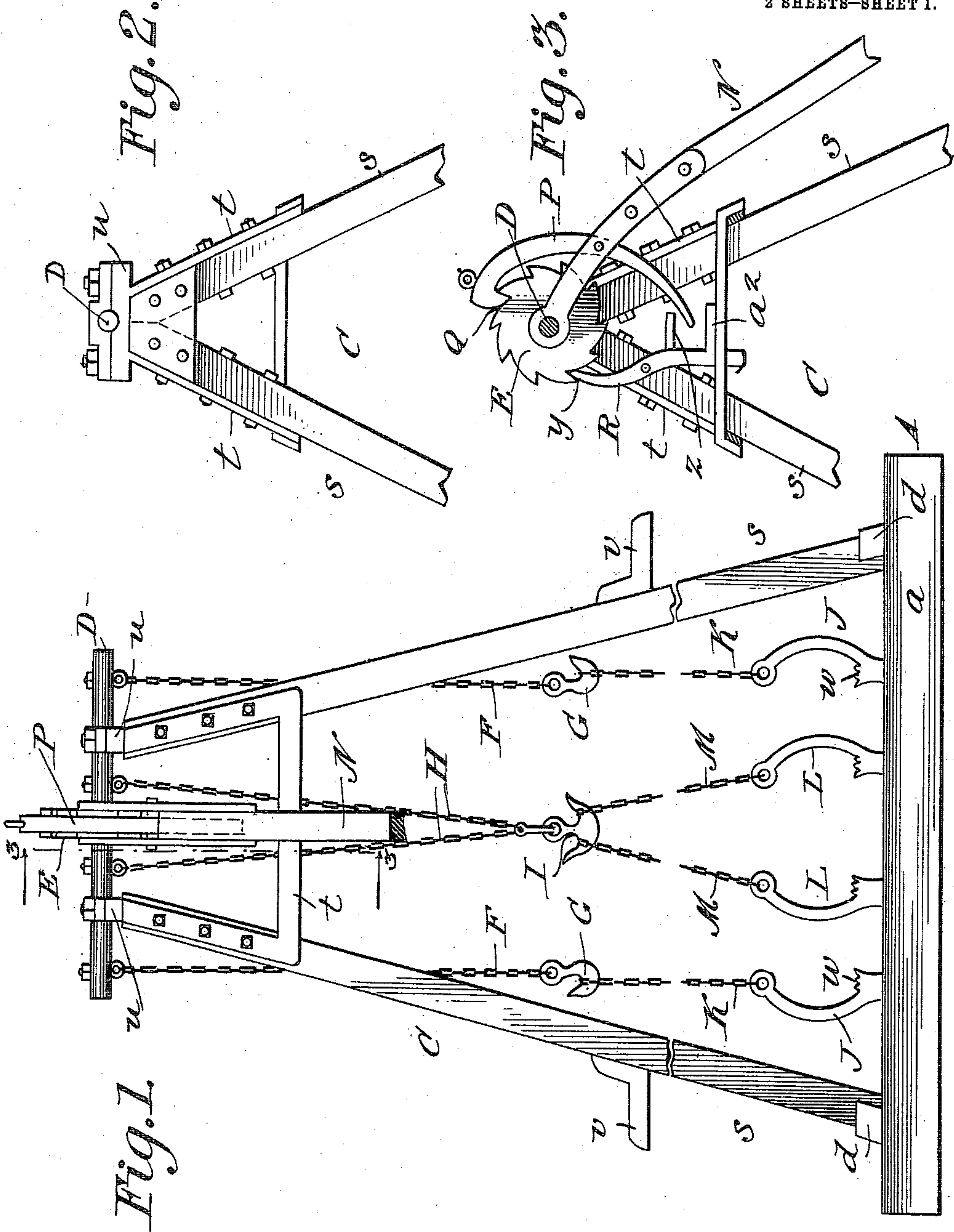


J. LASSALE.
TIRE REMOVING APPARATUS.
APPLICATION FILED SEPT. 12, 1910.

985,683.

Patented Feb. 28, 1911.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 4.

