(No Model.) 4 Sheets—Sheet 1.

J. JACQUES.

PNEUMATIC DESPATCH TUBE.

No. 564,427. Patented July 21, 1896.

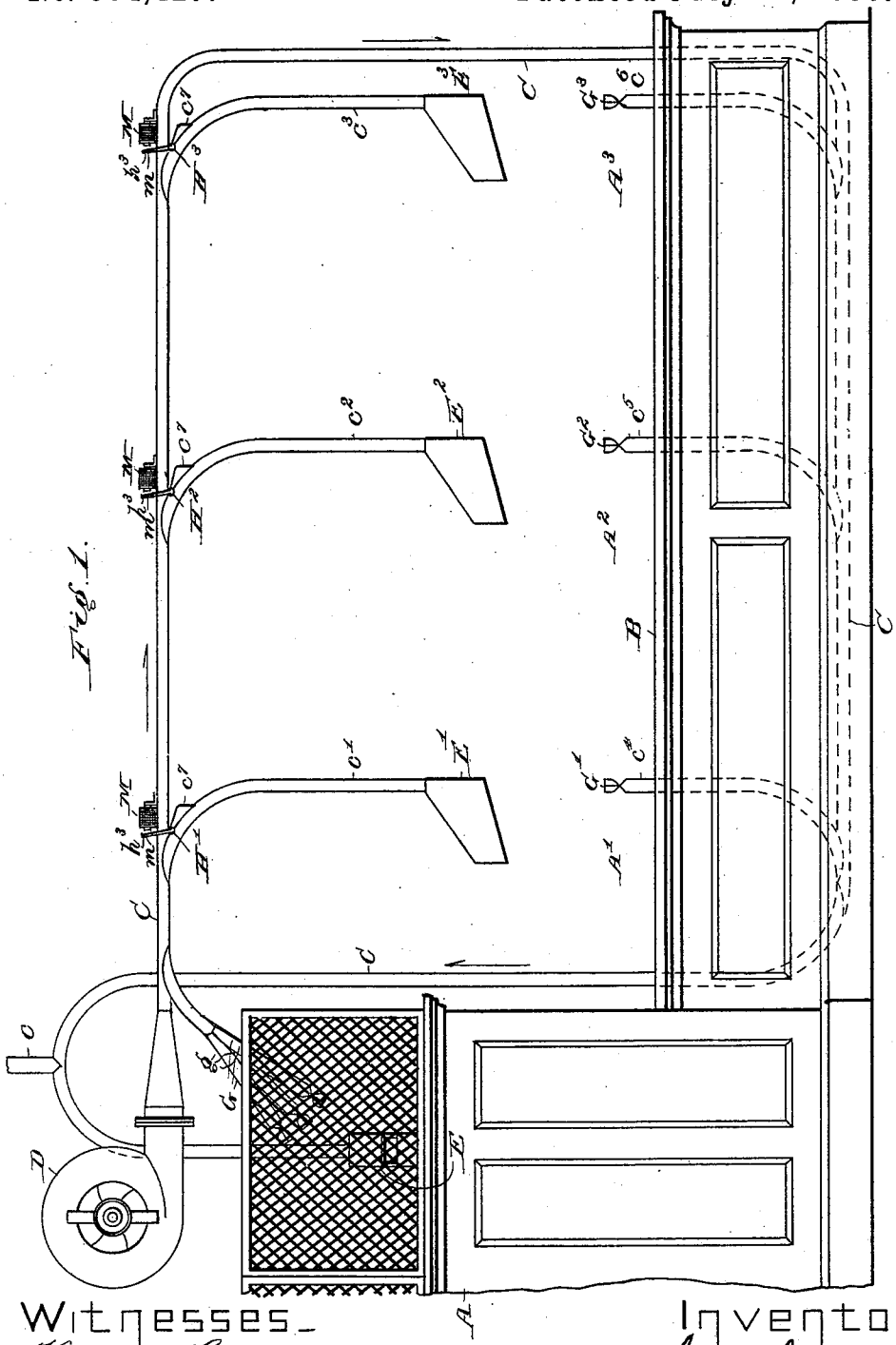


Fig. 1.

