

(No Model.)

C. G. SUSEMIHL, Dec'd.

F. G. SUSEMIHL, Administrator.

CAR AXLE BOX.

No. 348,933.

Patented Sept. 7, 1886.

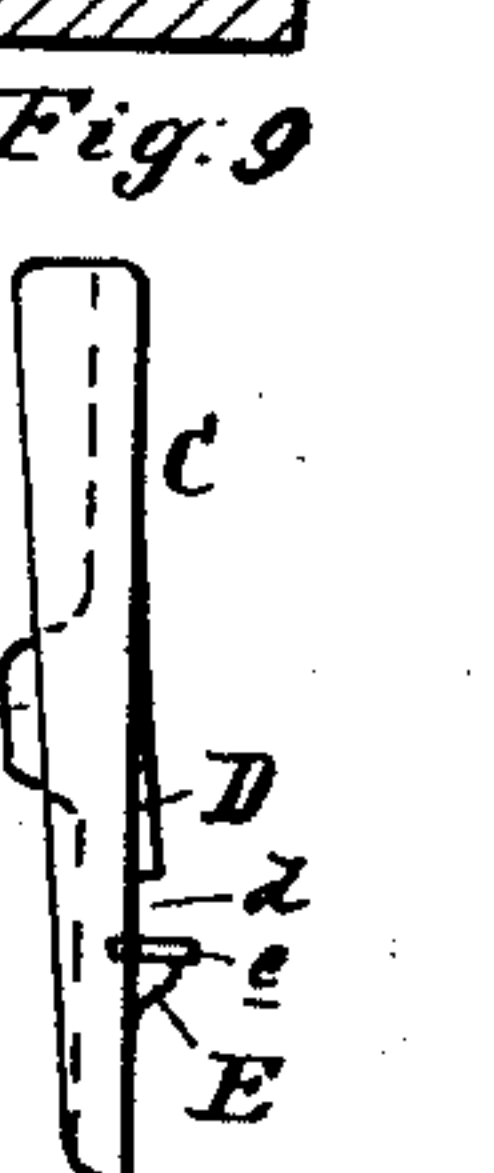
