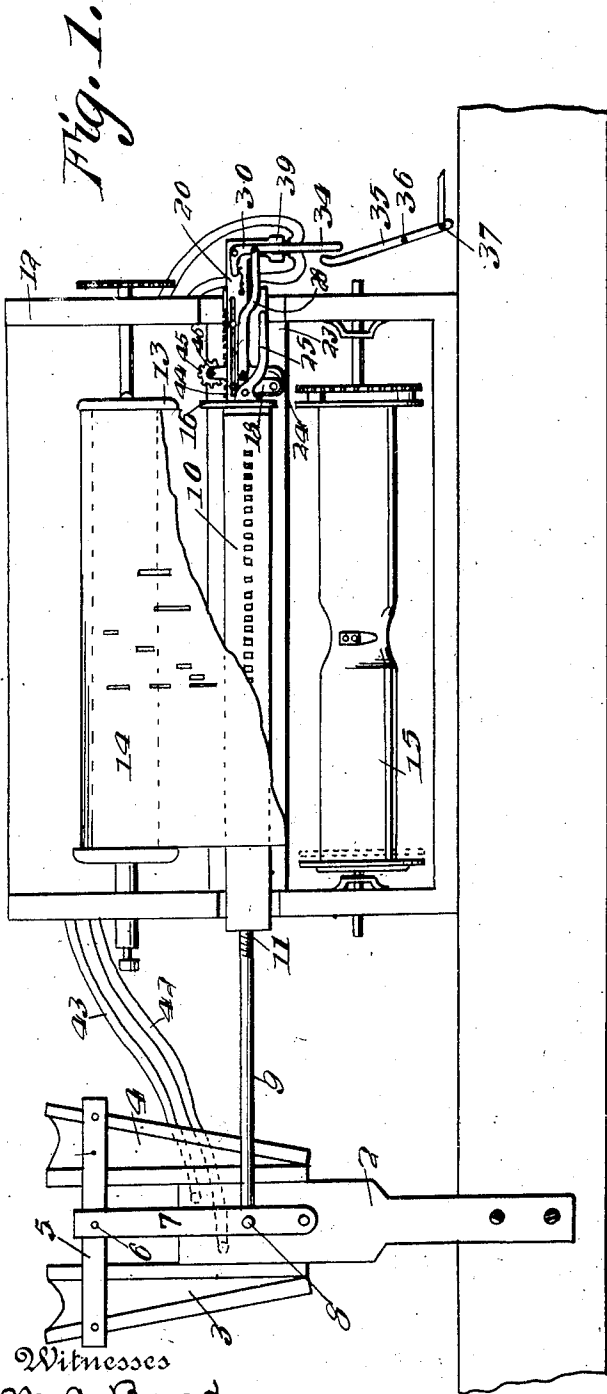


G. P. BRAND.
TRACKING DEVICE.
APPLICATION FILED MAR. 16, 1910.

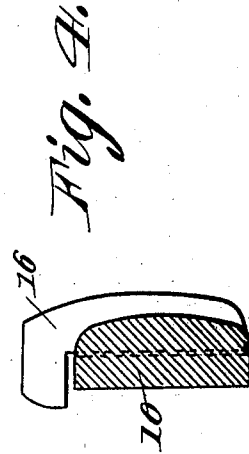
1,014,941.

Patented Jan. 16, 1912.

