W. H. DAVIS.

LAMPBLACK MACHINE.

APPLICATION FILED NOV. 6, 1913.

1,111,009.

Patented Sept. 22, 1914.

2 SHEETS—SHEET 1.

Fig. 1.

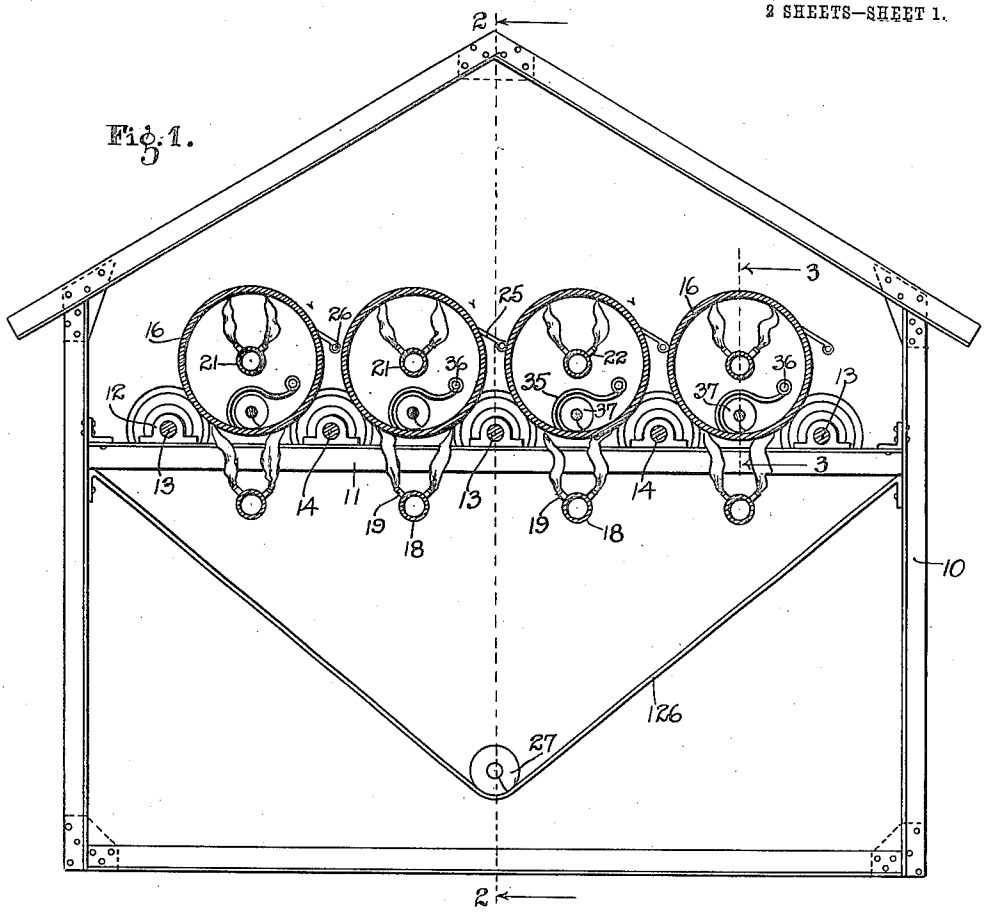
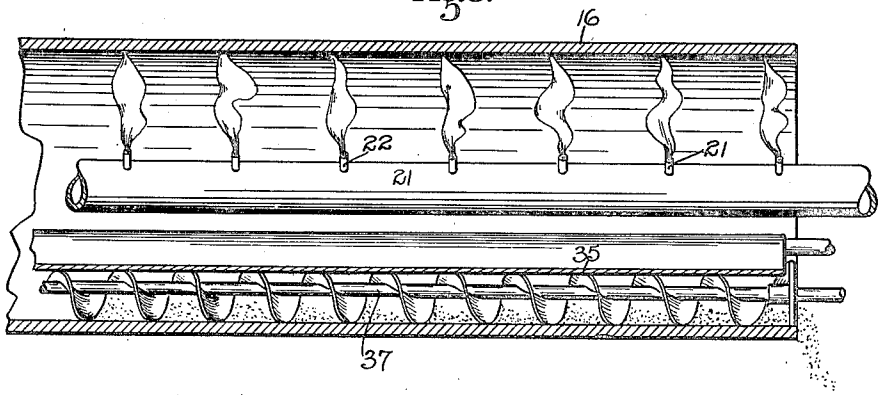


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 2.