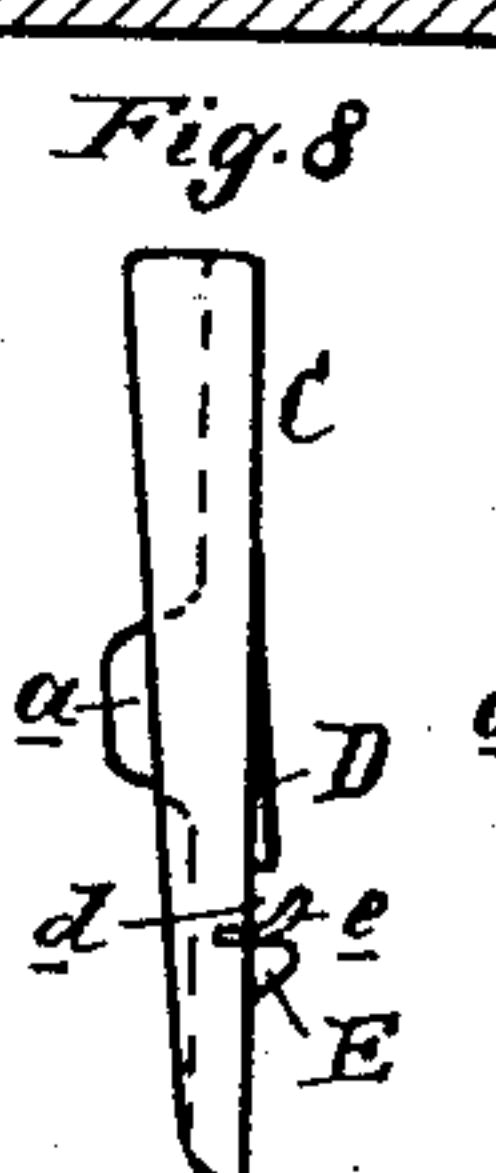
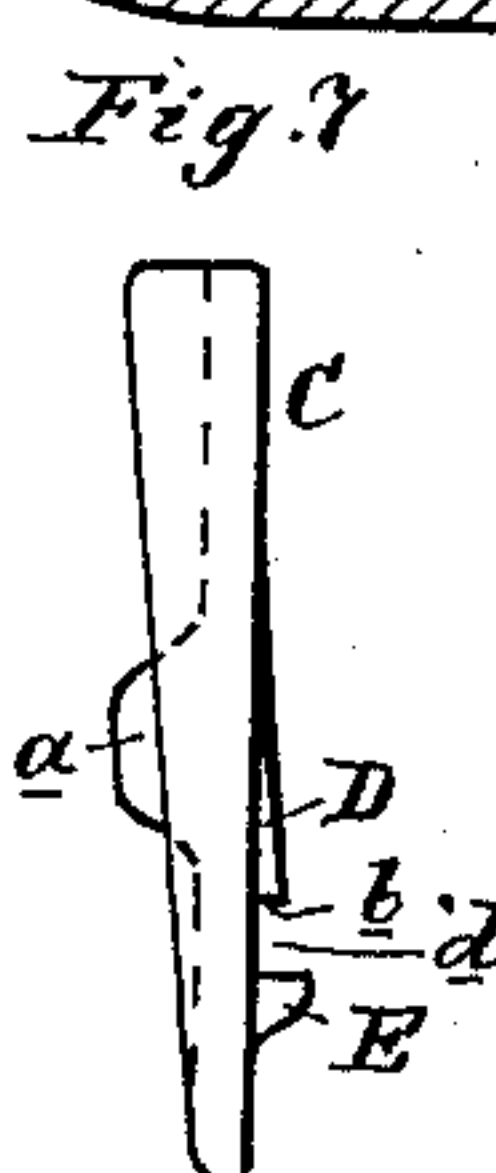
