

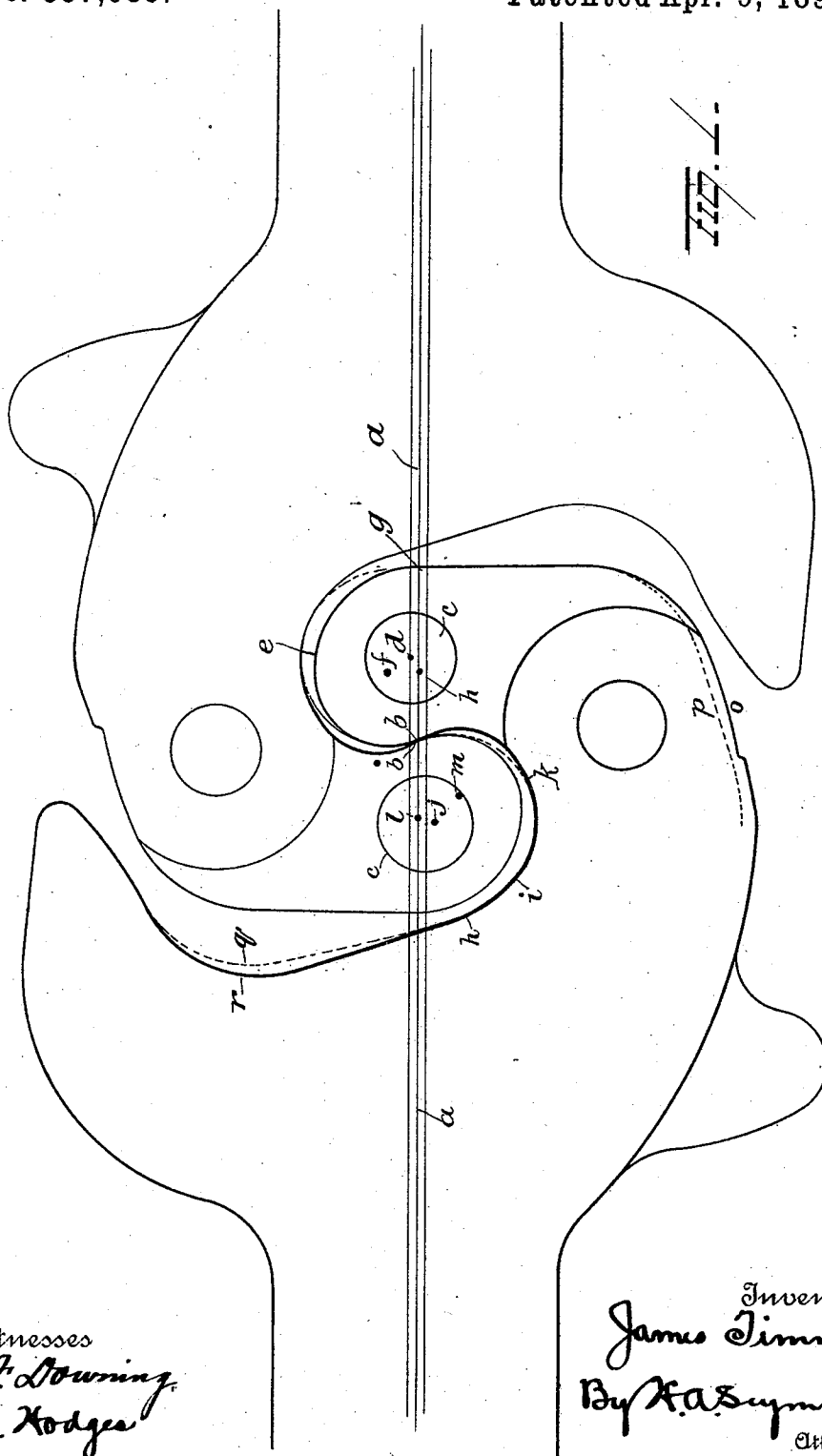
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4 Sheets—Sheet i.

J. TIMMS.
CAR COUPLING.

No. 537,083.

Patented Apr. 9, 1895.