2 SHEETS—SHEET 1.



Witnesses
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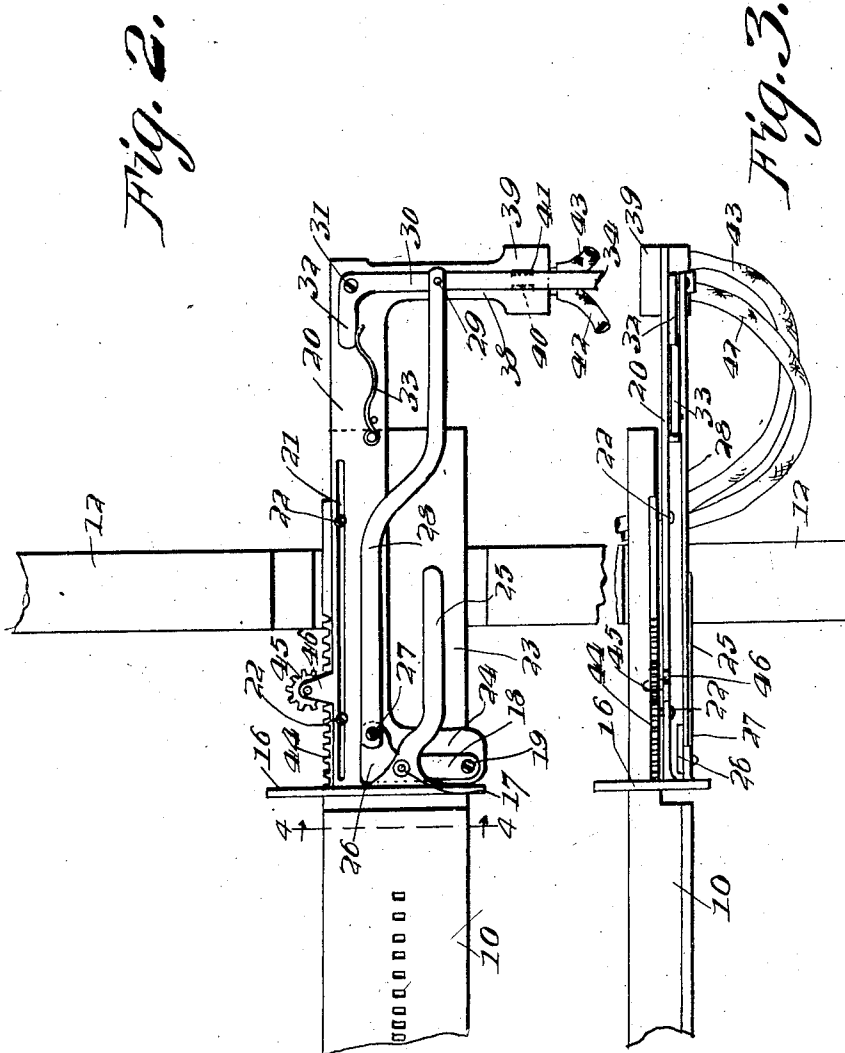
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UNITED STATES PATENT OFFICE.

GEORGE P. BRAND, OF NEW YORK, N. Y.

TRACKING DEVICE.

1,014,941.

Specification of Letters Patent.

Patented Jan. 16, 1912.

Application filed March 16, 1910. Serial No. 549,711.

To all whom it may concern:

Be it known that I, GEORGE P. BRAND, a citizen of the United States of America, and resident of New York, in the county and State of New York, have invented certain new and useful Improvements in Tracking Devices, of which the following is a specification.

This invention relates to certain new and useful improvements in tracking devices of that character in which is employed an edge guide for contact with the music sheet.

The present invention has for its objects among others to provide a simple, efficient, and reliable mechanism for the automatic movement of the tracker bar so that the perforations of the music sheet and the ducts of the tracker bar shall be kept automatically in alinement. I provide means whereby the proper adjustment is provided in order that the necessary alinement of the tracker bar and perforations of the note sheet may be made when the sheet is first placed in the machine. The mechanism insures this maintenance of such relation without attention on the part of the operator.

The edge guide and the closely associated parts are mounted on the tracker bar. I provide a valve actuated by the movement of the edge guide, which valve controls ports in communication with the pneumatics which actuate the tracker bar.

Other objects and advantages of the invention will hereinafter appear and the novel features thereof will be particularly pointed out in the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the numerals of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a front elevation showing the application of the present invention. Fig. 2 is an enlarged elevation showing a portion of the tracker bar and the edge guide and associated parts. Fig. 3 is a top plan of Fig. 2. Fig. 4 is a vertical cross section on the line 4—4 of Fig. 2 looking in the direction of the arrow.

Like numerals of reference indicate like parts throughout the several views.

Referring to the drawings, 1 designates a portion of the frame, from which rises the upright 2 forming a support for the pneumatics 3 and 4. The movable members of these pneumatics are connected by the cross bar 5 to which is pivotally connected, as at

6, the vertical lever 7, to which, at its lower end, is pivotally connected, as at 8, the rod 9 screw-threaded into the end of the tracker bar 10, as seen at 11 in Fig. 1.

