E. NORDSTROM.

WEB FEEDING MECHANISM.

APPLICATION FILED APR. 6, 1916.

1,297,587.

Patented Mar. 18, 1919.

4 SHEETS—SHEET 1.

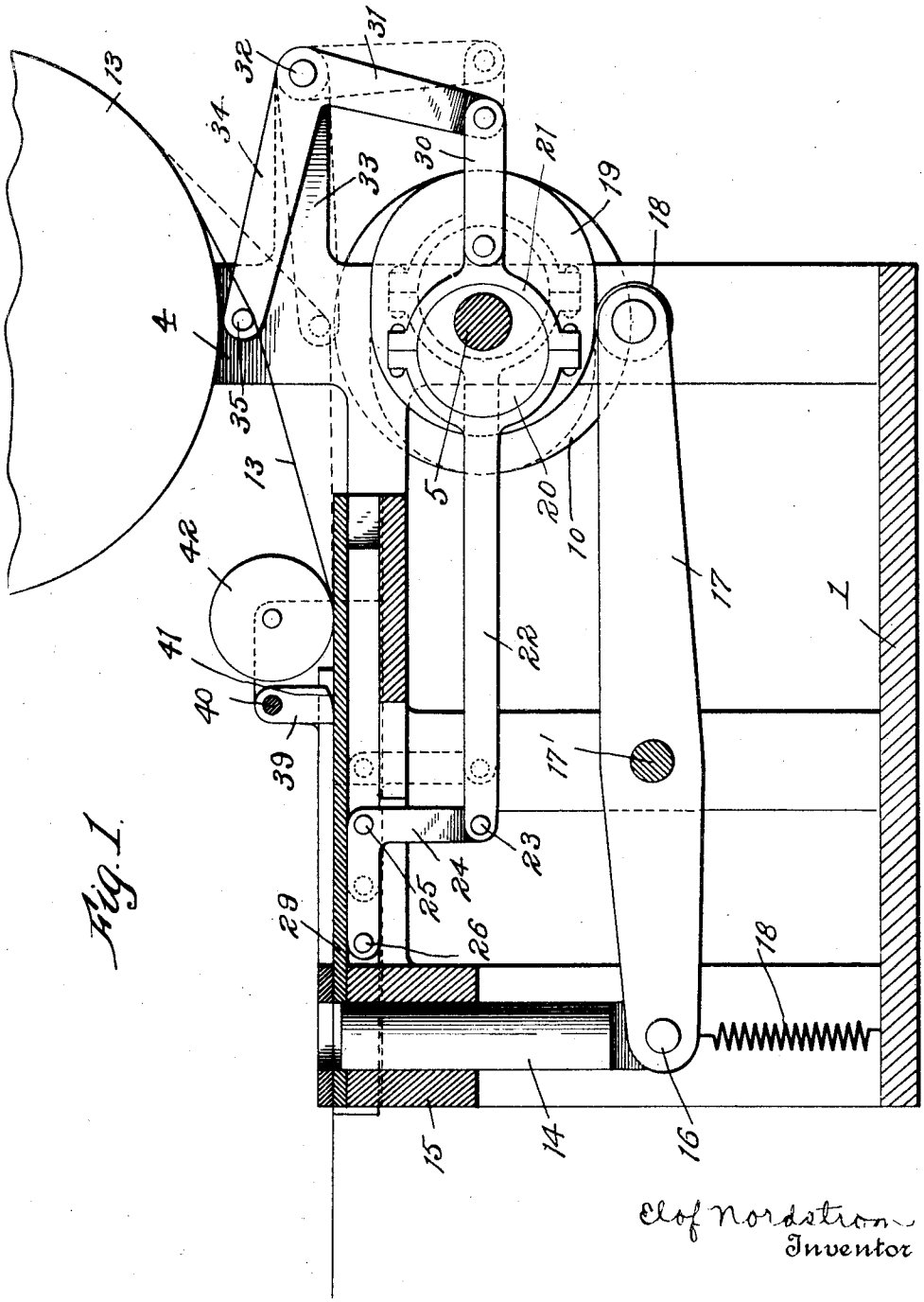


Fig. 1.

