

O. T. Williams.
App's. for Lightning Vessels.
N^o 8,766. Patented Feb 24, 1852.

Fig. 1.

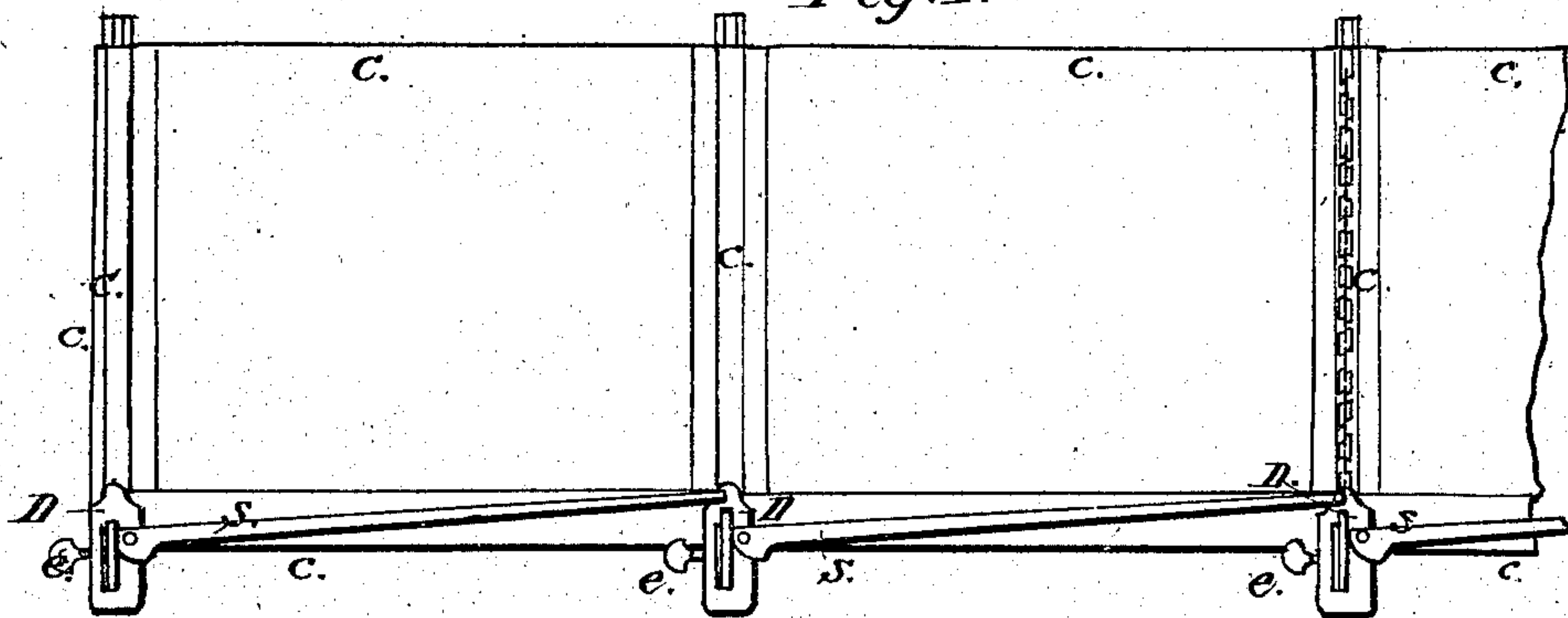
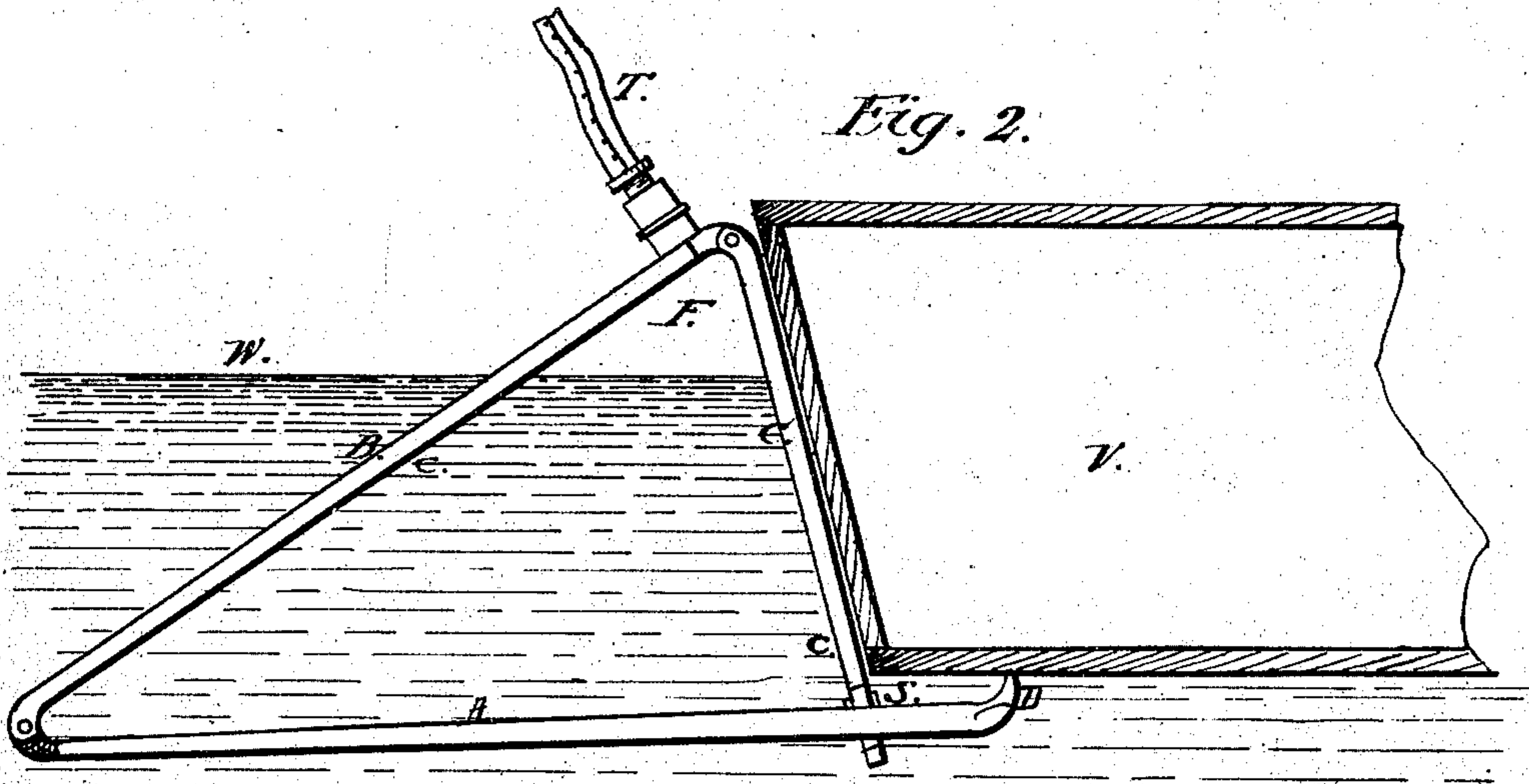


