

May 23, 1944.

B. OFFEN

2,349,558

DRYING HOOD

Filed Nov. 28, 1942

2 Sheets-Sheet 1

FIG. 1

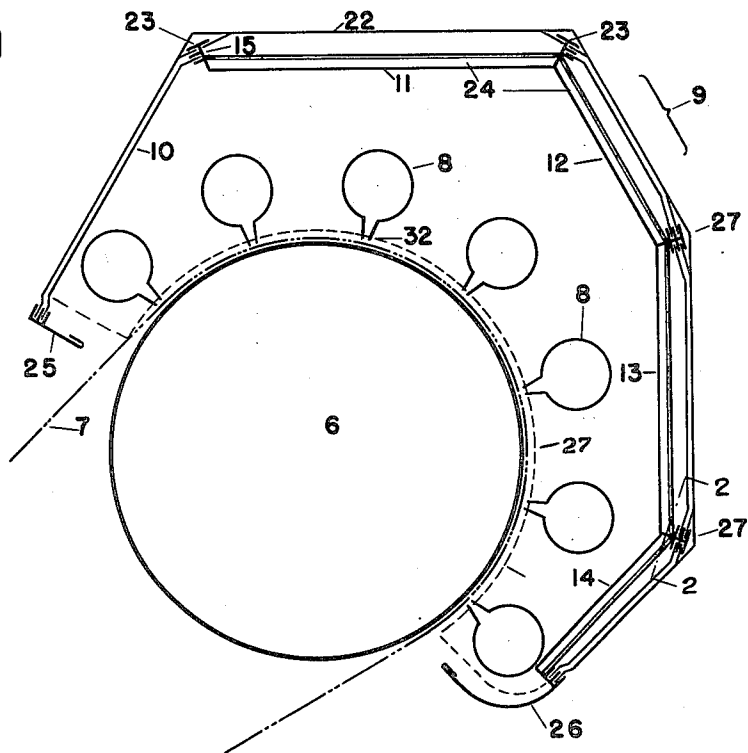
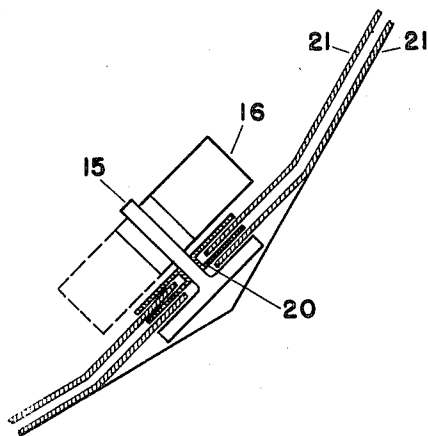


FIG. 2



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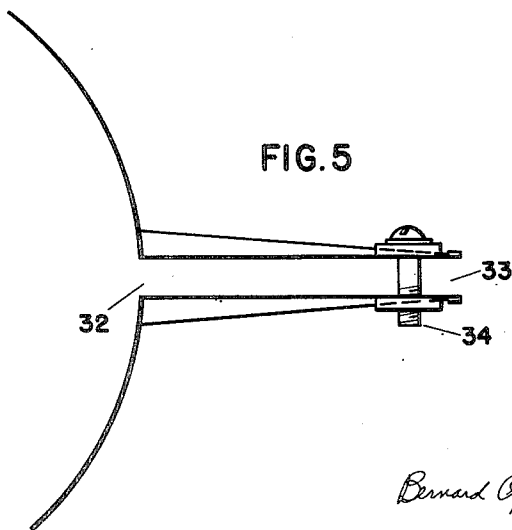
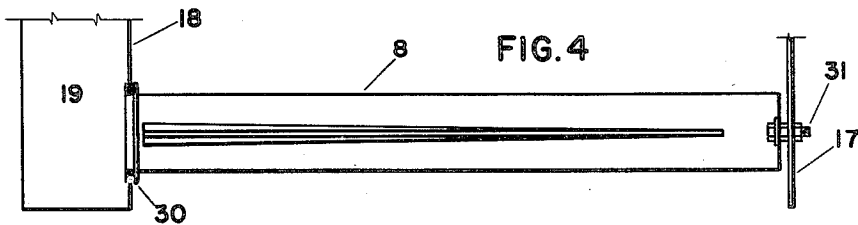
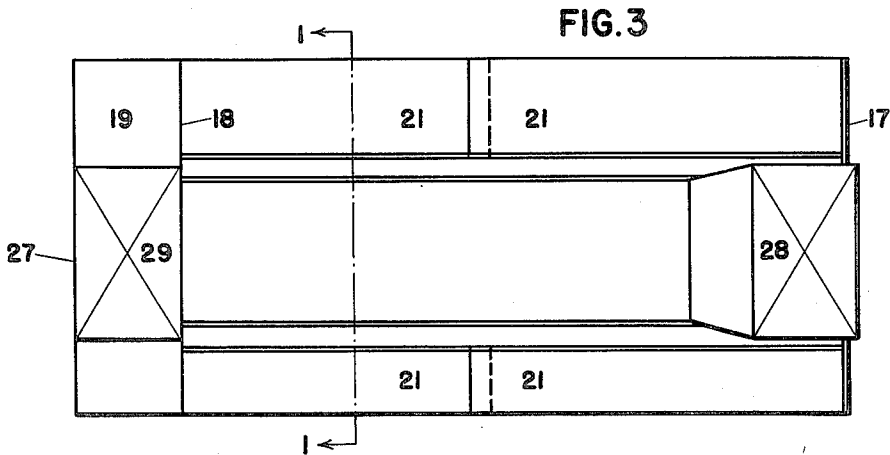
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2,349,558