Witnesses:

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Inventor

By his Attorneys

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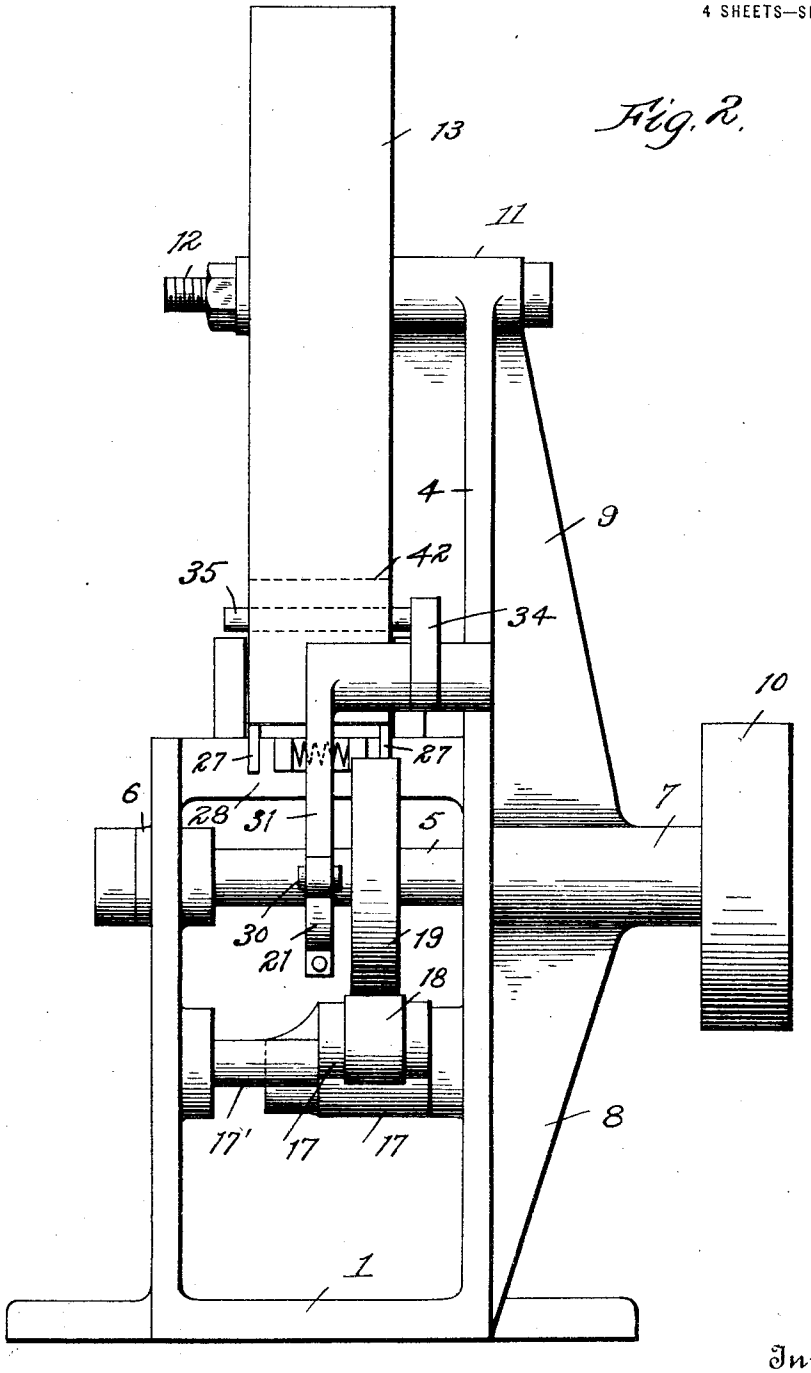
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4 SHEETS—SHEET 2.

Fig. 2.



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4 SHEETS—SHEET 3.

