

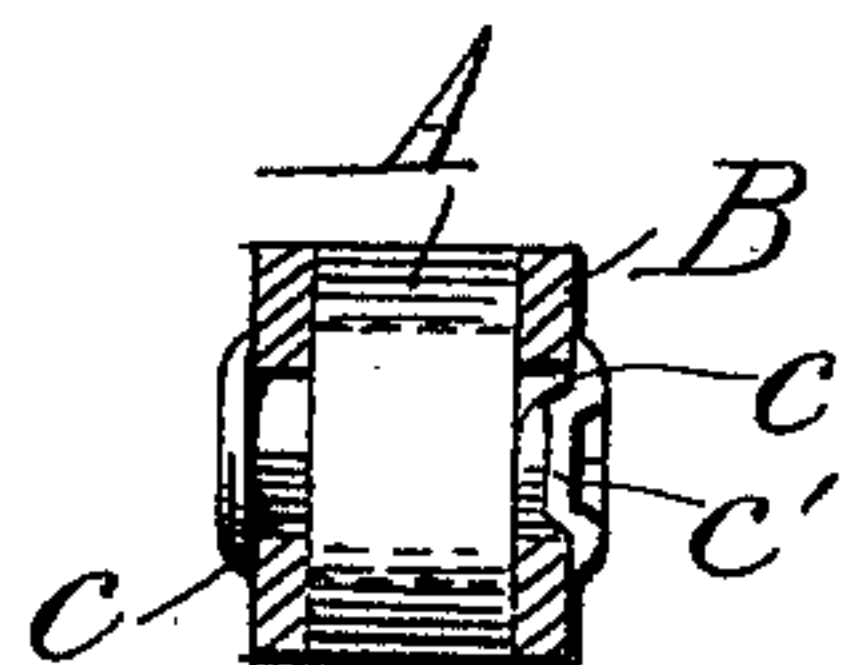
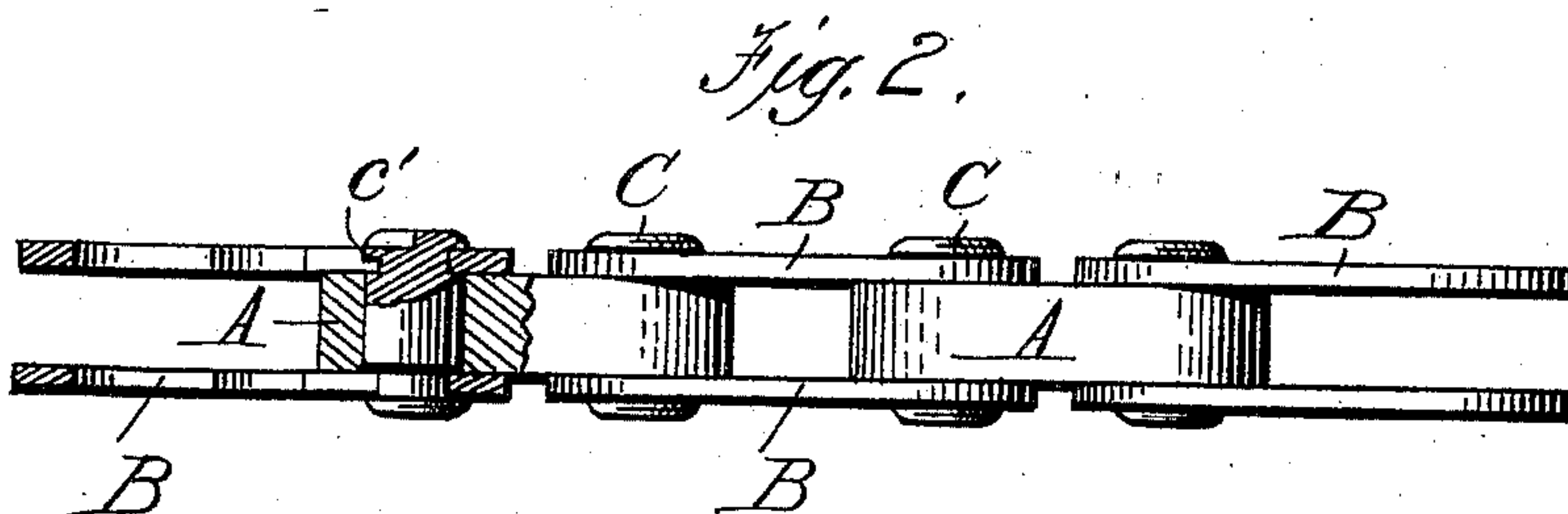
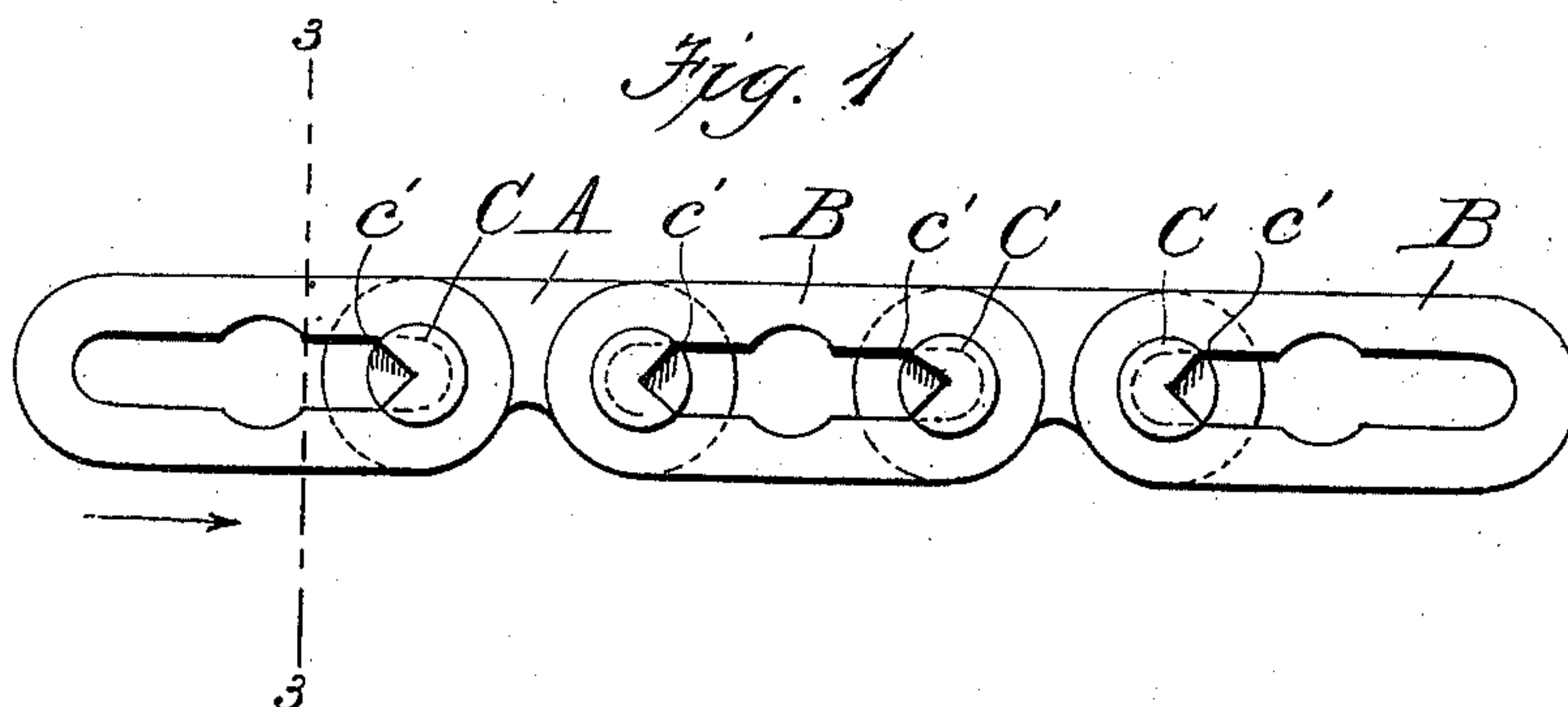
No. 610,751.