DRYING HOOD

Bernard Offen, Chicago, Ill.

Application November 28, 1942, Serial No. 467,197

7 Claims. (Cl. 34-122)

This invention relates to drying hoods and more particularly to enclosures wherein drying is effected of webs of freshly inked paper or the like.

The general object of the invention is to provide an improved hood arrangement which may readily be opened at different points for inspection and adjustment of equipment therein and of a web being routed therethrough.

A feature of the invention resides in the provision of a novel panel arrangement, said arrangement including a series of cooperating and slidable members serving a series of adjacent sections of a hood.

Another feature of the invention resides in the provision of a novel arrangement of nozzles positioned about a drying drum, said nozzles being served by a supply header integral with the hood.

Another feature resides in the provision of adjustable nozzles having one end thereof fitted in combination with a supply header and adapted to be rotated as desired without interfering with the admission of air from the header to the nozzles.

Another feature of the invention resides in the provision of novel means for adjusting the volume of air discharged and the direction of air discharged from a series of nozzles positioned about a drying drum so that speedy drying of a web passing about the drum may be accomplished.

Another feature of the invention is the provision of a series of nozzles running substantially the full width of the hood enclosure, the nozzles being, in effect, totally enclosed, with the result that escape of fumes from the hood to the atmosphere surrounding the hood is effectively prevented.

Other advantages, making for economy and efficiency in the operation of a drying hood, will be apparent from the following description of one form of applicant's invention to be read in connection with the accompanying drawings in which:

Fig. 1 is a diagrammatic view, in section on the lines 1-1 of Fig. 3, of a hood positioned about a drying drum, the illustration being substantially limited to the features covering applicant's slide panel and nozzle arrangements;

Fig. 2 is a detail on the lines 2-2 of Fig. 1 showing the manner of fitting the sliding panels within the hood frame;

Fig. 3 is a plan view showing one section of the hood in combination with the air supply and return connections;

Fig. 4 is a view, in elevation, of a nozzle posi-

tioned in combination with the supply header, and

Fig. 5 is a detail of one of the nozzles.

Considering the drawings, similar designations referring to similar parts, numeral 6 designates a steam drum about which web 7 is passed. The web, in a typical application, is freshly inked, and the problem is to accomplish quick drying of the wet surface. Nozzles 8 are arranged about the drum and hood 9 serves as an enclosure for all said apparatus positioned therewithin.

With the hood positioned about the drum, the problem of adjusting nozzles 8 and the need for facilitating adjustment of the web and movement thereof by hand about the drum, as is often necessary, presented great difficulties. Applicant has produced simple yet effective solutions of these problems.

The hood is made of a series of frame sections, which may be of any required number constituting an enclosing frame. In the illustration of Fig. 1 five sections are shown, 10, 11, 12, 13 and 14. A series of T irons 15 are bolted to clips 16 which in turn are welded to end sheet 17 and inner sheet 18 of supply header 19. Slides 20 are tack-welded to T irons 15, as illustrated in Fig. 2, and sliding panels 21 are fitted and held within the slides.

As shown in Fig. 3 two sliding panels serve each section. The sliding panels are in the form of sheets, one of which extends a little more than half way across the section while the other sheet of the pair serves the balance of the section and overlaps the first sheet. Thus, access to the interior of the hood is readily had by moving one of the panels whereupon the particular section served by said panel would be open. Adjustments could then be made to the nozzles, as desired, and, as is apparent, a web may easily be led through the hood. If it is desired to serve the other side, the other panel can readily be moved over.

For practical purposes, top sheet 22 may be placed permanently in position and bolted to upper T's 23. The L stiffeners 24 are welded to the T's, as shown, to impart rigidity. End clips 25 and 26 may suitably be attached to sheets 17 and 18 to serve the panels of the end sections and to mount the confining elements as shown. The supply header 19 abuts one side of the hood as shown in Fig. 3 and its contour is illustrated by lines 27 on Fig. 1.

Return connection 28 is located at the opposite side of the hood from supply header 19 and, in practice, air from the hood is removed through

connection 28 and by means of a fan and suitable duct work is returned to supply header 19 at the intake connection 29. As the concentration of fumes becomes undesirable, the air from the hood may be exhausted and fresh air admitted. However, the manner of exhausting and supplying air is no part of the invention and conventional arrangements are well understood by those skilled in the art.

