Feb. 3, 1931. J. P. ALDRICH ET AL 1,791,155

SHEET FEEDING AND IMPRINTING MECHANISM

Filed July 15, 1929

Fig-1

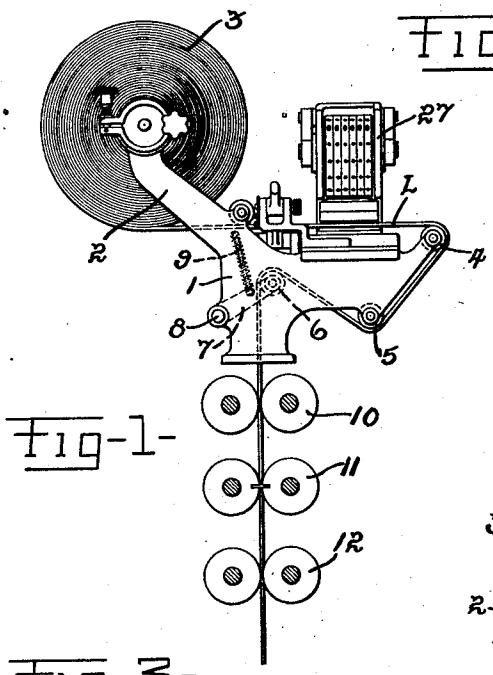


Fig-2

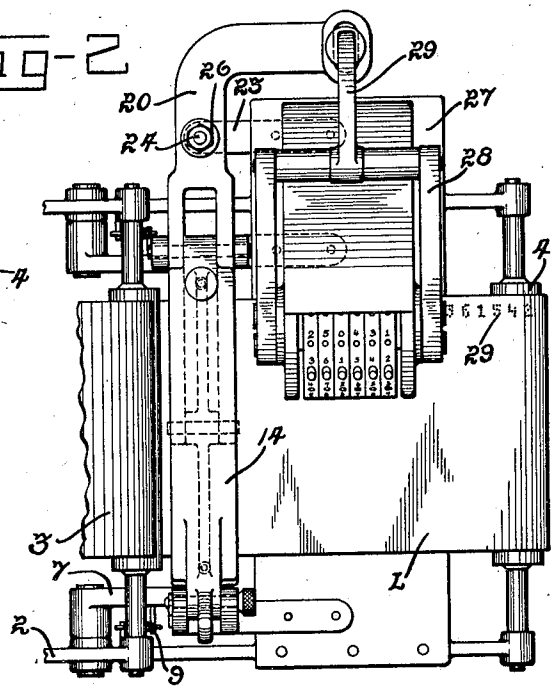


Fig-3

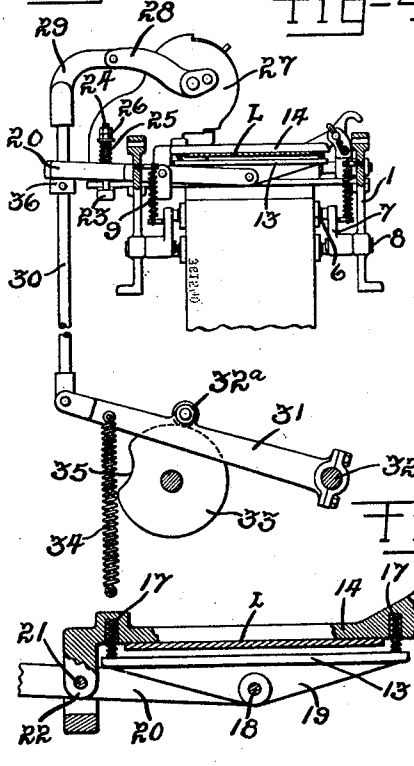


Fig-4

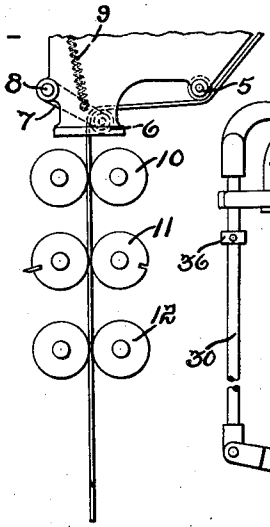


Fig-5

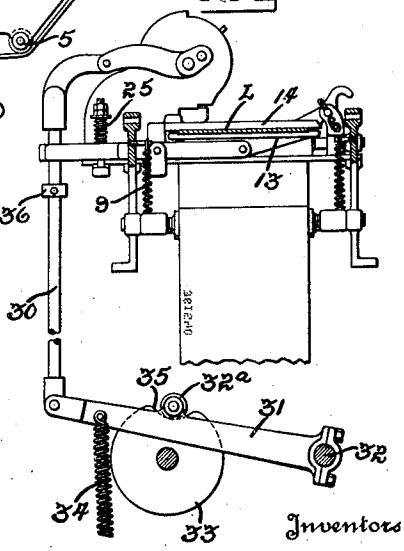


Fig-6

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UNITED STATES PATENT OFFICE

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SHEET FEEDING AND IMPRINTING MECHANISM

Application filed July 15, 1929. Serial No. 378,364.

This invention relates to sheet feeding and imprinting mechanism, but more particularly to mechanism of this type adapted to feed and imprint sheet material of a relatively thin and flexible nature commonly used in the wrapping of bars of butter, oleomargarine, and the like.

An object of the invention is to provide a simple and efficient mechanism for continuously feeding sheet material to a severing apparatus, and during such continuous operation recurrently to imprint the sheet in the desired manner.

Another object of the invention is to provide mechanism of the above character which is simple in construction, reliable in operation, and has the new and improved features of construction, arrangement and operation hereinafter described.

The invention is shown by way of illustration in the accompanying drawings, in which:

Fig. 1 is a side elevation of so much of the apparatus as will enable the embodiment of the invention to be understood, showing the feeding, severing and draw-off rolls in their relative position to the imprinting and sheet arresting mechanism;

Fig. 2 is a top plan view of the sheet imprinting and sheet arresting mechanisms, a portion of the supply roll being broken away;

Fig. 3 is a front end elevation of the apparatus showing the means for operating the imprinting and arresting mechanisms, the imprinting mechanism being shown in operation;

Fig. 4 is a side elevation of the severing, cutting, and draw-off rolls, and a compensator in its position during the period of sheet arrest;

Fig. 5 is a view similar to Fig. 3 showing the position of the parts during the period of operation during the imprinting and sheet arresting operation; and

