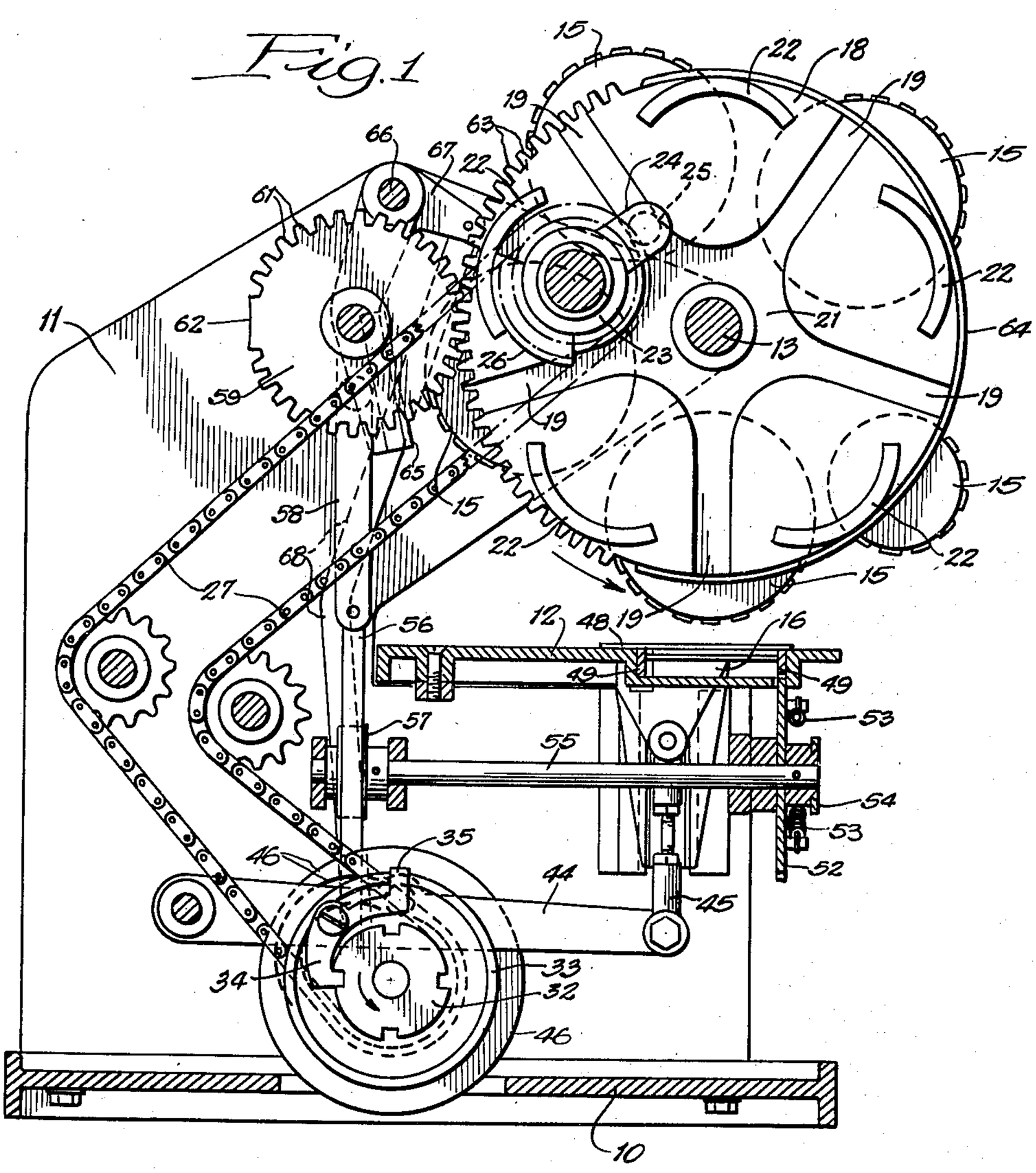
March 7, 1944. S. E. VAN TUYL 2,343,721

TAG MARKING MACHINE

Filed May 5, 1941 3 Sheets-Sheet 1

Fig. 1



Inventor:
Sidney E. Van Tuyl,
By Dawson, Coons & Booth,
Attorneys.

