

No. 662,423.

W. GRUNOW, JR.
CURRENT COLLECTOR.
(Application filed May 21, 1900.)

Patented Nov. 27, 1900.

(No Model.)

Fig. 1.

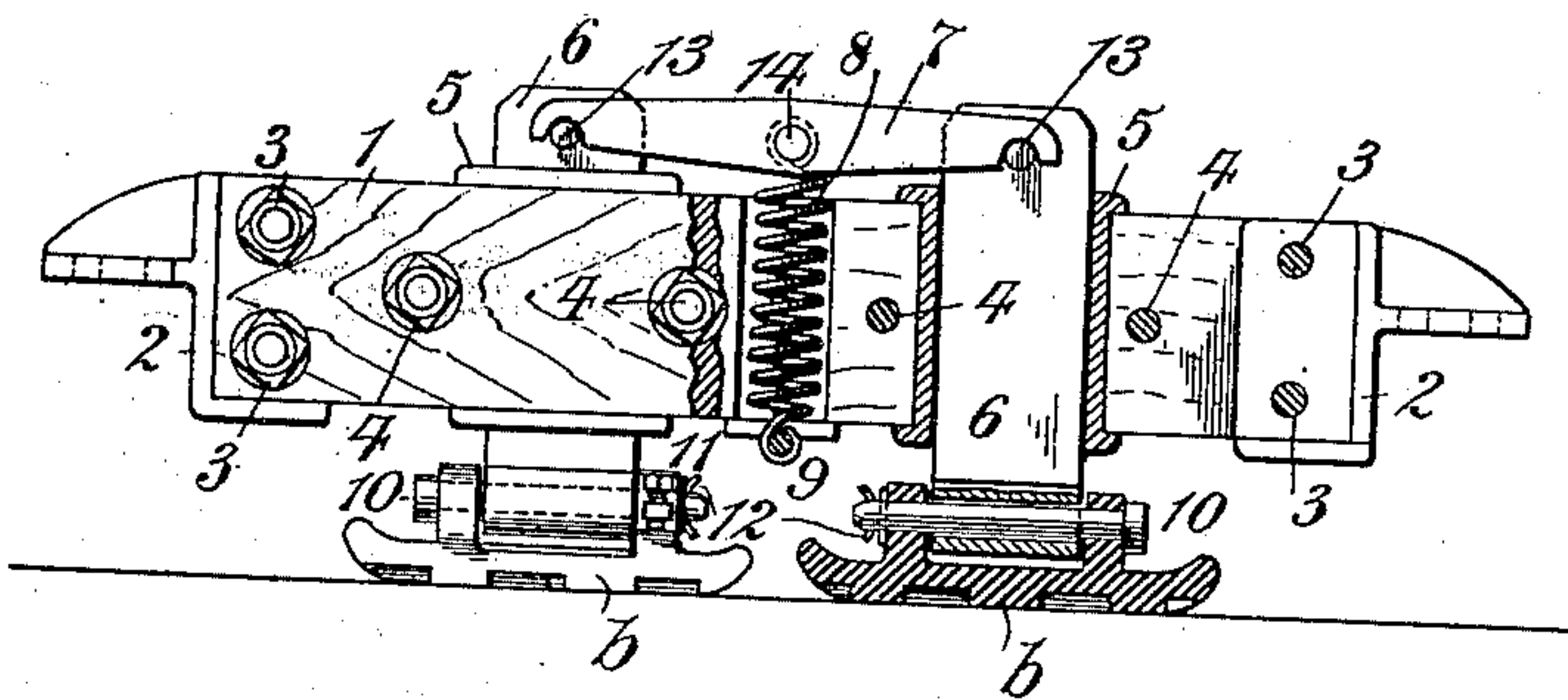


Fig 2.

