June 15, 1937. F. RENZ 2,084,164

SHEET COUNTER AND MARKER

Filed May 20, 1936 2 Sheets-Sheet 1

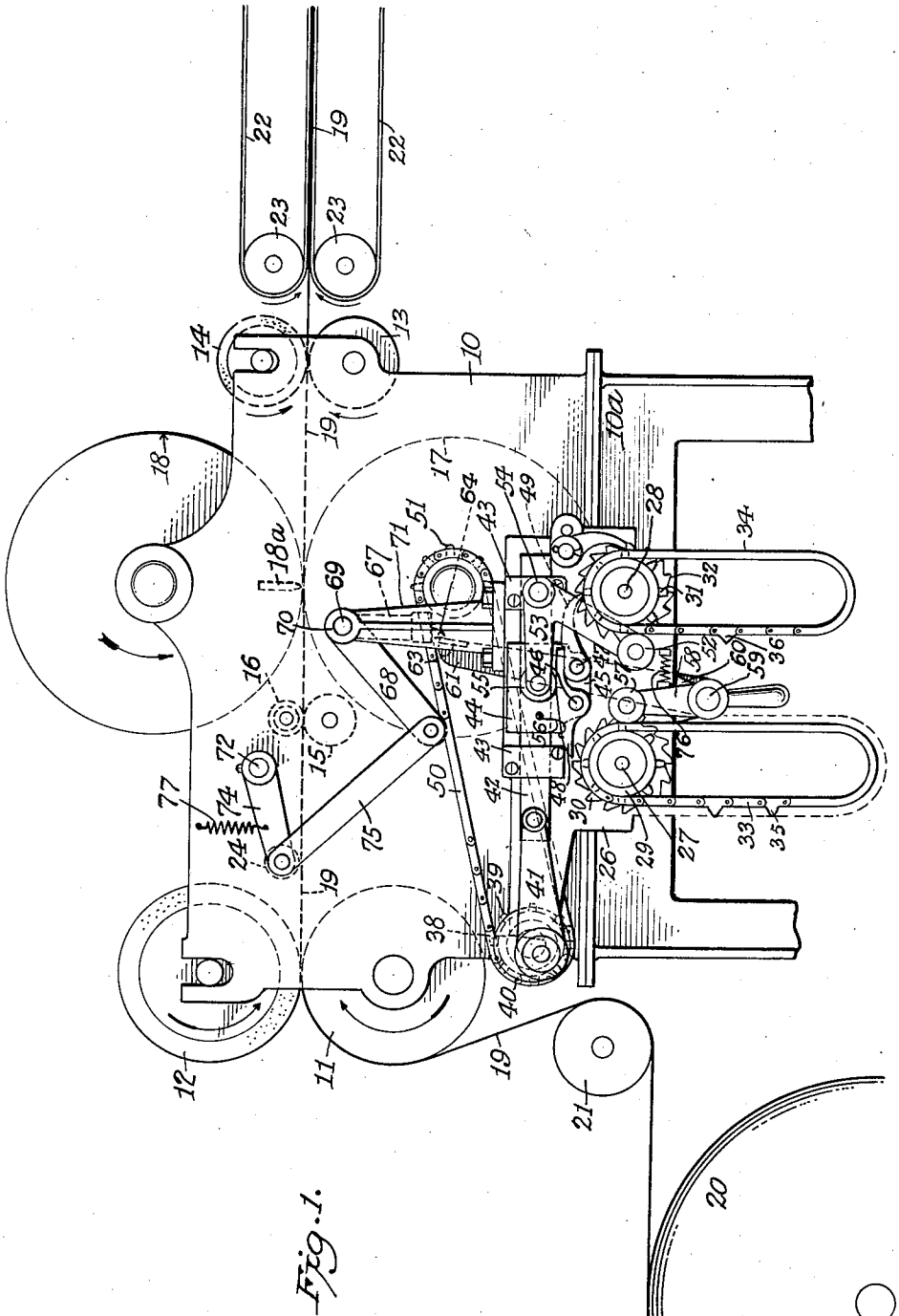

Fig. 1.