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Fig. 2

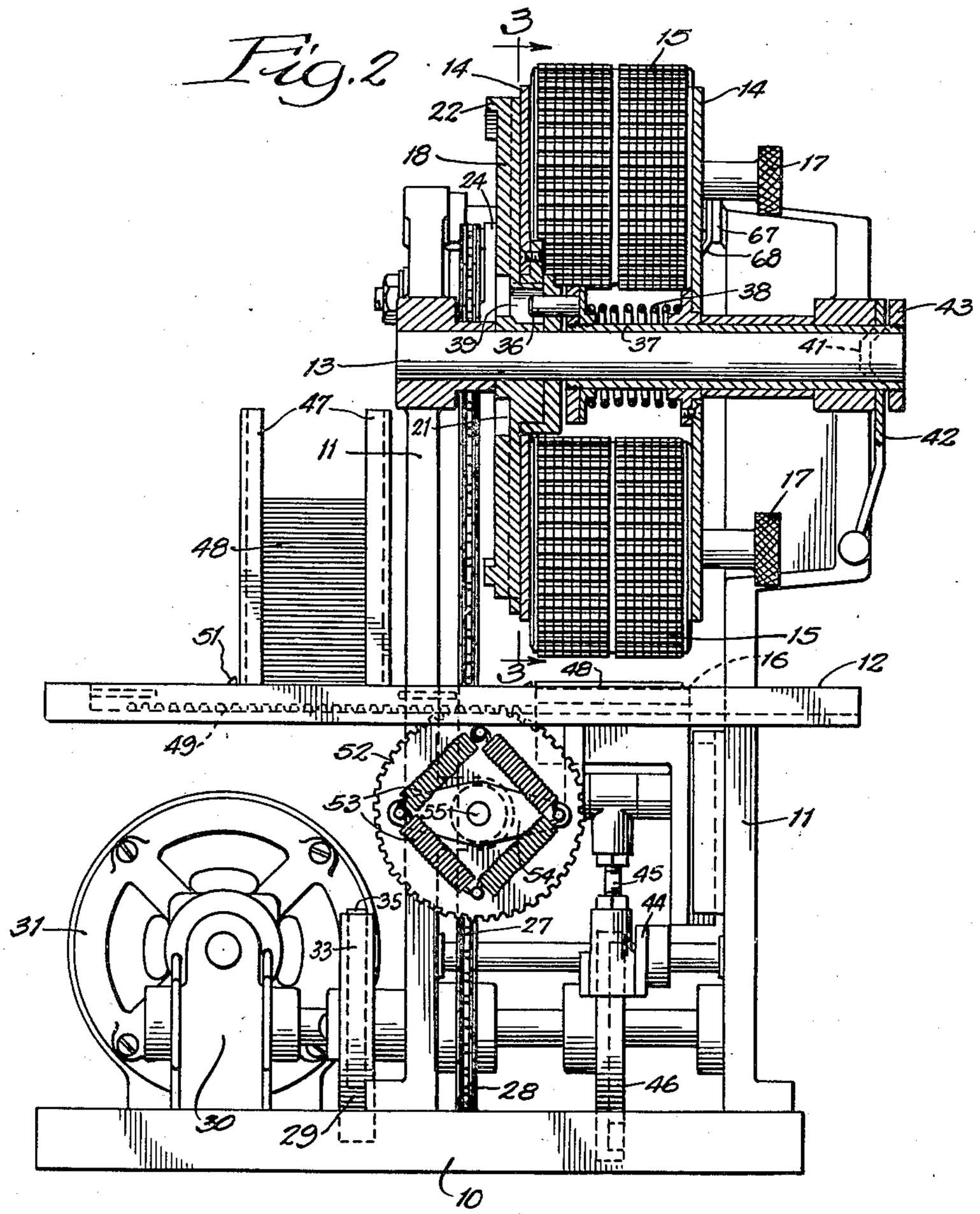

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Fig. 3

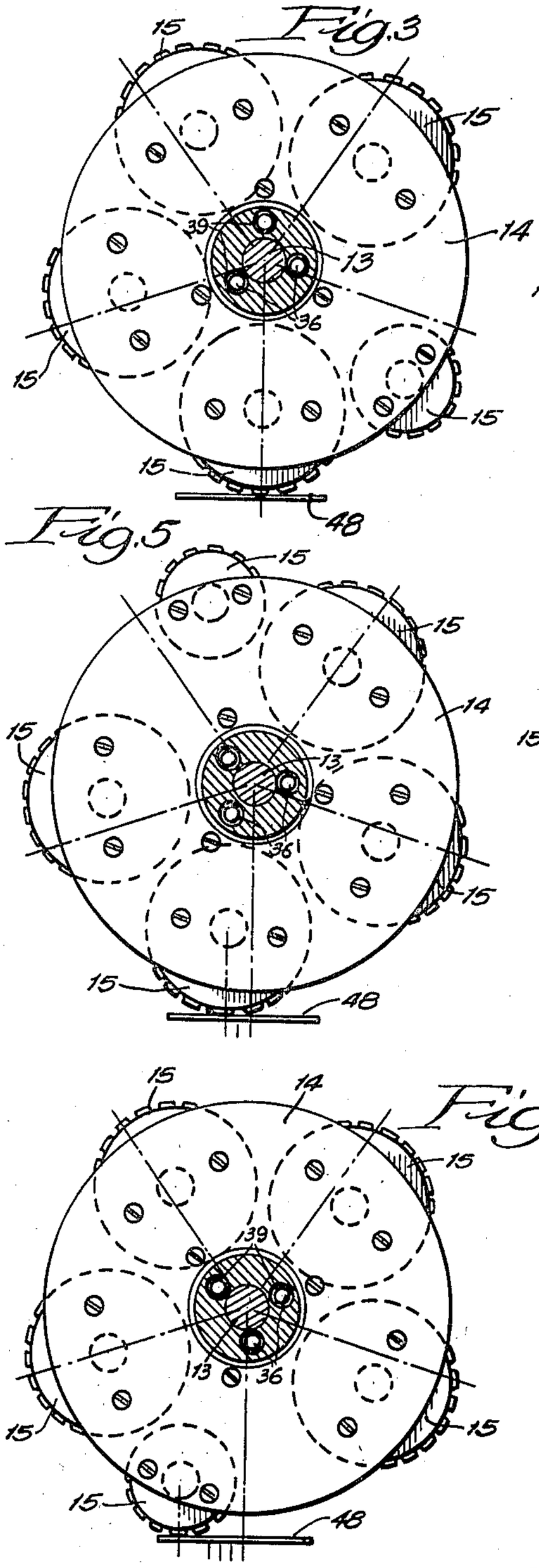

Fig. 4

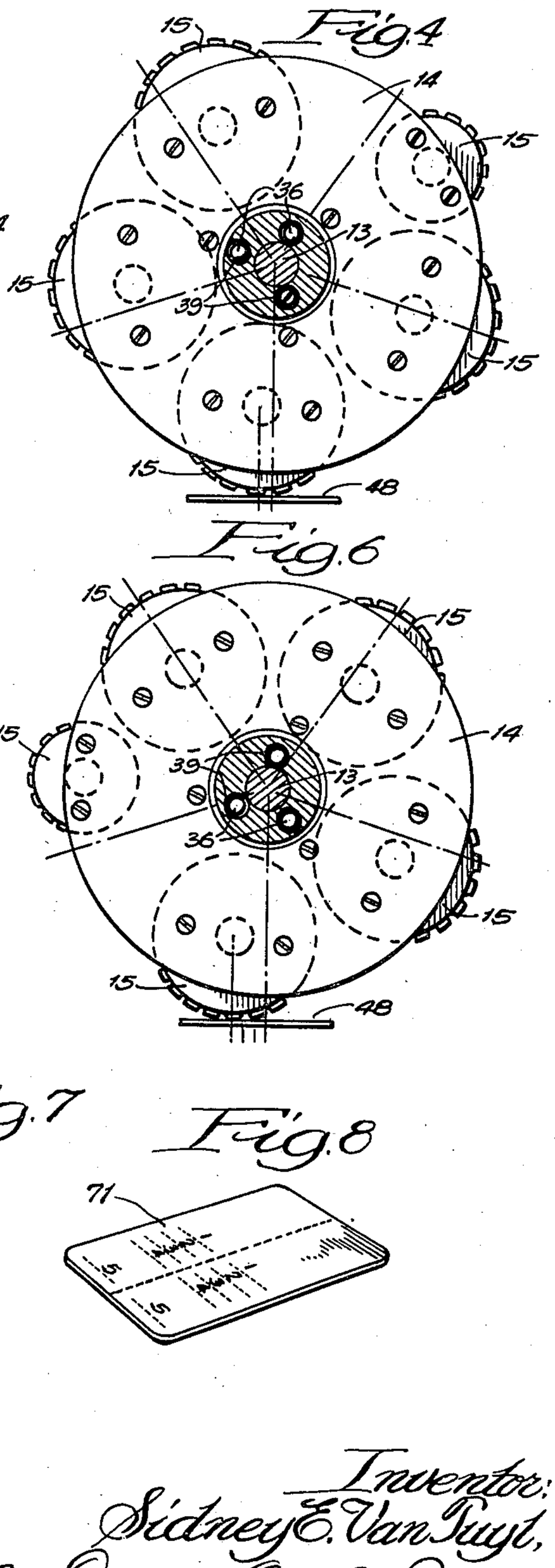

Fig. 5

Fig. 6

Fig. 7

Fig. 8

Inventor:
Sidney E. Van Tuyl,
By Dawson, Coons & Booth,
Attorneys.

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UNITED STATES PATENT OFFICE

2,343,721

TAG MARKING MACHINE

Sidney E. Van Tuyl, Riverside, Ill., assignor to American Tag Company, Chicago, Ill., a corporation of Illinois

Application May 5, 1941, Serial No. 391,872

7 Claims. (Cl. 101—101)

This invention relates to tag marking machines and more particularly to a machine for marking various information on tags of the type normally attached to garments while they are in stock or displayed for sale.

Heretofore, tags attached to garments have been marked either by hand or by machines or stamps requiring the setting of separate type blocks. Both of these operations are slow and tedious and require a certain amount of skill, particularly in the handling of type.

It is one of the objects of the present invention to provide a tag marking machine of simple construction for marking tags quickly and accurately without the use of separate type blocks.

Another object of the invention is to provide a tag marking machine in which a plurality of marking means are arranged on a turret successively to mark different lines on a tag.

Another object of the invention is to provide a tag marking machine including a turret carrying marking means in which the turret is intermittently turned from one marking position to another and is positively held in each marking position.

