

No. 614,297.

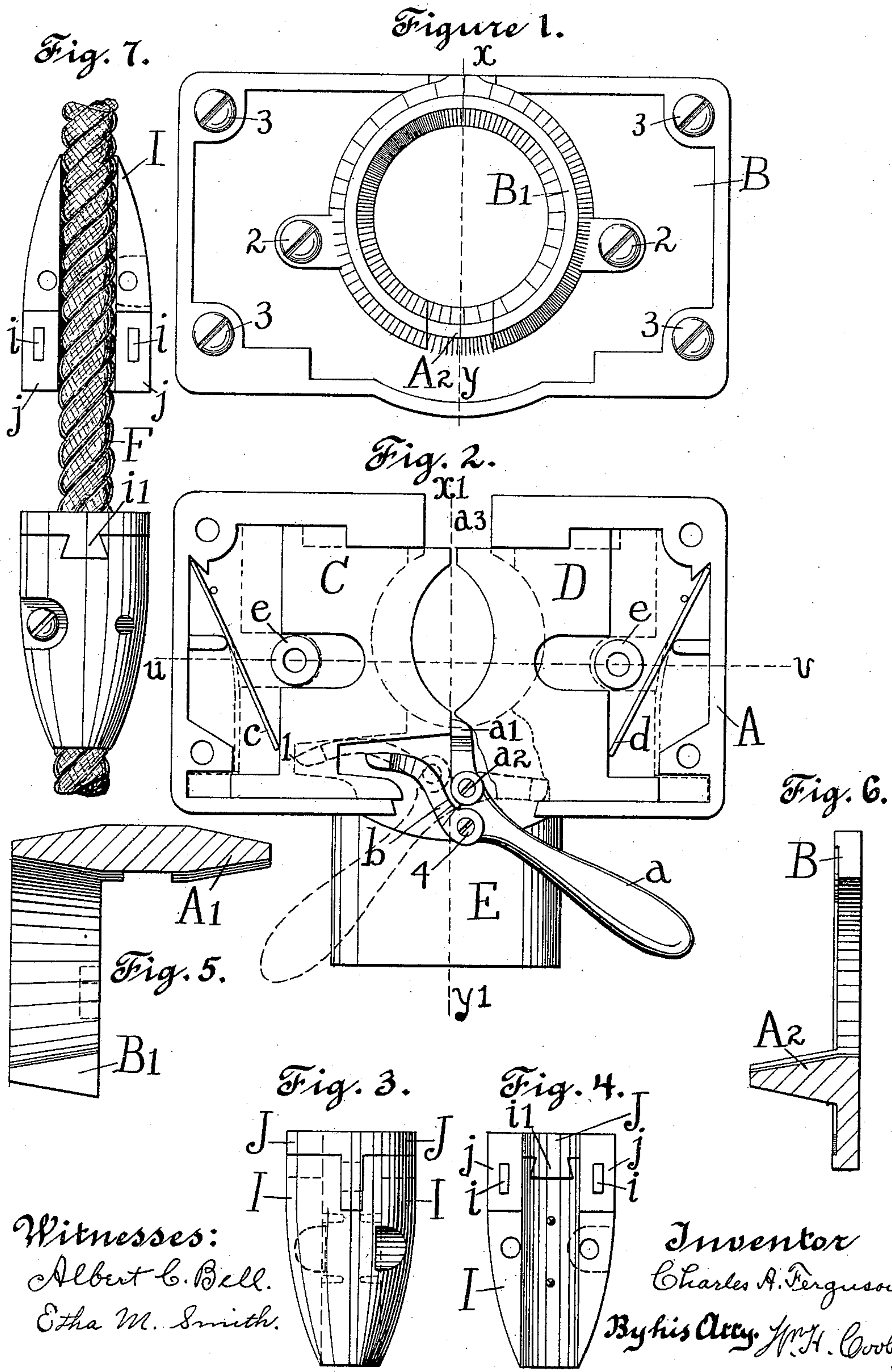
Patented Nov. 15, 1898.