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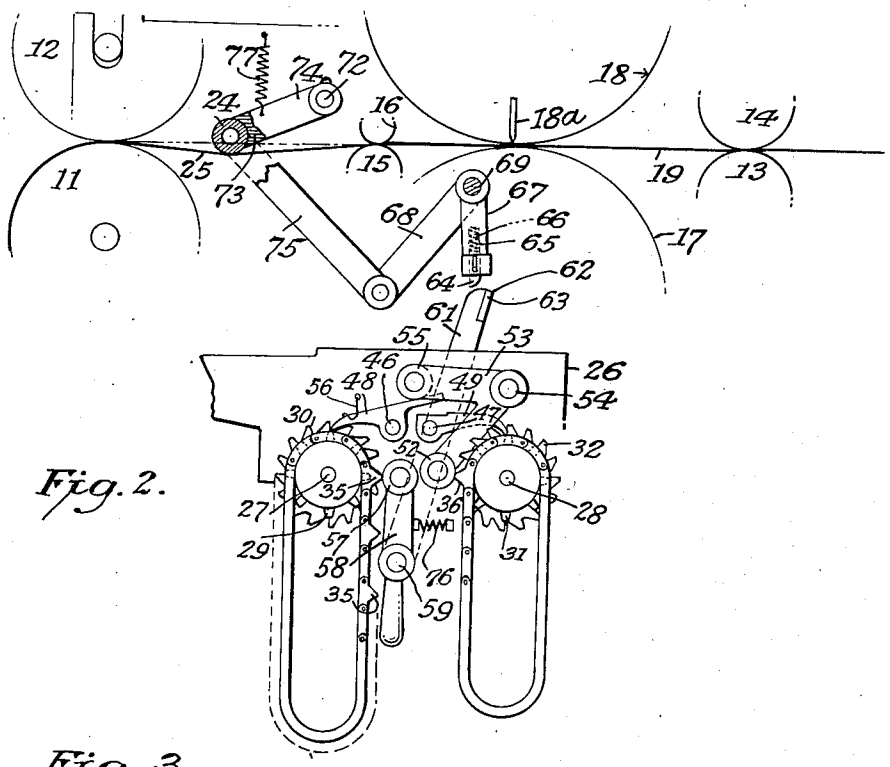
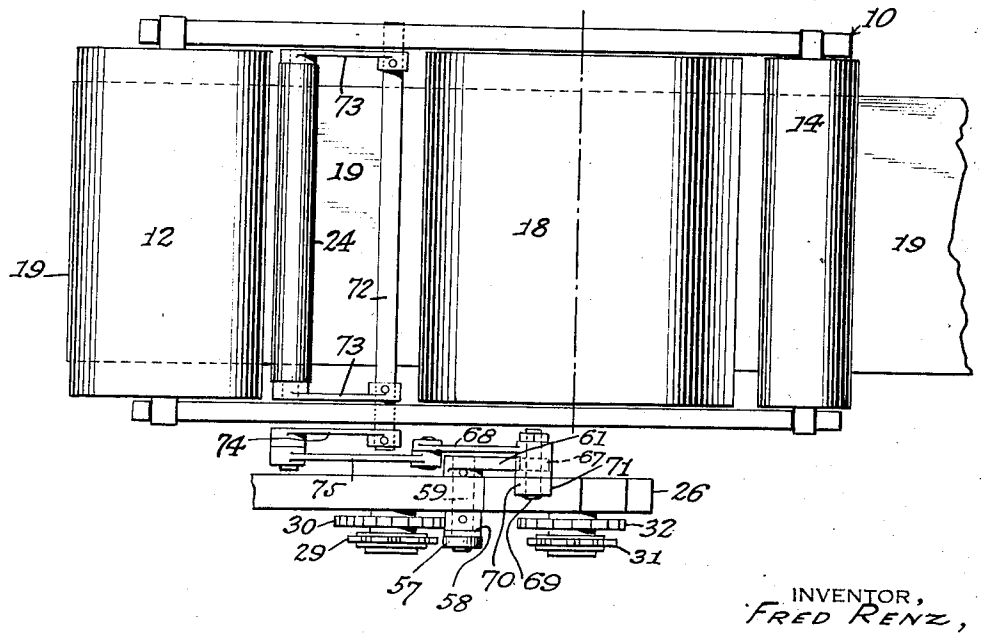


Fig. 2.