The nozzles 8 run the full width of the hood blowing completely across the web. As shown in Fig. 4, the nozzle at the end joining supply header 19 is fashioned with a lip joint arrangement 30 which engages sheet 18 as shown in Fig. 4. At the opposite end, each nozzle is held by bolt and nut arrangement 31 to end sheet 17. The bolt and nut arrangement is at the center line of the nozzle and hence the nozzle may readily be rotated, the bolt serving as an axis and the lip joint 30 serving as a guide. Although the nozzle is movable the joint at point 30 is tight. With the nozzle adjusted in desired position with the discharge slot 32 delivering air directly upon the web, the bolt and nut arrangement 31 may be tightened to retain the slot in the required position.

The nozzle discharge slot has a varying opening which diminishes as it recedes from the header. As shown in Figs. 4 and 5 the opening at the header is widest and in practice this is preferably about $\frac{3}{4}$ ". This tapers preferably to about $\frac{1}{4}$ " at the opposite end. The discharge end 33 of the slot is uniform throughout the width of the nozzle and is preferably about $\frac{1}{4}$ " in dimension when the slot varies from $\frac{3}{4}$ " to $\frac{1}{4}$ " as aforesaid. The discharge end is preferably equipped with a break edge to prevent wire drawing action and a stove bolt and nut arrangement 34 is provided to prevent vibration and to maintain an unvarying opening.

Since many changes in construction and arrangement may be made in the embodiment herein shown and described without in any way departing from the scope of the invention, it is intended that the foregoing description is to be considered as illustrative and not in a limiting sense.

I claim:

1. A drying hood including a frame, said frame having a series of contiguous sections, a T member between pairs of adjacent sections, means for supporting said T members slides accommodated on said members, slide panels fitted within said slides each section being substantially the width of the hood, each slide panel being less than the width of the hood, a pair of slide panels adapted to cover a section and overlap each other at the center of the section served thereby, a drum within the hood, a series of nozzles within the hood positioned about the drum, a supply header at one end of the hood for supplying air to the nozzles, and means for adjusting the nozzles to control the direction of flow of air therefrom upon a web passing over the drum.

2. In a drying hood of the character described, a drum, a series of nozzles extending about and over substantially the full width of the drum, a header at one end of the hood serving to enclose said end, swivel joints in a sheet forming part of said header, one end of said nozzles cooperating with said joints whereby said nozzles may be rotated, an end sheet enclosing the other end of the hood, a swivel bolt and nut arrangement at the other end of said nozzles connecting with said

sheet whereby the nozzles may be locked in position, frame sections between both ends of the hood, slidable panels in said frame sections, and means for guiding said panels in open and closed position whereby access to the interior of the hood may be had when desired and the hood closed at other times.

3. In a drying hood of the character described, a supply header, an end sheet, a series of frame sections, a pair of slide panels in a frame section, said pair of slide panels providing a confining cover for said section, means for guiding said slide panels whereby they may be moved to provide access to the interior of the hood, said means comprising T and clip arrangements held at one side of the hood to said end sheet and at the other side to said supply header, a series of nozzles connected to the header and extending within and cross-wise of the hood, and a drum within the hood over which a web to be dried is passed, and means for adjusting the nozzles to direct air therefrom upon such a web.

4. A drying hood of the character described including a frame made up of a series of contiguous sections, a supply header having one side wall thereof enclosing one side of the frame, an end sheet enclosing the other side of the frame, means in combination with the header and end sheet for accommodating slides, a pair of slides held by said means and serving a section, said slides each being arranged to cover an area slightly greater than half the area of the section, said slides being movable with respect to each other and removable from the section, air supply means within the hood connected to said header, a drum within the hood, said air supply means being arranged to direct air upon a web passing over the drum.

5. In a drying hood of the character described, a series of frame sections, an air supply header at one end of the sections, said supply header having one side wall thereof enclosing the hood at that end, an end sheet enclosing the hood at the other end, an exhaust opening adjacent said other end, a series of T members connecting adjacent frame sections, means in combination with said members for supporting slide panels, a pair of slide panels in a frame section for enclosing the hood and for providing access to the interior of the hood, a drum within the hood over which a web may be passed, a series of nozzles supported by said header and end sheet and positioned about the drum, means for adjusting the position of the nozzles and means for equalizing the discharge of air from the nozzles crosswise of the hood directed toward the drum.

6. In a drying hood according to claim 5, said means for adjusting the position of a nozzle consisting of a sheet metal joint at one end of the nozzle cooperating with the edges of an opening in a sheet comprising a side of the header, and a bolt and nut means at the other end of the nozzle cooperating with and secured to the end sheet.

7. In a drying hood according to claim 5, said means for equalizing the discharge of air from a nozzle crosswise of the hood consisting of an air discharge slot of varying width in the nozzle with the slot at one end of the nozzle adjacent the supply header more than twice as wide as at the other end adjacent the end sheet, and a lock nut means in combination with a pair of lips at the discharge end of the slot.

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