No. 782,862. PATENTED FEB. 21, 1905.

H. M. LUCAS.

POWER PRESS.

APPLICATION FILED MAY 20, 1903.

FIG. I

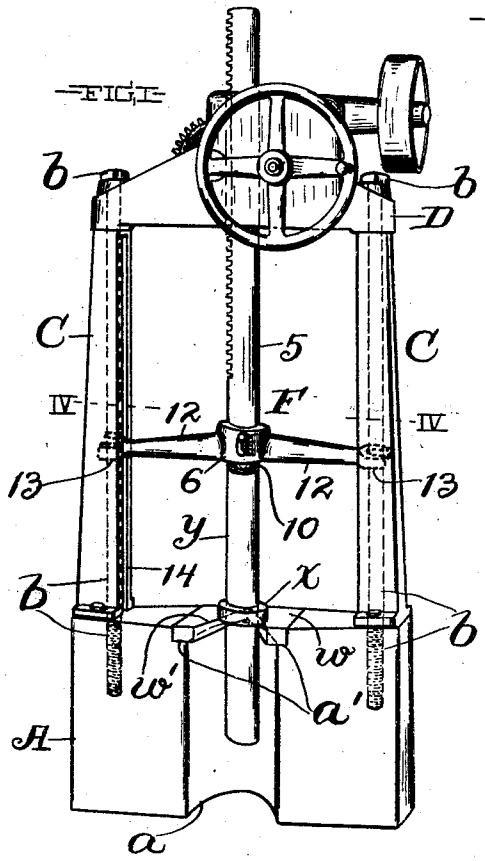


FIG. II

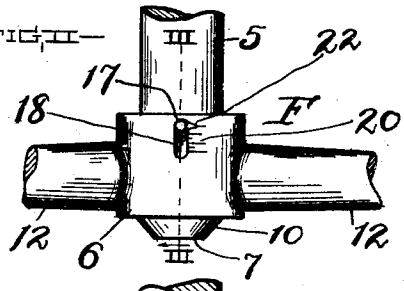


FIG. III

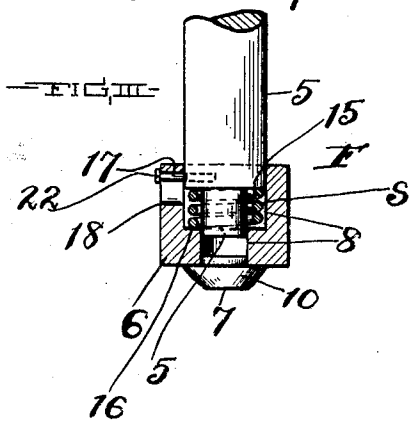
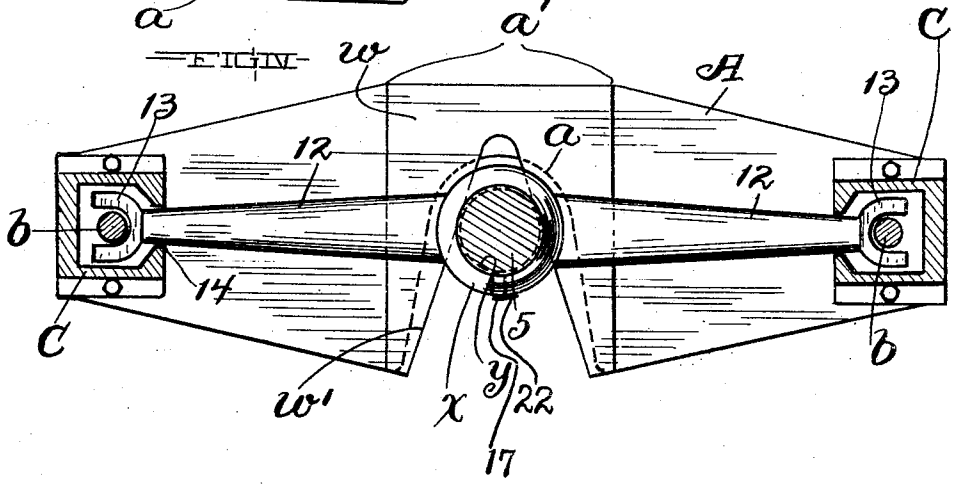


FIG. IV



WITNESSES:

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No. 782,862. Patented February 21, 1905.

UNITED STATES PATENT OFFICE.