Patented Sept. 13, 1898.

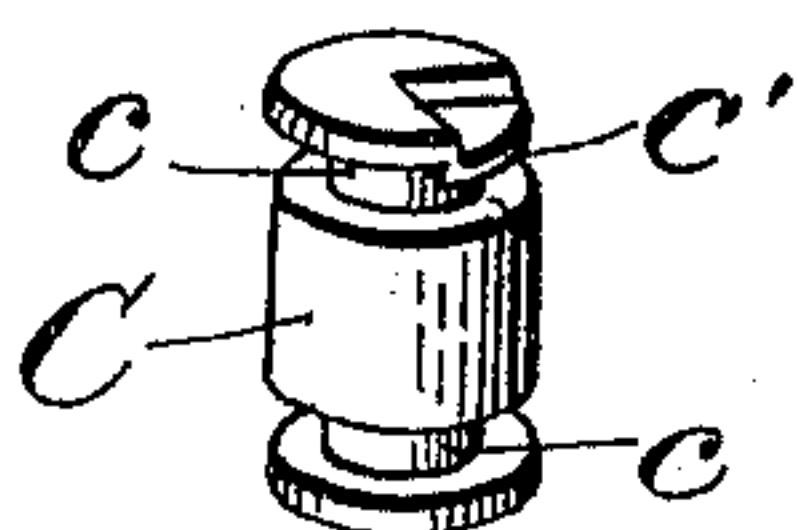
F. W. WOOD.  
DRIVE CHAIN.

(Application filed June 14, 1898.)

