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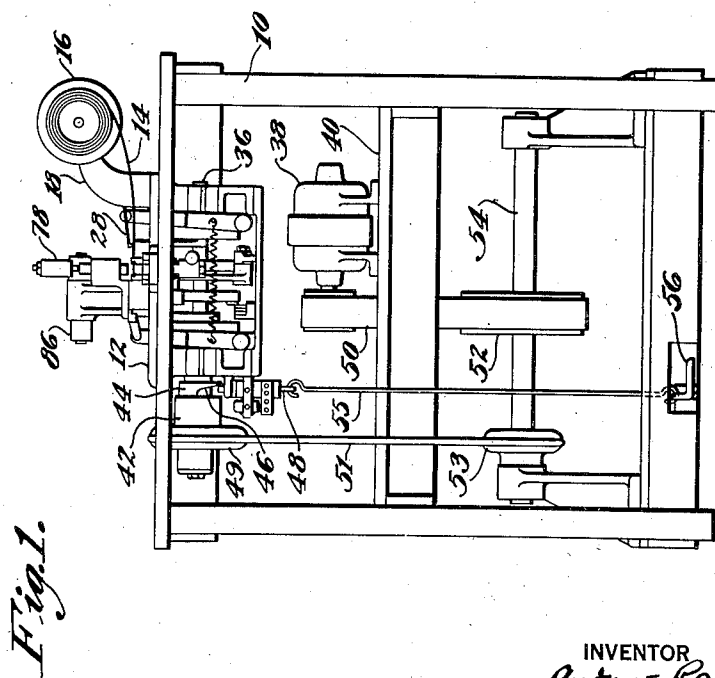
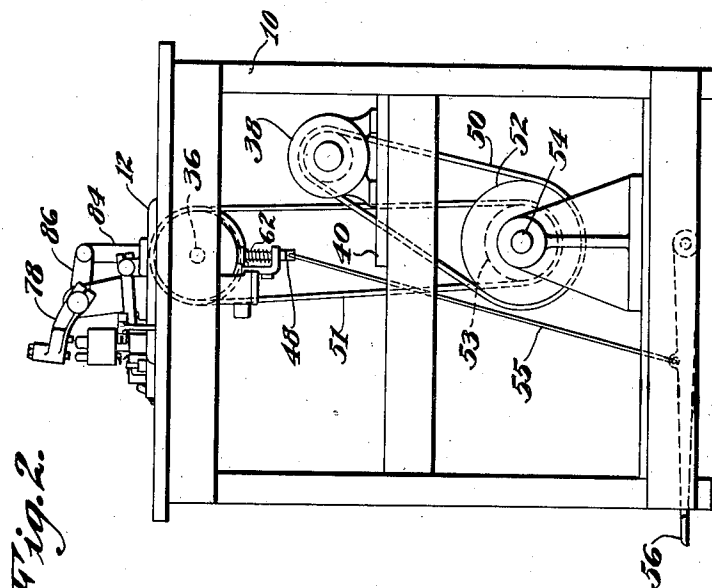
A. RAICHE

