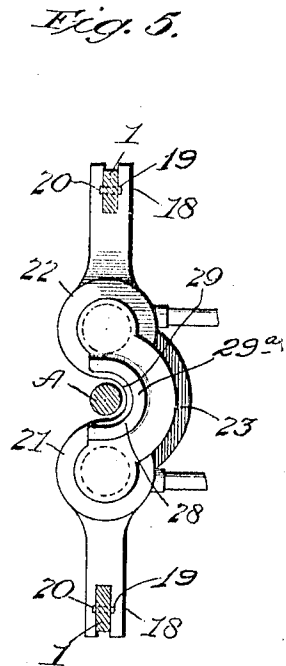
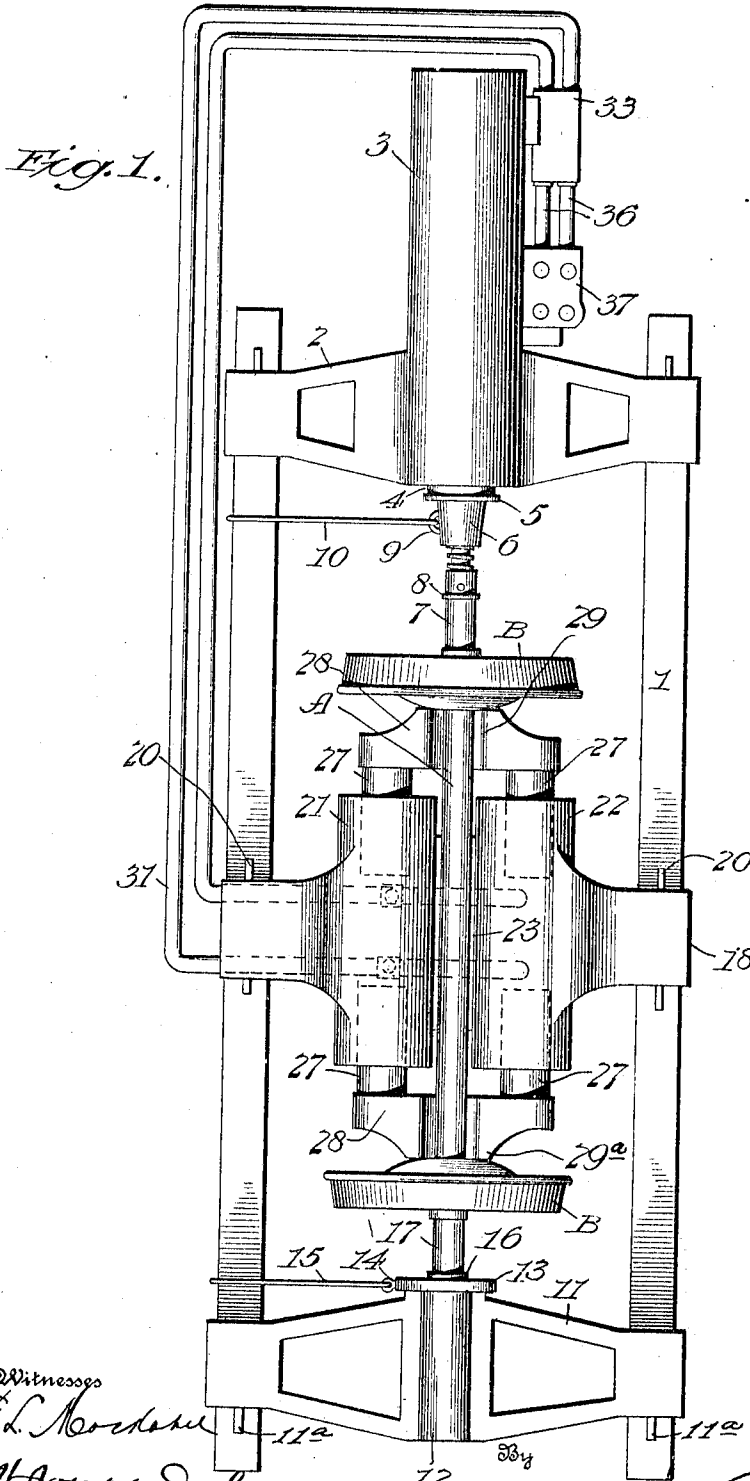


M. M. MORAN.
ATTACHMENT FOR HYDRAULIC WHEEL PRESSES.
APPLICATION FILED JAN. 27, 1909.

950,573.

