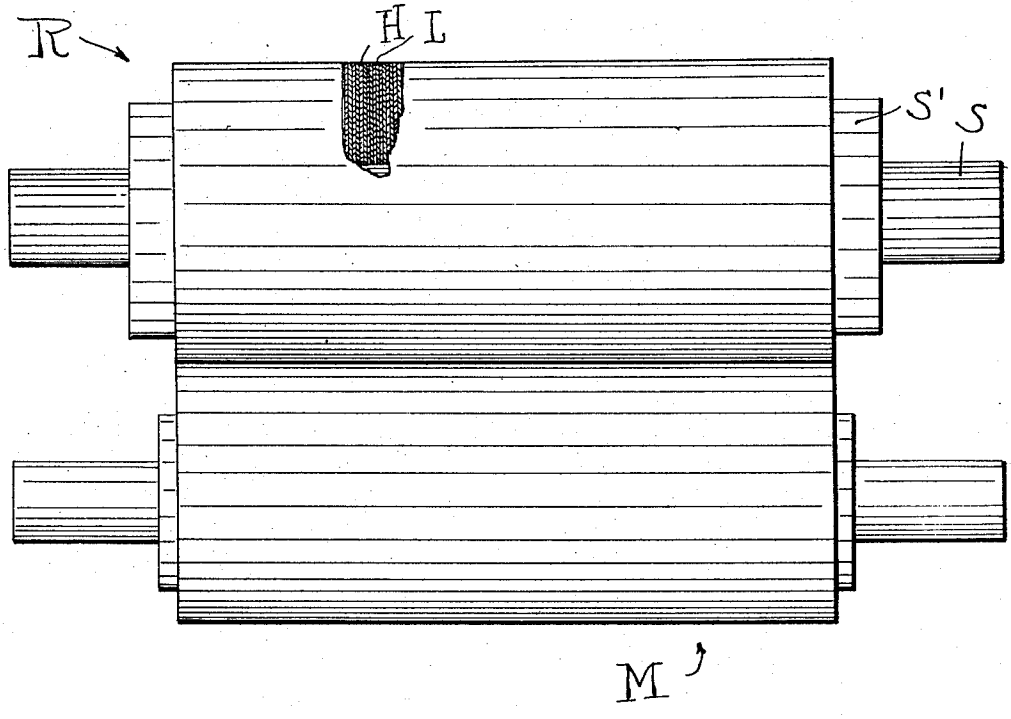
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CALENDAR ROLL

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UNITED STATES PATENT OFFICE

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CALENDER ROLL

Application filed December 21, 1928. Serial No. 327,651.

This invention relates to improvements in calender rolls or what are commonly known as finishing rolls.

Rolls of the type to which the invention relates consist of a roll body formed by a stack of sheets or laminations which are pressed together under considerable pressure and locked in their pressed together relation between suitable end plates or headers fixed on a shaft. The body of the roll thus formed by the sheets or laminations is turned or machined to provide the cylindrical roll shape having the desired finishing surface.

The laminations or sheets employed are usually of paper, cotton or the like depending upon the use to which the roll is to be put and upon the finish it is desired to obtain. In use the rolls are placed in a calender stack adjacent heated metal rolls for the finishing operation, the fabric or paper being finished by passing between the bite of the laminated rolls and the metal rolls. By being disposed adjacent the metal roll heat is transmitted to and absorbed by the laminated roll body which heat injuriously affects the laminations thereof. That is the material is burned as it is called so that the body deteriorates rapidly, making it necessary to renew the rolls frequently.

The material selected for the laminations of the roll body is that which will give the best calendering results without special regard to the heat resisting qualities thereof so that as a consequence this burning or overheating brings about such a disintegration of the material as to injure the rolls surface and render the roll useless after a short time.

According to the principal object of this invention, I provide a roll body which not only has the desired resiliency and finishing surface for the best calendering effect but at the same time has incorporated therein such heat resisting elements as will retard or obviate the injurious effects of the heat referred whereby the roll will have a much longer period of usefulness than the present day rolls.

This invention is capable of broad application, but will be described in connection with the accompanying drawings in which

The figure is a side elevational view, partly in section, of a roll embodying the features of the invention.

Referring to the drawings in detail the invention will now be described.

S represents a shaft or mandrel for a roll R which carries a plurality or stack of laminations or sheets which are pressed together and held upon the shaft in their pressed together relation between headers or flanges S′ suitably secured to the shaft, the outer surface being turned after the assembling of the parts to provide the desired surface for the finishing operation. According to the usual practice the roll described is located adjacent a metal roll in a stack which roll is indicated by M.

According to the novel features of the invention, I employ a plurality of what may be called non-heating resisting laminations L and a plurality of heat resisting laminations H dispersed at intervals throughout the stack of laminations.

For instance for the laminations L, I may use relatively thin sheets of paper of some sort which in themselves would provide a roll body of the desired characteristics, that is, a substantially hard body which is sufficiently resilient for the purpose and which may be machined to have the desired finishing surface. But as this material is naturally non-heat resisting it is subject to deterioration by the heating action during the calendering operation which as previously stated is objectionable.

For the heat resisting laminations H according to the invention, I may use a mineral paper so-called such as relatively thin asbestos sheeting, which when dispersed throughout the stack of laminations L tends to provide a laminated body which has heat resisting qualities. That is to say the heat resisting elements tend to render the roll body heat-resisting so that the elements L may function to provide a body having the desired finished characteristics which is protected against heat deteriorating effects by the heat resisting elements.

It may be desired to alternate the laminations L and H or to employ one of the lami-

nations H for severals of the others or vice versa. In fact the arrangement of the laminations may be varied at will while the selection of the material for the laminations H will depend more or less on the material employed for the laminations L. It is desired according to the invention to provide laminations H of sufficient heat resisting qualities as will overcome the tendency of the body as a whole to heat up and be thereby injured. In this way the roll body may have the required characteristics for the finishing operation and at the same time be protected against the injury caused by heat.

It will be understood that in the broad aspect the elements L will be substantially non-heat resisting as distinguished from the heat resisting elements H and that I make use of the former for providing a body most suitable for the calendering function while without interfering with this function I provide the heat resisting elements to protect the roll structure.

By the selection of such material as will provide a roll body best adapted for the finishing functions and by selecting such heat resisting material as will protect the body against the deteriorating heat effects it is possible to provide a roll which will have a much longer life than those of the present day which are constructed with this calendering characteristic as the important consideration.

Having described the invention in the form at present preferred what I desire to secure by Letters Patent is:

1. A pair of calender rolls for finishing paper comprising in combination, a metallic roll having a relatively rigid body and a non-yieldable surface, a roll having a relatively non-rigid heat resisting body and a yieldable surface, the latter roll including a metallic shaft and paper and asbestos laminations intermingled to form a body which are held together in pressed relation by flanges at opposite ends of said shaft.

2. A roll for a paper finishing machine comprising in combination, a rigid supporting shaft, alternate sections of paper and of asbestos on said shaft which comprise circular disc-like laminations of paper and of asbestos, the said sections forming a relatively non-rigid heat-resisting body having a relatively yieldable peripherial surface and being held in pressed together relation by flanges fixed to said shaft adjacent its opposite ends.

In testimony whereof I affix my signature.

ARCHIBALD LADE.