(Model.)

2 Sheets—Sheet 1.

D. McC. SMYTH.

BOOK SEWING MACHINE.

No. 250,988. Patented Dec. 13, 1881.

Fig 2.

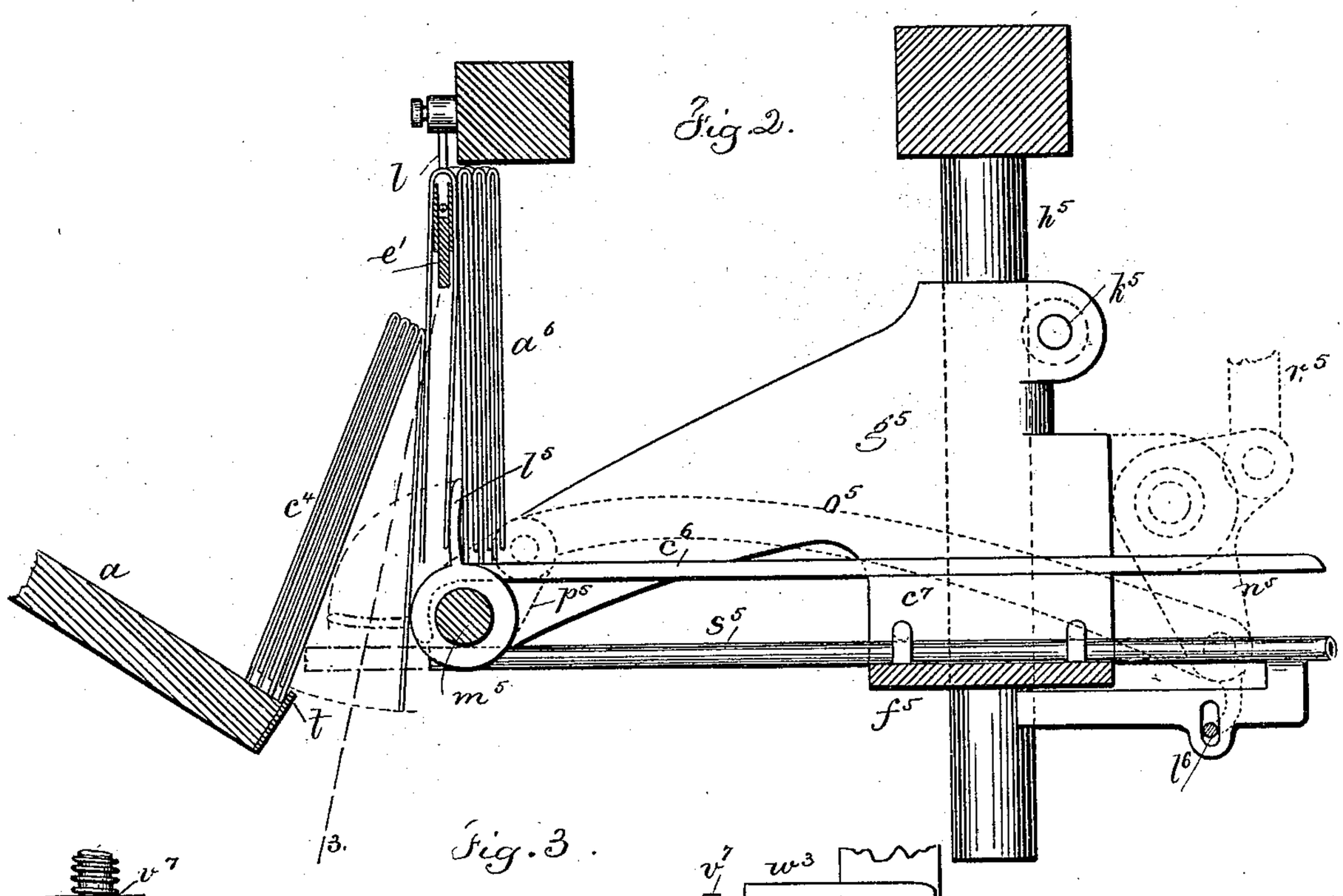


Fig. 3.