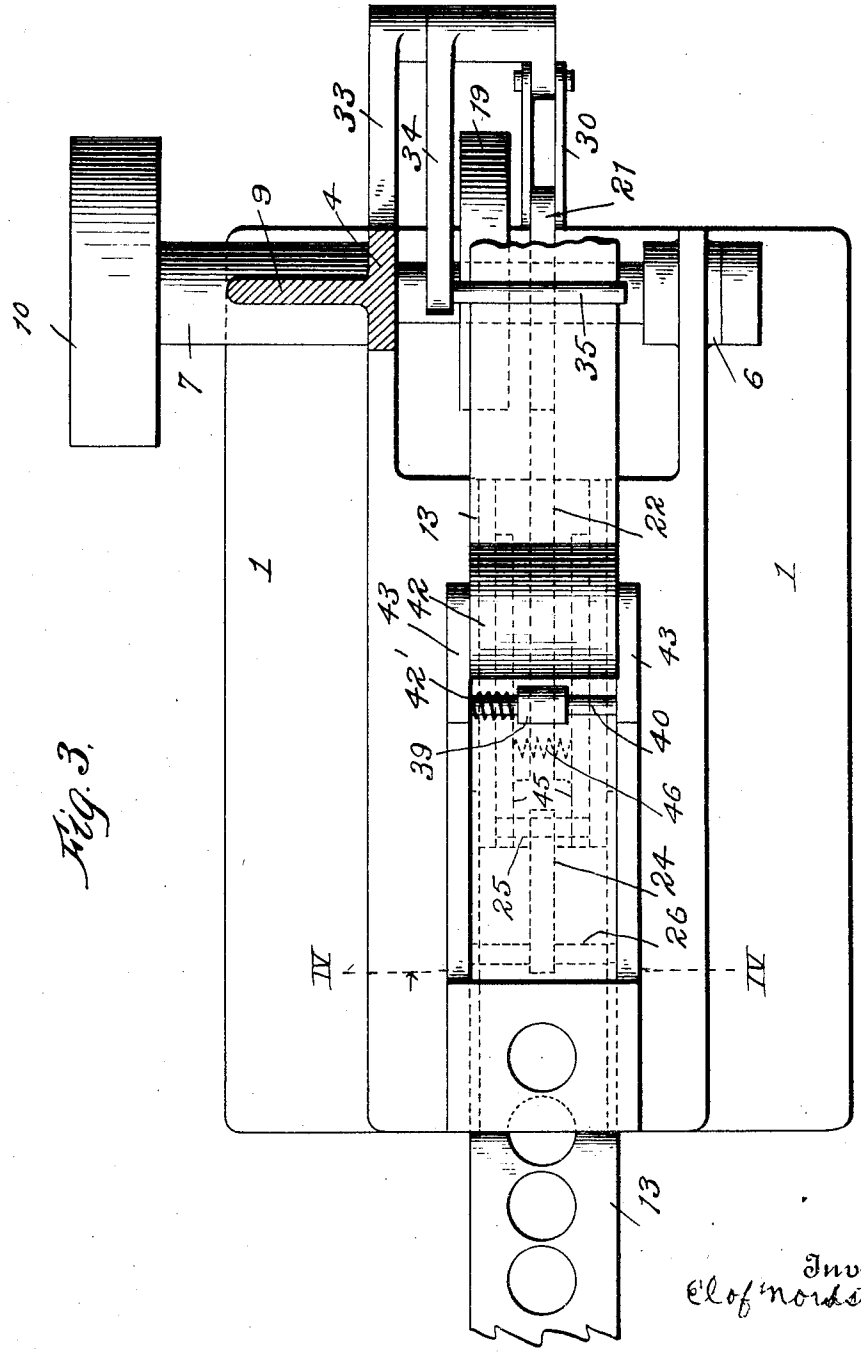


Fig. 3.

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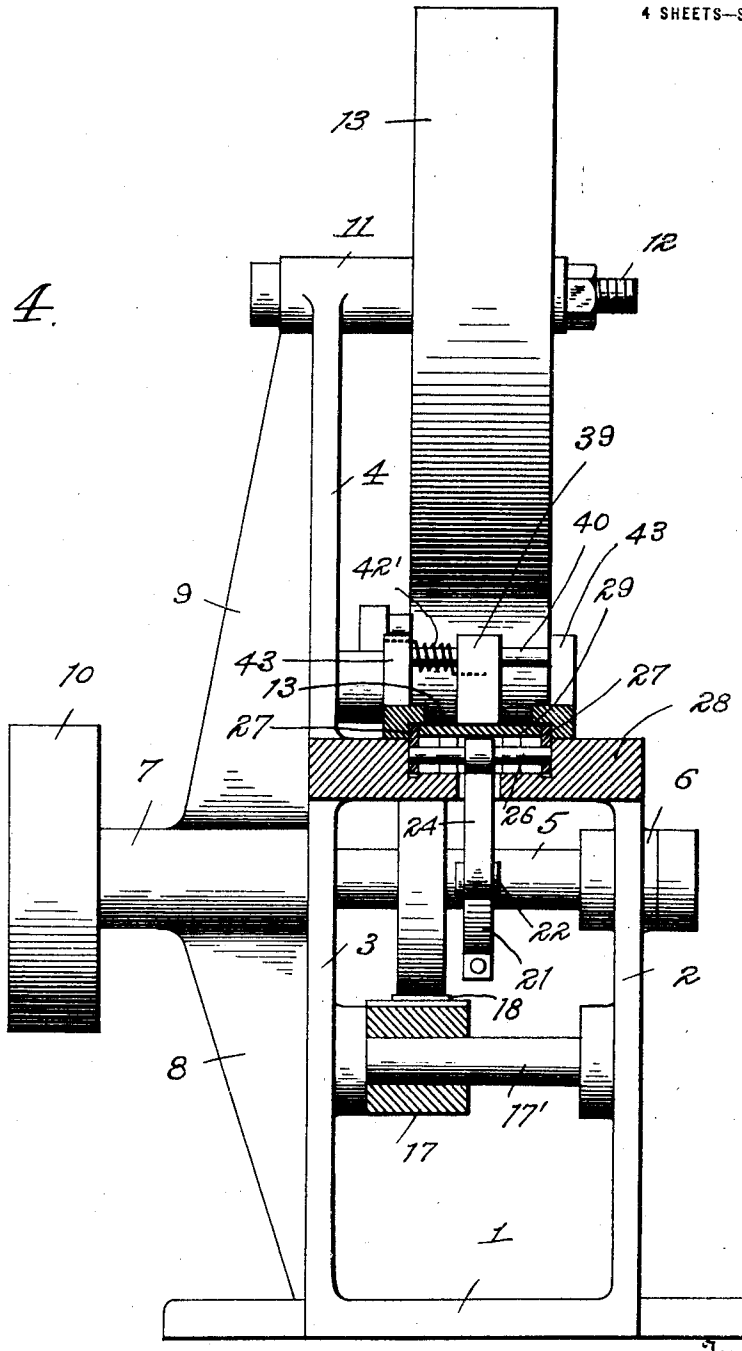
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4 SHEETS—SHEET 4.

