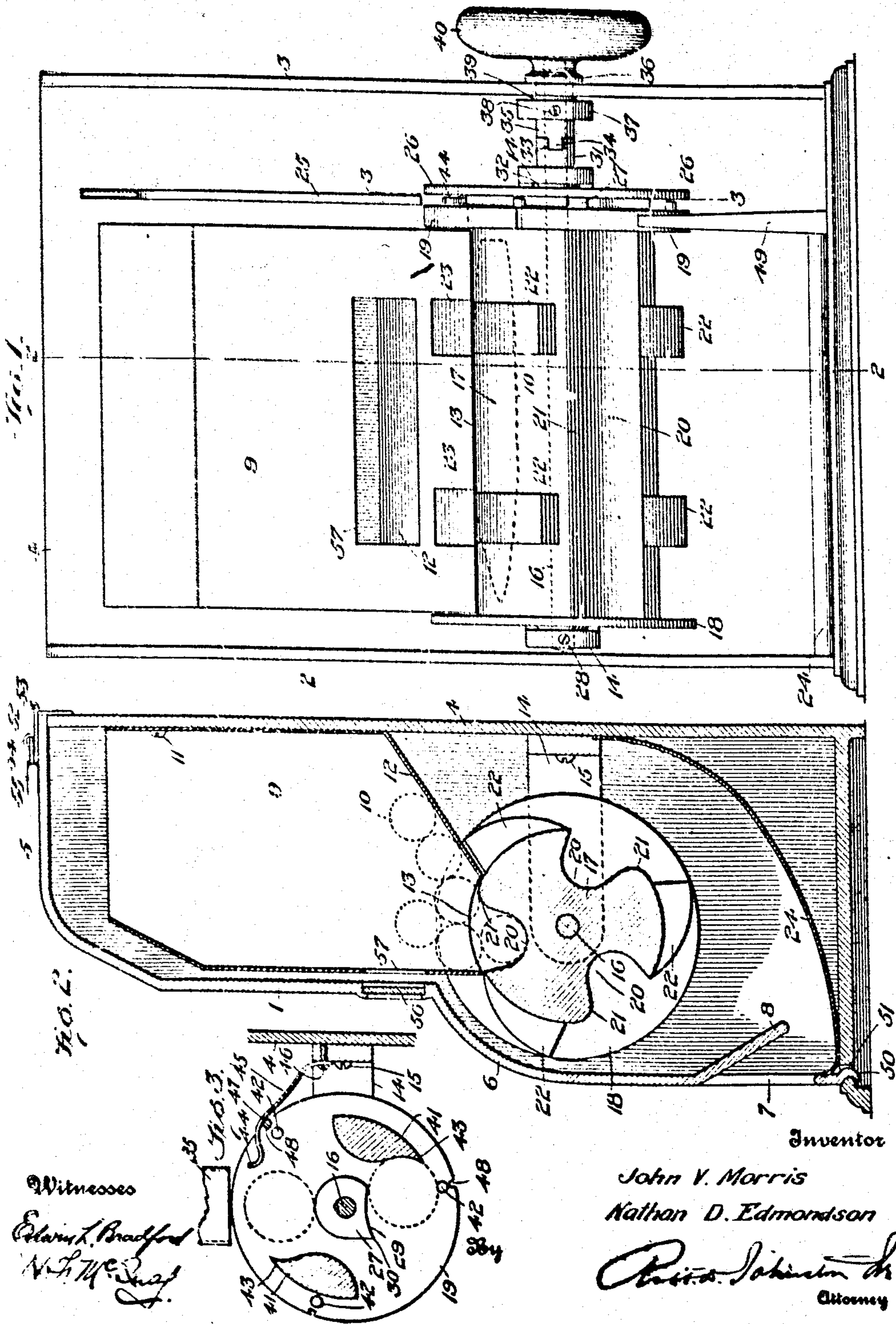


J. V. MORRIS & N. D. EDMONDSON.
 COIN CONTROLLED VENDING MACHINE.
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UNITED STATES PATENT OFFICE.

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COIN-CONTROLLED VENDING-MACHINE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, JOHN V. MORRIS and NATHAN D. EDMONDSON, citizens of the United States, residing at Birmingham, in the county of Jefferson and State of Alabama, have invented new and useful Improvements in Coin-Controlled Vending-Machines, of which the following is a specification.