12 is the music box in which is mounted, in any well-known way, the music roll 13 carrying the note sheet 14, the take-up roll 15 being also mounted in the box in the usual way. The tracker bar 10 is mounted for endwise sliding movement in suitable bearings on the ends of the music box and is pneumatically moved backward and forward in a manner soon to be described.

16 is the edge guide. It is pivotally mounted, as at 17, to the arm 18, the lower end of the vertical member of which is pivotally mounted, as at 19, on the frame 20 which is provided with a longitudinal slot 21 in which are received the screws or the like 22 held in the extension 23 of the tracker bar. The frame 20 has the depending portion 24 to receive the pivot 19. The edge guide has the counterbalancing portion 25, as seen best in Fig. 2. The horizontal portion 26 of the arm 18 has pivotally connected therewith, as at 27, the link 28 which, in this instance, is shown as curved, so as to bring its opposite end in proper position for pivotal connection, as at 29, with a valve member 30 pivotally mounted, as at 31, on the frame 20 and its horizontal arm 32 being acted upon from beneath by suitable means, as a spring 33, secured to the frame 20. The valve member 30 is extended downward, as seen at 34 in Figs. 1 and 2, in position to be engaged by a member controlled by the re-wind mechanism, said member 35 being pivotally mounted, as at 36, and pivotally connected, as at 37, with some member of the re-wind mechanism, so that as the latter is thrown into operation, the said member 35, contacting with the depending portion 34 of the valve member, serves to move the same on its pivot and to move the edge guide out of contact with the edge of the sheet and at the same time serves to uncover both of the ports of the valve seat, now to be described.

The frame 20 has the depending portion 38 which is shown in Fig. 2 enlarged at 39 and provided with ports 40 and 41. The port 40 connects by flexible tube 42 with the operating mechanism of the pneumatic 3 upon one side and the port 41 is connected by the flexible pipe 43 with the operating mechanism of the pneumatic 4 in the well-known manner.

44 is a rack on the extension of the tracker bar, while 45 is a pinion or analogous device rotatably mounted in the upwardly extending bracket or lug 46 on the frame 20, as seen best in Fig. 2. By turning this pinion or the like 45 to the right, the tracker bar will be moved to the left and by turning the pinion to the left, the tracker bar will be moved to the right. This serves to adjust the tracker bar so as to bring the ducts thereof in alinement with the perforations of the music sheet when the latter is first placed in the machine. This is done by hand, and afterward the mechanism hereinbefore described insures the maintenance of such relation.

With the parts constructed and arranged substantially as hereinbefore described, the operation is as follows. The music sheet 14 is wound upon the music roll in the usual manner and placed in the machine and the end thereof engaged with the hook or fastening device on the take-up roll. When the first perforations in the music sheet reach the ducts in the tracker bar, if they are not in proper alinement, proper alinement is obtained by adjustment of the tracker bar through the means of the rack and pinion just described, and when thus adjusted, the automatic means hereinbefore described serve to maintain this alinement throughout the entire passage of the note sheet, regardless of whether the same be wound upon the music roll with the edges perfectly parallel with the end flanges thereof. As the music sheet moves to the right, its contact with the edge guide 16, which it is to be understood is always in contact with the edge of the sheet, following the same in its lateral movements in both directions, moves the said edge guide, which is so mounted as to be most sensitive in its movement, to the right, thus moving the valve 30 sufficiently to open slightly the port 40. When this takes place, the air admitted through said port passes through the flexible connection 42 to the valve chest of the pneumatic 3 and the rod 9 is moved to the right, moving the tracker bar so that it keeps up with the music sheet and, hence, the perforations of the music sheet and the ducts of the tracker bar are kept in alinement. It is to be understood that the intruding air, which passes through the tube 42 to the valve chest of the pneumatic, acts upon the diaphragm thereof and actuates the valves in the well-known way, putting the interior of the bellows into communication with the exhaust and closing the same to the atmosphere, so as to cause the bellows or pneumatic 3 to be deflated sufficiently to cause its movable member to move to the right enough to give to the rod or bar 9 sufficient movement to the right to move the tracker bar such a distance as to compensate for or keep up with the