Witnesses—
Kirkley Hyde
Grace E. Hibbert.

Inventor—
James Jacques,
By Albert M. Moore,
His Attorney.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 4 Sheets—Sheet 2.

J. JACQUES.

PNEUMATIC DESPATCH TUBE.

No. 564,427. Patented July 21, 1896.

Fig. 2.

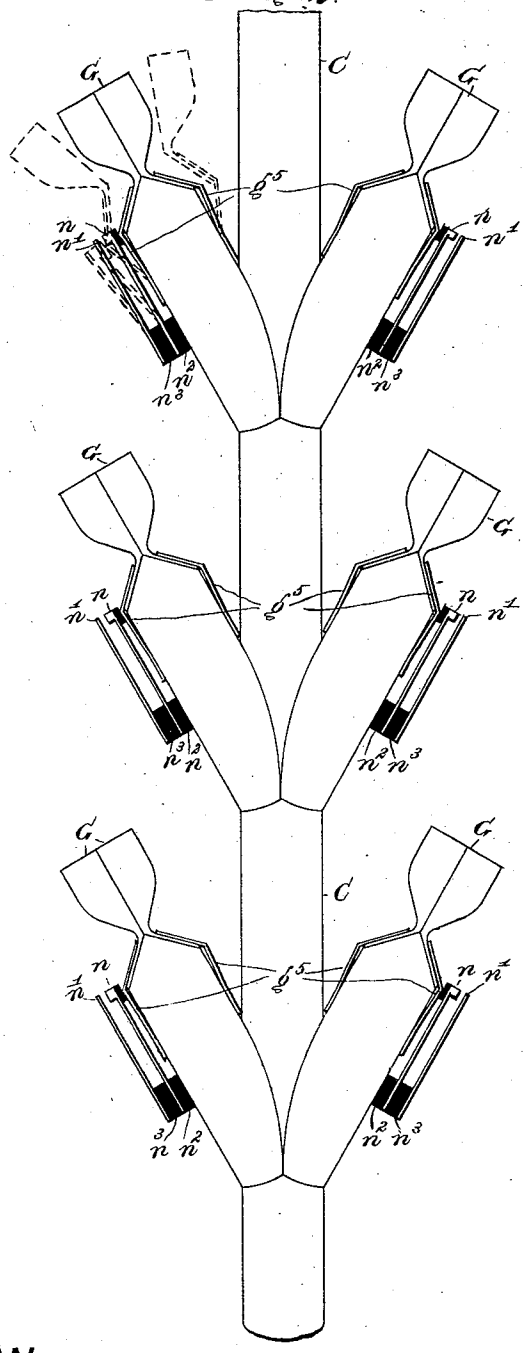
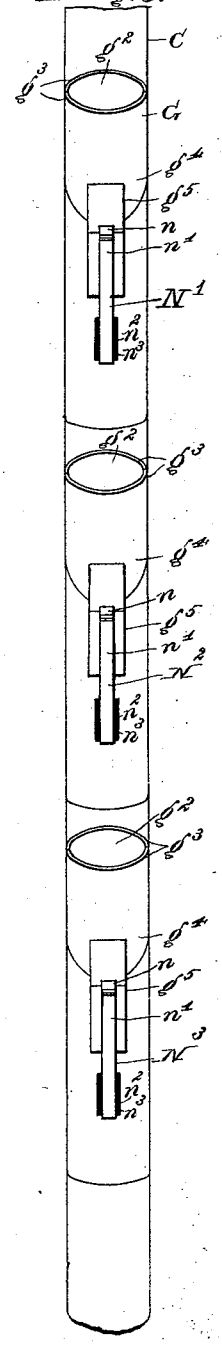


Fig. 3.



WITNESSES.

Kirkley & Hyde.

Grace E. Hobbert.

INVENTOR

James Jacques,

By Albert M. Moore,

His ATTORNEY.

THE NORRIS PETERS CO. PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 4 Sheets—Sheet 3.

J. JACQUES.

PNEUMATIC DESPATCH TUBE.

No. 564,427. Patented July 21, 1896.

Fig. 4.