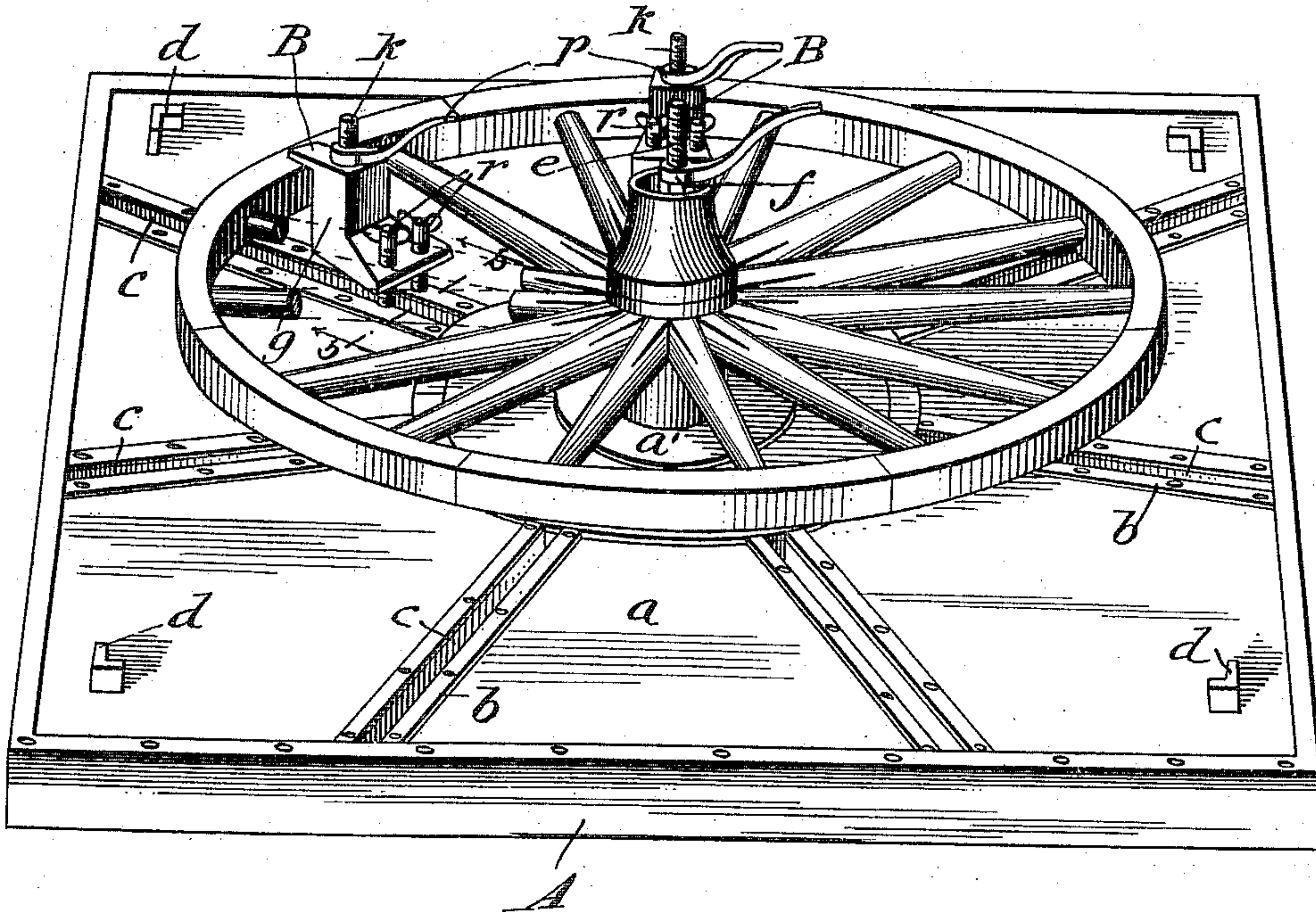


Fig. 5.

