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WHEEL BRAKE DRUM ASSEMBLY

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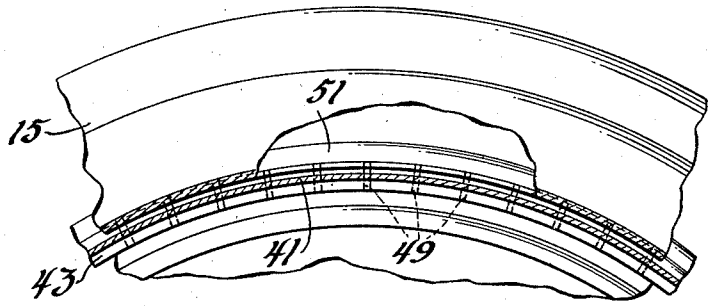


Fig. 1

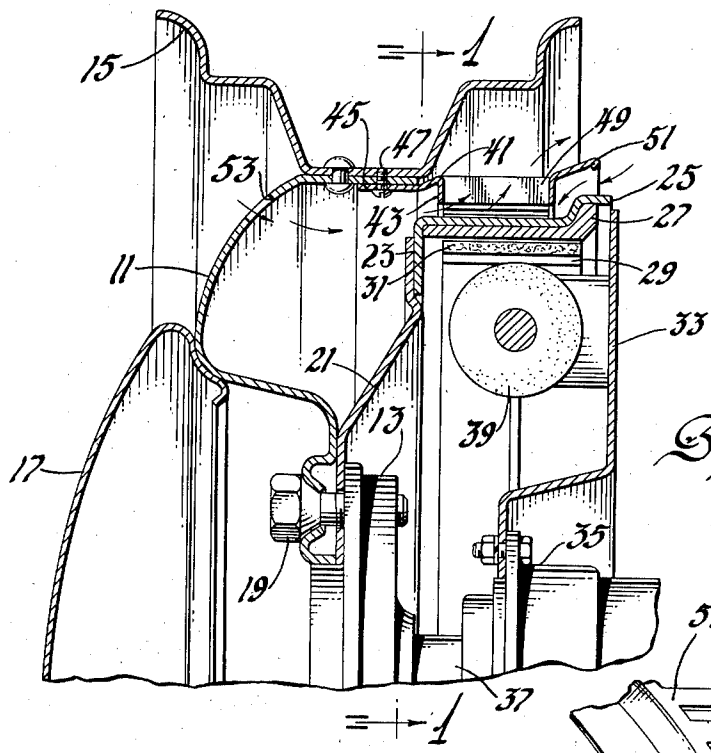


Fig. 2

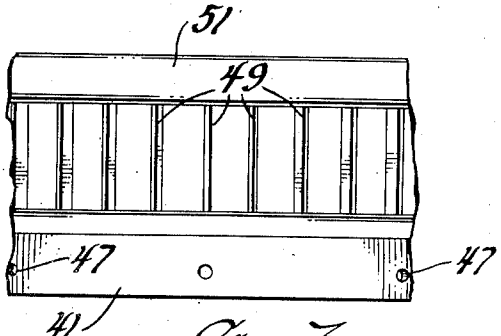


Fig. 3

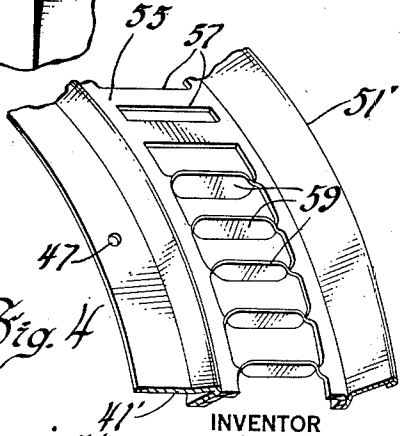


Fig. 4

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WHEEL BRAKE DRUM ASSEMBLY

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12 Claims. (Cl. 188—264)

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This invention is the outcome of an effort to provide means to cool the brake drum of a wheel and drum assembly.

Its primary object is to associate with the drum a fan to produce a cooling air current.

Other objects include the provision of inexpensive means to attain the principal object.

The invention is illustrated on the accompanying drawing. On the drawing:

Fig. 1 is a sectional view of a wheel and drum assembly, the section being marked by line 1—1 of Fig. 2;

Fig. 2 is a transverse section through the wheel and drum;

Fig. 3 is a plan view looking down upon the fan detached from the wheel;

Fig. 4 is a perspective of a modification.

Referring by reference numerals, 11 represents a disc wheel having a wheel hub 13 and a tire rim 15. Numeral 17 shows a hub cap. The wheel is secured to its hub by fastening means 19. Also secured to the wheel hub by means 19 is an attaching plate 21 closing one end of a brake drum by being secured in any conventional way to the flange 23 of an annular ring of steel 25 against which a ring of iron 27 is cast, cast iron being a desirable form of shoe engaging member. The shoe is indicated by 29. It has the usual lining 31 to frictionally engage the drum. A cover plate marked 33 is secured to a non-rotatable member 35 surrounding the axle 37. At 39 is illustrated a shoe spreading member, such as the wheel cylinder of a hydraulic brake system. Plate 33 also carries the shoe anchor, not shown.

