

E. EKSTRÖMER & H. MÖRNER.

APPARATUS FOR THE APPLICATION AND REMOVAL OF TIRES.

No. 468,797.

Patented Feb. 16, 1892.

Fig. 1.

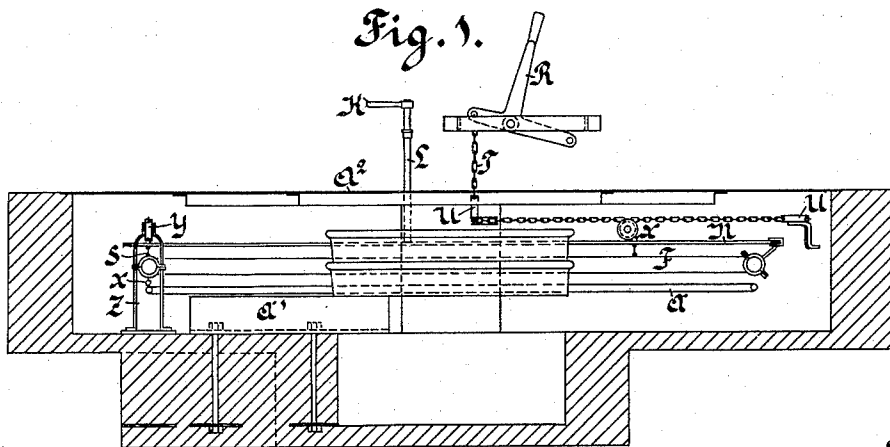
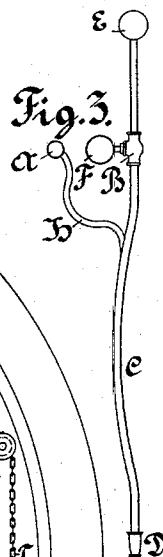
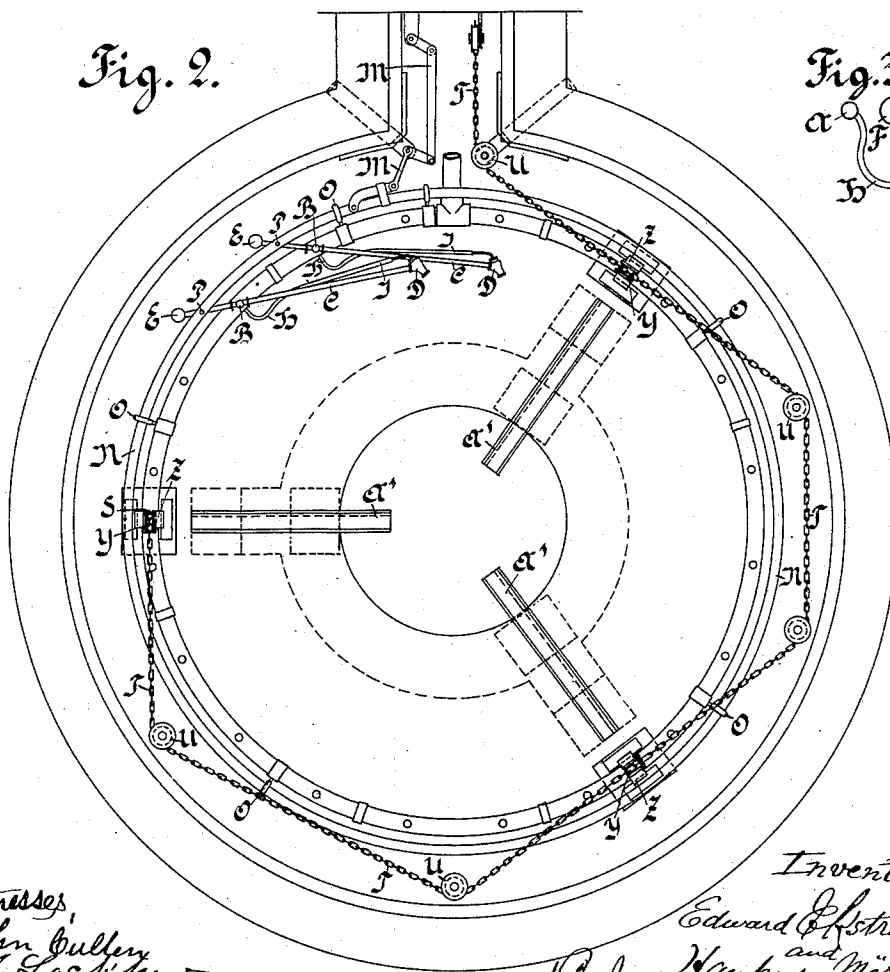


Fig. 2.



