E. E. BARTLETT.

ARBOR PRESS.

APPLICATION FILED DEC. 11, 1913.

1,135,983. Patented Apr. 20, 1915.

Fig. 1.

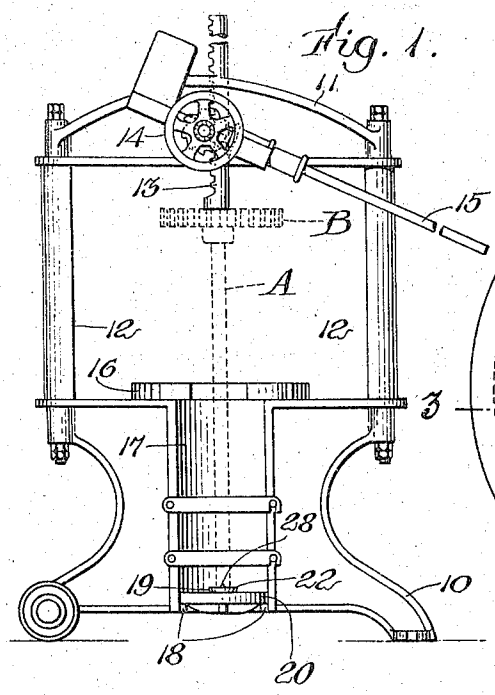


Fig. 2.

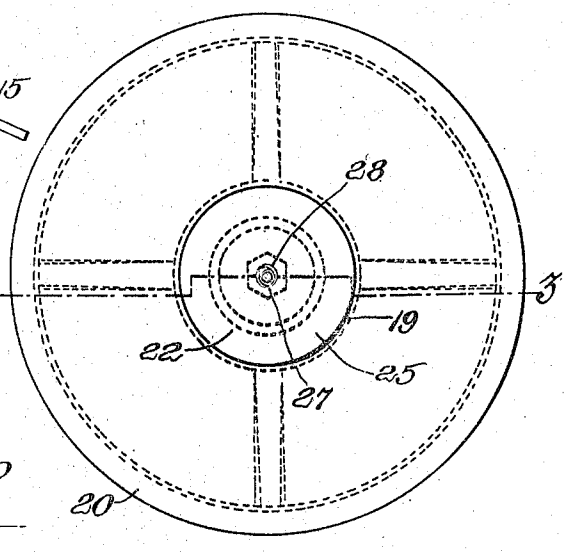


Fig. 3.

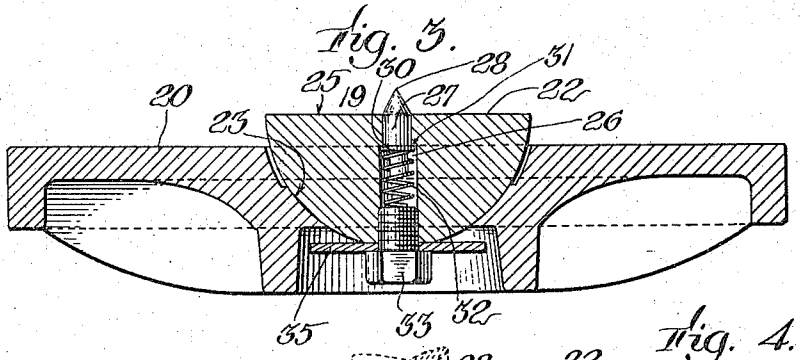
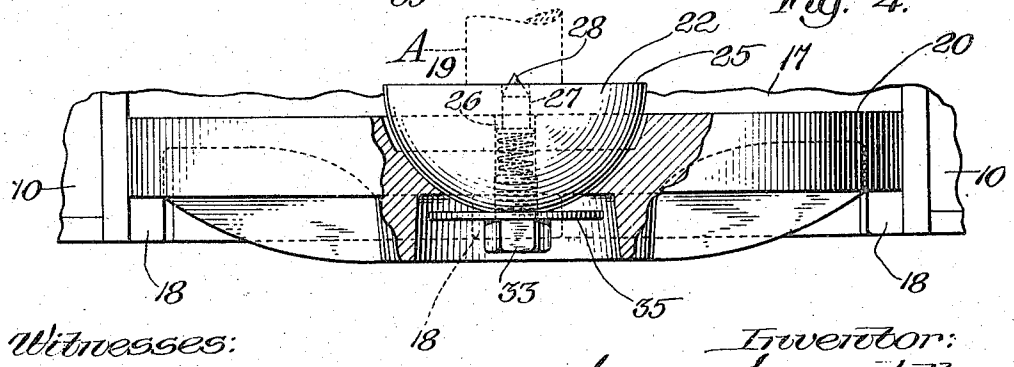


Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

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ARBOR-PRESS.

1,135,983. Specification of Letters Patent. Patented Apr. 20, 1915.

Application filed December 11, 1913. Serial No. 805,940.

To all whom it may concern:

Be it known that I, EDWIN E. BARTLETT, of Hyde Park, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Arbor-Presses, of which the following is a specification.

My invention has reference particularly to improvements in that class of presses which are chiefly employed to affix wheels or similar machine parts to their arbors or mandrels, hence are commonly, and shall hereinafter be termed arbor presses.

The main object of the invention is to provide an arbor press which is adapted to operate upon work of greater length than has been possible with arbor presses heretofore constructed.