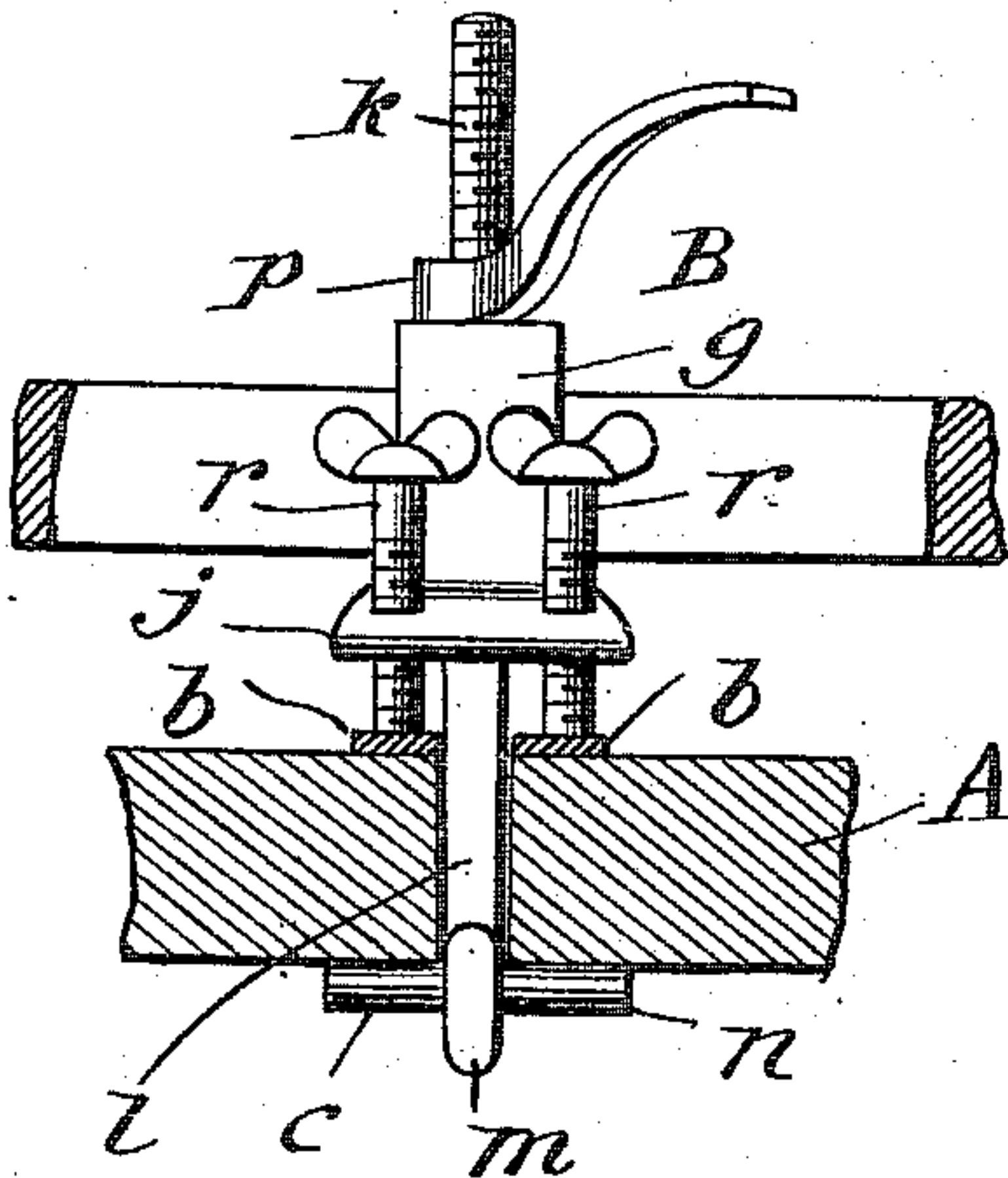
