

(No Model.)

2 Sheets—Sheet 1.

J. S. HILLIARD.  
CASH REGISTER AND INDICATOR.

No. 506,233.

Patented Oct. 10, 1893.

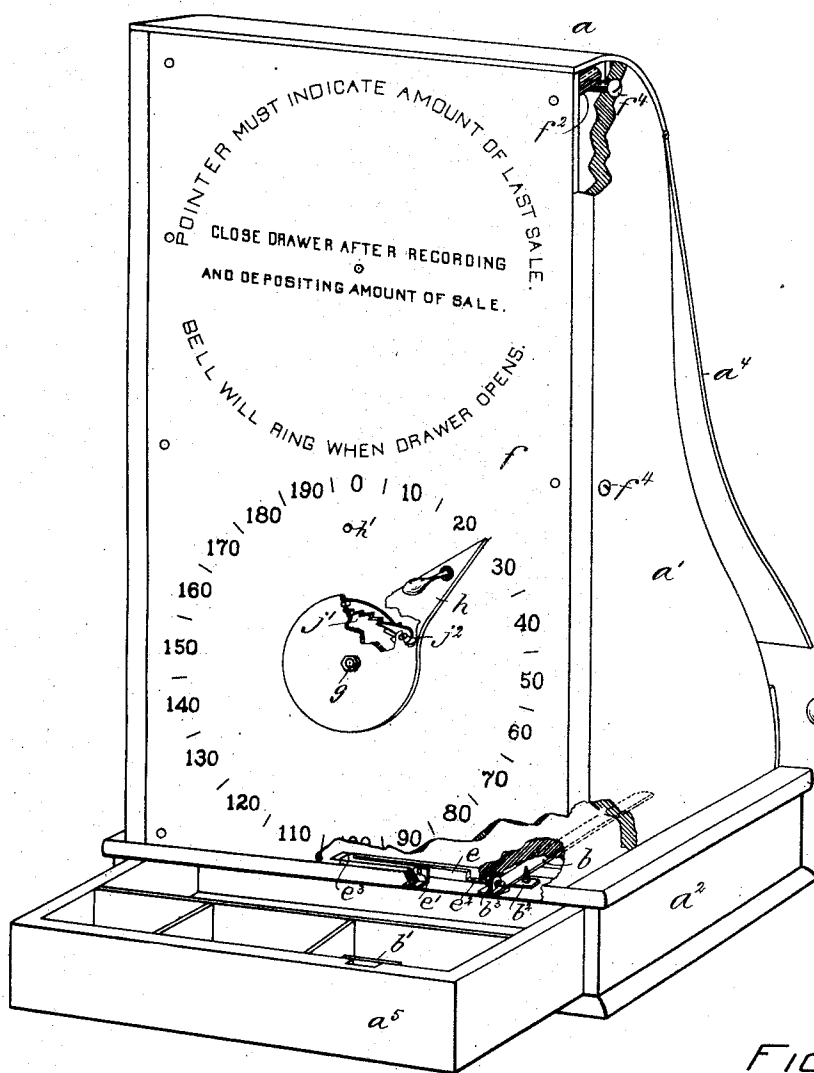


FIG. 1.

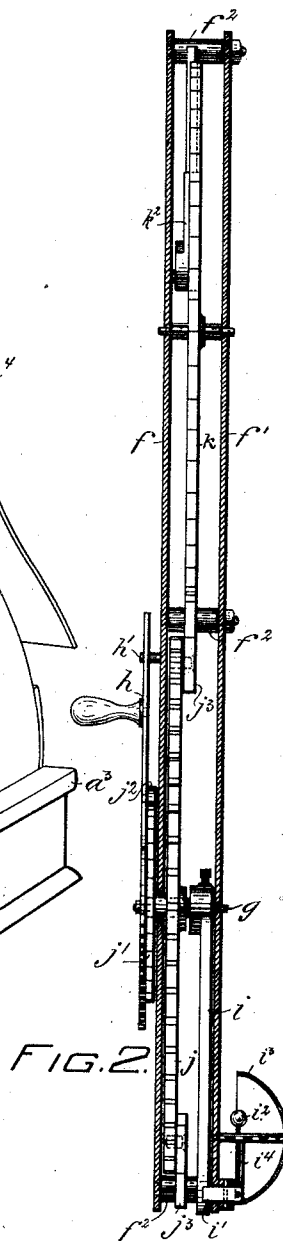


FIG. 2.

