

March 23, 1943.

N. W. LYON

2,314,411

WEB REGISTERING DEVICE

Filed Feb. 5, 1942

3 Sheets-Sheet 1

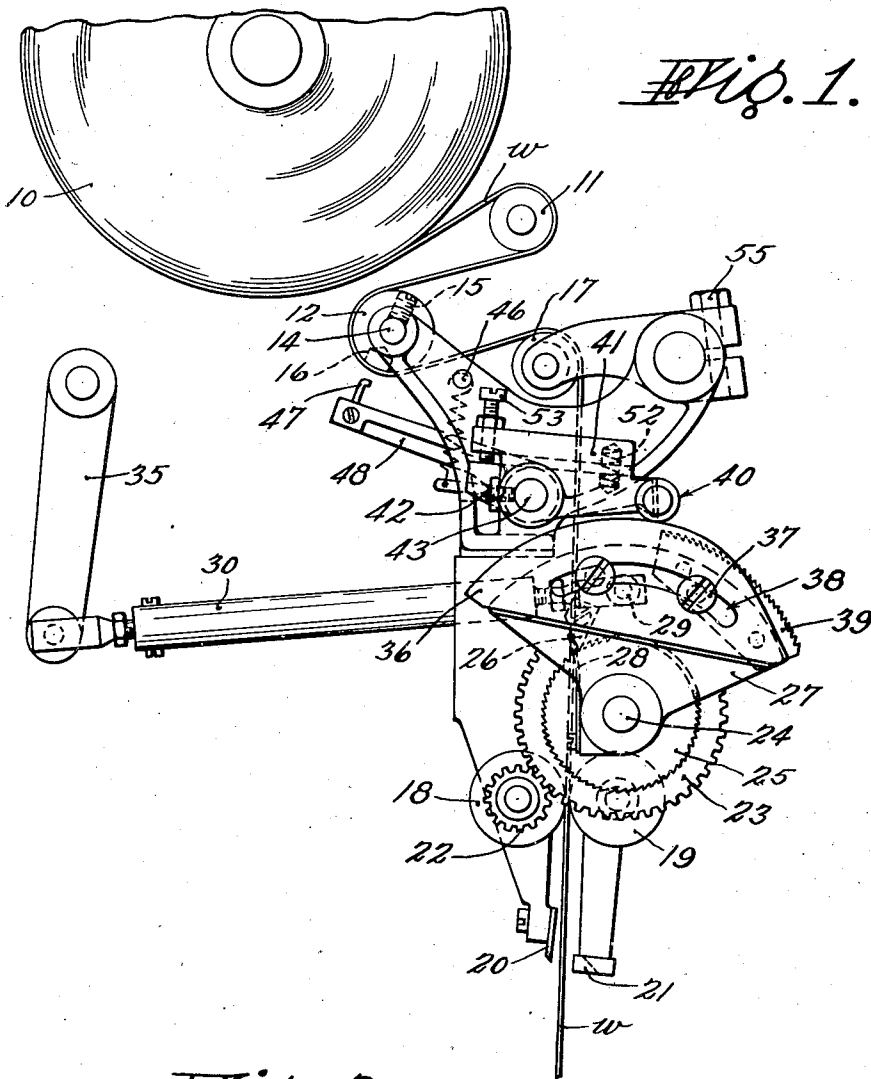
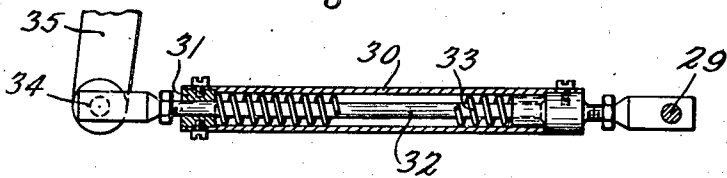


Fig. 2.



