

No. 750,231.

PATENTED JAN. 19, 1904.

T. H. SIMPSON & E. L. NELSON.

MECHANISM FOR ATTACHING END PLATES TO ARBORS.

APPLICATION FILED JUNE 6, 1903.

NO MODEL.

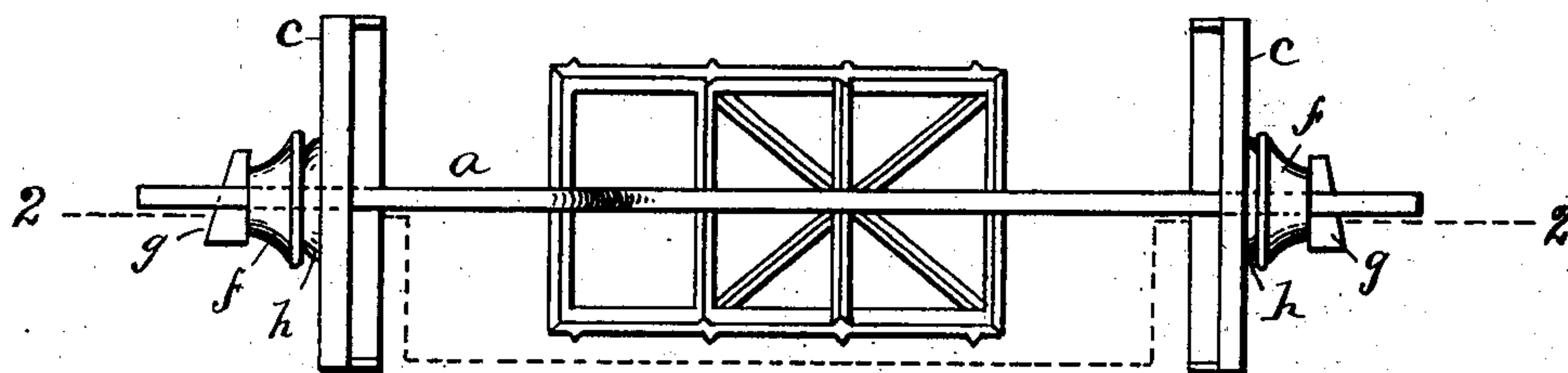


Fig. 1.

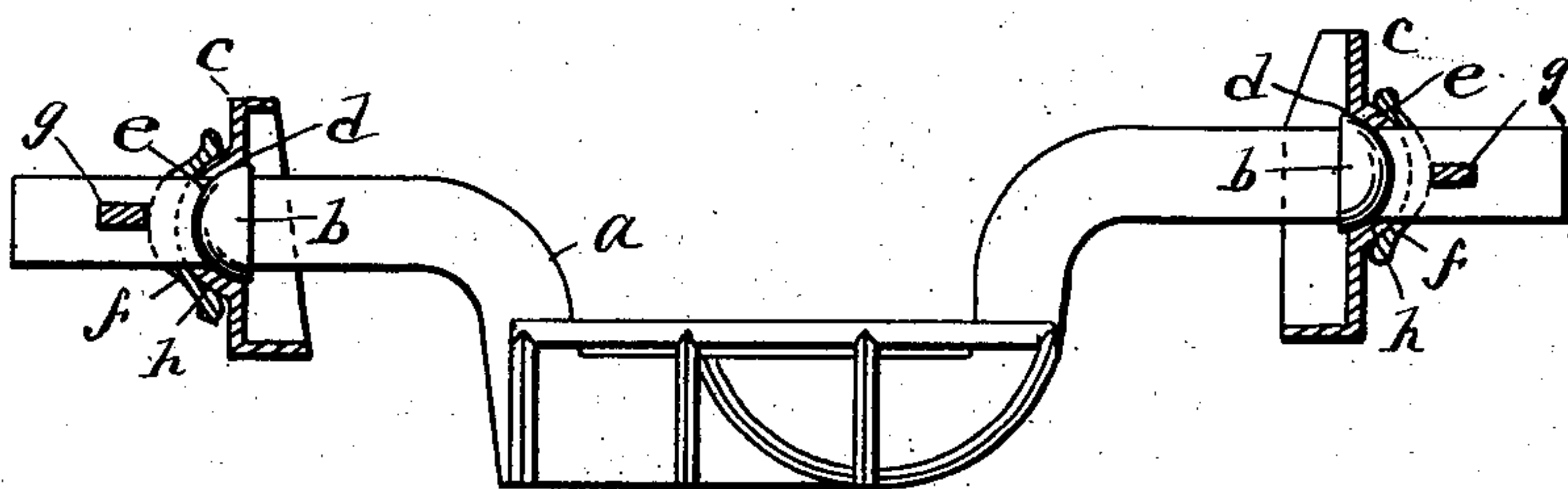


Fig. 2.