WITNESSES:  
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Thomas M. Smith.

INVENTOR:  
John S. Hilliard,  
BY J. Walter Douglass.  
ATTY.

(No Model.)

2 Sheets—Sheet 2.

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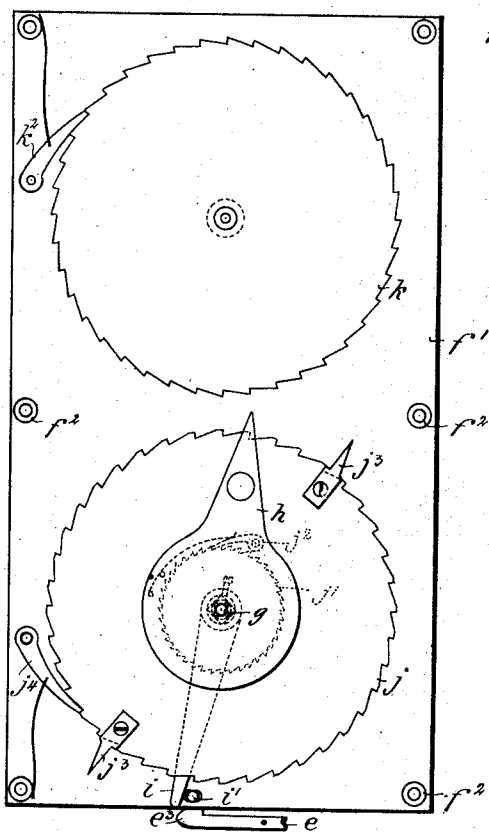


FIG. 3

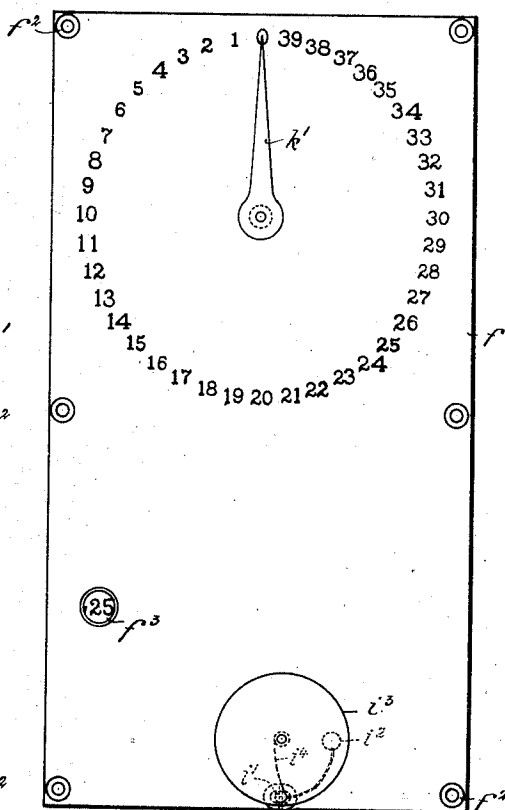


FIG. 4

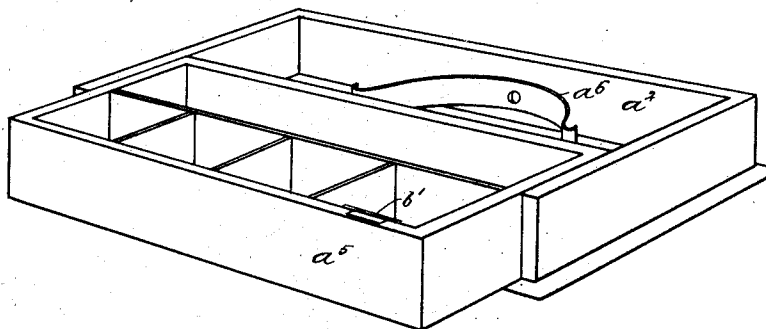


FIG. 5

WITNESSES:

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# UNITED STATES PATENT OFFICE.