C. A. FERGUSON.
LOCK STOP FOR ELEVATORS

(Application filed Mar. 14, 1898.)

(No Model.)

2 Sheets—Sheet 1.



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Fig. 8.

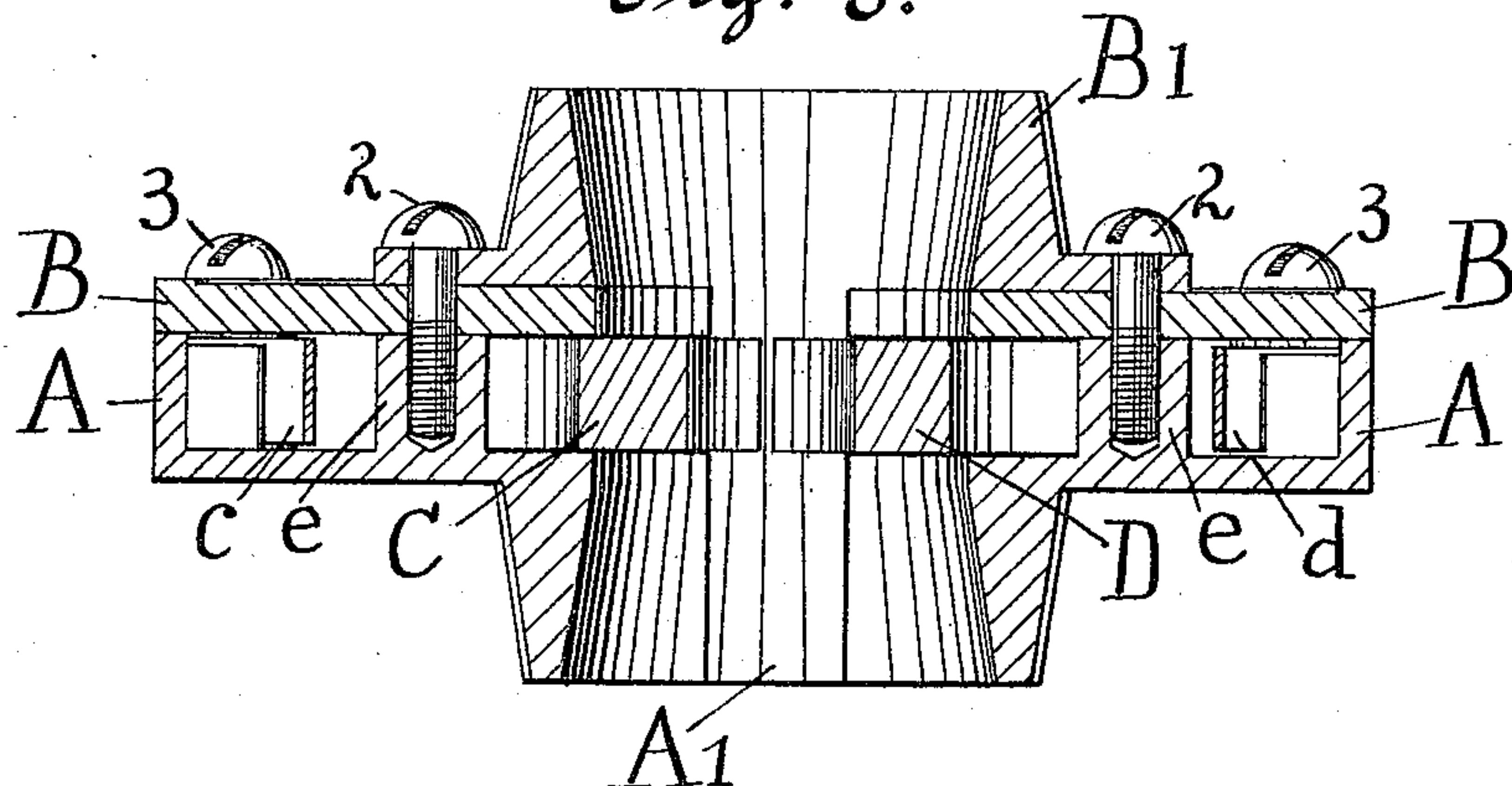


Fig. 9.

