H. E. DERBYSHIRE & A. A. LONGAKER.

WHEEL DEMOUNTING PRESS.

APPLICATION FILED JULY 1, 1913.

1,099,120.

Patented June 2, 1914.

2 SHEETS—SHEET 1.

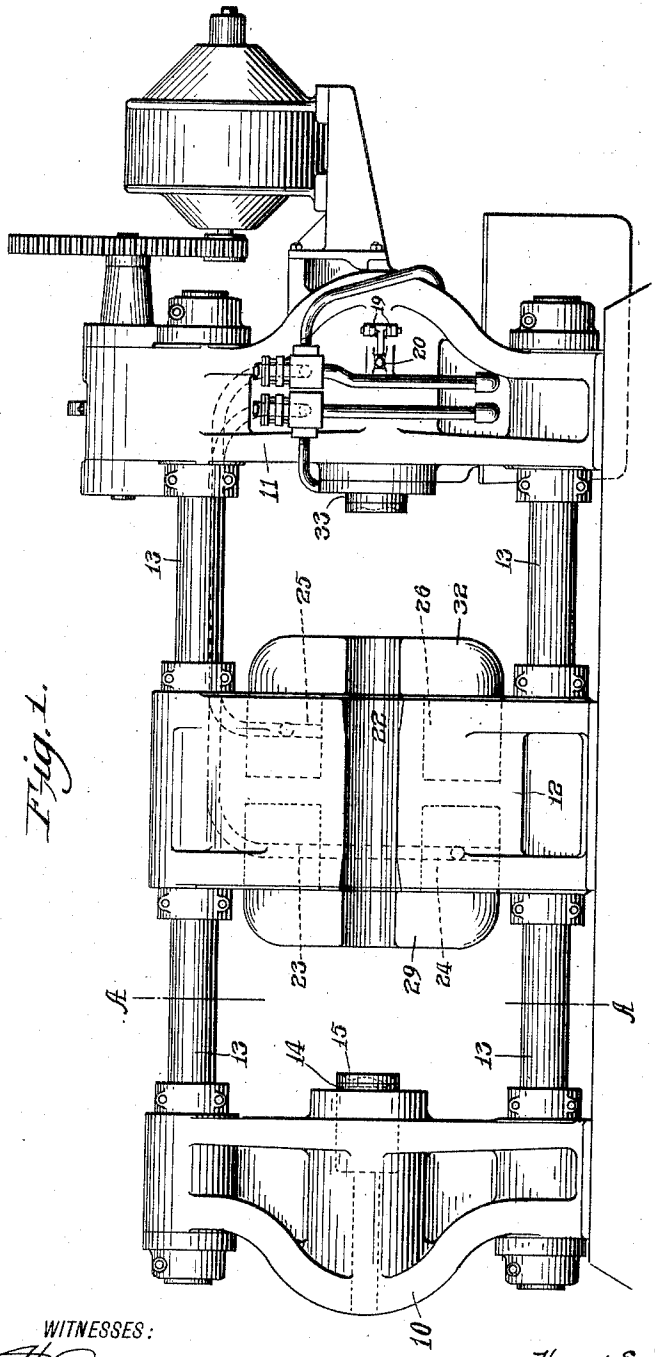


Fig. 1.

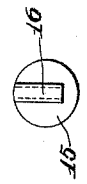


Fig. 9.

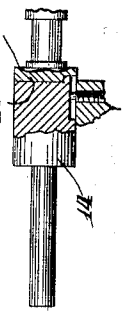


Fig. 10.



Fig. 8.

WITNESSES:

F. E. Ramsdell.

F. E. Monaster

INVENTORS

Henry E. Derbyshire

Albert A. Longaker

BY

Chas A. Culler

ATTORNEY.

H. E. DERBYSHIRE & A. A. LONGAKER.

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2 SHEETS—SHEET 2.

Fig. 2.

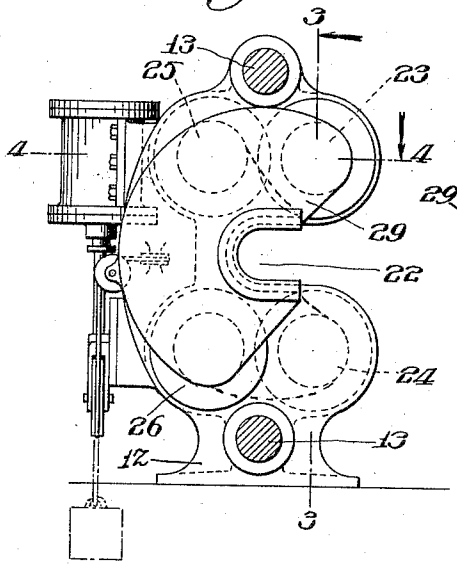


Fig. 3.

