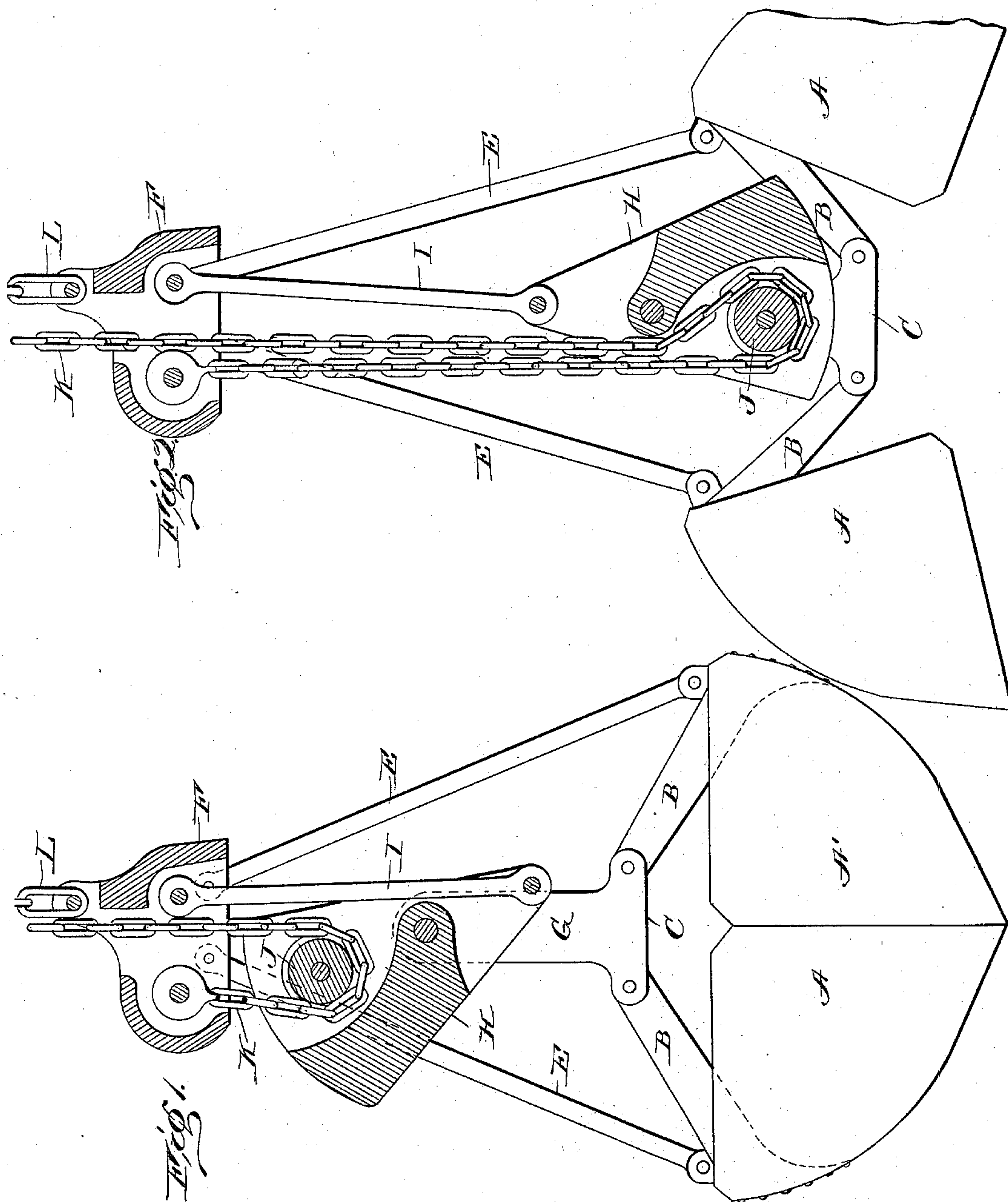


(No Model.)

J. A. MUMFORD.
EXCAVATING OR DREDGING BUCKET.

No. 598,292.

Patented Feb. 1, 1898.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOSEPH A. MUMFORD, OF HANTSPORT, CANADA.

EXCAVATING OR DREDGING BUCKET.