1,970,769

TAGGING MACHINE

Filed Dec. 6, 1930

5 Sheets-Sheet 1



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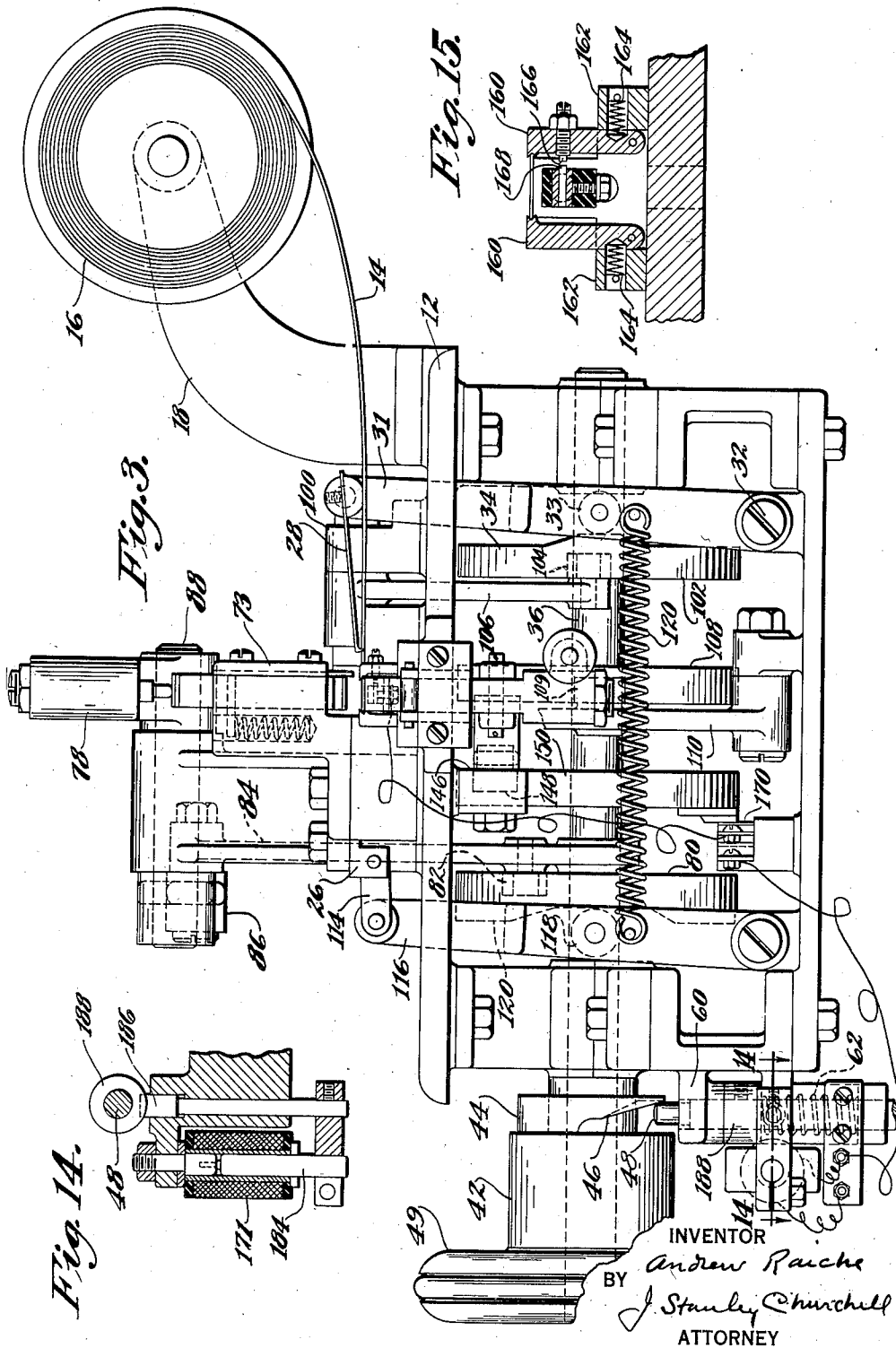
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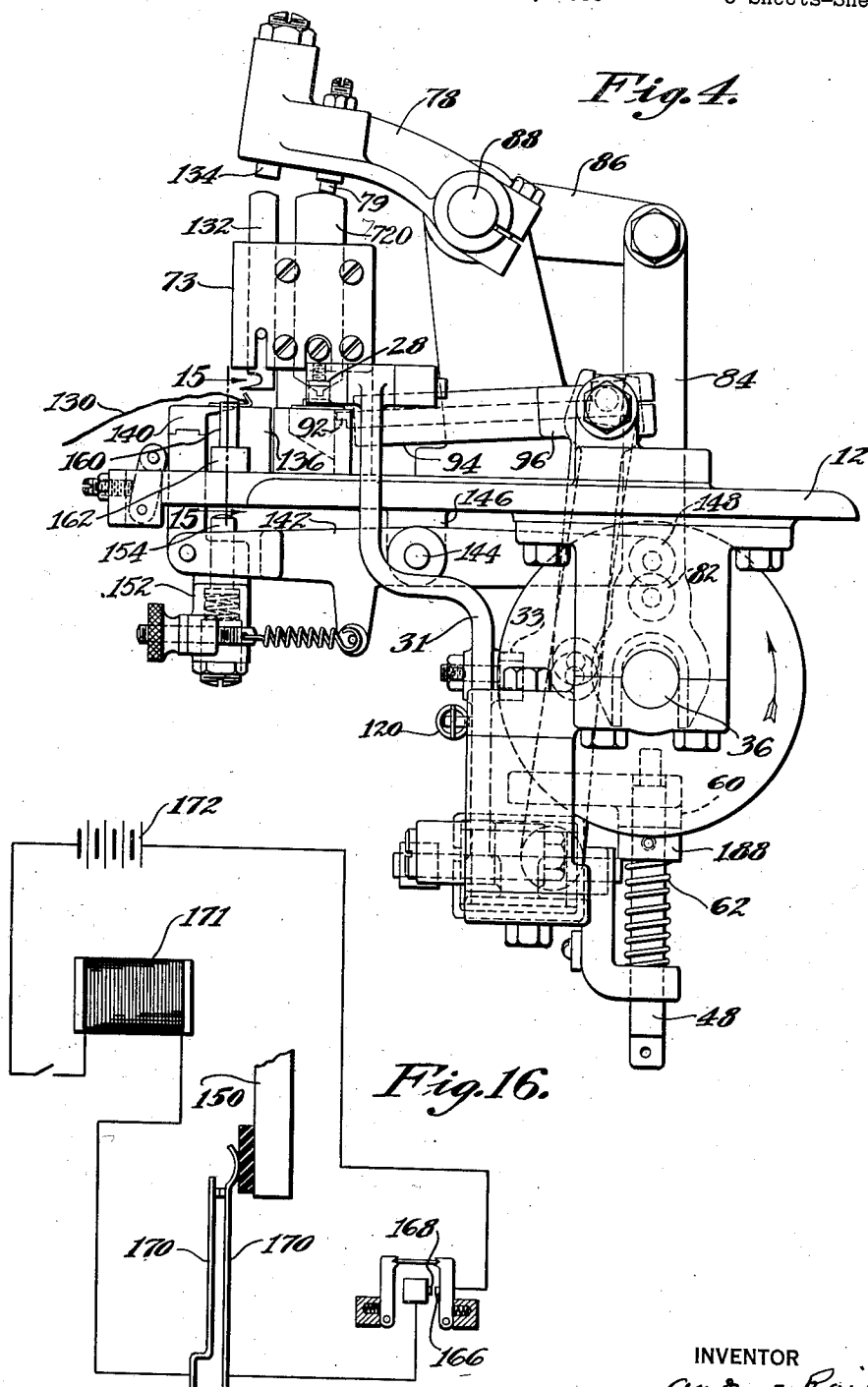
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5 Sheets-Sheet 3