JOHN S. HILLIARD, OF PHILADELPHIA, PENNSYLVANIA.

## CASH REGISTER AND INDICATOR.

SPECIFICATION forming part of Letters Patent No. 506,233, dated October 10, 1893.

Application filed October 29, 1892. Serial No. 450,327. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN S. HILLIARD, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Cash-Registers, of which the following is a specification.

The principal objects of my invention are first, to provide a comparatively simple, durable and accurate or reliable cash registering appliance; and second, to provide a cash registering appliance having the component or operative parts thereof greatly simplified and the cost of production thereby appreciably reduced without sacrificing or affecting the reliability and accurate registering and efficient working thereof.

My invention consists of a cash registering appliance having a registering wheel or wheels actuated through the instrumentality of pawl-and-ratchet connections by a hand-crank controlling an arm or projection caused to engage a locking device susceptible of release to permit of access being had to the cash drawer of the appliance; and my invention further consists of the improvements in a cash registering appliance substantially as hereinafter described and claimed.

The nature and general features of my invention will be more fully understood from the following description taken in connection with the accompanying drawings forming part hereof; and in which—

Figure 1, is a perspective view of the front of a cash registering appliance embodying features of my invention and having portions broken away to expose to view certain of the internal parts thereof. Fig. 2, is a transverse central section of the registering mechanism, showing two plates separated by distance pieces. Fig. 3, is an elevational view of the registering mechanism having the front plate removed. Fig. 4, is an elevational view of the rear plate of the registering mechanism; and Fig. 5, is a perspective view illustrating the cash drawer and its ejecting spring.

In the drawings  $a$ , is the exterior housing provided with upper and lower compartments  $a'$  and  $a''$ , separated by a partition  $a^3$ . The upper compartment  $a'$ , is provided with a hinged lid or cover  $a^4$ , having a lock, not

shown; for securing it in closed position. The lower compartment  $a''$ , is adapted for the reception of a money drawer  $a^5$ , and is provided with an ejecting spring  $a^6$ , tending to open the drawer.

$b$ , is a spring-catch secured to the under side of the partition  $a^3$ , and tending to engage a lip  $b'$ , on the drawer  $a^5$ .

$b^2$ , is a back-stop for limiting the range of downward motion of the spring-catch  $b$ .

$e$ , is a lever centrally pivoted to a suitable bearing  $e'$ , secured to the partition  $a^3$ . One extremity of this lever  $e$ , is provided with a pin  $e^2$ , that engages a yoke  $b^3$ , on the spring catch  $b$ , and the other extremity thereof is provided with a lip  $e^3$ , for a purpose to be presently described.

In a suitable opening in the front of the upper compartment  $a'$ , are secured front and back plates  $f$  and  $f'$ . These plates are separated by distance-pieces  $f^2$ , some of which are tapped for the reception of the screws  $f^4$ , whereby the plates are secured to place in the front wall of the housing.

$g$ , is a revoluble shaft ranging transversely of the plates  $f$  and  $f'$ , and having one of its extremities journaled to the back-plate  $f'$ , and the other of its extremities supported in a manner to be presently described.

$h$ , is a hand-crank accessible from the exterior of the appliance and keyed or otherwise rigidly connected with the shaft  $g$ .

$i$ , is an arm located between the plates  $f$  and  $f'$ , and keyed to the shaft  $g$ . This arm  $i$ , projects into range of the lip  $e^3$ , of the lever-arm  $e$ , and is disposed in line with the hand-crank  $h$ , so that when this crank is in contact with its back-stop  $h'$ , the arm  $i$ , depresses the lip  $e^3$ , thus lifting the spring catch  $b$ , and consequently permitting the spring  $a^6$ , to open the money-drawer. Before the arm  $i$ , unlocks the money-drawer  $a^5$ , it contacts with one extremity of a centrally pivoted lever  $i'$ , and thus causes the clapper or hammer  $i^2$ , connected with the other portion of the lever-arm  $i'$ , to strike and sound the bell  $i^3$ , suitably connected with the plate  $f'$ . Upon the reverse movement of the hand-crank  $h$ , the arm  $i$ , is shifted out of range of the lever  $i'$ , so that the clapper or hammer  $i^2$ , moves under the influence of a spring  $i^4$ , away from the gong or bell  $i^3$ , without sounding it.

