

1,017,284.

Patented Feb. 13, 1912.

2 SHEETS—SHEET 1.

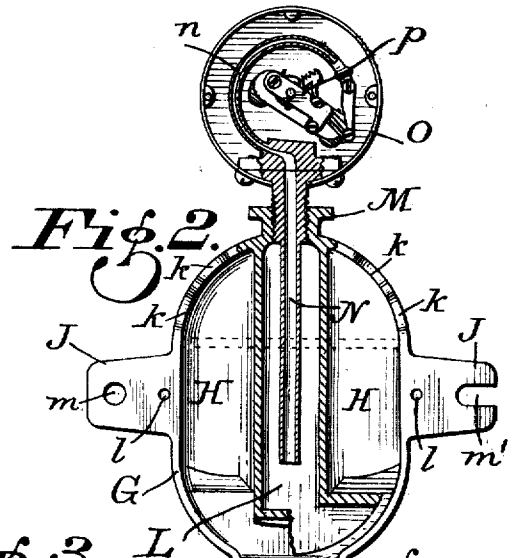
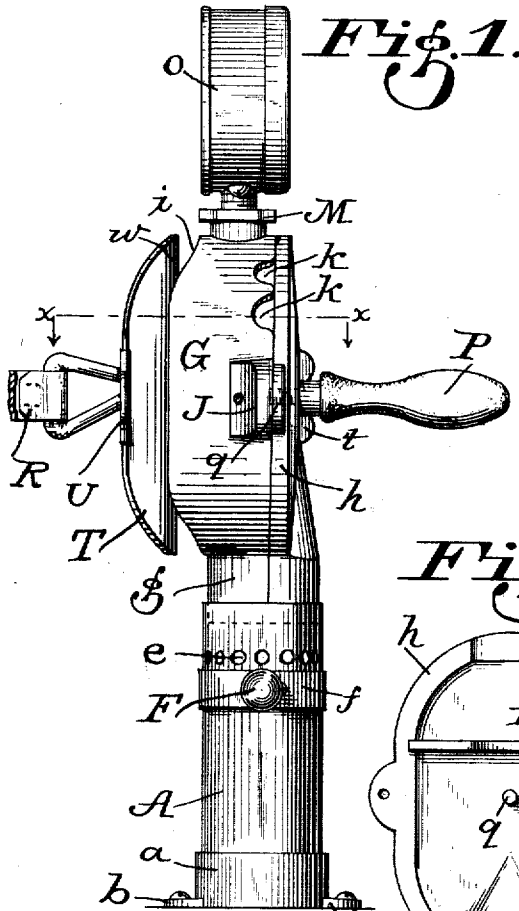


Fig. 3.

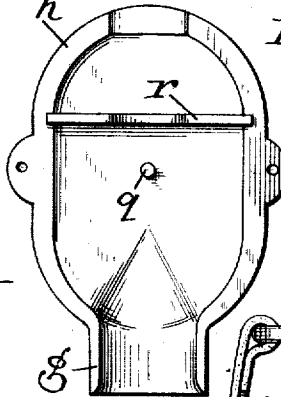


Fig. 5.

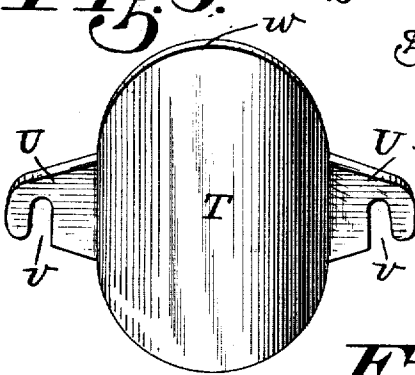
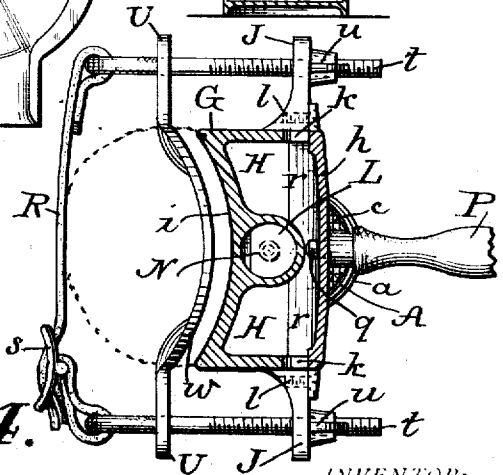


Fig. 4.