Patented Mar. 1, 1910.

2 SHEETS—SHEET 1.



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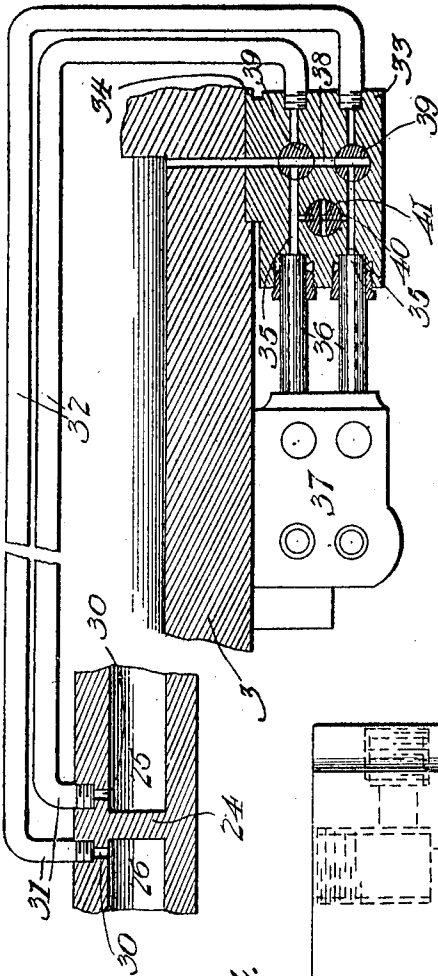


Fig. 2.

Fig. 4.

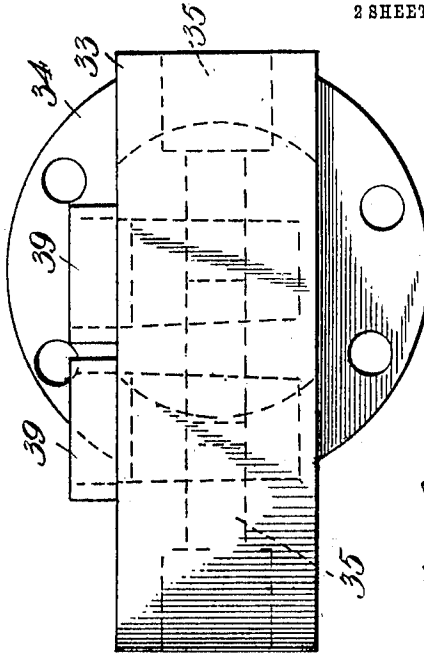
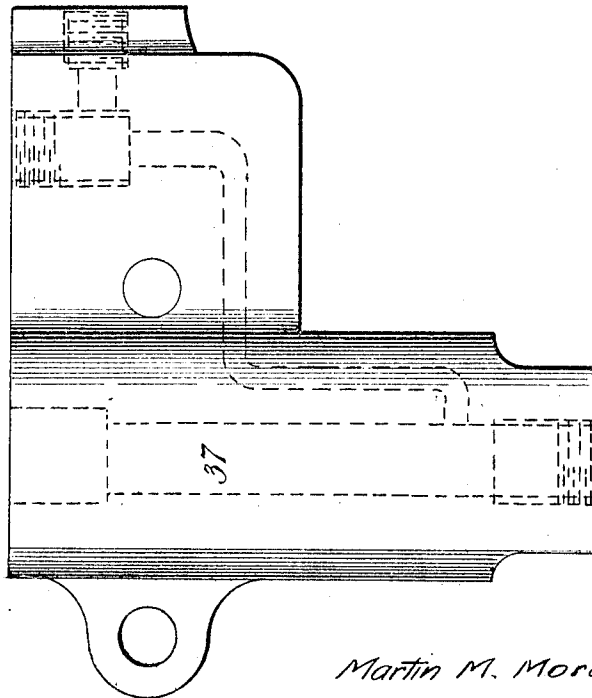


Fig. 3.

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UNITED STATES PATENT OFFICE.

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ATTACHMENT FOR HYDRAULIC WHEEL-PRESSES.

950,573.

Specification of Letters Patent.