$j$ , is a registering wheel loosely mounted upon the revoluble shaft  $g$ , and provided with a hub journaled in the front plate  $f$ , and adapted to constitute a seat for the front portion of said shaft.

$j'$ , is a ratchet-wheel keyed or otherwise secured to the hub of the registering wheel  $j$ , and located between the plate  $f$  and the hand-crank  $h$ .

$j^2$ , is a spring actuated pawl carried by the hand-crank  $h$ , and adapted to permit of the rotation of the registering wheel  $j$ , through the instrumentality of the ratchet-wheel  $j'$  only when the hand-crank  $h$ , is shifted in the direction indicated by the arrow in Fig. 1.

The rear face of the registering wheel  $j$ , is provided with numerals that are visible singly from the upper compartment  $a'$ , through a window  $f^3$ , in the plate  $f'$ , for a purpose to be presently described. The registering wheel  $j$ , is provided with teeth corresponding in number and position with the numerals thereon and adapted to co-operate with a spring actuated detent  $j^4$ , in order to prevent retrograde or accidental movement of the registering wheel.

$k$ , is a second registering wheel journaled between the plates  $f$  and  $f'$ , and provided with a spring actuated detent  $k^2$ .

$k'$ , is an index-arm or trailer connected with the registering-wheel  $k$ , and adapted to co-operate with numerals disposed upon the rear face of the plate  $f$ , and visible from the interior of the upper compartment  $a'$ , for purposes to be presently described.

$j^3$ , are radially disposed pins projecting from the inner face of the registering wheel  $j$ , and respectively adapted to mesh with the teeth of the wheel  $k$ , it being understood that for this purpose the wheels  $j$  and  $k$ , are located in different planes. In the present instance the dial upon the face of the plate  $f$ , is provided with the numerals from 0 to 190 and with intermediate division lines. The registering wheel  $j$ , has forty teeth and is provided upon its rear face with two series of numerals ranging from 0 to 95, and the radial pins  $j^3$  are placed at the numerals 95. The registering wheel  $k$ , is provided with forty teeth and the dial upon the rear face of the plate  $f'$ , is provided with the successive numerals from 0 to 39. As so constructed this cash register is capable of registering sales aggregating from five cents to forty dollars and ninety-five cents. However, the instrument may be adapted to register sales ranging between different limits by changing the numerals, and the number of teeth in the registering wheels, as will be readily understood by those skilled in the art to which my invention appertains. It may be remarked that additional registering wheels driven the one by the other in substantially the same manner that the wheel  $j$ , drives the wheel  $k$ , may be employed in order to register large amounts, for instance hundreds of dollars.

Consequently my invention is not limited

to the employment and disposition of the numerals above mentioned or to the utilization of any particular number of registering wheels. However, for the sake of a further understanding of my invention, a description will now be given of the mode of operation of a cash register such as illustrated in the accompanying drawings and of the character hereinbefore described.

To set the machine for use the registering wheel  $j$  is turned manually into such position that the numeral 0 is visible at the window  $f^3$ , from the interior of the upper compartment  $a'$ . This result may be readily accomplished by means of the hand-crank  $h$ . Similarly the registering-wheel  $k$ , is brought to the zero position. This result may be readily accomplished by opening the lid or cover and turning the trailer or index arm  $k'$ , manually into alignment with the numeral 1, upon the rear face of the plate  $f'$ . A certain sum of money, for example, fifty cents in change is then placed in the money drawer  $a^5$ , and the amount thereof is registered by turning the hand-crank  $h$ , opposite the numeral 50 upon the complementary dial. During this movement of the hand-crank  $h$ , the registering wheels  $j$  and  $k$ , remain at rest and the pawl  $j^2$ , rides over the teeth of the ratchet-wheel  $j'$ , without engaging them.