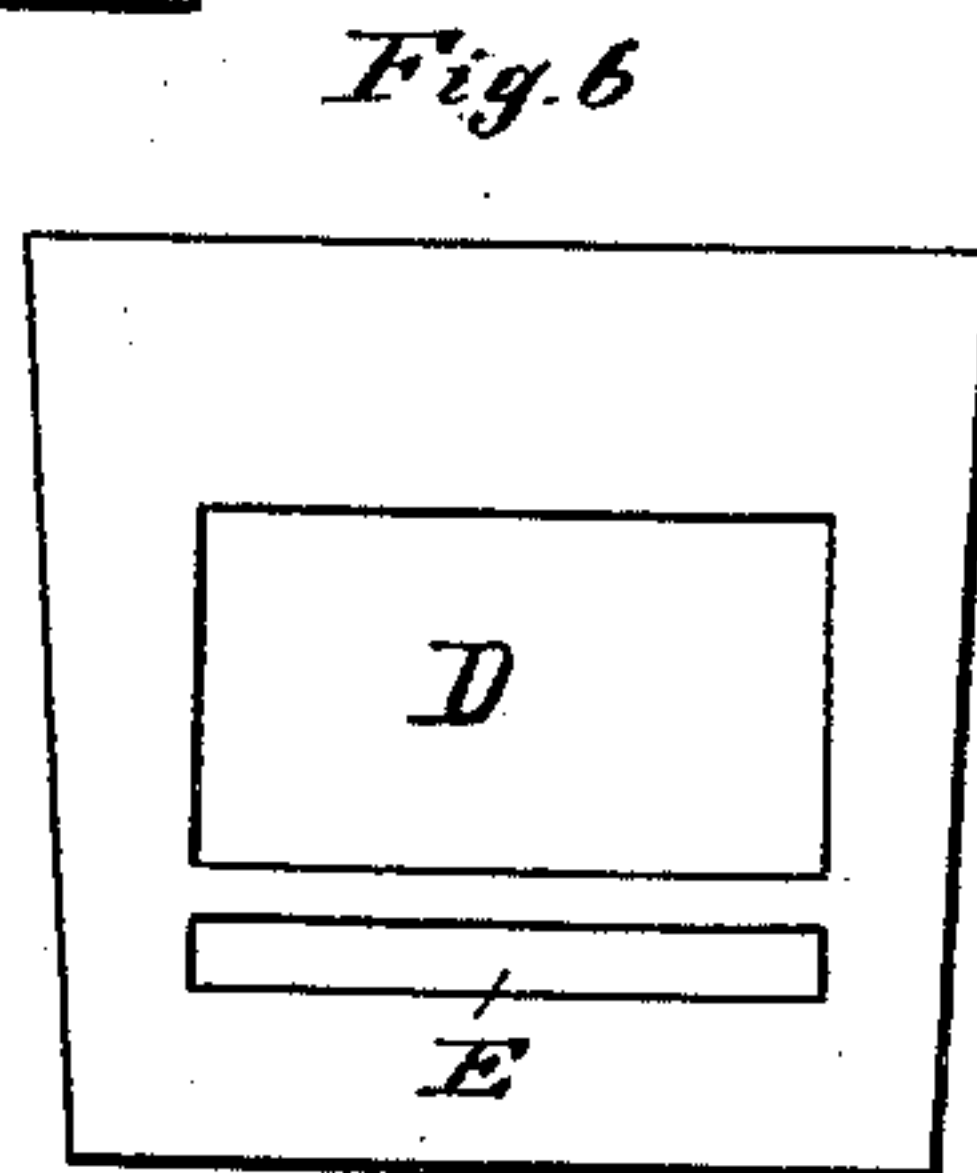
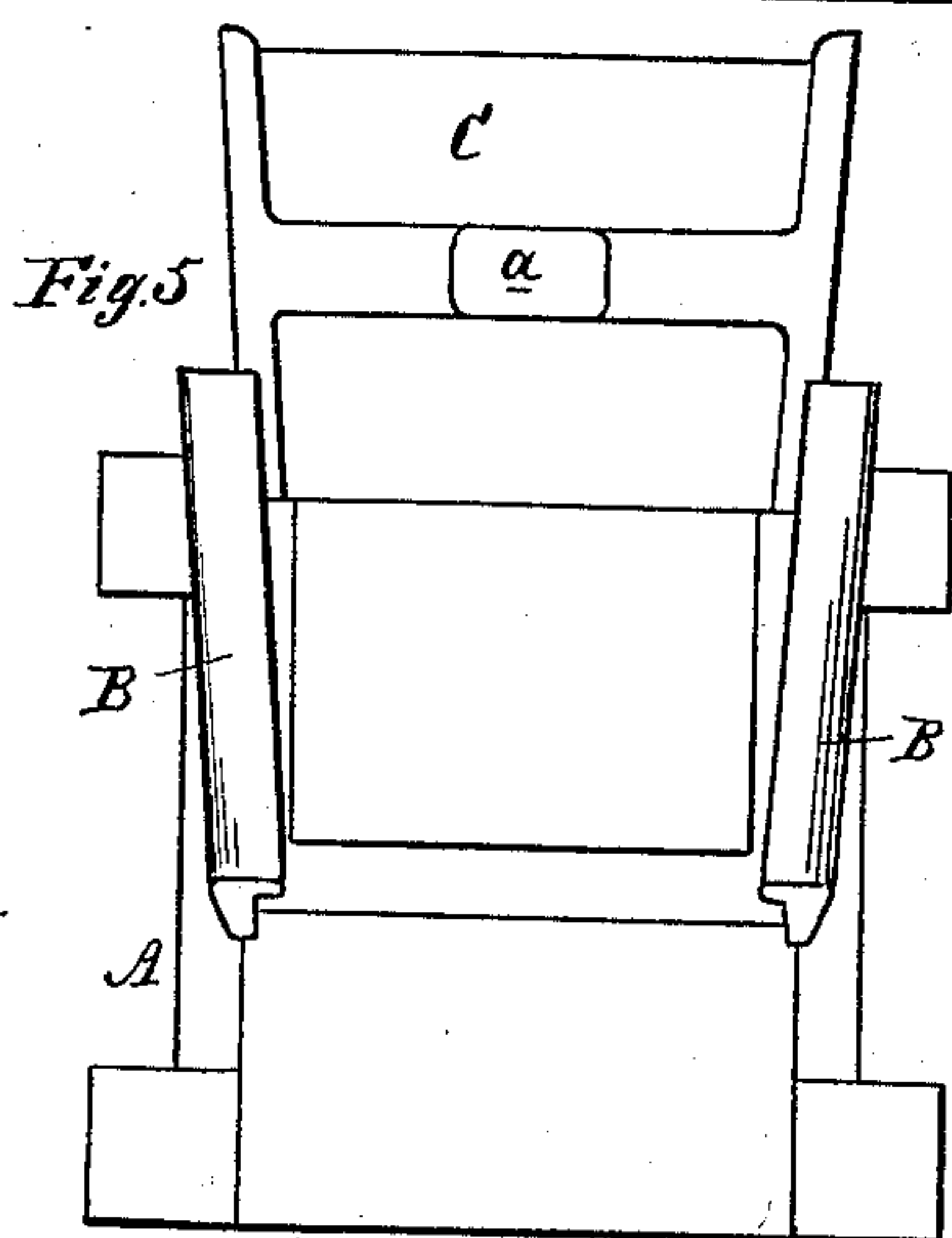
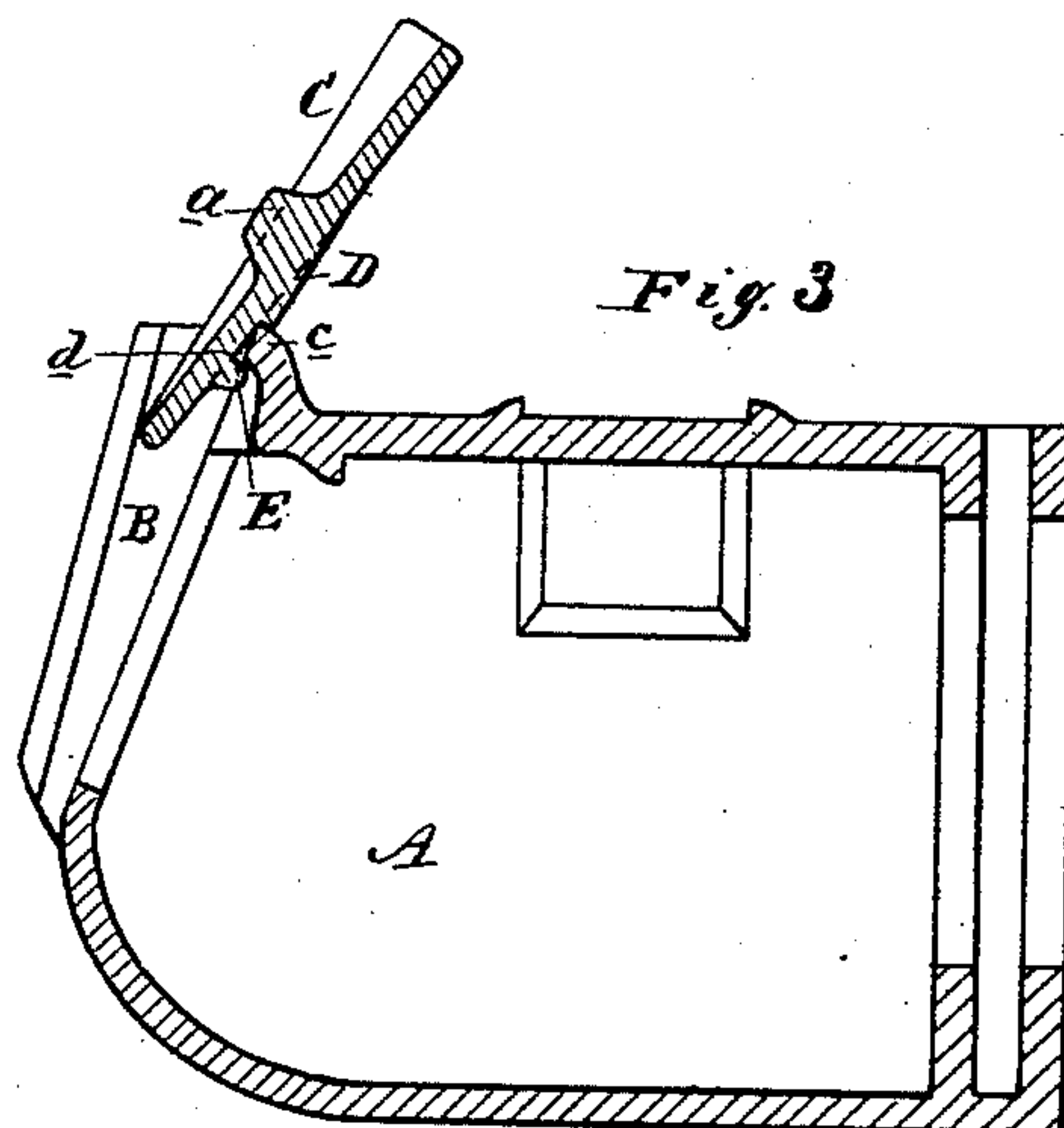
