

2 Sheets—Sheet 1.

Patented May 19, 1891.

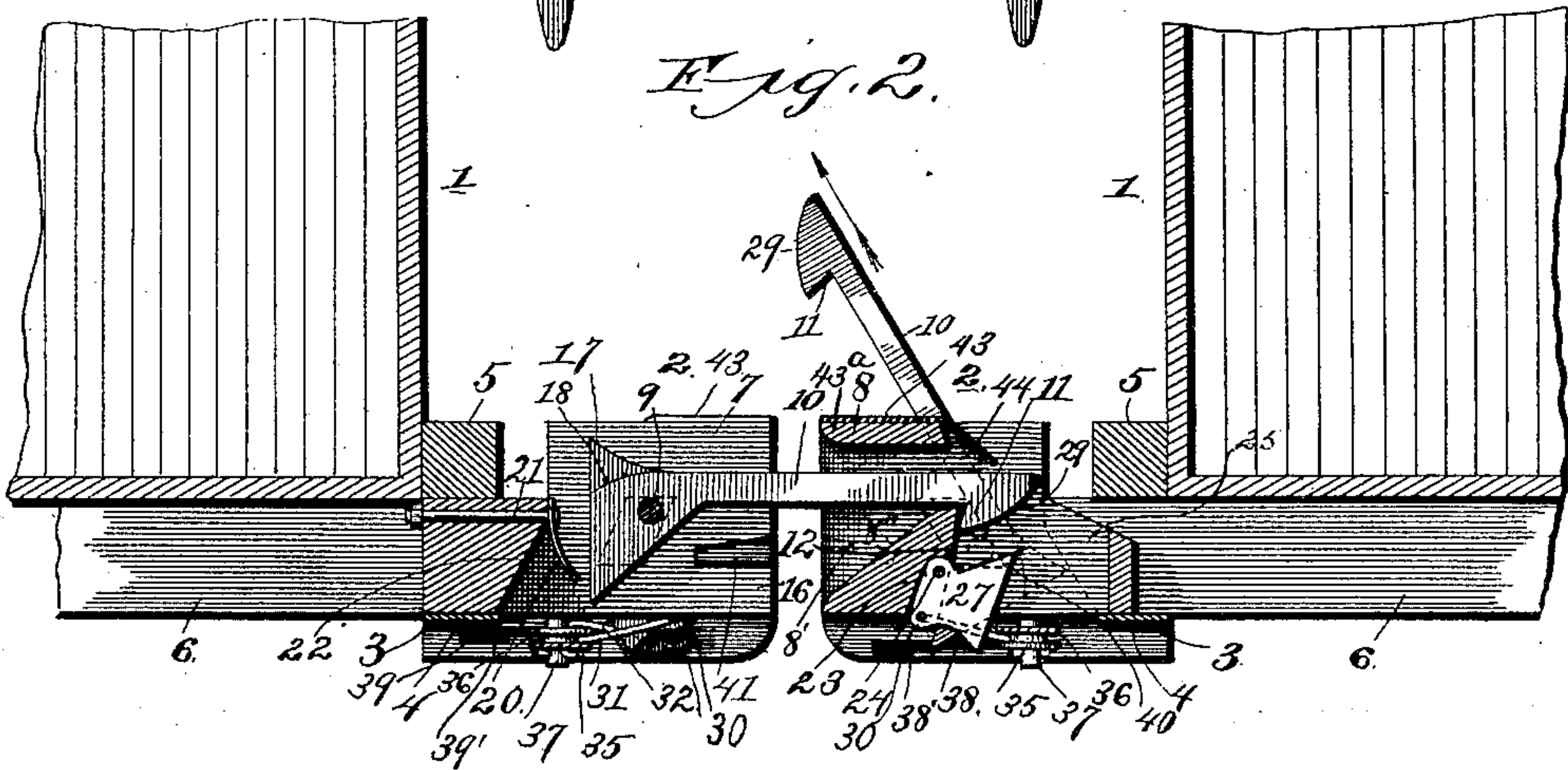
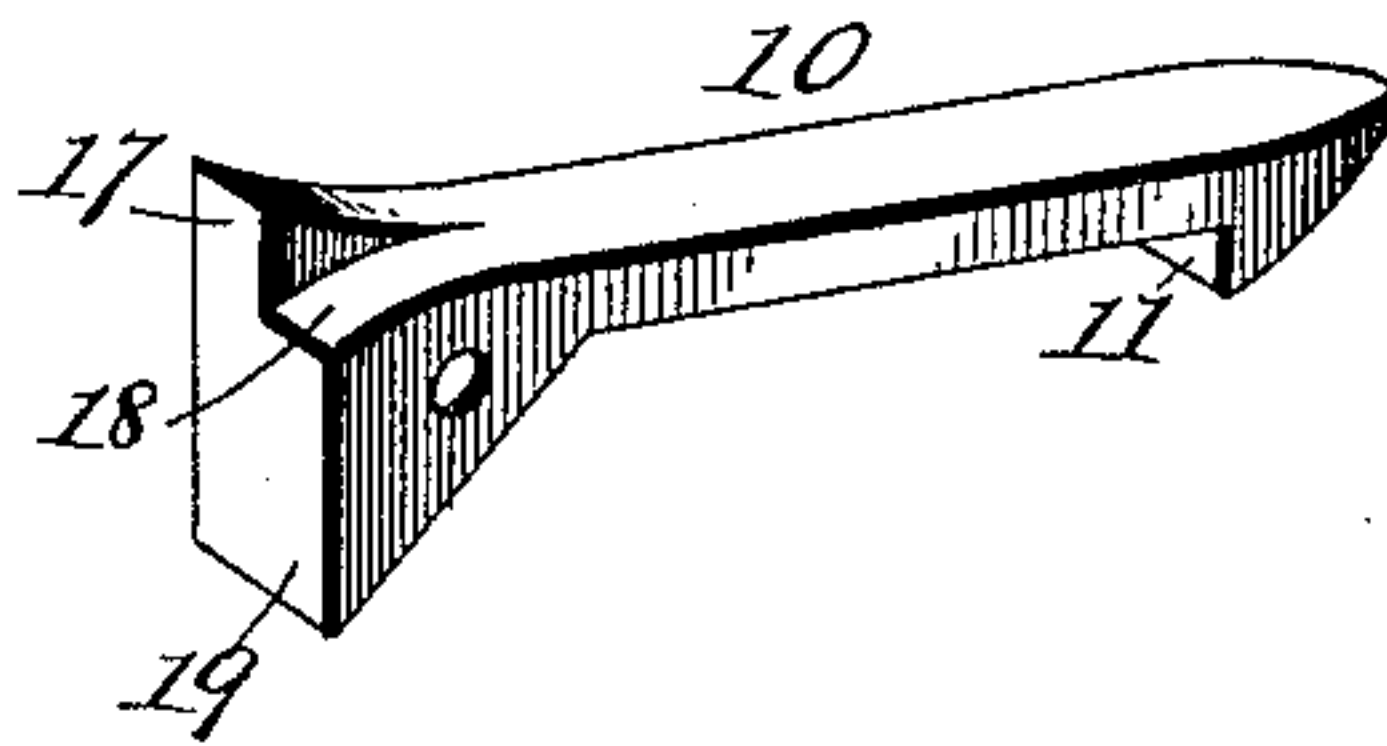