Fig. 6 is an enlarged side elevation partly in section of the sheet clamping members.

The illustrated embodiment of the invention comprises an apparatus for continuously feeding relatively thin and flexible sheet material, and severing the sheet to provide segments of the desired proportions, and mechanism for recurrently arresting the movement of a portion of the sheet, at which time an imprinting device operates to perforate the sheet for identification or other purposes. It is found desirable to so imprint sheets which are used for wrapping bars of butter, oleomargarine, or the like, so that the dairy or distributor may be able to readily ascertain, should occasion arise, when the material was made, packaged, etc., and it is to be understood that, although this invention is of particular use for the above purposes, the above and following description is given merely by way of illustration and not of limitation, for the invention is not to be considered as confined to such narrow limits.

The apparatus shown on the drawings comprises a frame 1 which may form a part of a wrapping and packaging machine, and rising therefrom is a bracket 2, on which is mounted a roll 3 of sheet material, such as relatively light flexible paper. From the roll 3 a length L extends horizontally along the upper portion of the frame 1, and then the sheet passes downwardly over a guide roll 4 to another guide roll 5. From the roll 5 the sheet passes over a roll 6, which is carried by arms 7 pivoted to the frame at 8. Coil springs 9 normally hold the arms 7 upwardly substantially as shown in Fig. 1. The roll 6 and associated parts we term a compensator, and its purpose will hereinafter appear.

From the compensator roll 6 the sheet passes downwardly between a pair of opposed continuously operating feed rolls 10, which feed the sheet between opposed cutting rolls 11 and opposed rolls 12 rotate at a speed in excess of the rolls 10 to draw off or discharge the severed sheet segments. The manner of operating the rolls 10—11 and 12, forms no part of the present invention, suffice it to say that the feed rolls 10 continuously operate to feed the sheet material.