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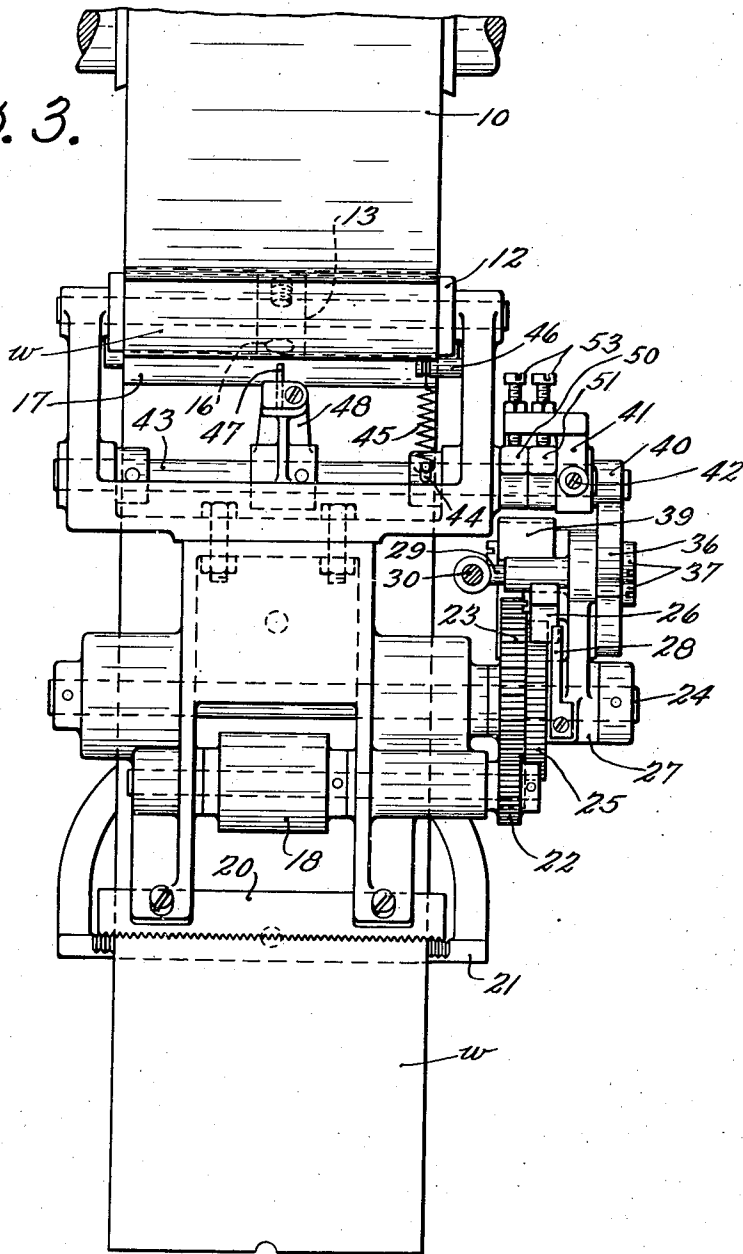
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Fig. 3.



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Fig. 4.

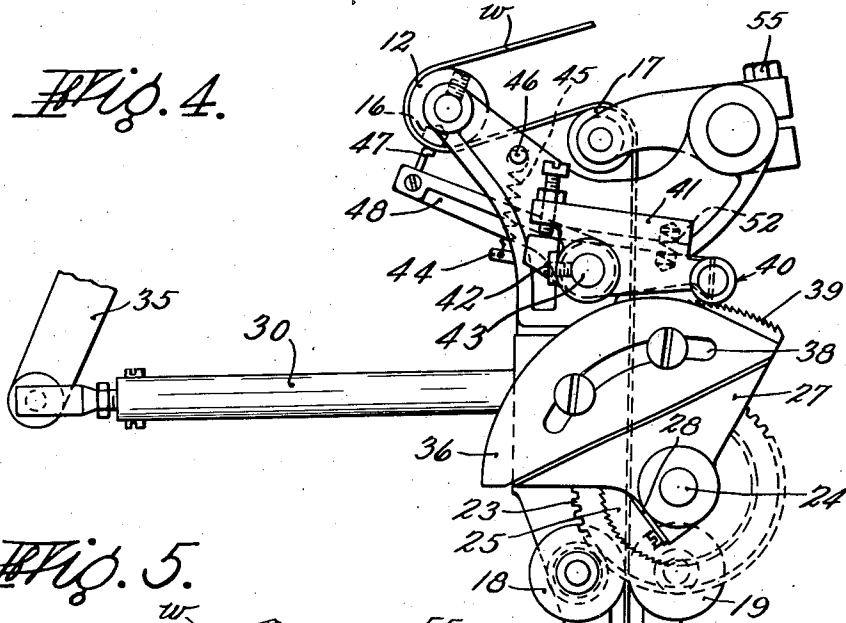
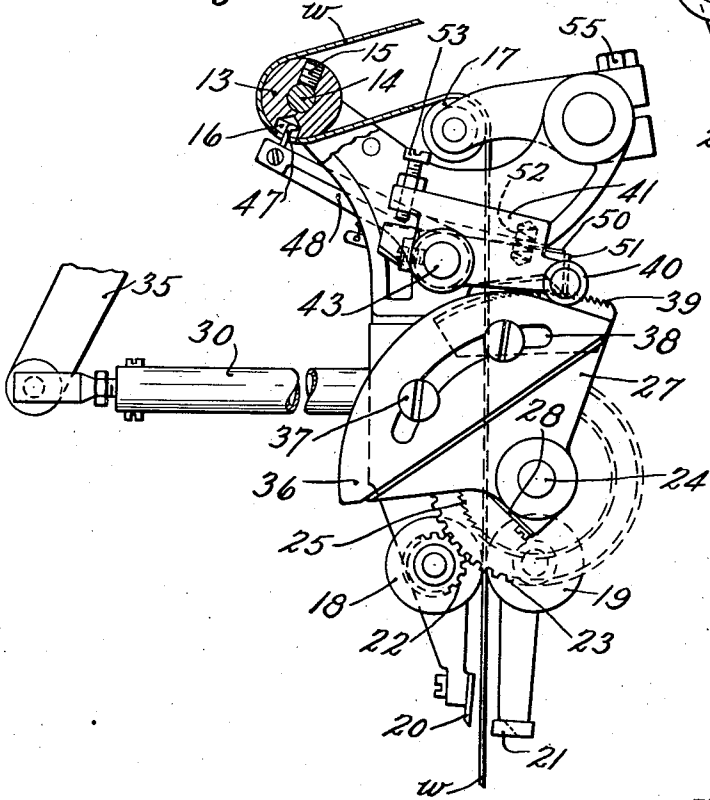