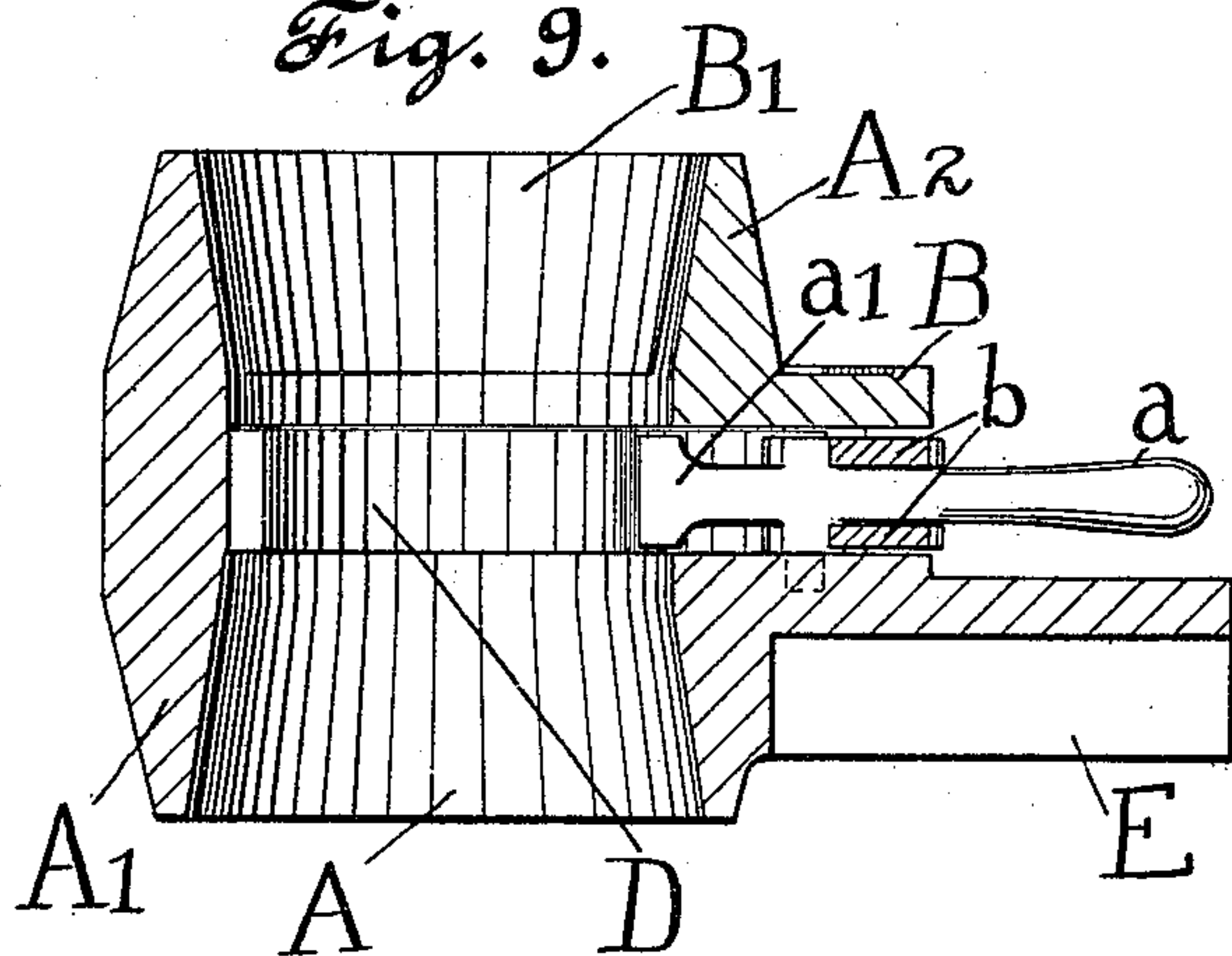
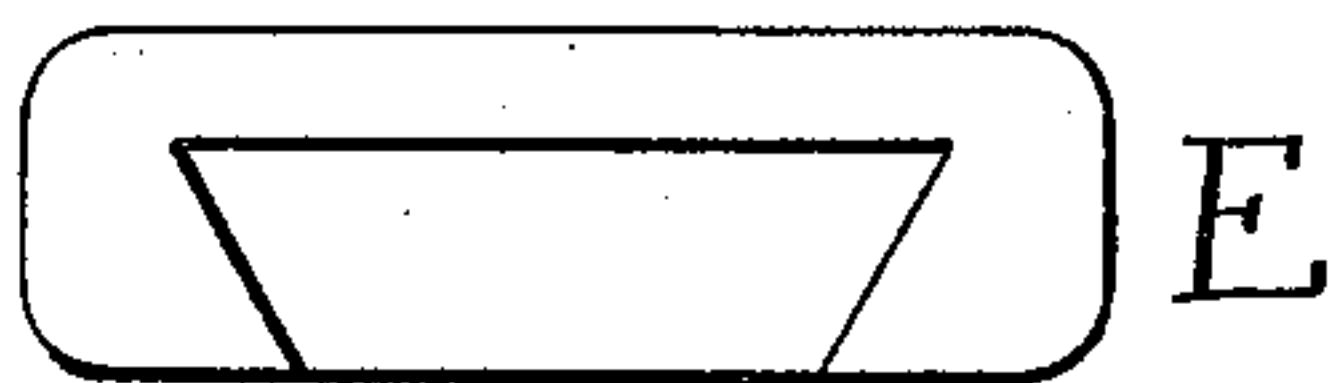


