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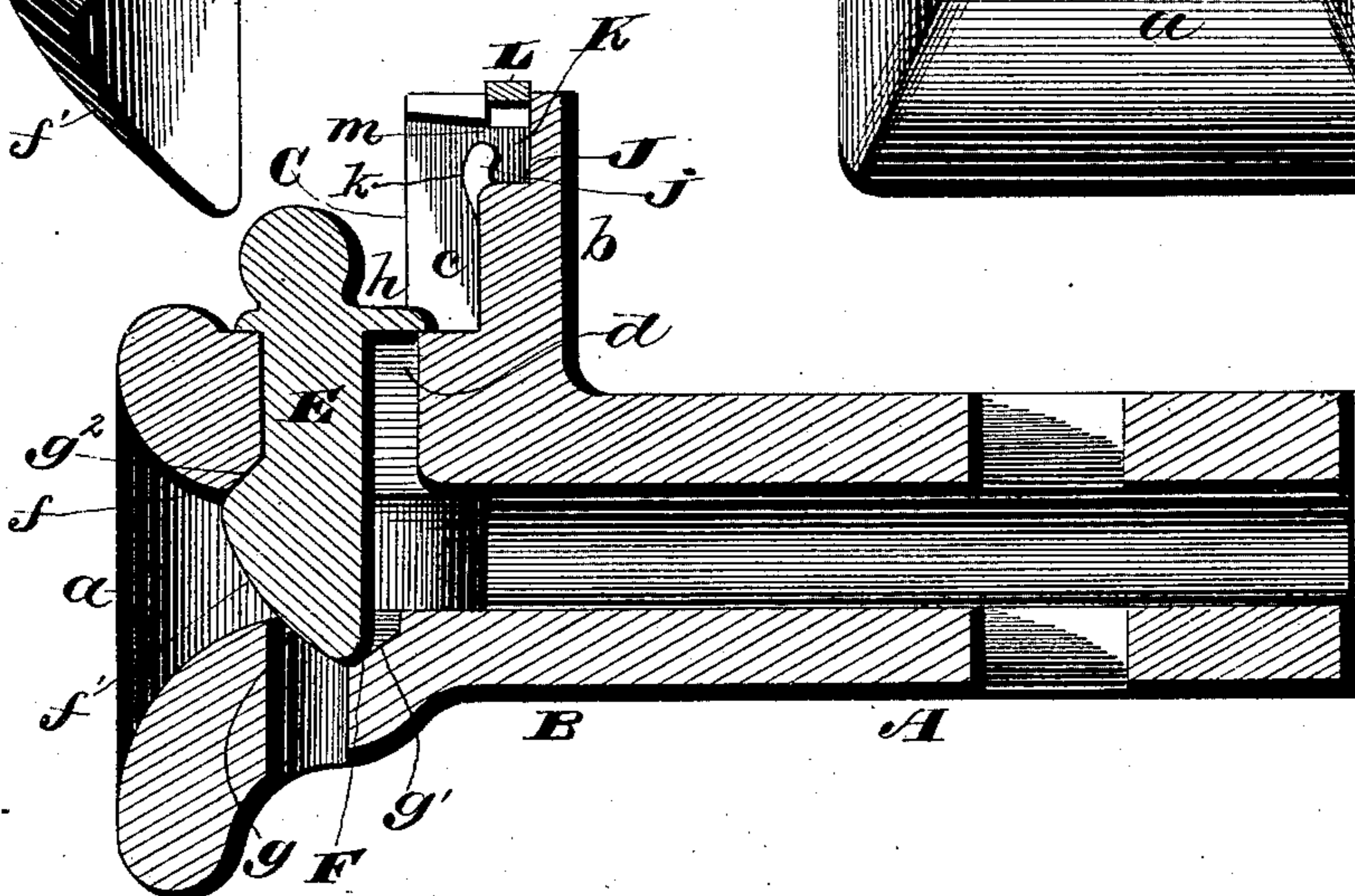
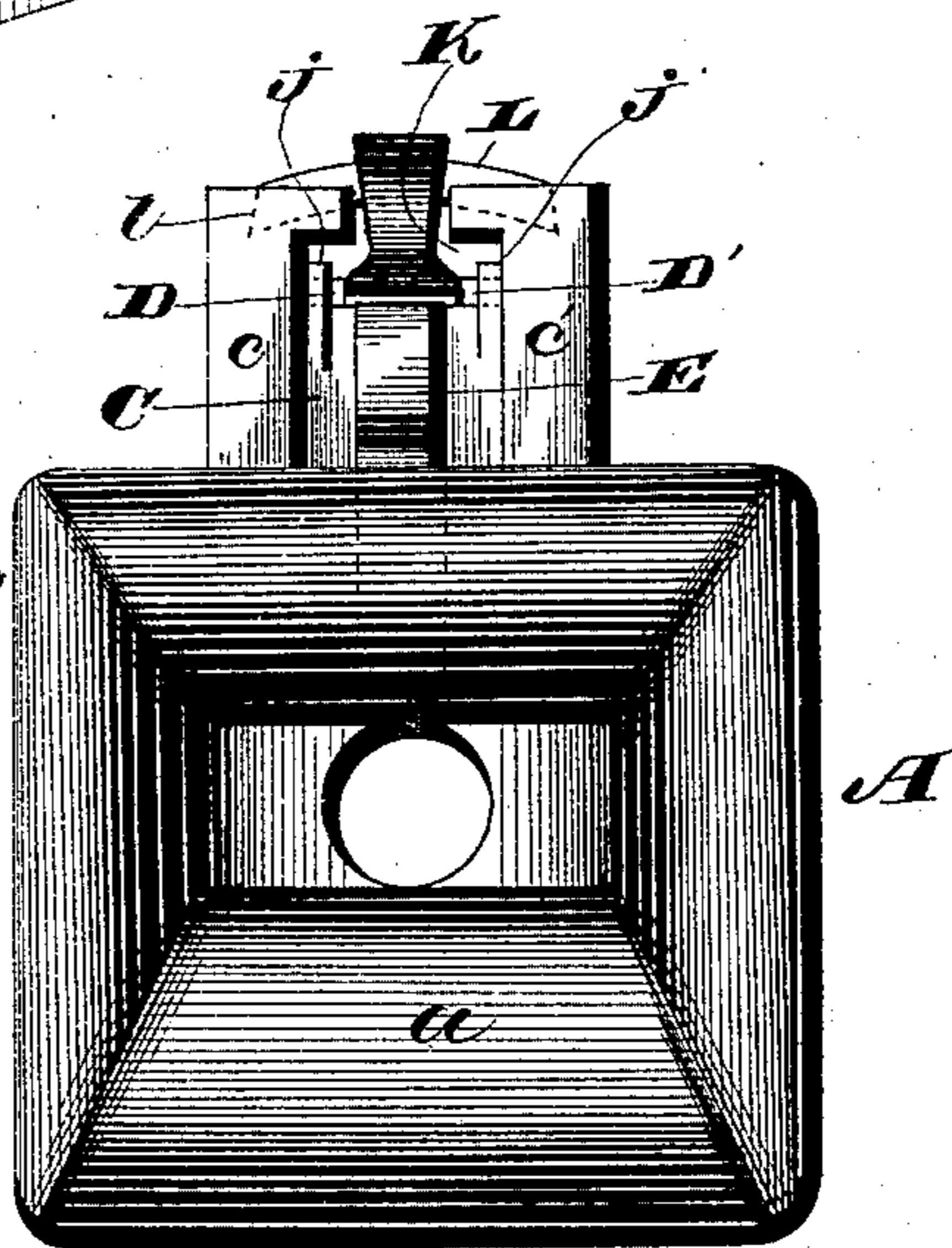
