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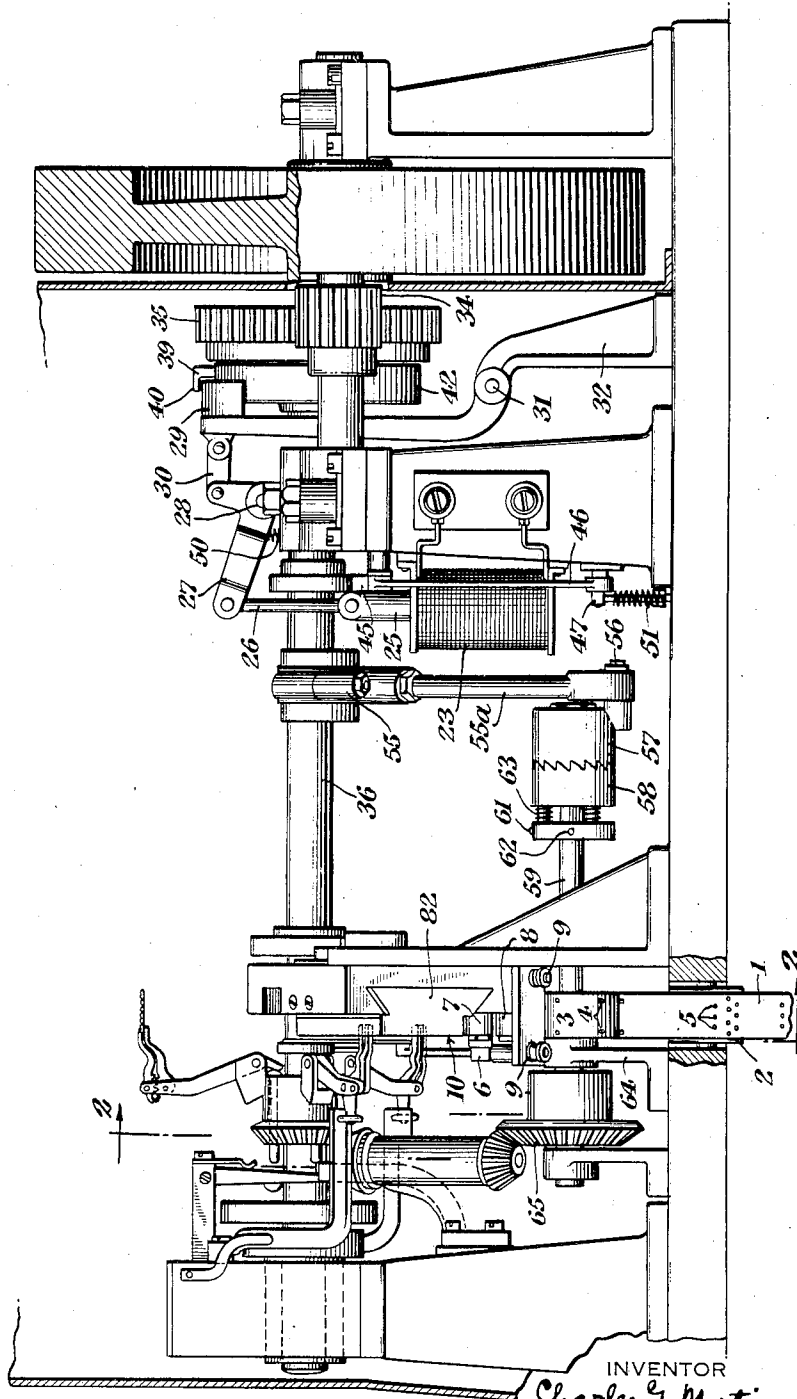
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RIBBON FEEDING MECHANISM FOR TAG FORMING MACHINES

Original Filed June 19, 1931 3 Sheets-Sheet 1

Fig. 1.