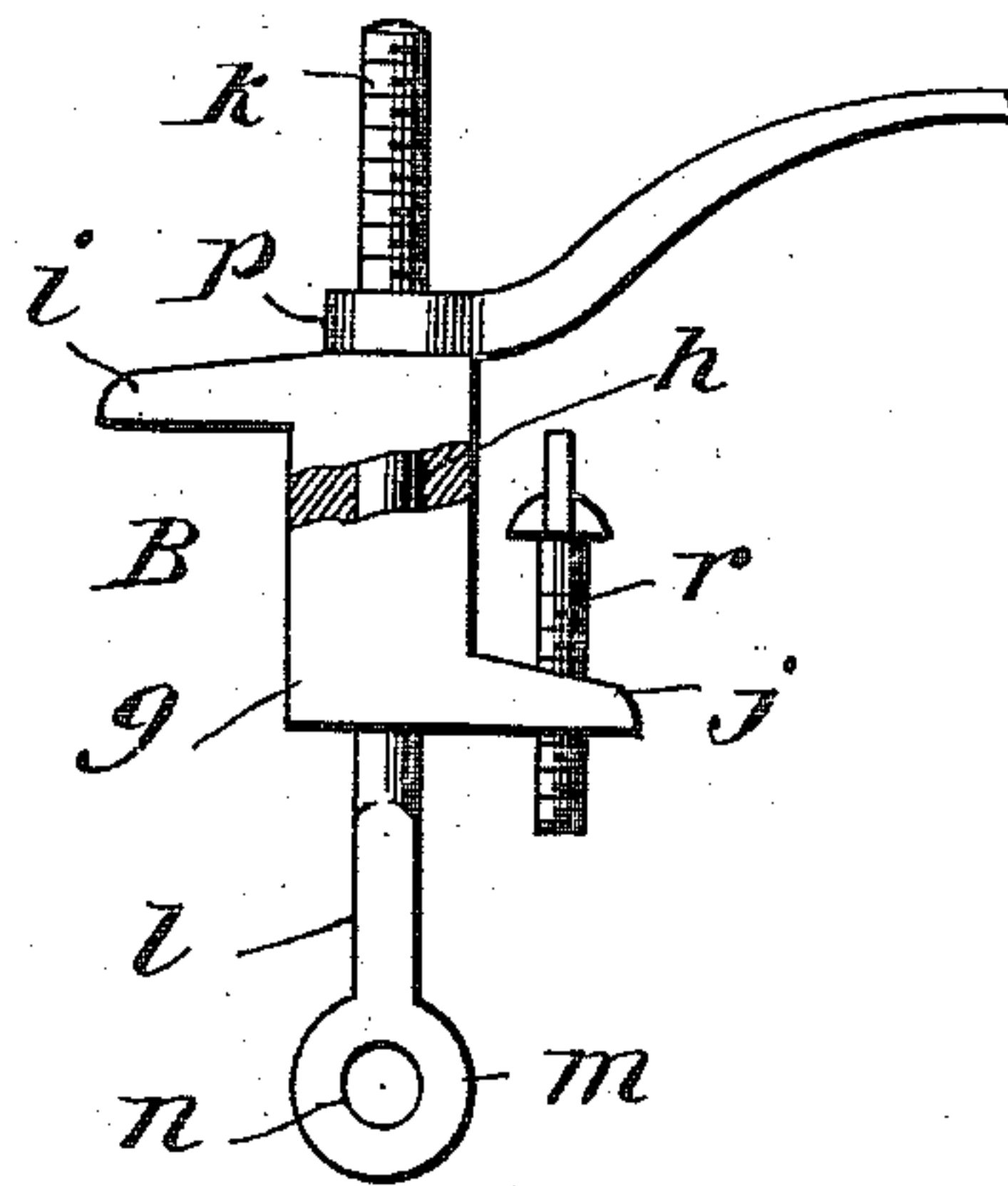