When a sale has been effected, and it becomes necessary to register the amount thereof and to deposit the proceeds therefrom in the money drawer, the hand-crank  $h$ , is turned from opposite the numeral 50 to the zero position. This movement of the hand-crank  $h$ , causes the pawl  $j^2$ , to engage the ratchet-wheel  $j'$ , and to rotate the latter in the direction indicated in the drawings by the arrow, thus causing the numeral 50 to appear at the window  $f^3$ . This movement of the hand-crank  $h$ , also causes the arm  $i$ , to operate the lever  $i$ , and sound the gong or bell  $i^3$ , and to simultaneously release the spring-catch  $b$ , and thus permit the spring  $a^6$ , to open the money-drawer. After any change that may be required has been taken from the money-drawer, the latter is closed, and the hand-crank  $h$ , is turned opposite the numeral that indicates the amount of the sale, for example, opposite the numeral 180, in which case the amount of the sale is one dollar and eighty cents. During this movement of the hand-crank  $h$ , the catch  $b$ , is released and locks the money-drawer; the bell or gong  $i^3$ , is not sounded for reasons hereinabove explained, and the pawl  $j^2$ , rides over the teeth of the ratchet-wheel without engaging them. When the hand-crank  $h$ , is again returned to the zero position in order to open the money drawer for the reception of the proceeds of the next sale, the pawl  $j^2$ , engages the ratchet-wheel and thus causes the registering wheel  $j$ , to be turned in such manner that both of the pins  $j^3$ , successively engage the teeth on the registering wheel  $k$ , and thus rotate the latter, until the trailer or in-

dex-arm  $k'$ , points toward the numeral 2, on its dial, and in such manner that the numeral 30, appears at the window  $f^3$ . By reference to the trailer or index arm  $k'$ , and to the window  $f^3$ , it appears that the total amount of money deposited in the money drawer amounts to two dollars and eighty cents.

The total amount of money deposited in the money-drawer  $a^5$ , in the course of a day may be ascertained by simply unlocking the lid or cover  $a^4$ , and inspecting the numeral indicated by the index-arm or trailer  $k'$ , which indicates the number of dollars, and also the numeral visible at the window  $f^3$ , which indicates the number of cents in tens and multiples thereof.

From the foregoing description it will appear that the hand-crank  $k$ , must at all times indicate the amount of the last sale and that it will be brought into contact with its back-stop  $h'$  before the money-drawer can be opened and another sale registered; and also that the bell or gong  $i^3$ , is automatically sounded before the money-drawer  $a^5$ , is opened. These features of the appliance are important as can well be understood.

It will be obvious to those skilled in the art to which my invention appertains that modifications may be made in details without departing from the spirit thereof.

Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a cash register, of a housing provided with a compartment for the accommodation of a money-drawer and its complemental spring catch, a lever having one extremity connected with said catch, a second compartment having a lid or cover, a revoluble shaft provided with an arm in range of the free extremity of said lever, a hand-crank adapted to co-operate with a dial, a registering-wheel mounted on said shaft and provided with radial teeth or pins, pawl-and-ratchet connections interposed between said hand crank and said registering-wheel, a second registering-wheel actuated by the radial teeth or pins of said wheels and provided with an indicating trailer, and detents for said registering wheels, substantially as and for the purposes set forth.

2. The combination, in a cash-register, of a revoluble shaft, a registering-wheel mounted on said shaft and provided with projecting pins or radial teeth, a hand-crank secured to said shaft and having pawl and ratchet connections between the hub of said registering-wheel and the shank of said hand-crank, a radial arm projecting from said shaft, a second registering wheel mounted on a separate shaft and both of said registering wheels controlled by spring detents, a money-drawer and its complemental spring catch, an ejecting spring, a recess adapted to receive the spring catch, a movable-lever having one of its extremities connected with said catch and actuated by said radial arm through the in-

tervention of said hand-crank, substantially as and for the purposes set forth.

3. The combination, in a cash-register, of a revoluble shaft, a registering-wheel provided with radial projecting teeth or pins mounted on said shaft, a hand-crank fast to said shaft and having interposed between the hub of the registering-wheel and the shank of the hand-crank a spring controlled pawl and ratchet-wheel, an arm depending from said shaft, a money-drawer having a rear ejecting spring and a recessed lip in the front thereof, a spring catch disposed adjacent to said recessed lip and adapted to be brought into engagement therewith, and a lever having one extremity connected with said catch and controlling the same through the intervention of the arm depending from said shaft and adapted in advance of the release of the money-drawer to strike a mechanism disposed in range of said arm to sound a bell, substantially as set forth.