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(No Model.)

3 Sheets—Sheet 2.

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Fig. 4.

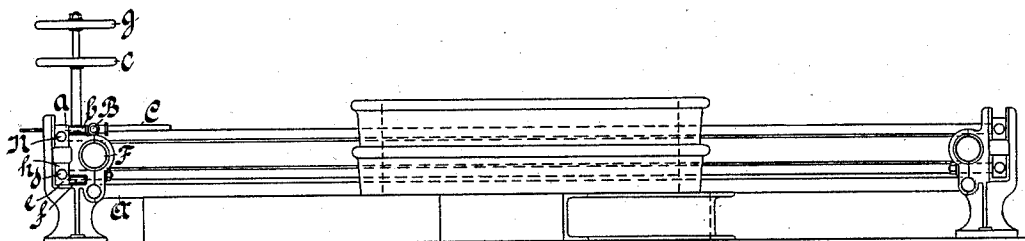
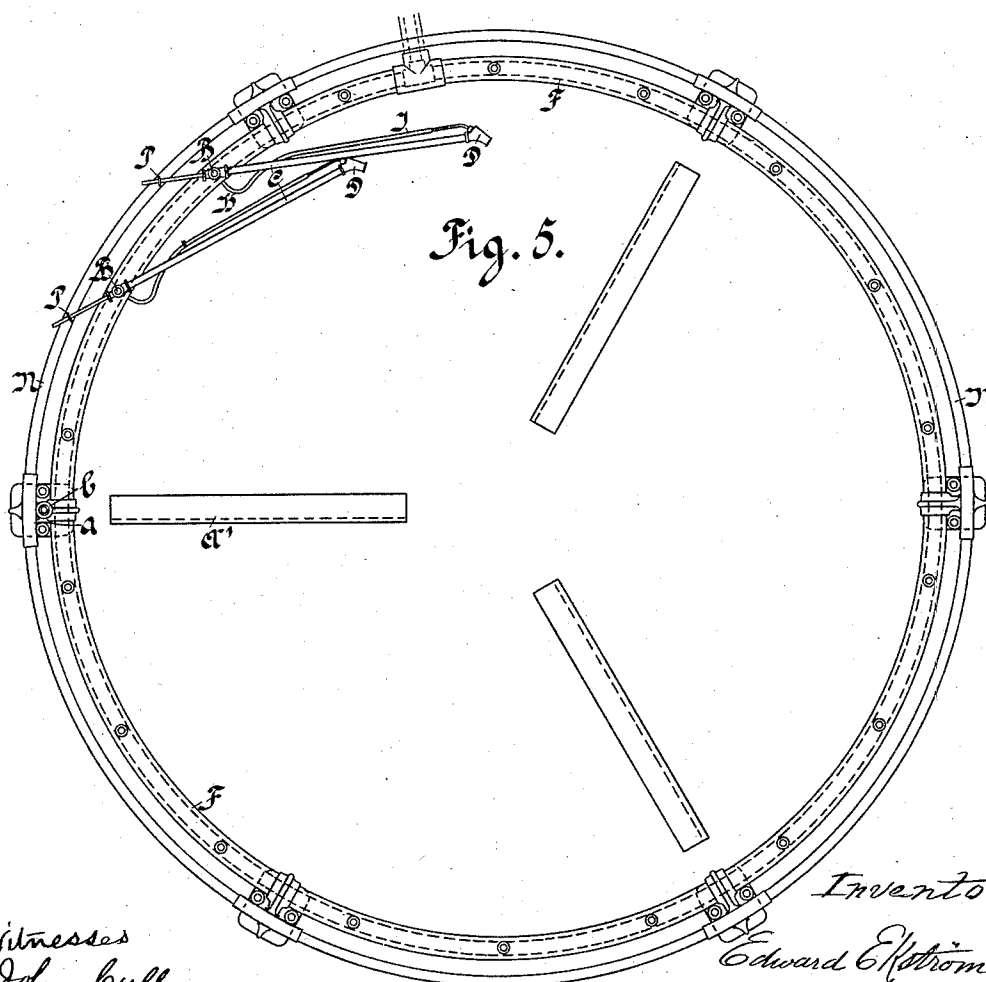


Fig. 5.



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Fig. 6.

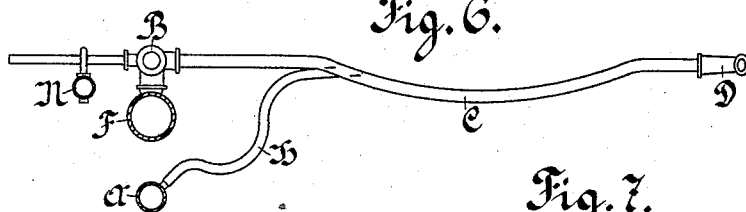


Fig. 7.