Fig. 2.



UNITED STATES PATENT OFFICE.

ORRILLUS T. WILLIAMS, OF SMITHLAND, KENTUCKY.

APPARATUS FOR LIGHTENING VESSELS.

Specification of Letters Patent No. 8,766, dated February 24, 1852.

To all whom it may concern:

Be it known that I, ORRILLUS T. WILLIAMS, of Smithland, Livingston county, Kentucky, have invented a new and Improved Method of Lightening Vessels, and that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, which makes part of this specification.

10 My elevating apparatus is composed of a light but strong jointed framework to be let down into the water, by the side of the vessel to be raised, and capable of attaching
15 itself by suitable hooks, clews, or other holding apparatus beneath the lower part of the vessel. Between the several parts of the frame work, and attached thereto, is a flexible covering inclosing a space usually of a
20 prismatic form, intended to receive air. The lower part of this prism I generally leave open to admit of the free entrance and exit of water as required. The ends and two
25 sides of the prism are of course made air and water tight. Into the space included between the two sides of the flexible covering and the water, air is injected, after the
30 apparatus has been attached to the vessel, and by the buoyancy thus created, the vessel is elevated to a greater or less height according to the requirement of the case, for the
purpose of allowing her to pass over shoals or to set her afloat when aground in shallow water.

35 The advantage of the flexible elevator, with jointed adjustable frames to retain it in place when brought into use, is, that while it is capable of being taken inboard and packed up into a small space, it allows of being easily and speedily adapted to the
40 sides of the boat or vessel and brought into action by simply injecting air beneath the airtight inclosure.