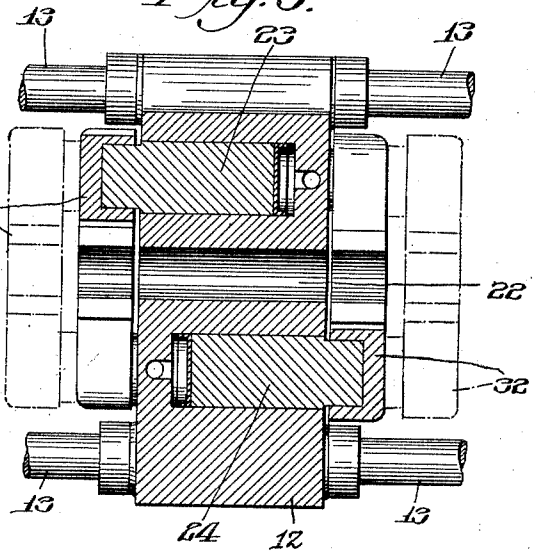


Fig. 5.

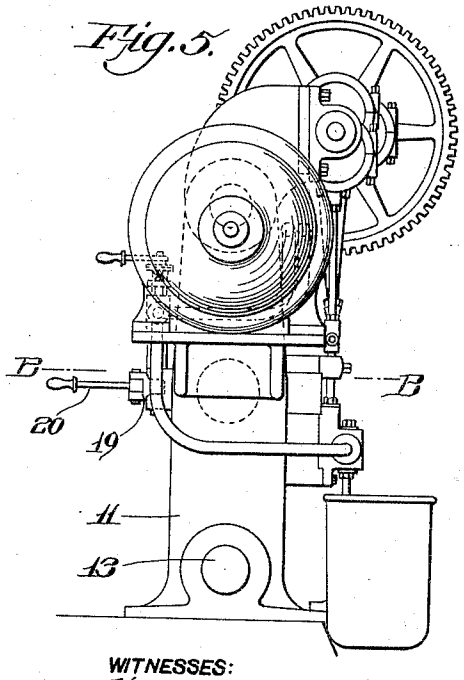


Fig. 4.

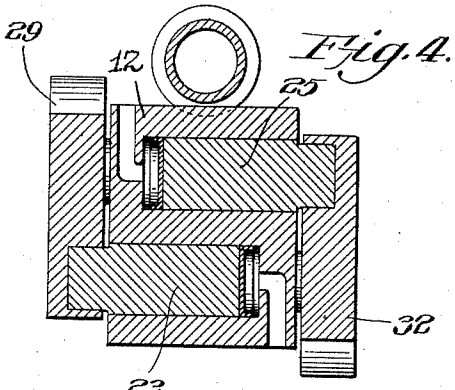


Fig. 6.

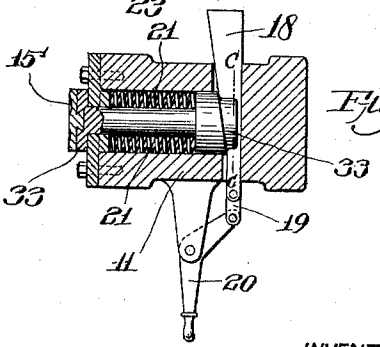
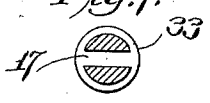


Fig. 7.



WITNESSES:

F. L. Mowder

INVENTORS

Henry E. Derbyshire

Albert A. Longaker

BY

Chas A. Carter

ATTORNEY

UNITED STATES PATENT OFFICE.

HENRY E. DERBYSHIRE AND ALBERT A. LONGAKER, OF CHAMBERSBURG, PENNSYLVANIA, ASSIGNORS TO CHAMBERSBURG ENGINEERING COMPANY, OF CHAMBERSBURG, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

WHEEL-DEMOUNTING PRESS.

1,099,120. Specification of Letters Patent. Patented June 2, 1914.

Application filed July 1, 1913. Serial No. 776,849.

To all whom it may concern:

Be it known that we, HENRY E. DERBYSHIRE and ALBERT A. LONGAKER, citizens of the United States, and residents of Chambersburg, in the county of Franklin and State of Pennsylvania, have invented certain new and useful Improvements in Wheel-Demounting Presses, of which the following is a specification.

Our invention relates to improvements in hydraulically operated presses for demounting wheels from axles, and the object of our invention is to furnish a press for this purpose which will be efficient and rapid in its operation.

In carrying out our invention we make use of two resistance beams, one at each end of the machine, between which the ends of the axle are held, one or both of these beams being preferably furnished with adjustable abutments to engage axles of different lengths, and with a cylinder beam located approximately midway between the resistance beams which is furnished with a gap to receive that part of the axle which is between the wheels to be demounted and with staggered pistons arranged in pairs upon opposite sides of the cylinder beam, each pair being preferably connected by a yoke, which are adapted one pair to engage the inner face of one wheel the other pair to engage the inner face of the other wheel and to be hydraulically operated to force the wheels, either simultaneously or successively from their seats upon the axle.