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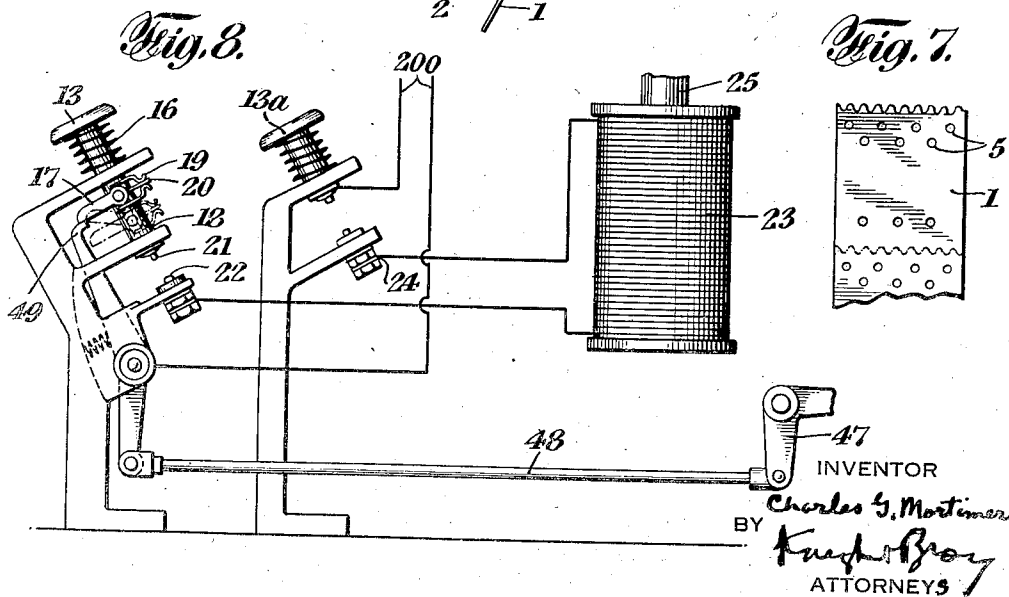
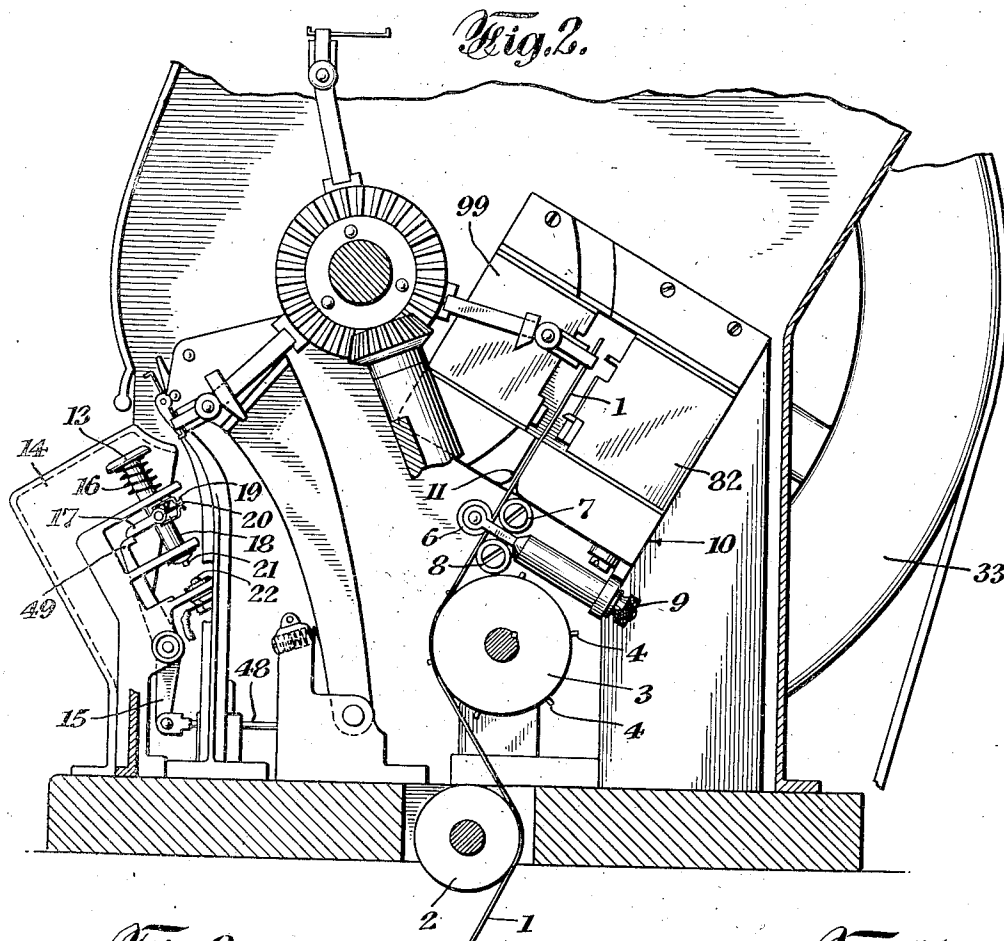
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RIBBON FEEDING MECHANISM FOR TAG FORMING MACHINES