A further object of the invention is to provide a tag marking machine including a plurality of suitable marking means such as type wheels on a turret in which the turret may be released at will to facilitate setting of the marking means.

Another object of the invention is to provide a tag marking machine having a turret carrying a plurality of marking means in which one of the marking means is inked during the time that another marking means is marking a tag.

Another object of the invention is to provide a tag marking machine including a turret movable to different positions for different marking operations, in which tags to be marked are fed to the machine automatically upon each completed revolution of the turret.

The above and other objects and advantages of the invention will be apparent from the following description when read in connection with the accompanying drawings, in which:

Figure 1 is a side elevation of a tag marking machine with parts broken away and in section;

Figure 2 is an elevation at right angles to Figure 1, with parts in section;

Figure 3 is a partial section on the line 3—3 of Figure 2;

Figures 4 to 7 are views similar to Figure 3, showing the turret in different marking positions; and

Figure 8 is a view of a tag of the general type marked by the machine.

The machine as illustrated comprises a supporting frame including a base 10 adapted to rest on a table or other support, and carrying a pair of upright side supports 11, spaced apart and extending vertically above the base. A table 12 is supported by the uprights 11 at a point above the base.

The uprights 11, adjacent their uppermost part, support an axle 13 extending from one upright to the other. The axle rotatably supports a turret formed by a pair of plates 14 axially spaced apart to receive type wheels, indicated generally at 15, between them. As shown, five such type wheels are provided, although it will be apparent that a greater or less number could be utilized as desired.

As best seen in Figures 3 to 7, the type wheels are not uniformly spaced circumferentially, and further, are at slightly different distances from the axle 13. In operation, as will be described hereinafter, the turret is turned to different radial positions spaced uniformly apart so that when each type wheel is turned to the lowermost position overlying a platen, indicated at 16, the type wheels will be spaced the same distance above the platen, but will engage the platen at different points. Thus, in the position shown in Figure 3, the lowermost type wheel engages the platen in line with a vertical radius from the axle 13. When the turret is turned counterclockwise through one-fifth of a revolution to the position of Figure 4, the lowermost type wheel will engage the platen at a point to the left of the vertical radius by an amount equal to the desired line spacing. Similarly, when the turret is turned further to the next position, shown in Figure 5, the lowermost type wheel will engage the platen at a point spaced from the vertical radius two times the desired line spacing. In the fourth position shown in Figure 6, the lowermost type wheel engages the platen a distance three times the desired line spacing from the vertical radius, and in Figure 7, the lowermost type wheel engages the platen a distance equal to four times the desired line spacing from the vertical radius. It will be apparent that any desired line spacing on either or both sides of the vertical radius could be obtained by proper spacing of the type wheels, and that the arrangement illustrated is only one of the many possible spacings.