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Application filed January 27, 1909. Serial No. 474,413.

To all whom it may concern:

Be it known that I, MARTIN MICHAEL MORAN, a citizen of the United States, residing at Ogden, in the county of Weber and State of Utah, have invented certain new and useful Improvements in Attachments for Hydraulic Wheel-Presses, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to hydraulic presses especially adapted for removing car wheels from their axles, and has in view certain improvements in such presses whereby it is possible to remove both wheels from an axle at practically the same time and thereby obviate the laborious task of turning the axle end for end such as is necessary when but one wheel is removed at a time.

In carrying out the general object of the invention stated above it is contemplated employing a rest for the axle so that the wheels on each end thereof will be in a position to be pushed from the ends of the axle by means of oppositely moving rams which are operated by means of hydraulic pressure forced into their cylinders by a pump, intermediate valve mechanism being employed for regulating or controlling the pressure exerted upon the rams so that various degrees of pressure may be exerted thereupon to compensate for the amount of force that may be required when one wheel fits the axle tighter than the other.

In the practical application of the invention for the purpose primarily intended, it will, of course, be readily understood that various changes in details and structural arrangements may be resorted to, one practical embodiment of which is shown in the accompanying drawings, wherein—

Figure 1 is a side elevation of a wheel remover, showing the practical application of the same. Fig. 2 is a detail sectional view of a portion of the cylinders of the machine and the valve controlled communication therewith. Fig. 3 is a bottom plan view of the valve casing detached from the main cylinder, the valves or plugs therein being indicated by dotted lines. Fig. 4 is a bottom plan view of the pump casing. Fig. 5 is an end view of the pressing-off cylinders, showing the connection between the rams therein.

Referring to the accompanying drawings by numerals, the press or machine comprises

in its general organization, two spaced apart beams or supports 1 which have one of their ends connected by means of a strong truss beam 2 which may have formed integral with its central portion a main cylinder 3 which extends transversely of said beam 2 and carries a ram 4 the front end of which projects beyond the front end of said cylinder and is provided with an annular flange 5 from which projects a tapering sleeve 6 which has a threaded engagement with a sleeve 7 upon which the wheels are received when forced off their axle, said sleeve 7 being provided with an annular flange 8 which acts as an abutment for the hub of the wheel to limit its movement on said sleeve. The tapering sleeve 6 is provided with an outstanding eye 9 which has a rod connection 10 with one of the side beams 1 to assist in holding the same stationary and imparting strength thereto when the machine is in use.

The ends of the beam 2 may be bifurcated to engage over the side beams 1, as will be described in detail later on in connection with one of the other figures of the drawing in which the same connection is shown in section. The other ends of the side beams 1 are similarly connected by means of a truss beam 11 provided with a central transversely arranged recess or seat 12 the inner end of which is provided with an annular flange 13 carrying an eye 14 which has a rod connection 15 with one of the side beams 1. An abutment shoulder 16 projects from the annular flange 13, and said abutment shoulder 16 carries a laterally projecting rod or tube 17 upon which a wheel is received when pressed or pushed from its axle, the abutment shoulder thereon serving as a stop to limit the movement of the wheel thereon. The beam 11 may be moved longitudinally of the side beams 1, for a purpose to be set forth later on.

An axle rest extends across the intermediate portion of the space between the side beams 1, said axle rest being of heavy metal and having its ends bifurcated, as indicated at 18 in Fig. 5 of the drawings, the bifurcated members of the ends being provided with slots 19 which are engaged by pins 20 passing transversely through the side beams 1 for holding said ends in engagement with the side beams. The axle rest is provided with two transversely arranged cylinders 21—22, which are spaced apart, but connect-