Fig. 5.



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(No Model.)

2 Sheets—Sheet 2.

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CAR COUPLING.

No. 452,372.

Patented May 19, 1891.

Fig. 3.

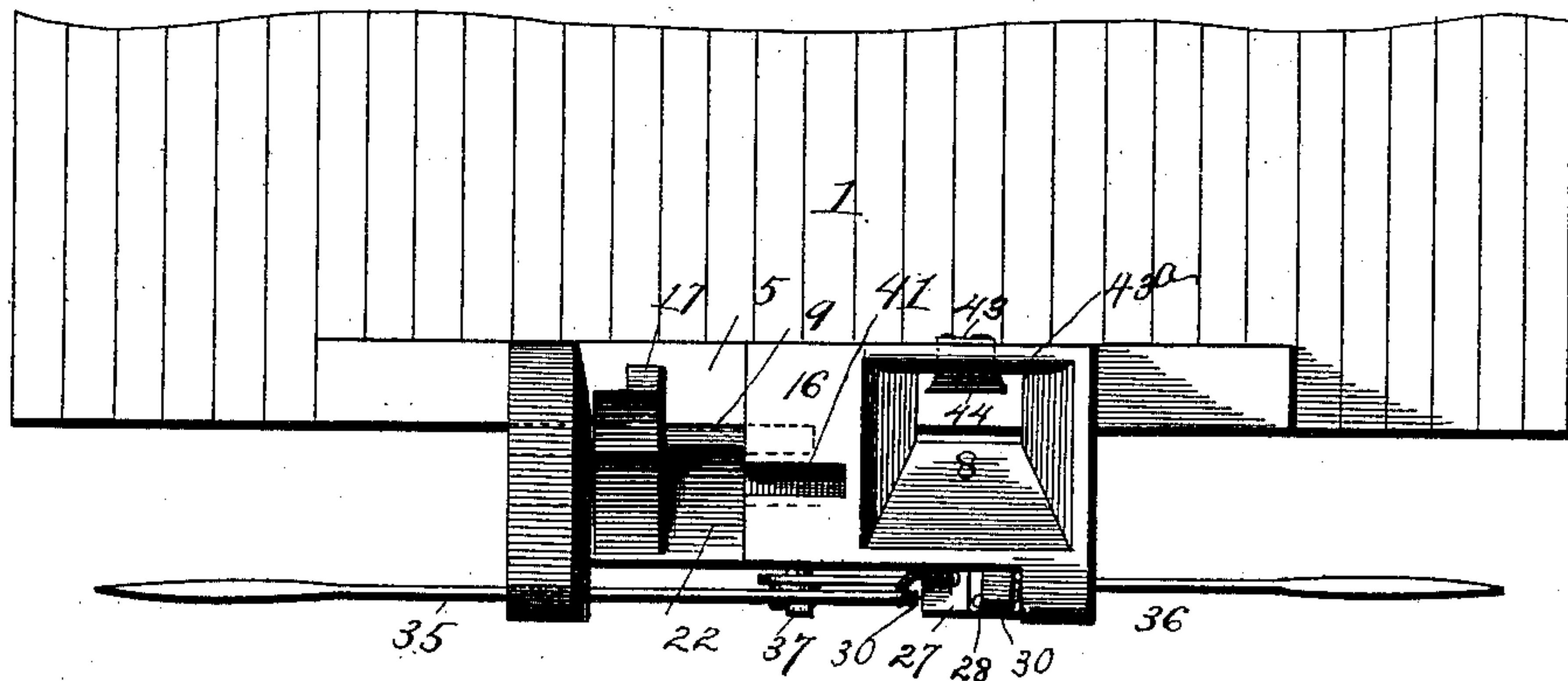


Fig. 4.