The type wheels 15 are mounted on axles extending between the turret discs 14. Each of the type wheels comprises a plurality of printing discs having printing characters formed thereon, and the type wheels may be independently set by a setting member 17, terminating in knurled knobs and adapted to be shifted axially into engagement with the desired type wheel and then turned to set the type wheel. It will be seen that in this way, any desired combination of characters can be quickly and easily obtained, simply by shifting and turning the setting knobs 17.

The turret is adapted to be intermittently driven through the several positions shown in Figures 3 to 7, inclusive, by means of an intermittent drive mechanism shown as comprising a disc 18 rotatably mounted on the axle 13 and rotatable relative to the turret. The disc 18 is formed in its outer face with a series of radial grooves 19, connected by an open center portion 21, there being a groove 19 for each of the printing members. That is, in the machine shown, in which five printing members are provided, there are five equally spaced grooves 19. Between the grooves 19 the face of the disc 18 is formed with a plurality of arcuate flanges 22. The flanges 22 are evenly spaced between adjacent grooves and are substantially 108° in extent.

The disc is driven by a rotatable driving member 23, mounted on one of the frame uprights 11, and having an arm 24 projecting from one side thereof and carrying a roller 25 adapted to fit into the grooves 19. Diametrically opposite the arm 24 the driving member 23 is formed with a segmental arcuate projection 26 adapted to engage with the arcuate flanges 22 to lock the disc 18 between the intermittent motions imparted to it by the pin 25. The driving member 23 is driven through a sprocket chain 27, driven through a sprocket 28. The sprocket 28 is connected through a one revolution clutch 29 with a transmission 30 driven by an electric motor 31. As best seen in Figure 1, the one revolution clutch comprises an inner driving member 32 continuously driven by the transmission 30 and having a plurality of circumferential notches therein. Around the driving member 32 is a flanged driven member 33, on which a pawl 34 is pivotally mounted, the pawl 34 having a toothed end adapted to engage in the notches in the driving member. The pawl 34 has a projection 35 at its opposite end, adapted to extend through a slot in the flange 33 and to be engaged by any desired type of releasing trigger (not shown).

When the projection 35 is pressed inwardly by the releasing finger the pawl will be moved out of engagement with the driving member 32 to interrupt the drive between the transmission and the sprocket 28. Upon release of the projection 35, the pawl will be locked into engagement with the driving member 32 by a spring or the like, so as to connect the driving and driven members. By arranging a single releasing member to engage the projection 35, it will be seen that this projection is always engaged at the same point, so as to disconnect the driving and driven members with the driven member in the same position.

When the driving member 32 and the driven member 33 are connected, the driving member 32 will be rotated, causing the roller 25 to travel in the path of an epicycloid in the grooves 19 intermittently to rotate the disc 18 through one-fifth of a revolution. When the roller 25 moves inwardly out of one groove 19 into the central opening 21, the arcuate projection 26 will move into engagement with one of the arcuate flanges 22 to lock the disc 18 against rotation, it being noted that at this time the roller 25 does not drivably engage any portion of the grooves 19. With this construction, the disc is at all times under the control of the driven member 23, and is held positively against rotation, except when the roller 25 is in engagement with a groove 19 to turn the disc.

The disc 18 is drivably connected to the turret by means of a clutch mechanism illustrated in Figure 2 as comprising a plurality of pins 36 connected to a sleeve 37, slidably surrounding the axle 13 and upon which the turret is mounted. The pins 36 are normally urged to the left, as seen in Figure 2, by a spring 38, so as to project into pockets 39 in the disc 18, drivably to connect the turret and the disc.

In order to move the pins 36 out of driving engagement with the disc, the outer end portion of the upright 11, as shown at the right of Figure 2, is formed with a cam groove 41. A sheet metal cam member 42 is rotatably mounted around the sleeve 37 and is formed with a projection complementary to the cam groove 41. A nut 43 on the end of the sleeve 37 prevents axial movement of the cam 42 relative to the sleeve. In the position shown in Figure 2, the sleeve 37 is moved to the left with the pins 36 in their driving position. Upon turning the cam lever 42, the nut 43 and sleeve 37 will be cammed to the right to disengage the pins 36 from the sockets 39, thereby to disconnect the turret and the driving disc 18. This construction is highly advantageous for setting the printing wheels 15, since it enables the turret to be turned freely for easy access to the wheels. Upon turning the cam member 42 back to the position of Figure 2, the pins will be moved to the left by a spring 38, as soon as the sockets 39 register therewith to re-establish the driving connection.