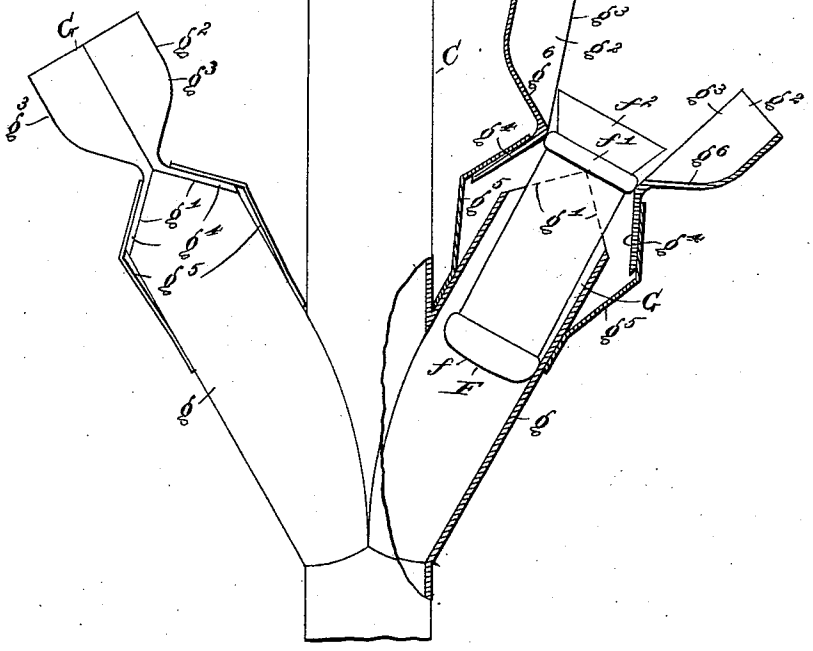
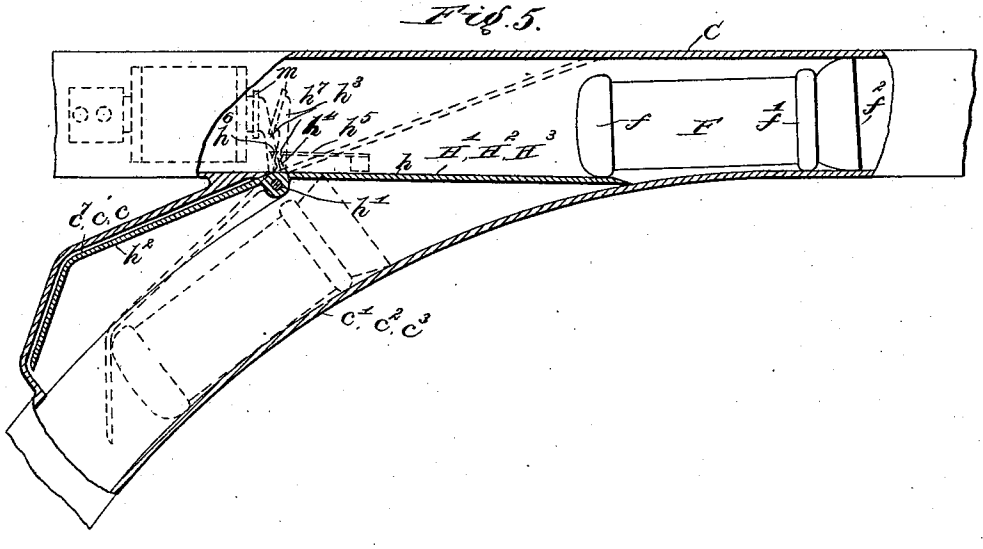


Fig. 5.



WITNESSES.

Kirkley Hyde.

Grace E. Hibbert.

INVENTOR

James Jacques,

By Albert M. Moore,

His ATTORNEY.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 4 Sheets—Sheet 4.

J. JACQUES.

PNEUMATIC DESPATCH TUBE.

No. 564,427. Patented July 21, 1896.