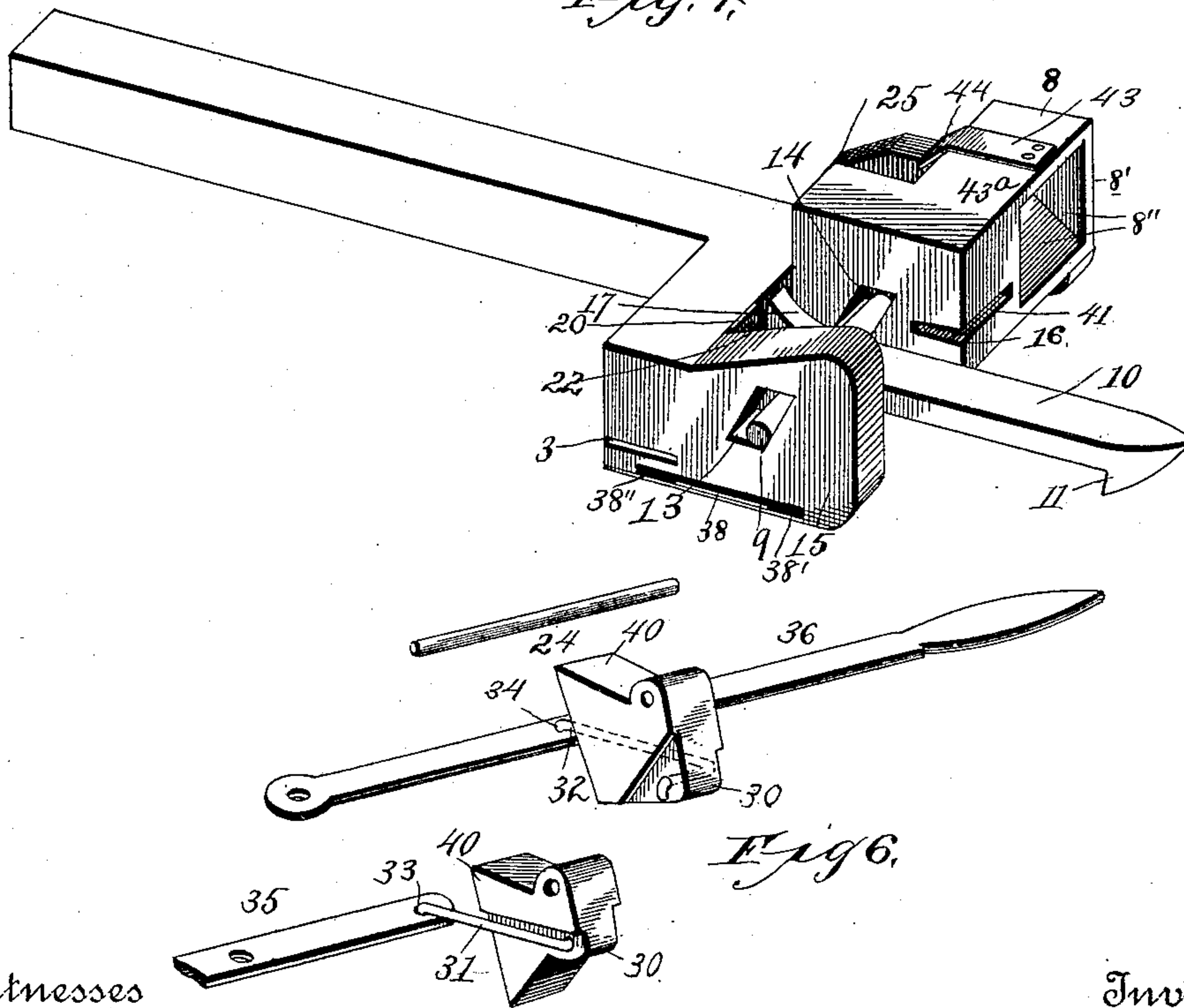


Fig. 6.

Witnesses

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CUTHBERT J. HAFEY, OF EUREKA, KANSAS.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 452,372, dated May 19, 1891.

Application filed December 26, 1890. Serial No. 375,824. (No model.)

To all whom it may concern:

Be it known that I, CUTHBERT J. HAFEY, of Eureka, Greenwood county, Kansas, have invented certain new and useful Improvements in Automatic Car-Couplers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in car-couplers; and it consists in the novel construction and combination of parts illustrated and described in the accompanying drawings and specification.

My object is to provide a simple and effective automatic car-coupler provided with suitable transversely-extending levers, by which the said cars may be uncoupled without the necessity of the operator passing between them. I also provide a suitable recess or slot in the forward end of the draw-head, in which a link of the ordinary coupling now in use may be secured when coupling with a car provided with the old form of draw-head.

Referring to the drawings, Figure 1 is a top plan view of a portion of two cars, showing them secured together by my improved coupler. Fig. 2 is a longitudinal section of the same on the line $x x$ of Fig. 1, having one of the hooks in its elevated or uncoupled position. Fig. 3 is a front view of one of the cars provided with my coupler. Fig. 4 is a perspective view of my invention detached from the car. Fig. 5 is a detail perspective view of the coupling-hook used in this connection. Fig. 6 are detail perspective views detached, showing the mechanism whereby the cars may be uncoupled without the necessity of entering between them.