movement of the music sheet. It is to be understood that the valve 30 opens but slightly, hardly sufficient to be noticed by the naked eye. The bleed holes of the valve chests of the pneumatics are exceedingly small so that as soon as the music sheet is moved either way, the inrush of air, according to the movement of the sheet, causes the movement of the lever to which the rod 9 is attached one way or the other, so as to cause the diaphragms and all the mechanism connected therewith to return to their normal position. Bringing the valve back to its normal position closes both ports and the mechanism remains normal until further affected by the sheet in like manner. It is to be understood that the music sheet moves laterally at no one time any great distance but that there are numerous movements at intervals during the unwinding of the sheet from the music roll. During the steady movement of the sheet without any lateral displacement, the tracker bar stays practically immovable. When the music sheet moves laterally to the left, the edge guide 16 follows the same, being kept constantly in contact therewith by reason of the spring 33, the natural tendency of which is to keep the edge guide always to the left. This lateral movement of the music sheet to the left causes the valve 34 to move sufficiently to allow air to pass in at the port 41, which, after passing through the tube 43, actuates the diaphragm and the valves of the pneumatic 4 to put the latter in communication with the exhaust and close it to the atmosphere. When this occurs, the member 7 is moved so as to move the rod 9, and, consequently, the tracker bar to the left, so as to keep the holes of the tracker bar directly in register with the perforations of the music sheet. Fig. 1 indicates the condition of the pneumatics 3 and 4 and the position of the lever 7 and the valve and valve ports and other parts in their normal position. When the tracker moves to the right, the pneumatic 3 is more or less deflated and the pneumatic 4 inflated, and when the tracker moves to the left, the condition is reversed. When the parts are put in position for rewinding, the arm 35 contacting with the depending portion 34 of the valve member 30 brings the latter to the right sufficiently to uncover both of the ports 40 and 41 and, under these conditions, the pneumatics 3 and 4 will be held in their central position, as the condition of both is the same; being both put in communication with the exhaust and closed to the atmosphere. When the parts are put in position for winding, the spring 33 returns the parts to their normal position, the valve closing both ports and the member 35 moving on its pivot 36 back to its normal position, that indicated in Fig. 1.

Modifications in details may be resorted to

without departing from the spirit of the invention or sacrificing any of its advantages.

What is claimed as new is:—

1. An endwise movable tracker bar, an edge guide mounted intermediate its ends for unrestricted movement back and forth, to follow the lateral movement of the music sheet, a frame slidable with relation to the tracker bar, means pivoted on said frame and on which said edge guide is mounted, and a valve mechanism connected therewith and operable by movement of the edge guide.
2. An endwise movable tracker bar, a frame movable lengthwise of the tracker bar, an edge guide mounted on the frame for contact with one edge only of a note sheet and having movement in both lateral directions, and means controlled by the movement of the edge guide for moving the tracker bar in both directions.
3. An endwise movable tracker bar, a frame movable lengthwise of the tracker bar, an edge guide mounted on the frame for contact with one edge only of a note sheet and having movement in both lateral directions, said edge guide being movable transversely of the length of the note sheet and pneumatic means controlled by the movement of the guide for moving the tracker bar in both directions.
4. An endwise movable tracker bar, a frame movable endwise with relation thereto and having a portion with ports controlling the movement of the tracker bar, an edge guide adapted to contact with one edge only of a note sheet, a sliding valve controlling said ports, and connections between said edge guide and valve.
5. An endwise movable tracker bar, a frame movable endwise with relation thereto and having a portion with ports controlling the movement of the tracker bar, an edge guide adapted to contact with one edge only of a note sheet, a sliding valve controlling said ports, and connections between said edge guide and valve, said edge guide being mounted intermediate its ends and counter-balanced.
6. A slidably mounted tracker bar, a frame thereon having a depending portion and movable lengthwise of the tracker, an arm pivotally mounted on said depending portion, an edge guide pivotally mounted on said arm for contact with one edge only of a note sheet, a member pivotally connected with said arm, said frame having a depending portion with ports controlling the movement of the tracker bar, and a valve pivotally mounted on said frame and connected with said member to control said ports.
7. An endwise movable tracker bar, a frame mounted on one end thereof for movement lengthwise of the tracker bar, an edge guide carried by said frame, connections between the edge guide and the tracker bar,

said edge guide being adapted to contact with one edge only of a note sheet, and pneumatic means controlled by the movement of the edge guide for moving the tracker-bar in both directions.