Our invention is illustrated in the accompanying drawings in which similar letters of reference indicate similar parts throughout the several views and in which—

Figure 1, is a side elevation of our wheel demounting press; Fig. 2, a section of Fig. 1 on line A—A looking toward the cylinder beam, the centers of the pistons in this beam being upon the vertical line that passes through the center of the beam; Fig. 3, a section of Fig. 2 on line 3—3; Fig. 4, a section of Fig. 2 on line 4—4; Fig. 5, an end elevation of the right hand resistance beam; Fig. 6, a section of Fig. 5 on line B—B; Fig. 7, a section of Fig. 6 on line C—C; Fig. 8, a top view of Fig. 10; Fig. 9, a rear elevation of the removable face of Fig. 10; Fig. 10, a side elevation, partly in section, of one form of plug or abutment carried by left hand resistance beam.

10 is the left hand resistance beam of our machine. 11 the right hand resistance beam. 12 the cylinder beam. These several beams are securely and immovably tied together by rods or bars 13 in a well known manner.

The left hand resistance beam carries a plug 14 against which one end of the axle rests. This plug is ordinarily fixed but it can be made removable, or may have a removable face or may be capable of a movement longitudinally so as to be adjustable for axles of different lengths.

In Figs. 8, 9 and 10 the plug 14 is shown with a removable face 15, a number of which of different thicknesses may be furnished with the machine to take care of axles of different lengths. The face 15 is on its rear side furnished with a plug 16 which can be carried by a pocket in the end of plug 14. Faces may be almost instantly removed and replaced by others if it be necessary to increase the length of the plug 14.

The right hand resistance beam 11 carries an adjustable plug 33, which may or may not have a removable face 15′ like the face 15 of plug 14. The rear end of the plug 33 is slotted as at 17, Fig. 7, to pass upon opposite sides of a wedge 18, Fig. 6, which passes transversely through the beam 11, which carries a link 19 which is connected to one arm of a bell-crank lever 20. By operating the free end of the bell crank 20 the wedge 18 may be moved in or out. If it is drawn outward it pushes the plug 33 out from the resistance beam 11, if it is moved inward a spring 21 moves the plug inward.

The wheels carrying the axle have been rolled in the machine until the axle is within the gap 22 in the cylinder beam 12 and in line with the plugs 14 and 33 the latter plug is moved out by the wedge 18 until it engages the right hand end of the axle and pushes the axle along until its left hand end is engaged by the plug 14 carried by left hand resistance beam. The axle is now held as in a vise between the plugs 14 and 33. Liquid under pressure is now admitted to the cylinders in the beam 12 which carry pistons 23—26 and 25—24 and these pistons are moved outward, the former pair to the left, the latter to the right.

The pistons 23—26 are connected by a yoke 29, the pistons 25—24 by a yoke 32 which yokes engage the inner sides of wheels which are carried upon an axle, which is placed in the gap 22, and which push them from their seats thereon. The yokes may be advanced either alone or simultaneously as may be desired.

We do not deem it necessary to describe the construction of the pistons within the hydraulic cylinders in the cylinder beam 12 or the means for conducting the liquid to or from these cylinders or for putting the liquid under pressure, any of the well known means may be employed and in themselves form no part of our invention.

The cylinder beam 12 which carries the cylinders which carry the pistons 23—26, 25—24 to which are attached the yokes 29—32 being necessarily narrow it is essential, in order that the cylinders be of sufficient length to permit the practical operation of the pistons, that the cylinders for each pair of pistons 23—26 and 25—24 be staggered as shown best in Figs. 2, 3 and 4. From these figures it will be seen that the pistons 23—26 which operate yoke 29 are, the upper one 23, to the right of the center line of the beam 12 and the lower one 26 to the left of this line, while the pistons 25—24 which operate yoke 32 are, the upper one 25, to the left and the lower one 24, to the right of this center line. In other words the upper pistons 23—25 and their cylinders are placed side by side and the lower pistons 24—26 and their cylinders are similarly placed, this arrangement assuring the maximum length of cylinders and pistons possible.

Having thus described our invention we claim as new and desire to secure by Letters Patent:—

1. In a wheel demounting press, in combination, two resistance beams, adjustable means carried by said beams for engaging the ends of an axle, a beam between said resistance beams carrying upon each of its opposite sides staggered pairs of cylinders, pistons within said cylinders, yokes connecting the pistons of each pair of cylinders, and means for conducting a fluid under pressure to each pair of cylinders.

2. In a wheel demounting press, in combination, end resistance beams adapted to engage the opposite ends of an axle, a stationary gapped beam placed approximately midway between said end beams and carrying two pairs of cylinders one pair facing to the right and the other to the left, the cylinders of each pair of cylinders being arranged one above the other and upon opposite sides of the vertical center of said beam, pistons in said cylinders, yokes connecting the rods of each pair of pistons, and means by which each pair of pistons may be actuated.

3. In a wheel press, in combination, a resistance beam, a sliding plug carried by said beam, a sliding wedge, a link connected to said wedge, a bell-crank connected to said link, and a spring for causing said wedge to remain in contact with said plug.

HENRY E. DERBYSHIRE.
ALBERT A. LONGAKER.

Witnesses:
GEO. H. DERBYSHIRE,
LILLIAN M. WOLF.

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