Fig. 5.



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UNITED STATES PATENT OFFICE

2,314,411

WEB REGISTERING DEVICE

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Application February 5, 1942, Serial No. 429,616

3 Claims. (Cl. 271—2.6)

This invention relates to web registering mechanism for use with intermittent feed and severing mechanism for a continuous web. Where articles such as bottle hoods are printed in continuous web form and later severed it is necessary, in order that the lines of severance shall match with the printing, to have some mechanism for varying the amount fed each time proportionally to the degree to which the web has expanded or shrunk by reason of atmospheric changes. It is the object of the present invention to improve existing mechanisms of this general character in the matter of simplicity, compactness, and positiveness.

Referring to the drawings:

Fig. 1 is an elevation of mechanism constructed in accordance with the invention;

Fig. 2 is a longitudinal section through a link shown in Fig. 1;

Fig. 3 is a side view of the mechanism shown in Fig. 1;

Fig. 4 is a detail corresponding to Fig. 1 but showing the initiation of the detecting operation; and

Fig. 5 is a detail similar to Fig. 4 but showing the arrested movement of the web as having been arrested.

The web *w* is taken from a reel 10 and passes over a guide or a slack take-up roller 11. It then passes around a roll 12 having a central non-rotatable section 13 (Figs. 3 and 5) held in place on the roll shaft 14 by a set screw 15 and provided with a blind hole or recess 16 for a purpose to be described. After passing over a guide roll 17 the web extends downwardly between feed rolls 18 and 19, where it may be severed by knife members 20 and 21 actuated periodically in timed relation to the intermittent feed motion in any desired way not necessary to describe here.

Roll 18 carries a pinion 22 meshing with a gear 23 free on a shaft 24 and having fixed for rotation with it a unidirectional clutch member such as a ratchet 25. The ratchet is rotated intermittently by a pawl 26 mounted upon an oscillating member 27 free on shaft 24 and may be held against backward movement by the usual hold-back pawl (not shown). A spring 28 holds the pawl yieldably against the ratchet. The oscillating member 27 is pivoted at 29 to one end of a sleeve member 30 having a plug 31 at the other end through which a headed rod 32 slides. Between the plug and the head of the rod is a compression spring 33 (Fig. 2). The end of the rod is pivoted at 34 to an arm 35 which is oscillated

periodically in time with the cutting mechanism by any desired means.

The oscillating member 27 carries a segmental cam plate 36 adjustably held in place by set screws 37 passing through an arcuate slot 38 in the cam plate; and also a ratchet 39 which, since it is carried by the oscillating member rather than by a member unidirectionally rotating with the feed rolls as in certain prior constructions, need be only segmental instead of circumferentially complete. The cam plate 36 engages a roll 40 carried on the end of a rocker 41 which is fastened by a set screw 42 to a shaft 43. An arm 44 on the shaft is joined by a spring 45 with a stationary pin 46 on the frame in order to hold the roll against the cam and also to hold against the web on roll 12 a feeler 47 carried on an arm 48 on the shaft 43. The feeler is normally held away from the web by the action of the cam 36 on roll 40; but just before the end of the feeding cycle the cam releases the roll, and the spring 45 draws the feeler against the web as in Fig. 4. The web is perforated at intervals in proper registration with the printing, and when the feeler snaps through a perforation it is necessary to stop the feed instantly. This is done by a pair of pawls 50, 51 mounted side by side on shaft 43 and pressed toward the segmental ratchet 39 by individual compression springs 52. Set screws 53 on the arm 41 may be adjusted to keep the pawls the proper distance from the ratchet.

