

(No Model.)

R. S. GRAHAM & W. B. SAVELL.
KEY FOR TYPE WRITING MACHINES.

No. 563,163.

Patented June 30, 1896.

Fig. 1,

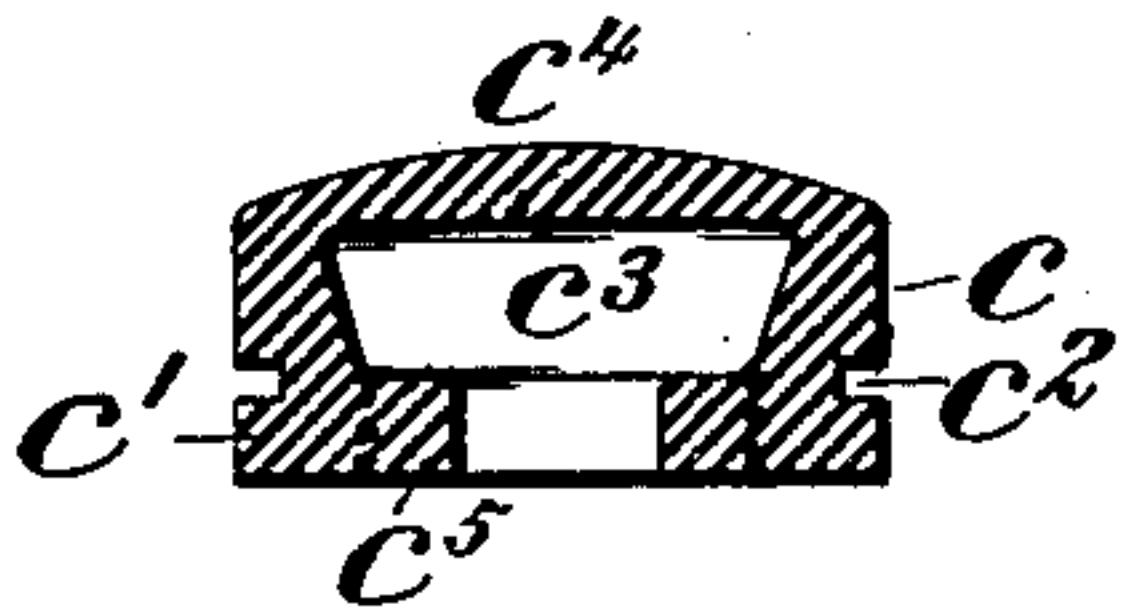


Fig. 2,



Fig. 3,

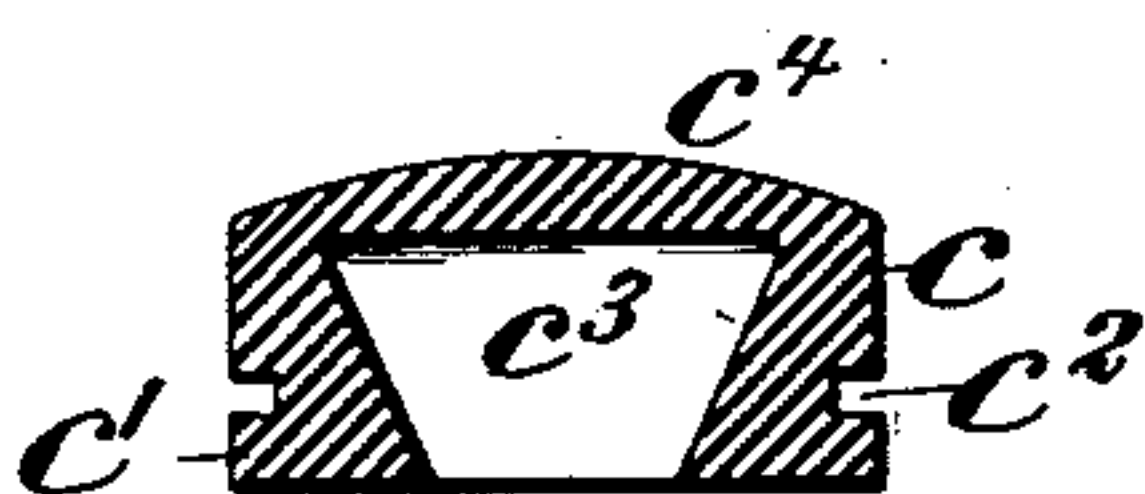


Fig. 7,