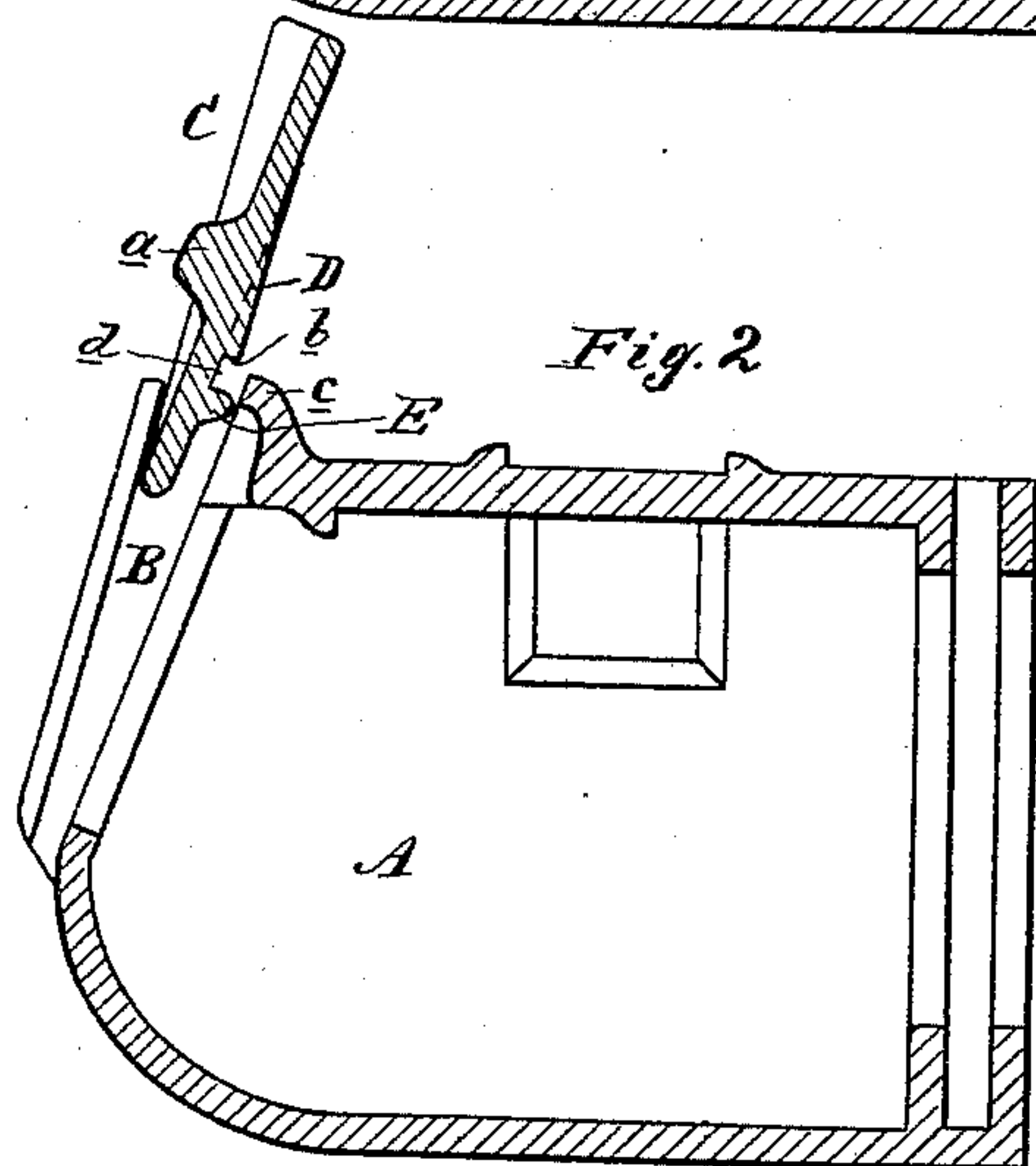
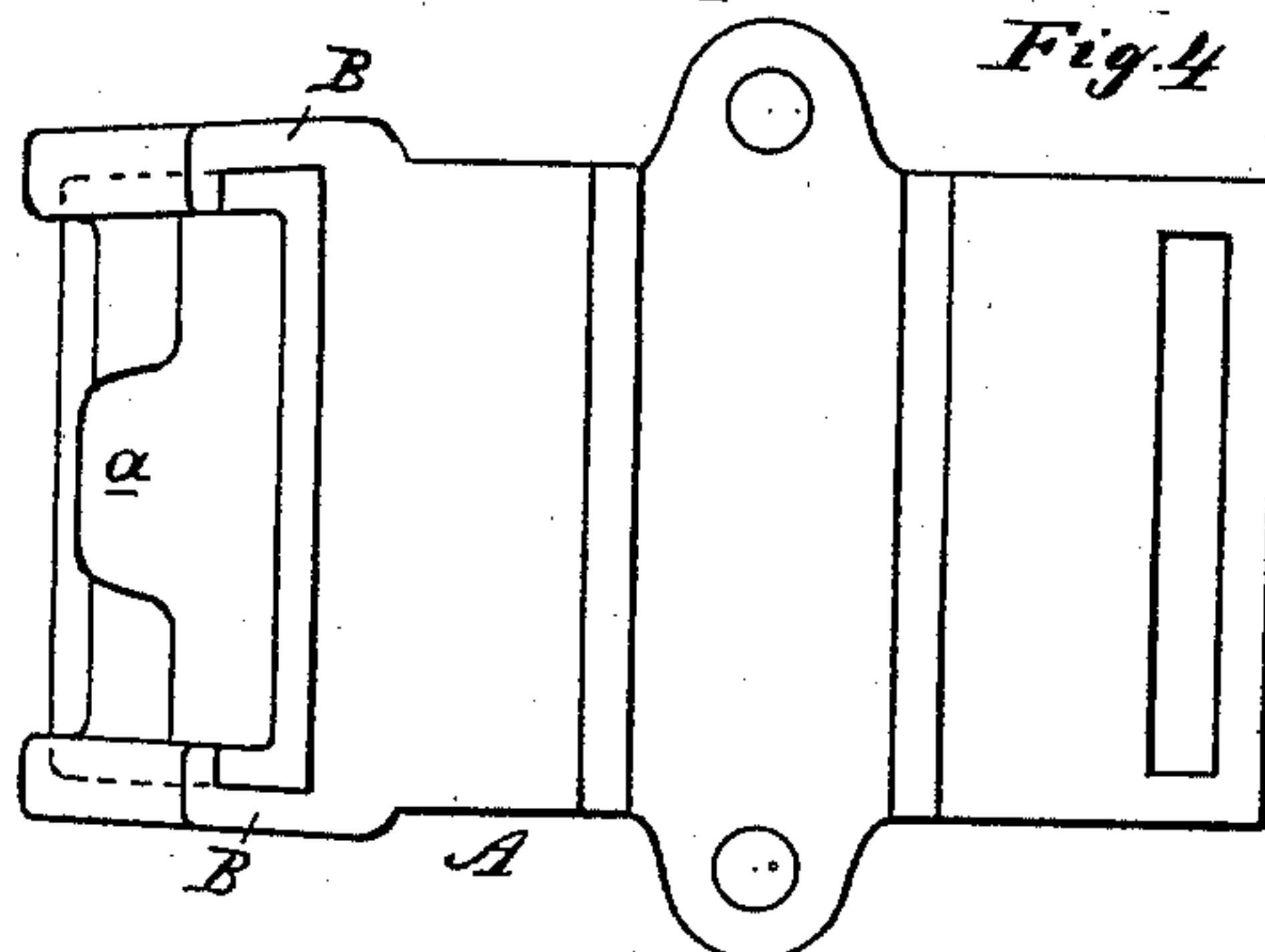