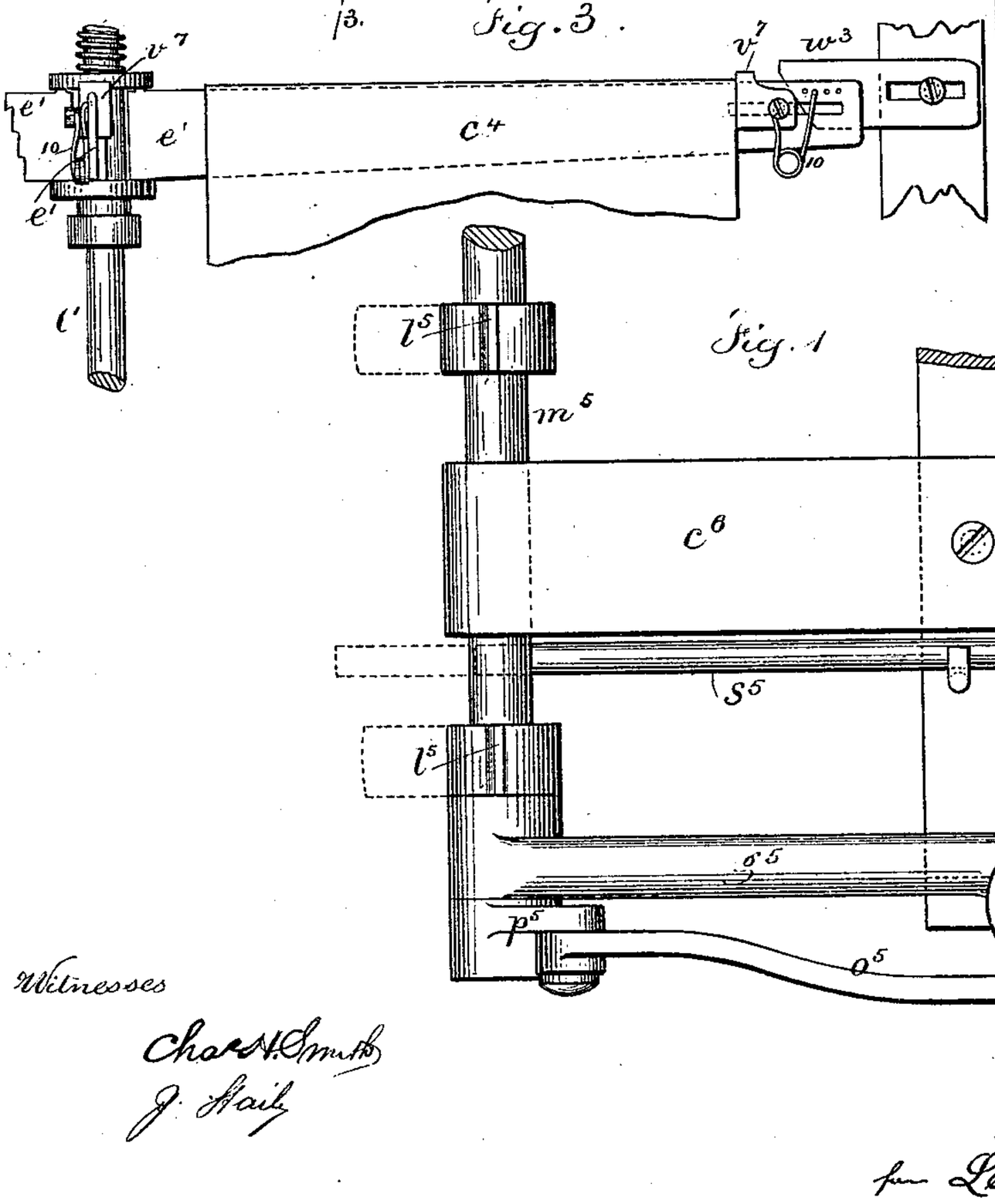


Fig. 1

Witnesses

Chas. H. Smith

J. Daily

Inventor

David McC. Smyth

per Lemuel W. Serrell atty

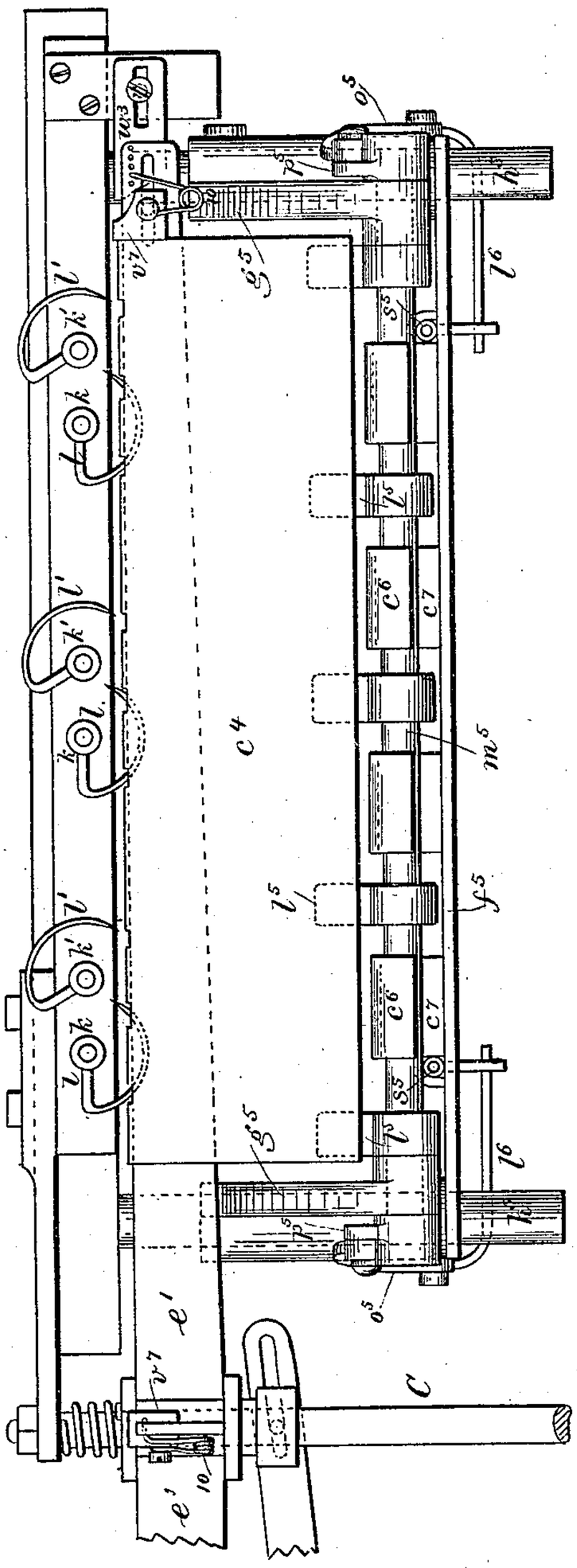
(Model.) 2 Sheets—Sheet 2.

D. McC. SMYTH.

BOOK SEWING MACHINE.

No. 250,988. Patented Dec. 13, 1881.

Fig. 4.



Witnesses
Chas. H. Smith
Harold Serrell

Inventor
D. McC. Smyth.
per Lemuel W. Serrell
atty

UNITED STATES PATENT OFFICE.

DAVID McCONNEL SMYTH, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE SMYTH MANUFACTURING COMPANY, OF SAME PLACE.

BOOK-SEWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 250,988, dated December 13, 1881.

Application filed May 16, 1881. (Model.)

To all whom it may concern:

Be it known that I, DAVID MCCONNEL SMYTH, of Hartford, in the State of Connecticut, have invented an Improvement in Book-Sewing Machines, of which the following is a specification.

This invention relates to a manner of feeding sheets to a sewing-machine, to be sewed into books. In my Patent No. 220,312 a mechanism is shown for sewing the sheets, and this mode of feeding may be used therewith. It is therefore only necessary herein to describe the means for feeding the sheets.

In the drawings, Figure 1 is a plan of one end of the feeding-table. Fig. 2 is a vertical sectional view of the same. Fig. 3 shows the paper-guide or the sheet-holder; and Fig. 4 is an elevation representing the sewing-needles corresponding to those in my said Patent No. 220,312, together with the bar for holding the sheet and the devices of my present improvement, except the inclined feeding-table, which is removed.