Fig. 4.



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UNITED STATES PATENT OFFICE.

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WEB-FEEDING MECHANISM.

1,297,587. Specification of Letters Patent. Patented Mar. 18, 1919.

Application filed April 6, 1916. Serial No. 89,362.

To all whom it may concern:

Be it known that I, ELOF NORDSTROM, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Web-Feeding Mechanism, of which the following is a specification.

This invention relates to means for feeding a web of material by successive movements from a roll or other stock supply and has for its main object to provide an improved construction, combination and arrangement of parts whereby the actual web-feeding movement can be entirely freed from the drag occasioned by drawing the web from a roll or other supply source. Other and more specific objects will be pointed out in the appended claims, reference being had to the accompanying drawings in which:

Figure 1 is a longitudinal vertical section of an embodiment of my invention, parts being shown in side elevation;

Fig. 2 is a view in elevation from the right end of Fig. 1;

Fig. 3 is a top plan view of the same, the upper end of the roll support being removed together with the web roll;

Fig. 4 is a section on the line IV—IV, Fig. 3.

Referring more particularly to the drawings, a frame is provided comprising a base plate 1, laterally spaced side frames 2 and 3, and a standard 4 projecting upwardly from the side frame 3. A power shaft 5 is journaled in a bearing 6, carried by the side frame 2 and an elongated bearing 7 which is integral with the side frame 3 and the standard 4, being provided with reinforcing webs 8 and 9. A belt-driven pulley 10 may be keyed to the outer end of the shaft 5. An elongated hub 11 which surmounts the standard 4, carries a bolt 12 upon which is journaled a roll 13 of a web which, as shown best in Fig. 1, is to be acted upon by a suitable mechanism for imparting a step by step feeding movement, which successively presents consecutive portions of the web into position to be operated upon by any desired instrumentality. In the embodiment shown on the drawings, such instrumentality is represented by a reciprocating punch or plunger 14 mounted in a suitable guide 15. The lower end of said punch is connected by a pin 16 with one arm of a cam lever 17, said arm being connected by a spring 18 with the base plate 1, for imparting a normal tendency to retain the plunger 14 in lowered position. The other arm of the cam lever 17 has journaled therein a cam roller 18 which travels over a cam 19 journaled on the power shaft 5. Thus, as the power shaft 5 is rotated, the plunger 14 is raised and lowered, the web 13 being operated upon thereby during its upward movement. Also keyed to the shaft 5 is an eccentric 20 which carries a strap 21 having a forwardly projecting lever arm 22 pivotally connected at 23 with the depending arm of a bell crank lever 24. The bell crank lever 24 is journaled on a pin 25, carried by slides 45 which are yieldably pressed by a spring 46 against the side walls of the guides within which they move. The forwardly presented arm of the bell crank lever 24 carries a cross pin 26, which is also pivotally connected to oppositely disposed web engaging slides 27 which reciprocate in suitable guides formed in the bed plate 28 and have upper serrated edges. As the lever 22 is reciprocated by the eccentric 20, the bell crank lever 24 is first oscillated to throw the slides 27 into engagement with the web 13 which is fed forward over the plate 29. By an inspection of Fig. 4, it will be seen that the lateral edges of the web 13 extend beyond the lateral edges of the plate 29 and over the slides 27. Also connected to the strap 21 is a link 30 which connects the strap 21 to the depending arm 31 of a bell crank lever pivoted on a pin 32 carried by a rearwardly extending arm 33 of the side frame 4. A forwardly presented arm 34 of said bell crank carries a laterally extending pin 35 which is disposed above the web 13 and intermediately of the feeding devices hereinbefore described and the roll of web mounted on the standard 4. It will be seen that as the operating lever 22 moves toward the right according to Fig. 1, the arm 34 of the bell crank journaled on pin 32, will be drawn downwardly into position shown in dotted lines and serve to partially rotate the roll in a manner as to provide a slack portion in the tape. In order to prevent a retrograde movement of the portion of the web which has been fed over or beyond the punch 14, dog 39 is swingingly mounted on a cross pin 40 and provided with an eccentrically formed clamping surface 41 which rests upon the web 13 under the yielding

