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PATENTED JULY 19, 1904.

J. R. C. DANIN.
APPARATUS FOR TREATING RAW RUBBER.

APPLICATION FILED JAN. 2, 1904.

NO MODEL.

Fig. 2

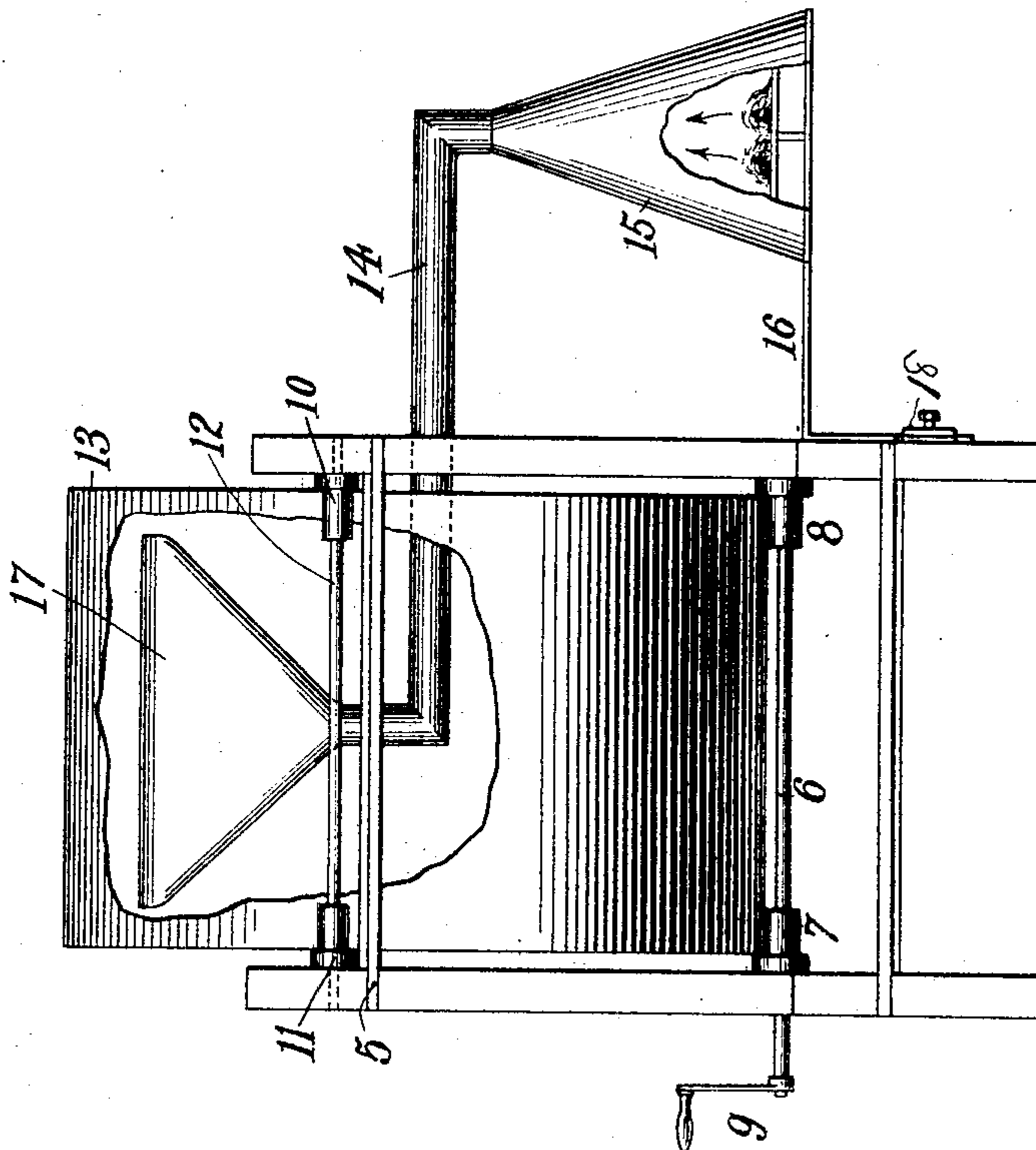
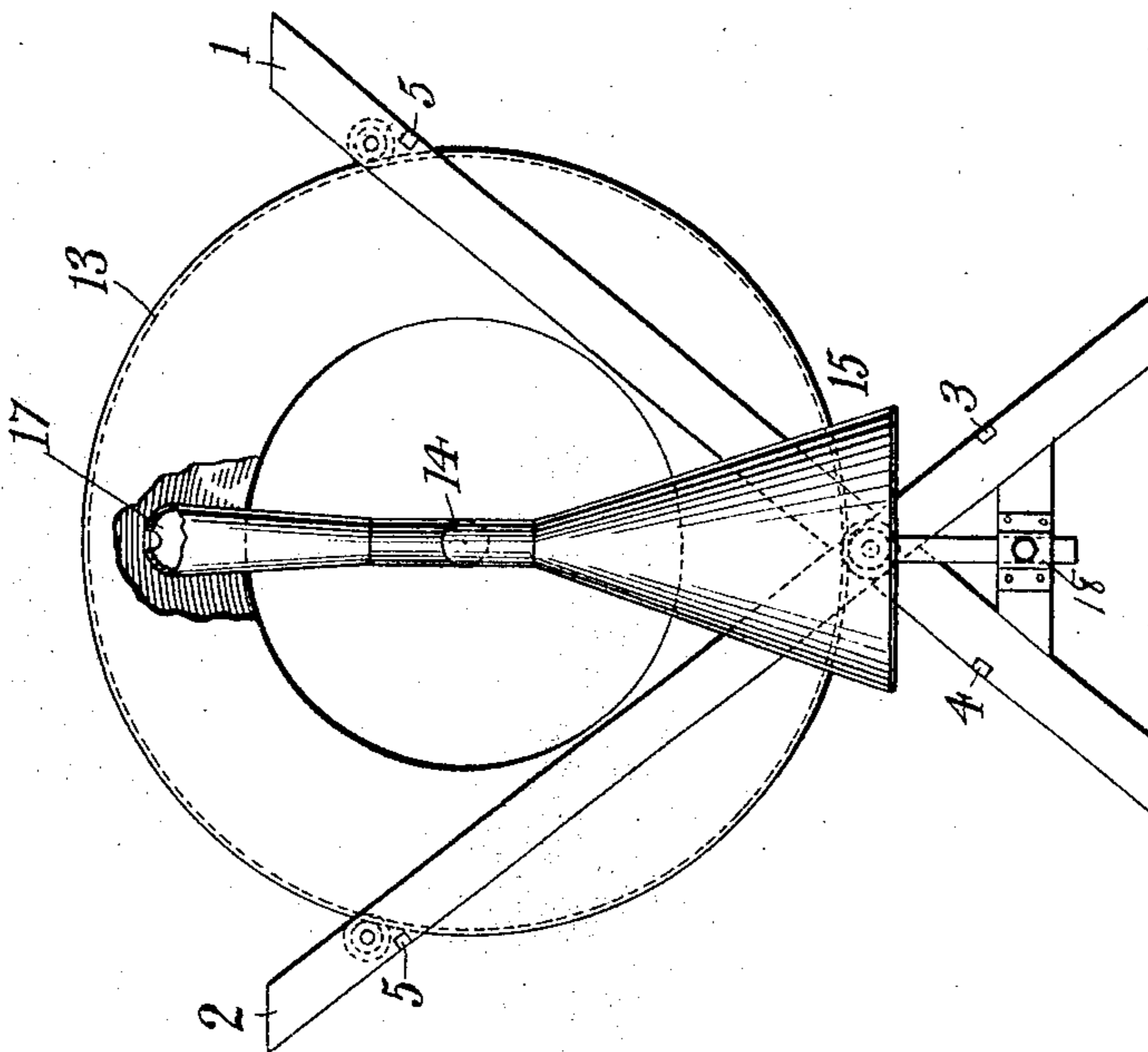


