Feb. 26, 1929. 1,703,852

H. A. DAVIS

WARPER LINT CLEANER

Filed Nov. 1, 1928 2 Sheets-Sheet 1

Fig. 1.

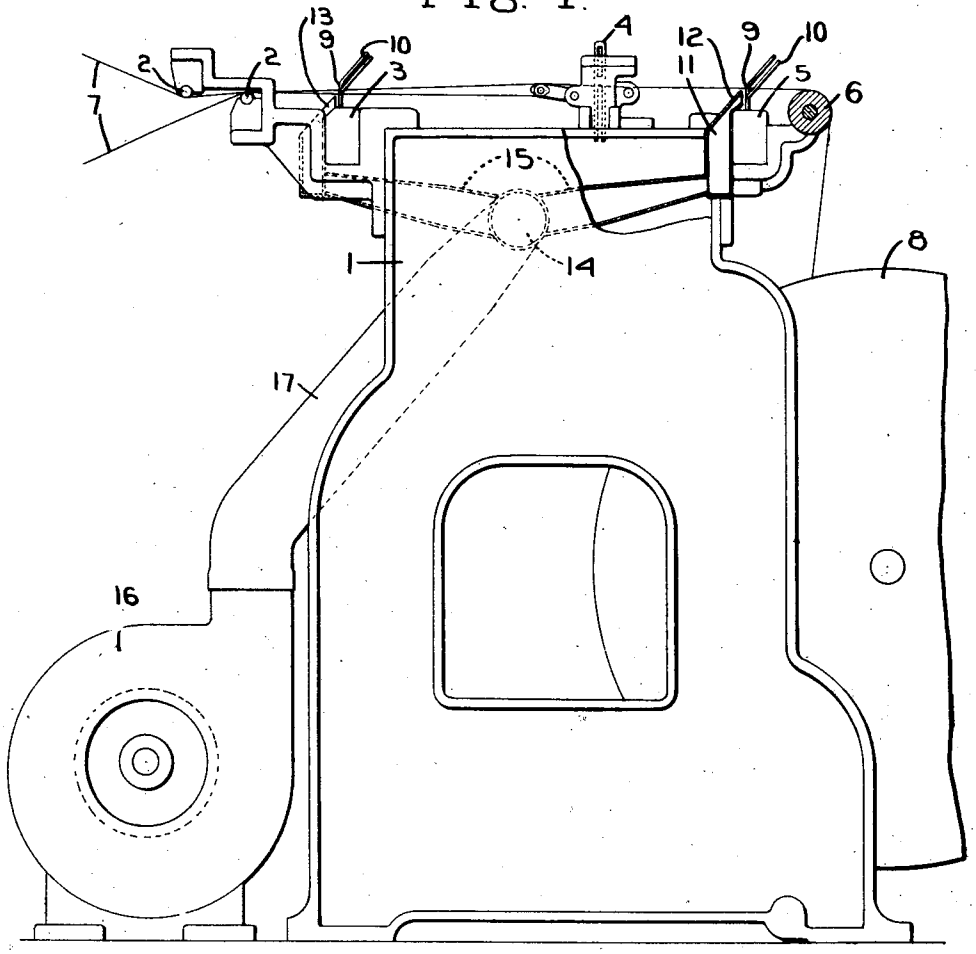
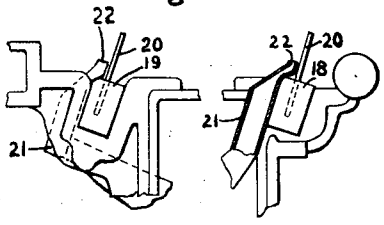


Fig. 3.



Inventor.
Harry A. Davis
by Heard Smith & Fennant
Attys.

