

(No Model.)

G. P. ANDERTON.
EXCAVATOR.

2 Sheets—Sheet 1.

No. 521,693.

Patented June 19, 1894.

Fig. 1.

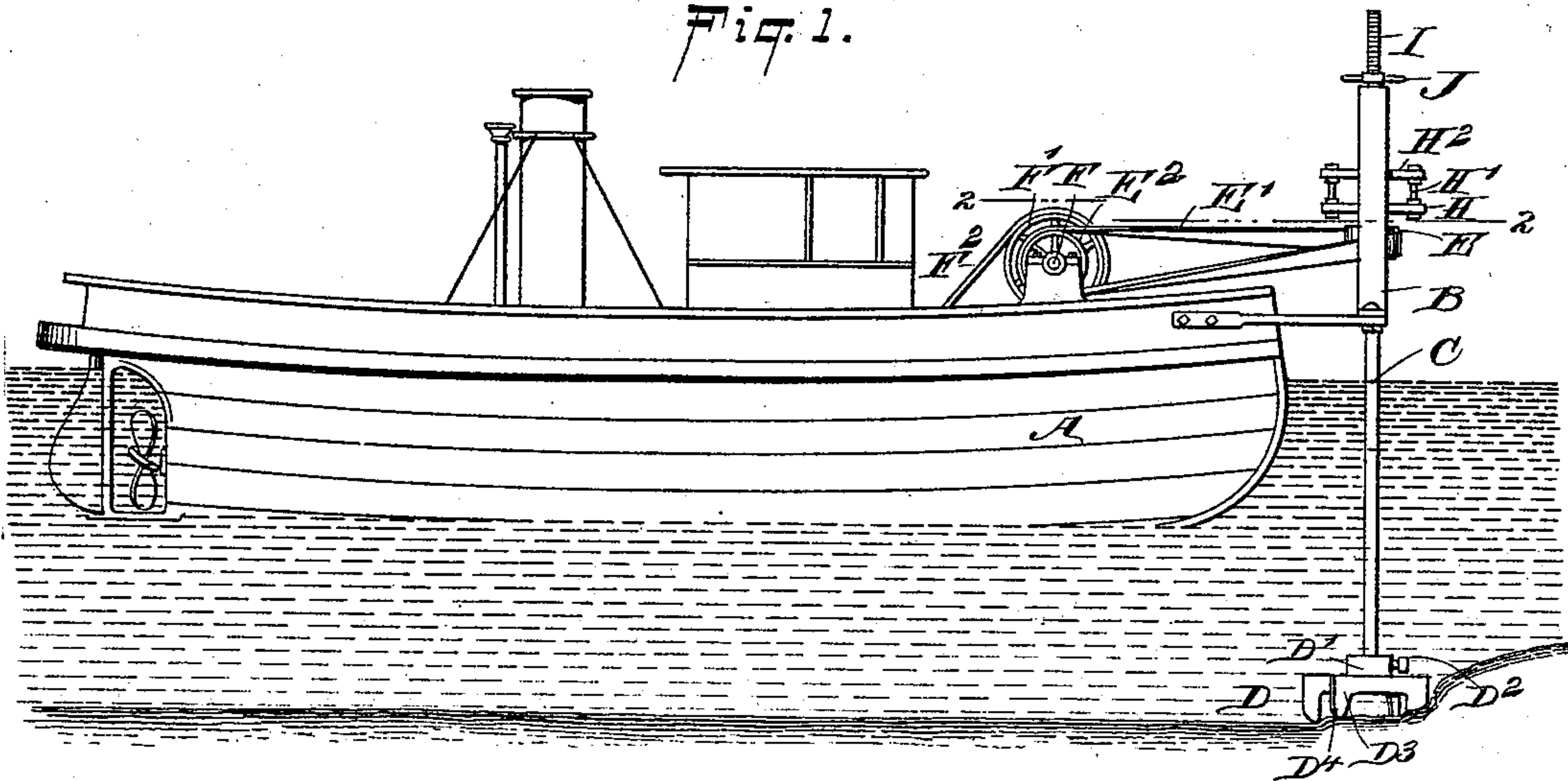
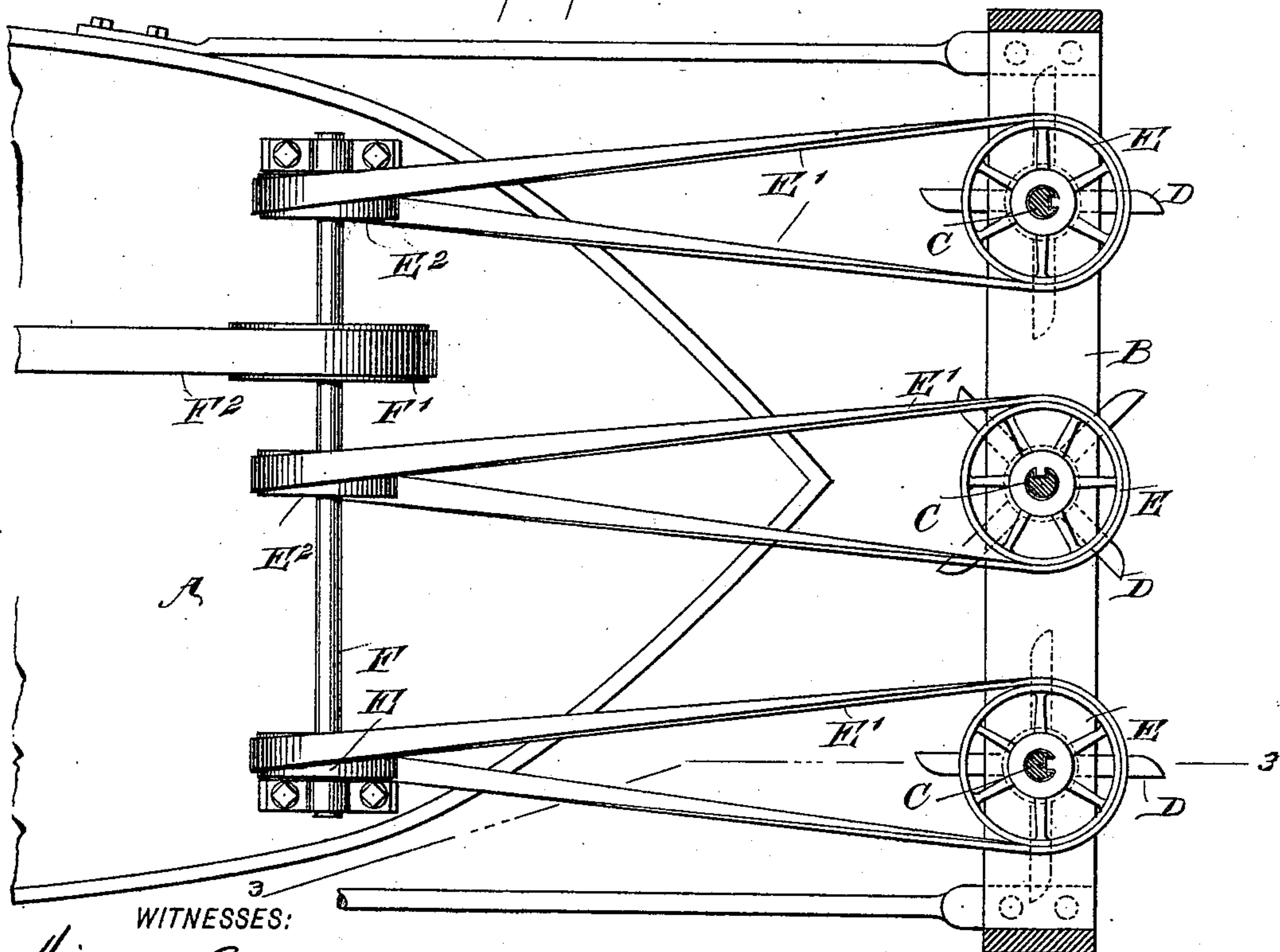


