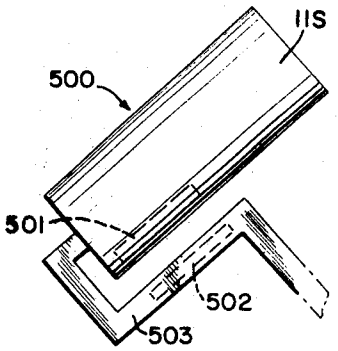


FIG. 19



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MARKING-MEASURING DEVICES

This present patent application is a continuation in part and contains subject matter in addition to my copending application, Ser. No. 500,866 filed Oct. 22, 1965, now abandoned.

For the purpose of the present invention, the term "pressure roller" refers to one or more rollers, wheels, spools, sprockets, bearings, cylinders, pulleys and/or combinations of same forming a part of a printing instrument or tool to which (said pressure roller) pressure is applied by the person using said instrument or tool in a suitable downward, forward direction so as to press a revolving (or rolling) printing member against a surface to be printed upon.

This definition applies also to stationary pressure rollers such as **11M** in FIGS. **23** to **25** about which a printing element (on a belt) is rolled by pushing and pressing pressure roller **11M** against a surface to be printed upon. Every embodiment of this invention has a pressure roller and is referred to in the drawings as **11**, **11A**, **11B**, **11C**, etc. Every embodiment of the present invention is "programmed" to effect a "printout" after multiple revolutions of the pressure roller and to do this repetitively at the selected or programmed distances. Every printing element may be said to have an "on" and an "off" position. "Flexible, endless member" refers here to an endless belt, chain, bead chain, cord or the like.

For perhaps many hundreds of years, farmers have known how to mark their cultivated ground at measured distances for planting seeds: using wheels with protrusions on the circumference which formed holes in the soil. With Adler's Rotary Hand Stamp of July 27, 1897, Ser. No. 587,253 and Pabl et al. of June 21, 1892, the knowledge of the farmers was in effect applied to the printing trade. Other related patents are Gallin of Aug. 12, 1924, Ser. No. 1,504,440 and Wheeler of Oct. 19, 1948, Ser. No. 2,451,595. All this prior art had one serious limitation: the distance marked was limited by the circumference of the wheel or pressure roller which applied indicia at measured distances. On July 31, 1962, patent Ser. No. 3,046,884 was awarded to J. W. Pearson for a Marking Device which did not in any way overcome the same limitations of the prior art: there was still no way of applying specially identifying indicia to surfaces at measured distances greater than the circumference of the pressure roller. In this respect, Pearson's patent was simply a variation of Gallin's patent of 1924, but not an improvement. Two futile attempts, Patents No. 3,006,273, and 2,863,388, have been made to "stretch" or "enlarge" pressure rollers so that they could be adjusted from a small circumference to a large circumference. This also did not overcome the basic limitation of the prior art but only added another limitation, that of lopsided wheels or pressure rollers.

There has been various attempts to use printing belts in hand-operated devices but they have failed because the inventors did not understand that ink-wet type on these belts cannot be pushed along relatively smooth surfaces and provide the traction necessary to rotate said belts and related pulleys, inking rollers, tensioning means, etc. One such attempt was by Weisenthal for a self-inking stamp, 4–1946, Ser. No. 2,398,509. J. J. Macklin, Pat. No. 3,233,543, sought to improve upon Weisenthal but went even farther afield by hoping that his ink-wet type on a printing belt would do all that Weisenthal hoped to do as well as generate energy to be stored in a torsion spring. Also, neither inventor was aware of the need for nonextensible belts for precision, repetitive printing and for always maintaining the same precise relationship to an inking roller. Also, Macklin and Weisenthal did not understand that their relatively miniature pressure rollers are not feasible with their particular combination of components.

Accordingly, it is the object of this invention to overcome the aforementioned limitations, problems and disadvantages.

It is another object of this invention to provide a portable printing device with a pressure roller and means for marking distances greater than the circumference of said pressure roller.

Another object is to provide a portable printing device with a pressure roller of a small circumference and programming means consisting at least in part of a flexible endless member entrained largely within the handle section of said device for moving a printing member to the periphery of said pressure roller only after multiple revolutions of said pressure roller.

