

A. CHRISTIANSON.

APPARATUS FOR TRANSFERRING AND REMOVING MANDRELS FROM CAR WHEEL BLANKS.

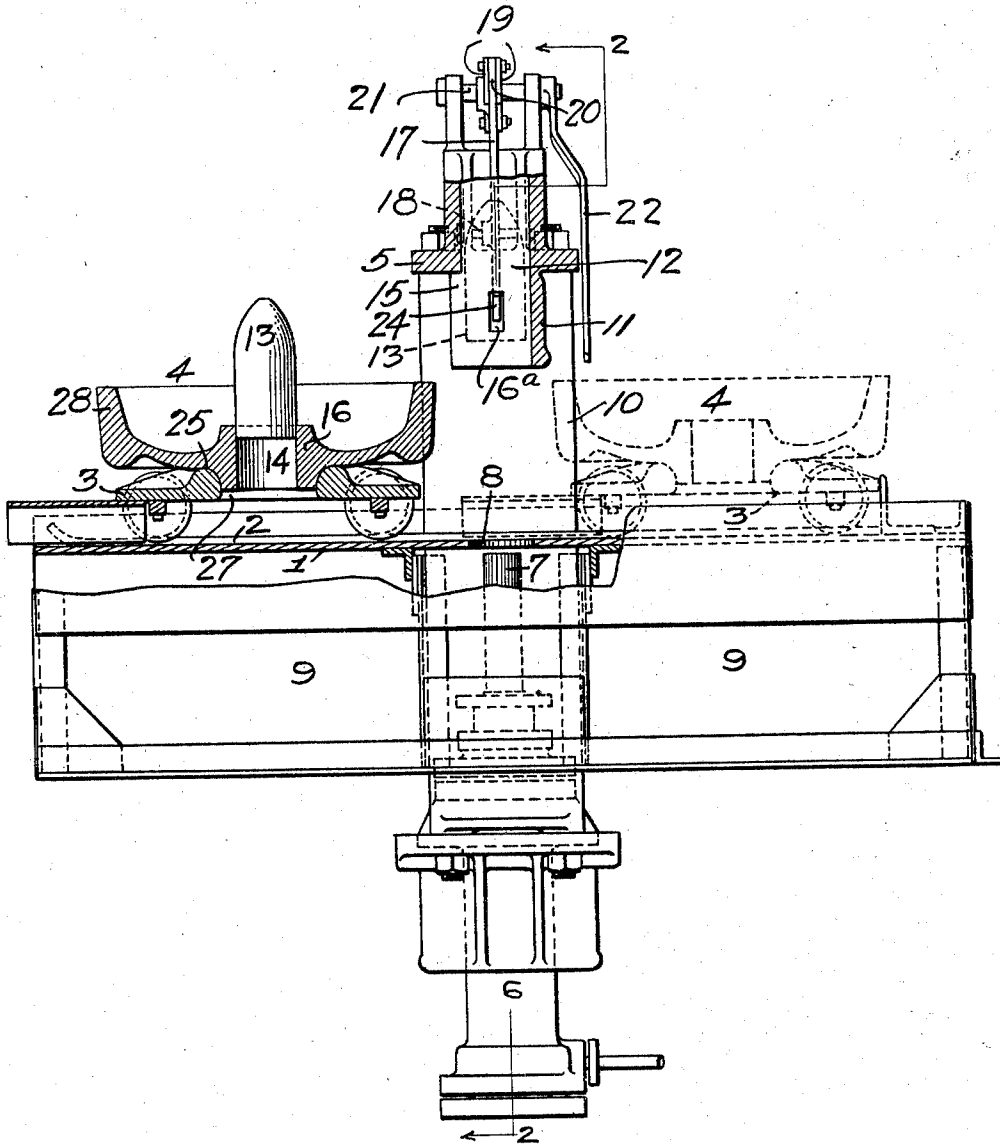
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967,169.

Patented Aug. 16, 1910.

2 SHEETS—SHEET 1.

FIG. 1



WITNESSES.

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F. W. Kay

INVENTOR.