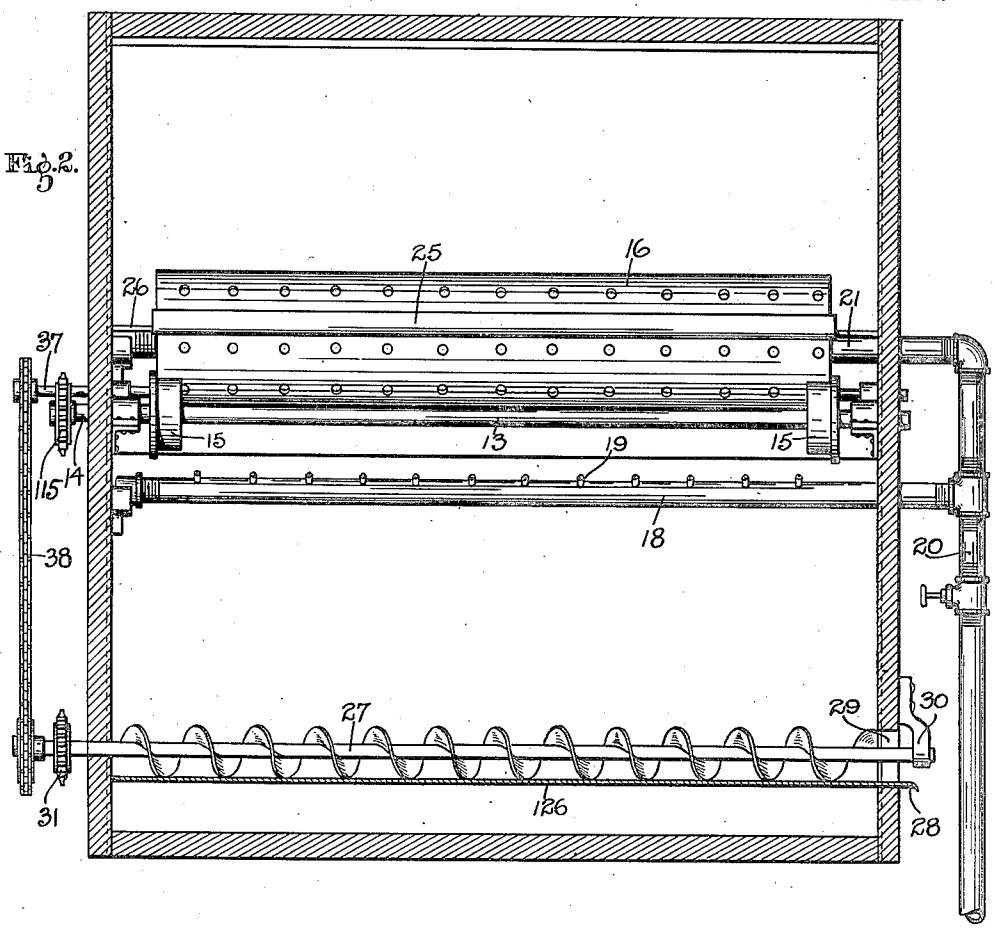
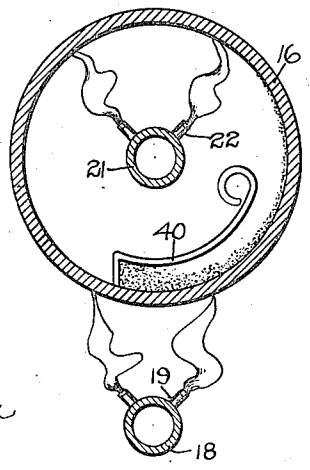


Fig. 4.



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LAMPBLACK-MACHINE.

1,111,009. Specification of Letters Patent. Patented Sept. 22, 1914.

Application filed November 6, 1913. Serial No. 799,635.

To all whom it may concern:

Be it known that I, WILLIAM H. DAVIS, a citizen of the United States, and a resident of Muncie, county of Delaware, and State of Indiana, have invented a certain new and useful Lampblack-Machine; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like letters refer to like parts.

The object of this invention is to improve the quality and increase the output of lampblack making machines. It has been the practice in this art to employ in lampblack making machines revoluble tubes with means for forming the lampblack on the external surface thereof and means for scraping it off such external surface.

The chief feature of this invention consists in providing means for forming and depositing lampblack on the inner surface of a tube, and means within such tube for scraping off the lampblack and discharging it from the tube, and the combination of means for forming and depositing lampblack on both the outer surface and inner surface of said tube simultaneously, whereby the capacity or out-put of the machine will be double. In this connection a burner or fuel supply pipe extends longitudinally through said tube and is provided with suitable discharge nozzles, preferably in pairs, for discharging two flames at an inclination from a vertical line so as to still further increase the capacity of the device. An immovable rod extends longitudinally through the tube on which a scraper is pivoted and if desired a conveyer extends longitudinally through the tube and operates in the lower part thereof for discharging the lampblack, although that probably is not necessary.

