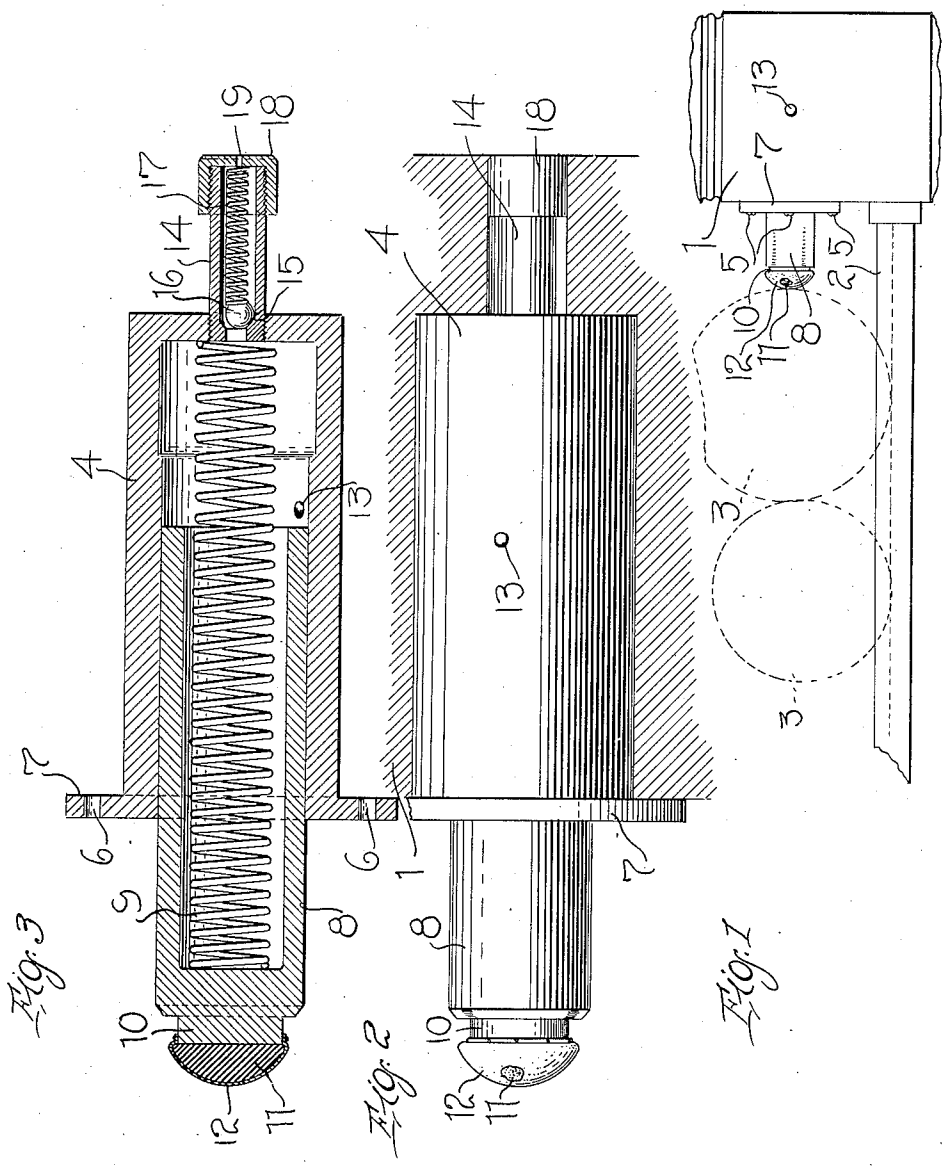
C. A. ULLRICH.

BUFFER.

APPLICATION FILED DEC. 29, 1913.

1,094,498. Patented Apr. 28, 1914.



Inventor

CHARLES A. ULLRICH

Witnesses
Robert M. Sutphen.
A. D. Hind.

By Watson E. Coleman
Attorney

UNITED STATES PATENT OFFICE.

CHARLES A. ULLRICH, OF HOBOKEN, NEW JERSEY.

BUFFER.

1,094,498. Specification of Letters Patent. Patented Apr. 28, 1914.

Application filed December 29, 1913. Serial No. 809,342.

To all whom it may concern:

Be it known that I, CHARLES A. ULLRICH, a citizen of the United States, residing at Hoboken, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Buffers, of which the following is a specification, reference being had to the accompanying drawings.

This invention comprehends certain new and useful improvements in buffers and has for its primary object to provide a buffer for bowling balls.

Another object is to provide a device of this character which may be of simple construction and which may be incorporated in the post at the end of the runway for the bowling balls to protect said balls and post.

A further object is to provide a device of this character which will be of improved and simplified construction and operation and composed of the minimum number of parts and which will also include means for regulating and arresting the operation of the buffer.

A still further object is to provide a device of this character in which compression of the shock absorbing spring will be limited by the air within the cylinder in which the hollow piston reciprocates, a check valve being provided to control and regulate the escape of air from said cylinder.