Another object is to provide carpenters and other construction workers with a small inexpensive tool that can mark distances of either 12 inch or 16 inch distances without necessitating any adjustments, or an even more inexpensive tool for just 16 inch centers or distances, or a tool for just 12 inch distances depending on the requirements of the buildings under construction.

Another object is to provide an inexpensive portable printing device with a pressure roller of only 4 inches in circumference and capable of having a printing output after four revolutions of said pressure roller so as to mark 16 inch distances; or a tool having a pressure roller of 8 inch circumference for 16 inch distances; or a tool having a pressure roller of 6 inch circumference for 12 inch distances.

Another object is to provide a portable printing device with a pressure roller of only 4 inches in circumference yet capable of being "dialed" so as to print indicia at any one (and only any one) of the following distances: 12 inches, 16 inches, 24 inches or 48 inches, which are all the essential distances used in modern building construction.

Another object is to provide a portable printing device for printing political messages, various signs, advertising and the like on walls, billboards, etc.

Another object is to provide a portable printing device for quickly printing messages that are usually printed by the combined use of templates and sprays, etc.

Another object is to provide a portable printing device for quickly printing messages on curved or undulating surfaces where the use of a hand stamp is impractical. (A pressure roller can more easily conform to such surfaces.)

Another object is to provide a device for measuring and marking yard goods as sold in stores or as used in the manufacture of clothing, etc.

Other objects and advantages of this invention will further become apparent hereinafter and in the drawings, in which

FIG. **1** is a side view of one embodiment of the present invention.

FIG. **2** is a top view of the same device as in FIG. **1**.

FIG **3** is a detailed view taken along the line **3–3** of FIG. **2**.

FIG. **4** shows a side view of another alternative type of pressure roller.

FIG. **5** shows the kind of markings that can be made by device **10** of FIG. **1**.

FIG. **6** shows indicia printed on a pressure roller.

FIG. **7** shows printing elements on the surface of a pressure roller.

FIG. **8** shows a segment of a Mobius belt having only one side.

FIG. **9** shows a top view of another embodiment of this invention.

FIGS. **10** and **11** show side and top views respectively of another embodiment.

FIG. **12** shows a detailed view of a mechanism used in FIGS. **10** and **11**.

FIGS. **13** and **14** show side and top views respectively of another embodiment of this invention.

FIG. **15** shows a breadboard of the electrical devices used in FIGS. **13** and **14**.

FIG. **16** shows an enlarged view of a switch used in FIGS. **13** and **14**.

FIG. **17** shows a schematic view of the same switch in FIG. **16**.

FIG. **18** shows a schematic view of still another switch used in FIGS. **13** and **14**.

FIG. **19** shows still another embodiment of the present invention.

Turning now to the specific embodiments of the invention selected for illustration in the drawings, FIGS. **1** and **2** show side and top views respectively of a printing device **10** having a

pressure roller **11** and a housing **12**. Printing member **13** is shown in an "off" or nonoperational position; printing member **14** is shown in an "on **38** or operational position. Printing members **13** and **14** are made of porous, compressible material and are impregnated with ink. Printing member **13** prints 12 inch centers or distances in blue ink as shown in horizontal row A of FIG. **5** (the small marks next to the large marks are optional); printing member **14** prints 16 inch centers or distances in red ink as shown in horizontal row B of FIG. **5** depicting a 2×4 piece of wood, **28**. Both printing members **13** and **14** combine to print vertical row C or 48 inch distances consisting of a blue mark opposite and above a red mark. The marks in rows A and B are purposely not centered on the two by four to indicate that this is possible. One may if desired print one row without the other by engaging only a half of the pressure roller. In FIG. **7**, printing members **13** and optionally **13A** are shown between friction ribs **15** in a front view of pressure roller **11**. A comparable side view of this (without the small, optional printing member) can be seen in FIG. **1** with printing member **14** and friction ribs **15**. These printing members are turned on and off after multiple revolutions of pressure roller **11** in response to a programmed endless chain **16** rotating around idler sprocket **17** and sprocket **18** rigidly mounted within pressure roller **11** by means of rod **19A**. Chain **16** is programmed by virtue of actuator **19** and other such actuators not shown attached to the side of said chain to impart a lateral push to the printing members, as **14** in FIG. **3**, and causing same to protrude beyond friction ribs **15**. Printing members **13** and **14** have Teflon surfaces **20** which glide along Teflon surfaces of pressure roller **11**. Compression spring **22** pushes printing member **14** until it ordinarily is stopped by step **23**, except when an actuator like **19** pushes said member in the opposite direction as shown. Key **21** of the printing members ride in corresponding keyways of the pressure roller to prevent said printing members from falling out of said pressure roller.