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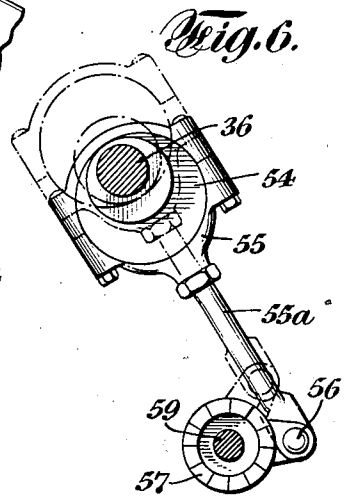
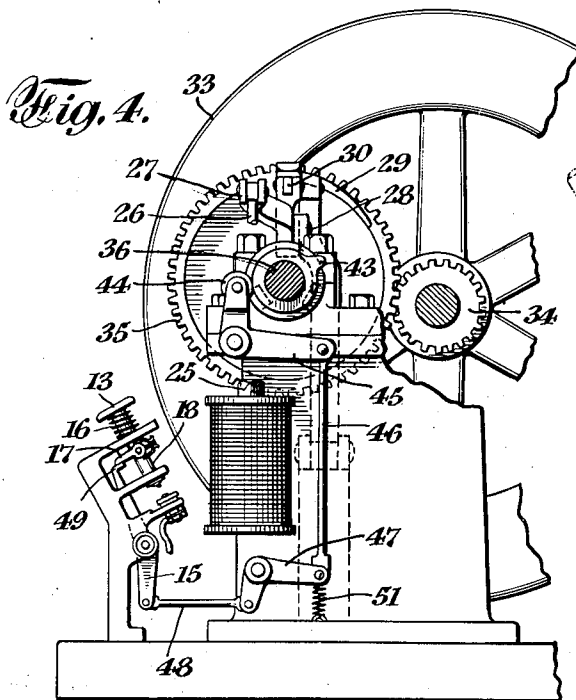
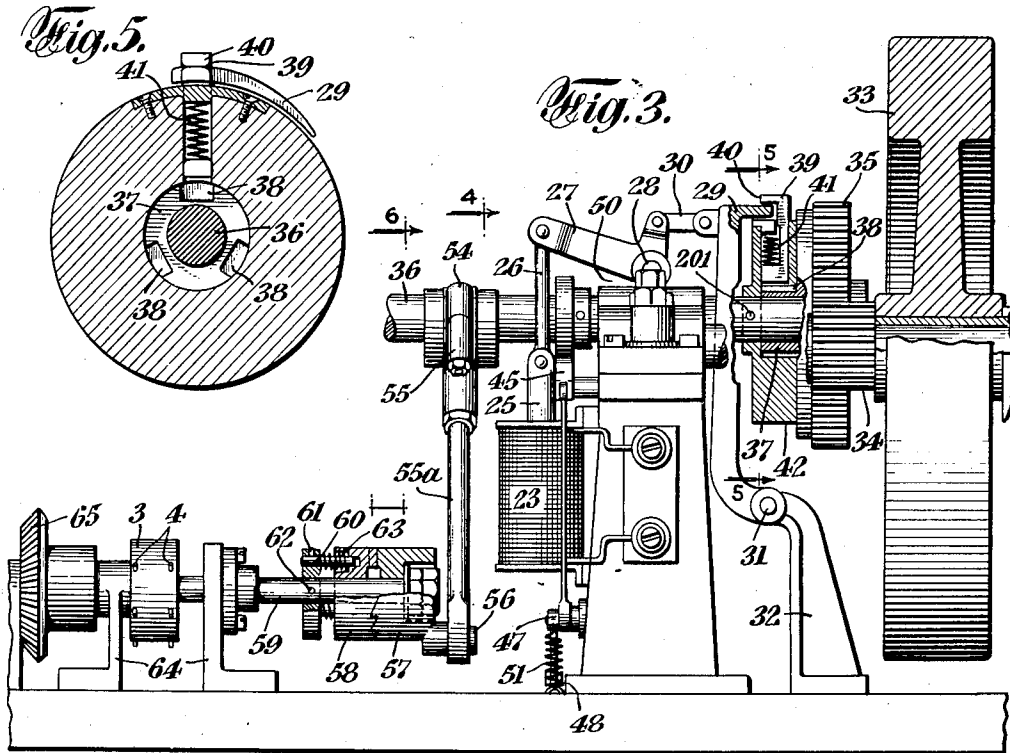
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RIBBON FEEDING MECHANISM FOR TAG FORMING MACHINES