WITNESSES:
 Samuel Sipe.
 Chas. W. Dawson.

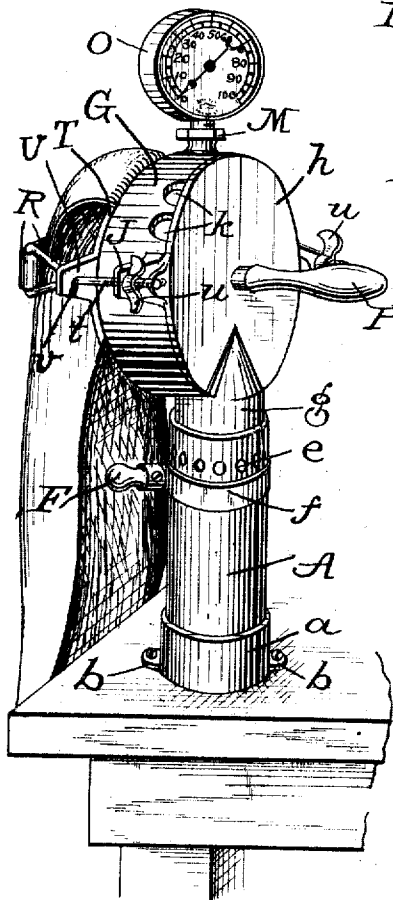
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2 SHEETS—SHEET 2.

Fig. 7.



WITNESSES:

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Chas. W. Dawson.

Fig. 8.

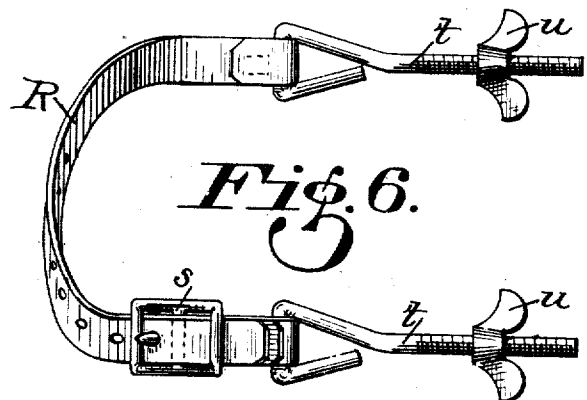
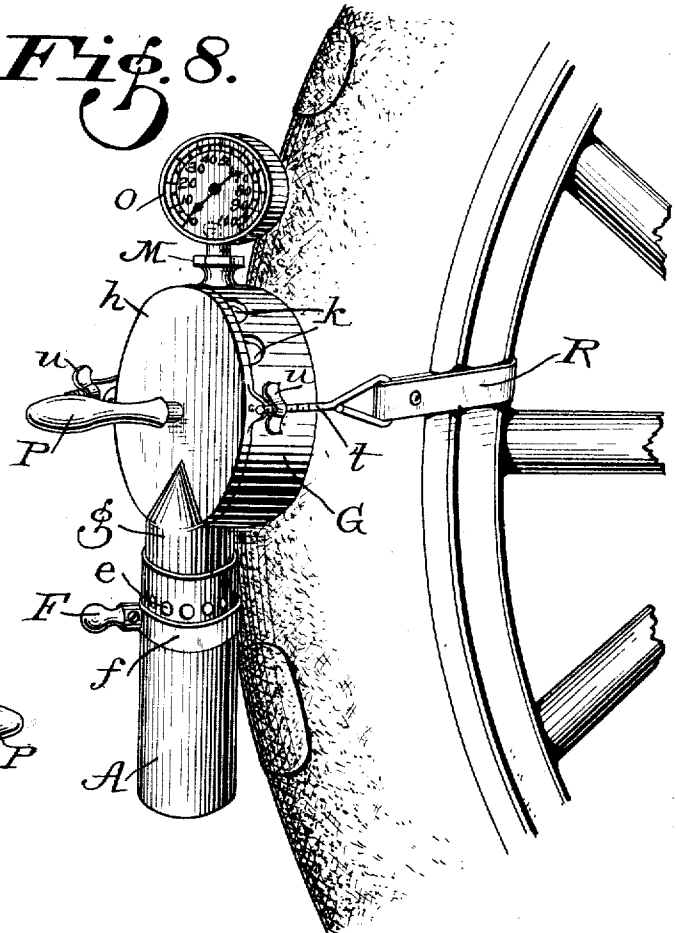