Fig. 6.



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UNITED STATES PATENT OFFICE.

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TIRE-REMOVING APPARATUS.

985,683.

Specification of Letters Patent. Patented Feb. 28, 1911.

Application filed September 12, 1910. Serial No. 581,527.

To all whom it may concern:

Be it known that I, JUSTIN LASSALE, citizen of the United States, residing at San Jose, in the county of Santa Clara and State of California, have invented new and useful Improvements in Tire-Removing Apparatus, of which the following is a specification.

My invention relates to apparatus for removing tires from vehicle wheels; and it consists in the easily operated and efficient apparatus hereinafter described and particularly pointed out in the claims appended.

In the accompanying drawings, forming part of this specification: Figure 1 is a front view of the apparatus constituting the present and preferred embodiment of my invention. Fig. 2 is a view of a portion of the stand of the machine, taken at a right angle to Fig. 1. Fig. 3 is a detail vertical section taken in the plane indicated by the line 3—3 of Fig. 1 and illustrating the means for turning the shaft of the apparatus and for holding said shaft against retrograde motion. Fig. 4 is a perspective view showing a wheel properly secured on the platform of the apparatus; the stand and its appurtenances being omitted. Fig. 5 is a detail section taken in the plane indicated by the line 5—5 of Fig. 4, looking in the direction indicated by arrow. Fig. 6 is a view of the felly clamp as the same appears when removed from the platform.

Similar letters designate corresponding parts in all of the views of the drawings, referring to which:

A is the platform of my novel apparatus. This platform preferably comprises a main or body portion *a*, of hard wood, a central metallic plate *a'* thereon, and metallic straps *b* connected to and adapted to reinforce and strengthen the portion *a*; and it is provided in the portion *a* and between straps *b* with slots *c* which extend outward from points grouped about and adjacent to its center. The number and arrangement of these slots *c* depends on the number of joints between felly section in the wheel from which the tire is to be removed, and at this point I desire it understood that when tires are to be removed from wheels having more

or less than seven joints between their felly sections, other platforms are used in lieu of the one illustrated. In addition to the slot *c*, the platform A is provided with angular corner blocks *d* for engaging the legs of the stand, presently described, and a central threaded rod *e*. This latter is fixed to and rises from the center of the platform so as to extend through the hub of the wheel, Fig. 4, and is equipped with a lever nut *f* for clamping and holding the hub.

B is the felly clamp—i. e., the device for holding the felly against upward movement when upward pull is exerted on the tire as presently described. I employ in practice a number of these clamps B corresponding to the number of slots *c* in the platform A and the number of joints between felly sections in the wheel from which the tire is to be removed, but as said clamps are identical in construction a detail description of the one shown in Figs. 5 and 6 will suffice to impart a definite understanding of all. The said clamp B, Figs. 5 and 6, comprises a body *g* having a smooth bore *h* and also having an upper arm *i* for resting over the joint between felly sections, and a lower arm *j* extending in the opposite direction to the arm *i*. The clamp also comprises a threaded bolt *k* extending through the smooth bore *h* in body *g* and having its lower portion *l* of square form in cross-section to prevent it from turning in the slot *c* of platform A, and also having an eye *m* at its lower end, and a cross-pin *n* arranged in said eye *m* and designed to rest under the platform A, Fig. 5, to prevent upward movement of the bolt with respect thereto. The clamp further comprises a lever nut *p* mounted on the threaded bolt *k* above the body *g*, and screws *r* bearing in the arm *j* of body *g* and designed to be set against straps *b* of platform A with a view of preventing the body *g* tilting inward when the tire of the wheel under the arm *i* is subjected to upward pull, as presently described.

It will be readily apparent that when a clamp B is employed for each joint between felly sections of the wheel, the felly sections

will be held in proper position relative to each other and against upward movement notwithstanding the strong upward pull necessarily exerted on a tire in order to remove the same from the felly sections. It will also be apparent that through the medium of the means described, a wheel may be quickly and securely fastened on the platform A preparatory to removing the tire from the wheel, and after the tire is removed the wheel may be as readily released from the platform.

C, Figs. 1, 2 and 3, is the stand of the apparatus. This stand C comprises sides such as shown in Fig. 2 having diverging legs *s* fixedly connected together and braced at their upper ends and designed to be arranged at their lower ends in the corner blocks *d* of the platform A. The said stand also comprises U-shaped metallic bars *t* connecting the said sides and holding the same in fixed relation to each other, and journal boxes *u* secured on the ends of said bars *t*. The legs *s* of the stand are preferably equipped with hand-grasps *v* designed to facilitate movement of the stand on and off the platform A.