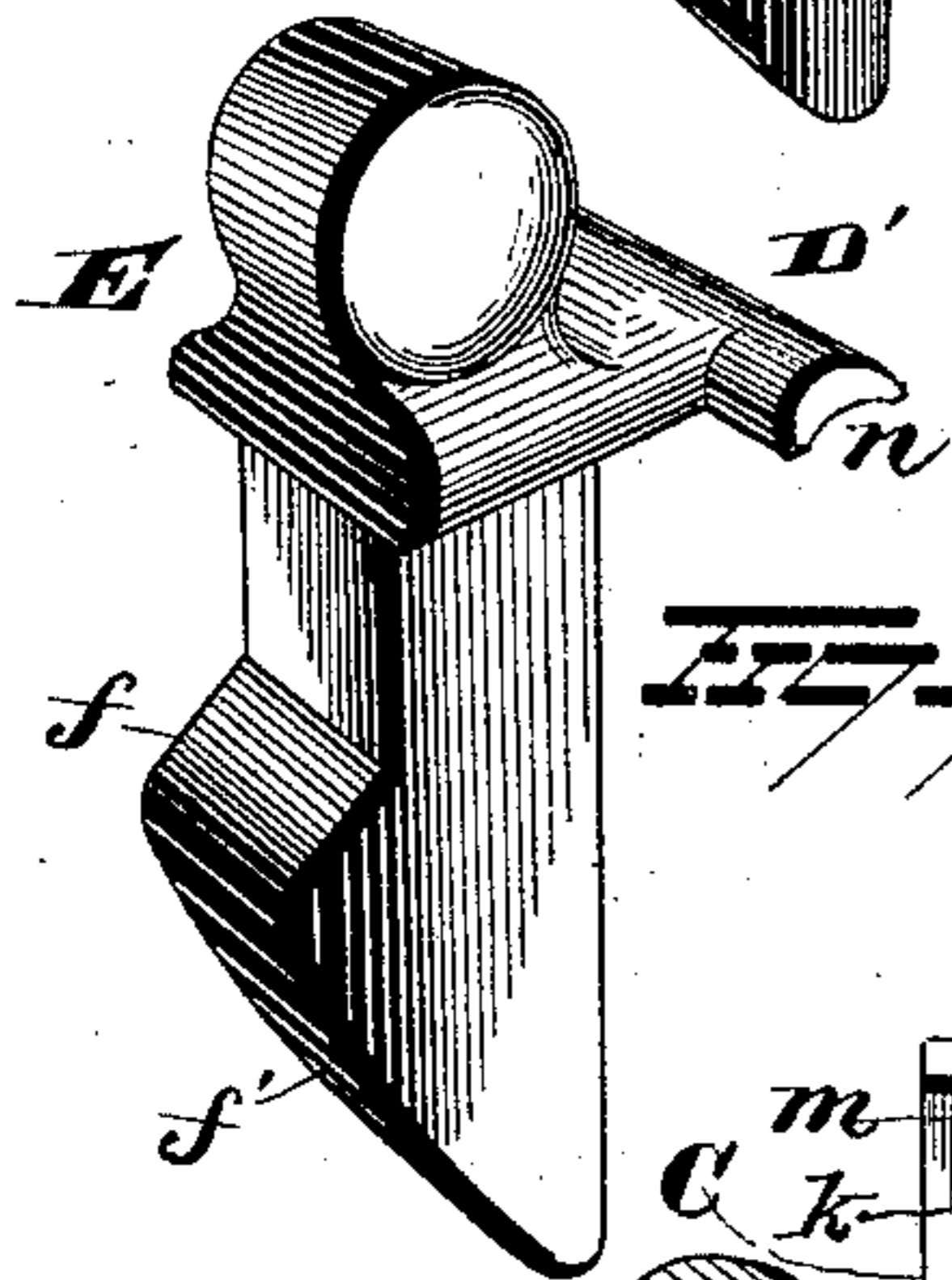