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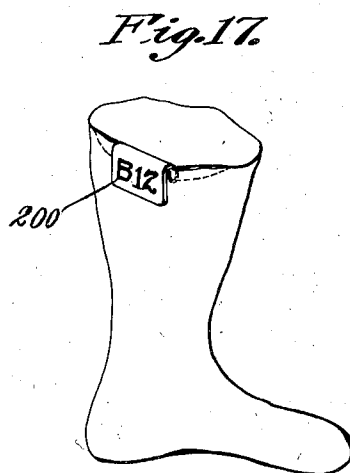
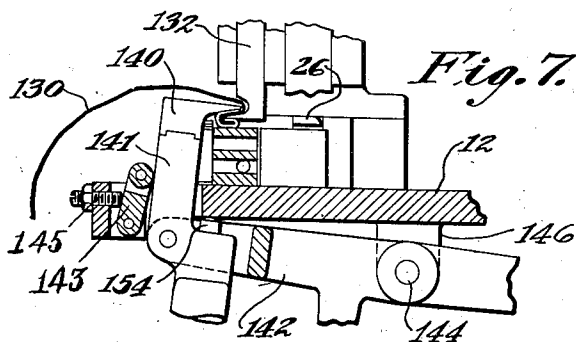
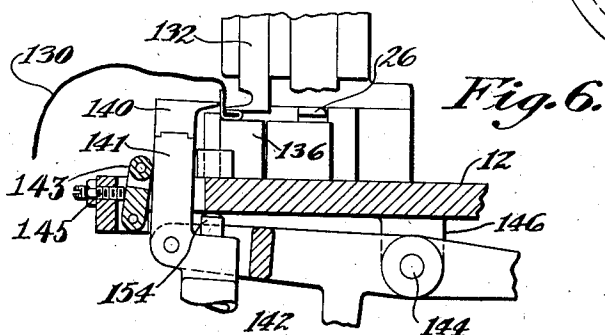
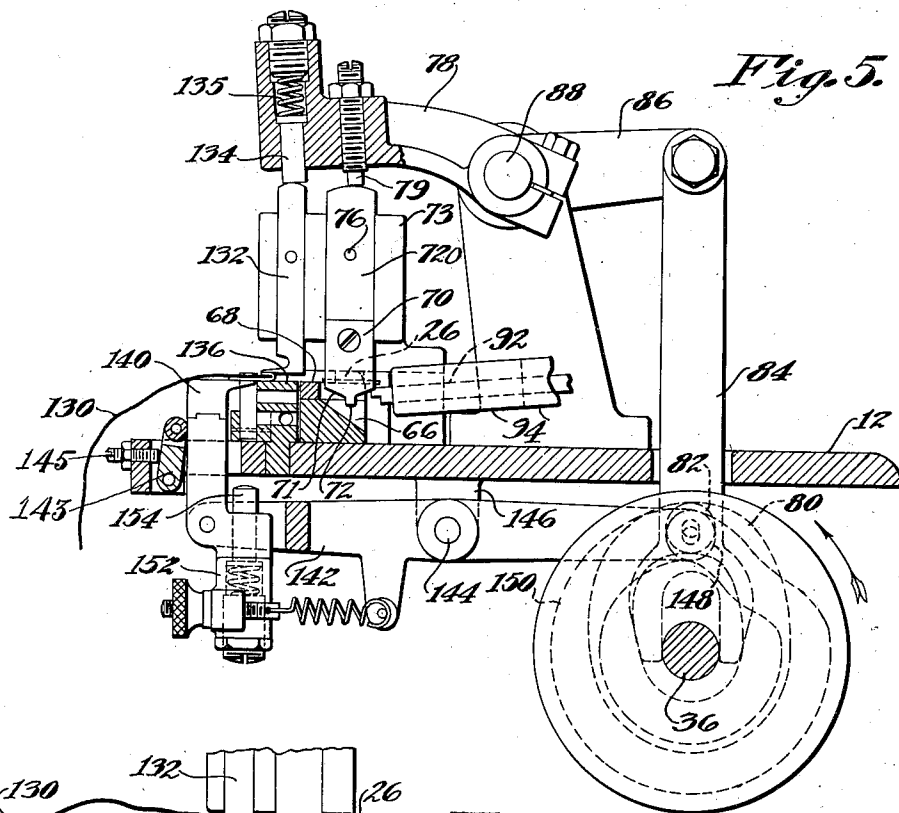
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5 Sheets-Sheet 4