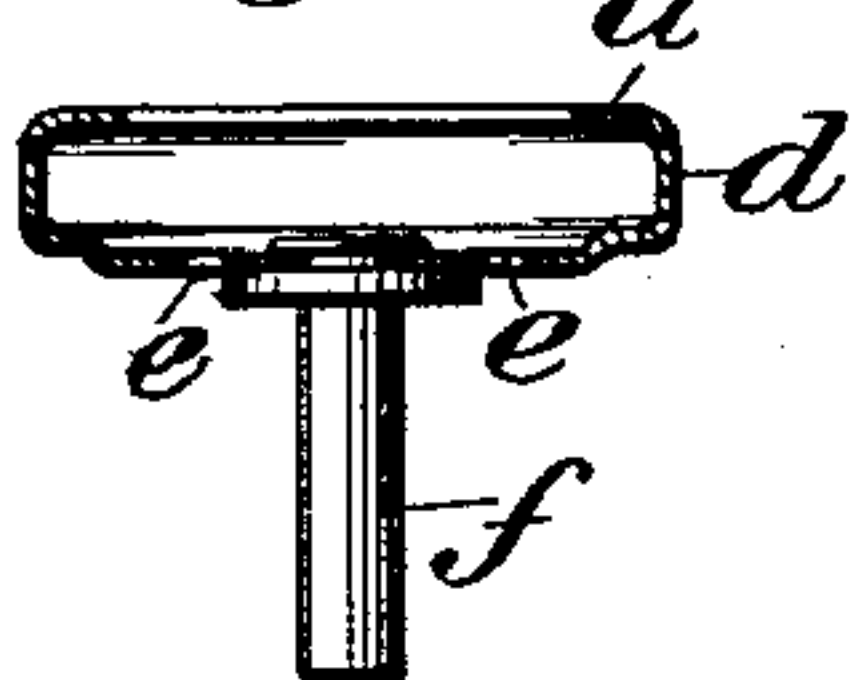


Fig. 4,

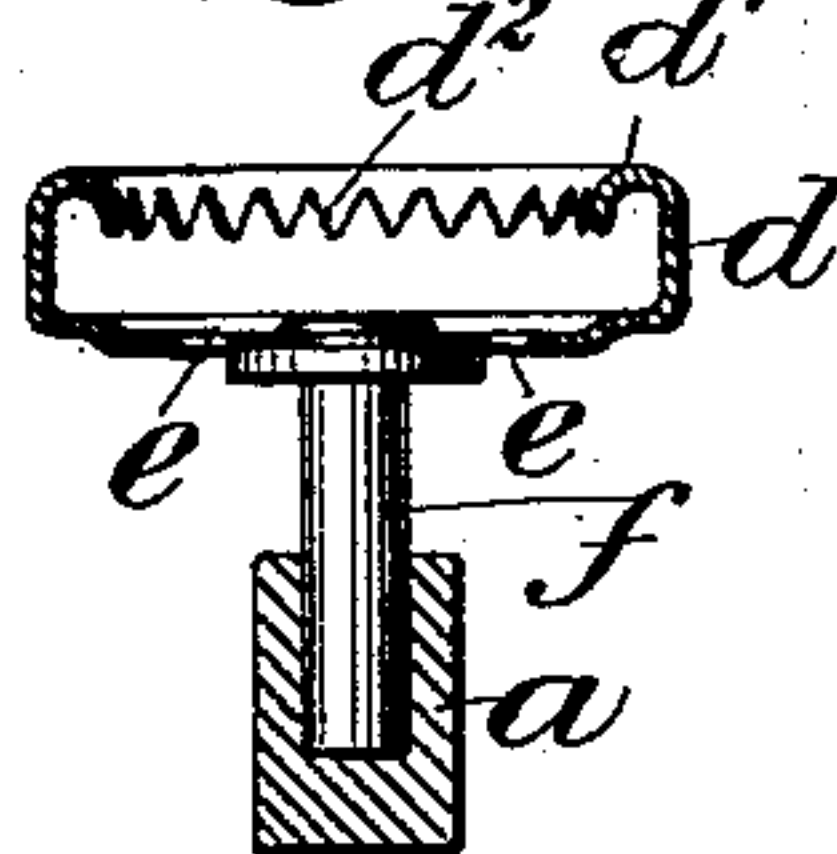


Fig. 5,