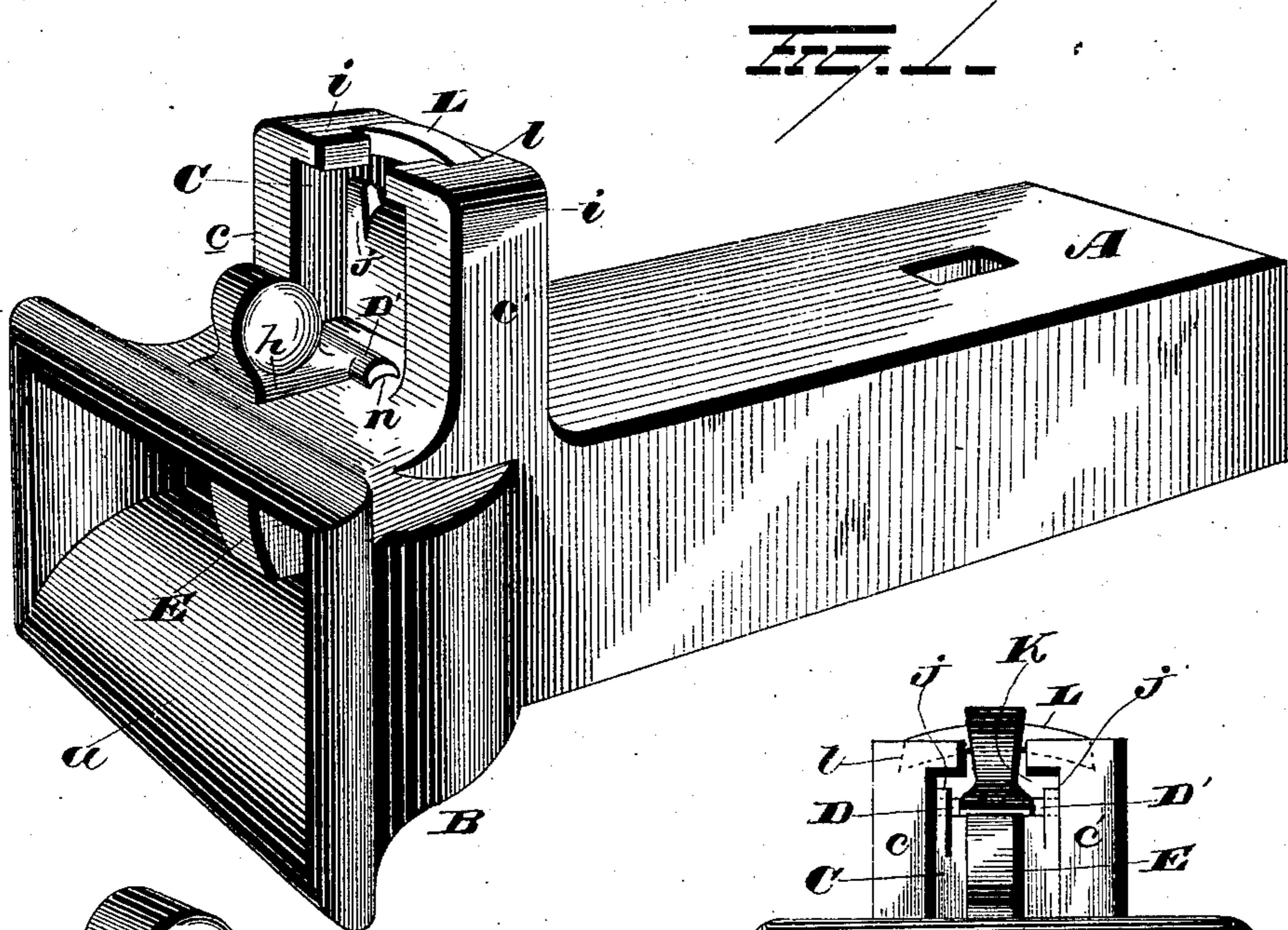
2 Sheets—Sheet 1.