Similar figures of reference refer to similar parts in all the drawings, in which—

11 designate two cars, which are secured by the draw-heads 2, which are exact duplicates of each other. Therefore the description of the one will suffice for both. These draw-heads are provided in their rear sides near the lower end thereof with the horizontal or guide slots or notches 3, in which engage the usual forward straps 4, which are bolted at opposite ends to the under side of the cross-bar 5 in the usual manner. The slots 3 are of such

extended length as to allow for longitudinal movement of the draw-heads when the cars come together. The draw-bars 6 of said draw-heads are secured in the usual manner to the under side of the car. The draw-heads are rectangular in shape and are provided with the recessed or notched portion 7 and the receiving-head 8, which are provided at their forward end with the guideways or passages 8', formed by the interior inclined guide or directing walls 8".

Suitably secured on the transverse rod 9 in the notch 7 is the coupling link or hook 10, provided at its forward end with the depending arm 11, and adapted to engage in its coupled position with the rear wall 12 of the receiving head or chamber 8. The rod 9 has its opposite ends engaging the inclined slots 13 and 14 of the forwardly-extending arm or projection 15 and the central or body portion 16 of the draw-head, the ends of said rod resting, when the device is in its uncoupled position, upon the lower horizontal floor of the slots, the hook being in its horizontal and forwardly-extending position, as shown in Fig. 4. When coupled together, the draft or strain upon the hooks 10 causes the said rod 9 to assume the position in the upper forward portion of the said slots, as shown in Fig. 2. The coupling-hooks 10 are provided, also, with the upwardly-extending shoulder or projection 17, which extends from the inner edge about half-way across the width of said coupling-hook, the portion of the upper surface to one side of and adjacent to said shoulder or projection being beveled or rounded, as shown at 18. The rear end of said hook is also provided with the depending projection or shoulder 19, which is adapted to bear against the lower end of the forwardly and outwardly curved spring 20, which is of the same width and in alignment with the beveled portion 18 of said hook, the upper end of which is secured by a bolt 21 to the wall 22, which is beveled or inclined rearwardly and downwardly, as shown, the object of which will be presently described.

The rear wall 12 of the receiving head or chamber 8 of the draw-head is recessed or cut away, as shown at 23, and has secured there-

in on the short transverse rod 24, the opposite ends of which are secured in the side walls 25 25 of said receiving head or chamber, the pivotal pawls or dogs 27 and 28 arranged side by side and in vertical alignment with the lower curved end 29 of the coupling-hook. These dogs or pawls are of a peculiar shape, being each provided with the ear or projection 30 30, arranged a suitable distance below the pivotal connection of the dogs or pawls with the transverse rod 24. These dogs or pawls are pivotally secured to the forward ends of the links or rods 31 and 32, the rear ends of which are pivotally secured, respectively, in the openings 33 and 34 of the transversely-extending levers 35 and 36, the outer ends of which are provided with handles which extend to within a short distance of the outer side edge of the car, the inner end of lever 36 being pivoted on the cylindrical rod or projection 37, which projects downwardly from the under surface of the central or body portion 16 of the draw-heads. The lever 35, extending in an opposite direction to the lever 36, is provided and secured in position in a suitable manner a short distance from its inner end, which end is connected by means of link 31 to the pawl or dog 27. The projecting ends of these levers pass through and operate in the longitudinal and horizontal guide-slots 38 and 39, respectively, the slot 38 extending forwardly, or toward the forward end of the draw-head, and provided at its opposite ends with the recess or notches 38' and 38'', and the slot 39 in a rearward direction, or toward the rear end of the draw-head, and also provided with recesses or notches 39' and 39'', the object of which will be presently described. The pivotal connections with the pawls or dogs makes it necessary that the short arm 36, or arm adjacent to and passing through the slot 39 in the walls of the receiving head or chamber 8, should be operated toward the rear when desiring to uncouple the cars, causing the concentric movement of the upwardly-extending and angular point 40 of the pawl or dog 27 in an upward direction, and thereby the elevation of the hook 11 of the coupling-hook 10 from its engagement with the abrupt wall 12 of the receiving head or chamber 8, as will be readily understood.