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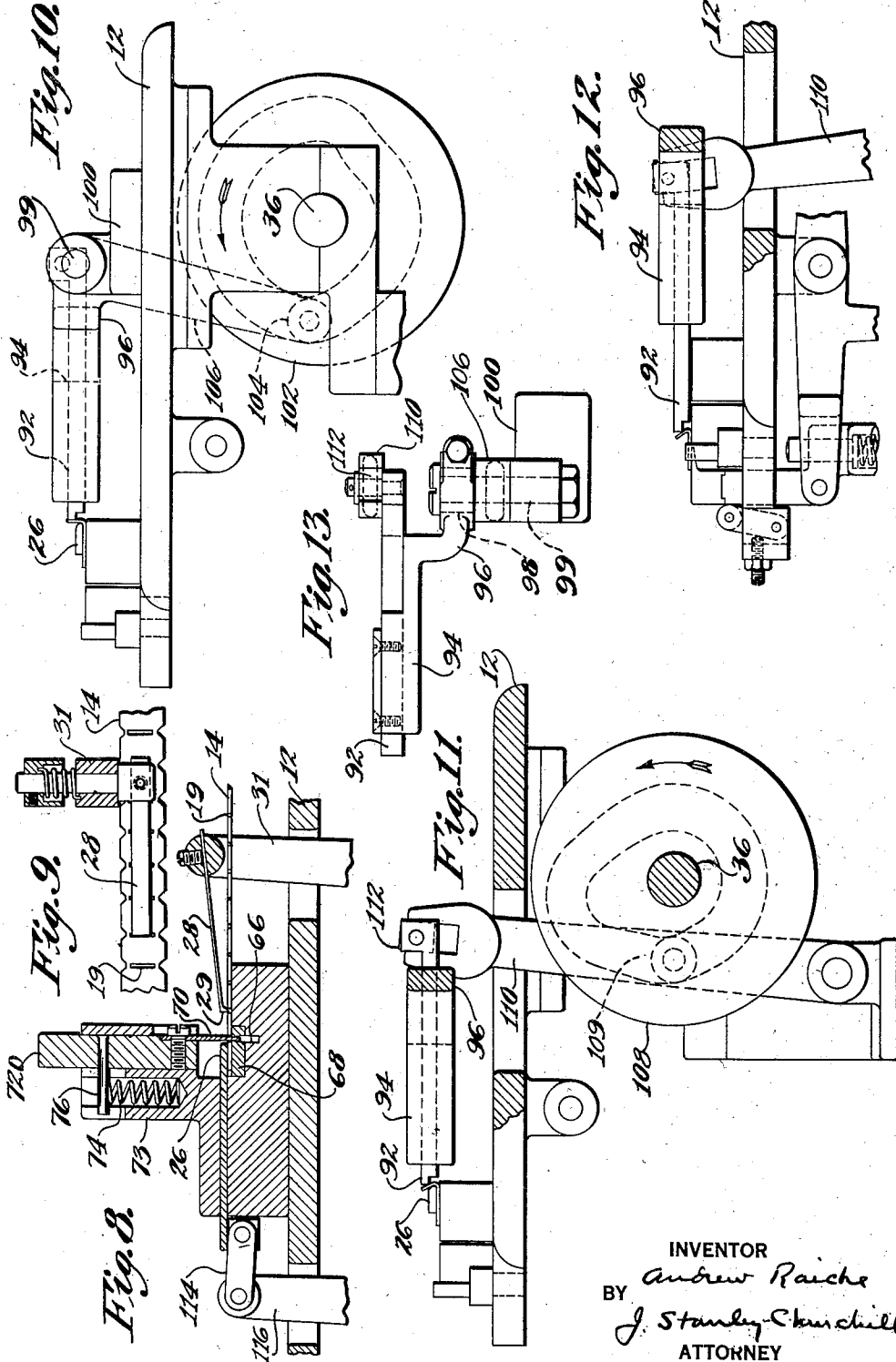
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5 Sheets-Sheet 5



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UNITED STATES PATENT OFFICE

1,970,769

TAGGING MACHINE

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Application December 6, 1930, Serial No. 500,596

16 Claims. (Cl. 153—1)

The invention relates to a tag applying machine, and more particularly to a machine for the application of identification tags to garments and other flexible articles, and the machine is particularly useful in attaching identification tags to the different pieces of a mass of laundry.

The object of the invention is to provide a novel and efficient machine for applying tags to a garment or other flexible article in a novel and improved manner such that the garment is not injured or pierced by the tag.