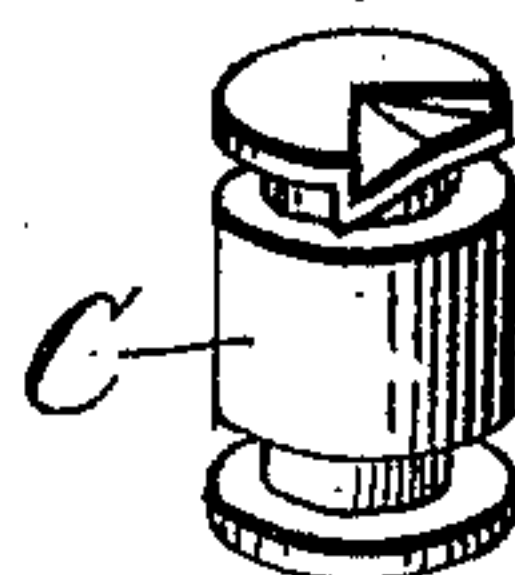
(No Model.)



*Fig. 3*



*Fig. 4*



*Fig. 5.*

Witnesses  
Frank L. Ourand.  
D. E. Bates

Inventor  
Frank W. Wood—  
Per. E. W. Bradford—  
Attorney

# UNITED STATES PATENT OFFICE.

FRANK W. WOOD, OF INDIANAPOLIS, INDIANA.

## DRIVE-CHAIN.

SPECIFICATION forming part of Letters Patent No. 610,751, dated September 13, 1898.

Application filed June 14, 1898. Serial No. 683,408. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK W. WOOD, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Drive-Chains, of which the following is a specification.

My said invention consists in certain detailed improvements in the construction of separable link chains, especially that class of chains commonly known as "bicycle-chains," whereby the connecting-pins are formed to be held with the side links from turning and a perfect chain of the kind produced without adding materially to its cost, as will be hereinafter more fully described and claimed.

Referring to the accompanying drawings, which are made a part hereof and on which similar letters of reference indicate similar parts, Figure 1 is a side elevation of a section of chain embodying my said improvements; Fig. 2, a top or plan view of the same, one end being shown in horizontal section; Fig. 3, a cross-section on dotted line 3 3 in Fig. 1; Fig. 4, a perspective view of one of the rivets separately, and Fig. 5 a similar view of a somewhat-modified form.

In said drawings the portions marked A represent the center or solid links, B the side links, and C the rivets.

The general form of the parts and their arrangement are not essentially different from what is well known, my improvement relating chiefly to the pin and the manner of holding it in place.

The center link A is of common form, and the side links B are in the form of plates with central longitudinal slots, which slots are enlarged at the center to admit the pin-heads, as is well known. The connecting-pins C are of hardened steel, as usual, and formed with circumferential grooves *c* near each end, as shown. The large central portion serves as the bearing or journal on which the center links journal or rock, and the neck portions or grooves engage with the slots in the side links, the diameter of said portions being the same as the width of said slots. In order to secure said pins from turning in said side links, they are put through a machine in which a die operates upon one head of each

to break down a segment-shaped portion *c'*, which at its outer edge will be of substantially the width of the slots in said side links. This portion when the parts are assembled comes between the sides of said slots (see Figs. 2 and 3) and will thus hold said pins rigidly with said side links and to move only with them. Thus the metal of said side links is not worn away at this point, as would be the case if the pin was allowed to turn therein by reason of its narrow bearing and the usual softer character of the metal at this point.

When it is desired to separate the links for any reason, one of the connecting-pins is moved up to the center of the side links, with which it engages, when its grooves become free from the sides of the slots and the pin can be pushed out, its head passing freely through the enlarged portion of the slot and the separation accomplished. The assembling is accomplished in the reverse manner, as will be readily understood, care being taken to adjust the indented or broken-down segment-shaped portions *c'* of the pin-heads toward the center of the side links and so that they will register with the slots therein.

It will be noticed that in Fig. 4 the segment-shaped portion *c'* is flat or square with the end of the pin, while in Fig. 5 it is high at its central portion and inclined each way to the edges. Such a form may be found desirable as more easily formed in the operation of the die.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A bicycle-chain composed of the solid center links, the slotted side links with central enlargements to the slots, and connecting-pins with neck portions in said slots and having outside heads formed with a portion bent or broken to enter between the sides of said slots, substantially as set forth.

2. A chain composed of links and connecting-pins, said connecting-pins being formed with necks which engage slots in a portion of said links and with heads, one head of each pin having a portion bent or broken down into the slot it engages, substantially as set forth.



3. A chain composed of the solid center link A, the slotted side links B, the slots whereof are formed with enlarged centers to receive the pin-heads, and the connecting-  
5 pins C formed with central journal for the center links A, and with necks *c* to engage the slots of the side links B, and having heads one of which is formed with a portion extending to project between the sides of one of the

slots, whereby it is held to move with said 10 side links, all substantially as set forth.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 7th day of June, A. D. 1898.

FRANK W. WOOD. [L. s.]

Witnesses:

ALEXANDER C. AYRES,  
IDA J. AYRES.