ed by means of a concaved transversely arranged axle seat 23 which is suitably reinforced to withstand the weight to which it is subjected. Each cylinder is centrally divided by means of a partition plate 24 to divide the same into two pressure chambers 25—26 which have independent communication with a source of power. A pressing-off ram 27 is mounted for reciprocation in each cylinder, the end of which that projects beyond the cylinders having a yoke connection 28 with the ram in the cylinder on the opposite side of the axle rest or seat 23. Said yoke has a centrally concaved portion 29 corresponding with the concavity of the axle seat 23. As aforesaid, each cylinder or pressure chamber has a separate communication with a source of hydraulic pressure supply, such communication consisting of a threaded opening 30 into which is threaded a pipe 31 which connects with a supply pipe 32 in communication with a valve chamber 33 which has an annular flange 34 adapted for secure and rigid attachment to the main cylinder 3. Said valve chamber 33 has two straight passages 35 therethrough which communicate with the supply pipes 32 at one end, and at their other end have a pipe connection 36 with a pump or pumps 37, having a suitable connection with a source of water supply. The two straight passages 35 are intersected by a main cylinder supply passage 38, turning plugs being interposed at the point of intersection of the straight passages 35 and the main cylinder supply passage 38, said plugs being designated by the numeral 39 and being provided with three-way passages whereby the pressure supply from the pump 37 may be diverted into the main cylinder 3, or permitted to pass through the supply pipes 32 and thence to the cylinders or pressure chambers 25 and 26, as is shown in detail in Fig. 2 of the accompanying drawings. A drain passage 40 connects the straight passages 35, said drain passage being provided with a two-way plug 41 to permit the water to be drawn from the cylinders 25—26. The beam 11 is slidably mounted in the bars 1 and may be locked thereto by means of the wedges 11^a. As shown in Fig. 1 said beam is in the position to cooperate in the pressing-off of the wheels B.

In using the invention, the wheel axle A is placed within the axle seat 23 with the outstanding portion 29^a of the yokes 29 bearing against the inner face of the hubs of the wheels B. The plugs or valves 39 are turned to open communication through the valve chamber 33 from the pump 37 to force the hydraulic pressure through the pipes 32 and into the chambers 25—26 and cause the rams 27 to force the yoke 29 against the wheel with sufficient force to remove the wheels from the axle and onto the sleeves 7 and 17

of the beams 2 and 11. By this means, both wheels are practically removed simultaneously, thereby avoiding the necessity of turning the axle end for end, such as is necessary when but one wheel is removed at a time.

While in the foregoing particular stress has been laid on the value of the invention for removing wheels from axles, the same is also capable of placing wheels thereon, this operation being performed by the main cylinder 3, its cooperating ram 4, the beam 11 and the rams adjacent thereto. To place the wheel on the main cylinder end of the axle, the sleeve 7 is removed from the tapering sleeve 9 of the ram 4, and while the axle is held in the axle seat 23 the wheel is brought to position so that the opening through its hub will register with the axle and the beam sleeve 2 abuts against the hub of the wheel, whereupon pressure is admitted to the cylinder through manipulations of the turning plugs 39, and the ram 4 will force said wheel onto the axle. To place a wheel on the other end of the axle, said axle is held in the axle rest 12 of the beam 11. The wheel to be pressed onto the axle is held with its hub in contact with rams 28, and said beam is then moved horizontally of the bars 1 to bring the end of the axle and the opening of said hub in contact, whereupon, when pressure is applied to the cylinders 26, the rams thereof will press the wheel onto the end of the axle.

It will be seen from the foregoing that the invention is one that can be readily operated to perform the functions for which it is designed by simply manipulating the turning plugs to send the pressure from the pump to the cylinders that are to be used for removing or replacing the wheels, thereby greatly economizing in labor. It will also be understood that the pump and valve chamber shown and described are but one of the many types of such that may be used and therefore it is to be understood that the invention is in no wise to be limited to the described construction of pump and valve or chamber.

What I claim is:—

1. A machine of the character described comprising a source of hydraulic supply, pressing cylinders in communication therewith, an axle rest between said cylinders, and pressing rams projecting from opposite ends of said cylinders and operated by the hydraulic supply.

2. A machine of the character described comprising a source of hydraulic pressure, pressing cylinders in communication therewith, an axle rest between said cylinders, pressing rams projecting from opposite ends of said cylinders, and a connection between the projected ends of the said rams and adapted to exert an outward pressure to remove wheels from axles.

3. A machine of the character described comprising a source of hydraulic supply, pressing cylinders in communication therewith, said cylinders being centrally divided to provide two chambers in each cylinder, a ram in each cylinder and having one end projecting beyond the same, an axle seat between the cylinders, and a connection between the projected ends of each ram for exerting a pressure to remove wheels from axles.