Andrew Christianson
By Ray K. G. Allen

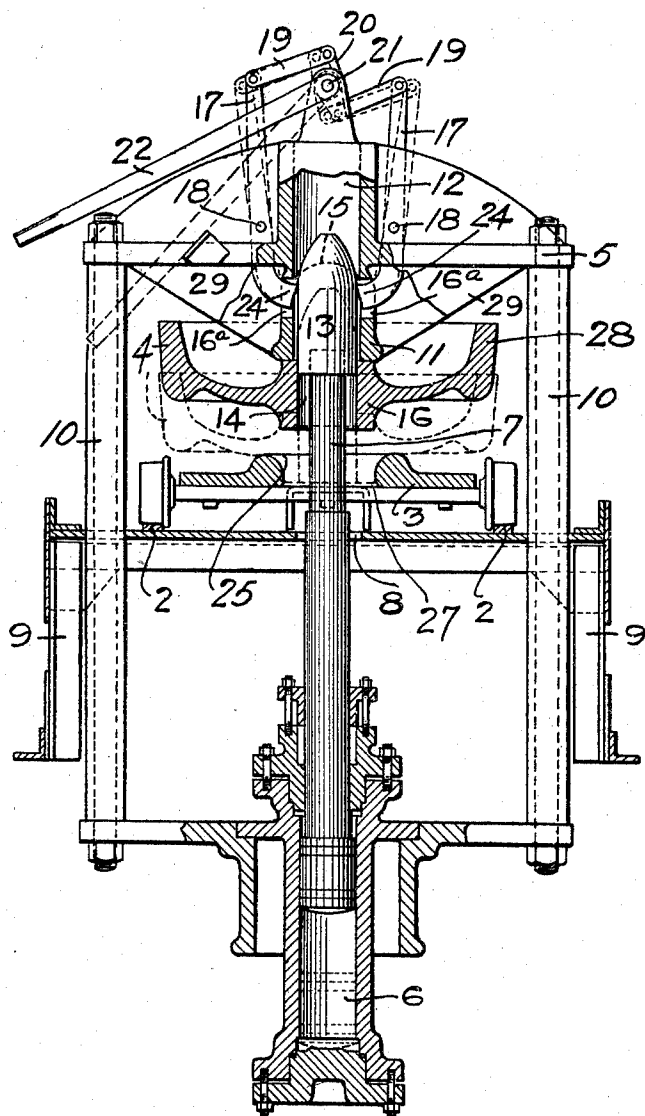
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2 SHEETS—SHEET 2.

FIG. 2



WITNESSES.

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UNITED STATES PATENT OFFICE.

ANDREW CHRISTIANSON, OF BUTLER, PENNSYLVANIA, ASSIGNOR TO FORGED STEEL WHEEL COMPANY, OF PITTSBURG, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

APPARATUS FOR TRANSFERRING AND REMOVING MANDRELS FROM CAR-WHEEL BLANKS.

967,169.

Specification of Letters Patent. Patented Aug. 16, 1910.

Application filed June 26, 1909. Serial No. 504,542.

To all whom it may concern:

Be it known that I, ANDREW CHRISTIANSON, a resident of Butler, in the county of Butler and State of Pennsylvania, have invented a new and useful Improvement in Apparatus for Transferring and Removing Mandrels from Car-Wheel Blanks; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to apparatus for removing mandrels from blanks, for example, removing the loose piercing tools or mandrels from blanks for making car wheels and the like. It is applicable for use in connection with methods of making car wheels such as illustrated in Letters Patent No. 866,020 granted to John M. Hansen on the 17th day of September, 1907, and in the use of the apparatus shown in Letters Patent No. 922,392 granted to me May 18, 1909. It is desirable that the mandrels as illustrated therein shall be made separate from the plungers operating the same so that it is unnecessary to draw the mandrel backwardly out of the forged blank which is liable to quickly shrink and bind upon the mandrel. Practice has shown that these loose mandrels are often forced entirely through the blank, but that in some cases they stick therein and it becomes necessary to quickly remove them therefrom. The present application relates to the handling of the blanks and to the removal of such piercing tools.

It comprises, generally stated, a table by which the blank is supported in line with an abutment having a seat formed therein for the mandrel and a ram on the plunger adapted to pass through the blank and contact with the piercing tool and force the same out of the blank against the support of the abutment; as well as certain other improvements such as means for gripping and holding the mandrel when forced from the blank and a track-way and buggy for carrying the blank into and away from position for the above operation.

In the accompanying drawing Figure 1 is a side view partly broken away illustrating the invention; and Fig. 2 is a cross section on the line 2—2 Fig. 1.

In the apparatus as illustrated in the said drawings 1 is the table for supporting the

blank, the same being illustrated as having a track-way 2 on which the buggy 3 travels, the track-way being of sufficient length to receive the pressed blank 4 on the buggy to carry it under the platen 5 and after the removal of the mandrel carry it to the opposite side into position to be removed from the table, either to be delivered to a furnace for reheating, or, if it is in finished form, to be carried away. Below said table is the hydraulic ram 6 having its plunger 7 passing upwardly through an opening 8 in the table 1. This plunger can of course be operated by any suitable power.

Extending up from the bed frame 9 of the machine are the standards 10 on which is supported the platen 5 and that platen has the abutment 11 in line with the plunger 7, the abutment depending below the platen as shown. This abutment has a central opening 12 of sufficient size to receive the mandrel 13, so that it may be forced out of the blank into such central opening, by means of the plunger 6 passing up through the eye 14 of the blank. As illustrated in Fig. 1 the mandrel 13 extends considerably above the blank and to permit it to enter the recess 12 the abutment 11 is cut away on its entrance side, having the recess 15 through which the mandrel enters within the central opening or seat of the abutment. As shown in the drawing the abutment corresponds substantially in size to the hub portion 16 of the blank, so that when the ram strikes the mandrel, if the blank binds so firmly upon the mandrel that the blank is raised before the mandrel is forced out of it, the blank will strike the abutment 11 which will hold it from upward movement so that the plunger can force the mandrel free therefrom.