Fig. 2.



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C. Sedgwick

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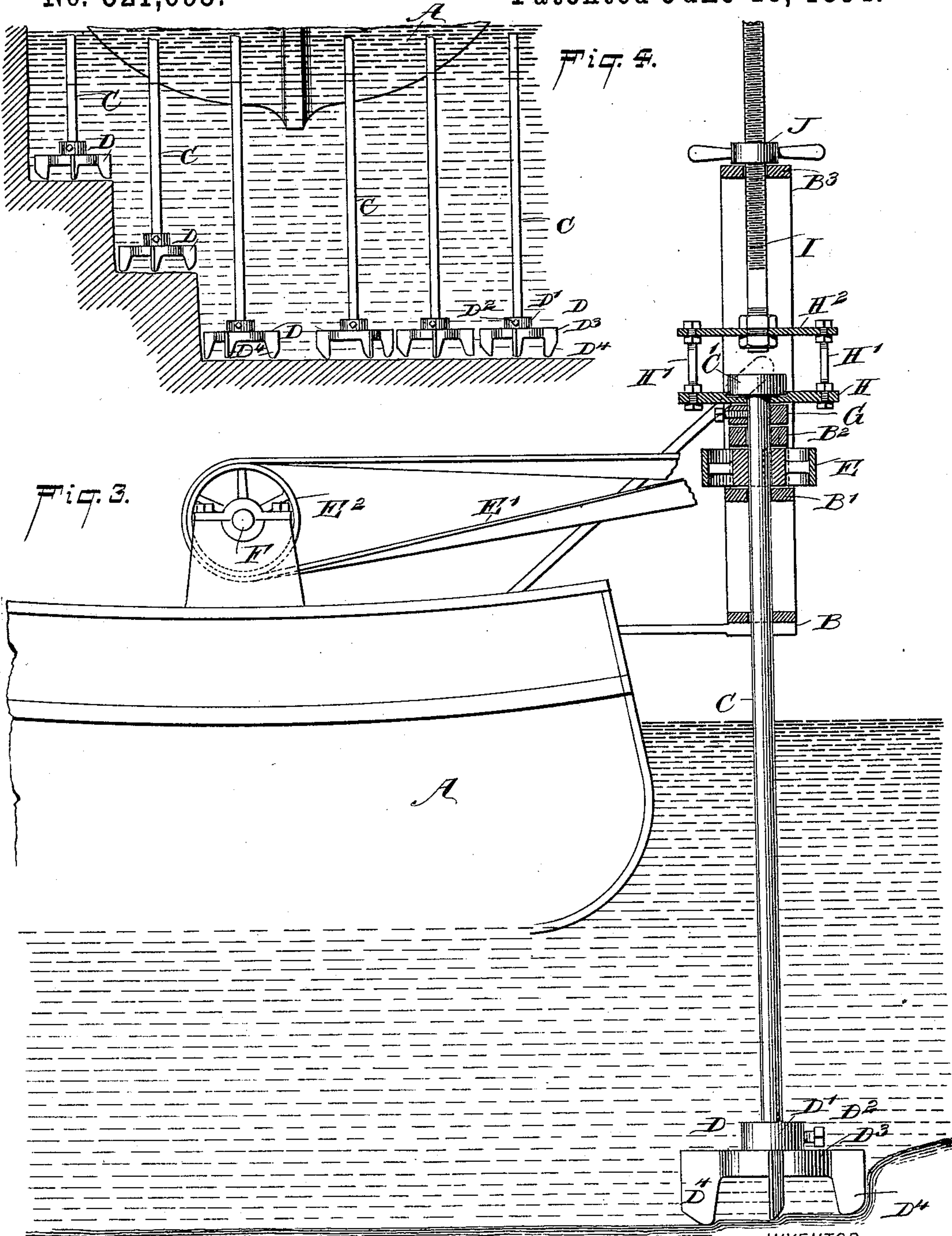
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UNITED STATES PATENT OFFICE.

GEORGE P. ANDERTON, OF CONCESSION, LOUISIANA.

EXCAVATOR.

SPECIFICATION forming part of Letters Patent No. 521,693, dated June 19, 1894.

Application filed January 27, 1894. Serial No. 498,220. (No model.)

To all whom it may concern:

Be it known that I, GEORGE P. ANDERTON, of Concession, in the parish of Plaquemines and State of Louisiana, have invented a new and Improved Excavator, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved excavator, which is comparatively simple and durable in construction, and more especially designed for use in rivers, harbors, &c., for quickly removing sand bars, mud lumps and for deepening and improving water ways and channels.

The invention consists of certain parts and details, and combinations of the same, as will be hereinafter described and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the improvement as applied. Fig. 2 is an enlarged sectional plan view of the same on the line 2—2 of Fig. 1. Fig. 3 is a sectional side elevation of the same on the line 3—3 of Fig. 2; and Fig. 4 is a reduced front elevation of the improvement showing cutters arranged for forming a slope.