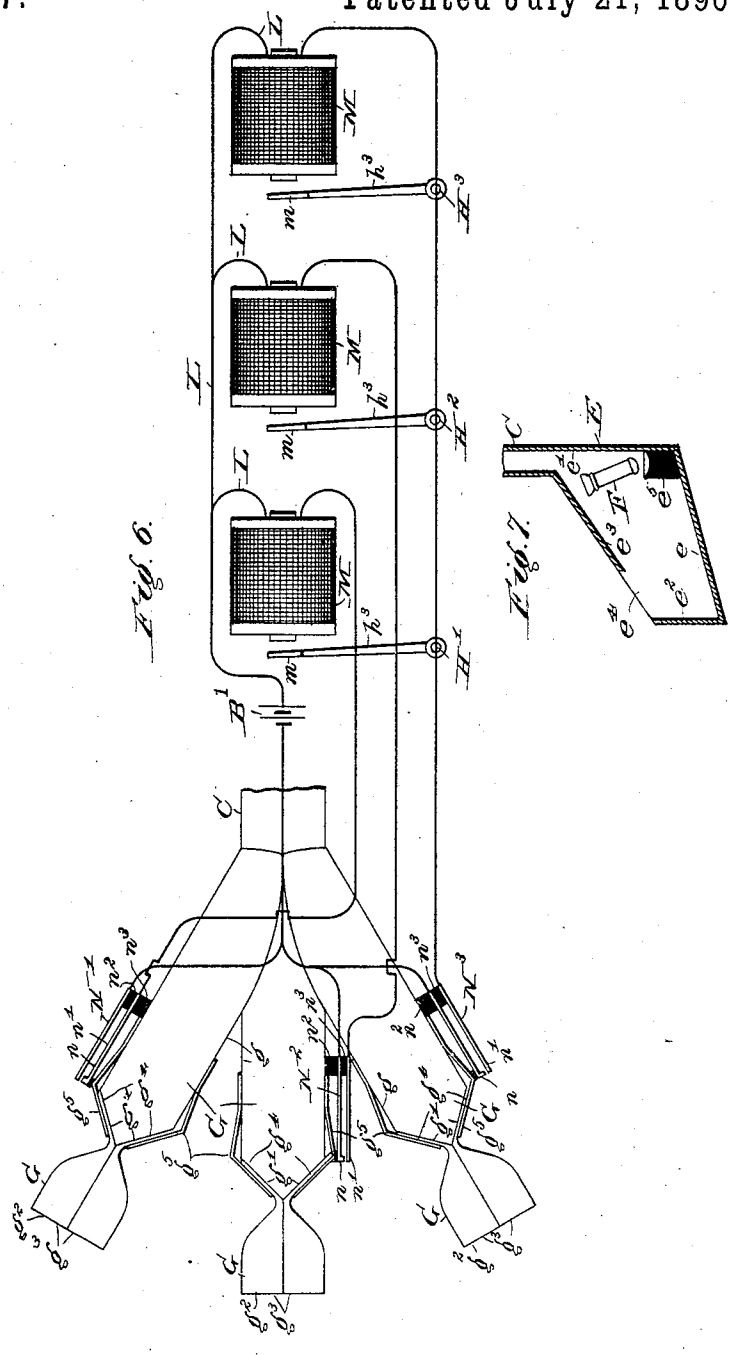


Fig. 7.

Witnesses—
Kirkley Hyde.
Grace E. Hibbert.

Inventor—
James Jacques,
By Albert M. Moore
His Attorney.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JAMES JACQUES, OF LOWELL, MASSACHUSETTS, ASSIGNOR TO THE JACQUES STORE EQUIPMENT COMPANY, OF SAME PLACE.

PNEUMATIC-DESPATCH TUBE.

SPECIFICATION forming part of Letters Patent No. 564,427, dated July 21, 1896.

Application filed August 5, 1895. Serial No. 558,236. (No model.)

To all whom it may concern:

Be it known that I, JAMES JACQUES, a citizen of the United States, residing at Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented a certain new and useful Improvement in Pneumatic-Despatch Tubes, of which the following is a specification.

My invention relates to pneumatic-despatch tubes; and it consists in the devices and combinations hereinafter described and claimed.

This invention is adapted to be used for cash-carriers and similar purposes, and is shown and described as applied in a cash-carrier system.