Witnesses
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V. E. Hodges

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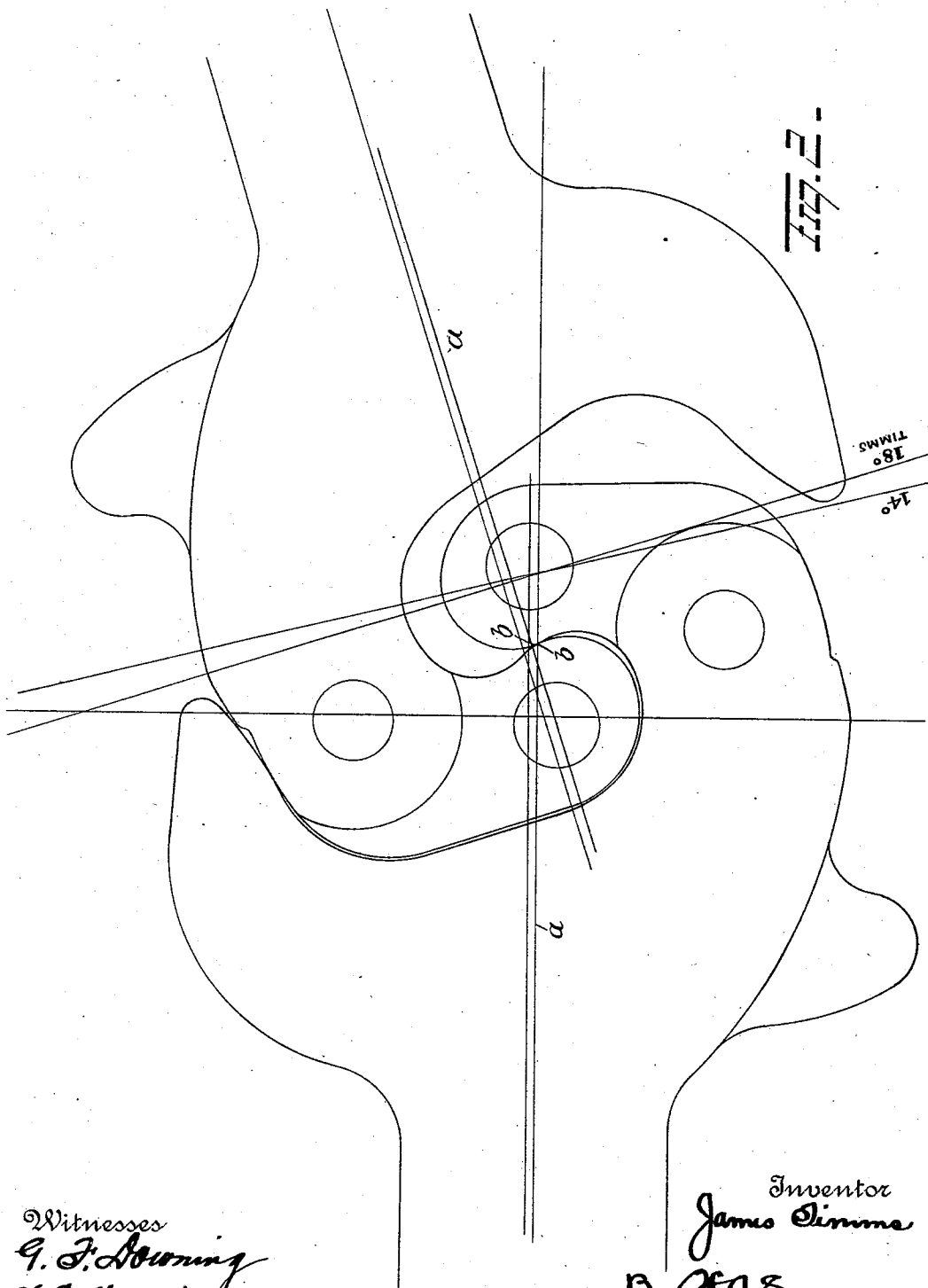
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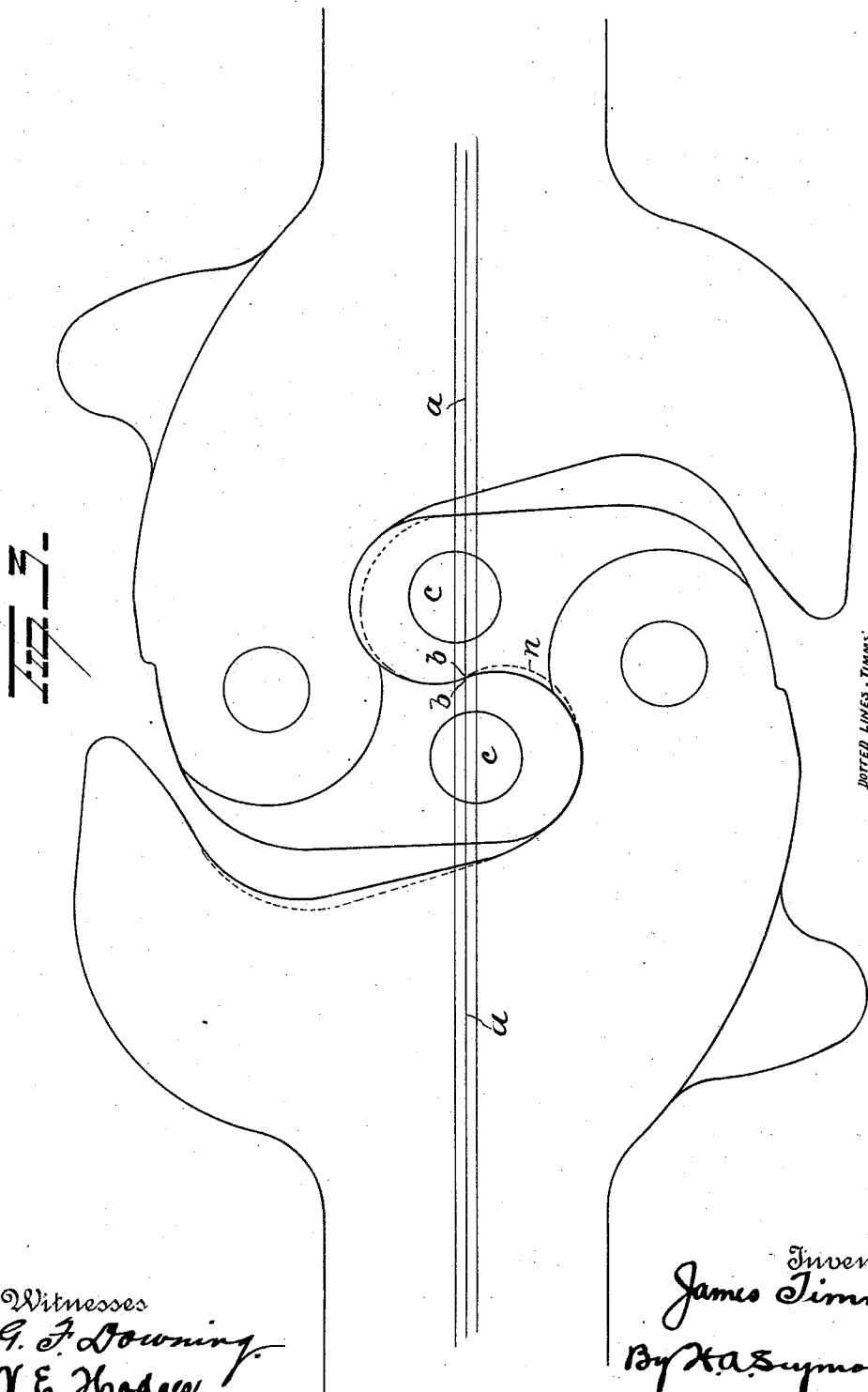
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