A further object of the invention is to provide a novel and efficient tag applying machine which is capable of forming individual metal tags from a strip supply, and then applying the tag to the edge portion of a garment or a similar article presented thereto in a manner such as to firmly attach the tag to the garment or other article without the necessity of piercing the same and in a manner such as to enable an identifying character on the tag to be exposed to view.

With these objects in view and such others as may hereinafter appear, the invention consists in the tag applying machine and in the various structures, arrangements and combinations of parts hereinafter described and particularly defined in the claims at the end of this specification.

In the drawings illustrating the preferred embodiment of the invention, Fig. 1 is a front elevation of the machine; Fig. 2 is a side elevation viewed from the right-hand side of Fig. 1; Fig. 3 is an enlarged detail in front elevation of the tag forming and applying mechanism and the operating mechanism therefor; Fig. 4 is an enlarged detail in side elevation of the right-hand side of the machine shown in Fig. 1, showing the parts in one position of operation; Fig. 5 is a similar view illustrating the parts in a succeeding position of operation; Figs. 6 and 7 are details illustrating the succeeding steps in the bending and folding operation performed upon the tag and the edge portion of the garment; Figs. 8 and 9 are details in vertical section and in sectional plan respectively, of the mechanism for feeding and positioning the strip of tag forming material; Figs. 10, 11 and 12 are details in front elevation illustrating the succeeding steps in the bending of the right-hand side of the tag preparatory to the reception of the edge portion of the garment to which the tag is to be applied; Fig. 13 is a detail in plan illustrating a portion of the mechanism shown in Fig. 10 to be referred to; Figs. 14 and 15 are sectional details on the lines 14—14, Fig. 3, and 15—15, Fig. 4, respectively; Fig. 16 is a wiring diagram to be referred to; and Fig. 17 is a perspective illustrating a garment with a tag applied thereto.

In general the invention contemplates the provision of a tag applying machine in which a tag of a bendable material, preferably of metal, is

operatively supported in a position for the reception thereon of the edge portion of a garment or other flexible article to which the tag is to be applied, and provision is made for folding the tag and the garment supported thereon to overfold portions of the tag and to clamp the edge portion of the garment or other article within such overfolded portions of the tag. Provision is also preferably made for feeding tag forming material in strip form into the machine and for forming successive tags therefrom.

Referring now to the drawings, the illustrated machine comprises a supporting frame 10 having a top or table member 12 above which the tag forming and bending mechanism is located and beneath which most of the operating and driving mechanism is supported so that the garment or other article may be presented to the tag bending mechanism with little liability of being caught in the operating or driving mechanism of the machine. The illustrated machine is particularly designed for use in applying an identification tag to each garment or piece of a mass of laundry to the end that all of the laundry belonging to one family may bear a similar tag, and accordingly in the present machine the successive tags bearing the same number or identifying mark may and preferably will be formed from a tag forming strip 14 drawn from a supply roll 16 rotatably supported in arms 18 projecting rearwardly from the supporting frame 10. The tag forming strip 14 may be formed and prepared with the identifying number or other character stamped on each tag forming portion in any convenient manner, but it is preferred to partially perforate the strip preparatory to its use in the present machine to define the individual tags and provide slots 19 (see Fig. 9) between each tag.

Provision is made for feeding the strip of tag forming material into the machine and for positioning the end tag forming portion thereof in operative position with respect to a former 26 in order that the end portion of the strip may be subsequently severed to form the individual tag and so that the right-hand side of the tag thus formed may be bent over the forming member 26, as will be described and as is illustrated in Figs. 8, 9, 10 and 11. Accordingly, the machine is provided with a strip feeding mechanism herein shown as comprising a finger 28 having a point 29 upon its end adapted to extend down into succeeding slots 19 in the blank strip of tag forming material, as illustrated in detail in Figs. 8 and 9. The finger 28 is arranged to extend downwardly from and is mounted in the upper end of a lever 31 pivoted at 32 near its lower end upon the supporting frame of the machine. The lever 31 is oscillated through the cooperation of a cam roller 33 with a cam 34 on the main driving shaft 36 of the machine. With this construction, as the

lever is oscillated back and forth, the finger 28 operates to advance the strip of tag forming material a distance corresponding to the width of an individual tag at each cycle of operation of the machine.

The main shaft 36 of the machine is driven from any suitable source of power herein shown as comprising a motor 38 mounted upon a cross member 40 forming a part of the supporting frame of the machine, as shown in Figs. 1 and 2. Provision is made for controlling the operation of the machine, and to this end the machine is provided with a one-revolution clutch 42 of any known or preferred construction, and the movable member 44 of which is provided with a cam surface 46 adapted to engage at the end of each revolution, with a stud 48 positioned in its path and by which the movable member 44 of the clutch is cammed away from and out of engagement with the driving member 49 of the clutch. The driving member 49 of the clutch is connected with the motor 38 through the medium of the belts 50, 51 and intermediate pulleys 52, 53 on a counter shaft 54, as shown in Fig. 1. The stud 48 is connected by a link 55 with a foot treadle 56, and in the operation of the machine at each depression of the foot treadle the stud 48 is withdrawn from engagement with the cam 46 on the movable member, permitting the movable member to be forced by the usual form of spring, not shown, into engagement with the driving member of the clutch. In the normal operation of the machine at each depression of the foot treadle by the operator, the main shaft 36 of the machine makes one revolution, the disengagement of the clutch being effected by the stud 48 and cam surface 46. The stud 48 is journaled in its movements in a bracket 60 forming part of the machine frame, and the stud is normally urged into a position to engage the cam surface 46 on the movable member, by a spring 62 (see Fig. 3).