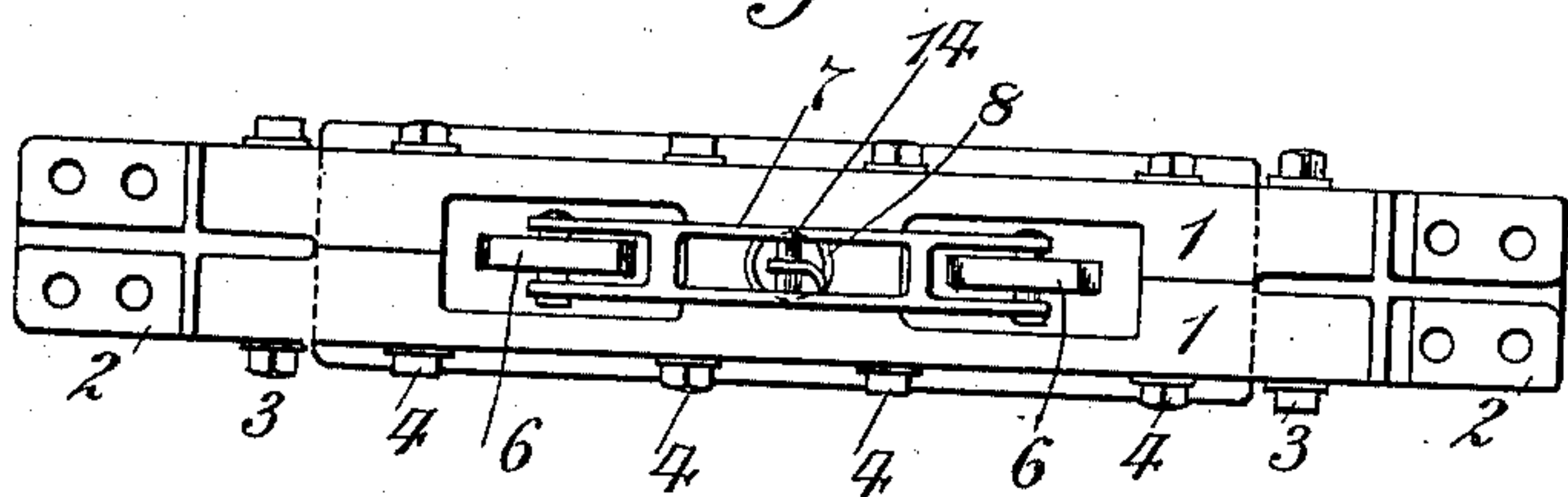
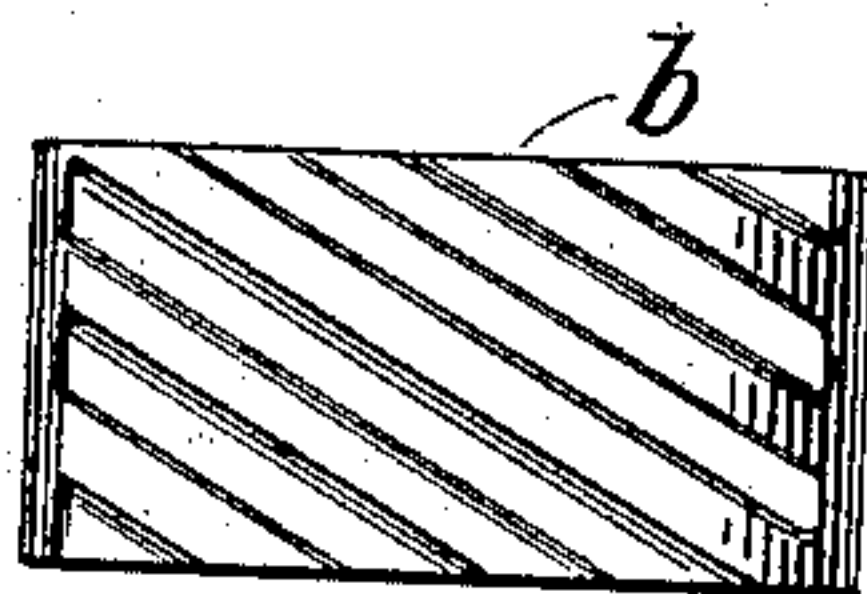


Fig 3.



Witnesses:
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Inventor
By his Attorney
William Grunow Jr.
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UNITED STATES PATENT OFFICE.

WILLIAM GRUNOW, JR., OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO THE
McELROY-GRUNOW ELECTRIC RAILWAY SYSTEM, OF SAME PLACE.

CURRENT-COLLECTOR.

SPECIFICATION forming part of Letters Patent No. 662,423, dated November 27, 1900.

Original application filed April 5, 1900, Serial No. 11,645. Divided and this application filed May 21, 1900. Serial No. 17,471.
(No model.)

To all whom it may concern:

Be it known that I, WILLIAM GRUNOW, Jr., a citizen of the United States, and a resident of Bridgeport, county of Fairfield, and State of Connecticut, have made a new and useful invention in Current-Collectors or Trolleys for Electric Railways, of which the following is a specification.

My invention is directed particularly to a novel form of current-collector or trolley especially adapted for use in connection with third-rail systems of electric railways where sliding shoes are utilized for effecting electrical connection between the surface rails or contacts and the electrical apparatus on board of a moving vehicle or car passing thereover; and it has for its object to provide a current-collector or trolley which shall by reason of its double or duplex construction adapt itself to the inequalities of surface which usually prevail in third rail-contact systems, the same being of such a nature that it will assure perfect electrical contact with the sectional rails as it passes thereover and under all conditions of usage.

This application is a division of an application for a patent for improvement in electric railways filed in the United States Patent Office by me on the 5th day of April, 1900, and bearing Serial No. 11,645.

Referring now to the drawings for a full and clear understanding of the invention, such as will enable others skilled in the art to construct and use the same, Figure 1 is a part side elevational and part sectional view of my novel current-collector or trolley; and Fig. 2 is a plan view thereof as seen looking at Fig. 1 from the top toward the bottom of the drawings, Fig. 3 being a detail plan view of one of the double or duplex sliding contact-shoes as seen looking at Fig. 1 from the bottom toward the top of the drawings.