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1,990,915

RIBBON-FEEDING MECHANISM FOR TAG FORMING MACHINES

Charles G. Mortimer, Glen Ridge, N. J., assignor
to Joseph H. Lynch, Asbury Park, N. J.Original application June 19, 1931, Serial No.
545,424. Divided and this application July 27,
1932, Serial No. 625,164

2 Claims. (Cl. 271—2.4)

The present invention relates to means for feeding a ribbon of metal or the like into a machine in which it is to be cut into tags, and is herein illustrated as applied to a machine which
5 severs tags successively from the ribbon, stamps reinforcing and other marks on the tag, and applies them to objects, such as laundry articles, to be identified, which is more fully shown and described in my application, Serial No. 545,424,
10 filed June 19, 1931, of which the present application is a division. The invention herein described is however susceptible of application to any machine in which tags are to be formed from a ribbon.

15 A complete machine embodying the various elements and combinations constituting my invention comprises specially designed feed rolls, straightening devices, and intermittently actuated mechanism for operating the feed rolls in cooperation with the mechanism controlling the
20 starting and stopping of the machine by which the tag is formed and utilized.

In the accompanying drawings—

25 Figure 1 shows, in sectional elevation, a tag-forming, marking and applying machine to which my improved ribbon-feeding mechanism is applied, parts of the machine not directly associated with the present invention being broken away.

30 Figure 2 is a cross-sectional view thereof taken substantially on the line 2—2, Figure 1, looking in the direction of the arrows.

35 Figure 3 is a rear view showing the coupling to connect the main shaft of the machine to the power drive and the feeding mechanism with its coupling, both couplings being shown partially in cross-section.

40 Figure 4 is a cross-sectional view substantially taken along line 4—4 on Figure 3, and looking in the direction of the arrows.

45 Figure 5 is a cross-sectional view of the main clutch, taken along line 5—5, Figure 3, and looking in the direction of the arrows.

Figure 6 shows the eccentrics and is a cross-sectional view taken along the line 6—6, on Figure 3, looking in the direction of the arrows.