At recurrent intervals the movement of the portion L of the sheet is momentarily arrested, at which time an imprinting de-

vice operates to perforate the sheet. The sheet arresting device comprises a lower clamping plate 13 and an upper clamping plate 14, between which the horizontal length L of the sheet normally passes. The upper clamping plate 14 is pivoted at 15 to a bracket 16 rising from the frame 1. The clamping plates 13 and 14 are normally held in opposed relation by coil springs 17 positioned on opposite sides thereof. Pivoted at 18 to a rib 19 depending from the lower clamping plate 13 is one end of an operating lever 20, which is fulcrumed at 21 to a saddle 22 formed on the upper clamping plate 14. Rising from a bracket 23 adjacent the outer end portion of the lever 20 is a rod 24, on which is a coil spring 25 bearing at one end against the upper surface of the lever 20 and at the opposite end against an adjustable washer 26. It is apparent that by release of the end of the lever 20, the spring 25 moves the clamping members 13 and 14 together into clamping relation.

As above pointed out, the sheet is imprinted substantially at the time that the movement of the length L is arrested. The imprinting device is indicated generally by the reference number 27, and is of well known construction, so that the description of the form and operation thereof is deemed unnecessary. The imprinting machine is operated by a handle 28, which, upon downward movement, operates the machine to perforate the sheet after the manner indicated at 29 on Fig. 2. The arm 28 of the imprinting or perforating machine has a substantially L-shape extension, to which is connected a depending rod 30. Pivoted to the lower end of the rod 30 is an arm 31, the opposite end of which is pivoted to a suitable support at 32. Intermediate the ends of the arm 31 is a roller 32^a, which is held in engagement with a cam 33 by a coil spring 34. Formed in the periphery of the cam 33 is a depression 35. It will readily be understood that during the rotation of the cam 33, the roller 32^a is drawn into the depression 35 by the coil spring 34. This causes a downward movement of the rod 30, extension 29, and handle 28, thereby operating the perforating or imprinting machine 27 to act upon the sheet L. Substantially at, or prior to the operation of the imprinting machine, the clamping members 13 and 14 are brought into engagement. For this purpose a collar 36 is adjustably mounted on the rod 30 and forms a rest for the outer end of the lever 20. Upon downward movement of the collar 36, as indicated in Fig. 5, the arm is released and allowed to be snapped downwardly by the force of the coil spring 25, thereby causing the clamping members 13 and 14 abruptly to engage the sheet material and arrest further movement thereof.

As soon as the roller 32^a is forced from the depression 35, due to the rotation of the cam 33, the parts are restored to normal position, and the sheet is released from engagement. The above operation takes place quickly, and effects but a slight interruption to the movement of the sheet.

It is desired that the feed rollers 10 continuously operate, and in order that a sufficient length of sheet be supplied to the feed rolls the above described compensator is provided. Normally due to the force of the coil springs 9, the roller 6 is held in its upward position, creating considerable slack in the sheet. As soon as the sheet arresting mechanism or clamping members 13 and 14 operate to interrupt the movement of the length L of the sheet, the feed rolls 10 take up the slack maintained by the compensator substantially as shown in Fig. 4, but upon release of the sheet by the arresting mechanism the compensator returns to its normal position, shown in Fig. 1, to be in readiness for the next succeeding arresting and imprinting operations.

While the form of mechanism here shown and described is admirably adapted to fulfill the objects primarily stated, it is to be understood that it is not intended to confine the invention to the one form of embodiment herein disclosed, and it is susceptible of embodiment in various forms, all coming within the scope of the claim which follows.

What we claim as new and desire to secure by Letters Patent is:

In a device of the class described, a pair of continuously rotating opposed rolls adapted to engage and feed sheet material therebetween, means operable transversely of the direction of movement of the sheet for clamping the sheet and momentarily arresting movement thereof, an imprinting device for operating on the sheet during its period of rest, and a spring tensioned roller engaging the sheet between said rolls and clamping means for normally maintaining slack therein.

In testimony whereof we have hereunto signed our names to this specification.

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