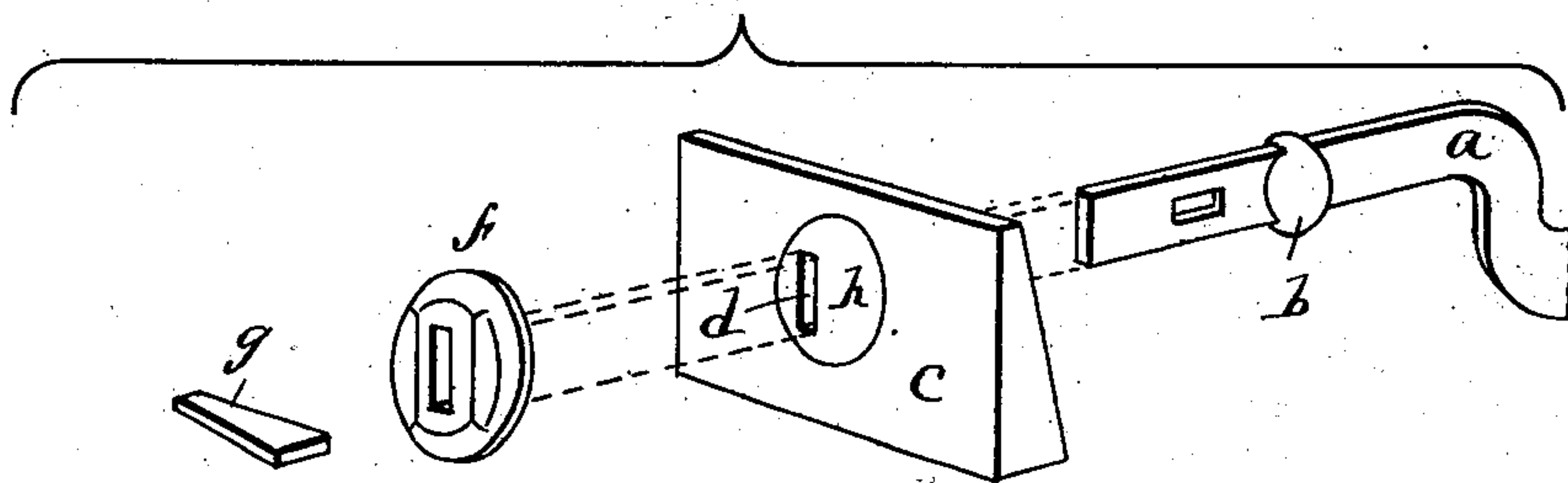


Fig. 3.

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THOMAS H. SIMPSON AND EDWARD L. NELSON, OF DETROIT, MICHIGAN;
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MECHANISM FOR ATTACHING END PLATES TO ARBORS.

SPECIFICATION forming part of Letters Patent No. 750,231, dated January 19, 1904.

Application filed June 6, 1903. Serial No. 160,351. (No model.)

To all whom it may concern:

Be it known that we, THOMAS H. SIMPSON and EDWARD L. NELSON, citizens of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Mechanism for Attaching End Plates to Arbors, of which the following is a specification, reference being had to the accompanying drawings, which form a part of this specification.

Our invention has for its object mechanism for attaching end plates to arbors, the same being especially adapted for making cores for car-axle journal-boxes.

Our invention consists in the structure and combination of devices hereinafter described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a plan view illustrating our invention. Fig. 2 is a view in longitudinal section on the line 2 2, Fig. 1. Fig. 3 is a view in perspective showing the parts detached in a position to be assembled.

It will be understood that in the employment of arbors and end plates for making cores for journal-boxes the end plates should accurately fit the core-box, the end plates adjusting themselves in the core-box to the proper relative position to the arbor, the end plates being then clamped on the arbor.

Trouble has been experienced heretofore in clamping the end plates on an arbor, because the tendency has been to throw the end plates out of alinement. Under the influence of heat the arbors have been liable to warp or change their shape, so that in keying the end plates onto the arbor the end plates have had to adjust themselves to the arbor, in consequence of which, as above stated, the end plates have been thrown out of proper alinement, producing imperfect work, inasmuch as in making the cores the end plates should always assume one position in the core and should never be moved therefrom.