Figure 7 shows the ribbon with a blank cut therefrom, ready to be formed into a tag, and

50 Figure 8 is a diagram of the electric wiring and main operating switches.

1 is the metal ribbon from which the tags are made. The metal ribbon comes from a magazine roll of conventional design, not shown. This ribbon is provided with perforations distributed as per Figure 7, the mechanical purpose of which
55 will be apparent when the individual operations

are described. Besides these mechanical reasons for providing such perforations, I provide these apertures to allow a free flow of water through the tags and through that part of the laundry pieces to which the tags are applied, and around
5 which they are folded. This secures a thorough contact of the working liquid and the laundry pieces also in the neighborhood of and between the folds of the tag. The ribbon runs over an idler 2, which acts as a guide and secures the contact of the ribbon with the feed roll 3 over a
10 long part of its circumference, and also secures engagement with more than one pair of the propelling pins 4 on the feed roller. These pins engage with the outer perforations 5 on the ribbon.

From this feed roller the ribbon is forced through straightening roll 6, above, and rolls 7 and 8, below the ribbon path, more clearly shown
20 on Figure 2. Roll 6 can be adjusted with respect to its distance from the pair of rollers 7 and 8. This is done by adjustment screws 9, having nuts seated below projections from a stationary part of the die mechanism. The screws 9 form the lower ends of rods which extend
25 through guide housings on each side of the ribbon, from points below to points above the latter where they are formed with bearings for the reduced ends of the roll 6. When a new ribbon is inserted, it is convenient to be in a position
30 to increase this clearance.

After leaving the straightening rolls, the ribbon enters the die device 10 through slot 11 acting as a guide. This is as far as the ribbon goes
35 when a new ribbon is inserted.

The machine is started whenever the operator presses the push buttons 13, 13a. There is a pair of such buttons, one on either side of the platen 14.

40 Figure 8 is a diagram of the electric circuit into which buttons 13 and 13a are inserted. 200 is the source of electric power. The current flows from the + pole to the contact lever 15. As soon as button 13 is pressed against the resistance of spring 16, contact is made between the
45 turned point 49 of lever 15 and toe 17, pivoted on contact rod 18. Figure 8 shows this position. Toe 17 is normally held in a position perpendicular to the contact rod 18 by means of spring members 19 and tongue 20 which is an extension
50 of the toe 17. Suitable insulation is provided to secure the flow of current in the above-described way.

Further depression of the button 13 causes the toe 17 to be turned upwardly with respect to rod 55

18, as shown in dot and dash lines on Figure 8, and also causes contacting of the points 21 and 22. It must be noted that the toe 17 and the upper end of 15 remain in contact when 21 reaches 22. Flow of current is then established between 15 and the solenoid coil 23 up to terminal 24. By the simultaneous pressing of button 13a, the complete circuit is closed.

As soon as power is by this means supplied to 23, the solenoid core 25 is pulled into the coil and takes with it connecting rod 26 and bell crank 27 which is fulcrumed at 28 and linked to cam track 29 by means of link 30. Cam track 29 is pivoted at 31 to a stationary support 32.

The fly wheel 33 is driven by a belt or the like from a motor not shown. A pinion 34 is attached to 33 and engages with a tooth wheel 35 which is free on shaft 36. To the wheel 35 a collar 37 is attached. This collar is provided with a plurality of notches 38, shown on a large scale on Figure 5. These notches are adapted to receive the inner end of clutch dog 39. This dog is held up by means of the cam track 29 riding under the lip 40. It engages with one of the notches 38 as soon as 29 is removed from the holding lip 40 of dog 39 by the already-described mechanical operations following the energizing of solenoid 23; thereupon it drops into one of the notches 38 owing to pressure of the spring 41. It will be noted that a plurality of notches 38 are provided to reduce the intermission between the moment the push buttons 13 and 13a are depressed, and the moment the shaft 36 begins to revolve.

Clutch dog 39 slides in a radial slot in the clutch plate 42 which is pinned onto shaft 36 by means of pin 201. This pin is a safeguard against overloading other vital parts of the machine and will be of sufficiently soft material or small size to limit the power transmitted by 36.