The platen 16 referred to briefly above is mounted for vertical movement in an opening in the table 12 directly below the turret. The platen is adapted to be moved vertically periodically by means of a lever 44 pivoted on both the uprights 11, and connected to the platen by a guide link 45. Intermediate its ends the lever engages a cam 46 connected to the sprocket 28 to be drive simultaneously therewith so that movement of the turret and of the platen are synchronized. In operation, the platen is raised into engagement with the lowermost printing wheel on the turret at times when the turret is locked by interengagement of the segment 26 with one of the flanges 22, so that the turret is held in proper position for marking.

The machine is adapted to mark tags, either in separate form or in a continuous roll, but is shown arranged to mark separate tags which are supported in a holder 47, mounted on the table 12. As shown, the tags 48 are stacked vertically in the holder at one side of the turret, and are adapted to be moved on to the platen by a feeding mechanism comprising a pair of elongated rack bars 49 slidable on the table, carrying a projection 51 to engage the lowermost tag in the stack and move it on to the platen. The rack bars are driven by engagement with a pinion 52 which is resiliently connected through springs 53 with a bar 54 on the end of a shaft 55.

The shaft 55 is intermittently driven by a rack 56 engaging a pinion 57 on the shaft, the rack being connected by a link 58 to a gear member 59, rotatably mounted on the frame adjacent the disc 18. The gear member is formed throughout the major portion of its circumference with gear teeth 61 and has at one point in its circumference a wide-toothed member 62 concavely curved at its circumference. The teeth 61 are adapted to mesh with teeth 63 formed on the periphery of the disc 18 and the member 62 is adapted to engage and slide over an arcuate portion 64 on the periphery of the disc. With this construction the pinion will be rotated once on each complete rotation of the disc, rotation of the pinion, however, occurring only during a portion of the rotation of the disc to provide an intermittent movement for the shaft 55.

The parts are shown in Figure 1 in a position in which a fresh tag has just been fed on to the platen and the feeding bars 49 have not yet been returned to their initial position. During the next one-fifth of a revolution of the turret, the gear member 59 will be turned through one-half of a revolution to raise the link 58 and the rack 56, thus rotating the shaft 55 and the pinion 52 in a direction to shift the bars 49 to the left, as seen in Figure 2. At this time the connection between link 58 and gear member 59 is above the axis of the gear member, with the rack in its raised position.

During the time that one of the printing members is printing on a tag, the next printing member to be brought into register with the tag is being inked. For this purpose, an inking pad 65 is pivotally mounted on an axis 66 in a position to engage the printing surfaces of a printing member on the first station clockwise from the printing station. The inking pad 65 is mounted on a bell crank lever 67, one arm of which carries the inking pad and the other arm of which is connected through a link 68 to the lever 44, which actuates the platen. Thus, each time the platen is moved upwardly to raise a tag thereon into engagement with one of the printing members, the inking pad 65 will be swung into engagement with another printing member to prepare it for the printing operation.

In operation a plurality of tags are stacked in the holder 47 and the motor 31 is started. The cam lever 42 may be actuated to free the turret 14 so as to permit the several printing rollers to be swung around to a convenient position for the setting thereof by the knobs 17. The cam lever is then turned to its inoperative position so as to allow the pins 36 drivably to connect the turret with the driving disc 18. The tags are successively fed on to the platen 16 by the feeding mechanism described above, and with a tag on the platen and the parts in the position shown in Figure 1, the first printing roller is ready to print. As the motor turns the cam 46, the platen will be raised to move the tag into engagement with the printing roller so as to print one line on the tag. As the platen drops, the driving member 23, turning counterclockwise, will move the segment 26 out of engagement with the flange 22, and due to the engagement of the roller 25 with the slot 19 just above the driving member, will rapidly swing the disc 18 and the turret counter-clockwise with the next printing roll in register with the platen. Further rotation of the driving member will move the segment 26 into locking engagement with the next flange 22 to lock the turret against rotation. The platen will then be raised again to imprint the next line on the tag, the next roller in the series simultaneously being inked by the pad 65. This operation will continue until the tag has been imprinted with five lines, spaced thereon as described above. At the end of the completed printing operation the teeth 63 on the disc 18 will engage the teeth 61 on the gear member 59 and during the next one-fifth of a revolution of the turret will turn the gear member to the position shown in Figure 1, to feed a fresh tag to the platen and eject the completed tag. The operation will then continue automatically as long as the clutch mechanism 32—35 remains in engagement. If it is desired to stop the machine at any time, the clutch mechanism may be disengaged so that the machine will stop in a pre-determined position.