Our invention relates to improvements in check controlled vending machines.

We have illustrated our invention as adapted to machines for vending cigars, pencils and like elongated articles. Its essential features of novelty reside in the improved means for feeding the articles to the ejector and for controlling the operation of said ejector in a manner to effectively lock it against rotatory movement in either direction until the paper coin is introduced and against excessive movement when the coin has been inserted, thereby preventing the possibility of more than one article being delivered at each operation.

We have embodied our improvement in an apparatus which is simple and cheap in construction, and effective in operation, by reason of the fact that it insures against the articles becoming stuck or disarranged in the hopper so that they fail to feed, a trouble to which vending machines handling elongated articles are peculiarly susceptible.

Our invention comprises the construction and novel arrangement of parts hereinafter described and claimed and illustrated in their preferred embodiment in the accompanying drawings, in which:—

Figure 1 is a front elevation of the machine with its front removed. Fig. 2 is a vertical sectional view taken along the line *x-x* of Fig. 1. Fig. 3 is a detail view reduced showing the coin handling mechanism and the locking mechanism in side elevation.

Similar reference numerals refer to similar parts throughout the drawings.

We have illustrated our apparatus as comprising a casing having a front 1, side walls 2 and 3, a back wall 4 and a top 5. The top and front are preferably formed of one piece of metal plate and the lower portion of the front projects forwardly on a curve as 6 to provide greater depth to receive the ejecting mechanism. A hand opening 7 is provided near the bottom of the front wall,

and is preferably formed by cutting a V-shaped slit in wall 1 and bending the resulting tongue 8 inwardly to serve as a guard which prevents the insertion of the hand far enough into the casing to tamper with the apparatus.

Within the upper portion of the casing we mount a hopper 9 for the cigars or like articles 10, which hopper is fastened to the rear wall by screws 11 and has its bottom wall 12 sloping forwardly to the discharge opening 13. This hopper may be of any size and is left open at the top for filling.

Immediately beneath the hopper 9 is the ejecting mechanism which is supported by plates 14 having their angled ends fastened to the back wall by screws 15. A shaft 16 is mounted in the outer ends of the plates 14 and an ejector 17, in the form of longitudinally slotted cylinder of wood or suitable material, is loosely mounted on shaft 16 between the plates 14 and immediately beneath hopper opening 13. This ejector has integral therewith or rigidly connected thereto, the end flanges 18 and 19, between which the discharge end of the hopper projects. The longitudinal slots or pockets 20 in the ejector are slightly enlarged at their outer ends and having their forward edges, in the direction of their rotation, rounded as at 21. The pockets are designed to receive only one article at a time, and any desired number of pockets may be provided. We have shown these which are equi-distantly spaced about the ejector.

Our devices, to insure the feed of articles 10 to the pockets, comprise pairs of curved shoulders 22, which are mounted upon the ejector or formed integral therewith, a pair being arranged between each pair of pockets. Each shoulder is struck on an arc of a curve which is eccentric to the periphery of the ejector, and beginning at the rear edge of the pocket, in advance of it as the ejector rotates, the shoulder rises on a regular curve until it traverses about two-thirds of the arc subtended by the space between the pockets, when the shoulder stops abruptly leaving a rear wall which extends in almost a radial line to the periphery of the ejector which it strikes a short space in front of the curved front edge of the pocket behind it. The shoulders are all alike and those of each pair are spaced so as to stand on opposite sides of the center of the hopper,

each shoulder being preferably midway between said center and the end of the hopper adjacent to it. The front wall of the hopper extends down almost into engagement with the periphery of the ejector, hence we provide notches 23 in its lower edge to permit the passage of the shoulders 22. As the articles fall from the pockets, they are caught by the plate 24 which slants down to the lower edge of the opening 7, leaving sufficient clearance between it and the guard 8 for the passage of the articles 10.