From the above description it will be seen that the right hand travel of tube 30 will cause no web feeding movement, the pawl 26 sliding freely over the ratchet 25, but that the cam 36 will withdraw the feeler 47 from a web perforation to permit subsequent forward motion of the web. When the tube 30 moves to the left the feed will commence. The cam 36 is set to correspond with the length of the cap or label being cut, and at the proper time it will release roll 40 and permit the rounded end of feeler 47 to engage the web at a point in alignment with the blind hole 16 in the non-rotating central section 13 of roll 12. As soon as the feeler passes into a perforation in the web the pawls 50, 51 are released and instantly stop the movement of the oscillating member 27 and feed rolls 18, 19, continued movement of the positively driven arm 35 being permitted by the spring 33. Two pawls 50 and 51 are used in order to make the stoppage of the web more accurate, the points of the two pawls being spaced apart a distance equal to a half tooth of the ratchet. In adjusting the mechanism for labels of differing lengths it is necessary only to shift the cam 36

circumferentially; change the position of roll 17 by its clamp 55 to alter the length of path between the feeler 47 and the cutting-off point; and only if the change is of a considerable magnitude to adjust the stroke given to arm 35; minor changes in label feed being accommodated by the substantial compression possible in spring 33.

What I claim is:

1. A web registering mechanism for webs having spaced registering holes comprising web feed rolls, a unidirectional clutch one member of which is connected to drive said rolls, an oscillating member, a second member of said unidirectional clutch being fixed to said member, a cam carried by said oscillating member, a rocker engageable with said cam, a segmental ratchet carried by said oscillating member and having its teeth in a direction opposing feeding motion of the rolls, driving means for oscillating the oscillating member yieldable in the direction of feeding movement, a feeler coupled to said rocker and engageable with the web, a support for the web having a recess in alignment with the feeler, and a pawl carried with the rocker and engageable with the ratchet when the feeler passes through a hole in the web, the cam being formed to release the feeler for yielding contact with the web prior to the alignment of a registering hole with the feeler.

2. A web registering mechanism for webs having spaced registering holes comprising web feed rolls, a pinion on one roll, a gear meshing with the pinion, a ratchet coaxial with the gear and fixed for rotation therewith, a member oscillatable about the axis of the gear, a pawl carried by the oscillatable member and yieldably engaging the ratchet to cause feeding motion of the feed rolls in one direction of oscillation of said member, a segmental cam peripherally adjustable on the oscillatable member, a segmental ratchet carried by the oscillatable member and having its teeth in a direction opposing feeding motion of the rolls,

a rocker pivoted adjacent the oscillatable member and bearing a roll engageable with the cam, a feeler coupled to the rocker and engageable with the web, a support for the web having a recess in alignment with the feeler, a spring operating on the rocker to press the roll towards the segmental cam and the feeler towards the web, a pair of pawls carried with the rocker and spring pressed towards the segmental ratchet, said pawls having their teeth spaced apart circumferentially of the ratchet, a constantly oscillating arm, and a connection between the arm and the oscillatable member including a spring yieldable in the direction causing feed motion, said segmental cam being formed to release the feeler for yielding contact with the web prior to the alignment of a registering hole with the feeler.

3. A web registering mechanism for webs having spaced registering holes comprising web feed rolls, a unidirectional clutch one member of which is connected to drive said rolls, an oscillating member, a second member of said unidirectional clutch being fixed to said member, a cam carried by said oscillating member, a rocker engageable with said cam, a segmental ratchet carried by said oscillating member and having its teeth in a direction opposing feeding motion of the rolls, driving means for oscillating the oscillating member yieldable in the direction of feeding movement, a feeler coupled to said rocker and engageable with the web, a support for the web having a recess in alignment with the feeler and comprising a rotatable guide roll having a non-rotatable recessed section, and a pawl carried with the rocker and engageable with the ratchet when the feeler passes through a hole in the web, the cam being formed to release the feeler for yielding contact with the web prior to the alignment of a registering hole with the feeler.

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