Fig. 10.



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UNITED STATES PATENT OFFICE.

CHARLES A. FERGUSON, OF ROCHESTER, NEW YORK.

LOCK-STOP FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 614,297, dated November 15, 1898.

Application filed March 14, 1898. Serial No. 673,735. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. FERGUSON, a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Lock-Stops for Elevators, of which the following is a specification.

The object of my invention is the construction of an elevator-lock in which each of the jaws arranged to engage the stop-cones on the shipper-rope shall be capable of independent motion tending to open them, in connection with a common operating device by means of which they may both be opened simultaneously and firmly locked in their open and inoperative positions.

Another object of my invention is to reduce the cost of manufacturing such locks by an improved construction of the case, whereby much of the expense usually incurred in fitting the parts of the case may be avoided.

A further object of my invention is to provide an improved buffer for the stop-cones on the shipper-rope, arranged to engage the jaws of the lock.

The accompanying drawings, illustrating my invention, are as follows:

Figure 1 shows a top view of the cap-piece B of my lock with the funnel B' in place thereon. Fig. 2 shows in plan view my lock with the cap-piece B removed. Fig. 3 shows a side view of one of the stop-cones arranged with my improved buffer thereon, while Fig. 4 shows an interior side view of one of the equal parts of one of such stop-cones. Figs. 5 and 6 show, respectively, the cap-piece B and the cup or funnel B' in sectional view taken along the line $x y$ of Fig. 1 and in a plane vertical to that of the drawing in Fig. 1. Fig. 7 shows a portion of the shipper-rope, with one of a pair of my stop-cones thereon shown in full and the other in half. Fig. 8 is a transverse section of the parts shown in Figs. 1 and 2 when assembled along the dotted line $u v$ of Fig. 2. Fig. 9 is a longitudinal section of the parts shown in Figs. 1 and 2 and taken along the dotted line $x' y'$ of Fig. 2. Fig. 10 is the end view of the projection E, showing the manner in which the lock may be secured to an arm or bracket on the car

by means of the dovetailed formation of the slot in the under side of this projection E.

Similar letters and numerals refer to similar parts throughout the several views.