As above described, at each cycle of operation of the machine, the strip feeding mechanism operates to feed the end tag forming portion under the former 26 and to position the slot 19 connecting the endmost tag forming portion with the next adjacent tag forming portion, over a slot 66 in a stationary cutter member 68, as illustrated in detail in Fig. 8. Provision is made for severing the endmost tag forming portion to form an individual tag, and as herein shown a reciprocatory cutter member 70 is provided preferably shaped, as illustrated in Fig. 5, with bevelled cutting surfaces 71 and with a central depending portion 72 which serves as a finger to enter the slot 19 in the tag forming strip as the cutter member 70 descends and to assist in positively locating or positioning the strip over the underlying slot 66 in the fixed or stationary cutter member 68. As the cutter 70 descends, the endmost tag is severed from the blank strip and thereafter the cutter is again raised, leaving the tag thus formed in a position under the former 26 ready for the subsequent bending operations, as will be described. The cutter 70 is carried by a reciprocatory block 720 arranged to slide in a guideway in a head 73 forming part of the machine frame, and the cutter is raised by a spring 74 engaging at its upper end with a piece 76 extending from and forming part of the reciprocatory head or block 720 (see Fig. 8). The cutter 70 is depressed by the downward movement of an arm 78 having an adjustable contact member 79 secured therein which engages the top of the reciprocatory head or block 720,

and the arm 78 is oscillated from a cam 80 through a cam roller 82 mounted upon a cam arm 84 connected to a lever 86 attached to the rock shaft 88 to which the arm 78 is secured, the parts being best illustrated in Figs. 4 and 5.

In order to bend up the right-hand side portion of the tag which has been thus severed from the strip in the manner described, the machine is provided with a bending member, herein shown as comprising a square rod 92 mounted to slide in a block 94 formed upon the end of an arm 96 connected to a hub 98. The latter is provided with an arm 106 formed as a part thereof, and the arm 106 is connected to a stud 99 fastened in a bracket 100 mounted upon the supporting table 12. The hub 98 is arranged to be rocked to depress and raise the arm 96 and block 94 together with the bending member 92 through the medium of a cam 102, cam roller 104, and arm 106. In the operation of the machine, the cam 102 is timed so that after an individual tag has been severed from the strip the position of the parts will be, as illustrated in Fig. 4, with the end of the bending member 92 depressed below the right-hand side portion of the tag. The cam 102 then operates to rock the hub 98 in a clockwise direction, raising the arm 96, block 94 and bending member 92, and causing the bending member to bend the right-hand side portion of the tag into an upright position, such as is illustrated in Fig. 10. Provision is then made for advancing the bending member 92 itself with relation to its supporting block 94 in order to complete the bending of the right-hand side portion of the tag over the rounded edge of the former 26 to cause the tag to be bent into the shape illustrated in Fig. 11. This forward movement of the bender 92 is accomplished by a suitably designed cam 108 operating through a cam roller 109 on a lever 110, the upper end of which is forked and within which a block 112 is received. The block 112 is pivotally connected to the end of the bender 92, and from an inspection of Fig. 11 the operation will be apparent.

Provision is now made in the operation of the machine for withdrawing the former 26 from its operative position over the tag, and to this end the former is connected through a pivoted link 114 to a lever 116 itself pivoted at its lower end upon the machine frame and provided with a cam roller 118 which cooperates with a suitably designed cam 120 on the main driving shaft of the machine. As shown in Fig. 3, the lever 116 of the former actuating mechanism and the lever 31 of the strip feeding mechanism are connected together by a single spring 120 which operates to yieldingly hold the cam rollers upon their respective cams. After the former 26 has thus been withdrawn, the cam 108 operates to cause the bender 92 to advance from the position shown in Fig. 11 to that shown in Fig. 12, operating to slide the partially bent tag into a position ready to receive the edge portion of the garment or other article preparatory to the subsequent bending operations by which the tag is attached thereto.

In the further operation of the machine the garment indicated generally at 130 which may comprise a piece of laundry or any other flexible article to which the tag is to be applied, is presented to the machine by the operator and the edge portion thereof is placed under the bent up right-hand side edge of the tag, the latter occupying the position shown in Fig. 4, and provision is then made for bending down the upstanding side edge of the tag to clamp the garment between it and the underlying portion of the body of the

tag, and as herein shown this operation is performed by a presser member 132 slidable in a guideway in the head 73, and the presser member 132 is yieldingly depressed by a contact member 134 and spring 135 mounted in the arm 78 by which the cutter 70 is operated, as previously described, and as best illustrated in Fig. 5. The presser member 132 cooperates with a fixed supporting plate 136 under the side edge portion of the tag to perform the final bending of the side edge to clamp the edge portion of the garment, as illustrated in Fig. 5. The presser 132 is lifted after each operation by a spring (not shown) similar in arrangement to the spring 74, see Fig. 8.