FIG. **4** shows an alternate pressure roller **11A** having 2 printing members **24** and **25** within the same circumference (and one above and opposite the other) of a pressure roller. Member **24** is off and **25** is on and is actually printing on surface **2**. Pressure roller **11A** may have a circumference of say, 8 inches and be programmed to print a mark at any distance that is an even multiple of 4 inches. Arrows **25** help the user to place the roller in a starting position. Arrows **26** and **27** of pressure roller **11B** point to printing members that are three-fourths inch apart and produce marks such as shown in FIG. **5**. The small arrow **27** points to the short printing member and **26**, to the large one. On the 2×4, **28** of FIG **5**, it will be seen that the starting point **29**...**29** coincided with the small printing mark hence the 1⅝ inch studs (one and five-eighths inch) are to be placed to the left of the large marks so that the middle of said studs fall directly over the small marks.

Chain **16** is programmed so that each of its links (each link having one hole) always falls on or utilizes each of the same teeth of sprocket **18**. This is accomplished by having X number of teeth in sprocket **18** and a number of holes in chain **16** that can be expressed by X times a whole number, **3**, **4**, **5**, etc. Thus sprocket teeth **30** and **31** will always utilize the same links of chain **16**.

Another way to program a chain so that the pressure roller prints at very long distances is to have a sprocket with X number of teeth and a chain, say, with 6X elements of links plus or minus one. Thus the links of the chain progressively utilize different teeth of the sprocket until the actuator attached to the chain engages the printing member and "rides" opposite same during a partial revolution of the pressure roller to effect a "printout." To print marks at comparable distances using the prior art of Pearson, Wheeler, Adler, etc. would require pressure rollers of great and unwieldly circumference. With my device, a pressure roller of very small circumference can be used having its programming means "packaged" in its handle.

It is also proposed to use Mobius belts (i.e. belts with only one side) such as shown in FIG. **8**, **32**, only a section of which is shown. Protrusions, **33**, **34**, **35** of belt **32** which is sprocketed and may be made of thin flexible metal or plastic or combinations of same, serve as actuators for engaging the sliding type of printing members shown in FIG. **3**. Line **36** designates the point at which the original strip of material having two sides was joined at its ends (after turning one end 180°) to form a flexible endless tape or member having only one side. FIG. **9** shows a printing device **37** having a housing **38** and a pressure roller **11C** with two sprocketed Mobius belts **39** and **40** constructed like belt **32** and having protrusions or actuators **41**, **42**, **44**, and **45** on the edge of each of said belts. These Mobius belts not only have only one side they also have only one edge. Since pressure roller **11C** is constructed with printing members like **13** and **14** of pressure roller **11**, it will be seen that "inner" actuators **42** and **44** will become outer actuators on alternate revolutions of belts **39** and **40** so as to be in a position to engage the printing members. Likewise, "outer" actuators **41** and **45** will become "inner" actuators on alternate revolutions of their respective belts. Pressure roller **11C** has sprockets with X number of teeth and the number of sprocket holes in belts **39** and **40** can be expressed as X times any whole number.

In FIG. **8**, protrusions **34**, **35** and **36** are quite long relative to the sprocket holes and the circumference of the pressure roller. In fact these protrusions may extend around half the circumference of the pressure roller. The purpose of this is to allow greater freedom in not having to hold the handle of the printing device at a precise angle with the surface being imprinted.

It will be seen that when we use a single Mobius belt with a device similar to **10** in FIGS. **1** and **2** but having only one printing member, and a sprocket with X teeth and a chain with, say, six X links (or holes) minus one, we can mark out great distances by using a compact tool of this type. This tool can be used not only for laying out large segments of a building such as for floor plans for offices but also for measuring and marking long aisles in stores for the positioning of fixtures as well as marking yard goods as sold in stores or used in laying out patterns for the textile industry. Modifications of this device can be used to measure and mark long distances on roads and sidewalks.