D is a shaft journaled in the boxes *u* of the stand C and bearing a ratchet E.

F F are cables connected to and designed to be wound on the shaft D at points adjacent to the ends thereof and having hooks G at their lower ends. H H are cables also connected to and designed to be wound on the shaft D and connected at their lower ends to a double hook I.

J J are tire pulling devices connected through cables K with the hooks G and having serrated toes *w* for taking secure hold of a tire, and L L are similar tire-pulling devices connected through cables M with the double hook I. When the devices J and L are properly placed in engagement with the tire of a wheel secured on the platform A in the manner before described, and the shaft D is rotated to wind the cables F and H thereon, it will be apparent that the tire will be pulled from the felly of the wheel, and this without injury to the said felly.

In order to enable an operator to easily and yet powerfully rotate the shaft D for the purpose stated, I provide in combination with the ratchet E, the mechanism best shown in Figs. 1 to 3. This mechanism comprises a hand lever N loosely mounted on the shaft D, and a pawl P pivotally connected at an intermediate point of its length to the lever N and having a beveled projection Q at its upper end arranged to engage the teeth of the ratchet E. On the down movement of the lever N, the pawl P will obviously operate to turn the shaft D in the direction indicated by arrow in Fig. 3, and in order to prevent retrograde or back

turning of the shaft during the upward movement of said lever I provide the dog R pivotally mounted between legs *s* of the stand, as best shown in Fig. 3. The dog R is connected to the bar S so as to swing vertically; and in addition to its portion *y* for engaging the teeth of the ratchet E, it is provided with upper and lower arms *z* and *z'*, the latter of which is designed to gravitate to the position shown in Fig. 3 and in that way normally hold the dog in engagement with the teeth of the ratchet.

It will be gathered from the foregoing that through the medium of the mechanism described a tire may be pulled from a wheel with the expenditure of but little effort and in a short space of time.

I have entered into a detailed description of the construction and relative arrangement of the parts comprised in the present and preferred embodiment of my invention in order to impart a definite understanding of the said embodiment. I do not desire, however, to be understood as confining myself to the said specific construction and relative arrangement of parts as such changes or modifications may be made in practice as fairly fall within the scope of my invention as claimed. For instance the platform A may be provided on its under side at its four corners with rollers or wheels, this with a view of facilitating movement of the apparatus as a whole. These rollers or wheels, however, I have deemed it unnecessary to illustrate as they do not affect my invention.

Having described my invention, what I claim and desire to secure by Letters-Patent, is:

1. An apparatus for removing tires from vehicle wheels, comprising a platform, devices connected with said platform and arranged to rest over the joints between the felly sections of a wheel to hold the felly against upward movement, a shaft supported above the platform, means for rotating said shaft, tire-pulling devices having serrated toes arranged to take hold of a tire, and connections intermediate the tire-pulling devices and the shaft and arranged to be wound on the latter.

2. In an apparatus for removing tires from vehicle wheels, the combination with tire-removing means, and a body; of clamps connected with and adjustable on the body and having arms arranged to rest over the joints between the sections of a wheel felly.

3. An apparatus for removing tires from vehicle wheels, comprising a platform, means for holding a wheel down on the platform, a stand arranged on the platform, a shaft mounted in the stand and bearing a ratchet, a lever loosely mounted on said shaft and arranged to be swung vertically, a pawl carried by the lever and arranged

to engage the teeth of the ratchet, means on
the stand arranged to engage the teeth of the
ratchet and prevent retrograde movement of
the shaft, tire pulling devices provided with
5 serrated toes for engaging a tire, and cables
connected with said devices and connected
to and arranged to be wound on the shaft.

In testimony whereof I have hereunto set
my hand in presence of two subscribing wit-
nesses.

JUSTIN LASSALE.

Witnesses:

M. S. CHRISTINS,
CHAS. E. HOWES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