E. N. GIFFORD.

CAR COUPLING.

No. 287,017.

Patented Oct. 23, 1883.



WITNESSES
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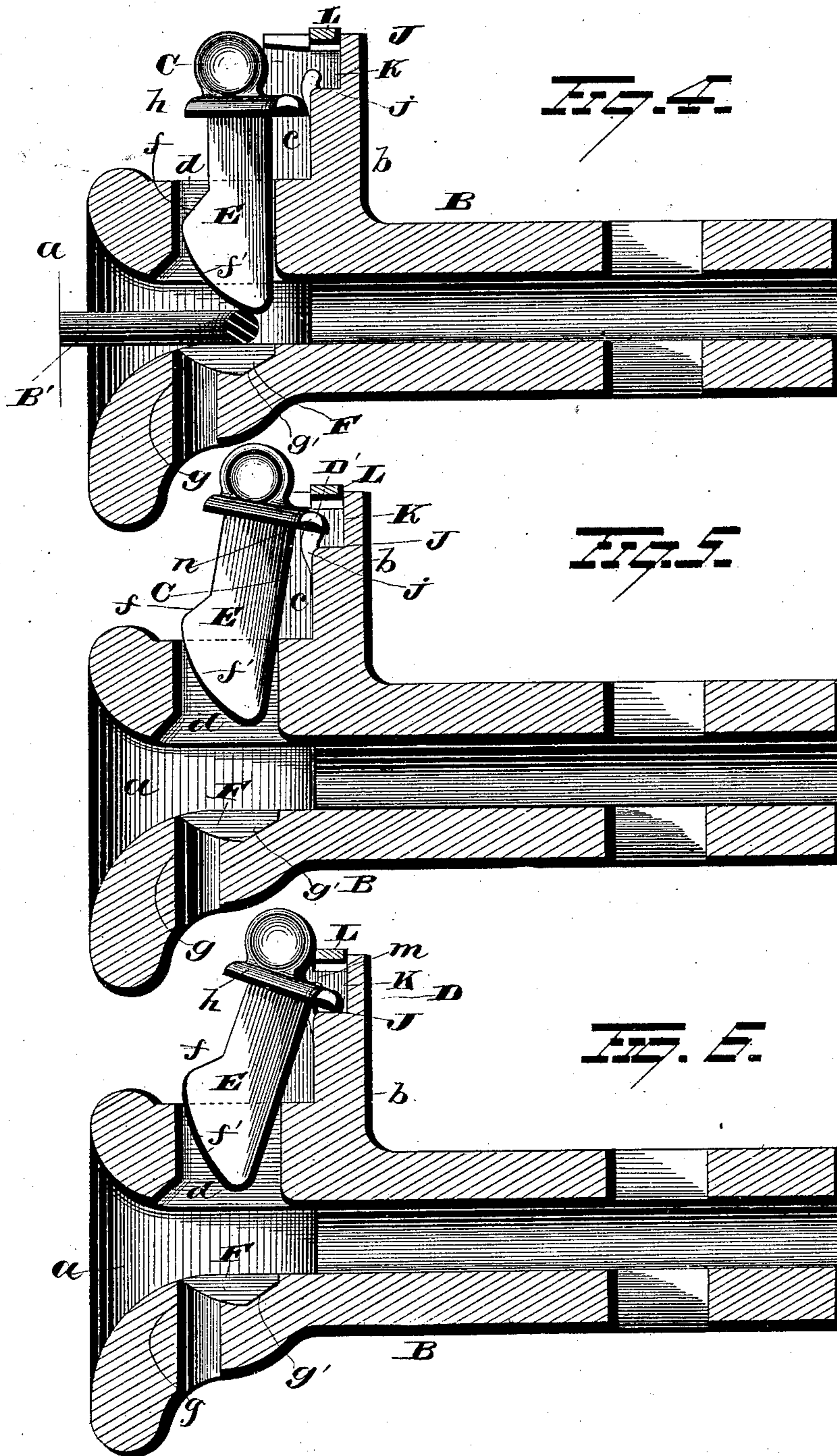
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UNITED STATES PATENT OFFICE.

EZRA N. GIFFORD, OF CINCINNATI, OHIO.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 287,017, dated October 23, 1883.

Application filed February 1, 1883. (No model.)

To all whom it may concern:

Be it known that I, EZRA N. GIFFORD, of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Car-Couplings; 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 the same.

My invention relates to an improvement in automatic car-couplers, the object being to provide a car-coupler of such construction that the coupling-pin may be securely locked in its raised position when it is desired to render the coupling non-automatic for switching or other purposes. A further object is to secure the coupling-pin in its raised position, and in such position that the cars will be automatically coupled by the concussion of two cars coming in contact with each other. A further object is to prevent the coupling-pin from being accidentally thrown into its locked position. A further object is to simplify the construction of automatic couplers and enable strong and durable car-couplers of this type to be produced at a comparatively small initial cost.