Other objects of the invention will appear from the following description.

The invention consists in a universal centering and supporting device adapted to be readily applied to a standard type of arbor press and further consists in such other novel features as shall hereinafter be described and pointed out in the claims.

Referring to the drawings:—Figure 1 represents a front elevation of a machine embodying my invention and, in dotted lines, a wheel and its mandrel in position to be operated upon. Fig. 2 represents a plan view of the centering and supporting device with its supporting plate. Fig. 3 represents an enlarged sectional view taken on the line 3—3 of Fig. 2. Fig. 4 represents an enlarged view of a portion of Fig. 1, partly in section.

Like reference characters designate corresponding parts throughout.

The frame of the press represented in the drawings is of a well known type, comprising the base 10 and the cross-bar 11 supported above said base by the posts 12, 12. Extending through and guided by an aperture in the center of said cross-bar is the vertical plunger 13 which may be operated through any suitable mechanism connecting it with the hand wheel 14 and lever 15. As is common with this type of press the base 10 supports the work plate 16 which extends partly over the vertical mandrel receiving channel 17 in said base. Projecting from the base 10, at the lower end of said channel, are three brackets 18 which support the annular base plate 20 provided with the centering and supporting device 19 at its center. The latter consists of a semi-spherical supporting member 22 which extends through and is supported by the socket bearing 23 in the center of said base plate and extending diametrically through said supporting member and at right angles to its normally horizontal face 25 is the aperture 26. Adapted to slide in said aperture is the detent 27 provided with a pointed end 28 normally projecting above the face 25. Said detent is further provided with a collar 30 which is held in engagement with the shoulder 31 in said aperture by the expansion spring 32 disposed between said collar and the end of the screw 33 threaded into the lower end of said aperture, the shoulder 31 thereby limiting the upward movement of said detent. Clamped between the head of said screw and the supporting member 22 is the annular disk 35 of a greater diameter than that of the opening in the lower end of the socket bearing 23.

In the operation of the press the wheel or other machine part to which the mandrel is to be affixed may be placed upon the work plate 16 and then by means of the plunger 13 one end of the mandrel is forced down through the aperture in the wheel. When the length of the mandrel plus the height of the gear is too great to place them in the press in this manner the operation is performed by placing the center of one end of the mandrel, which is usually provided with a central conical depression onto the projecting pointed end 28 of the detent 27, causing the latter to recede sufficiently to allow the end of the mandrel to rest upon the face 25 of the supporting member 22; the wheel is then forced onto the end of the mandrel by operating the plunger 13. (See Figs. 1 and 4 in which the mandrel is represented at A and the wheel at B.) In order to perform this latter operation the mandrel must be placed in a position so that its axis will be in alinement with the axis of the plunger. This is facilitated by the use of the detent 27 and as the supporting member 22 may be moved freely in its socket its supporting face 25 will be forced to adjust itself to the end surface of the mandrel by the weight of the latter, thereby giving said end surface a bearing throughout its area, irrespective of the angular position of said end surface in relation to the axis of the mandrel. If a flat rigid support was employed it would not only be difficult to posi-

tion the mandrel, but it would often be impossible for the end of the mandrel to have a bearing surface throughout its area.

The placing of the supporting member 22 in the channel 17, besides allowing the use of a comparatively long mandrel, makes use of said channel as means for sustaining said mandrel in a substantially vertical position while the wheel or other machine part is being placed on its end preparatory to being operated upon by the plunger.

The plate 35 limits the movement of the supporting member 22 in its socket.

While I have shown but one form of my invention it is to be understood that this is but one of many that might be employed and still be within the scope of the following claims.

I claim as new and desire to secure by Letters Patent:

1. In an arbor press the combination of a plunger, a base, said plunger adapted to be reciprocated to operate on work placed upon said base, a mandrel receiving channel in said base and a mandrel support near the lower end of said channel.

2. In an arbor press the combination of a plunger, a supporting member for supporting a mandrel or other machine part, said plunger adapted to be reciprocated to operate on work placed upon said base, said supporting member adapted to adjust itself to move its supporting face into the plane of the lower end surface of the said machine part when the latter is placed on said supporting member preparatory to the operation of said plunger.

3. A centering and supporting device adapted to be applied to an arbor press comprising a base plate, a semi-spherical member with its face normally horizontal extending into a socket bearing in said base plate and provided with an aperture at right angles to said face, and a spring actuated detent in said aperture with its upper end normally projecting above said face.

4. A centering and supporting device comprising a base plate, a semi-spherical member extending through a socket bearing in said base plate, and a disk of greater diameter than that of the lower end opening in said socket bearing tangentially secured to the spherical surface of said semi-spherical member below said socket bearing.

5. A centering and supporting device adapted to be applied to an arbor press comprising a base plate, a semi-spherical member extending through a socket bearing in said base plate and provided with an aperture at right angles to its face, a spring actuated detent in said aperture with its upper end normally projecting above said face, a disk of greater diameter than that of the lower end opening in said socket bearing tangentially secured to the spherical surface of said semi-spherical member below said socket bearing by a screw threaded into the lower end of said aperture.

In testimony whereof I have affixed my signature, in presence of two witnesses.

EDWIN E. BARTLETT.

Witnesses:

LEWIS G. SEMPLE,

ROLF E. H. CHRISTENSEN.

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