Printing devices **400** in FIGS. **10** and **11**, device **450** in FIG. **13** and **14**, and device **500** in FIG. **19** have pressure rollers **11Q**, **11R** and **11S** respectively which have printing elements that move in and out (off and on) at the periphery of said roller between friction ribs similar to the embodiment shown in printing device **10** of FIG. **1** and **2**. The printing element **401** of device **400** is operable by gears, the printing element **451** in device **450** is operable by stored energy means as is the printing element (not shown) in device **500**.

Thus in keeping with the spirit of this invention, as set forth in all the other embodiments here shown, the printing element is "off" during some revolutions of the pressure roller and "on" during other revolutions depending on how the particular device or embodiment is programmed.

Pressure roller **11Q** has a cam-shaped push button **402** which is pushed by cam-shaped or tapered arm **403** during each revolution of pressure roller **11Q**. Pushbutton **402** is part of a complete mechanism shown in detail in FIG. **12** which causes printing element **401** (having a self-contained ink supply) to rise and fall—or more accurately to turn "on" and "off" during alternate revolutions of pressure roller **11Q**. Thus a pressure roller of 8 inch circumference can mark distances of 16 inches and a pressure roller of 6 inches circumference can mark distances of 12 inches.

The mechanism shown in FIG. **12** is essentially the same used in pushbutton ball point pens: with one push the pen is "on" and with another push it is "off." The only things that I have added to this simple mechanism is the cam-shaped tip of pushbutton **402** and two cams **404** and **405** added to tube **406**

which permits an "on" and "off" movement of printing element **401** perpendicular to the movement of tube **406**. The body of gears **407** fits into **402** and their respective gears interact. Tube **408** is shown in an open position with gears on its inner surface; when "closed" A is joined at B and C at D. **402** and **407** are insertable in **408** so that all gears can interact. The left end of tube **406** fits into the body of gears **407**. Compression spring **409** fits over the right end of tube **406** and pivot box **410** fits over the spring **409** so that shoulder **411** interacts with stationary shoulder rest **412**.

Printing device **450** in FIGS. **13** and **14** is a very compact versatile device with a pressure roller **11R** of only 4 inch circumference and having a lever switch **452** which enables the user to dial only the distances at which he chooses to place a linear mark. These distances as shown on the shown on the switch in FIG. **18** are from left to right: 24 inches, 12 inches, 16 inches and 48 inches; here dial switch on lever switch **452** is shown in an "off" position. Lever switch **452** is one of my own design which I constructed to interact with the miniature commercial (No. 2,612) Janco Switch **453**, having **12** positions, pushbutton operated, having a window permitting the user to see the positions of the switch by observing white digits on a black background, these digits being from **1** to **12**.

In FIGS. **13** and **14** the pushbutton arm **454** having a rotating ball top is pushed by cam **455** attached rigidly to **11R** during each revolution of pressure roller **11R**. A push type solenoid **466** having actuation arm **467** and connected to printing member **451** by compression spring **468**. The printing member **451** and solenoid **466** are shown in FIG. **14** in the "on" position. When the solenoid is not energized, the printing member **451** is pushed inwardly to its "off" position by compression springs **469** and **470**. Printing member **451** (which has its own self-contained ink supply) has arms **475** and **476** which glide along the inner walls of pressure roller **11R** so as to prevent tilting of said printing member. Battery means **480** is located in handle of device **450**.

A bread board **481** of the electrical circuits is shown in FIG. **15**, and its operation can be understood by referring to (1) an actual view of the Janco switch **453** in FIG. **16** (through its overall shape is intentionally distorted), (2) a schematic diagram of the same Janco switch **453** as shown in FIG. **17**, and (3) the lever switch **452** in FIG. **18**.

In FIG. **18**, there are **8** metal connectors **490** which interact with metal plate on the underside of lever arm **452**. The No. **12** lead of **453** is connected to all four operative positions shown in FIG **18**; the No. **6** lead is attached to both the 24 inch position and the 12 inch position. The No. **3** and No. **9** leads are both attached to the 12 inch positions while the No. **4** and No. **8** leads are attached to the 16 inch position. The schematic diagram in FIG. **17** shows in the right-hand column all the distances that can be marked by using the leads directly to the left of each distance. Thus for 12 inch distances one needs to use the leads opposite 12 inch, 24 inch and 36 inch and 48 inch on leads No. **3**, No. **6**, No. **9** and No. **12**. Instead of lever switch **452**, I have also adapted for use in device **450**, a Mallory Multigang rotary switch, Shorting, Stock No. 30R4036 (Mfg No. 1245L) which happened to have **4** gangs, **8** total poles and five positions per pole.