Fig. 6.

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UNITED STATES PATENT OFFICE.

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DRY-HEAT VULCANIZER.

1,017,284

Specification of Letters Patent.

Patented Feb. 13, 1912.

Application filed June 26, 1911. Serial No. 635,426.

To all whom it may concern:

Be it known that I, HARRISON M. DETRICK, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Dry-Heat Vulcanizers, of which the following is a specification.

My invention relates to improvements in vulcanizers generally,—but, more directly to what I term a dry-heat vulcanizer:—and while the device is designed for vulcanizing pneumatic tires of various kinds, it is more especially intended and adapted for repairing the pneumatic-tires of automobile wheels.

Some of the principal objects of this invention, consist in producing a vulcanizer as above referred to, that will more effectively vulcanize or close an opening,—caused by friction or puncture;—or in placing a patch over a torn place in any rubber body. Also, in so constructing said device as to dispense with the objectionable “water system,” by providing in lieu thereof my dry heat system, thereby treating a uniform heating power giving better results generally. Further objects being to provide said device of simple construction; composed of few parts which will seldom if ever need any repairs; and one which can be manufactured at small cost and therefore is quite inexpensive.

My invention consists essentially, referring briefly and in general terms to the device, of the very peculiar construction, arrangement and combination of the various mechanical parts or elements and the minor details thereof, as will be hereinafter fully described and set forth in the subjoined claims all in accordance with the statutes in such cases made and provided therefor.

Referring to the accompanying drawings constituting a formal part of this specification, and illustrating one form of construction for carrying out the objects and principles of my invention, and wherein the same reference letters are utilized to indicate or point out the same parts wherever occurring throughout the several views:—Figure 1 is a side view of my vulcanizer, showing the position the parts assume when repairing the inner tube of a pneumatic-tire or similar body that has to be supported. Fig. 2, is a front view of same partly in sec-

tion, with front portion of gage; face-plate; supporting strap and burner-stand removed. Fig. 3, is an inner view of the face-plate. Fig. 4, is a cross sectional view—on line $x-x$ of Fig. 1. Fig. 5, is a perspective view of the supporting plate. Fig. 6, is a perspective view of the supporting strap. Fig. 7, is a perspective view showing the application of the device when vulcanizing a body that has to be supported;—such as an inner tube of a pneumatic tire; and Fig. 8, is a perspective view showing the application of the device when vulcanizing or patching the outer surface of a body that does not have to be supported;—such as an outer casing or tube of a pneumatic tire of an automobile wheel.

In describing my said invention specifically, and referring in detail to the various parts or features of construction which in combination make up my dry heat vulcanizer, as pointed out in the drawings by means of the reference characters as aforesaid:— a refers to the burner-stand provided with feet b , which may be screwed or otherwise securely attached to a work-bench or table, as more particularly shown in Figs. 1 and 7:—or any suitable means for receiving and supporting burner A ,—when any unsupported article or body, such as an inner tube of a pneumatic-tire is being repaired.

