in one of the secondary coils exactly balances or neutralizes the induction in the other, so that when the ear is applied to the receiving telephone no sound is heard.

Now, by placing ever so small a piece of metal in one of the glass cylinders, the electrical balance is disturbed and the clock on the microphone is heard to tick loudly, thus indicating the presence of metal, and the same is true if the coil be placed in the vicinity of a piece of metal.

It occurred to me to try the effect of a lead bullet upon the instrument, placing it at different distances, and separating it from the coil by insulating material. The result exceeded my anticipations, as with a set of coils that were by no means sensitive I was able to locate the bullet with the coils raised a vertical distance of nearly two inches. With more sensitive apparatus it is more than probable that the bullet might be located, even though distant several inches, by passing a pair of coils over the President's back and abdomen; and by comparative tests the depth of the bullet might be ascertained.

GEORGE M. HOPKINS.

BROOKLYN, *July* 10, 1881.

NOTE 3.—*Letter from Mr. G. M. Hopkins to Private Secretary Brown, enclosing printed description of Hughes' Induction Balance.*

OFFICE OF THE SCIENTIFIC AMERICAN, No. 37 PARK ROW,
NEW YORK, *July* 11*th*, 1881.

Mr. J. STANLEY BROWN,
Executive Mansion, Washington, D. C.:

MY DEAR SIR: I send herewith a full description of the Induction Balance as promised in my note of yesterday. I will send the apparatus for trial if desired.

I am certain that the bullet can be located with it if it is not too deeply seated.

Please advise Dr. Bliss.

Very respectfully,

GEO. M. HOPKINS,
Of the Scientific American.

NOTE 4.—*Letter from Mr. Geo. M. Hopkins to Private Secretary Brown accompanying the Hughes' Induction Balance apparatus he forwarded to the Executive Mansion for trial.*

60 IRVING PLACE, *July* 13*th*, 1881.

Mr. J. STANLEY BROWN:

DEAR SIR: I give below a few suggestions in regard to the use of the Induction Balance sent herewith.

Very respectfully,

GEO. M. HOPKINS.

Suggestions: Connect A to A, B to B, &c., as marked on the wires. Strength of current used, 15 or 20 volts.

A strong current extends the influence. Use the clock interrupter, and place a drop of mercury in the vulcanite cup to make connection.