When lever arm (or switch) **452** is moved leftward to the 48 inch position, we see that the No. **12** lead is engaged; this means that for every 12 revolutions of the 4-inch pressure roller, the printing element **451** will be turned on by solenoid **466**; 12 times 4 inches equals 48 inches.

When lever arm **452** is moved leftward to the 16-inch position, we see that it engages the No. **4**, No. **8** and No. **12** leads. Thus every four revolutions, there is a printout at 16 inches; four times 4 inches (the circumference of the pressure roller) equals 16 inches.

When lever arm **452** is moved leftward to the 12-inch position, it engages the No. **3**, No. **6**, No. **9** and No. **12** leads. Thus every three revolutions there is a printout at 12 inches; three times 4 inches equals 12 inches.

When lever arm **452** is moved leftward to the 24-inch position it engages the No. **6** and No. **12** leads. Thus every six revolutions of the 4-inch pressure roller gives a printout of 24 inches; six times 4 inches equals 24 inches.

FIG. **19** printing device **500** shows another way to "count" so as to actuate a solenoid-operated printing member as shown in device **450** of FIGS. **13** and **14**. Here permanent magnet **501** is imbedded in the outer circumference of the roller **11S** and operates dry reed relay **502** in arm **503** during every revolution of **11S** when **501** passes by **502**. In this arrangement, there is no danger of dust or moisture affecting the connections which are sealed in glass: i.e., a glass capsule in which the device is manufactured. A relay would be rotated one increment for every revolution of **11S** and selected leads from said relay would turn "on" a solenoid-operated printing member.

Also used in connection with printing device **500** was a **12** position rotary stepping switch, 42700 series, manufactured by A. W. Haydon Co. This switch is solenoid operated, uses a printed circuit and by applying a pulse to the solenoid advances the contact one position where it remains until the next pulse is applied. Also used with this switch, was a homing circuit which self-stepped the contacts forward to the number one position. The homing switch requires a minimum contact closure of one second before normal stepping can be resumed. This latter homing circuit is published freely by A. H. Haydon on form CS902 and is copyrighted 1967.

A homing switch would be used to enable a pressure roller to start at zero after dialing a different program, say, in changing from a 16-inch program to a 24-inch program. Without the homing circuit, the user would simply rotate the pressure roller until the printing element was "turned on" and start by placing the printing element on one side of the starting point.

In operation, these devices are held in one hand and pressed and rolled onto surfaces to be imprinted. Very little pressure is needed generally with these devices and this is especially true of those devices which have self-contained energy means.

The advantages of the various embodiments of the present invention are that they fulfill the objects for which they were designed as listed at the beginning of the application. All these embodiments represent precision tools or instruments for performing useful work either on a small scale or on a production basis and they can perform this work at a cost far less than the cost of comparable work performed in conventional ways.

Various substitutes in material may be made. Polypore 1000 (trademark of the Polymer Corp.) is an ink-containing porous plastic and may be substituted for another similar plastic such as Porelon (trademark of S. C. Johnson & Son Inc.) which is based on Patent No. 2,777,824 by Harry R. Leeds and is shown used in patent No. 2,966,116 by W, C. Harris et al. for a Resilient Hand Stamp. Glue or adhesives may be substituted for the inks in some embodiments. The belt invented by W. M. Berg in his patent No. 3,026,737 can be modified to use in place of chain **16** in FIG. **1** and **2**. Various changes may be made in the shape, size and arrangement of parts. For example, equivalent elements may be substituted for those illustrated and described herein, parts may be reversed and certain features of the invention may be utilized independently of the use of other features, all without departing from the spirit or scope of the invention as defined in the subjoined claims. It will now be obvious in the light of the teachings of the present invention to introduce numerous modifications in the way "printouts" are effected after multiple revolutions of a pressure roller.

I claim:

1. A printing device comprising:
   a housing serving also as a handle,
   a pressure roller mounted at one end of said housing,
   a printing element movably mounted on said pressure roller for movement outwardly into an operational position and inwardly to a nonoperational position,
   actuating means cooperating with said printing element, engageable with said printing element and capable of mov-

ing said printing element into operational and nonoperational positions,

control means for controlling said actuating means upon the completion of multiple revolutions of said pressure roller.