Referring to the drawings, A is the case or body of the lock, in which are located the jaws C and D, arranged to slide longitudinally toward and from each other within the case A. Springs c and d are arranged, as indicated, to hold such jaws C and D normally in their closed position, as indicated in full lines. A curved lever a , pivoted upon a pin a^2 , secured in the bottom of the lock-case, carries at its operative end a cam a' , engaging the jaw D in such a manner as to force such jaw outward to the position shown in dotted lines, when this lever a is caused to occupy its operative position. (Also shown in dotted lines.) Articulating with this lever a is seen a push-bar b , arranged to engage the jaw C and force the same outward and to the left to its operative position, (indicated in dotted lines,) when the lever a is caused to occupy the position indicated in dotted lines. It will be noticed that the edge of the jaw D, that is engaged by the cam a' on the lever a , has such a conformation relative to this cam a' that when the lever a occupies the position shown in dotted lines this cam a' has dropped into a slight recess formed in the edge of the jaw D. By this means the lever a may be firmly locked in the position shown in dotted lines by the pressure of the spring d acting upon the jaw D, thus serving to securely hold the jaws C and D open, and before the lever a can be again returned to the position shown in full lines it is necessary to overcome the pressure of this spring d somewhat by the movement of the lever a to the right far enough to disengage the cam a' from the notch formed therefor in the edge of the jaw D. This same result is also accomplished by means of the push-bar b cooperating with the lever a and the jaw C in the following way—that is, when the lever a is moved to the left then it will be seen that the point of contact 1 between the push-bar b and the jaw C is such that the center of the pin or screw 4, upon which this push-bar b swings, is well within a straight line connecting the center of the pin or screw a^2 and this point 1 of contact between the push-bar b and the jaw C.

Thus the jaws C and D are held open also by the toggling action of the joint between push-bar *b* and lever *a*.

The reason for having each jaw capable of being opened independently of the other is as follows: It sometimes occurs that the cable will engage one of the jaws and open it, and if each of the jaws may be opened independently of the other then we have an additional safeguard, in that only one of the jaws is opened accidentally. Again, when both of the jaws are operated together in such a way that the opening of either jaw causes them both to open it sometimes happens that by shaking the cable both of the jaws may be opened. This is not as likely to occur when each is capable of opening independently.

Attention is called to the fact that if by the shaking of the cable either of the jaws is opened it is immediately forced back by the spring to its closed position, as neither of the jaws can be held open except by the moving of the lever *a* to the position indicated in dotted lines, and as this lever cannot in any way be operated by the shaking of the cable the lock is positive and the car cannot be moved from the floor where it is locked except by an attendant upon that floor.

In the side of the lock-case A there is noticed the notch or opening A³ for the insertion of the removable portion A', formed on the side of the cup or funnel B'. This cup or funnel B' is independent of and removable from the cap-piece B, and is securely held in position by screws 2, as indicated, passing through holes therefor in the cap-piece B and threaded into the cylindrical bosses *e*, which project upward from the base of the case A, and through the notches formed therefor in the jaws C and D. This removable portion A' forms also a portion of the lower cup or funnel, which in elevator-locks of this class usually extends downward from the under side of the case of the lock. The cap-piece B is held in position by means of screws 3, as indicated, one at each corner of the lock-case.

The cup or funnel B' is discontinuous—that is, it has an opening therein on one side to admit of the insertion of the shipper-rope. This opening in the funnel or cup B' is closed by the portion A², so formed on the upper side of the cap-piece B as to make the cup B' appear continuous when in its proper position. This is clearly shown in Figs. 1, 5, and 6. This method of construction reduces considerably the expense of fitting the parts of the case and funnel in such locks.

By making the upper funnel B' separate and distinct from the cap-piece B and forming on this funnel B' the projection or lug A', arranged to close the opening in the cap-piece B and in the case A, I am enabled to insert the shipper-cable in the lock or remove it therefrom by simply removing the upper funnel B' and without in any wise disturbing the essential elements of the lock proper. This

results in a great convenience in removing the cable from the lock or inserting it in the lock.

Attention is called to the fact that in inserting the shipper-cable in the lock no part of the case proper of the lock is removed in such a way that the jaws and the operating-springs may get out of position and cause trouble in replacing them.

By means of the projection E, formed on the under side of and projecting beyond the edge of the lock-case A, the lock may be secured to any desired bracket or arm projecting from the side of the elevator and arranged to support the lock in its operative position.