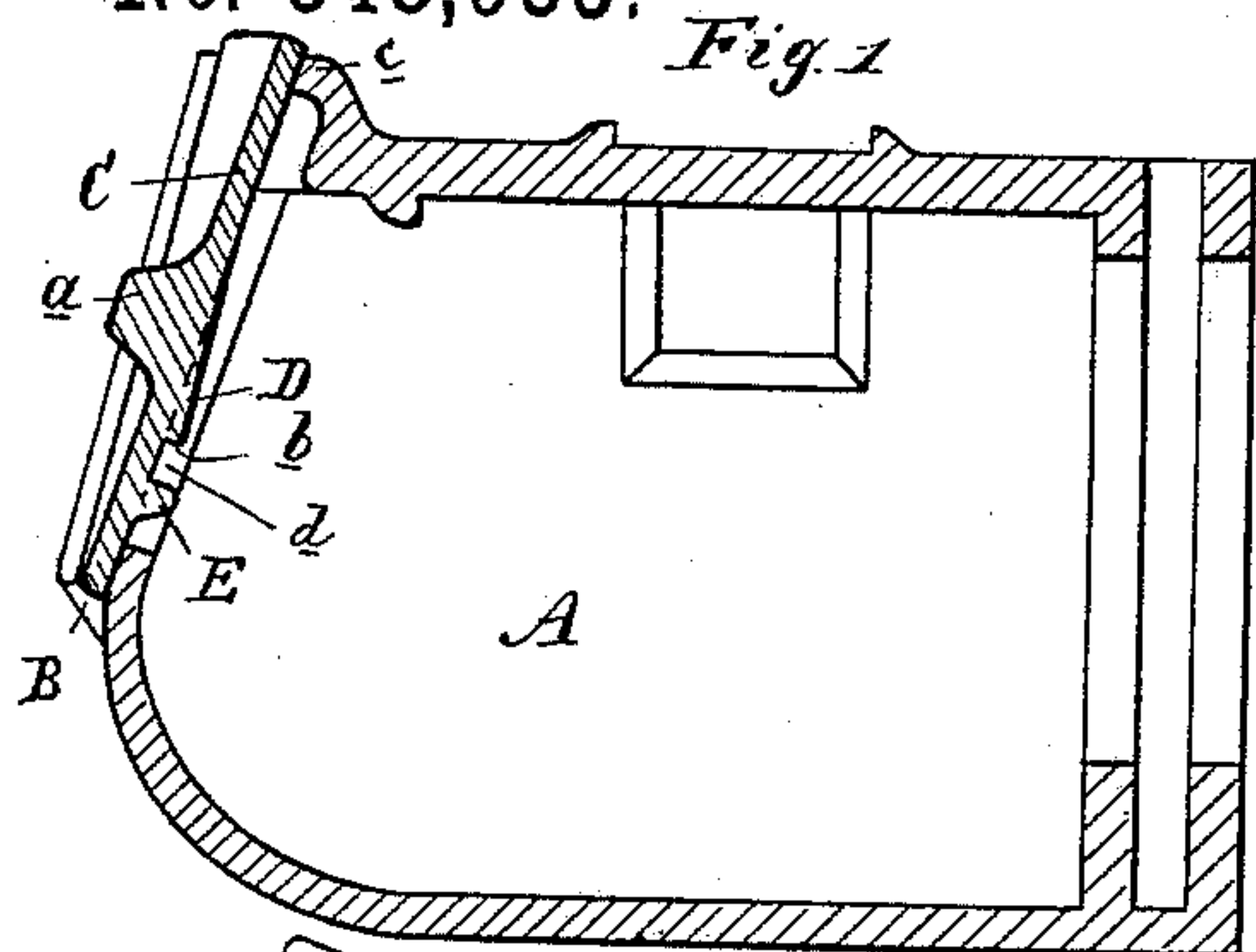
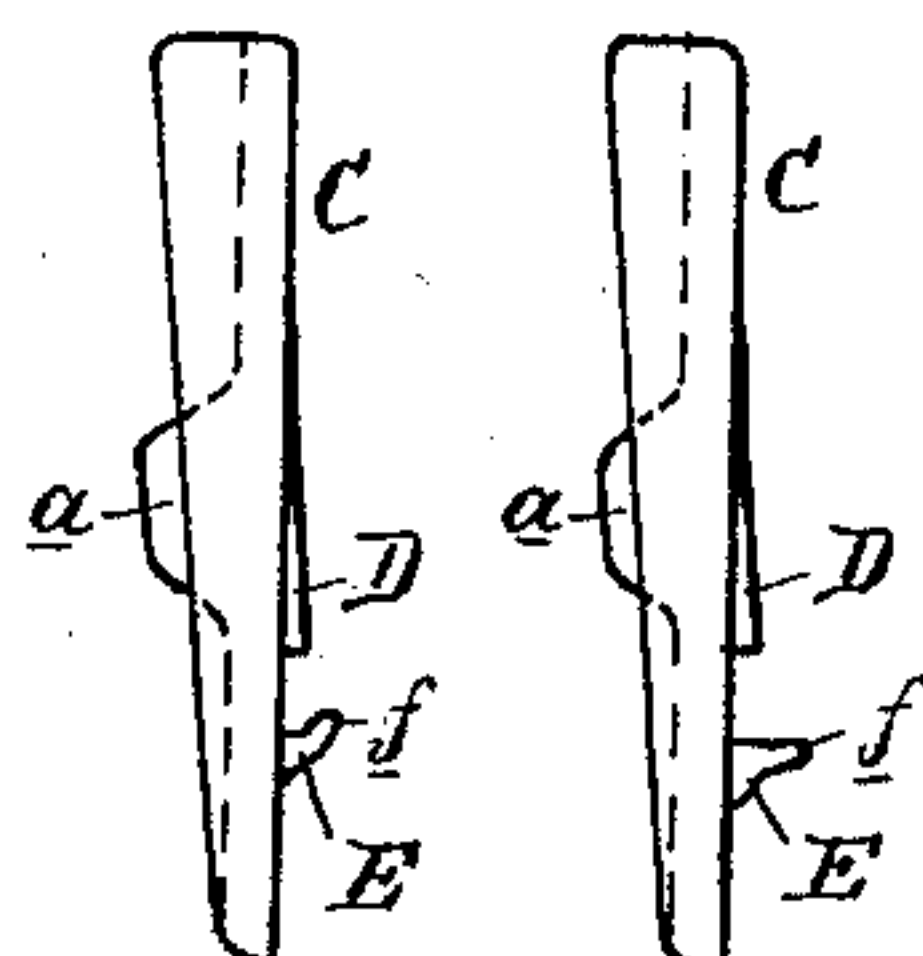