4. The combination, in a cash-register, of a shaft having a registering-wheel mounted thereon and provided with a depending radial arm, a gong provided with a vibrating clapper and cross-lever, a spring detent and ratchet controlled hand-crank mounted on said shaft and adapted to actuate said radial or projecting arm to cause said clapper to sound said gong, a money-drawer provided with an ejecting spring in rear thereof and with a recessed lip in the front part, a spring catch, and a pivotal lever actuated by the depending radial arm of said shaft to release said catch, substantially as and for the purposes set forth.

5. The combination, in a cash-register, of front and back plates, a revoluble shaft having one extremity extended through the front plate and provided with an arm, a registering-wheel mounted on said shaft and having its hub projecting through the front plate, a ratchet-wheel fast to said hub and a hand-crank keyed to said shaft and adapted to co-operate with a dial and provided with a spring controlled detent, radial teeth projecting from said registering-wheel, a detent normally engaging therewith, a second spring controlled detent registering-wheel adapted to be engaged by the radial teeth of the first registering-wheel, a recessed money drawer provided with an ejecting spring and having a complemental spring-catch, and a pivoted lever having one extremity connected with said catch and at the outer extremity in range of the arm of said shaft, substantially as and for the purposes set forth.

6. The combination, in a cash-register, of a money-drawer and its complemental spring-catch, a centrally pivoted lever having one extremity connected with said catch, a revoluble-shaft provided with an arm in range of the free extremity of said lever and with a hand-crank adapted to co-operate with a dial, substantially as and for the purposes set forth.

7. The combination, in a cash-register pro-

vided with a money-drawer having a rear  
ejecting-spring and a recessed lip in the front  
part thereof, of a spring-catch disposed ad-  
jacent to said recessed lip and adapted to be  
5 brought into engagement therewith, a lever  
pivoted to said catch, a revoluble shaft pro-  
vided with a depending arm in range of the  
free extremity of said lever and a hand-crank  
mounted on said shaft and controlling the  
10 movement of registering-wheels mounted on  
separate shafts and provided with spring con-  
trolled detents, substantially as and for the  
purposes set forth.

8. The combination, in a cash-register, of a  
15 sliding money-drawer provided with a rear  
ejecting spring, a spring-catch provided with  
a centrally pivoted lever having one of its ex-  
tremities connected with said catch, a revol-  
uble shaft provided with a depending radial  
20 arm in range of the free extremity of said le-  
ver, a striking mechanism provided with a  
bell or gong, registering-wheels mounted on  
separate shafts and one of said wheels pro-  
vided with radial pins or teeth adapted to be  
25 brought into engagement with the other of  
said registering wheels, and a spring controlled  
pawl and ratchet hand-crank mounted on one  
of said shafts and actuating said radial or de-  
pending arm for releasing said money-drawer  
30 after effecting the actuation of the striking  
mechanism of said bell or gong by contact of  
the same with a vibrating right angular lever

connected with the clapper thereof, substan-  
tially as and for the purposes set forth.

9. A cash-register comprising a housing pro- 35  
vided with a compartment for the accommo-  
dation of a money-drawer and its locking de-  
vices and with an upper compartment having  
a lid or cover, front and back plates separated  
40 by distance-pieces and secured to place in the  
front wall of the upper compartment by means  
engaging certain of the distance pieces, a rev-  
oluble shaft provided with an arm for actu-  
ating said locking-devices and with a hand- 45  
crank co-operating with a dial and back-stop  
on the front-plate, a registering-wheel rev-  
olubly mounted on said shaft and provided  
with numerals visible at a window in the  
back-plate and with radial teeth, pawl-and- 50  
ratchet connections interposed between the  
hand-crank and registering-wheel, a second  
registering-wheel actuated by said pins or  
teeth and provided with a trailer co-operat-  
ing with a dial on the back-plate, and detents 55  
for the registering-wheels, substantially as  
and for the purposes set forth.

In testimony whereof I have hereunto set  
my signature in the presence of two subscrib-  
ing witnesses.

JOHN S. HILLIARD.

Witnesses:

THOMAS M. SMITH,  
RICHARD C. MAXWELL.