

## Title (en)

Calander for treating a paper web

## Title (de)

Kalander für die Behandlung einer Papierbahn

## Title (fr)

Calandre pour le traitement d'une bande de papier

## Publication

**EP 0732445 A1 19960918 (DE)**

## Application

**EP 96103277 A 19960304**

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## Abstract (en)

A calender has a stack of hard and soft rolls with working nips formed between adjacent hard and soft rolls, and a change-over nip formed between two soft rolls. The total number of rolls is less than ten, and the change-over nip is at (in the case of an even number of rolls), or as close as possible (in the case of an odd number) to the centre of the stack. The effective weights of the rolls and any components attached to them is such that the sum of the path loads in the nips above the change-over nip is at least 80% of the sum of the path loads in the nips below it. Pref. the calender has eight rolls (2-9) and the sum of the products of the dwell time and average nip press. in the nips above the change-over nip is at least 80% of the corresponding sum for the lower nips. In order to reduce the effect of the weights of the rolls on the path loads in the nips, the roll stack may have the rolls arranged with their axes on an inclined line. The outermost rolls are zonally controlled flexed rolls, or may be soft rolls. The soft rolls may be hollow (to reduce their weight) and have a fibre-reinforced jacket. In one embodiment, the soft rolls have a jacket of a material of low abrasion resistance (e.g. flake or spheroidal graphite) which has an outer covering of fibre-reinforced resin with an adequate abrasion resistance.

## Abstract (de)

Ein Kalander (1) besitzt einen Walzenstapel, der zwischen jeweils einer harten Walze (2, 4, 7, 9) und einer weichen Walze (3, 5, 6, 8) einen Arbeitsspalt (10, 11, 12, 13, 14, 15) und zwischen zwei weichen Walzen (5, 6) einen Wechselspalt (16) aufweist. Der Walzenstapel besitzt weniger als 12 Walzen. Der Wechselspalt (16) befindet sich in der Mitte des Stapels. Das wirksame Gewicht der Walzen (2 bis 8) und eventuell damit verbundener Teile ist so gering, daß die Summe der Streckenlasten ( $f_1 + f_2 + f_3$ ) der Arbeitsspalte (10, 11, 12) oberhalb des Wechselspalts (16) mindestens 80 % der Summe der Streckenlasten ( $f_4 + f_5 + f_6$ ) der Arbeitsspalte (13, 14, 15) unterhalb des Wechselspaltes (16) ist. Auf diese Weise ergibt sich ein Kalander mit kleinerer Bauhöhe und geringeren Herstellungs- und Betriebskosten. <IMAGE>

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## Citation (search report)

- [PX] DE 29504034 U1 19950504 - VOITH SULZER FINISHING GMBH [DE]
- [A] US 5237915 A 19930824 - ROUNSLEY ROBERT R [US]
- [A] EP 0027270 A1 19810422 - VALMET OY [FI]
- [A] US 3154008 A 19641027 - HURTER ALFRED T
- [A] THOMAS J. LAUTERBACH: "synthetic composite covers in supercalenders: update", TAPPI JOURNAL, vol. 76, no. 6, June 1993 (1993-06-01), NORCROSS, GA., US, pages 115 - 119, XP000420366
- [A] JOHN D. PEEL: "supercalendering and soft nip calendering compared", TAPPI JOURNAL, vol. 74, no. 10, October 1991 (1991-10-01), NORCROSS, GA., US, pages 179 - 186, XP000234497

## Cited by

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