The quality of the lampblack formed within the tubes is improved because the flames do not strike the surface of the tubes directly, but softly and at an inclination and, therefore, softly supply the lampblack to the tubes and also a portion of the lampblack is carried longitudinally of the tube by the longitudinal current between the flames and it, therefore, gathers on the inner surface of the tube and this very soft application of the lampblack to the tube improves the quality of the lampblack.

The full nature of the invention will be understood from the accompanying drawings and the following description and claims.

In the drawings, Figure 1 is a central vertical transverse section through the device. Fig. 2 is a section on the line 2—2 of Fig. 1. Fig. 3 is a longitudinal central vertical section through one end portion of a tube and on an enlarged scale, the remainder being broken away. Fig. 4 is a vertical transverse section through one tube, showing a modified form of scraper, the remaining parts being omitted.

A suitable casing 10 for the machine is provided having cross bars 11 on which bearings 12 are mounted for the shafts 13 and 14 which carry the flanged rollers 15 upon which the tubes 16 are supported and whereby they are revolved. The lampblack is deposited upon the tube 16. A series of such tubes is provided, as shown in Fig. 1, and they are all revolved in the same direction and the revolution is caused by the rollers 15 on the shaft 14, said shaft 14 being positively driven by a sprocket wheel 115 which receives power from some suitable source. Therefore, only the alternate shafts are driven, the remaining shafts being idle. The ends of the tube 16 abut against the flanges on the rollers 15 and thereby are held from longitudinal displacement. The lampblack is deposited upon the external surfaces of said tubes 16 by the burner pipes 18 located one under each tube 16, and each pipe 18 has two rows of nozzles 19 for discharging the fuel for causing the flames which rise and the smoke from the flames strike the under surface of the tube 16 and deposit the lampblack thereon. The burner pipe 18 is supplied with fuel from a supply pipe 20. There is also a burner pipe 21 leading from said supply pipe 20 and extending longitudinally through each lampblack tube 16 and each pipe 21 has two rows of nozzles 22. These nozzles diverge from each other, extending at an inclination of about 45° from a vertical line so that the flames or columns of smoke from the two rows of nozzles 22 will come in contact with the inner surface of the tube 16 at different points and each nozzle, therefore, makes its individual deposit of lampblack on the inner surface of the tube as it revolves.

The lampblack is scraped from the outer surface of the tube 16 by gravity scrapers 25 pivoted on rods 26 secured in the casing and

extending parallel with the tube 16 and being above a horizontal plane through the axis of said tube so that the free edge of the scraper will rest by gravity on the upper portion of the tube and scrape the lampblack therefrom. The lampblack is scraped from the external surface of the tubes, falls down between the tubes into a receptacle or hopper 126 which is substantially V-shaped and is located under the entire surface of the tubes and in the lower portion thereof a conveyer 27 is provided which discharges the lampblack from said receptacle or hopper over an extension or lip 28, as shown in Fig. 2. Said conveyer 27 at one end has an arbor or shaft which at one end extends through a discharge opening 29 and is mounted in a bearing bracket 30 secured to the side of the casing. The other end is mounted in the casing and has a sprocket wheel 31 whereby it is driven by a chain, not shown, running from the sprocket wheel 115.

The lampblack deposited on the inner surface of the tube 16 is scraped therefrom by a scraper 35 which extends for the length of the tube and is substantially ogee shaped in cross section and is pivoted to a fixed rod 36 which extends entirely through the tube 16 and is secured in the casing 10. The free edge of the scraper 35 rides by gravity on the inner surface of the tube 16. The ogee-shape of said scraper is to enable a screw conveyer 37 to be located within each tube 16 immediately under said scraper, as shown in Fig. 1. This conveyer extends longitudinally through the tube and at its ends is mounted in the casing and is driven by a belt 38 extending from the conveyer 27, as shown in Fig. 2. Therefore, said conveyer 37 will discharge the lampblack from the end of the tube 16, as shown in Fig. 3. However, it will not be necessary to have the conveyer 37 in the tube 16, as illustrated in the modified form in Fig. 4, where there is a scraper 40 mounted substantially the same as the scraper 35, but somewhat differently shaped. Without the conveyer 27 the lampblack will accumulate in the lower part of the tube 16 and roll out at the ends thereof by gravity. That will cause an accumulation of lampblack in the middle of the tube which gradually tapers toward the ends of the tube.

