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(73) Proprietor: **WESTERA BEHEER B.V.**
Wilhelminalaan 19
NL-3701 BD Zeist (NL)

(72) Inventor: **Westera, Bernard**
Wilhelminalaan 19
3701 BD Zeist (NL)

(74) Representative: **Lips, Hendrik Jan George, Ir.**
HAAGSCH OCTROOIBUREAU
Breitnerlaan 146
NL-2596 HG Den Haag (NL)

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Description

The invention relates to a device for transporting paper, such as for example in the shape of sheets, in printing presses, bookbinding machines and such like, which device comprises members provided with openings through which air can be sucked in or blown out, which openings can be connected to means for bringing the air under underpressure and overpressure respectively.

In processing sheets of paper and cartonboard such as for example in printing presses, folding, cutting, wire-stitching machines and gang punches, members are employed for example for blowing the sheets from each other or taking them up with vacuum suction members or with similar members.

The known means for generating underpressure and overpressure are represented by steel-lamellae pumps, with which on one hand air is sucked, so underpressure is generated, and which on the other hand bring the sucked air under overpressure, so that this air can be supplied to blow-out openings.

With this known use of lamellae pumps the difficulty arises, that when at a certain moment a large number of suction openings have to become operative, a considerable fluctuation in the generated underpressure will occur, while the same will be the case in the generated overpressure, so that suddenly more air than perhaps desired will flow out of the blow-out openings possibly in use.

Further, the pumps generate heat, which is to be removed and by which the moved air is heated, so that in many cases it is necessary to bring the air back to the correct relative degree of humidity again by means of steam humidifiers.

Finally, the known pumps produce much noise and traces of oil could end up in the removed air which is supplied to the blowing openings, and they could cause problems.

Neither can the afore-mentioned difficulties be removed by replacing the lamellae pumps with compressors.

The invention seeks to remove these difficulties and to that end provides for, that the means for bringing the air under underpressure and overpressure is in the shape of a Roots-blower, which is driven with an adjustable speed, dependent on its charge.

It has been found that in this way the underpressure generated at the openings can substantially kept constant, while this is also the case for the overpressure.

According to a further development of the invention it is provided for, that the Roots-blower is directly driven by an electric motor, in which the speed of the electric motor can be adjusted between 750 and 3000 rev./min.

At the minimum speed the removed amount of air will in most cases meet the requirements. However, since a further reduction of speed can not be attained economically, means can be present for blowing off the air modulatingly or for supplying this when the capacity required by the device is below that which is produced at the lowest speed of the electric motor.

Whereas with known devices each machine will preferably be provided with a lamellae pump of its own for preventing installation of many pipelines, according to the invention it can be provided for, that several machines are connected to one single Roots-blower through a pipe system and that a remote controlled cut off valve has been mounted in each branch of the pipe system to a machine.

It has been found that in this way the number of necessary Roots-blowers can be reduced without the operation of the device being influenced adversely.

Claims

1. Device for transporting paper, such as in the shape of sheets, in printing presses, bookbinding machines and such like, which device comprises members which are provided with openings through which air can be sucked in or blown out, which openings can be connected to means for bringing the air under underpressure and overpressure respectively, **characterized in** that the means for bringing the air under underpressure and overpressure is in the shape of a Roots-blower, which is driven with an adjustable speed, dependent on its charge.
2. Device according to claim 1, **characterized in** that the Roots-blower is directly driven by an electric motor, at which the speed of the electric motor can be adjusted between 750 and 3000 rev./min.
3. Device according to claim 1 or 2, **characterized in** that means are present for blowing off air modulatingly or for supplying this when the capacity required by the device is below that which is produced at the lowest speed of the electric motor.
4. Device according to one of the preceding claims, **characterized in** that several machines are connected to one single Roots-blower through a pipe system and that a remote controlled cut off valve is mounted in each branch of the pipe system to a machine.

Patentansprüche

1. Vorrichtung zum Zuführen von Papier, z.B. in Form von Bögen, in Druckmaschinen, Buchbindemaschinen und dgl., wobei die Vorrichtung Elemente aufweist, die mit Öffnungen versehen sind, über welche Luft ansaugbar oder ausblasbar ist, welche Öffnungen mit einer Einrichtung, um die Luft unter einen Unterdruck bzw. einen Überdruck zu setzen, verbindbar sind, **dadurch gekennzeichnet**, daß die Einrichtung, um die Luft unter Unterdruck und Überdruck zu setzen, in Form eines Roots-Gebläses vorliegt, das abhängig von seiner Ladung mit einer einstellbaren Geschwindigkeit bzw. Drehzahl angetrieben wird. 5 10 15
2. Vorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß das Roots-Gebläse unmittelbar durch einen Elektromotor angetrieben wird, wobei die Drehzahl des Elektromotors zwischen 750/min und 3000/min einstellbar ist. 20
3. Vorrichtung nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß Mittel zum modulierenden Abblasen oder Zuspiesen von Luft, wenn die erforderliche Kapazität der Vorrichtung unter derjenigen liegt, die bei der niedrigsten Drehzahl des Elektromotors gewährleistet ist, vorgesehen sind. 25 30
4. Vorrichtung nach einem der vorangehenden Ansprüche, dadurch gekennzeichnet, daß mehrere Maschinen über ein Rohrleitungssystem an ein einziges Roots-Gebläse angeschlossen sind und in jeden Zweig des Rohrleitungssystems zu einer Maschine ein fernsteuerbares Absperrventil eingebaut ist. 35

Revendications

1. Dispositif pour transporter du papier, par exemple sous forme de feuilles, dans les presses à imprimer, machines à relier et analogues, dispositif comprenant des éléments qui sont dotés d'ouvertures à travers lesquelles l'air peut être aspiré ou expulsé, lesquelles ouvertures peuvent être raccordées à des moyens permettant d'amener l'air respectivement en dépression et en surpression, caractérisé en ce que les moyens destinés à amener l'air en dépression et en surpression se présentent sous forme de soufflantes qui sont commandées à vitesse variable en fonction de la charge. 45 50 55
2. Dispositif selon la revendication 1, caractérisé en ce que la soufflante Roots est entraînée

directement par un moteur électrique, vitesse à laquelle le moteur électrique peut être ajusté entre 750 et 3000 tours/min.

3. Dispositif selon la revendication 1 ou 2, caractérisé en ce que des moyens sont prévus pour expulser l'air de façon modulée ou pour amener celui-ci lorsque la capacité requise par le dispositif se situe au-dessous de ce qui est produit à la vitesse la plus faible du moteur électrique.
4. Dispositif selon l'une des revendications précédentes, caractérisé en ce que plusieurs machines sont raccordées à une seule soufflante Roots par un système de conduite et en ce qu'une vanne d'arrêt télécommandée est montée dans chaque ramification du système de conduite sur une machine.