The coins or checks are introduced into a chute 25 and delivered so as to fall between a flange or disk 19 rotatably mounted on the shaft 16 and a disk 26, likewise rotatably mounted on said shaft and spaced from disk 19 by a relatively small disk 27 fixed on said shaft 16 which is held against rotation by a set screw 28 in one of the supports 14. This fixed disk is cut away at 29 to form a notch in its lower portion. The right hand edge of this notch (Fig. 3) is rounded but the other edge is brought to a point 30 for the purposes hereinafter described. The disk 26 has a sleeve 31 integral therewith through which the shaft 16 passes and which is journaled in the adjacent support 14 through a suitable opening in which it passes and is provided with an offset 32 which bears against the inner face of said support. The outer end of the sleeve 31 is provided with recesses 33 with which corresponding clutch projections 34 interlock. These projections are formed on the inner end of a sleeve 35 which is journaled in the wall 3 of the casing and provided with an offset shoulder 36 which bears against the outer face of wall 3. A washer 37 is slipped over the end of sleeve 35 after it has been passed through wall 3 and is fixed thereon by a set screw 38 which holds the reduced bearing face 39 of the washer against the inner face of wall 3. A handle 40 is fixed to or integral with sleeve 35, which receives the right hand end of the shaft 16 and turns freely thereon.

From the foregoing description it will be seen that disk 26 and the clutch parts all turn freely about shaft 16 when handle 40 is operated. Normally there is no operative connection between the handle 40 and the ejector. This is established by the interposition of a coin in the following manner. As the coin falls between disks 19 and 26 and rests upon disk 27, it will stand between an inwardly projecting lug 41 on the disk 26 and an outwardly projecting pin 42 on disk 19. The lug 41 has its outer edge curved to correspond with periphery of the disk and is spaced inwardly therefrom so as to clear pins 42. Also the coin engaging edge of the lug is curved to meet its outer edge and form a point 43 which slightly overlaps the coin (see Fig. 3). As the coin is forced to the right by the lug, it first engages the up-

turned end 44 of spring plate 45 fastened to the back by a screw 46 and carrying a dog 47 which is in engagement with a notch 48 in the periphery of disk 19 and disposed slightly in advance of a pin 42. The coin will lift the end 44, which is bent down between the disks and move dog 47 clear of its notch, and while holding it clear it will strike pin 42 and by pressing against the latter will force the disk 19 and the ejector to turn. As soon as the coin passes from under 44 the dog is pressed against the periphery of disk 19 and will drop into the succeeding notch as the disk turns. There are three of these notches and three of the pins 42 which are relatively arranged in pairs as above described that are spaced equidistantly about the disk. The coin will be held between lug 41, pin 42 and disk 27 until it arrives opposite notch 29 in the disk, when as seen in dotted lines Fig. 3, a further movement of lug 41 will tilt the coin over pin 42 and let it fall into a till formed between the wall 3 and a partition 49 which extends from front to rear of the casing and is disposed under the disk 19. The upper edge of this partition is cut away so that it projects up around the lower portion of the disk sufficiently to avoid possibility of the coin falling otherwise than to the right of it and into the till.

We provide two of the lugs 41 at opposite points on the disk 26. The lugs 41 and pins 42 project into close proximity to the disk which they respectively face.

In operation, a coin is first dropped into chute 25 and falls either upon disk 27 or upon one of the lugs 41, in which event by turning the handle, disk 26 will be rotated until the lug moves from under the coin which then falls upon disk 27. A further rotation of the handle will cause the coin to disengage dog 47 and immediately thereafter strike pin 42 and rotate the ejector until the article 10 in the pocket then under the hopper will fall upon plate 24 and roll down to opening 7. When the coin gets to the position shown in dotted lines (Fig. 3) it will drop into the till and when the succeeding pocket arrives in position beneath the hopper, the succeeding notch 48 will move under dog 47 which drops therein instantaneously and locks the ejector against movement in either direction. The moment the coin falls from between the disks 19 and 26, the operating connection between handle and ejector is broken. Hence it is only necessary to provide against any improper manipulation during the short time the coin is between the disks, such as attempting to spin the ejector and cause it to discharge more than one article. This is prevented not only by the dog 47 but by the arrangement of the point 43 of the lugs 41 and the point 30 of the notch 29, for it will be evident if

the disk 26 is turned too rapidly, the coin will not have time to drop out and will be jammed between points 43 and 30 thus positively stopping the rotation of the ejector, and when the handle is turned back to permit the coin to drop out, dog 47 will engage the notch and it is necessary to introduce another coin to establish an operating connection between the handle and ejector. As each pocket moves under the hopper opening 13 carrying a cigar, the shoulders 22 catch and lift the bottommost cigars, raising them gradually and then dropping them suddenly so that they fall into the succeeding pocket. If the ejector is moving rapidly the bottom cigar will fall directly into the pocket, otherwise it drops upon the rounded edge 21 and then falls into the pocket. By constantly lifting and suddenly dropping the cigars, we effectively prevent trouble with their feed to the ejector.