4. A machine of the character described comprising a source of hydraulic pressure, cylinders in communication therewith and divided into separate chambers having a separate communication with the source of hydraulic pressure supply, a ram for each chamber, and an axle seat between the cylinders.

5. A machine of the character described, comprising a pressing-on cylinder, pressing-off cylinders, a source of pressure supply, a ram for each cylinder, means for controlling the pressure supply whereby the same may be diverted to the pressing-off cylinders or the pressing-on cylinder, and an axle rest between the pressing-off cylinders.

6. A machine of the character described, comprising a pressing-on cylinder, pressing-off cylinders, a source of pressure supply, means carried by the pressing-on cylinder for controlling said pressure supply whereby the same may be directed to the pressing-off cylinders or to the pressing-on cylinder, and an axle-rest carried by the pressing-off cylinders.

7. A machine of the character described, comprising a pressing-on cylinder, pressing-off cylinders, a ram carried by each cylinder, a work rest carried by the pressing-off cylinders, a source of pressure supply, and means for controlling the pressure supply whereby the same may be diverted to either the pressing-on cylinder or the pressing-off cylinders.

8. A machine of the character described comprising supporting beams, a pressing-on cylinder mounted thereon, pressing-off cylinders also mounted on said beams and having an axle rest between them, a ram for each cylinder, a source of pressure supply, and means for controlling the pressure supply whereby the same may be diverted to either of said cylinders.

9. A machine of the character described comprising supporting beams, a pressing-on cylinder mounted thereon, a ram therefor, pressing-off cylinders also mounted on said beams, pressing rams projecting from opposite ends of said pressing-off cylinders, a work rest between said pressing-off cylinders, a source of pressure supply for all of said cylinders, and means for controlling the pressure supply whereby the same may be diverted to either the pressing-on cylinder or to the pressing-off cylinders.

10. A machine of the character described comprising a pressing-on cylinder carrying a detachable work support, a ram therefor, a second work-receiving support adjustably mounted, pressing-off cylinders having a work rest between them and provided with oppositely projecting rams for removing a wheel or the like from the work in said rest and forcing the same onto said work-receiving supports, a source of pressure supply communicating with the pressing-on and pressing-off cylinders, and means for controlling the pressure supply whereby the same may be diverted to either of said cylinders.

11. A machine of the character described comprising spaced apart side beams, a pressing-on cylinder mounted thereon and carrying a work-receiving support, a ram therefor, a second work-receiving support adjustably mounted on said side beams, pressing-off cylinders mounted on said beams between the pressing-on cylinder and the second work receiving-support and having a work rest between them, and oppositely projecting rams carried by said pressing-off cylinders and adapted to force a wheel or the like from the work in the work-seat and onto the work-receiving supports.

12. A machine of the character described comprising spaced apart side beams, a pressing-on cylinder mounted thereon and carrying a work-receiving support, a ram therefor, a second work-receiving support mounted on said beams, pressing-off cylinders mounted on said beams between the two work-supports and having a work-rest between them, rams projecting from opposite ends of said pressing-off cylinders and adapted to force a wheel or the like from the work and onto the work supports, a source of pressure supply, and means for controlling the pressure supply whereby the same may be diverted to either of said cylinders.

13. A machine of the character described comprising supporting beams, a pressing-on cylinder mounted on one end of the same and carrying a work-receiving support, a ram therefor, an adjustably mounted transverse beam connecting the other ends of said supporting beams and carrying a work-receiving support, pressing-off cylinders mounted on said beams between said work-receiving supports and having a work rest between them, a source of pressure supply, and means for controlling said pressure supply whereby the same may be diverted to either of said cylinders.

14. A machine of the character described comprising spaced apart supporting beams, a pressing-on cylinder mounted thereon adjacent to one end and carrying a work-receiving support, a ram therefor, a transverse beam adjustably mounted on the said beams adjacent to their other ends and carrying a

work-receiving support, parallel pressing-off
cylinders having a work rest between them,
said cylinders being also mounted on said
beams and each carrying oppositely project-
5 ing rams for forcing wheels or the like from
the work and onto the work supports, a
source of pressure supply, and means for
controlling the pressure supply whereby the

same may be diverted to either the pressing-
on cylinder or the pressing-off cylinder. 10

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

MARTIN MICHAEL MORAN.

Witnesses:

FRANK R. WIAANT,
THOS. B. FARMER.