The friction developed by applying the shoe to the drum heats the drum. The heat may be very great in the event considerable braking is needed, especially at high car speeds. To cool the drum I propose to locate over the drum a sort of fan. It is made up of an annular plate 41 having, in section, a radial part 43 and a horizontal part 45. The horizontal part is secured to the wheel by fastening means 47. The radial part 43 extends inwardly toward the drum but its edge is spaced from the drum. A circumferential series of vanes 49 extend across the drum and each is secured at one end to the part 43. These vanes too are spaced from the drum and at their ends adjacent the open end of the drum they are secured to an annulus 51 shaped in section, as shown in Fig. 2. With this construction air is free to enter from over the drum and to flow beneath the inner edges of the vanes and thence radially outward between the vanes under the influence of suction produced by the vanes rotating on the wheel. It is considered desirable also to add a hole or holes 53 in the wheel disc so that the suction may cause a flow of air through the wheel and out between the vanes as shown by the arrows.

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Fig. 4 shows a somewhat different way of forming the fan. Part 41' is much the same as part 41, and 51' is like 51. Instead of securing a series of separate vanes, I provide a strip of material of circular outline as shown at 55 with spaced rectangular openings 57 and I twist the material between the openings to form vanes 59. Fig. 4 shows the strip having the holes, but with a part only of the material twisted to form vanes.

While I have described and shown the fan secured to the wheel it will be appreciated that the objects sought may be obtained by securing the fan to the drum. It will also be understood that the holes 53 may be omitted in which case the air flow through the wheel will be sacrificed.

I claim:

1. A wheel and brake drum assembly, one end of the drum being open, said drum having a friction element contacting portion, an air cooling device for said drum, said device having a plurality of substantially radial vanes extending across said portion of the drum but having their radially inner edges located radially beyond and spaced from said portion of the drum and said wheel having an apertured disc whereby suction produced by wheel rotation may draw air through the wheel and from over the drum, the air then passing radially outward between the vanes.

2. The invention defined by claim 1, said device being secured to said wheel.

3. The invention defined by claim 1, said vanes being mounted between and secured to annuli, one of which is secured to the wheel.

4. A wheel and brake drum assembly, one end of said drum being secured to said wheel, its other end being open, said drum having a friction element contacting portion and a cooling device for said drum having a plurality of substantially radial vanes located radially beyond and extending across said portion of the drum but spaced radially therefrom whereby air may be drawn from over the open end of the drum across its surface and be exhausted between the vanes.

5. The invention defined by claim 4, said wheel having an apertured disc whereby cooling air may also flow through the wheel to the space beneath the vanes.

6. The invention defined by claim 4, said wheel having a disc, and fastening means to attach said cooling device to said disc.

7. In a wheel and brake drum assembly, a rim

supporting wheel disc, a brake drum having a substantially annular supporting disc fixed to said wheel disc, a fan device having a plurality of vanes located radially beyond and extending substantially across the drum but having their radially inner edges spaced therefrom, and said fan device being attached to and supported by said wheel disc.

8. The invention defined by claim 7, said vanes being mounted between and secured to annuli, one of which is attached to said wheel disc to support the fan device.

9. In a wheel and brake drum assembly, a wheel consisting of a hub, a supporting member and a rim, a brake drum attached to said hub, said brake drum having a braking surface portion, a fan device having a plurality of substantially radial and planar vanes located radially beyond and extending across the braking surface portion of said drum, said vanes being radially spaced from said drum, and support means on said assembly supporting said vanes whereby suction produced by wheel rotation will draw air over the drum and discharge the air between the vanes.

10. A wheel having tire supporting means, a brake drum rotatable with said wheel, said drum having a friction element contacting portion, a cooling fan device having a plurality of vanes extending across said portion of said drum, said vanes being radially spaced from said drum, support means for attaching said fan device to said wheel, and said support means being continuously spaced from said brake drum.

11. A wheel and brake drum assembly, one end of said drum being secured to said wheel, its other end being open, a cooling device for said drum having a plurality of substantially radial vanes extending across the drum but spaced radially therefrom whereby air may be drawn from over the open end of the drum across its surface and be exhausted between the vanes, said device comprising two annuli, one attached to the wheel and the other positioned adjacent the open end of the drum, a ring attached to said annuli, and said ring having a circumferential series of openings with the material between the openings bent to form vanes.

12. In a wheel and brake drum assembly, a rim supporting wheel disc, a brake drum having a substantially annular supporting disc fixed to said wheel disc, a fan device having a plurality of vanes extending across the drum but having their radially inner edges spaced therefrom, said fan device being attached to and supported by said wheel disc, said fan device having a cylindrical sheet metal part, and said vanes constituting portions of said cylindrical part displaced from the cylindrical surface.

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