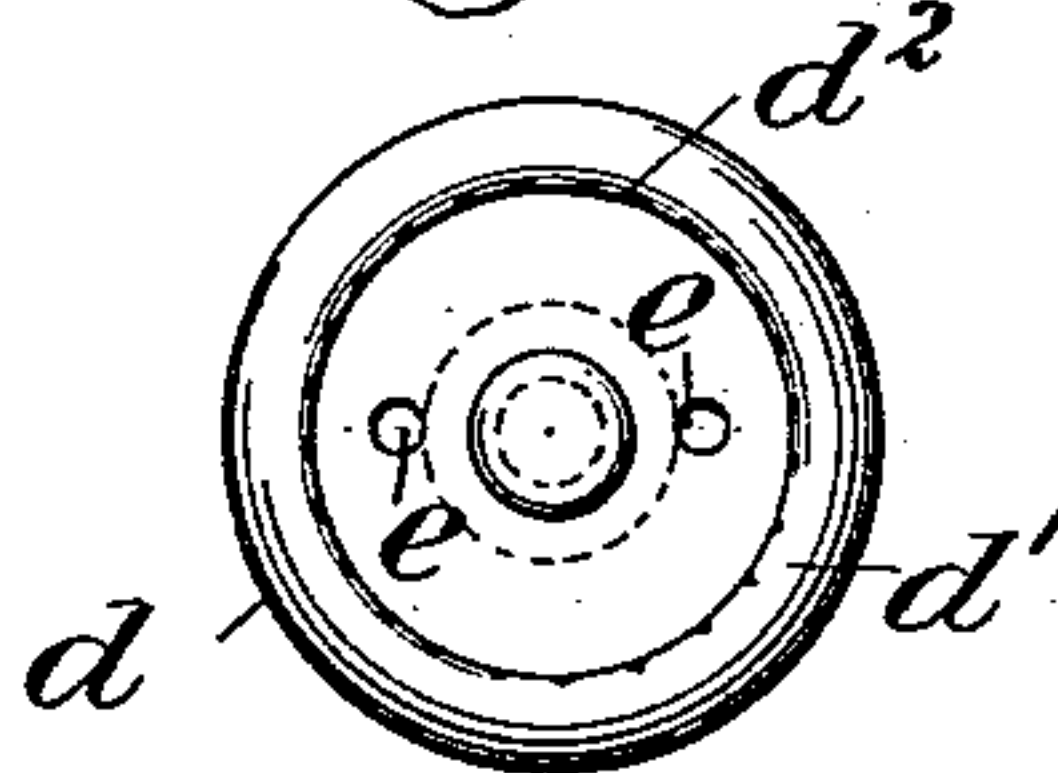


Fig. 6,

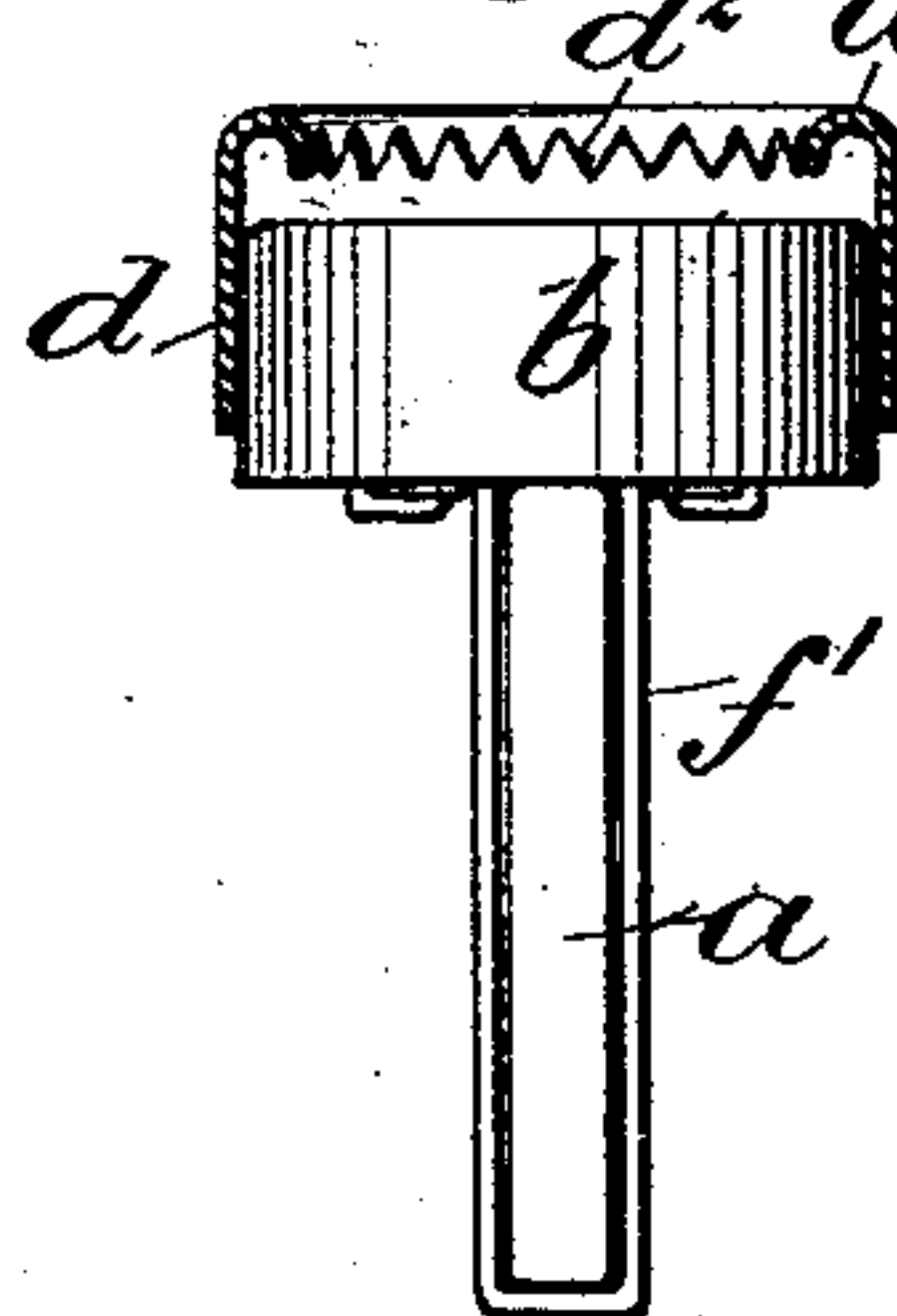
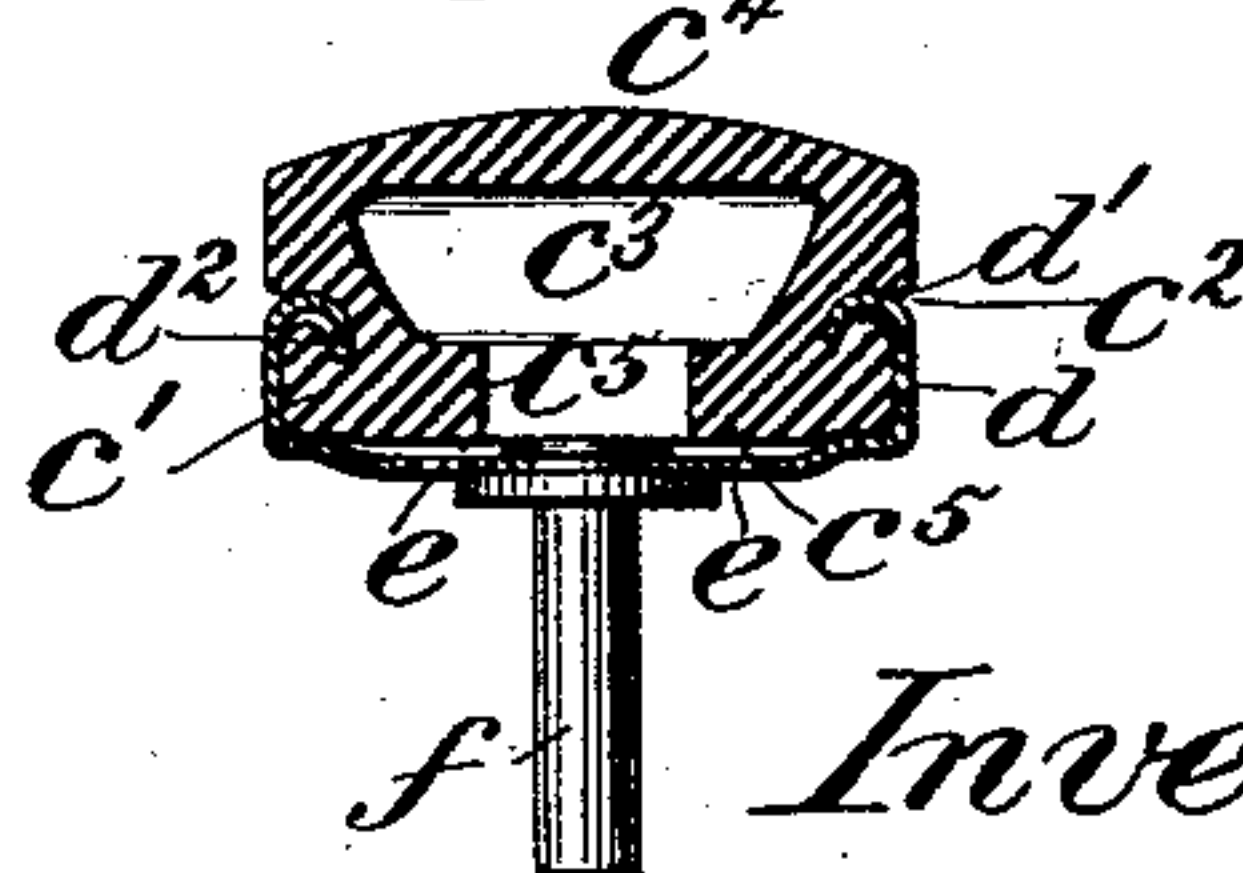