In order for the interior of the tube 16 to be supplied with sufficient oxygen from the atmosphere, said tube is preferably perforated, as shown, although said perforations are not entirely necessary, as sufficient air can enter at the ends, but in such event the current longitudinally through the tube 16 may be great enough to blow out some of the flames. One object of having the nozzles 22 diverging, as shown in Fig. 1, is to separate the flames therefrom so as to leave a space longitudinally through each tube in the upper part thereof between the two rows of flames for the passage of the current of air without blowing out the flames. There will be in any event a current of air passing longitudinally through the tube 16 and it will be chiefly located in the upper part thereof and by combining two rows of flames, one on each side of said current of air, the current of air will not interfere with the flames materially.

Therefore, with this construction it is obvious that the capacity of the machine may be doubled without duplicating any of the parts thereof. The capacity of each tube may be doubled and all of the lampblack from said tubes, whether formed on the interior or exterior surface thereof, be discharged into the one receptacle in the machine.

The invention is:

1. A lampblack machine including a revoluble tube, a burner pipe located longitudinally beneath the tube for depositing lampblack on the outer surface thereof, a burner pipe extending longitudinally through the tube for depositing lampblack on the inner surface thereof, and means for scraping the lampblack from said tube.

2. A lampblack machine including a revoluble tube, a burner pipe located longitudinally beneath the tube for depositing lampblack on the outer surface thereof, a burner pipe extending longitudinally through the tube for depositing lampblack on the inner surface thereof, and separate scrapers for removing the lampblack from the outer and inner surfaces of said tube respectively.

3. A lampblack machine including a revoluble tube, a burner pipe extending longitudinally through said tube and provided with nozzles for directing flames against the interior surface of the tube, a fixed rod extending through said tube, and a scraper pivoted on said rod with the free edge thereof resting by gravity upon the inner surface of the tube for scraping the lampblack therefrom.

4. A lampblack machine including a revoluble tube, a burner pipe extending longitudinally through said tube and provided with nozzles for directing flames against the interior surface of the tube, a fixed rod extending through said tube below a horizontal plane through the tube, and a scraper pivoted to said rod with the free edge thereof resting by gravity on the inner surface of said tube below a central horizontal plane therethrough.

5. A lampblack machine including a revoluble tube, a burner pipe extending longitudinally through said tube and provided with nozzles for directing flames against the interior surface of the tube, means extending longitudinally through said tube for scrap-

ing the lampblack from the internal surface of the tube, and means for conveying the lampblack from within said tube to the ends thereof for discharging the same.

6. A lampblack machine including a revoluble tube, a burner pipe extending longitudinally through said tube and provided with nozzles for directing flames against the interior surface of the tube, means extending longitudinally through said tube for scraping the lampblack from the internal surface of the tube, and a screw conveyer extending through said tube and located in the lower part thereof for conveying the lampblack to the ends of the tube for discharging the same.

7. A lampblack machine including a revoluble tube, a burner pipe extending longitudinally through said tube, and provided with nozzles for directing flames against the interior surface of the tube, a fixed rod extending through said tube below a horizontal plane through the tube, a scraper pivoted to said rod with the free edge thereof resting by gravity on the inner surface of said tube below a central horizontal plane therethrough, and a screw conveyer extending through said tube and located beneath said scraper for conveying the lampblack to the ends of the tube for discharging the same.

8. A lampblack machine including a revoluble tube, a burner pipe located beneath the tube for depositing lampblack on the external surface of the tube, a burner pipe extending longitudinally through the tube for depositing lampblack on the inner surface of the tube, a scraper for removing the lampblack from the outer surface of the tube, a scraper mounted within said tube for removing the lampblack from the inner surface of the tube, and a receptacle beneath said tube for receiving the lampblack deposited on both the inner and outer surfaces of the tube.

9. A lampblack machine including a revoluble tube, a burner pipe located beneath the tube for depositing lampblack on the external surface of the tube, a burner pipe extending longitudinally through the tube for depositing lampblack on the inner surface of the tube, a scraper for removing the lampblack from the outer surface of the tube, a scraper mounted within said tube for removing the lampblack from the inner surface of the tube, a receptacle beneath the tube for receiving the lampblack deposited on both the inner and outer surfaces of the tube, a screw conveyer extending longitudinally through said tube and located in the lower part thereof for conveying the lampblack to the ends of the tube for discharging the same, a screw conveyer in the lower part of said receptacle for discharging the lampblack deposited therein, and driving means connecting said conveyers for causing them to operate together.

In witness whereof, I have hereunto affixed my signature in the presence of the witnesses herein named.

WILLIAM H. DAVIS.

Witnesses:
J. H. Wells,
O. M. McLaughlin.