A still further object is to generally improve and simplify the construction and operation of devices of this character and increase the efficiency thereof, without materially increasing the cost of manufacture of the same.

With the above and other objects in view, my invention consists in certain novel constructions, combinations, and arrangements of parts to be hereinafter more fully described, claimed, and illustrated in the accompanying drawings, in which,

Figure 1 is a fragmentary elevational view of my complete device; Fig. 2 is an enlarged elevational view with the post within which the device is positioned, in section; and Fig. 3 is a longitudinal section through the device.

Referring more specifically to the drawings in which similar reference characters designate corresponding parts throughout the several views, 1 designates the usual post positioned at the end of the runway 2 for the bowling balls 3. The cylinder 4 extends transversely through the post 1 and is secured in position by suitable securing members 5 engaged through the perforations 6 of the annular flange 7 at the outer end of said cylinder 4 and engaged against the outer face of the post 1.

Adapted for reciprocation in the cylinder 4, is the hollow piston 8 and said piston is resiliently retained in its outermost position by the helical spring 9 which has one end secured to the inner end of the cylinder 4 while its opposite end is secured to the outer closed end of the piston 8, it being understood that said piston 8 has the extension of head 10 formed on its outer face with the solid buffer 11 formed thereon, said buffer 11 being preferably formed of solid rubber or other similar material and having a cover 12 of leather or the like. The cylinder 4 has an air inlet opening 13 through which air may enter said cylinder when the piston 8 is in its outermost position, it being understood that the air inlet opening 13 is in alinement with the opening 14 through the post 1.

Threaded in the inner end of the cylinder 4 and projecting outwardly from said end, is a check valve casing 14 which has the valve seat 15 formed adjacent its inner end, against which the ball check valve 16 is resiliently retained by the helical spring 17. The outer end of the helical spring 17 bears against the removable cap 18 which is threaded upon the outer end of said valve casing 14, said cap 18 being provided with an air escape opening 19, whereby air from the cylinder 4 may be forced past the ball check valve 16 and out to the surrounding atmosphere through said air escape opening 19, upon inward movement of the piston 8 caused by engagement of the bowling balls 3 with the covered solid buffer 11 secured upon the outer end of said piston 8. It will be seen that owing to the position of the air inlet opening 13, as soon as the piston 8 is forced inwardly, it will cover said opening and prevent the entrance of additional air to the cylinder 4, said inward movement of the piston 8 also serving to compress the air within said piston and the cylinder 4 and force the same past the ball check valve 16 and out through the air escape opening 19, it being understood that the helical spring 17 is compressed as the ball check valve 16 is unseated to allow the compressed air to pass the same. The tension of the spring 17, however, may be readily adjusted by movement of the cap 18 in the proper

direction upon the outer end of the valve casing 14, thereby regulating and controlling the escape of air from the cylinder 4 and, as a result, varying the resistance offered by the air within said cylinder 4 and piston 8 against the action of the helical spring 9.

While I have shown the preferred embodiment of my invention, it will be understood that minor changes in the details of construction and arrangement of parts may be made within the scope of the appended claims without departing from the spirit of my invention or sacrificing any of the advantages of the same.

What I claim is:—

1. A device of the class described comprising the combination with a post, of a cylinder positioned transversely in said post and having an outwardly directed flange at its outer end, means engaged through said flange for securing the cylinder in position, a piston mounted for reciprocation in said cylinder, means for resiliently retaining the piston in its outermost position, a buffer mounted upon the outer end of said piston, said cylinder having an air inlet opening, whereby air may enter the same when said piston is in its outermost position, said post being provided with an air inlet opening in alinement with the air inlet opening of the cylinder, a valve casing projecting from the closed end of the cylinder, a valve in said valve casing, a cap adjustably mounted on the outer end of the valve casing and provided with an air escape opening, said valve casing having communication with the cylinder, and means for resiliently retaining said valve in closed position, said piston being adapted, upon inward movement, to compress the air within said cylinder, said cap being adapted to be adjusted to control the escape of air from the chamber through the valve casing.

2. A device of the class described comprising the combination with a post positioned at the end of a runway and having a transverse opening, of a cylinder engaged in said opening, means for securing the cylinder in position, the outer end of said cylinder being open, a hollow piston engaged in said cylinder and projecting from the same, said piston having its outer end closed, a buffer carried on said outer closed end of the piston, a spring positioned in said cylinder and piston and engaged against the opposite closed ends of said cylinder and piston to resiliently retain the piston in its outermost position, said cylinder being provided with an air inlet opening, whereby air may enter said cylinder when the piston is in its outermost position, said piston being adapted to be forced inwardly by engagement with the buffer of movable members on the runway, a valve casing projecting from the inner end of the cylinder, a valve seat formed in said casing, a valve engaged with said seat, a cap adjustably mounted upon the outer end of the casing, said cap being provided with an air escape opening, and a spring positioned in said casing and having one end bearing against the cap while its opposite end bears against the valve to resiliently retain the same in engagement with the valve seat.

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

CHARLES A. ULLRICH.

Witnesses:
AMADEUS VALENTE,
CHAS. A. KINGSLAND.