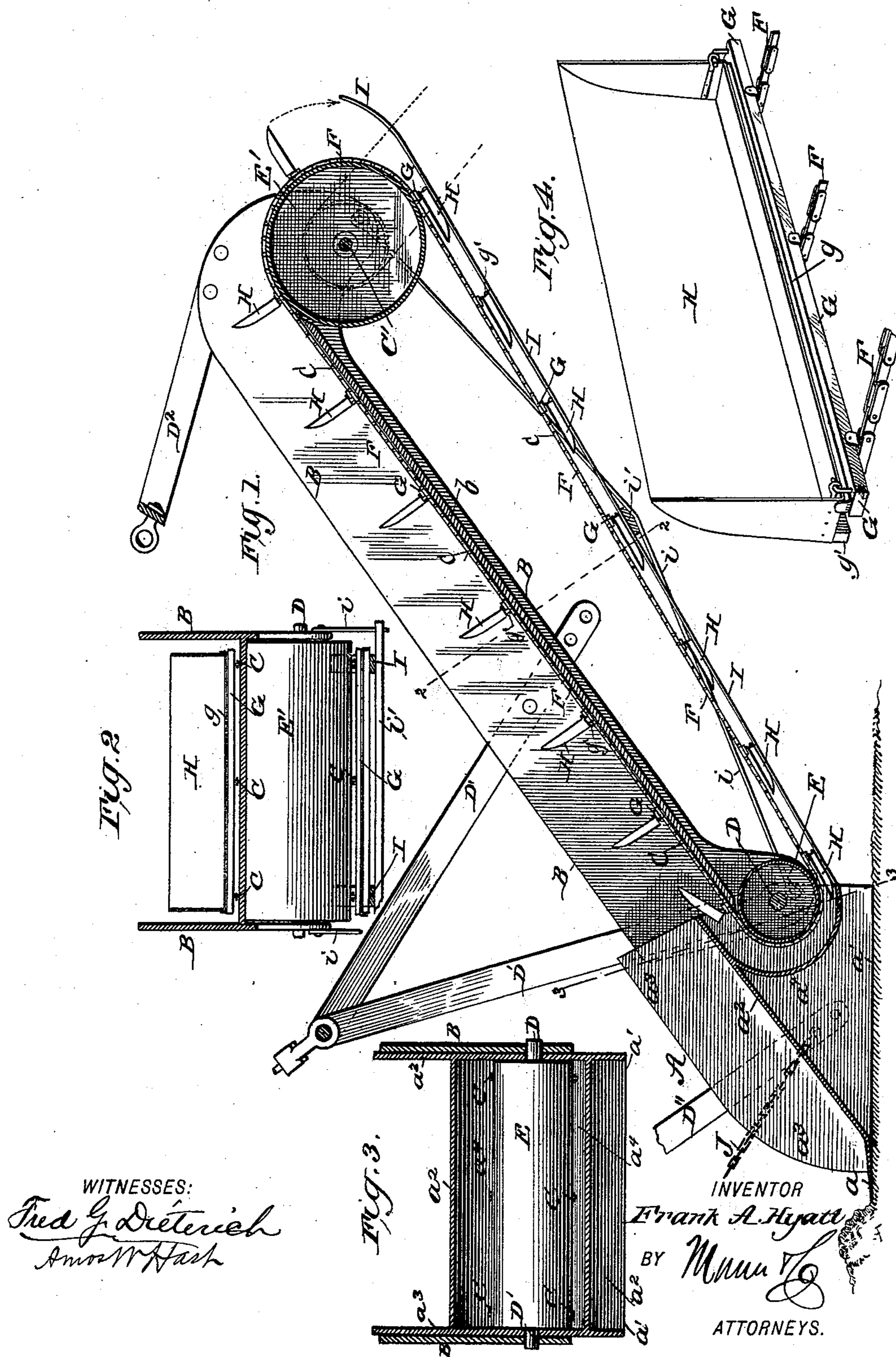


(No Model.)

F. A. HYATT.  
DREDGING APPARATUS.

No. 528,433.

Patented Oct. 30, 1894.



# UNITED STATES PATENT OFFICE.

FRANK A. HYATT, OF BEAUMONT, TEXAS.

## DREDGING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 528,433, dated October 30, 1894.

Application filed January 5, 1894. Serial No. 495,812. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK A. HYATT, of Beaumont, in the county of Jefferson and State of Texas, have invented a new and useful Improvement in Dredging Apparatus, of which the following is a specification.

My invention is an improvement in that class of dredgers whose chief parts or elements are a plow, or scoop, and an endless traveling elevator, the latter being arranged in a rigid frame that is supported at a suitable angle, and the scoop being hinged to the lower end of said frame so that it works horizontally, or practically so.

My invention embodies certain features of construction, arrangement and combination of parts, as hereinafter set forth, and as shown in accompanying drawings, in which—

Figure 1 is a central, longitudinal section of my dredger. Figs. 2 and 3 are cross sections on lines 2—2 and 3—3, respectively, of Fig. 1. Fig. 4 is a perspective view, showing a bucket (enlarged) attached to the endless chains, and in standing position.

