

G. J. POTMAN.
CALENDER FOR CLOTH.
APPLICATION FILED JAN. 8, 1909.

937,546.

Patented Oct. 19, 1909.

Fig. 1.

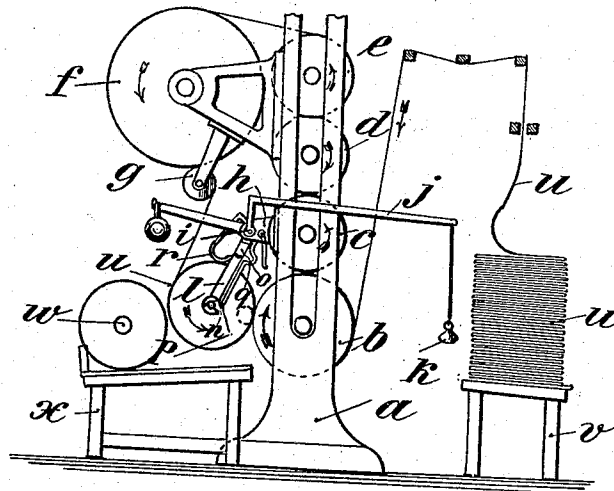


Fig. 2.

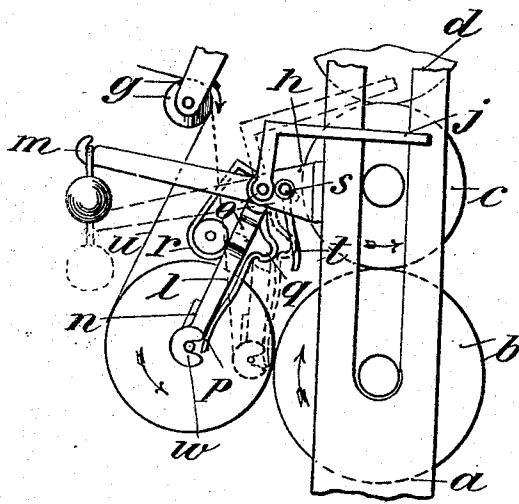
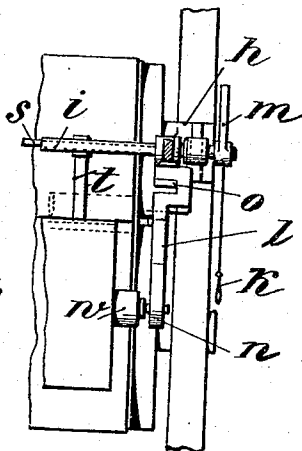


Fig. 3.



Witnesses:
Thomas T. Sullivan
L. P. Himes.

Inventor
Gerrit Jan Potman
by Connolly Bros. attys

UNITED STATES PATENT OFFICE.

GERRIT JAN POTMAN, OF GOOR, NETHERLANDS.

CALENDER FOR CLOTH.

937,546.

Specification of Letters Patent.

Patented Oct. 19, 1909.

Application filed January 8, 1909. Serial No. 471,257.

To all whom it may concern:

Be it known that I, GERRIT JAN POTMAN, mechanic, subject of the Queen of the Netherlands, residing at Spoorstraat 188, Goor, in the Kingdom of the Netherlands, have invented certain new and useful Improvements in Calenders for Cloth, of which the following is a full, clear, and exact description.

10 This invention relates to an automatic roller exchanging device for calenders and similar machines.

In calenders the cloth, after having passed the rollers and the drying cylinder, is guided to a special roller, upon which it is wound. This roller is moved by pressing against one of the rollers of the machine and is rotated by friction. This special roller constantly and firmly presses against the operating roller and is maintained in operative position by a lever and the action of a weight.

15 If a sufficient quantity of cloth has been wound upon the winding-roller, the calender is stopped, and the filled roller is taken out and replaced by an empty one, whereupon the winding is continued. This exchanging of the full rollers with empty ones requires always two workmen and a great deal of time.

20 The object of the present invention is to effect the exchanging of the winding-rollers with the smallest loss of time and expenditure of force, partly automatically and partly by a single workman. This is effected by a special formation of the bearing-arms arranged on the sides obliquely, in which the winding-roller is journaled. These bearing-arms are provided at the lower end with an open journal-head, and close to their pivot bearing they are bent in the shape of a U to form a passage or slot for the roller-pins. At the under side of the bearing-arms are arranged resilient bars bent to form hooks below the slots, by which the empty rollers, introduced through the slots of the bearers, are held.

25 The releasing of the filled roller effects then automatically the exchanging of the same with the empty roller lying in the resilient holders of the bearers.

30 The drawing illustrates: in Figure 1 a side-view of a part of a calender-machine provided with the new device, Fig. 2 shows a detail of Fig. 1 on an enlarged scale, Fig. 3 is a partial front view of Fig. 2.