The object of this invention is to provide a single main line of pipe or tubing leading from the cashier's desk or central station and having sidings or short branches at the different outlying or salesmen's stations, instead of a separate line for each salesman continuous from said desk to the station of said salesman; to enable the cashier by the mere act of placing the cash-box or carrier in the proper receptacle to cause to be opened a switch from the main line into the proper siding, to return said carrier to the station from which it was received; automatically to restore the switch immediately after the entrance of the cash-box into the siding, thus making the main line continuous; to make the line out and the line in continuous with each other, thus dispensing with the necessity, in many cases, of a separate fan for propelling the carriers back to the desk and in all cases effecting a great saving in the first cost of the tubing and in the space occupied thereby.

In the accompanying drawings, on four sheets, Figure 1 is a front elevation of a cashier's desk, a counter, and a pneumatic-cash-carrier system containing my improvement, including the tubing, fan-blower, the receiving and sending appliances for three salesmen's stations, and the air-vent; Figs. 2 and 3, respectively, a front and a side elevation of send-offs in the cashier's desk or station; Fig. 4, a front elevation of two send-offs in the cashier's station, one of said send-offs being in section; Fig. 5, a side elevation, partly in central section, of the junction of the main line and the siding at a salesman's station and a closed switch, showing also in side elevation a carrier in the main line and showing in dotted lines the switch open, a carrier in the siding, and the electromagnet which opens said switch; Fig. 6, a plan of send-offs in the cashier's station, a corresponding number of switch-controlling electromagnets and their armatures, and a diagrammatic representation of the circuit-closers, circuits, and battery; Fig. 7, a central vertical longitudinal section of a receiver or catcher at a salesman's station.

In Fig. 1, A represents a cashier's desk or central station, and B the counter of a store, both of any usual construction, and it is assumed that there are places or stations A' A^2 A^3 for three salesmen at said counter. A single continuous main line of pipe or tubing C extends from above the cashier's desk A out over all the salesmen's stations A' A^2 A^3 and then back under or behind said counter to said desk, and constitutes the way in which the cash-boxes or other carriers travel.

A suitable blower D, of usual construction, sends a current of air through the line C, in the direction indicated by the arrows adjacent to said line, and out at the usual vent-pipe *c* near the end of said line, the line being continued past said vent *c* into a suitable receiver or catcher E, which is preferably of the form shown in Fig. 7, that is, a box having an inclined bottom *e*, a vertical back e', continuous with a side of the pipe C, a vertical front e^2, an inclined top e^3 or fixed cover, an opening e^4 in the top e^3, at the front of said box, large enough to admit the hand to remove the carrier F, and a cushion or buffer e^5 to receive the impact of the carrier as it falls from the tube C. It will be seen that the opening e^4 is arranged at such a distance from the cushion e^5 and the angle which the top e^3 makes with the path of the carrier is such as to prevent said carrier from rebounding from said cushion and flying through said opening, and that the cushion lessens the danger of the carrier bursting through the bottom of the box or catcher.

At each outlying or salesman's station A' A^2 A^3 the main line of tubing opens into a branch or siding c' c^2 c^3, which terminates in

a receiver or catcher E′ E² E³, like the receiver E at the cashier's station and serving a like purpose. At the cashier's or central station there are as many send-offs G as there are outlying or salesmen's stations, each send-off consisting of a short branch pipe or tube g, leading into the main line, as shown in Fig. 4, and at the outer end beveled from opposite sides to the middle at equal angles at g' g', say of about forty-five degrees, to said sides, a box g^2, formed in halves g^3 g^3 and having flaps g^4 g^4, which, when the halves of said box are closed against each other, as shown at the left of said Fig. 4, rest upon and fit said bevels or angles g' g' and close the outer end of said branch g, and springs g^5 g^5, (represented as leaf-springs,) each secured at one end to one of said halves g^3 g^3 and at the other end to the side of said branch g, these springs normally holding the halves of the box together. The bottom g^6 g^6 of each half of the box g^2 is inclined so that these bottoms form the inclined faces of a hollow wedge. At each salesman's station there is a send-off G′ G² G³ precisely like the send-off G, above described, connected by a branch c^4 c^5 c^6 to the main line.