When desiring to uncouple from the opposite side of the car, the lever 35, having its fulcrum-point 33 beyond its pivotal point, must be moved in a forward direction, causing the rear movement of the link 31 and the concentric elevation of the point 40 of the dog or pawl 28, causing the hooked end 11 of the coupling link or hook to be disengaged from the rear wall 12 of the receiving head or chamber in the manner formerly described, as will be readily understood.

The notches or recesses 38' and 39' and 38'' and 39'' are to receive the shanks of the levers 38 and 39 when desiring to lock the

pawls or dogs in their lowered position, and thereby prevent the accidental uncoupling of the cars, or to secure said pawls or dogs in their elevated position, and thereby prevent the coupling of the cars when desired, respectively.

The body portion 16 of the draw-heads is provided with the horizontally-aligned notches or recesses 41 for the reception of a coupling-link of the ordinary construction, which is secured therein by means of the ordinary pin passing through and engaging the vertically-aligned perforations or apertures 42.

The operation of my invention is as follows: As the cars approach each other, the forwardly-extending coupling-hooks 10 from the draw-heads of the opposite cars enter simultaneously the guideways or passages 8' of the receiving heads or chambers 8, and to prevent any danger of the shock causing the recoil of the cars before the hook engages the wall 12 of said receiving heads or chambers the rearwardly-extending springs 43 are secured in a suitable manner at their forward ends to the upper floor 43^a of the chamber 8', the rear ends thereof inclining downwardly and rearwardly, as shown at 44, and are adapted to guide or depress the said hooked ends 11 into engagement with said walls 12 immediately said ends have passed beyond said wall 12.

The recoil of cars and subsequent draft or strain upon the coupling-hooks cause the pivotal rods 9 to assume the elevated position shown in Fig. 2.

The object of the spring 20, opposite the rear end of the coupling hooks or links 10, is to prevent the depression of said coupling-hooks beyond a certain distance, the extending portion 19 thereof striking or bearing against the lower free end of spring 20 when depressed, as will be understood.

To elevate the coupling-hook to the position shown in Fig. 2, when the cars are uncoupled the link is raised, causing the rod 9 to move to the upward and forward end of the inclined slots 13 and 14, when the hook may be pivotally moved upward until it has reached an angle of about seventy-five degrees, or until the shoulder or arm 17 will be enabled to pass the forward and upper portion of the inclined wall 22 in lowering the coupling-hook until the rod 9 has assumed its former or normal position in the lower end of slot. When the coupling-hook is released, the projecting arm or shoulder 17 engages the inclined wall 22, as shown in dotted lines, Fig. 3, holding it in its elevated position by securing a link of ordinary description in the recess 41 in the forward end or central body portion 16 of the draw-head by a pin of the ordinary description engaging the vertically-aligned apertures 42. The car may be coupled with a car provided with the draw-head of the ordinary description, as will be readily understood.

The object of making the upwardly-extend-

ing arm or shoulder 17 of only about half the width of the coupling-hook is to allow said projection or arm when operating to elevate the said hook to the inclined position shown in Fig. 2 to pass by the spring 20 without coming in contact with the same. The curved or beveled portion 18, adjacent to said projection 17 and in alignment with said spring, is so constructed or arranged that after the coupling-hook has been raised to its elevated position, when released, the shaft 9 may settle back to its original position in the bottom of the slots 13 and 14 without the rear upper curved portion 18 coming in contact with the spring 20 and therefore in danger of being jarred from its elevated position.

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

1. The combination, in a car-coupler, of the draw-heads having the notches or recesses 7 and the receiving heads or chambers 8, said notches 7 being provided with the rearwardly and downwardly inclined wall 22, and the head or chamber 8 being provided with the guide-walls 25, a depending and rearwardly-extending guide-spring 43, and an abrupt wall 12, all arranged and constructed substantially as and for the purpose set forth.

2. The combination, in a car-coupler, of the draw-heads having the notches or recesses 7 and receiving heads or chambers 8, the side wall 15, and central or body portion 16, provided with the upwardly and forwardly inclined slots 13 and 14, said portion 16 being also provided with the notch or recess 41 in its forward edge for the reception of coupling-link of ordinary description and with the aligned apertures 42 therethrough for the engagement of the pin of ordinary construction, substantially as described.