In the construction and use of third-rail systems of electric railways there often exist such inequalities of surface at the crossings of other roads and upon curves that known forms of current-collectors or trolleys do not always assure absolute electrical contact between the third-rail or working conductors in

the road-bed and the electrical apparatus carried by the car.

My invention contemplates the construction of a current-collector or trolley embodying double or duplex sliding shoes yieldingly connected together in such manner that the movements of the shoes are universal—that is to say, the arrangement is such that when one of the shoes meets with an obstruction or inequality or a variation in the relation of the third rails either with other like rails or tram-rails of similar crossing roadways the contact-shoes will automatically adjust themselves to the peculiar conditions which are met with in such manner as to always assure absolute electrical connection between the generator at the power-house and the propelling-motors, lamps, and other apparatus on board of the cars as they pass over the roadway, and this without damage or injury to the moving parts.

The accompanying drawings illustrate fully my novel double or duplex trolley, the same consisting, preferably, of a two-part wooden supporting-frame 1 1, secured together by angle-irons 2 and bolts 3 3 4 4, said angle-irons being provided with bolt-holes for securing the entire structure in any preferred manner beneath the body of a tram-car.

5 5 are rectangular-shaped metallic sleeves, secured by flanges at their opposite ends between the two-part frame 1 1 and adapted to act as vertical guides for movable metallic standards 6 6, to the lower ends of which standards are pivotally attached by iron pins 10 double or duplex sliding current-collectors or trolley-shoes *b b*, said shoes having upwardly-extending ears or lugs provided with holes, through which the aforesaid pins 10 are inserted, 12 12 being keys for securing the pins in position, the entire arrangement being such that the trolley-shoes *b b* have a lateral pivotal movement around their supporting-pins 10. In the upper end of each of the standards 6 6 is a cross-pin 13, adapted to support pivotally the forked ends of a yoke 7, in the center of which is secured a cross-pin 14, to which in turn is attached a strong spiral spring 8, extending downward between the

two-part frame to another cross-pin 9, secured beneath the under side of the frame, all so constructed and interconnected that the two standards 6 6 are adapted to partake of yielding vertical movement in either direction according as the pivoted shoes *b b* are lifted or lowered individually, such an arrangement being especially adapted to pass over the crossings of other tracks and uneven surfaces should the same prevail, and therefore to always assure absolute continuance of metallic contact with the sectional rails, the shoe in advance performing also the additional function of clearing away any dirt or any matter which might offer unnecessary obstruction or resistance to the operating-current.

In Fig. 3 I have illustrated the lower surface of one of the shoes *b b*, said shoes being made, preferably, of cast-iron, with the under surface diagonally corrugated or grooved, as shown. By such an arrangement the shoes *b b* may be cheaply constructed, and therefore readily replaced when worn out at a small expense.

I make no claim broadly to the combination of two current-collectors or trolley-shoes yieldingly connected together, my most generic claim being to a current-collector or trolley with double or duplex contacting-shoes yieldingly connected together and sustained in a supporting-frame by vertical sliding standards and pivot-pins in such manner that the shoes themselves may partake of universal movement. Nor do I limit myself to the use of shoes like those disclosed in the drawings, as obviously any of the well-known forms of current-collectors or trolleys in general use might be substituted therefor so long as the same are connected to the supporting-frame in such manner as to give to said double or duplex trolleys, brushes, or shoes so interconnected the yielding universal movement hereinbefore referred to. Nor do I limit myself to the use of the hereinbefore-described

double or duplex trolley in connection with third-rail contact systems of electric railways, as obviously the same may be utilized any place in the arts where it is desired to convey an electrical current from a stationary or fixed conductor to and through electrical translating devices located on board of a moving vehicle or to electrical translating devices generally where one part of the apparatus is called upon to move with relation to such a fixed conductor, and my claims are therefore generic as to the application or use of the invention hereinbefore described.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. A current-collector or trolley consisting of two contacting or conducting shoes yieldingly secured to a supporting-frame by vertical sliding standards and pivot-pins; in combination with an interconnecting yoke, substantially as described.

2. A current-collector or trolley consisting of two shoes pivotally secured to vertical standards adapted to slide in sleeves secured in a supporting-frame, said standards being yieldingly connected together, substantially as described.

3. A current-collector or trolley consisting of two shoes pivotally secured to vertical standards adapted to slide in sleeves secured in a supporting-frame; in combination with a pivoted interconnecting yoke and yielding means, as a spring, connecting said yoke with the supporting-frame, said spring tending always to hold the two shoes yieldingly in contact with the surface over which they pass, substantially as described.

In testimony whereof I have hereunto subscribed my name this 16th day of May, 1900.

WILLIAM GRUNOW, JR.

Witnesses:

CHARLES J. KINTNER,
M. F. KEATING.