H. A. JENSENIUS.

WHEEL PRESS.

APPLICATION FILED FEB. 12, 1912.

1,054,557.

Patented Feb. 25, 1913.

2 SHEETS—SHEET 1.

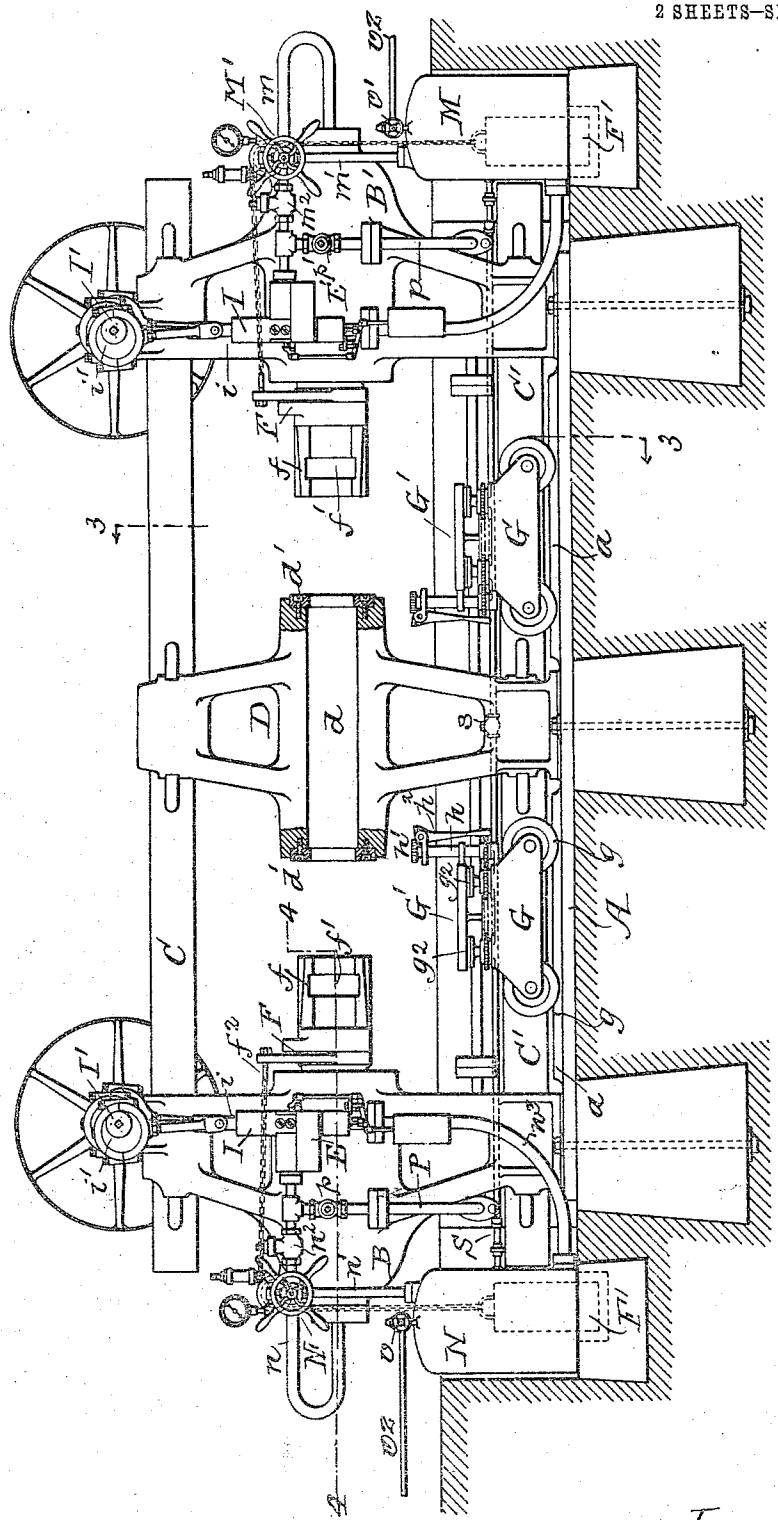

Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 3.