Referring now to Figs. 3 and 4, the stop-cones are made in two equal sections I, as indicated. These sections I, which may be of cast-iron or brass, have each a dovetailed slot *i'*, formed in the large end thereof and arranged to engage the dovetailed projection formed therefor on the under faces of the buffer J. This buffer J, which may consist of leather or rubber, is also formed with two projections *j*, as indicated, passing down between the portions I of the cone, which are notched out therefor, and in each of the projections *j* there is seen a mortise for the reception of the spurs or pins *i*, formed therefor and projecting outward laterally from the notched-out portion of each half of each of the cones I, so that each half of the buffer J is firmly held in position by the spurs *i* entering the mortises therefor in its projections *j*. The formation of this buffer-piece J, it will at once be seen, is such that it takes two of them for each cone, one for each of the halves of a stop-cone, and it will also be understood at once that such buffer-pieces may be readily inserted in the cone by the removal of the screws by means of which the halves of such cones are clamped together upon the shipper rope or cable F.

My improved buffer-pieces J, it will at once be seen, are capable of insertion without being cut or in any wise changed, and it will be noticed also that they are firmly held in place when the cones are secured to the shipper rope or cable by means of the usual screws and that they cannot get loose or out of place until they are worn through or otherwise severed from the projections *j*.

What I claim is—

1. In a lock-stop for elevators and in combination with the case thereof, two jaws arranged to move relatively toward and from each other, one of such jaws capable of movement independently of the other, a lever arranged to engage and operate one of such jaws and a push-bar articulating with such lever and arranged to engage and operate the other one of such jaws, whereby the movement of such lever causes the operation of both of such jaws.

2. In a lock-stop for elevators and in combination with the case thereof, two jaws arranged to move relatively toward and from each other, one of such jaws capable of move-

ment independently of the other, springs acting to close such jaws, a lever, and a push-bar articulating with such lever and arranged to engage one of such jaws, such push-bar cooperating with such lever to form a toggle-joint, whereby the pressure of the spring upon and acting to close the jaw engaged by such push-bar, tends to hold such lever and push-bar in their operative positions.

10 3. In a lock-stop for elevators, in combination with the coacting jaws of the lock and means for operating and holding such jaws, the shipper-rope having stop-cones secured thereon, buffers on the large ends of such
15 stop-cones, such buffers held in place by projections extending and clamped between the opposing faces of the parts of the stop-cones.

4. In a lock-stop for elevators, in combination with the coacting jaws of the lock and
20 means for operating and holding such jaws, the shipper-rope having stop-cones secured thereon, buffers on the large ends of such stop-cones, such buffers having projections extending and clamped between the opposing
25 faces of the parts of such stop-cones, and spurs on the opposing faces of the parts of such stop-cones engaging such projections on such buffers.

5. In a lock-stop for elevators, in combination with the coacting jaws of the lock and
30 means for operating and holding such jaws, the shipper-rope having stop-cones secured thereon, buffers on the large ends of such stop-cones, such buffers having dovetailed

projections formed thereon and arranged to 35 enter dovetailed slots therefor in each of the separable portions of each of such stop-cones.

6. In a lock-stop for elevators, a case for such lock composed of two parts, each part having an opening therein for the insertion 40 of the shipper-rope, in combination with a discontinuous and removable funnel which is independent of either of the parts of the case of such lock, such discontinuous and removable funnel also having an opening therein 45 for the insertion of the shipper-rope, one of the first-mentioned parts of such case carrying a projection arranged to close the opening in such funnel and such funnel carrying a projection arranged to close the opening in 50 the parts of such case.

7. In a lock-stop for elevators, in combination with the case of such lock having an opening therein for the insertion of the shipper-rope, a discontinuous and removable funnel 55 also having an opening therein for the insertion of the shipper-rope and carrying a projection arranged to close the opening in such case, and such case carrying a projection arranged to close the opening in such 60 funnel, the case of such lock, except as to the opening therein for the insertion of the shipper-rope, complete independently of such discontinuous and removable funnel.

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