Provision is now made in the operation of the machine for folding the left-hand side of the tag with the garment superposed thereon over upon the previously folded right-hand side edge, and as herein shown this operation is performed by a folding member 140 formed upon the upper end of an arm 141 pivoted upon the end of a lever 142, itself pivoted at 144 in lugs 146 depending from the supporting member 12, and having upon its second end a cam roll 148 which cooperates with an actuating cam 150 upon the main driving shaft of the machine. The folding member 140 is provided with a depending portion 152 having a spring actuated stud 154 which, as the cam 150 causes the lever 142 to rise, engages the underside of the supporting table 12, and operates to rock the folding member 140 upon its pivot and with relation to the lever 142, and to throw the forward end of the folding member inwardly. The folding member 140 bears against a pivoted bearing member 143 adjustably positioned by a set screw 145. During the initial rise of the folding member 140 the left-hand side edge of the tag is bent from the position shown in Fig. 5 to that shown in Fig. 6, and during the last part of the movement of the presser member in which the lever continues to rise after the stud 154 has engaged the underside of the table top, the end of the folding member is, as above described, caused to rock inwardly to thereby fold over the left-hand side edge of the tag and the garment into the position shown in Fig. 7, where the edge portion of the garment is securely clamped between the overfolded side portions of the tag. The folding members are shaped to taper toward their edges to facilitate the formation of a close fold.

From an inspection of Fig. 5, it will be observed that the arm 78 and its actuating cam 80 serve to simultaneously depress both the cutter member 70 and the presser member 132, and in the operation of the machine the pressing operation upon one tag will be performed while a succeeding tag is being cut from the end of the blank strip previously fed into position, thus enabling a maximum production to be obtained with the machine.

Provision is also preferably made for controlling the machine to prevent the operation thereof in the event that no tag is in an operative position, such as is illustrated in Fig. 4, ready to receive a garment or other article to be tagged, and for this purpose a pair of detecting fingers 160 are provided pivoted upon a plate 162 secured to the top of the table or supporting member 12 and having springs 164 cooperating therewith for pressing the fingers toward one another. When a tag is in operative position, such as is illustrated in Fig. 4, the springs 164 cause the fingers to yieldingly engage the sides of the tag and the tag operates to hold the fingers apart and to prevent a contact 166 carried by one of the fingers

to close an electrical circuit at a second contact 168 within the piece upon which the tag is supported. The electrical circuit includes a pair of spring contacts 170 of well known construction, as illustrated in Fig. 16, a solenoid 171, and a battery 172. The spring contacts 170 are arranged to be closed by an insulated contact member upon the cam 150 so that at the end of one cycle of operation of the machine the circuit is closed at the spring contacts 170, and if no tag is present the circuit will be closed at the contacts 166, 168. The solenoid 171 when thus energized (see Fig. 14) operates to draw its armature 184 inwardly and to move a locking stud 186 inwardly under a collar 188 upon which the stud 48 is secured, thus preventing the stud 48 from being withdrawn from the path of the cam 46 and holding the movable member of the clutch disengaged. In this manner the operation of the machine will be prevented until a tag has been positioned between the spring fingers 160.

In addition to their function as detecting members, the spring pressed fingers 160 serve as holding devices to hold the tag in an operative position during the presentation of the garment thereto, and the folding operations performed by the presser member 132 and the folding member 140. The tag is forced in between the fingers 160 by the bender member 92.

As above stated, the present machine is particularly useful in the application of tags to the different pieces of laundry belonging to a single person or family, and as illustrated in Fig. 17, it will be observed that the identifying member or other mark 200 is clearly visible by reason of the manner in which the tag is applied to the edge portion of the garment, thus enabling the laundry to be sorted in a minimum time and with minimum effort.

While the preferred embodiment of the invention has been herein illustrated and described, it will be understood that the invention may be embodied in other forms within the scope of the following claims.

Having thus described the invention, what is claimed is:—

1. A tag applying machine having, in combination, a former, means for feeding a tag beneath the former, folding means for folding one side portion of the tag over the side of the former and into an angular position, means for moving the tag into a position in which the edge portion of a garment may be placed upon the tag and the edge introduced under the angularly extended side portion thereof, means for subsequently folding down such angularly extended side portion of the tag to clamp the tag upon the edge of the garment, and means for folding the opposite side portion of the tag with the garment thereon over upon the side portion first folded.

2. A tag applying machine having, in combination, a former, means for feeding a strip of tag forming material into a position with the end of the strip under the former, means for severing the end of the strip to form an individual tag, a folding member for folding one side of the tag over the former and into an angular position, means for withdrawing the former, means for moving the tag thus partially folded into operative position with respect to a pair of folding members, and means for subsequently operating said pair of folding members to fold down the angular side portion of the tag upon the edge of a garment introduced thereunder, and for there-

after folding the opposite side portion of the tag over upon the portion thus first folded.