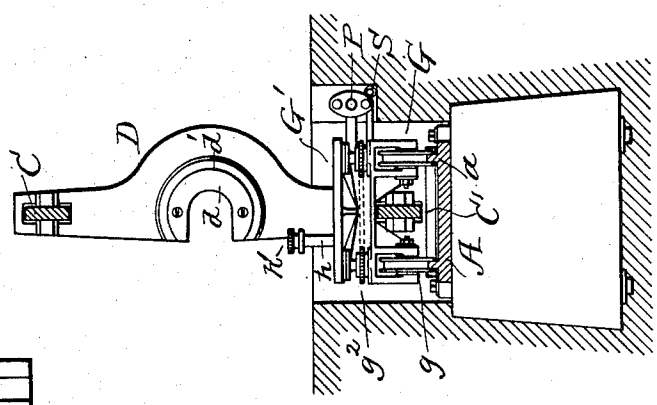


Fig. 4.

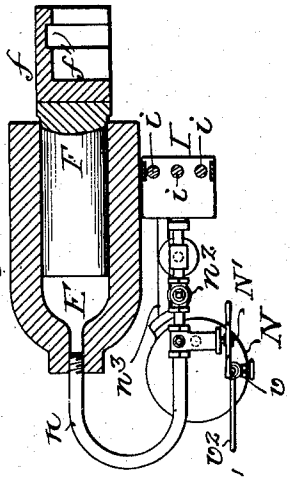


Fig. 7.

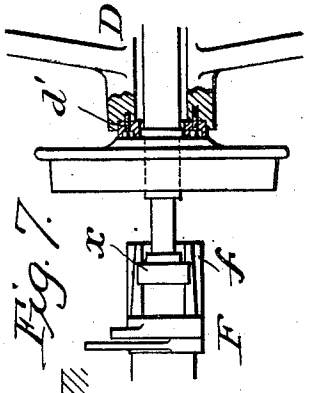


Fig. 5.

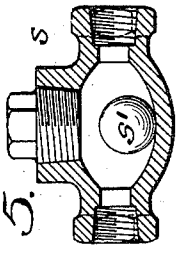


Fig. 2.

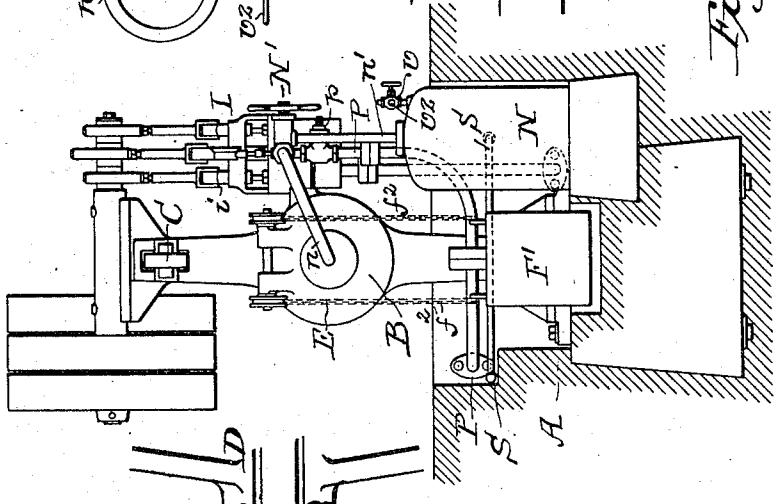
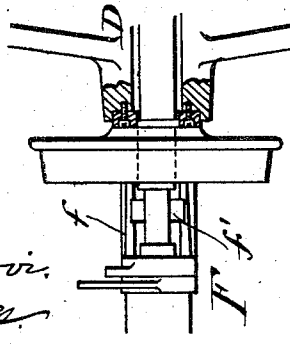


Fig. 6.



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UNITED STATES PATENT OFFICE.

HERMAN A. JENSENIUS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO CAMDEN IRON WORKS, OF CAMDEN, NEW JERSEY, A CORPORATION OF NEW JERSEY.

WHEEL-PRESS.

1,054,557. Specification of Letters Patent. Patented Feb. 25, 1913.

Application filed February 12, 1912. Serial No. 676,930.

To all whom it may concern:

Be it known that I, HERMAN A. JENSENIUS, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Wheel-Presses, of which the following is a specification.

This invention relates to a double end press for forcing wheels on axles or removing wheels from axles.

The object of the invention is to make a wheel press of this type so that the two wheels can be simultaneously pressed onto an axle and to so arrange the press that first one and then another of the wheels can be removed from the axle in one setting.

The invention relates to other details which will be fully described hereafter.