With these ends in view my invention consists in certain features of construction and combinations of parts, as will hereinafter be described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in perspective of one of my improved automatic car-couplings. Fig. 2 is a front view. Fig. 3 is a view in vertical section of the coupler, showing the relative position of the parts as the cars are being coupled. Fig. 4 is a view of one of the couplers after the link has raised the coupling-pin. Fig. 5 is a similar view, showing the pin adjusted in its raised position, to be automatically coupled by the concussion of the cars. Fig. 6 is a similar view, showing the pin locked in its raised position. Fig. 7 is a view of the coupling-pin.

A represents the draw-bar, and B the draw-head, the latter being constructed with an enlarged flaring mouth, *a*, for the guidance and entrance of the link B'. On the top of the draw-head is a guideway, C, which is cast integral therewith. Guideway C is constructed with the rear wall, *b*, and side walls, *c c'*, suffi-

cient space being provided between the latter for the movement of the lugs D D', formed integral with and on the rear side of the head of the coupling-pin E, the latter being inserted in an elongated opening, *d*, formed in the upper wall of the draw-head. The rear face, *e*, of the coupling-pin may be straight, and in cross-section may be flat, round, or of any other desired form. The front face of the coupling-pin is provided with an inclined shoulder, *f*, about midway its length, while the lower portion, *f'*, is curved, as shown, or it may be formed in an incline. The lower end of the coupling-pin is seated in a recess, F, formed with converging walls *g g'*. The upper wall of the draw-head is constructed with an inclined or beveled face, *g²*, against which fits the inclined shoulders *f* of the coupling-pins when the draft of the link is exerted on the pin, and thus the latter is prevented from accidental displacement. In coupling, the link strikes the curved or inclined face *f'* of the coupling-pin, forcing the pin rearwardly, and as its lower end then engages with the inclined wall *g'* of the recess F, the pin is raised until the link passes beneath its lower end, when the pin drops through the link and automatically couples the cars. In so far as the form and construction of the coupling-pin thus far described is concerned, I make no claim in this patent, as such subject-matter is shown and described in my former patents.

The head *h* of the coupling-pin is constructed with an enlarged flange, *h'*, which serves to cover the elongated opening *d* in the draw-head and prevent the entrance of rain to the interior of the draw-head, and thus obviates the formation of ice within the draw-head and around the coupling-pin. The rear portion of the flange *h'* has the laterally-projecting lugs D D', which, as has been stated, are free to move within the guideway C. The upper end of the guideway is constructed with rearwardly-overlapping flanges *i i*, which limit the upward movement of the pin. The lower surfaces of the flanges *i i* are outwardly flared, so that when the pin is forced upwardly in coupling automatically the upper end of the pin will be free to move forward and away from the locking-recess. Beneath the flanges *i i* are formed the lugs or projections *j j'*, which are

cast integral with the side walls of the guideway. These lugs are round or oblong, and formed with curved surfaces to allow of the free movement and adjustment of the pin. At the lower ends or portions of the lugs $j j'$ is formed a ledge, J, which constitutes the floor of a locking-recess, K, the top or roof of which is partially or wholly covered by an insertible bar or piece, L, which is made of wrought or malleable iron. In casting the guideway, its upper end is formed with undercut recesses l . The bar L is made slightly curved and its ends inserted within the undercut recesses l , and then by simply hammering on the central portion of the bar it is securely fastened in place. The object of this construction is to allow of the pin, with its lugs, being cast in a single piece, and to be inserted in the draw-head, and then be permanently secured therein by means of the insertible bar or piece L. As other ways of securing the piece L in place might be devised, I do not restrict myself to the particular method described. It will thus be observed that the locking-recess K is provided with top, bottom, and side walls, entrance being had thereto through the passages m , formed between the flanges i and the lugs $j j'$, said passages being of sufficient width to allow of the ready insertion and removal of the lugs D D' on the coupling-pin. The lugs $j j'$ are constructed so that their front faces, k , will project slightly forward of the rear wall of the guideway, for the following purpose: When the coupling-pin is in its lowest position and the cars are being automatically coupled, the link will strike the pin and raise it quickly. As the lugs D D' come in contact with the front faces, k , of the lugs $j j'$, the upper end of the pin is thrown forward and away from the locking-recess, so as to prevent it from being accidentally thrown into the locking-recess and cause it to drop into the link after the latter has passed beneath the pin; hence it will be observed that the coupling is rendered certain in its operation. When the cars are uncoupled by raising the pin, it is oftentimes desirable to so adjust the pin that it will automatically couple when the car is brought in contact with another car, and without the necessity for again attending to the coupling. I provide for such an adjustment. The pin is raised until the lugs D D' rest upon the lugs $j j'$, as illustrated in Fig. 5. The lugs D D', being slightly concave on their lower faces, as shown at n , will insure the coupling-pin against accidental displacement in ordinary switching, and when the cars come together the upper portion of the pin is thrown forward by concussion and automatically couples the cars. When it is desired to lock the pin in its raised position, the pin is raised and its upper portion moved rearwardly, the lugs D D' entering the passages m and dropping into the locking-recess K, the lugs resting against the rear faces of the lugs $j j'$. In this position the pin is securely held, thereby enabling the cars to be switched without danger of being automatically coupled.