The calender consists of a frame *a* and

four rollers *b*, *c*, *d* and *e* arranged one above the other. There have further been provided, in the usual manner, a drying-cylinder *f* and a guide-roller *g*. On the frame are arranged two bearings *h*, in which is journaled a cross-shaft *i*. Upon the prolonged part of this shaft is keyed on one side an angle-lever *j*, to whose free end is fastened a pulling-rope with handle *k*. Upon the shaft *i* is further keyed, on each side of the bearing *h*, a bearing-arm *l*. (Fig. 3). These bearing-arms forming angle-levers, whose upper arm *m* is loaded with a counterweight. The lower part which hereinafter is to be simply called "bearing-arm" is provided, at its lower end, with a forked journal-head *n*.

Each bearing-arm is at the top near the cross-shaft *i* bent or slotted at the side into the form of a U in order to form a passage *o* for inserting the empty rollers (Fig. 3). On the under side of each bearing-arm is provided a springy or resilient holder *p*, which is bent into a loop opposite the passage *o* for the purpose of forming a journal-basin *q*. This bar, on this holder, rests resiliently against the bearing-arm and partly closes the opening of the journal head *n*.

35 Upon the cross-shaft *i* is keyed near the middle of the same, a hook-shaped bearer *r*. The same occupies, with regard to the bearing-arms, the fixed position, shown in Fig. 2. In the two bearings *h* there further rotates a cross-bar *s*, on which there are seated two releasing-arms *t*. These are slightly curved and by the bar *s* can be moved into any desired position.

The cloth *u* is wound off from a table *v* arranged behind the frame where a workman, who throws the calender into and out of gear, regulates the winding off. *w* is the roller upon which the cloth is wound, while *x* marks the table upon which these rollers are placed.

40 The mode of working of the new arrangement is as follows: Supposing that there is arranged an empty roller *w'* in the journal-heads *n*. The same is now pressed by the counterweights against the roller *b* (Fig. 2). The cloth *u* lying on the table *v* is guided by suitable means over the roller *b*, then over the rollers *c*, *d*, *e* the drying-cylinder *f* and the guide-roller *g* and the free end is placed around the empty roller *w'*. Then the machine is started to work. Two workmen now watch the machine, one of them

standing in front of the same by the side of the table *x*, the other standing behind it, between the machine and the table *v*. If the roller *w* is nearly fully covered, the workman standing in front of the table *x* places the free end of an empty roller *w'* upon the carrier *r* (shown in Fig. 2 by a dotted line) and pushes the roller from the right toward the left (Fig. 3) until the roller pins are opposite the passages *o*. Now the roller is raised a little, so that the roller-pins can slide inward through the passages *o* and are then moved into the basins *q* of the holders, in which the empty roller remains for the present (as indicated in Fig. 2 by a dot and dash line.)

If the filled roller is to be exchanged with an empty one, the calender is thrown out of gear and, by pulling the handle *k* the angle-lever *j* is turned. Thereby the bearing-arms *l* are raised, the two roller-pins of the filled roller *w* press the free end of the resilient holder *p* aside, and the roll of cloth falls down upon the table *x*. If now the draw-rope is released by which the bearing-arms *l* are pressed downward by means of the counterweights, the empty roller *w'* previously put in, comes in contact with the two releasing-arms *t*, which lift it out of the basin *q*, so that its spindle ends glide along the holders *p* until they rest in the journal-heads *n*. As in this position the bearing-arms are standing almost vertically and as moreover the empty roller is pressed by the counterweights against the roller *b* the empty roller cannot possibly fall out of the journal-heads *n*. This position is indicated in Fig. 2 by a dotted line. This falling down is moreover prevented by the tension of the spring bar *p*, which by its peculiar shape prevents also a too rapid sliding of the empty roller. The cloth is now placed around the empty roller and the calender thrown into gear again.

The main advantage of the present arrangement that, although two workmen are required, to attend the machine, they remain at their places while the troublesome exchanging of the heavy cloth rollers is effected

automatically. As the workman in front has only to put in the empty rollers, with the new arrangement so-called "double rollers" may be used which was hitherto not possible on account of the considerable weight of rollers covered with cloth, with the same number of workmen.

The carrier *r* can be dispensed with if the drying cylinder and the guide-roller are arranged at another place on the frame, when the cloth to be wound up will be guided at once from the roller *b* to the roller *w*. The empty roller can then be placed at once into the basins *q*.

What I claim is:

1. In a machine of the character described, an automatic exchanging device for the winding roller, comprising loaded and turnable bearing arms for holding the winding rollers, provided at their lower ends with open journal bearings and bent outwardly into the shape of a "U" near the upper ends in combination with hook shaped bearers for an empty roller located adjacent to said bent portions, and notched holders in front of the bearing arms for the preliminary reception of the empty roller substantially as described.

2. In a machine of the character described an automatic exchanging device for the winding rollers of calenders of the character described, comprising pivoted bearing arms having resilient holders adapted to hold the rollers in place while being filled, said holders having notches for the preliminary reception of empty rollers, and releasing arms for automatically lifting an empty roller from its notches when a filled cloth roller is removed in combination with open bearings in rear of the pivoted arms for the reception of empty rollers, substantially as described and for the purpose specified.

In witness whereof, I subscribe my signature, in presence of two witnesses.

GERRIT JAN POTMAN.

Witnesses:

J. H. HULSHAFF,
W. A. MANICE.