On the front end of a suitably-constructed marine vessel A, is arranged a frame-work B, projecting beyond the bow of the vessel, and in this frame-work is journaled a series of vertically disposed shafts C, each provided at its lower end with a cutter D, adapted to cut into the material so as to loosen and churn the same. On each of the shafts C and between the two bearings B', B² of the frame-work B is held a pulley E, provided with a key adapted to engage a key-way on the corresponding shaft C, so that a rotary motion given to the pulley E causes the shaft C to revolve, at the same time permitting of raising and lowering the shaft without disconnecting it from the pulley E. Over the latter passes a belt E' extending inwardly and passing over a pulley E², secured on the main driving shaft F, journaled in suitable bearings on the vessel A and provided with a pulley F', connected by a belt F², with a suitable engine or other machinery located in the vessel.

A rotary motion given to the shaft F causes

the several pulleys E², E, and the belts E' to impart a rotary motion to the several shafts C so that the cutters D thereof, cut up the material in the bottom of the water way or on the slope thereof, as plainly shown in Fig. 4.

In order to raise and lower each of the shafts C, the following device is provided. Near the upper end of each shaft C is secured a collar G, abutting against the under side of a plate H, through which passes loosely the upper end of the shaft C, the latter being provided with a head C' on top of the plate H. The plate H is connected by bolts H' with a second plate H², supporting a screw rod I extending upwardly and loosely through the top plate B³ of the frame-work B. On the upper end of the screw rod I screws a handled nut J, under the control of the operator, for raising and lowering the said screw rod I and consequently the shaft C connected with the plate H supported from the screw rod I. Each of the cutters D is provided with a central hub D', fastened by a set screw D² or other means to the lower end of the shaft. From the hub D' extend a series of radially arranged arms D³, which may vary in length and each is provided at its outer end with a downwardly-extending wing D⁴, as plainly illustrated in Fig. 3.

In operating the excavator, the cutters D are lowered as low as may be found desirable for good work, and then a rotary motion is given to the several shafts carrying the cutters, from the driving shaft F, as previously described. At the same time, the vessel A is propelled forward by its usual propelling mechanism or by tow boats, windlasses, or other suitable mechanism, so that it proceeds at a suitable speed up or down the river, stream or other water course to be deepened or widened by the excavator. Now, the revolving cutters D cut up the material and churn and stir it to a considerable extent, so that it will be carried away by the current or tide, as the case may be. In removing bars where tide fluctuations are considerable, then the machine is only worked at ebb tide, so that the deposit or churned up mud is carried out to sea on the ebb tide. As the vessel moves forward, the cutters D move with it, at the same time revolving and cutting up the material as described. After the vessel has made, say one trip in one direction, then the cutters

are lowered by the operator turning the nuts J on the screw rods I as previously described, and then the vessel is again passed over the bar or other obstruction to be removed for making a second cut. This is repeated until the entire obstruction is removed to the desired depth.

In order to form the necessary slope to the water way, the cutters may be arranged as illustrated in Fig. 4, that is three on one side of the boat are arranged step like, while the other three are in a horizontal alignment one with the other, so that on a forward movement of the boat or vessel A, step-like cuts are made in the side of the water way and a horizontal bottom formed inwardly from the lower end of the slope. By this arrangement the embankment is prevented from caving in.

As illustrated in Fig. 2, only three cutters D are employed, but it is evident that any desired number may be used; six for instance, as shown in Fig. 4. In this case the three cutters on one side are revolved in one direction and those on the other side in an opposite direction, so as not to interfere with the proper steering of the vessel A.

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

30 1. An excavator of the character described comprising a vertically extending frame provided with vertically aligned apertures, and bearings, a shaft extending up through the

lower of the said apertures and having an excavating device on its lower end and a supporting head or collar on its upper end, a vertically adjustable stirrup in the upper part of the frame and having an aperture in its lower member or plate in which the upper end of the shaft turns with its collar or head resting on the upper side thereof, a shank extending through the upper aperture in the frame and provided with mechanism thereabove for raising and lowering it, and an operating pulley or wheel on the shaft between the bearings on the frame and through which the shaft is free to slide, substantially as set forth.

2. The combination with the frame and the vertical shaft turning and sliding therein and having an operating pulley through which it slides and a fixed collar or head on its upper end, of a stirrup within the upper part of the frame and comprising the lower plate having an aperture for the said shaft and on the upper side of which plate the said collar or head rests, an upper parallel plate, bolts connecting said plates, a screw shank extending from the upper plate through an aperture in the top of the frame and provided thereabove with an adjusting nut, substantially as set forth.

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Witnesses:

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J. J. SAUCIER.