To make the front readily removable for the inspection and charging of the apparatus, we provide its lower edge with a hook projection 50 which is passed through a slot 51 in the bottom and adapted to interlock with the front edge of the slot, after which a hasp 52, which is fastened to the back wall and hinged at 53, is brought forward and over a staple 54 bolted to the top. A lock 55 then securely holds the front against removal.

To give a view of the articles in the hopper and show when it is empty, we place a glass panel 56 in the front wall and cut an opening 57 in the front wall of the hopper.

What we claim as new and desire to secure by Letters Patent, is:—

1. In a vending apparatus, coin controlled operating means which comprise a coin chute, a pair of relatively movable elements between which the coin falls, a fixed support for the coin between said elements, and means on said elements which receive the coin between them, thereby establishing an operative connection between said elements, said support having a notch to permit the escape of the coin from between said elements and a projection beyond said notch so arranged that it will engage the coin and cause same to block the further movement of said elements when operated at an abnormal speed, one of said elements being movable with the ejecting means and a handle to operate the other element, substantially as described.

2. In a vending machine, comprising dispensing apparatus, coin controlled means for operating said apparatus, said means comprising a pin movable with said apparatus, a fixed coin support overhung by said pin, a manually movable element which moves in close proximity to said pin, a projection on said element which also overhangs said support and is positioned between it

and said pin, means to interpose a coin between the pin and projection so that it rests initially upon said support and then on said projection, said support having a notch on its under side when opposite which the coin is free to escape from between the pin and projection, means to arrest said pin supporting element after each operation, and means to free said element in advance of an operation, substantially as described.

3. In a vending machine, comprising dispensing apparatus, coin controlled means for operating said apparatus, said means comprising an element movable with said apparatus and carrying one or more pins, a fixed coin support overhung by said pin or pins, a manually movable element which moves in close proximity to a pin, a projection on said element which also overhangs said support and is positioned between it and said pin supporting element, means to interpose a coin between a pin and the projection so that it at first rests upon said support which is provided on its under side with a notch, said projection having a curved extended face which receives and supports the coin, as it is turned, in engagement with said pin, there being sufficient space left between said pin and the notched portion of the disk to permit the coin to pass between same and said pins, said support having a projection beyond the notch which the coin will engage and block further rotation of the pin supporting element when the parts are operated too fast, means to lock said pin supporting element against movement after each operation, and means actuated by the coin itself to unlock said latter element as the coin is moving to establish an operative connection between pin and projection.

4. In a coin controlled vending machine having dispensing apparatus, a rotatable disk connected to said apparatus, pins carried by said disk, a fixed coin support overhung by said pins, an actuating disk rotatably mounted adjacent to the said first mentioned disk, a number of lugs carried by said latter disk and also arranged to overhang said support and pass freely as they rotate between it and said pins, said support having a rounded peripheral edge disposed in a plane with the coin and being cut away below to provide a notch and leave a projecting point at one end of the notch, said lugs having their forward and outer edges both curved to meet in a point, and form a curved support for the coin as it is rotated with said actuating disk, said pin bearing disk having a notch disposed slightly in advance of each pin, a dog which automatically engages said notches and has a curved end which also overhangs said support, and means to introduce a coin between a pin and lug, substantially as described.

5. In a coin controlled vending appa-

ratus, a check controlled operating means comprising a coin chute, a fixed coin supporting disk, two independently rotatable and normally disconnected disks on opposite
5 sides of said supporting disk, projections on both rotatable disks which overhang the fixed disk, the projections on one being circumferentially elongated and provided with curved peripheral edges and terminating at
10 their forward ends in curved points with their concave faces inward and adapted to overhang a coin when resting on said fixed

disk and to receive and support the coin as the disks are rotated, and a cut away portion on the under side of said fixed disk arranged as and for the purposes described. 15

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

JOHN V. MORRIS.

NATHAN D. EDMONDSON.

Witnesses:

NOMIE WELSH,

ANNIE L. PEACE.