Fig. 8,



Witnesses:-

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UNITED STATES PATENT OFFICE.

ROBERT SYLVESTER GRAHAM AND WILLIAM BENJAMIN SAVELL, OF
NEWARK, NEW JERSEY, ASSIGNORS TO THE TYPE-WRITER CUSHION-
KEY COMPANY, OF SAME PLACE.

KEY FOR TYPE-WRITING MACHINES.

SPECIFICATION forming part of Letters Patent No. 563,163, dated June 30, 1896.

Application filed July 28, 1894. Serial No. 518,832. (No model.)

To all whom it may concern:

Be it known that we, ROBERT SYLVESTER GRAHAM and WILLIAM BENJAMIN SAVELL, citizens of the United States, and residents of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Keys for Type-Writing and other Key Machines, of which the following is a specification.

10 This invention consists in a key-cushion containing an internal air-space beneath the surface receiving the touch of the finger and provided with an exterior projection adapted to interlock with an inward projection from
15 an exterior member; also in combining the above with a member interlocking with the exterior projection and serving to secure the cushion to the key-bar either directly or through the key-head; also in other features
20 hereinafter described.

In the accompanying drawings, Figure 1 shows in vertical section the cushion with the internal air-space in the form of an opening extending up from below, which is the form
25 we prefer. Fig. 2 shows in vertical section the cushion with the air-space in the form of cells such as when composed of sponge-rubber or cellular soft rubber. Fig. 3 shows in vertical section still another form of the cushion.
30 Fig. 4 shows in vertical section the preferred form of the interlocking projection connected directly with a key-bar. Fig. 5 is a plan view of the same. Fig. 6 shows the same in vertical section connected with a key-head. Fig. 7 shows another form of interlocking projection. Fig. 8 shows in vertical
35 section the preferred form of cushion and interlocking member combined.

a is the ordinary key-bar, which may or may
40 not have the ordinary key-head *b*.

c is a soft-rubber cushion supported by the key-bar either through the key-head *b* or not. *d* is a member by which it is held in that position.

45 It will be seen that in all the forms illustrated the member *d* extends upward from below and overlaps the lower portion of the cushion and is provided with an inward projection *d'*, but that in certain other respects
50 the form of the member *d* is varied. Thus in

Fig. 7 the inward projection *d'* is flat, whereas in the preferred form of Figs. 4, 6, and 8 the inward projection *d'* is extended into the downwardly-turned portion *d''*, which is serrated at its edge. This gives it a secure hold
55 on the cushion and prevents the cushion turning round.