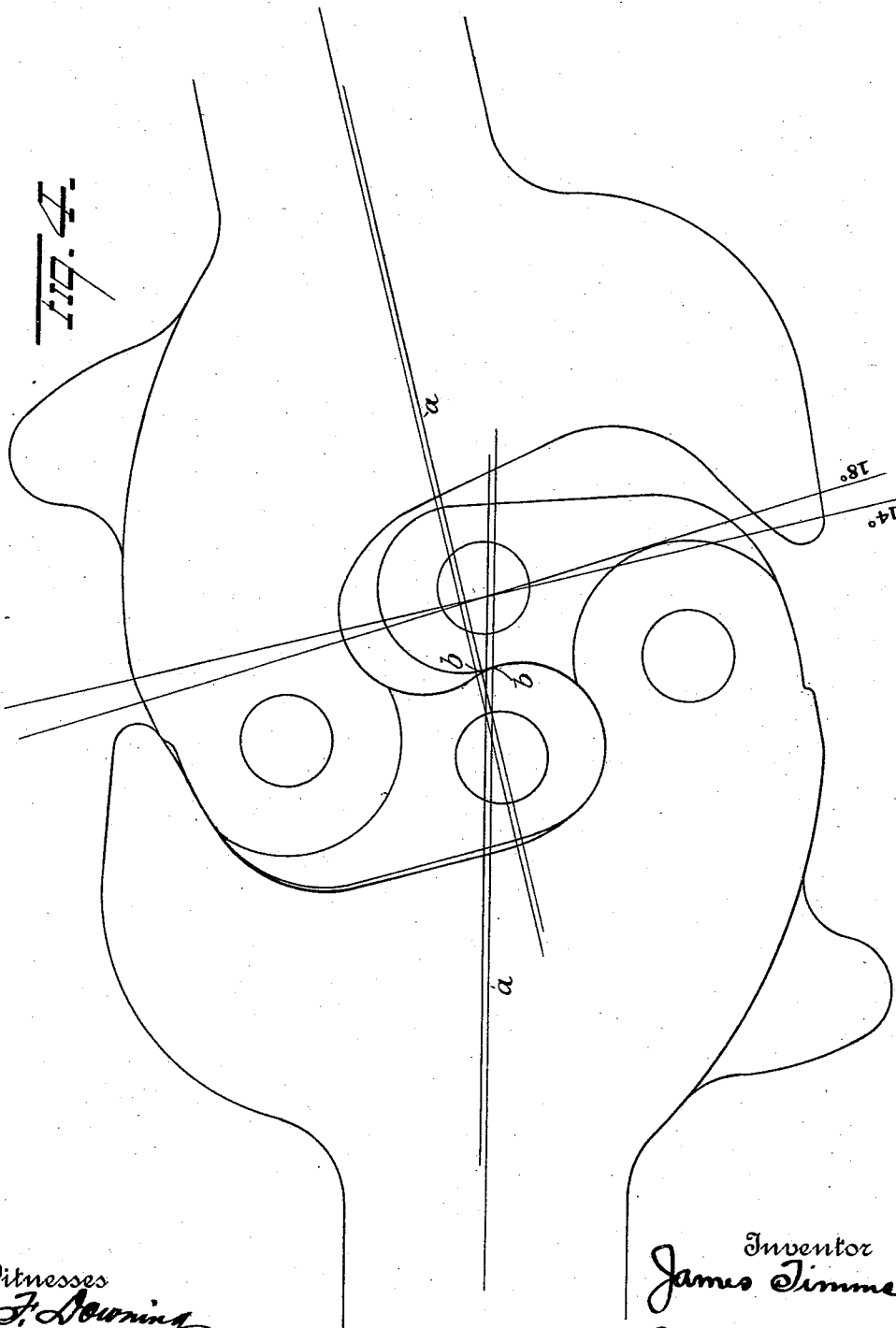
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UNITED STATES PATENT OFFICE.