The plow or scoop, A, is hinged to and between the rigid parallel sides of the oblong, trough-like elevator, B, in which the endless, traveling elevator proper, C, is arranged. The elevator, B, has parallel sides which are braced by cross-bars. In practice, it is held adjustably suspended between the hulls of two connected barges, scows, or a catamaran,—not shown—by means of chains connected with bars, D<sup>1</sup>, D<sup>2</sup>, which are rigidly attached to the respective ends of the frame, B, as shown. To allow a certain degree of free movement of the upper end of the dredge, to compensate for motion of the barges or other vessels in rough water, I provide the upper bar D<sup>2</sup>, with a swivel to which the chains (not shown) that suspend the upper end of the dredge are attached, in practice.

The plow, A, has a projecting steel cutting edge,  $a$ , which is aligned with its flat base,  $a'$ , while its upper side or surface,  $a^2$ , is inclined to said base at an acute angle, and rigidly supported between the parallel vertical wings, or sides,  $a^3$ . The rear end of the plow (Fig. 3) is constructed with a recess  $a^4$  curved inward, corresponding to a longitudinal section of a hollow cylinder. The elevator frame, B,

is pivoted to the plow, A, by means of an axle, D, passing through the sides,  $a^3$ , of the latter, and arranged transversely, concentric, or nearly so, with the concave side of the recess  $a^4$ . A toothed roller or drum E is mounted on this axle D, and a larger toothed drum, E', on the axle C', at the upper end of the frame B. Endless chains F, run on side lines are connected by wooden cross bars, G, to which the scoop-shaped buckets, H, are hinged. These buckets are adapted to assume either the erect or folded position shown in Fig. 1; that is to say, while the buckets, H, are traveling upward on the upper side of the closed bottom,  $b$ , of the elevator frame, they stand erect, or at a right angle to the said bottom; but, when moving downward on the under side of the frame, they lie parallel to the same. They are thus adapted to carry along mud or sand delivered from the scoop, A, upon the bottom,  $b$ , of the frame, B, and, after delivering it into a barge, scow, or other receptacle, they drop into contact with the upturned upper ends of guide bars, I, which are rigidly attached to the under side of the frame, B, and arranged practically parallel thereto, as shown in Fig. 1. Their lower ends practically coincide with the concave,  $a^4$ , in plow, A, so that when the buckets slide downward on the said bars, I, they readily enter the concave and are turned up again, as will be readily understood. Upon emerging from said concave they necessarily assume the erect position, owing to their drag in the water. As the barges, or other vessels to which the dredge is attached, are moved forward (by steam or other power), the plow, A, is also drawn forward and caused to penetrate the mud or sand at the bottom of the body of water, by means of the tractive force applied by the draft-chains, J, attached near the front and lower portion of the plow. The mud or sand thus dislodged by the plow passes backward in a continuous stream up the inclined surface,  $a^2$ , of the plow, and drops into the trough-shaped elevator frame, B, up the bottom,  $b$ , of which the buckets, H, push it to the point of discharge above water, as already stated.

The angle of the plow, or scoop, A, to the elevator, as well as the surface acted on by the former, may be varied by means of the

bars, D'', attached to its front portion. Thus the plow may be caused to enter the mud or sand more or less deeply, as conditions require.

It will be seen (Fig. 1), that the buckets 5 when returning empty are not in contact (save at the hinge) with the elevator proper by a narrow space which permits passage of water so that adhering mud may be washed off.

It will be understood that the elevator 10 proper is caused to travel by the application of power to the axis or shaft, C', at the upper end of the frame B.

In order to hold and brace the buckets against lateral or endwise movement, I attach 15 to the upper side of each cross-bar G, an iron bar *g*, which has its ends upturned, as shown in Fig. 4, so that they project alongside and in contact with the ends of the bucket hinged to said cross-bar. A second cross-bar, *g'*, is 20 arranged parallel to the first, G, and serves as a rest and support for a scoop when the same is raised, as shown in Fig. 4.

What I claim is—

1. In a dredge of the character specified, 25 the combination with a plow and elevator, of means for suspending and adjusting the position of the same vertically, which consist in

part of a swivel connection at the rear end, as shown and described.

2. In a dredge of the character specified, 30 the combination with a plow, whose rear side is concave, of a frame pivoted to said plow, an endless-chain elevator running on drums mounted in said frame, the lower drum being arranged in the concave, as shown, and the 35 buckets of such elevator being hinged and adapted to fold parallel to the frame, and guide bars attached to the under side of said frame, and having their lower ends arranged in coincidence with the concave of the plow, 40 as shown and described for the purpose specified.

3. In a dredge of the character specified, the combination with the buckets, the endless 45 chains and their connecting cross-bars, of metal bars attached to the upper side of the latter and having upturned ends engaging the ends of the buckets, substantially as shown and described.

FRANK A. HYATT.

Witnesses:

WILL J. ROBERTSON,  
EDWIN M. CURRY.