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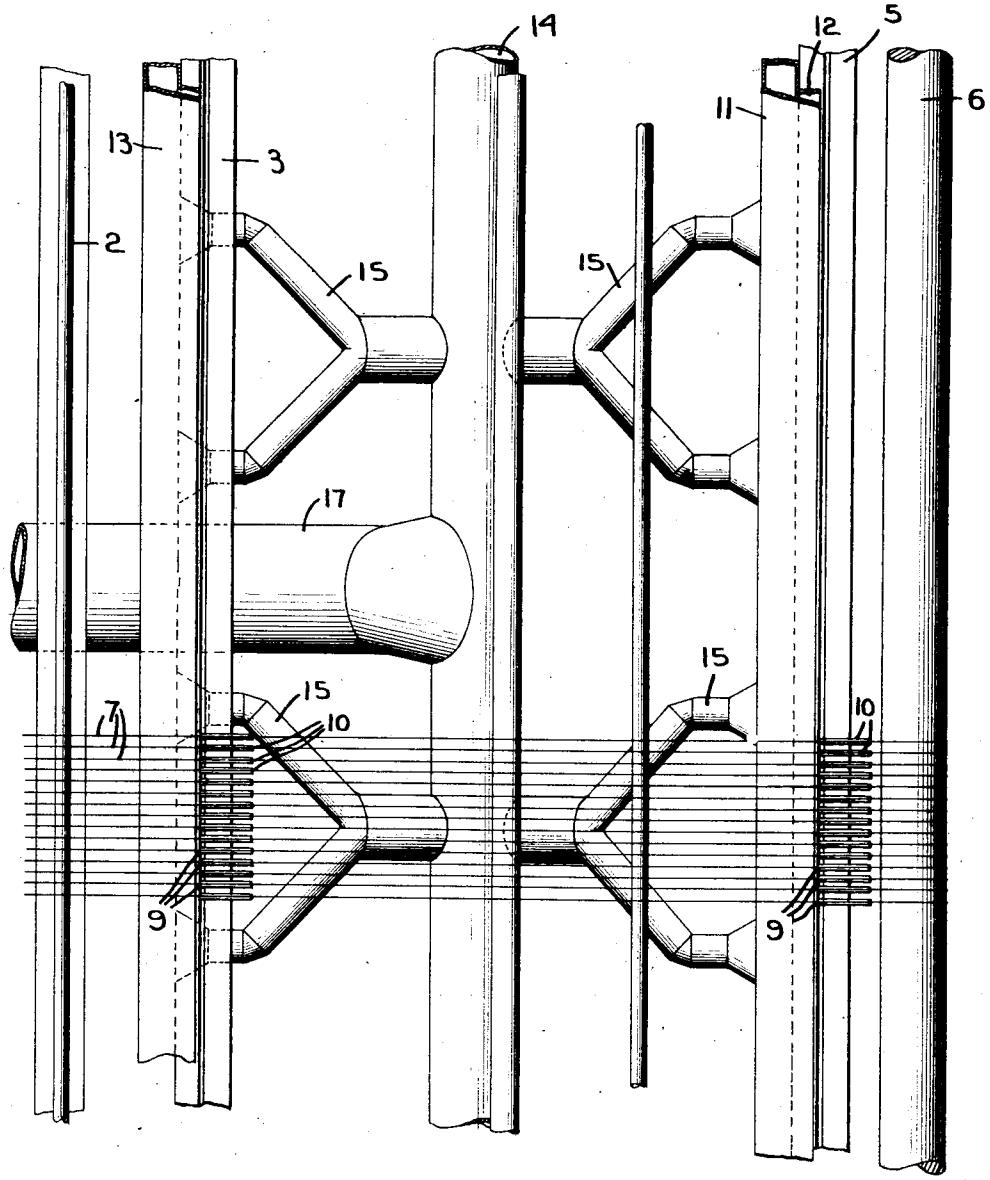
Fig. 2.



Inventor.
Harry A. Davis
by Heard Smith & Hammond
Attys.

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UNITED STATES PATENT OFFICE.

HARRY A. DAVIS, OF HOPEDALE, MASSACHUSETTS, ASSIGNOR TO DRAPER CORPORATION, OF HOPEDALE, MASSACHUSETTS, A CORPORATION OF MAINE.

WARPER LINT CLEANER.

Application filed November 1, 1928. Serial No. 316,423.

This invention relates to a pneumatic mechanism for maintaining a warper free from lint and fly at those places where a collection of lint and fly is injurious to the operation of the warper.

The invention has for its main object to provide means for blowing a draft of air along the dents of the warper combs toward the free ends so as to maintain the combs free from fly and lint.

The invention has for its further object to provide a warper lint cleaning mechanism of the pneumatic type which will be simple, practical and efficient in its operation and prevent the collection of fly and lint particularly on the warper combs.

These and other objects and features of the invention will appear more fully from the accompanying description and drawings and will be pointed out in the claims.

As the invention only has to do with the lint cleaning feature and as the general construction and operation of warpers are well known and familiar to those skilled in the art, and as the invention may be applied to various types of warpers, it is sufficient here to illustrate only those parts of a single type of warper with which the invention is particularly concerned.

In the drawings:

Fig. 1 is a side elevation of a warper partially in cross section and with many of the parts omitted, and having embodied therein a preferred form of the invention.

Fig. 2 is a top plan view on a larger scale of the main parts of the lint cleaning apparatus showing the relation to the warper combs.

Fig. 3 is a detail in side elevation, broken away, of a portion of a warper similar to that shown in Fig. 1, but showing a slightly different form of combs with the blowers arranged to blow the air along the dents and toward the free ends thereof.

In a warper, the warps are taken usually from a creel and wound on a warp beam. Such warpers are provided with combs for separating and guiding the warps, with drop wires for stopping the warper if a warp breaks and with other instrumentalities upon which more or less fly and lint is likely to collect, and this is particularly true of the warper combs which are usually located at the rear and front of the warper.