In the accompanying drawings:—Figure 1, is a side view of my improved wheel press; Fig. 2, is an end view; Fig. 3, is a transverse sectional view on the line 3—3, Fig. 1; Fig. 4, is a sectional plan view on the line 4—4, Fig. 1; Fig. 5, is a sectional view of the connecting valve; Fig. 6, is a diagram view showing the method of applying a wheel to an axle; and Fig. 7, is a diagram view showing the method of removing the axle from a wheel.

Mounted on the base frame A are two heads B, B′ connected together by upper and lower tie bars C, C′, and located centrally between the two heads is a resistance post D having a longitudinal cavity *d* in its face in which the axles rest. On the ends of the post are detachable bearing rings *d′*.

In the heads B, B′ are cylinders E, E′, respectively, and in these cylinders are plungers F having heads *f* shaped as clearly shown in Fig. 1 to pass over the ends of the axles and drive the wheels into place. In each head are recesses *f′* in which plugs may be placed for pushing off different lengths of axles.

Adapted to rails *a* on the base frame A are trolleys G, each trolley has four wheels *g* in the present instance, adapted to the rails, and the table G′ is vertically adjustable. On each corner of the table of the trolley are vertical screws g^2 on which are sprocket wheels.

h is a vertical shaft also having a sprocket wheel and a chain passes around the several sprocket wheels, so that on turning the shaft *h* the tables G′ will be raised or lowered. At the upper end of the shaft *h* is a toothed wheel *h′* with which the lever h^2 engages when raised to the horizontal position, so that on turning the lever the sprocket wheels are turned. Thus the tables G′ can be raised or lowered to accommodate wheels of different diameters, as they support the wheels while being driven on the axles.

The plungers F are attached to chains f^2 leading over guide wheels to weights F′, shown by dotted lines in Fig. 1, so that as soon as the plungers are relieved from pressure they are returned by the weights to the normal position. In the present instance there is a weight located at the end of each cylinder and attached to the head of each plunger by chains f^2.

I, I are pump cylinders located on each head, and *i*, *i* are the pump plungers operated by eccentrics *i′* from an overhead shaft I′ mounted in bearings supported by the heads B B′. These pumps are of the ordinary construction and need not be further described in detail.

Leading from the pump of the head B is a pipe *n* which extends to the rear of the cylinder E, and coupled through a pipe *n′* to this pipe is a pressure and suction chamber N. At the intersection of these two pipes is a hand operated valve N′ which may be turned to cut off the pipe *n′*, and connected to the pipe at this point is a blow-off whistle and pressure gage.

n^2 is a stop valve in the pipe *n*. The pipe *n′* communicates with the upper end of the chamber N, and a pipe n^3 connects the lower end of the chamber with the suction side of the pump I.

The same construction is duplicated on the head B′; *m* being the pipe leading from the pump to the end of the cylinder; M being the chamber connected at its upper end by the pipe *m′* to the pipe *m;* M′ being the hand valve; m^2 the stop valve in the pipe *m;* and m^3 is a pipe connecting the chamber with the suction side of the pump.

In order to form a communication between the two pipes *n* and *m*, I provide a pipe P, which extends from one head to the other, as clearly shown in Fig. 1, and in this pipe are stop valves *p*, *p′*, one at the pipe *n* and the other at the pipe *m*. So that when it is desired to use both pumps for operating one plunger, if the plunger is the one on the head B then the stop valves *p*, *p′*

are opened and the stop valve m^2 is closed and valve n^2 opened, then both pumps will force fluid under pressure to the cylinder E in the head B. If the other head is to be operated by the two pumps then the valve n^2 is closed and valve m^2 opened and the operation is repeated.

It will be noticed that at the upper ends of the air chambers N and M are three-way valves v and v', respectively. These valves are connected to air pressure pipes v^2 and may be turned to atmosphere. The air chambers N and M are connected to the supply pipes through the pipes n' and m', and the two chambers N and M are connected together by a pipe S having a ball valve s of the form shown in Fig. 5. The interior of the valve is made as clearly shown in said figure and has a funnel shaped seat at each end. The hard rubber ball s' normally rests in the bottom of the casing so as to allow the water in the pipes of the closed chambers to freely pass from one chamber to another, but in the event of an excessive pressure in the chamber then the valve will close against one of the seats in the direction of flow of the liquid and will close the pipe leading to the other chamber, but as soon as the pressure in the two chambers is equal then the valve will fall clear of both seats.

The pump I of each head is running continuously and is connected with the pressure and suction tank on both sides, so that the water circulates through the tank and through the pump when the plunger is not operating.