2. A printing device as described in claim 1 wherein said actuating means moves said printing element into an operational position after four revolutions of said pressure roller.

3. A portable, hand-operated, marking-measuring tool for marking an article in exactly equidistant linear segments comprising:

a housing serving in part as a handle,

at least one pressure roller having a periphery adapted to engage an article,

means to mount said pressure roller in said housing,

said pressure roller including a coaxial sprocket,

an idler sprocket mounted in said housing,

at least one printing element within said pressure roller and having a printing surface radially inward of said periphery so as to be in an "off" position,

means to provide ink for said printing element,

a programmed, nonextensible, endless member entrained about said sprockets and having cam members spaced at equal distances so as to contact said printing element and move said printing element to an "on" printing position slightly beyond the periphery of said pressure roller after multiple revolutions of said pressure roller.

4. A device or tool as described in claim 3 in which there are two parallel and separately operable printing elements in said pressure roller on opposite sides of said pressure roller.

5. A portable, hand-operated, marking-measuring device comprising:

a frame serving in part as a handle,

at least one pressure roller at one end of said frame,

at least one printing element movably mounted in said pressure roller for movement outwardly into an operational position and inwardly to a nonoperational position,

actuating means cooperating with said printing element for moving said printing element into operational and nonoperational positions,

programming means for controlling said actuating means so as to mark a surface in equal linear segments, each of said segments having a length greater than the circumference of said pressure roller.

6. A printing device comprising:

a housing,

a handle formed from one end of said housing,

a pressure roller mounted at the opposite end of said housing,

an idler roller mounted within said handle,

a flexible, nonextensible, endless member cooperating with said pressure roller and with said idler roller,

multiple printing elements movably mounted in said pressure roller for movement outwardly into an operational position and inwardly to a nonoperational position,

cam means positioned on said flexible, nonextensible, endless member for moving said printing elements into operational positions,

compression springs positioned in said pressure roller for moving said printing elements into nonoperational positions.

7. A printing device as described in claim 6 wherein the flexible nonextensible, endless member is a Mobius belt.

8. A printing device as described in claim 6 wherein one printing element marks a surface in equidistant segments of 12 inches in length while the other printing element simultaneously marks a surface in equidistant segments of 16 inches in length using different indicia.

9. A printing device comprising,

a housing,

a first axle positioned at one end of said housing,

a second axle positioned at the other end of said housing,

a pressure roller rotatably mounted on the first axle,

said pressure roller having spaced friction elements on its periphery,

an idler roller rotatably mounted on the second axle,

multiple printing elements movably mounted in said pressure roller for movement outwardly between said friction elements into an operational position and inwardly to a nonoperational position,

a flexible, nonextensible, endless member having cam means, said member cooperating with said pressure roller and said idler roller whereby said cam means move said printing elements into operational positions,

compression springs positioned in said pressure roller for moving said printing elements into nonoperational positions.

10. A printing device as described in claim 9 wherein said housing is elongated to form a handle.

11. A printing device as described in claim 9, having a first printing element for marking a surface in equidistant segments, a second printing element for also marking a surface in equidistant segments, said device further characterized by the fact that the segments of said first printing element are of greater length than the segments of said second printing element.

12. A printing device as described in claim 9 wherein the flexible, nonextensible endless member is a Mobius belt.

13. A printing device comprising:

a housing,

a handle formed from one end of said housing,

a pressure roller mounted at the opposite end of said housing,

an idler roller mounted within said handle,

first and second printing elements for printing different indicia, mounted in said pressure roller for movement outwardly into operational positions and inwardly to nonoperational positions,

first and second flexible, nonextensible Mobius belts entrained about said pressure roller and said idler roller,

compression springs positioned in said pressure roller for moving said printing elements into nonoperational positions,

cam means positioned on the said first Mobius belt for moving the said first printing element,

cam means positioned on the said first Mobius belt for moving the said first printing element,

cam means positioned on the said second Mobius belt for moving the said second printing element.

14. A printing device as described in claim 13 wherein:

said idler roller includes two sprockets,

said pressure roller includes two sprockets also,

said Mobius belts each has equidistant holes for receiving the teeth of said sprockets, each of said belts has a number of holes equal to a multiple of the number of teeth of each of said sprockets of said pressure roller minus one.