The warper illustrated in Figs. 1 and 2 comprises side frames 1 and is shown as supporting suitable guide or lease rods 2, a rear comb 3, a bank of drop wires 4, a front comb 5 and a suitable front guide roll 6. The warps 7 are laid from the creel through and over these various instrumentalities and wound up on the warp beam 8 mounted at the front of the warper.

The combs 3 and 5 are made up of a transverse row of dents 9 herein shown as round wires having vertical shanks with the portions 10 inclined upwardly and away from a vertical plane extending laterally of the warper. In both combs the inclined portions 10 of the dents are shown as extending upwardly and forwardly at an angle of about 45° so that all the dents, in the particular form illustrated, point upwardly and toward the front of the warper.

A nozzle is mounted on the frame parallel to each comb with its mouth at the base of the comb dents and with the nozzle extending in the direction of the angular portion of the dents so that air blown out through the nozzle will produce a draft along the dents toward their free ends and in the direction of their inclination, thus maintaining them free and clear of fly and lint and blowing any fly and lint that tends to collect thereon well forward over the front of the warper.

The nozzle at the front of the warper is shown as a box-like structure 11 mounted on the frame and extending transversely of the warper in the rear of the front comb and having its mouth 12 open at the base of the dents 9 and inclined in the same direction as the inclined portions 10 of the dents. Another nozzle 13 of similar structure, shape and position is shown at the rear of the rear comb.

A main conduit shown as a large pipe 14 is mounted on the frame preferably about midway between the nozzles 11 and 13 and extends parallel therewith. Branch conduits 15 connect the main conduit and the nozzles at each side and are preferably so arranged that they open into the nozzles at regular intervals transversely or laterally of the warper.

Air under pressure is supplied to the main conduit and thence to the nozzles and may be obtained from any suitable source. As illustrated, a blower 16 is mounted at the rear of the warper and connected by a pipe

17 to the main conduit, but any suitable means may be provided for thus supplying the required air under pressure.

The construction illustrated in Fig. 3 involves the same principles, but a slightly different form of comb. Herein the combs 18 and 19 at the front and the back of the warper comprise straight dents 20, but the combs as a whole are shown set at an angle so as to point upwardly and forwardly. In this case the nozzles 21 have their mouths 22 extending close to and parallel with the dents 20 so that the draft of air issuing therefrom is projected along the dents toward their free ends. The relation of the nozzle to the combs is a most important feature and it may not even be necessary to incline the dents because with the air draft projected along the dents toward their free ends, the combs will be cleared of fly and lint and the draft caused by the moving warps, especially with the high speed warper, may be sufficient to carry the fly and lint away so that it will not fall back on the warper.

A mechanism of this type may be readily installed in the warper without interfering with the various mechanisms of the warper and as it has no moving parts, it does not interfere in any way with the operation of the warper. The main and branch conduits may be located at any suitable position since their only function is to transmit the air under pressure to the nozzles.

It will thus be seen that a strong blast of air is blown from each nozzle along the warper dents toward the free ends thereof in an upwardly and preferably in a transversely inclined direction. This renders it impossible for any fly or lint to collect on the warper combs and throws the lint and fly clear of the warper. It is found in practice that the agitation of the other elements and the movement of the air resulting from the draft thus produced maintains the other elements of the warper sufficiently clear of fly and lint.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is:

1. A warper comprising a frame, a comb having its dents inclined upwardly and away from a vertical plane extending laterally of the warper, a nozzle mounted on the frame parallel to the comb and extending in the direction of the inclined dents with its mouth at the base of said dents, and means for supplying air under pressure to the nozzle whereby a draft of air is projected along the dents and past the free ends thereof maintaining the comb free from fly and lint.

2. A warper comprising a frame, a comb having its dents upwardly and forwardly inclined, a nozzle mounted on the frame parallel to the comb and extending in the direction of the inclined dents with its mouth in the rear of and at the base of said dents, and means for supplying air under pressure to the nozzle whereby a draft of air is projected along the dents and past the free ends thereof maintaining the comb free from fly and lint.

3. A warper comprising a frame, a plurality of combs each having its dents parallel and inclined upwardly and away from a vertical plane extending laterally of the warper, a plurality of nozzles mounted on the frame parallel with the combs, one for each comb, each nozzle extending in the direction of the inclined dents of the corresponding comb with its mouth at the base of said dents, a main conduit, branch conduits from the main conduit to the respective nozzles and means for supplying air under pressure to the main conduit whereby a draft of air is projected along the various dents and past the free ends thereof maintaining the combs free from fly and lint.

4. A warper comprising a frame, a comb having upwardly extending dents, a nozzle mounted on the frame parallel to the comb and extending in the direction of the dents with its mouth at the base of said dents, and means for supplying air under pressure to the nozzle whereby a draft of air is projected along the dents and past the free ends thereof maintaining the comb free from fly and lint.

In testimony whereof, I have signed my name to this specification.

HARRY A. DAVIS.