Fig. 1



Witnesses:

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by Kerr, Page & Cooper Attys.

UNITED STATES PATENT OFFICE.

JOAO ROSO CARDOSO DANIN, OF PARA, BRAZIL.

APPARATUS FOR TREATING RAW RUBBER.

SPECIFICATION forming part of Letters Patent No. 765,167, dated July 19, 1904.

Application filed January 2, 1904. Serial No. 187,402. (No model.)

To all whom it may concern:

Be it known that I, JOAO ROSO CARDOSO DANIN, a citizen of Brazil, residing at Para, Brazil, have invented certain new and useful Improvements in Apparatus for Treating Raw Rubber, of which the following is a specification, reference being had to the drawings accompanying and forming part of the same.

My present invention relates to apparatus for treating rubber, more particularly for fumigating the sap of the tree, and has for its object to provide a simple, durable, effective, and inexpensive machine for that purpose.

To these ends the invention consists, essentially, of a cylinder with open ends rotatably mounted in a suitable frame and a pipe or conduit extending from outside into the cylinder, having at one end a flaring discharge-orifice and at the other a funnel for collecting the smoke of the burning combustibles.

The invention will be more readily understood in connection with the accompanying drawings, in which—

Figure 1 is an end view of a convenient embodiment, and Fig. 2 a side elevation of the same.

The framework of the apparatus is composed of two X-shaped end parts, each composed of crossed pieces 1 2 and longitudinal connecting bars or braces 3 4 5. Near the intersection of the end pieces is mounted a shaft 6, carrying friction-rollers 7 8, rigidly secured thereto and having a crank or other suitable rotating means 9. Near the upper ends of the crossed pieces are antifriction-rollers, as 10 11, conveniently mounted on longitudinal shafts, as 12.

Supported on the friction and antifriction rollers is a drying-drum 13, so that by turning the crank 9 the rollers 7 8 by frictional engagement with the cylinder will rotate the same. In order to maintain the drum out of contact with any stationary part of the frame, the rollers may be provided with flanges on their outer ends, as shown.

The ends of the drum have circular openings therein, each preferably of a diameter about three-fifths that of the entire end, and through one of the openings extends a conduit 14. On the outer downwardly-turned

end of the same is an inverted funnel 15, the whole being conveniently supported by an arm 16, outstanding from the frame. Within the funnel a quantity of materials, preferably slow-burning and yielding a large volume of smoke, may be burned. The smoke and other heated products of combustion are discharged into the cylinder against the raw rubber which has been deposited inside of the same. In order to distribute the products of combustion uniformly, the inner end of the conduit 14 is provided with a flaring nozzle 17, flattened longitudinally, as shown in Fig. 1, to discharge the smoke in a comparatively thin column.

In using the apparatus the "milk" is simply poured into the cylinder and the latter is then rotated. The viscous or nearly fluid sap spreads over the inner wall and is carried past the discharge end of the smoke-conduit, where it is acted on by the hot smoke. The amount of treatment given is of course determined by the operator, who is guided by the color and density of the smoke used, the nature of the sap, the rapidity with which the drum is rotated, &c. The contents of the cylinder may readily be inspected from time to time, and when one batch of milk has been worked sufficiently a fresh quantity may be deposited directly upon the first and the same operation performed. These steps may be repeated as many times as desired, limited only by the capacity of the cylinder. When the deposit becomes so thick as to be too close to the discharge-cone, the conduit and cone may be lowered by adjusting the support 16 in its socket 18.

When the treatment is completed, the rubber may be easily removed and will be found to be homogeneous and perfectly elastic. It may be separated in thin sheets corresponding to the successive batches of gum treated.

I am aware that it is broadly old to discharge heated products of combustion upon a mass of rubber on the inside of a rotating cylinder, as shown, for example, in the patent now owned by me, issued to Manoel Vianna Coutinho, No. 531,781; but my invention includes certain improvements not contemplated by Coutinho. Among these I may mention

the flared or fan-shaped smoke-nozzle, by which the hot products of combustion are concentrated in a comparatively thin stream, thereby rendering the action upon the sap
 5 more energetic; the constantly open ends of the drum whereby the cooled smoke is always escaping, so that the supply of fresh hot smoke is more rapid; the adjustable conduit-support, permitting the discharge-cone
 10 to be kept in close proximity to the rubber; and, lastly, its comparative simplicity of construction and readier access to the interior of the drying-drum.

The apparatus herein specifically described
 15 is of course only one of the many embodiments of which my invention is capable, and I therefore do not consider myself limited to the form shown; but

What I claim is—

20 1. In an apparatus for treating rubber, the combination of a supporting-frame, a hollow drying-drum having open ends, means for rotating the drum, an adjustably-supported conduit-extending into the drum through one of
 25 its open ends, a flattened, flaring nozzle on

the inner end of the conduit arranged adjacent the wall of the drum, and means on the outer end of the conduit for delivering products of combustion thereto, as set forth.

2. In an apparatus for treating rubber, the 30 combination with a supporting-frame comprising a pair of X-shaped end sections and a plurality of longitudinal braces, of antifriction-rollers at the upper ends of the end sections, friction-rollers mounted near the intersection of the X parts, means for rotating the 35 friction-rollers, an open-ended drying-drum supported on the rollers, a conduit extending into the drum through one of its open ends, a flattened, flaring nozzle on the inner end of 40 the conduit arranged to discharge adjacent the wall of the drum, an inverted conical chamber on the outer end of the conduit to deliver products of combustion thereto, and a vertically-adjustable arm supporting the 45 conduit and its connected parts, as set forth.

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Witnesses:

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