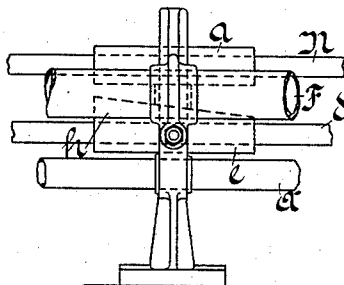


Fig. 9.

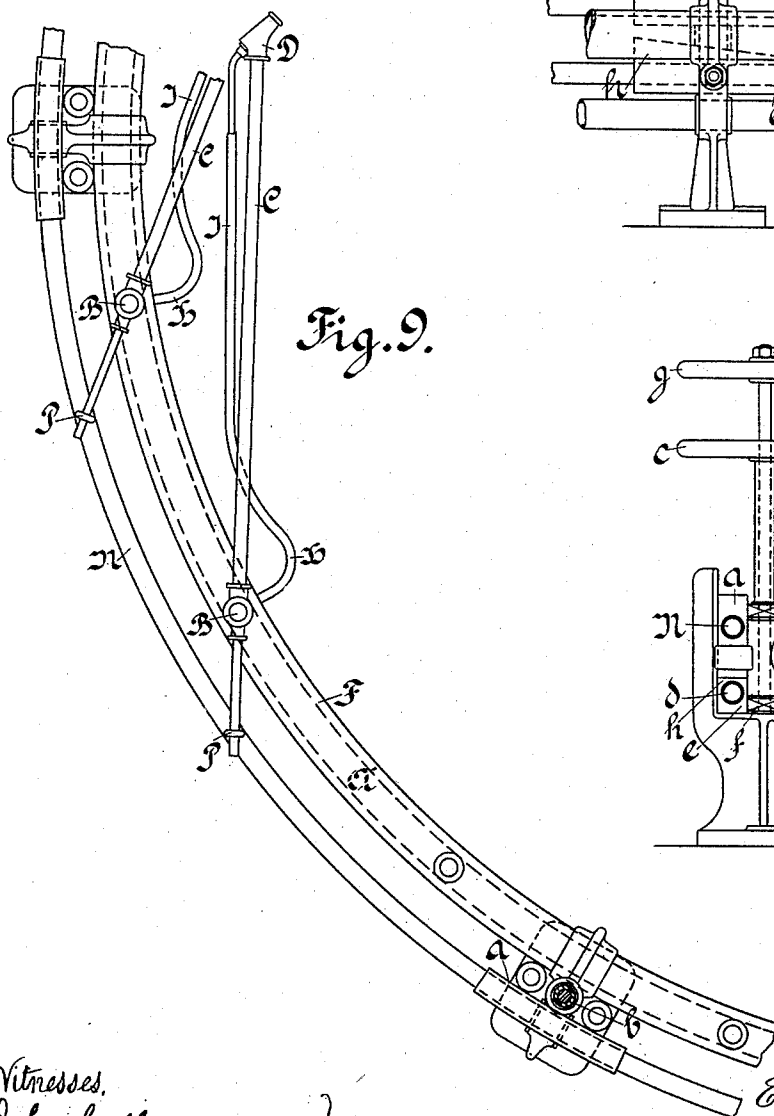
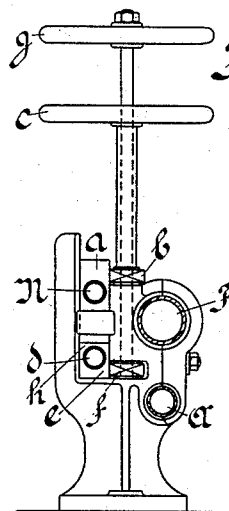


Fig. 8.



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UNITED STATES PATENT OFFICE.

EDUARD EKSTRÖMER AND HAMPUS MÖRNER, OF MALMÖ; SWEDEN.

APPARATUS FOR THE APPLICATION AND REMOVAL OF TIRES.

SPECIFICATION forming part of Letters Patent No. 468,797, dated February 16, 1892.

Application filed September 27, 1890. Serial No. 366,413. (No model.)

To all whom it may concern:

Be it known that we, EDUARD EKSTRÖMER and HAMPUS MÖRNER, engineers, subjects of the King of Sweden, and residents of Malmö, county of Scania, Sweden, have invented Improvements in Apparatuses for the Application and Removal of Tires, of which the following is a specification.