pressure of a spring 42′ (see Fig. 4) which is coiled about the pin 40 and has its opposite ends secured respectively to the dog 39 and one of the laterally spaced standards 43 which carry the pin 40.

It will be seen from this description that any retrograde movement of the tape 13 would be prevented by the dog 39 clamping the tape 13 against the plate 29. A guide roller 42 is preferably journaled adjacent the dog 39. It will be understood therefore from this description that after each feeding movement imparted to the web 13, a slack portion is produced therein between the guide roller 42 and the roll 13 which when the succeeding feeding movement takes place, makes it necessary to move only a small portion of the web and takes from the feeding mechanism the load which otherwise would be occasioned by moving the roll 13 to unwind the web therefrom.

I claim:—

1. In web feeding mechanism, a web supply, forward and backward moving web-feeding means, slack-feeding means between said web supply and first mentioned feeding means and operated alternately to the forward movement of the first mentioned feeding means and transverse to the web for securing slack in said web to facilitate the feeding movement, said first mentioned means and slack-feeding means being cooperatively connected, and an eccentric automatic clamp for holding the web against retrograde movement during the operation of said slack securing means.

2. In web-feeding mechanism, the combination with a web supply, of reciprocable web-feeding means movable into engagement with said web on its forward movement and out of engagement therewith on its return movement, slack feeding means movable transversely to said web, a rotary shaft, and means operatably connecting said shaft to said web-feeding means and said slack-feeding means, said connecting means cooperatively connecting said web-feeding means and slack take-up means to operate alternately.

3. In web-feeding mechanism, a web-supply, forward and backward web-feeding means, slack-feeding means interposed between said web supply and web feeding means and operated during the backward movement of said web-feeding means, for securing slack in said web to facilitate the forward feeding movement, means coöperatively connecting said web-feeding means and said slack-feeding means, and means for holding the web against retrograde movement during the action of said slack feeding means, said web-feeding means, slack-feeding means, and holding means being arranged to operate upon said web in substantially a common plane of action.

4. In web-feeding mechanism, a web supply, a table adjacent thereto, means for feeding web from said web supply onto said table, means coöperating with said table to permit the web to move forwardly over said table but preventing a retrograde movement of said web, and slack take-up means for drawing the web from said web supply down on to said table.

5. In web-feeding mechanism, a web supply, a rotary shaft, means operated by said shaft for intermittently feeding said web, means for holding said web against retrograde movement, and means disposed between said web supply and web-feeding means and operated by said shaft transversely to said web, for drawing slack from said web supply.

6. In web-feeding mechanism, a feed table, a web supply arranged adjacent to said table, means movable toward and away from the plane of said table for withdrawing web from said web supply down onto said table, and means for feeding said web along said table.

7. In web-feeding mechanism, a table over which the web is to be fed, a web supply adjacent to said table, means for clamping said web to said table against retrograde movement, said clamping means releasing said web during a forward movement of said web, slack take-up means for engaging said web between the web supply and said clamping means for drawing web from said web supply during the intervals between successive forward movements of said web, and means reciprocable in substantially the plane of said table and engaging said web during the forward feeding movements.

8. In web-feeding mechanism, a table over which the web is to be fed, a web supply adjacent to said table, means for clamping said web to said table against retrograde movement, said clamping means releasing said web during a forward movement of said web, slack-take-up means for engaging said web between the web supply and said clamping means for drawing web from said web supply during the intervals between successive forward movements of said web, means reciprocable in substantially the plane of said table and engaging said web during the forward feeding movements, a rotary shaft provided with an eccentric, an eccentric strap journaled on said eccentric, means for connecting said strap to said slack take-up means, and means for connecting said strap to said reciprocable web-feeding means.

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