In all the forms illustrated the cushion consists of soft rubber with a smooth homogeneous surface and contains an internal air-space
60 (either in the form of a single hollow or of cells) beneath substantially the middle of the touch-surface, and an exterior projection *c'* to interlock with the inward projection *d'*; but in certain respects the form varies. 65

The preferred form (shown in Figs. 1, 3, and 8) may be more particularly described as follows: The body *c* is cylindrical with a convex upper surface. At its lower end it is provided with an outwardly-extending flange or
70 projection *c'* beneath the crease or recess *c''*. It contains the hollow *c'''*, extending from the bottom opening upward. This hollow increases in diameter from the bottom opening upward, so that the side walls of the cushion
75 are thicker at bottom than at top, as shown in Fig. 3. This produces the maximum diameter of unsupported part *c''* to receive the touch of the finger while at the same time affording sufficient thickness of the side walls
80 of the opening *c'''* at the point where they connect with the member *d* to make such side walls sufficiently rigid to oppose any tendency to collapse. In this way we secure maximum elasticity or softness of the part *c''* combined
85 with sufficient rigidity of connection with the member *d*. Obviously the precise form of taper of the side walls of the opening *c* shown is not essential, since the reinforcement of the lower portion of such side walls might be
90 accomplished, without material variation, by the bead *c''* of Fig. 1, which may be formed of the same material and integral with the remainder of the cushion *c*, as shown in full lines in Fig. 1, or may be made of a separate
95 piece of suitable material, as indicated by dotted lines in Fig. 1.

Openings *e* are preferably provided for connecting the air-space *c'''* with the open air.

If there be an ordinary key-head on the key- 100

bar, the connection between the cushion and the key-bar may be made by constructing the lower part of the member *d* in the form of a collar just fitting around the key-head, as shown in Fig. 6.

In Fig. 4 the part *f* is a pin adapted to connect the other parts shown to the key-bar of a calligraph type-writer, and in Fig. 6 the part *f'* is a loop to perform the same function with a Remington type-writing machine.

We claim—

1. As an article of manufacture a key-cushion, containing an internal air-space beneath substantially the middle of the surface receiving the touch of the finger, and provided with an exterior projection adapted to interlock with an inward projection, substantially as described.

2. A key-cushion, containing an internal air-space beneath substantially the middle of the surface receiving the touch of the finger and containing an exterior projection in combination with an external member provided with an internal projection substantially as described.

3. In combination, a key-cushion of yielding material and a key-cushion holder, containing an upright member provided with a flange which is turned horizontally and downward whereby it engages and embeds itself in the yielding material of the cushion and holds the latter from escape, substantially as described.

4. In combination a key-cushion of soft rubber and a key-cushion holder containing an upright member provided with a horizontally and downwardly turned serrated flange, adapted to embed itself in the soft rubber whereby the cushion is held from escape and from turning, substantially as described.

5. As an article of manufacture a key-cushion having a hollow body provided with

an external projection, the side walls of the same being reinforced opposite to said projection, substantially as described.

6. A key-cushion containing an internal air-space and external projection, in combination with a member having an inward projection and a key-bar supporting the same, substantially as described.

7. In combination, a key, a cushion on top of the same, having an internal air-space beneath substantially the middle of the surface receiving the touch of the finger, and an external band overlapping exteriorly both the key and the cushion, substantially as described.

8. In combination, a cushion provided exteriorly with a projection and a band provided interiorly with a projection adapted to interlock with the exterior projection of the cushion, the body of said band projecting below the cushion so as to be adapted to fit onto a key, substantially as described.

9. A key-cushion having a hollow body, the lower portion of whose side walls is reinforced.

10. A key-cushion having a hollow body whose inner side walls are inclined whereby a reinforced lower portion is produced.

11. A soft-rubber cushion-cap provided in its under side with a socket to accommodate therein a type-writer or a similar key, and with a solid top portion adapted to rest directly on top of the key and having centrally therein an air-cushion recess or pocket leading off from said socket.

Signed at Newark, in the county of Essex and State of New Jersey, this 23d day of July, A. D. 1894.

ROBERT SYLVESTER GRAHAM.
WILLIAM BENJAMIN SAVELL.

Witnesses:

JOHN M. BURNETT,
JAMES T. LAW.