Figure 8 illustrates a tag of the type marked by the machine, including a substantially rectangular sheet of paper 71, adapted to have five lines of marking thereon, as shown. Such marking may include style marking, size marking, price marking, a code price marking, and lot number marking. It will be apparent, of course, that any other desired information could be marked on the tags.

While one embodiment of the invention has been shown and described in detail, it will be understood that this is illustrative only and is not intended as a definition of the scope of the invention, reference being had for this purpose to the appended claims.

What is claimed is:

1. A machine for marking tags or the like comprising a rotatable turret, means for indexing said turret, a platen, means for periodically moving the turret and platen together, and selective type assemblies on said turret successively to register with the platen as the turret is indexed, said selective type assemblies being so spaced on the turret that each of them engages a different portion of the platen thereby to print different lines on a sheet on the platen.

2. A machine for marking tags or the like comprising a rotatable turret, means for indexing said turret, a platen, means for periodically moving the turret and platen together, and selective type assemblies on said turret successively to register with the platen as the turret is indexed, said selective type assemblies being spaced circumferentially different distances than the aliquot divisions through which the turret is indexed so that each of them will engage a different part of the platen.

3. A machine for marking tags or the like comprising a rotatable turret, means for indexing said turret, a platen, means for periodically moving the turret and platen together, and a plurality of printing wheels rotatably mounted on the turret on axes spaced circumferentially different distances than the aliquot divisions through which the turret is indexed to register with different portions of the platen as the turret is turned to its different indexed positions.

4. A machine for marking tags or the like comprising a rotatable turret, means for indexing said turret, a platen, means for periodically moving the turret and platen together, and a plurality of selective type assemblies mounted on the turret displaced different distances circumferentially from the aliquot divisions through which the turret is indexed and at different distances from the turret axis so as to lie at the same distance from the platen when moved into

register therewith and to engage a different portion of the platen when the platen and turret are moved together.

5. A machine for marking tags or the like comprising a rotatable turret, a plurality of selective type assemblies carried by the turret, a platen cooperating with the turret and adapted to carry a tag to be marked, means for periodically turning the turret to bring the selective type assemblies successively into register with different portions of the platen to print a plurality of separate lines, means synchronized with the last named means for moving the turret and platen relatively together when the turret is not being turned, an inking pad movably mounted adjacent the turret, and means operated in synchronism with the last named means for moving the inking pad into engagement with one of the marking means when another of the selective type assemblies is engaging the platen.

6. A machine for marking tags or the like comprising a rotatable turret, a plurality of selective type assemblies carried by the turret, a platen cooperating with the turret and adapted to carry a tag to be marked, means for periodically turning the turret to bring the selective type assemblies successively into register with different portions of the platen to print a plurality of separate lines, means synchronized with the last named means to move the platen into engagement with the selective type assemblies at a time when the turret is not being turned.

7. A machine for marking tags or the like comprising a rotatable turret, a plurality of selective type assemblies carried by the turret, a platen cooperating with the turret and adapted to carry a tag to be marked, means for periodically turning the turret to bring the selective type assemblies successively into register with different portions of the platen to print a plurality of separate lines, said turret including a disc formed throughout a part of its circumference with gear teeth and having the remainder of its circumference lying on an arc, a gear member mounted adjacent the disc and having gear teeth meshing with the gear teeth on the disc and a concavely curved portion to interfit with the arcuate portion of the disc so that the gear member will be turned on each complete revolution of the disc, means for feeding tags to be marked onto the platen, and a connection between said last named means and the gear member to operate the feeding means on each complete revolution of the disc.

SIDNEY E. VAN TUYL.

CERTIFICATE OF CORRECTION.

Patent No. 2,343,721. March 7, 1944.

SIDNEY E. VAN TUYL.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 4, first column, line 19, claim 5, for "marking means" read --selective type assemblies--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 27th day of June, A. D. 1944.

Leslie Frazer

(Seal) Acting Commissioner of Patents.