In order to retain the mandrel within the seat or central opening 12 I provide suitable gripping mechanism to catch thereon and hold it until the blank can be carried away, after which the mandrel can be freed from the gripping mechanism and drop out of the seat. For this purpose I form in the abutment 11 the slots 16^a and I mount on the platen 5 the levers 17 pivoted at 18 and connected by straps 19 with the arms 20 of the rock shaft 21, which also carries the hand lever 22 which in its normal position extends down as shown. The lower ends of the

levers 17 have gripping jaws 24 to engage with the mandrel as shown in Fig. 2 and hold the mandrel within the seat 12.

In the use of the apparatus the blank can be brought into proper position in any desired way, the simplest apparatus being the buggy above referred to, which has a curved annular seat 25 upon which the hub 16 rests, the hub extending down into the central opening 27 as shown. The blank may be delivered onto the buggy by any suitable crane or like means and it is then pushed under the abutment 11, the body of the mandrel entering within the seat 12 of the side recess 15, when it is in position for use. By means of the hydraulic ram the plunger 7 is then raised, passing up through the central eye 14 of the blank against the mandrel 13. In some cases the blow of the plunger is sufficient to dislodge the mandrel from the eye of the blank as it rests on the car. Otherwise the plunger raises the blank with the mandrel until the hub portion of the blank strikes against the abutment 11 which holds it from further upward movement and the plunger forces the mandrel out of the blank and up into position to be gripped by the jaws 24 of the gripping mechanism and the blank then drops back onto its seat in the buggy and the plunger is withdrawn. The blank can then be carried to the other side of the apparatus ready to be taken by another set of tongs to the furnace or place of delivery. It will be noted that the abutment 11 depends a considerable distance below the platen 5. This is necessary because the annular edge portion 28 of the blank extends a considerable distance above the hub and as the blank is necessarily fed under the abutment the abutment can be supported in such manner as to permit the blank to rise as illustrated in Fig. 2 until it strikes the abutment, as above described. For this purpose the abutment is supported by the depending wings 29 extending down from the platen in position to give sufficient strength to the abutment and sustain the pressure in forcing out the mandrel.

The above apparatus is illustrative generally of the invention, which is intended to cover broadly the features set forth except in the claims specifically referring to certain parts as hereafter stated.

What I claim is:

1. In apparatus for removing mandrels from blanks, the combination of a supporting table, a plunger and an abutment in line with each other one below and the other above the table, the plunger being adapted to pass through the eye of the blank and force the mandrel therefrom.

2. In apparatus for removing mandrels

from blanks, the combination of a table, an abutment having a seat therein to receive the mandrel and a recess in the side thereof and a plunger adapted to pass through the eye of the blank and force the mandrel into the seat of the abutment.

3. In apparatus for removing mandrels from blanks, the combination of a table, an abutment having a seat and gripping means entering said seat, and a plunger adapted to enter the eye of the blank and force the mandrel into engagement with the gripping means in the seat.

4. In apparatus for removing mandrels from blanks, the combination of a table having a central opening, a platen having an abutment depending therefrom and provided with a central opening or seat and a side recess to permit the entrance of the mandrel, and a plunger adapted to pass through such central opening of the table and enter the eye of the blank and force the mandrel from the seat.

5. In apparatus for removing mandrels from blanks, the combination of a table, a plunger adapted to enter the eye of the blank and contact with the mandrel, a platen having a depending abutment adapted to enter within the blank when raised by the plunger and contact with the hub portion thereof.

6. In apparatus for removing mandrels from blanks, the combination of a table, a truck traveling thereon and adapted to support the blank and having a central opening, an abutment and a plunger adapted to pass through the central opening of the truck into the eye of the blank and force the mandrel from the blank.

7. In apparatus for removing mandrels from blanks, the combination of a table, a plunger, an abutment in line therewith having a central opening or seat, and gripping levers having jaws extending into said seat adapted to grip and hold the mandrel when forced from the blank.

8. In apparatus for removing mandrels from blanks, the combination of a table, a plunger, an abutment in line therewith having a central opening or seat and gripping levers having jaws extending into said seat adapted to grip and hold the mandrel when forced from the blank, said gripping levers being connected to a hand operated rock shaft.

In testimony whereof, I the said ANDREW CHRISTIANSON have hereunto set my hand.

ANDREW CHRISTIANSON.

Witnesses:

ROBERT C. TOTTEN,
J. F. WILL.