The folded sheets $c^4 c^4$ are placed upon an inclined feeding-table, a, and slide down the same. The sheets a^6 that are sewed into books rest at their lower edges upon a table formed of the bars c^6, that are more or less numerous, according to the size of the machine. They are usually about an inch apart, and the machine is generally of a size for receiving large books and the parts are adjusted to receive smaller books. With this object in view the bars c^6 are attached by blocks c^7 to a cross-bar, f^5, and at its two ends there are frame-pieces g^5, that are adapted to slide vertically on the stationary pendent columns h^5, and on these the table of bars c^6 and the frames g^5 and parts carried by them can be raised or lowered and clamped by the screws k^5, so as to bring the upper edges of the sewed books in line with the bar e', that carries the sheet to be sewed up to place, where the sewing is performed by semicircular needles $l\ l'$, as in my aforesaid patent. The arm or sheet-carrying bar e' may be moved in the manner described in my aforesaid patent, or it may simply be moved up and down at the proper time in the direction indicated by the dotted line 3. The sheets as they slide down the inclined feed-table a will rest at their upper portion, forming the fold of the back against the sheet that is being sewed, and the lip t at the lower edge of the table will prevent the sheets slipping off, but each sheet is so folded that one of its edges will be arrested by the said lip t and the other edge will swing out over and beyond it, so that the lowest sheet in the pile will be partially spread and in the line of the movement of the sheet-holding bar e', so that such bar, as it rises, will pass into the lowest folded sheet and lift it up to the place where it is sewed.

To prevent the possibility of the sheet that has been sewed spreading at its bottom edges and pressing the next sheet on the table out of its place, I make use of the fingers l^5 that are upon the shaft m^5 at the front edge of the table c^6. This shaft is rocked by the action of the bent lever n^5, connecting-rod o^5, and crank p^5, there being a link, r^5, to any proper prime mover that gives motion to the parts at the right time. As soon as one sheet has been sewed the sheet-holder descends, the shaft m^5 is rocked, turning its fingers l^5 out from beneath the last-sewed sheet. Then the fingers are turned back again, and, acting below and in front of the sewed sheet, they press its lower edge back upon the table of bars c^6, and the sheet-holder rises and takes the next sheet up to place to be sewed.

In order to insure the proper position of the sheet endwise, I place upon the sheet-holding arm e' a spring-pusher, v^7, that is moved endwise by coming into contact with the stationary incline w^3 as the sheet-holding arm rises with its sheet to the sewing-needles. This incline w^3 is adjustable endwise, so that it can be adapted to move the pusher the proper distance to place the sheet correctly for the needles. The spring 10 draws the pusher back as the sheet-holding arm descends before rising to take another sheet, and it is to be understood that the sheet-holding table is to be placed with reference to the sheet-holding arm and pusher, so that the edge of the sheet will be in contact, or nearly so, with the pusher as the arm rises up within the fold of the sheet.

Under ordinary circumstances the devices before described are all that will be required to properly feed the sheet and present it to the sewing-machine; but in order to increase the certainty of the operation, I provide an atmos-

pheric separator, in the form of a tube, s^5, from which atmosphere is constantly drawn. This is moved back and forth at the same time that the fingers l^5 are turned, there being a connection, l^6, from the tube s^5 to the bent lever n^5, so that the movement of the bent lever carries the tube up into contact with the folded sheet, and by a suction action the fold of the sheet is separated and drawn over the finger t into position to be taken by the sheet-holder.

I claim as my invention—

1. In a book-sewing machine, the combination, with the sewing mechanism, of an inclined feeding-table, a moving sheet-holder, and mechanism for raising the same and the sheet to the sewing mechanism, substantially as set forth.

2. The combination, with the book-sewing mechanism, of the inclined feeding-table, the sheet holder and pusher v^7, and the stationary incline w^3 and mechanism for moving the sheet-holder, substantially as set forth.

3. The combination, with the inclined feeding-table and sewing mechanism, of the sheet-holder, means for moving the same, rock-shaft m^5, fingers l^5, and means for moving the same, substantially as set forth.

4. The combination, in a book-sewing machine, of a feeding-table, a moving sheet-holder, sewing mechanism, and an atmospheric sheet-separator, substantially as set forth.

Signed by me this 7th day of April, A. D. 1881.

DAVID McCONNEL SMYTH.

Witnesses:
GEO. T. PINCKNEY,
CHAS. H. SMITH.