8. An endwise movable tracker bar, a frame mounted on one end thereof for movement lengthwise of the tracker bar, said frame having a depending portion with ports, an edge guide movable with said frame and adapted to contact with one edge only of a note sheet and having movement in a lateral direction, connections with said edge guide for controlling said ports, and pneumatics controlled by said ports.

9. An endwise movable tracker bar, a frame mounted on one end thereof for movement lengthwise of the tracker bar, said frame having a depending portion with ports, an edge guide movable with said frame and adapted to contact with one edge only of a note sheet and having movement in both directions, connections with said edge guide for controlling said ports, pneumatics controlled by said ports, and means for moving the edge guide out of contact with the music sheet while rewinding.

10. A slidably mounted tracker bar, a frame adjustable thereon and having ports controlling the movement of the tracker bar, a pivotally mounted edge guide consisting of a single member adapted to contact with one edge only of the note sheet, and means controlling said ports and pneumatic means controlled thereby and operatively connected with the tracker bar for actuating the tracker bar.

11. A slidably mounted tracker bar, a frame adjustable thereon and having ports controlling the movement of the tracker bar, a pivotally mounted edge guide consisting of a single member adapted to contact with one edge only of the note sheet, a valve operatively connected therewith and controlling said ports, and pneumatic means controlled by the valve and operatively connected with the tracker bar for actuating the tracker bar.

12. An endwise movable tracker bar, a pivotally mounted edge guide consisting of a single member adapted to contact with one edge only of the note sheet, a frame adjustable on the tracker bar and carrying said guide, and means on the frame controlled by the edge guide for pneumatically controlling the movement of the tracker bar.

13. A slidably mounted tracker bar, a pivotally mounted edge guide consisting of a single member adapted to contact with one edge only of the note sheet, a frame adjustable on the tracker bar and carrying said guide, pneumatic means for moving the tracker bar, and pivotally mounted means supported from the frame for controlling said pneumatic means.

14. A slidably mounted tracker bar, an edge guide pivotally supported thereby and consisting of a single member adapted to contact with one edge only of the note sheet, a frame adjustable on the tracker bar and carrying said guide, means controlled by the movement of the edge guide, and pneumatic means controlled by said means for actuating the tracker bar.
15. A slidably mounted tracker bar, a frame carried thereby, an edge guide pivotally mounted on said frame consisting of a single member adapted to contact with one edge only of the note sheet, manual means carried by the frame for adjusting the tracker bar, and pneumatic means controlled by said edge guide and connected with the tracker bar, and connections between said edge guide and pneumatic means.
16. A slidably mounted tracker bar, a frame carried thereby, an edge guide pivotally mounted on said frame consisting of a single member adapted to contact with one edge only of the note sheet, valve means carried by the frame controlled by the movement of the edge guide, pneumatic means controlled by said valve means and connected with the tracker bar, and means for adjusting the frame on the tracker bar.
17. A slidably mounted tracker bar, a frame thereon, an edge guide pivotally mounted on the frame consisting of a single member adapted to contact with one edge only of the note sheet, a pivotally mounted controlling member on the frame connected with the tracker bar, said connection embodying pneumatic means controlled thereby for operating the tracker bar.
18. A slidably mounted tracker bar, a frame thereon having a depending portion, an arm pivotally mounted on the frame, an edge guide pivotally mounted on the arm consisting of a single member adapted to contact with one edge only of the note sheet, and a member pivotally connected with said arm, and a valve actuated thereby.
19. A slidably mounted tracker bar, a frame thereon having a depending portion, an arm pivotally mounted on the frame, an edge guide pivotally mounted on the arm consisting of a single member adapted to contact with one edge only of the note sheet, a member pivotally connected with said arm, a valve actuated thereby, and pneumatic means controlled thereby for actuating the tracker bar.
20. A slidably mounted tracker bar, a frame carried thereby, an edge guide pivotally mounted on said frame consisting of a single member adapted to contact with one edge only of the note sheet, a valve member in addition to said edge guide and pivotally mounted on said frame, a connection between the valve member and edge guide, pneumatic means controlled by said valve member for actuating the tracker bar, and a spring acting on said valve member.
21. A slidably mounted tracker bar, a frame carried thereby, an edge guide pivotally mounted on said frame consisting of a single member adapted to contact with one edge only of the note sheet, a valve member in addition to said edge guide and pivotally mounted on said frame, a connection between the valve member and edge guide, pneumatic means controlled by said valve member for actuating the tracker bar, and a spring acting on said valve member.
22. A slidably mounted tracker bar, a frame carried thereby, an edge guide pivotally mounted on said frame consisting of a single member adapted to contact with one edge only of the note sheet, a valve member in addition to said edge guide and pivotally mounted on said frame, a connection between the valve member and edge guide, and pneumatic means controlled by said valve member for actuating the tracker bar, said valve member having a depending portion for actuation by the rewind mechanism.
23. A slidably mounted tracker bar, a frame carried thereby, an edge guide pivotally mounted on said frame consisting of a single member adapted to contact with one edge only of the note sheet, a valve member in addition to said edge guide and pivotally mounted on said frame, a connection between the valve member and edge guide, pneumatic means controlled by said valve member for actuating the tracker bar, said valve member having a depending portion for actuation by the re-wind mechanism, and a spring acting on said valve member.
24. A slidably mounted tracker bar, a frame endwise adjustable thereon and having a depending portion with ports, a single member for controlling said ports, pneumatics connected with the tracker bar and with said ports, and an edge guide consisting of a single member adapted to contact with one edge only of the note sheet, and connections between said single member and edge guide for controlling said ports.
25. A slidably mounted tracker bar, a frame endwise adjustable thereon and having a depending portion with ports, a single member for controlling said ports, pneumatics connected with the tracker bar and with said ports, an edge guide consisting of a single member adapted to contact with one edge only of the note sheet, and connections between said single member and edge guide for controlling said ports, and means for adjusting the frame on the tracker bar.
26. A slidably mounted tracker bar, a frame endwise adjustable thereon, a valve member pivotally mounted on the frame, pneumatic means controlled by said valve member for actuating the tracker bar, and