HENRY M. LUCAS, OF GLENVILLE, OHIO.

POWER-PRESS.

SPECIFICATION forming part of Letters Patent No. 782,862, dated February 21, 1905.

Application filed May 20, 1903. Serial No. 158,007.

To all whom it may concern:

Be it known that I, HENRY M. LUCAS, a citizen of the United States of America, residing at Glenville, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Power-Presses; and I hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to improvements in power-presses more especially adapted for applying collars to and removing them from shafts or spindles.

The object of this invention is to provide a simple, inexpensive, and convenient construction which renders the machine or press readily adaptable to shafts or spindles of different diameters.

Another object is to provide simple and efficient means for indicating the amount of pressure exerted by the ram of the machine during the operation of the said ram in forcing a shaft or spindle endwise of a collar which is to be applied to or removed from the said shaft or spindle.

Another object is to provide simple and efficient means for guiding and laterally bracing the ram during its operation.

With these objects in view my invention consists in certain peculiarities of construction and combinations of parts hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure I is a view in perspective of a power-press embodying my invention, and in this figure the ram of the press is shown in position operating upon a shaft or spindle which is to be forced endwise of a collar which embraces the said spindle. Fig. II is a front side elevation of a portion of the ram. Fig. III is a vertical section on line III III, Fig. II, looking in the direction indicated by the arrow. Fig. IV is a top plan in section on line IV IV, Fig. I. Fig. I is drawn on a smaller scale than the remaining figures.

My invention is shown embodied in an upright power-press, although it might as readily be incorporated in a horizontal press.

My improved press comprises two parallel bars C, which are preferably hollow or chambered interiorly and arranged a suitable distance apart. The bars C are rigidly secured in any approved manner to a stationary head or block A, which is arranged at one end of the said bars. The block or head A is provided centrally between the bars C and in one side of the said part A with a recess or chamber *a*, which extends transversely of the said side of the said part A and is arranged parallel with the said bars. The recess *a* has the dimensions required to render it capable of laterally receiving the thickest shaft or spindle for which the press is adapted.

The bars C are connected together at their opposite ends by a housing D, which is held against the said ends of the said bars by suitably-applied bolts or rods *b*, which extend through and longitudinally of the said bars into the block A.

A ram F is arranged centrally between and parallel with the bars C and extends into the housing D and is guided and operated by any approved mechanism—such, for instance, as illustrated and claimed in United States Letters Patent No. 681,063, granted to me August 20, 1901. The ram F is arranged in line with the recess or chamber *a* and is adapted to be actuated toward and from the said recess and to engage the adjacent end of a shaft or spindle which is to be forced endwise of a collar, which is placed against the ram-facing side of the block A with its centrally-located bore or hole in line with the ram and in registry with the aforesaid recess. In Figs. I and IV of the accompanying drawings a collar *x* is shown placed in position against the ram-facing side of the block A, and a shaft or spindle *y*, which is to be forced endwise of the said collar, extends through the said collar into the recess or chamber *a* and is engaged at its ram-facing end by the ram F. It will be observed, therefore, that the recess *a* extends to and is open at the ram-facing side of the block A and that the said side of the said block is arranged at right angles to the travel of the ram F.

The ram of my improved machine or press comprises a section 5, to which power is applied, and a section 6, which is provided with the

work-engaging face 7 of the ram. The work-engaging section 6 is capable of yielding somewhat endwise and independently of the said section 5 and has an interior chamber 8 formed in and centrally of the said section 6 at one end of a piece 10, upon which the face 7 is formed and which forms a portion of the work-engaging section of the ram and is fixed in place in any approved manner. The chamber 8 is closed at one end by the piece 10, and the power-receiving section 5 of the ram extends into the opposite end of the said chamber.

The power-receiving section 5 and the chamber 8 are arranged in line with the recess or chamber *a* of the block A and centrally between and parallel with the bars C, and the section 6 has two ram-guiding and ram-bracing arms 12, which extend into the different bars C, respectively. Each arm 12 terminates at its outer end in a fork 13, which straddles the bolt or rod *b*, which extends through the bar C, into which the said arm extends, and the said bar C is of course slotted longitudinally, as at 14, to accommodate the location and operation of the said arm.