My invention will be particularly useful as applied to river craft such as scows, flat-boats, flat bottomed steam boats and the like,
45 many of which from their great breadth do not admit of easily passing ropes, chains, or other supports across their whole breadth. For the sake of easy management and to
50 give steadiness in the lifting of a vessel, my apparatus will be made in sections, whenever the vessel to be raised is of such length as to require it. For a short boat or vessel a single section on each side may be sufficient. The hooks or clews which take hold
55 of the vessel may have the means of being

lengthened or shortened at pleasure to suit the various forms of the bottoms of vessels in order to be sure of reaching such a part of the bottom as will enable them to take a
60 firm hold. Those parts or pieces of the jointed framework which extend up and down the sides of the vessel have the power of being so set before being sunk into the water as to conform to the inclination or
65 flaring of the sides of the vessel. If the sides be not plain but curved these uprights may be formed of chains or cords instead of bars, while the other parts of the jointed frame are composed of rigid bars. The side
70 of the vessel then takes the place of the rigid upright bar and the chain or cord applies itself to the curved or waving side, and brings with it the flexible inclosure, which is thereby made to adjust itself to the form
75 of the vessel's side.

I am aware that pontoons and elevators made of flexible materials in the form of bags have heretofore been proposed but serious inconvenience is found to attend the
80 use of such when employed for the purpose of lightening vessels over shoals and I am also aware that rigid camels have been made into which air is injected for the purpose of giving buoyancy but such camels lack the
85 property of being easily taken on board and stowed away in a small compass.

In the accompanying drawing Figure 1, is a side elevation and Fig. 2, a cross section of the apparatus exhibiting the manner of
90 attaching it to the bottom.

A is a horizontal bar having at the outer end the hook D, to take hold of the vessel; B is a brace jointed to A, and also to the upright C.
95

c is the flexible inclosure embracing the air space F, into which air is to be forced through the tube T or in any other convenient manner.

V represents one side of the vessel to
100 which the apparatus is attached and ready to be brought into action.

w is the water level.

In Fig. 1, are seen the inclosure c, the uprights C, C, and one of them in the form of
105 a chain C', the hooks D, D, D, the set screws e, e, e, by which the position of the upright C is adjusted with respect to that of the horizontal bar A (Fig. 2) and the stretchers S, S, S, by means of which the longitudinal
110 extension of the machine is preserved when in action, said stretchers being capable of

folding to the uprights C, C, &c., when the apparatus is to be stowed away. For the same purpose of folding up the elevator the relaxing of the set screw *e*, allows the hook
5 D to be withdrawn from the slot in which the bar A works.

The inclosure *c* may be attached to the brace B and upright C either on their outside or inside, though the latter is to be
10 preferred (as represented in the drawing) on account of its leaving the joints of the frame open, and the flexible material secure from injury in handling.

When ropes or chains are used to enable
15 the apparatus to adopt the curvature of the flexible inclosure to that of the vessel's sides there is of course a set screw or equivalent means employed to adjust the point of attachment of the chain to the horizontal bar
20 A, the power of self adaptation then applies to the ropes or chains and the inclosure, the side of the vessel serving as herein stated the part of the rigid upright in keeping the horizontal bar A and the
25 brace B in their proper position, when combined with the chain or rope as described.

What I claim as my invention and desire to secure by Letters Patent is—

1. The elevator formed by combining

jointed frames of inflexible materials, with 30 flexible inclosures made air tight above, and open below, when said jointed frames are so constructed as to attach themselves to the bottom of a vessel after being let down by its side, the flexible inclosure so arranged 35 as to admit of the injection and retention of air beneath it for the purpose of buoying up the vessel substantially as herein set forth.

2. I also claim making jointed elevator 40 frames in such a manner as to adjust themselves to the form of a vessel's sides, whereby the flexible inclosure for air is allowed to come into close contact with the outside of the vessel, in the manner and for the pur- 45 poses herein set forth.

3. I also claim in combination with a flexible inclosure for retaining the air, the hook D, upright or chain, C, brace B and stretcher S whereby the elevator is made capable of 50 attaching itself to the vessel and of raising the same without the necessity of passing a support beneath the keel, as herein set forth.

ORRILLUS T. WILLIAMS.

Witnesses:

A. W. CARMONY,
PRESLEY W. DORSEY.