3. The combination of the draw-heads having the recesses 7 and the receiving heads or chambers 8, the inclined slots 13 and 14, the recesses 41, the aligned perforations 42, and receiving-chamber 8, having the rear abrupt wall 12, provided with the recess 23, in which are pivotally arranged on the transverse rod 24 the pawls or dogs 27 and 28, substantially as described.

4. The combination, in the draw-heads constructed as described, with the pivotally-arranged pawls or dogs 27 and 28, of the transversely and laterally extending levers 35 and 36, through the medium of the connecting links or rods 30 and 31, substantially as described.

5. The combination, in the draw-heads constructed as described and provided with the centrally-depending pin or projection 37, and with the forwardly and rearwardly extending horizontal slots 38 and 39, provided with notches 38' and 38'' and 39' and 39'', of the transversely or laterally extending levers pivoted upon said depending lug or projection 37, and extended through and adapted to be

guided by the slots 38 and 39 in the opposite walls 15 and 25 of said draw-head, substantially as described.

6. The combination, in a draw-head, with the pivotally-arranged pawls or dogs 27 and 28, through the medium of suitably-constructed links or rods, of the respective transversely or laterally extending hand-levers 35 and 36, said lever 36 being pivoted at its extreme inner end on pin or projection 37, and adapted to be operated in the rearwardly-extending slot 39 and to rest alternately in notches 39' and 39'', and lever 35, being pivoted at a suitable distance from its inner end on said pin or projection 27, has its extreme inner end fulcrumed and pivotally connected to the pawl or dog 27, said lever being adapted to be operated in the forwardly-extending slot 38 and rest alternately in notches 38' and 38'', all arranged substantially as described.

7. The combination, in a draw-head provided with the inclined or oblique slots 13 and 14, as described, of the transversely-extending rod 9, loosely engaging at its opposite ends in said slots and having substantially secured thereon the coupling-hook 10, provided with the depending hook at its forward end and the upwardly-extending arm or projection 17 and beveled or curved portion 18, and with the depending arm or projection 19 in its rear end, all constructed and arranged substantially as described.

8. The combination, in a draw-head provided with a recessed portion 7, of the rearwardly and downwardly inclined wall 22 thereof, having a suitable depending and forwardly-curved spring 20 secured thereto, with the coupling-hook 10, substantially as and for the purpose set forth.

9. The combination, in a car-coupler, the draw-heads provided with the recessed portion 7, and receiving heads or chambers 8, of the pivotally-arranged pawls or dogs 27 and 28, adapted to be operated as described, with the forward or hooked end of the coupling-hook 10, substantially as and for the purpose set forth.

10. In a car-coupling, a draw-head having a pivoted hook, and a receiving head or chamber consisting of a flaring guideway or passage formed by an upper wall and by the inclined lower wall 8'', the said lower wall decreasing the width of said passage toward its rear end and ending in an abrupt retaining-wall 12 for the engagement of the coupling-hook 10 of the adjoining car, in combination with a spring 43, having its forward end secured to the said upper wall, and having its rear end bent downward and adapted to press upon the said hook 10, as described.

11. In a car-coupling, a draw-head having a pivoted hook, and a receiving head or chamber consisting of a flaring guideway or passage formed by an upper wall 43^a and by the inclined lower wall 8'', the said lower wall

decreasing the width of said passage toward
its rear end and ending in an abrupt retain-
ing-wall 12 for the engagement of the coup-
ling-hook 10 of the adjoining car, in combi-
5 nation with a spring 43, having its forward
end secured to the said upper wall and hav-
ing its rear end bent downward and adapted
to press upon the said hook 10, and means
contained in the said draw-head and adapted

to lift the coupling-hook of the adjoining car 10
from out of engagement with the said retain-
ing-wall, as described.

In testimony whereof I affix my signature in
presence of two witnesses.

CUTIBERT J. HAFEY.

Witnesses:

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H. E. PRICE.