3. In a tag applying machine, in combination, tag feeding mechanism, folding mechanism operative to fold successive portions of the tag over upon one another and upon the edge of a garment introduced under the first folded portion, a clutch controlling the operation of the machine, and control mechanism for preventing the operation of the machine in the event that a tag is not present in operative position to be folded.

4. In a tag applying machine, in combination, means for supporting a tag in position to permit a garment to be placed thereon, folding mechanism for folding portions of the tag to clamp it upon the garment, mechanism for operating the folding mechanism including a clutch, and a control mechanism cooperating with the clutch for preventing the operation of the machine in the event that a tag is not presented in operative position to be folded.

5. In a tag applying machine, in combination, means for supporting a tag in position to permit a garment to be placed thereon, folding mechanism for folding portions of the tag to clamp it upon the garment, mechanism for operating the folding mechanism including a clutch, and a control mechanism cooperating with the clutch for preventing the operation of the machine in the event that a tag is not presented in operative position to be folded, said control mechanism including a latch cooperating with the clutch for holding the clutch in a disengaged position when the latch is moved into one position of operation, and an electric circuit adapted to be closed when no tag is present for effecting movement of the latch into such position.

6. In a tag applying machine, in combination, a strip feeding mechanism adapted to feed a strip of tag forming material into the machine of a character having the individual tag forming portions separated by transversely extended slots, a cutter member provided with a depending portion adapted to enter a slot to thereby accurately position the strip, and folding mechanism for bending portions of the tag thus formed to clamp the tag onto the garment positioned in operative position thereto.

7. In a tag applying machine, in combination, mechanism for feeding a strip of tag forming material into the machine, mechanism for severing the end portion of the strip to form a tag, a combined folding and feeding device for folding up a side portion of the tag into an angular position, and operative then to move the tag into a position to receive a garment, folding mechanism for folding down said angular portion of the tag, and folding mechanism for thereafter folding the opposite side portion of the tag over upon the portion thus first folded.

8. In a tag applying machine for applying tags to a garment, in combination, means for operatively supporting a roll of tag forming material, means for feeding the tag forming material into the machine, means for forming a tag therefrom, and mechanism for clamping the edge of the garment in a tortuous shape between a plurality of folds of the tag.

9. In a tag applying machine, in combination, means for supporting an article in position to be tagged, tag applying means for applying a tag to the article while the latter is supported in tag applying position, and a control mechanism for

controlling the operation of the machine in accordance with the presence or absence of a tag.

10. In a tag applying machine, the combination of a clamp device for engaging two side edges of a tag and leaving the top of the tag free and unobstructed so that a garment may be placed thereon, means for folding one of the unengaged edges of the tag over the garment, and means for folding the unengaged edge of the tag and the garment over the part of the tag and garment first folded.

11. In a tag applying machine, the combination of a clamp device for engaging two side edges of a tag and leaving the top of the tag free and unobstructed so that a garment may be placed thereon, means for folding one of the unengaged edges of the tag over the garment, and means for folding the unengaged edge of the tag and the garment over the part of the tag and garment first folded, each of said tag folding means being yieldably supported to thereby adapt itself to garments of different thicknesses.

12. In a tag applying machine, the combination of a support designed to receive a tag, an arm slidably supported above the tag to hold it in position against the support with one edge projected beyond the arm, means for moving the projected edge of the tag upwardly, means for withdrawing the said arm from position above the tag, and means for advancing the tag to a folding mechanism.

13. In a tag applying machine, the combination of a tag support formed with a slot designed to receive a tag, a tag clamping device for engaging the top of the tag and leaving one edge of the tag projected beyond the clamping device, a tag folding and advancing device comprising an arm, means for moving the arm upwardly relative to the clamping device and tag for folding one edge of the tag upwardly, and means for moving the arm longitudinally to advance the tag to a folding mechanism.

14. A tag applying machine having, in combination, means for folding one edge of a flat tag upwardly, means for operatively supporting said tag, a folding member movable downwardly for folding the upturned edge of the tag over upon the edge of a garment placed on the tag, a second folding member for folding the opposite side of the tag and a portion of the garment resting thereon over upon the first folded portion of said tag.

15. In a tag applying machine, in combination, means for supporting an article in position to be tagged, tag applying mechanism for applying a tag to the article while the latter is thus positioned, detecting means for determining the presence or absence of a tag in operative tag applying position, and means for preventing the operation of the machine upon failure of the detecting mechanism to thus detect a tag.

16. In a tag applying machine, in combination, strip feeding mechanism for feeding a strip of tag forming material into the machine, a cutting mechanism for severing an individual tag from the strip thus fed and automatically operating folding mechanism comprising a plurality of movable members adapted to flatly fold successive portions of the tag over upon the edge portion of a garment, one of said members having a compound fold producing movement.

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