As soon as clutch dog 39 engages with one of the notches 38, the shaft 36 will be turned one turn or until the dog lip 40 rides up on cam track 29. This cam track goes back into its original position as soon as shaft 36 and disc 42 have revolved enough to allow a return of 29 without interfering with 39. This is accomplished by a cam 43 on shaft 36, which engages with a cam follower 44, Figure 4. 44 operates via the bell crank 45, a link 46, another bell crank 47, and another link 48, the contact lever 15, shown also on Figure 8. Thus the engagement of the cam 43 causes a disengagement of contact lever point 49 and contact toe 17. The power applied to the solenoid 23 is interrupted no matter whether buttons 13 and 13a are still pressed or not and the cam track 29 is brought back to its original position to engage under lip 40 by means of a spring 50. The engagement of cam follower 44 and the cam 43 is secured by means of spring 51. The last-described operation may be designated as a clutch safety release. This definitely insures that shaft 36 is stopped again after having made one full turn, no matter whether the push buttons are depressed during this period or are left depressed by inadvertence. The push buttons must be released before operating the machine a second time. This will cause the operator to withdraw the piece onto which the tag was applied and will help prevent two or more tags from being applied at the same point.

When contact lever 15 is operated from cam 43, a free snapping of toe 17 into the position 53,

shown by dotted lines on Figure 8, is secured. Upon releasing button 13, the contact pin goes back and contact points 21 and 22 are disengaged. If 15 moves back because of further turning of cam 43 before the button 13 was released, the toe 17 would pass the point 49 upon releasing of 13 and go back to the uppermost position.

It is obvious from the above that shaft 36 cannot make one full revolution without the driven coupling member 42 being disconnected from the driving member 37. Onto shaft 36, an eccentric 54, more clearly shown on Figure 6, is keyed. This eccentric operates a strap 55 which operates through rod 55a the crank 56 of ratchet member 57. Upon the first half of the revolution of shaft 36, the teeth of the ratchet member 57 slide over the teeth of similar shape on the ratchet member 58. While the ratchet member 57 is free on the auxiliary shaft 59, the ratchet member 58 is keyed onto this shaft through pins 60, the disc 61, and key or pin 62. 58 is forced against 57 by means of spring members 63. On the second half of the turn of the shaft 36, the ratchet members 57 and 58 will be, due to the particular shape of the ratchet teeth, locked together, and the auxiliary shaft 59 will be revolved a fraction of a revolution. Auxiliary shaft 59 is supported by bearings 64 between which the feed roller 3 is keyed onto the auxiliary shaft. The eccentric is so dimensioned that this feed roller pushes the ribbon, from which the tags are cut, for the length of one tag.

At the end of shaft 59, a bevel gear 65 is keyed, which conveys motion to the tag carrying mechanism described in my original application already referred to.

After the ribbon is fed into the machine, as previously described, straightened out, and put into the guide slot 11, the machine will be operated by pressing the push buttons 13 and 13a. At each operation of the push buttons, the ribbon will proceed for the length of one tag further into the machine, and will at, for instance, the third operation, be sufficiently advanced so that a complete tag can be cut by the die members 82 and 99, shown in Figure 2.

I claim:—

1. In a machine for making and applying identification tags from a ribbon-like material, a feed mechanism for feeding the ribbon to the machine, and a straightening mechanism for straightening out the ribbon before its travel through the machine comprising spaced rolls below the path of the ribbon, an intermediate roll above the path of the ribbon, independently adjustable supporting and adjusting rods for the intermediate roll having bearings for the ends of said roll above the path of the ribbon and extending one on each side of the ribbon path to points below the latter, and adjustment nuts for said rods.

2. In mechanism of the character described, the combination of a main shaft, manually controlled mechanism for connecting the said shaft to driving mechanism, automatic means for disconnecting the shaft from the driving mechanism, a feed roller for a ribbon, a shaft therefor, an oscillatory member operatively connected with the main shaft, and clutch mechanism connecting the oscillatory member to the feed roller shaft.

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