The object of this invention is to arrange the apparatus already known for the application and removal of tires, so that these operations may be performed more conveniently and speedily than with the apparatus now in use.

The apparatus hitherto employed for this purpose consists of an annular gas-pipe communicating by means of hose with a number of gas-jets in which compressed gas is forced in from the gas-pipe at the same time as the air requisite for the combustion of the gas is sucked in. When using the apparatus, these gas-jets must be severally moved by hand more or less near the tire, an operation which of course has been both troublesome and time-wasting, and has therefore led to the present improvement, which allows a simultaneous application of the gas-jets in the requisite position with relation to the tires.

On the annexed drawings this improvement is represented in two modifications differing only with regard to the means for adjusting the jets.

Figure 1 is a central section, and Fig. 2 a plan, of the apparatus; and Fig. 4 shows a section, and Fig. 5 a plan, of these modifications, while Figs. 3, 6, and 7 represent details; Fig. 8, a detail, enlarged, showing the devices at the left-hand end of Fig. 4; and Fig. 9, a detail, enlarged, of a portion of the left-hand side of Fig. 5.

The annular gas-pipe F supports a number of pipes C, pivoted in the horizontal plan on their respective trunnions B, secured on the gas-pipe, and in one end are provided with a jet D, through which the gas passing from F through Band Cescapes in order to be ignited. In the opposite end the pipes C may be provided with a counter-weight E (see Figs. 2 and 3) for balancing their gravity. With the gas-pipe is connected another annular pipe A, which by means of hose H and tubes I is

connected with the jets D and feeds these with compressed air. This pipe A may of course be substituted by a common reservoir for compressed air located, for instance, in the middle of the apparatus and connected with the jets by means of hose. The reservoir and the conduits for the compressed air may also be left out, and the gas may simply be caused to suck in the requisite air through the jet, although this has not proved to be advantageous. The pipes C are at the one side of the gas-pipe F (in the present case represented on the drawings at the outer side at P) pivoted at a movable ring N, supported by holders O, and connected by means of links N, Fig. 2, with a bar L, to be moved by means of a handle K, so that in turning the handle the said ring and the pipes C, connected therewith, may be moved. In consequence hereof the pipes C pivot on the trunnions B, thus pushing the jets more or less near the tires located in the middle of the apparatus. In order to effect the raising and the lowering of the jets as well, the ring F and the ring N, connected therewith, are adjustable vertically, Fig. 1, the ring F being supported by a number of vertical chains X, running over rollers Y and at the top connected with a horizontal main chain T, likewise running over guide-rollers U V. This chain at its one end is connected with the pipe F and at its other end with a bent lever R, by the turning of which the chain T may be tightened or loosened, thus raising or lowering the chains X, the gas-pipe F, and the pipes C, with their jets supported by the pipe F. The ring F when moving is guided by stays Z. The tires are placed upon a substructure A', and the entire device is to be sunk in the floor of the workshop and covered by a lid A².

In the modified form of our apparatus represented by the Figs. 4 to 7 the turning of the pipes C in the horizontal plane is effected as follows: The ring N is provided with a toothed segment a, gearing with a pinion b on the shaft of a wheel c, by the turning of which the ring N thus may be turned. By this means, also, the pipes C, connected with the ring N, are turned around the trunnions B, so that the position of the jets D is changed with relation to the tires. The adjusting of

the jets D vertically may be effected without needing to raise the gas-pipe F. For this purpose the trunnions B, on which the pipes C are pivoted, are disposed so that they allow, also, the turning of the pipes vertically, Figs. 4 and 6, and, besides, there is under the ring N another ring *d*, likewise supporting a toothed segment *c*, gearing with the pinion *f* on the shaft of another wheel *g*. On the top of the ring *d* there is a wedge-shaped piece *h*, which upon turning the ring by means of the wheel *g*, the pinion *f*, and the toothed segment raises the ring N, reposing upon it directly or by means of a substructure. In this way the posterior ends of the pipes C are raised and the jets D are lowered in order to be raised anew when lowering the ring in turning the wheel *g* in the opposite direction, thus drawing back the wedge-piece.

Having now particularly described and ascertained the nature of this invention and in

what manner the same is to be performed, we declare that what we claim is—

In apparatus for the application and removal of tires, the described combination of devices, consisting of a set of gas-pipes C, each having a jet D at its inner end, an annular gas-pipe F, communicating with pipes C and on which they are pivoted, and a ring N, concentric with pipe F and on which pipes C are pivoted, said pipes being vertically and horizontally adjustable by raising and lowering the pipe F or the ring N, all substantially as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

EDUARD EKSTRÖMER.
HAMMUS MÖRNER.

Witnesses:

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