The operation is as follows:—If wheels are to be placed upon an axle they are preferably assembled on the axle and the axle is then mounted in the recess in the post D and the wheels rest on the platform of the trolleys G; the platforms having been raised or lowered to the desired height. The valves N′ and M′ are turned so as to close the pipes n' and m', respectively, and the three-way valves v and v' are turned to admit air under pressure to the chambers N and M. This will cause the plungers to move quickly forward to the work, as the liquid will be forced out of the chambers through the pumps and pipes m and n to the cylinders while the pumps will continue to force water under pressure to the rear of the cylinders, and when the valves v, v' are turned to atmosphere the pressure in the cylinders will increase sufficiently to force the wheels onto the axle as in Fig. 6. When wheels are to be removed from the axle then a plug x is placed in the recess f' in one of the heads f so as to rest against the end of the axle and the wheel rests against the ring d' of the post D, as in Fig. 7, and, if necessary, the pumps of both heads may supply fluid to the one cylinder. Thus the plunger will be moved at double the speed that it is where only one pump is connected to the cylinder. If the wheel on the other side of the axle is to be removed the operation is repeated at the opposite end of the machine and the pumps will force fluid into the cylinder at that end.

By this construction I provide a substantial, double-ended wheel press which can be used to simultaneously place both wheels on an axle, or quickly remove the wheels from the axle.

The device is compact, readily operated, and the platforms of the trolleys can be raised so as to bring the wheels in proper alinement with the axle. Furthermore the air pressure may be used for quickly moving the plungers forward, after which the pressure can be increased to either force the wheels on the axle or remove the axle from the wheels.

I claim:—

1. The combination in a wheel press, of a frame, a central resistance post mounted on the frame; two heads, one located on each side of the post; a cylinder in each head; a plunger mounted in each cylinder; a fluid pump at each head; a pipe leading from each pump to the rear end of its cylinder; and a pipe connecting the two pumps, with means for directing the fluid from either pump to either cylinder.

2. The combination in a wheel press, of a frame; a central resistance post mounted on the frame; two heads, one located on each side of the said post; a cylinder in each head; a plunger mounted in each cylinder; a fluid pump at each head; a pipe leading from each pump to the rear of its cylinder; pipes connecting the two pumps; and valves in the pipes connected to allow both pumps to force fluid into one cylinder; or each pump to force fluid into its own cylinder, or to force fluid into either of the cylinders.

3. The combination in a wheel press, of a frame; a post centrally mounted in the frame; a head at each end of the frame; a cylinder in each head; a piston for each cylinder; a pump at each head; a pipe leading from each pump to the rear end of the cylinder; two closed chambers communicating with the pumps and with the cylinders; and a pipe connecting the two chambers; with a double check valve in the pipe.

4. The combination in a wheel press, of a frame; a post centrally mounted in the frame; two heads, one at each end of the frame; a cylinder in each head; a piston adapted to each cylinder; a pump at each head; a pipe leading from each pump to the rear end of the cylinder; two closed chambers communicating with the pumps and with the cylinders; a pipe communicating with the two chambers; and a casing having two openings communicating with the

pipe, and a ball valve normally resting at the center of the casing clear of the two openings.

5. The combination in a wheel press, of a post; a head; a cylinder in the head; a plunger mounted in the cylinder; a pump for supplying fluid to the cylinder; a trolley mounted between the head and the axle support; a vertically adjustable table mounted on the trolley; a series of screws located on the trolley and supporting the table; an operating shaft projecting upward from one end of the table; a sprocket wheel on each screw and on the operating shaft; a chain passing around the several sprocket wheels so as to raise or lower the table to aline the wheel with the plungers.

6. The combination in a wheel press, of a frame; a central post mounted on the frame; two heads, one located at each end of the frame; a cylinder in each head; a plunger mounted in each cylinder; each plunger having a head for engagement with a wheel; a pump carried by each head of the machine; a pipe leading from each pump to the rear of its cylinder; a closed chamber at each end of the machine; a connecting pipe leading from one cylinder pipe to the other cylinder pipe; a valve in said pipe; a valve in each cylinder pipe between the cylinder and the said connecting pipe; whereby either one of the cylinders can be cut out; and a pipe connecting the two chambers, said pipe having a valve therein.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

HERMAN A. JENSENIUS.

Witnesses:
WM. E. SHUPE,
WM. A. BARR.