Fig. 3.



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SHEET COUNTER AND MARKER

Fred Renz, Brooklyn, N. Y.

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3 Claims. (Cl. 93—93)

This invention relates to improvements in a sheet counting mechanism, the object being to eliminate certain parts of a sheet counter now in general use which is shown and described in a patent issued to Joseph P. Renz, Feb. 1, 1921 for "Counter and stacker for sheet material", No. 1,366,938.

The improvements of this invention reside in simplifying the mechanism for reducing its cost by eliminating the costly clutch and its associated parts and in accomplishing the results now desired, by substituting simplified tripping devices and connections for supplying marker sheets at determined intervals, which are carried on suitable belts or otherwise between trains of counted sheets to be delivered to a lay-boy in superposed positions with the interposed marker sheets, which are slightly longer than the stack sheets and project slightly from one side of the counted stacks.

The invention possesses other advantageous features, which will be set forth at length in the following description where I shall outline in full that form of the invention which I have selected for illustrations in the accompanying drawings; in which:—

Fig. 1 is a side elevation of the improved sheet counter arranged on a sheeting machine;

Fig. 2 is a fragmentary view showing the tripped position of parts for forming a slack or loop in a running paper web, after a determined count of stack sheets is made and a marker sheet is to follow in the sheet train;

Fig. 3 is a plan view of a portion of a sheeting machine and my improved sheet counter associated therewith, parts being omitted.

Referring to the drawings in detail, 10 indicates a sheeting machine frame provided with appropriate bearings for mounting a pair of respective steel and rubber feed rolls 11 and 12; a pair of smaller take-out rollers 13 and 14 at the opposite side of the frame 10 and a pair of still smaller take up rollers 15 and 16, and finally vertically aligned respective platen and cutter rolls or drums 17 and 18.

The paper web 19, is drawn from a supply roll 20, and passes under a direction roll 21, then passes between the pairs of rolls just described and thence outwardly between spaced travelling tapes 22, shown mounted on a pair of rolls 23, in the usual manner. The cutter roll 18 is here shown as provided with a single cutter blade 18a, of a length greater than the width of the web 19, to completely sever the same at every full revolution of said roll 18, thus producing sheets of uniform length during a determined "count" but immediately thereafter, a bar or roller 24, normally held above the web 19, is lowered thereon to form a slack or loop 25, see Fig. 2.

The above result is accomplished through the counter mechanism by controlled parts thereof, which mechanism may be described as follows:—

A base plate 26 is fastened by bolts or otherwise to a side frame 10a, of the sheeting machine frame 10, and carries stud bolts 27 and 28 on which are rotatably mounted respectively connected sprocket and ratchet wheels 29 and 30, and 31, 32 and traversing the respective sprocket wheels 29, 31, in looped or suspended relation, are downwardly hanging counting chains 33 and 34, the former being provided with cams or high links 35, and the latter in the present embodiment, being provided with but one cam or high link 36.

The counter frame 26, is formed with a longitudinal extension or arm 37, provided at its free end with a circular bearing 38, in which are rotatably mounted a sprocket 39, and a crank disk 40, which disk is connected by a pitman or link 41, to a slide bar 42, operable through guide pieces 43, fast on the counter frame 26.

Affixed to the slide-bar 42, between the guide pieces 43, is a block 44, which has a lower side extension 45 formed with apertures to receive bearing pins 46 and 47, on which pawls or dogs 48 and 49 pivot.