15. A marking-measuring device comprising:

a housing capable of serving in part as a handle,

a pressure roller mounted at one end of said housing,

at least one printing element movably mounted on said pressure roller for movement outwardly into an operational position and inwardly to a nonoperational position,

mechanical actuating means for moving said printing element into operational and nonoperational positions,

mechanical control means for controlling said mechanical actuating means only upon the completion of every two revolutions of said pressure roller.

16. A marking-measuring device as described in claim 15 wherein the mechanical control means includes means for moving said printing element into operational position only after every four revolutions of said pressure roller.

17. A portable, hand-operated, marking-measuring device comprising:

a frame serving in part as a handle,

a pressure roller mounted at one end of said frame,

at least one printing element movably mounted in said pressure roller for movement outwardly into an operational position and inwardly to a nonoperational position,

actuating means including cam means within said pressure roller cooperating with said printing element for moving said printing element into an operational position,

spring means within said pressure roller cooperating with said printing element for moving said printing element into a nonoperational position,

a movable button extending through said pressure roller and cooperating with said cam means and said frame,

programming means for controlling said actuating means so as to mark a surface in equal linear segments, each of said segments having a length greater than the circumference of said pressure roller.

18. A portable, hand-operated, marking-measuring device as claimed in claim **17** wherein said programming means enables marking a surface in equal linear segments of 12 inches.

19. A portable, hand-operated, marking-measuring device as claimed in claim **17** wherein said programming means enables marking a surface in equal linear segments of 16 inches.

20. A marking-measuring device comprising,

a housing serving also as a handle,

a pressure roller mounted at one end of said housing for measuring distances,

a marking element cooperating with said pressure roller,

a marking substance used by said marking element,

mechanical actuating means cooperating with said marking element and said pressure roller and said housing for moving said marking element into operational and nonoperational positions,

control means including multiple gears for controlling said mechanical actuating means so as to mark a surface in equal linear segments, each of said segments having a length greater than the circumference of said pressure roller.

21. A printing device comprising,

a housing serving also as a handle,

a pressure roller mounted at one end of said housing for measuring distances,

a marking element having a fixed relationship with said pressure roller,

actuating means including energy means for moving said marking element,

programming means including switching means for controlling said actuating means so as to mark a surface in equal linear segments, each of said segments having a length greater than the circumference of said pressure roller.

22. A portable, hand-operated, marking-measuring tool for marking an article in exactly equidistant linear segments comprising,

a housing,

at least one pressure roller having a periphery adapted to engage an article,

means to mount said pressure roller in said housing,

a marking element within said pressure roller,

a marking substance used by said marking element,

actuating means including a source of electric energy for moving said marking element into operational and nonoperational positions,

control means including dialing means for controlling said actuating means for marking an article in exclusively 12-inch segments, or exclusively 16-inch segments, or exclusively 24-inch segments, or exclusively 48-inch segments.

23. A printing device comprising:

a housing,

a pressure roller mounted in said housing,

a printing element movably mounted in relationship to said pressure roller,

actuating means for moving said printing element,

programming control means for controlling the movement of said printing element so as to mark a surface in equal linear segments, each of said segments having a length greater than the circumference of said pressure roller,

said control means including a permanent magnet mounted in said pressure roller for counting the revolutions of said pressure roller,

said control means also including a dry reed relay mounted in said housing and activated by said permanent magnet.

said control means also including a twelve-position rotary switch connected to said dry reed relay,

said control means also including a source of energy. the circumference of said pressure roller.

24. A printing device comprising,

a housing,

a pressure roller mounted in said housing,

a printing element movably mounted in relationship to said pressure roller for movement to operational and nonoperational positions,

actuating means cooperating with said printing element for moving said printing element into operational and nonoperational positions,

control means for controlling said actuating means upon the completion of multiple revolutions of said pressure roller,

said control means including multiple programs,

said control means also including a homing circuit for preparing said device for printing at the beginning of a particular program.

25. A printing device as described in claim **24** wherein said pressure roller has a circumference of 8 inches, and wherein said control means includes multiple programs for placing marks on a surface only every 16 inches, or only every 24 inches, or only every 48 inches.

26. A printing device as described in claim **24** wherein said pressure roller has a circumference of 4 inches, and wherein said control means includes multiple programs for placing marks on a surface only every 12 inches or only every 16 inches or only every 24 inches or only every 48 inches.