The object of our invention is to so construct the arbors and end plates that the arbor shall adjust itself to the position of the end plates, the end plates remaining in proper position and undisturbed in the keying of the

end plates upon the arbor. The purpose of our invention is therefore to enable the workmen at all times to clamp the end plates to the arbor, the proper alinement of the end plates remaining undisturbed.

We carry out our invention as follows:

In the drawings, *a* represents an arbor constructed in any usual manner, with the exception that toward its extremities the arbor is formed with shoulders convexed or rounded on their outer surfaces, as indicated at *b b*. The end plates are indicated at *c c*, constructed with orifices, as at *d d*, permitting the plates to be engaged upon the extremities of the arbor. These plates may be constructed in any customary manner, except that adjacent to the orifice *b* each plate is concaved, as indicated at *e*, on the surface adjacent to the shoulder *b* and constructed to fit over the round or convexed surface of the corresponding shoulder *b*. In forming the concave portions *e e* each plate is formed with an outwardly-projecting convexed boss, as shown at *h*. Collars *f f*, having convexed inner surfaces, are arranged to fit over the corresponding bosses of the end plates, the bosses and end plates being clamped into position by a key, (indicated at *g*,) passed through the arbor adjacent to the corresponding boss. The construction of the arbors with the rounded shoulders *b* and the corresponding construction of the end plates and collars obviously admits of adjustment of the arbor relative to the end plates, so that any irregularity in the shape of the arbor may be compensated in its relation to the end plates. As so constructed the arbor adjusts itself to the end plates and provision is made for the keying of the end plates upon the arbors without the end plates being disturbed or moved from their proper position. By this construction a ball or cup arrangement of the end plates and arbors is effected, preventing the end plates from being drawn to the position of the arbor, but forcing the arbor to adjust itself to the end plates.

It will be understood that the object of the arbor is to prevent the sand from falling in its mold, the end plates forming the core and being rammed into proper position in the core-box as the sand is rammed into the box, the

end plates finding their proper position in the box. This form of joining the end plates upon the arbor enables the end plates to be clamped upon the arbor in their natural position.

5 We do not limit ourselves to the precise form of joint shown and described of the end plates upon the shoulders of the arbor, as the convexed and concaved surfaces might be reversed relative to one another within the scope
10 of our invention, the arbor and end plates the one having convexed and the other a concaved adjacent surface, whereby the arbor may readily be adjusted into proper position relative to the end plates.

15 What we claim as our invention is—

1. The combination with an arbor provided with shoulders toward its extremities, of end plates sleeved upon the extremities of the arbor, the shoulders of the arbor and the adjacent end plates having a jointed relation the
20 one to the other respectively whereby the arbor may be adjusted to the position of the end plates substantially as described.

2. The combination with an arbor constructed with shoulders toward its extremities having rounded surfaces, of end plates sleeved upon the extremities of the arbor and constructed with rounded surfaces to fit the rounded shoulders of the arbor, and means to
25 clamp the end plates upon the shoulders of the arbor.

3. The combination with an arbor constructed with shoulders toward its extremities, of end plates sleeved upon the extremities of the
35 arbor, the shoulders of the arbor and the ad-

jacent faces of the end plates respectively the one having a convexed surface and the other a concaved surface, said convexed and concaved surfaces fitting the one upon the other, and means to clamp the end plates upon the
40 shoulders of the arbor.

4. The combination with an arbor constructed with shoulders toward its extremities having convexed or rounded outer surfaces, of end plates sleeved upon the extremities of the
45 arbor and constructed with concaved or rounded surfaces to fit upon the rounded surface of the said shoulders, and means to clamp the end plate upon the shoulder of the arbor.

5. The combination with an arbor constructed with shoulders toward its extremities having convexed or rounded shoulders, of end plates sleeved upon the extremities of the arbor constructed with concaved surfaces adjacent to said shoulders and with convexed surfaces on the opposite face of the end plates,
55 collars concaved on their inner surfaces to fit upon the adjacent convexed surfaces of the end plates respectively, and means to clamp the collars upon the end plates thereby to clamp
60 the end plates upon the arbor.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

THOMAS H. SIMPSON.
EDWARD L. NELSON.

Witnesses:

W. P. PUTNAM,
ETHEL C. KUHN.