JAMES TIMMS, OF COLUMBUS, OHIO, ASSIGNOR TO THE BUCKEYE MALLEABLE IRON AND COUPLER COMPANY, OF SAME PLACE.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 537,083, dated April 9, 1895.

Application filed February 24, 1894. Serial No. 501,404. (Model.)

To all whom it may concern:

Be it known that I, JAMES TIMMS, of Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful
5 Improvements in Automatic Hook Car-Couplers; and I do 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 appertains to make and use
10 the same.

My invention relates to an improvement in automatic hook car couplers and the object of same is to so construct the head and knuckle that the coupler can be locked to any auto-
15 matic coupler of the general type constructed on the lines adopted as a standard by the Master Car Builders' Association and at the same time allow of greater freedom of movement in turning curves and also permit cars
20 to be coupled on shorter curves than it is possible to do with the couplers constructed on the standard lines.

A further object is to so construct the knuckles that the wear thereon falls on the
25 inclined or curved faces thereof to the inside of the line of draft and thus wearing practically parallel to the original contour of the knuckle.

In the accompanying drawings, Figure 1 is
30 a view showing two couplers embodying my invention, the dotted lines indicating previous contour. Fig. 2 shows the same as they appear when they are on eighteen degree curves, and Figs. 3 and 4 are diagrammatic views
35 showing couplers constructed on the standard lines and the positions assumed in turning from a straight line to the extreme.

In the couplers constructed on the Master Car Builders' lines, the contour of the free end
40 of the knuckle corresponds with the contour of the recess in the opposite head designed to receive said free end of the knuckle as shown in Fig. 3. Hence it will be seen that in turning on curves the knuckles instead of pivoting
45 on each other, are compelled to slide thus gradually wearing away the rear face of the free end of the knuckles until the space between the same and the guard arm is sufficiently large to permit of the escape of a lock-

ing jaw. This sliding movement is illustrated 50 in Figs. 3 and 4 of the drawings.

In Fig. 3 the couplers are shown with the line of draft *a* passing centrally through both couplers, the free end of each knuckle fitting snugly and completely filling the seats or recesses therefor in the other coupling head. The points *b, b* represent the center of movement but as each knuckle completely fills the recess in the opposite coupling head it follows
55 that in turning a curve of any degree the points *b b* must slide on one another, as clearly shown in Fig. 4. This is necessarily true because the free ends of the knuckle and the recess in the opposite draw head to receive same are each a semi-circle concentric with the center
60 of coupling pin hole *c* in the end of the knuckle. Consequently it is impossible to get a pivotal action of one knuckle on the other at the points *b b* which as before stated is the center line of draft.
70

With my improved coupler the end of the knuckle is in two arcs both of which are eccentric to the center *d* of the coupling pin hole *c*. One of these arcs from *b* to *e* is concentric with the point *f* while the other from
75 *e* to *g* is struck from the center *h* thus increasing the thickness of the metal at the inner or wearing face or point of the knuckle and decreasing the thickness of the metal at the point where there is no wear.
80

Again in my improvement the contour of the recess instead of corresponding with the contour of the end of the knuckle, is formed of three distinct arcs, the arc *h, i* being struck from center *j* and the arc *i, k* from the center
85 *l*, and the arc *k b* on the inner face of the knuckle from the center *m*. With this construction it will be seen that when the line of draft *a* passes centrally through both couplers as in Fig. 1, the only point of contact between
90 the knuckles is at the point *b*, considerable space being left between the parts for the free pivotal movement of one knuckle on the other without coming in contact with the walls of the coupling head. This space will permit of
95 the knuckles pivoting or turning on each other, on ordinary curves without sliding, and experiment has demonstrated the fact that

cars having this improved coupler thereon can be coupled on eighteen degree curves while the shortest curve on which cars equipped with the coupler built on the standard lines is about fourteen degrees. Again by adding to the thickness of the knuckle from the point *b* outwardly toward point *e*, the knuckles wear practically in a line with the line of draft and practically parallel with the original contour and hence the tendency to unlock or become separated is avoided.

To compensate for the metal taken out from the head and knuckle as indicated by dotted line *n* I have added to the thickness of both parts on their outer side as indicated by solid and dotted lines *o, p*. To allow for the extra movement of the knuckles I have also increased the depth of throat from the dotted line *q* to the solid line *r*. By adding metal to these points it not only adds to the strength but when two couplers are coupled together

there is not so much space between the guard arm and the heel of the knuckle, which renders the couplers more compact.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The knuckle herein described the contour of the locking edge of which is made up of the arcs *k* and *b*, *b* and *e*, and *e* and *g*, substantially as and for the purpose described.

2. The coupling herein described, the contour of the inner contour of which is composed of the arcs *h i*; *i k*; *k b*; *b e* and *e g*, substantially as and for the purpose described.

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

JAMES TIMMS.

Witnesses:

DUDLEY G. GRAY,
C. C. KING.