Fig. 10 Fig. 11



Attest:

John Schuman.
By [Signature]

Inventor:

Francis A. Susemihl

Administrator of
Charles A. Susemihl.

By Wm. J. Sprague

Atty

UNITED STATES PATENT OFFICE.

FRANCIS G. SUSEMIHL, ADMINISTRATOR OF CHARLES G. SUSEMIHL,
DECEASED, OF DETROIT, MICHIGAN.

CAR-AXLE BOX.

SPECIFICATION forming part of Letters Patent No. 348,933, dated September 7, 1886.

Application filed May 27, 1886. Serial No. 203,393. (No model.)

To all whom it may concern:

Be it known that CHARLES GUSTAVE SUSEMIHL, (deceased,) late of Detroit, in the county of Wayne and State of Michigan, did invent new and useful Improvements in Car-Axle Journal-Box Covers during his life-time; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to certain new and useful improvements in car-axle-box lids, the object being to so construct the box and lid that the latter becomes automatically locked to the box, and otherwise operates in the required manner without the use of any additional parts—such as bolts, &c.—and, further, to provide such a rest for the lid that it will positively stay open when the car is at rest, but close of its own accord when the car is in motion.

A box-lid is subjected to rough and careless handling, a hammer being generally the tool used for opening and closing it, and if there were no provision made for preventing the complete withdrawal of the lid the same would be most of the time lifted altogether from the box, and often lost and broken. Therefore it has been the aim of car-builders to arrange certain stops and rests which permit of raising the lid to the necessary height only to disclose the opening in the box, and which hold the lid in position until closed by the operator or by the lateral motion of the car in traveling. Whenever such rests and stops involve the use of bolts or screws, they soon become inoperative, as the oil in the box gets into the screw-threads, and the repeated impacts soon loosen or unscrew them. To arrange the lid of the car-box in such manner that its complete withdrawal is prevented by striking against some part of the truck of the car is also objectionable, if for no other reason, on the ground that when such a lid gets broken it is impossible without special appliances to repair the damage, as the truck has to be taken apart to insert a new lid. Another defect in the formation of such rests and stops as at present arranged is, that they soon fail to act positive enough, owing to their insufficiency

to stand a prolonged wear, as is the case where notches in the guide-grooves of the axle-box are relied on to hold the lid in open position. These notches soon round off by wear and let the cover slip down too easily, thereby requiring repeated efforts to hold them up. Such lids are also objectionable in which two different motions are required to open the lid—one motion to raise the lid, and another in a different direction to engage it with the rest—as such lids cannot be easily manipulated with a hammer. The same is true where the lid has to be tilted backward to rest on the top of the box.

The improved car-axle-box lid is especially designed to obviate all the above-mentioned objections by a novel construction and arrangement of the parts, all as hereinafter described, and shown in the accompanying drawings, in which—

Figure 1 is a vertical central longitudinal section of a car-axle box provided with the improved lid. Fig. 2 is a similar section with the lid held in the position required for inserting or withdrawing it. Fig. 3 is a similar section with the lid in its raised position. Fig. 4 is a plan. Fig. 5 is a front elevation of the lid raised. Fig. 6 is a rear elevation of the lid detached. Fig. 7 is a side elevation thereof. Figs. 8, 9, 10, and 11 are similar side elevations, specifically referred to hereinafter.

A is a car-axle box of usual construction and provided with suitable flanges to form the inclined wedge-shaped guide-grooves B B, to hold and guide the lid C, which latter is correspondingly wedge-shaped near its edges to fit these grooves. The lid C is provided upon its front face with the usual lug, *a*, or other equivalent means, to assist in raising and lowering it, and upon its rear face it bears a wedge-shaped projection, D, cast integral with the lid. This projection begins near the upper end, so that when the lid is closed it is below the roof of the box, and, increasing in thickness downward, forms at the lower end a shoulder, *b*. The width of this projection is preferably nearly equal to the width of the opening in the face of the box. A little distance below the wedge is cast integral with the lid a rib, E, of any desired length, but