The carrier F is well known, being in common use, and is a hollow metallic cylinder, having at its ends concentric supporting-circles f f' of felt or similar soft material, larger than the body of the carrier, to lessen wear of the tube or line C, and having at the rear end a conical flap f^2 of leather, to be expanded by the pressure of the blast from the blower to fill the tube and prevent the air from leaking through the space between the carrier and the walls of the tube.

The carrier F is pushed into the box g^2 of a send-off, crowding apart the halves of said box, as shown at the right in Fig. 4, and is drawn by the current of air, assisted in some cases by the weight of said carrier, into the main line. When a carrier is placed in any salesman's send-off, said carrier is immediately propelled by the air-current to the cashier's station and there discharged into the receiver E, no switches being required on the "line in," that is, the line from the outlying stations to the central station.

In order that the cashier may be able to send a carrier to a particular salesman, the junction of each siding c' c^2 c^3 is provided with a switch H′ H² H³, each comprising, Fig. 5, a flap or gate h, capable of closing either the main line or the entrance to the siding and pivoted at h' at the acute angle which said siding makes with said main line, said flap having also a bent finger h^2 on the opposite side of the pivot h' from the body of said flap and adapted when the flap is in the position shown by dotted lines in Fig. 5, that is, when the siding is connected with the main line, to be struck by a carrier passing into the siding to close the switch after said carrier and make the main line continuous. The entrance to the siding c' c^2 c^3 is provided with a recess c^7, which normally receives said finger.

Each flap moves easily and is held in either position by the air-blast, the siding and the main line having the same capacity or cross-section.

The pivot h' of the flap h turns with said flap and has rigidly secured to it an arm or lever h^3, which carries the armature m of an electromagnet M, there being such a magnet for each switch H′ H² H³, and each magnet being connected by a separate conducting-wire L′ L² L³ to a battery B′ or generator of electricity, while a single return-wire L serves for all said magnets. In each conducting-wire L′ L² L³ is arranged a normally open circuit closer N′ N² N³, each consisting of a pair of springs n n', insulated at n^2 n^3 from each other and from the send-off, but supported on the stationary part of the latter in such a manner that in opening the box g^2 one of the halves of said box strikes the spring n and pushes it against the spring n' of the same pair, closing the circuit through the corresponding electromagnet and switching the siding adjacent to said magnet into connection with the main line. It is only necessary to designate the carrier used at a particular salesman's station and the corresponding send-off at the cashier's station by the same number or other mark to make sure that each salesman will receive back his own carrier unless through inexcusable carelessness on the part of the cashier. To make it certain that the flap h shall not be accidentally turned from its proper position, the pivot h' of said flap is provided outside of the tube with a projection h^4, having two oppositely-beveled surfaces, and a spring-pawl h^5 is arranged to engage said projection and to hold said flap in either of its positions, the free end of said pawl h^5 having a tooth with oppositely-beveled surfaces h^6 h^7, adapted to ride over said projection when a considerable amount of force is applied to said flap, but to hold said flap from turning against the application of any ordinary force.

The described improvement is of course applicable to any pneumatic-carrier system connecting a central station with outlying stations.

I claim as my invention in a pneumatic-despatch-tube system—

1. The combination of a main line of tubing connecting a central station with an outlying station, a siding or branch at said outlying station, and a mechanical switch normally disconnecting the main line and said siding, an electromagnet having an armature movable with said switch, an electric circuit including said magnet, a normally open circuit-closer at said central station to close said circuit and to operate said switch, to make the corresponding siding continuous with said main line, and a send-off box normally closed and adapted when opened to close said circuit-closer, as and for the purpose specified.

2. The combination of a central station and

outlying stations, a main line and a siding at each outlying station, a switch at each outlying station normally closed to disconnect said main line and the corresponding siding, as many normally-closed send-off boxes at the central station as there are outlying stations, means whereby the opening of any send-off box will open the corresponding switch and means whereby the passage of a carrier into a siding will close the corresponding switch as and for the purpose specified.

In witness whereof I have signed this specification, in the presence of two attesting witnesses, this 2d day of August, A. D. 1895.

JAMES JACQUES.

Witnesses:
ALBERT M. MOORE,
EUGENE F. CARDELL.