The section 5 is reduced diametrically within the chamber 8, so as to form an annular shoulder 15 upon the said section 5 within the said chamber, and the said chamber 8 is reduced diametrically between the member 10 and the shoulder 15 and a suitable distance from the said shoulder to receive the diametrically-reduced end of the section 5 and to form an annular shoulder 16 interiorly of the section 6 and facing the aforesaid shoulder 15. The diametrically-reduced end of the section 5 normally extends somewhat into the diametrically-reduced end portion of the chamber 8 and is surrounded by the coils of a spiral spring *s*, confined between the shoulders 15 and 16 and normally distended, so as to render the work-engaging section 6 capable of yielding somewhat during the operation of the arm, and the space between the member 10 and the section 5 is large enough to accommodate the said yielding capability of the said section 5.

The power-receiving section 5 is provided, preferably, in close proximity to the shoulder 15 with a laterally-projecting pin or member 17, which extends through a slot 18, formed in the surrounding wall of the chamber 8 and arranged longitudinally of the said section 5. The section 6 is graduated, as at 20, upon its outer side adjacent to and along the said slot 18, and the pin or member 17 is provided at its outer end and outside of the section 6 with a pointer 22, which coöperates with the graduations 20 in indicating the extent to which the spring *s* yields during the operation of the ram, and consequently the power exerted by the ram.

The ram-facing side of the block A is provided centrally between the bars C with a slideway *a'*, which extends lengthwise transversely of the said side of the said block and connects with and extends widthwise beyond opposite sides of the recess or chamber *a* and is uniform in width from end to end.

The slideway *a'* is engaged by a slide *w*, which has a slot *w'*, which registers and communicates with the recess or chamber *a*. The slot *w'*, which extends longitudinally of the slide *w*, is open at the recessed or chambered side of the block A. The slot *w'* is widest at its open end and gradually decreases in width toward its inner or opposite end, and the side walls of the said slot afford lateral bearing to the shaft or spindle extending through a collar placed against the ram-facing side of the block A.

It is obvious that the provision of the peculiarly-slotted slide *w*, hereinbefore described, adapts the press or machine to shafts or spindles of different diameters and is slid in the one direction or the other according as the shaft or spindle which is to be operated upon is larger or smaller in diameter than the spindle or shaft for which the said slide is already set or adjusted.

What I claim is—

1. In a power-press, a suitably-applied ram; a head or block provided with a recess or chamber which is arranged in line with the said ram; two hollow bars arranged at opposite sides, respectively, of and parallel with the travel of the ram, which bars are held, at one end, to the aforesaid block and are connected together at their opposite end; bolts or rods arranged within and extending longitudinally of the said bars, and arms formed on and projecting laterally of the ram into the said bars and terminating, at their outer ends, in forks straddling and movable longitudinally of the said bolts or rods, and the said bars being slotted longitudinally to accommodate the location and operation of the said arms.

2. In a power-press, a ram comprising a suitably-guided yieldable work-engaging section having an interior chamber arranged parallel with the travel of the ram and provided with the work-engaging member of the ram at one end of the said chamber, a power-receiving section extending into the said chamber at the opposite end of the chamber, yieldable means contained within the said chamber between the said power-receiving section and the aforesaid work-engaging member, and means for indicating how much the said yieldable means yields during the operation of the ram.

3. In a power-press, a ram comprising a suitably-guided yieldable work-engaging section having an interior chamber which is arranged parallel with the travel of the ram and provided with the work-engaging face of the ram at one end of the said chamber; a power-receiving section extending into the said chamber at the opposite end of the chamber; means acting to retain the work-engaging section in its normal position, and the power-receiving section and the aforesaid wall being

provided with means whereby the extent, to which the aforesaid yieldable means yields during the operation of the ram, is indicated.

4. In a power-press, a ram comprising a suitably-guided yieldable work-engaging section having an interior chamber which is arranged parallel with the travel of the ram and provided with the work-engaging face of the ram at one end of the said chamber; a power-receiving section extending into the said chamber at the opposite end of the chamber and provided with a member which projects through the surrounding wall of the said chamber and is provided, at its outer end, with a pointer, and a suitably-applied spring acting to retain the work-engaging section in its normal position, and the aforesaid wall being slotted longitudinally of the power-receiving section to accommodate the location of the pointer-bearing member during the operation of the ram and being graduated along the said slot, substantially as and for the purpose set forth.

In testimony whereof I sign the foregoing specification, in the presence of two witnesses, this 30th day of April, 1903, at Cleveland, Ohio.

HENRY M. LUCAS.

Witnesses:
C. H. DORER,
TESLA SCHWARTZ.