From the foregoing it will be observed that the coupling is very simple and durable in its construction. In its completed condition it is practically made of two castings—the draw-head and coupling-pin—the latter being non-removable, and hence rendering it impossible to lose, displace, or misplace the coupling-pins.

It is evident that many slight changes in the construction and relative arrangement of parts might be resorted to without departing from the spirit of my invention, and hence I would have it understood that I do not restrict myself to the exact construction and arrangement of parts shown and described.

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

1. In a car-coupling, the combination, with a draw-head having a guideway extending above the draw-head, said guideway being provided near its upper end with a locking-recess and with inwardly-projecting flanges over the locking-recess, of a coupling-pin provided with laterally-projecting locking-lugs adapted to move vertically within said guideway and rearwardly into said locking-recess, substantially as set forth.

2. In a car-coupling, the draw-head having a guideway cast integral therewith, said guideway having undercut recesses in its upper end, and a bar, L, secured at its ends, within said recesses, substantially as set forth.

3. In a car-coupling, the combination, with a coupling-pin having locking-lugs cast integral therewith near its upper end, of a guideway provided with a locking-recess in its upper end, and provided with lugs j , that extend above the bottom or floor of said recess, substantially as set forth.

4. In a car-coupling, the combination, with a coupling-pin having locking-lugs cast integral therewith near its upper end, of a guideway provided with a locking-recess in its upper end, and constructed with side passages, m , located above the floor of the locking-recess, for the insertion of the locking-lugs on the coupling-pin, substantially as set forth.

5. In a car-coupling, the combination, with a draw-head having a guideway extending above the draw-head, said guideway provided with a locking-recess near its upper end, and with lugs j , that project in front of said locking-recess, of a coupling-pin having locking-lugs formed with concave bearings on their under sides, substantially as set forth.

6. In a car-coupling, the combination, with a coupling-pin having locking-lugs cast integral therewith, near its upper end, of a draw-head having a guideway cast integral therewith, and constructed substantially as described, whereby the coupling-pin may be raised, its head moved rearwardly, and its locking-lugs lowered into a locking-recess located in the upper portion of said guideway, substantially as set forth.

7. In a car-coupler, the combination, with

a coupling-pin provided with locking-lugs, of
a draw-head provided with a guideway, con-
structed substantially as described, whereby
the coupling-pin may be raised, its head moved
5 rearwardly, and supported so as to cause the
pin to fall by concussion and automatically
couple the cars, substantially as set forth.

8. In a car-coupler, the combination, with
a coupling-pin provided with locking-lugs, of
10 a draw-head provided with a guideway, con-
structed substantially as described, whereby

the pin may be raised, its head moved rear-
wardly, and its locking-lugs lowered into a
locking-recess, substantially as set forth.

In testimony whereof I have signed this 15
specification in the presence of two subscrib-
ing witnesses.

EZRA N. GIFFORD.

Witnesses:

GEORGE COOK,

S. G. NOTTINGHAM.