Burner A is preferably constructed out of suitable sheet metal, in form of a hollow body closed at base and open at top, in which is placed mineral wool—or similar material, as shown in Fig. 2; said wool having poured thereon, a sufficient quantity of alcohol until it is absorbed by and saturates same; and over said wool is placed a wire screen c , removably held therein by means of a retaining-spring d . Extending around said burner near its top are arranged draft-openings e , by which the flame—created by the alcohol when ignited,—can be controlled by means of a regulating-band f , provided with a handle F , which can be moved over, or away from said draft-openings by reason of the frictional contact of said band with said burner.

Removably connected to the burner in which it telescopes a short distance, forming a slip-joint connection near its top; and in which it rests and is held by reason of its frictional contact therewith, is the neck g ; a section of which extends from the body G ,

the other section extending from face-plate *h*, said neck forming an open communication with the dry heating chamber or compartment H, when said face-plate is secured in operative position—see Figs. 1 and 4.

Body G, is preferably formed with a concaved-face *i*, having a smooth surface, thus adapting it to more readily receive and bear against pneumatic tires and other round or curved bodies, while heating, when vulcanizing in process of repairing same. Said body is provided with recesses *k*, forming outlet or escape ports when face-plate *h*, is in position; thus allowing for the escape of all dead gas from said heating chamber. Projecting from said body are the ears or extensions J, each of which is provided with a screw-eye at *l* for attaching the face-plate—as will be hereinafter referred to. One of said ears is provided with an eye *m* and the other with an open slot *m'*—for connecting the arms of a supporting-strap,—which will be hereinafter referred to. Body G is further provided with a boiler L, located in center of dry-heating chamber H—substantially as shown in Figs. 2 and 4;—which is intended when the device is in operation to be filled to about $\frac{3}{4}$ of its capacity with water, through screw-threaded mouth piece M, previous to the burner being lighted as heretofore fully described: when the straight siphon N is then placed in said boiler, where it is held in a suspended position therein by means of its screw-threaded neck engaging the internal screw-threads of mouth-piece M—as fully shown in Fig. 2.

When heating chamber H receives sufficient dry-heat from burner A,—as previously referred to; boiler L will also quickly become heated, by reason of the intense dry heat in said chamber, when the water in said boiler as it boils will generate sufficient steam, the pressure of which will force some of said water up siphon N and into hollow gage-spring *n* of gage O; when the pressure of said water will actuate said gage spring and the sensitive mechanism at *p* to which it is connected—see Fig. 2— which will in turn affect the indicating hands and indicate on the gage dial the temperature or amount of heat, in the ordinary and well known manner, so the workman will know how to regulate said heat to properly vulcanize. Straight siphon N is connected to gage O so as to form a continuous and open communication with gage-spring *n*, as fully and clearly shown in Fig. 2. Said gage being of the usual and well known form of construction and no part of this invention it is not necessary to be here further illustrated or described, as any form or style of gage of suitable construction adapted for the purpose intended can be employed.

Face-plate *h* is removably connected to

body G, preferably by means of screws—as shown at *l* by dotted lines in Fig. 4, and when screwed in position forms a tight cover for said heating chamber as shown; and is provided with a handle P—which for the purposes of storage and transportation of the device,—is preferably connected thereto by means of a screw-threaded shank *q*—see Figs. 1 and 4;—by which the device can be lifted and moved. Said face-plate is further provided near the top on its inside surface, with a flame or fire shield *r* in form of a flange projecting at right-angles therefrom and coming just below the outlet or escape ports formed by recesses *k*, and extending into said heating chamber sufficiently to prevent any sudden draft of air passing through said outlet ports into and down said heating chamber and affecting the flame; thus always keeping the flame from the burner uniform.

As a means for holding and supporting my dry-heat vulcanizer, and binding or pressing the concaved face of body G against the part to be repaired, when vulcanizing or patching a rather large article or body that does not have to be supported by the device,—such as the outer casing of a pneumatic-tire on an automobile wheel, as shown in Fig. 8,—I employ the supporting strap R, having a connecting buckle *s* for adjusting it to large or small bodies as desired, as fully and clearly illustrated in Fig. 6. Said strap being provided with the screw-threaded arms *t*, one of which passes through and rests in eye *m* of one of the body ears J, while the other arm *t* rests in slot *m'* of other body ear J: said screw-threaded arms each carrying a thumb-screw *u* for tightening and adjusting the vulcanizer to the part to be repaired; see Fig. 8.