In operation, when counting, a power chain 50 riding the sprocket 39 and connected with a similar sprocket 51 on the shaft of the platen drum or roll 17, constantly operates the crank disk 40, for reciprocating the bar 42, block 44 and the dogs 48, 49, the former dog normally riding "dead" or inoperative, while the latter turns the ratchet 32, the distance of one tooth at each backward movement of the slide bar, and these step movements of the endless chain 34, finally bring around its one high cam or link 36 and draws it upwardly under a roller 52, on one arm of a bell-crank 53, pivoted at 54; and whose other arm supports a roller 55, which rests on a tail piece of the dog 48, to hold it out of contact with its respective ratchet in the running of the count on chain 34, however, when, as just described, the raised cam 36, of chain 34, lifts the bell-crank roller 52, it also causes the bell crank roller 55, to rise away from the tail piece of dog 48, permitting said dog to drop onto its ratchet with the help of a small spring 56, and at the next reciprocation or forward movement of the

bar 42, the ratchet 30, will be turned a distance of one sprocket tooth, which will bring one of the high links or cams 35 on chain 33, under and past a roller 57, on an arm 58, fast on a shaft 59, extending backwardly through a bracket 60, to receive in fixed relation the lower end of a vertically extending tripper arm 61 having a nose 62, of hard metal, for operative engagement with an equally hard plunger pin 64 operating in a bore 65, and backed by a spring 66, confined in the lower end of a swing-arm 67, made fast with the hub of an oscillatory arm 68, mounted to rock on a fixed shaft 69, confined in a bearing 70, at the top of a post or standard 71, secured to the upper edge of the counter frame 26, by bolts or otherwise.

Extending through both side frames of the sheeting machine is a shaft 72 to which is keyed a pair of arms 73, (Fig. 3) within the side frames between the free ends of which the roller 24 is supported near to and over the web 19; and outside of the sheeting machine frame 10, a similar arm 74 is fixed to said shaft 72, the free ends of the arms 68 and 74 being pivotally connected through a link or bar 75.

For returning the arms 58 and 74 to their normal positions after a tripping operation I may employ springs located at desirable points such as at 76 and 77 respectively.

What I claim is:

1. In combination with a sheeting machine having means for moving a paper web therethrough, a drop bar for forming a loop in said web at intervals; a cross shaft; arms rockable therewith and pivoted to the ends of said drop bar and within the side lines of the sheeting machine; an outer arm on said shaft; a counter; a post made fast to the counter frame and formed with a bearing at its top; a horizontal shaft fixed in said bearing; a hub formed with a vertical arm and a slanting arm, all rockable on said shaft; a spring pressed plunger dog operable in a bore in the lower end of the vertical arm; an oscillatory arm operable at intervals by a moving part of the counter; an elongated trip arm operated simultaneously with the oscillatory arm and having a nose engaging the plunger dog, for swinging the said vertical and slanting arms, and a link connecting said slanting arm to the said outside arm, for operating the drop bar to form a loop in the said paper web at intervals.

2. In combination with a sheeting machine having means for feeding a paper web therethrough; a frame for forming loops in said web at intervals; a counting mechanism; a pair of arms converging to a common swinging center and secured one to the other; a horizontal shaft on which said arms are swingable, one arm normally hanging vertical, while the other arm slants down and outwardly from said center; a link connecting the slanting arm to an extension of said loop forming frame; a spring backed dog slidable in the lower end of the said vertical arm; a horizontal shaft in the counter; a vertical arm on said last named horizontal shaft; a roller on the top of the arm just recited, for contacting a moving part of the counter at intervals; an elongated arm extending upwardly behind the counter and rockable when said roller is contacted for contacting the said slidable dog and tripping the said hanging arm and slanting arm together with its connections to the loop forming frame as and for the purpose described.

3. The combination of a sheeting machine having mounted therein a device for forming loops at intervals in a running web of paper; a counter secured to the sheeting machine; said device having an extension and an arm on said extension; a post bearing bolted to the counter; a pair of arms rockable in said bearing; a link for connecting one of said arms to the arm on said extension of the loop forming device; a pair of connected arms in the counter and mounted to oscillate together; one arm disposed in a position to be tripped by the counter at intervals, while the other arm serves for tripping the lower end of the other of said rockable arms, for operating through said link the loop forming device as described.

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