an edge guide in addition to said valve member operatively connected with the tracker bar and pivotally mounted on the said frame and adapted to contact with one edge only of a note sheet to control said valve member.

27. A slidably mounted tracker bar, a frame endwise adjustable thereon, a valve member pivotally mounted on the frame, pneumatic means controlled by said valve member for actuating the tracker bar, an edge guide in addition to said valve member and pivotally mounted on the said frame and adapted to contact with one edge only of a note sheet, and pivotally connected with said valve member, and a counterbalance for said edge guide.

28. A slidably mounted tracker bar, a frame endwise adjustable thereon, a valve member pivotally mounted on the frame, pneumatic means controlled by said valve member for actuating the tracker bar, an edge guide in addition to said valve member operatively connected with the tracker bar and pivotally mounted on the said frame and adapted to contact with one edge only of a note sheet to control said valve member, and a spring on the frame acting on the valve member.

29. A slidably mounted tracker bar, a frame endwise adjustable thereon, a valve member pivotally mounted on the frame, pneumatic means controlled by said valve member for actuating the tracker bar, an edge guide in addition to said valve member

operatively connected with the tracker bar and pivotally mounted on the said frame and adapted to contact with one edge only of a note sheet to control said valve member, a spring on the frame acting on the valve member, and a counterbalance for said edge guide.

30. A slidably mounted tracker bar, a frame adjustably mounted thereon, a pinion on the frame, a pivotally mounted edge guide on the frame adapted to contact with one edge only of the note sheet, a rack carried by the tracker bar and meshing with the pinion for adjusting the frame on the tracker bar, a pneumatic controlled by the movement of said edge guide and a connection between the pneumatic and the edge guide.

31. A slidably mounted tracker bar, a frame adjustably mounted thereon, a pinion on the frame, a pivotally mounted edge guide on the frame adapted to contact with one edge only of the note sheet, a rack carried by the tracker bar and meshing with the pinion for adjusting the frame on the tracker bar, said frame being provided with a slot, and means on the tracker bar cooperating with said slot.

Signed by me at Washington, D. C., this 11th day of March 1910.

GEORGE P. BRAND.

Witnesses:

PERCY H. RUSSELL,
E. H. BOND.