shorter than the width of the opening in the box, the recess *d*, formed between the lower end of the wedge and the rib, being sufficiently wide to admit of its being engaged with the front edge of the roof of the box, as shown in Fig. 3, the latter being extended upwardly to raise the lower end of the lid clear of the opening in the box. The rib and wedge upon the rear face of the lid must not project more than will permit of clearing the edge *c* of the roof of the box when the lid is inserted, and the rib must be placed high enough so as not to come in contact with the lower edge of the opening in the box, as otherwise the lid would come to an abrupt seat in closing, and would not wedge in the guide grooves. The wedge form of the guide-grooves and of the parts of the lid engaging therein insures the tight-closing of the lid and prevents the accidental opening through the motion of the car. While the lid is closing the box, all projecting parts lie in the opening of said box, and the straight rim of the lid lies snug to the face-rim of the box; but when the lid is pushed upward the faces will part, and the face of the wedge will ride over the top edge of the box till the bottom edge or shoulder of the wedge has passed the roof, the push with the hammer holding the top of the lid backward, while the bottom edge moves along the front rib of the box-guides, and as soon as the shoulder has passed the roof the lid will fall back more or less, as governed by the thickness of such shoulder, the cover making a circular back-tipping movement around the line of contact between the bottom of the lid and the box-guides as the center, therefore the stop-rib is bound to meet the roof of the box, as all the parts above the bottom edge of the lid will travel backward. The rib or lug by which the cover is raised, or against which the blow from the hammer is received, lies about in the middle of the cover and above the shoulder of the wedge *D*. Therefore in the ordinary manipulation of the lid where the operator strikes with a hammer against the under side of the lifting lug or rib and more or less in a direction against the face of the lid, the latter, in being carried upward, will be assisted by the direction of the force which carries it upwardly, and, by the position of the lifting-lug, to automatically find its seat on top of the box in its rearwardly-inclined position without any special care or extra exertion by the operator, and the cover can neither be pushed out nor fall back. It is preferable, though not absolutely necessary, to give the lid a slight wedge form in width, making it smaller across the bottom than on top. This relieves the lid, when opened, of frictional contact on the edges. It will be conceded that the shoulder *b*, occupying the larger portion of the rear face of the lid, and forming the rest upon which the lid is supported in its open position, is less liable to fail through rounding off by wear than similar shoulders for a like purpose oc-

cupying only the width of the guide-grooves in the box.

Particular attention is called to the advantage of gaining a lock by the back-falling of the lid, as this constitutes an automatic lock, while with the use of notches the lid must slip forward at its lower edge, and it cannot be said that such a lock is formed automatically. The only way of removing the lid would be to bring it artificially into the position shown in Fig. 2, when it can be withdrawn. If it should be desired, however, to make it absolutely impossible to remove the lid in any manner proceed as follows: Cast into the rear face of the lid a small strip of wrought-iron or other flexible metal, *e*, in or above the rib *E*, which needs to project but slightly, as shown in Fig. 8, which strip is bent upward and inward. Then insert the lid into the box, and afterward this lip formed by the strip will straighten itself automatically by striking against the roof of the box, thus forming an absolute obstruction for the removal of the lid.

It is well known that cast-iron, especially when cast thin, as in a box-cover, must easily become broken in time after receiving blows after blows from the hammer in raising, these blows being severe and careless on account of the expected resistance from a tight-fitting lid. Therefore it is surely advisable to make all box-lids of malleable iron, and if such material is used the construction of the stop-rib will be modified in the following manner: provide the stop-rib with a small lip, *f*, extending slightly upward and inward, as shown in Fig. 10, and after inserting the cover this lip will straighten itself in use by striking against the under side of the roof of the box.

What is claimed as the invention of CHARLES G. SUSEMIHL is—

1. In a car-axle-box lid, a wedge-shaped projection on the rear face of the lid of a width substantially the width of the opening in the box, and forming with its lower end a shoulder or rest for the lid in its raised position, substantially as described.

2. In a car-axle-box lid having wedge-shaped guides engaging into corresponding guide-grooves in the box, a wedge-shaped projection on the rear face of the lid substantially the width of the opening in the box, and forming a guide for the rear face of the lid in rising, and a shoulder upon its lower end for the lid to rest on in its raised position, substantially as described.

3. In a car-axle-box lid having wedge-shaped guides engaging into corresponding guide-grooves in the box, the solid wedge *D* upon the rear face of the lid, to permit the falling back of the lid in raising it, substantially as described.

4. In a car-axle-box lid having wedge-shaped guides engaging into corresponding guide-grooves in the box, the wedge *D* upon the rear face of the lid, extending nearly across the

same, and having a pitch, as described, to permit the gradual falling back of the lid in rising, and provided with the shoulders *b*, in combination with the stop-rib E, substantially as described.

5 5. In a car-axle-box lid of the kind described, the combination, with the raised front edge, *c*, of the roof of the box, of the wedge D, extending nearly across the rear face of the lid and form-

ing the shoulder *b*, and the rib E, forming a stop for the lid, and the recess *d*, between it and the lower end of the wedge, substantially as described.

FRANCIS G. SUSEMIHL,
Administrator, &c.

Witnesses:

H. S. SPRAGUE,
CHAS. THURMAN.