When repairing an article that has to be supported and when burner-stand *a* is utilized as heretofore described; I employ a supporting or counter-plate T, provided with ears or extensions U, each having a slot *v* adapted to fit over and rest on arms *t* of said supporting strap; thus supporting, plate T, the convexed-face *w* of which, bearing against and forcing the portion to be vulcanized against concaved face *i* of body G:—see Figs. 1, 4 and 7,—and by means of buckles *s* and thumb screws *u*, said strap and the supporting-plate can readily be adjusted as required.

A very important feature of my invention consists in my dry heating system, wherein I provide my vulcanizer with the dry heat chamber H, having the boiler L located therein, whereby sufficient steam is generated to affect and control the dry heat in said chamber, thus securing a uniform heating power which is not otherwise secured. Another very important feature of my invention consists in providing my vulcanizer

with the straight siphon N, located in and operating in combination with the boiler, whereby the steam forcing the water through said siphon directly into gage-spring n, will
 5 cause the hands of the gage to indicate on its dial the temperature or degree of heat; and by this system of water, instead of steam pressure—as heretofore,—I do not weaken, and shorten the life of the gage mechanism,—but prolong the life of same. Also
 10 another important feature of my invention, consists in providing burner A with the draft opening e and regulating-band f; whereby the flame can always be properly
 15 regulated and controlled.

Having now described my dry-heat vulcanizer—taken in connection with the illustrations,—as my invention and as new—I claim:—

20 1. The combination in a vulcanizer,—of a burner; a body detachably connected to said burner and communicating therewith; a compartment within said body adapted to receive the flame and dry heat directly from
 25 said burner; a boiler to said body located within said compartment; a straight siphon projecting within said boiler; a gage carried by said vulcanizer; a hollow spring to said gage with which said siphon has a direct
 30 and continuous communication; and means for pressing the body of said vulcanizer against the part to be repaired, also for supporting the vulcanizer from the article being repaired; all substantially in the manner and for the purposes described.

35 2. The combination in a vulcanizing device,—of a burner; means on said burner for regulating and controlling the flame therefrom; a body provided with a neck detachably connected to said burner; a heating
 40 chamber within said body having an open communication with said burner, and adapted to receive dry heat therein; a boiler located within said chamber; a straight siphon held in a suspended position within said
 45 boiler; a gage detachably connected to said body and from which said siphon is suspended; a hollow spring within said gage

having an open and direct communication with said siphon; and means connected to
 50 the device for pressing and binding against and supporting, said device from the body to be vulcanized; all substantially as and for the purposes described.

3. A vulcanizer having in combination
 55 with its burner; a body formed with a concaved face and having a slip-joint connection with said burner; a dry heat chamber communicating with said burner; a boiler within said chamber; a siphon within said
 60 boiler adapted to receive some of the water in said boiler through the action of the steam; a gage for indicating the degree of heat, mounted upon the body of the device; a hollow gage-spring within said gage
 65 adapted to receive in a direct manner the water forced into said siphon; and a supporting-strap detachably connected to the device; all substantially in the manner and for the purposes described.

70 4. In a vulcanizer a burner provided with draft openings and a draft regulator; a stand for supporting said burner; a body formed with a concaved face and connected to said burner; a chamber within said body
 75 adapted to receive the dry heat from said burner; a boiler within said chamber; a siphon suspended within said boiler; a hollow spring having an open communication with said siphon; a gage in which said
 80 spring is located; a face-plate constituting a tight cover to said chamber, and provided with a handle for lifting and moving the device; a supporting-plate adapted to bear against the article to be vulcanized which
 85 rests against the concaved face of said body; and means connected to said body for supporting the supporting-plate, and binding said plate and said body to the part to be vulcanized; all substantially as described.

90 In testimony whereof I affix my signature in presence of two witnesses.

HARRISON M. DETRICK.

Witnesses:

S. A. Goss,

A. C. McDONALD.