SPECIFICATION forming part of Letters Patent No. 598,292, dated February 1, 1898.

Application filed December 5, 1896. Serial No. 614,600. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH A. MUMFORD, of Hantsport, in the Province of Nova Scotia and Dominion of Canada, have invented certain new and useful Improvements in Excavating or Dredging Buckets; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

This invention relates to improvements in buckets for use in dredging or excavating, and relates particularly to that class of buckets known as "clam-shell" and "finger-grapple," and has for its object to provide means for opening and closing the blades of such buckets which shall be simple and effective; and the invention consists in certain novel details of construction and combinations and arrangements of parts, all as will be now described, and the particular features of novelty pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a side elevation, partly in section, showing the position of the parts when the bucket-blades are closed. Fig. 2 is a similar view showing the position the parts assume when the bucket-blades are open.

Similar letters of reference in both figures indicate the same parts.

The bucket is composed of the sections A A', of which there may be two or more in number, the bucket illustrated being composed of two sections, to each of which are rigidly secured, as by rivets, the arms B B, pivoted at their inner ends to the frame or lower block C. Pivottally connected to the upper edges of each of the bucket-sections are the rods E, said rods being pivottally connected at their upper ends to an upper stationary block F.

The construction of the devices, as thus far described, does not differ from other well-known structures of this kind and need no further description. For opening and closing the bucket-section the following mechanism is employed: Rising centrally from the frame or block C are the arms or supports G, between which is suspended at the middle a lever H, to the end of which is pivottally connected the lower end of a link or bar I, whose

upper end is pivoted to the upper block F. In the opposite end of the lever H, which is preferably weighted, is mounted a pulley or sheave J, around which passes a chain or rope K, one end of which is secured to the upper block F, the chain being of sufficient length to permit the opening and closing of the bucket-section, and the other end of the chain passes through the upper block and thence to a windlass or other hoisting device. Instead of passing the chain about a pulley in the lower and securing it to the upper block the pulley may be dispensed with and the chain fastened directly to the lever, although by the former construction a more powerful leverage is secured. A lifting-chain L is secured to the upper block and is also run to the windlass.

The opening and closing of the bucket-section will now be understood.

When it is desired to close the sections, the chain K is drawn up or tightened, thereby swinging the lever to the position shown in Fig. 1, which lifts the lower block or frame, and with it the arms B, thus drawing the sections together. The sections will be opened by a reverse operation—namely, by slacking the chain and permitting the lever to assume the position illustrated in Fig. 2, whereby the frame will be lowered and the inner ends of the arms forced downward, thus forcing the bucket-section outward.

The lever is illustrated in the drawings as being suspended centrally of its length and therefore as having its two arms of equal length, from which construction it results that the leverage exerted on the frame in raising it is twice as great as the power employed to raise the lever, and this leverage may be varied by proportioning the length of the arms of the lever, as will be readily understood.

By having the end of the lever weighted it will fall quickly, thereby quickly paying out sufficient chain to allow the bucket's blades to open, and, moreover, in the construction illustrated the weighted end will fall twice the distance that the frame does, thereby still further insuring the paying out of sufficient chain. It is obvious that the number of levers may be increased to assist in opening the bucket-sections without departing from the spirit of my invention.

The device, it will be seen, consists of few parts, can be manufactured at little cost, and accomplishes admirably the purpose for which it is intended.

5 Having thus described my invention, what I claim as new is—

1. In a dredging-bucket, composed of two or more sections the lower block or frame having bearings at top and bottom, the arms piv-
10 oted to the lower end of said block and rigidly connected at the opposite end to said bucket-sections, a stationary block, the rods pivoted to said stationary block and to the bucket-sections, the lever pivoted on the up-
15 per end of the lower block, a connection between the upper block and one end of said lever, and a flexible connection secured to the opposite end of the lever; substantially as described.

20 2. In a dredging-bucket, the combination with the frame, the arms pivoted at one end to said frame, and rigidly connected at the opposite end to the bucket-section, the upper block the rods pivotally connected at their

ends to the upper block and bucket-sections, 25 the lever pivotally mounted on the frame, the connecting-link between the upper block and lever, the sheave carried by the lever and the chain or rope connected at one end to the upper block and passing around the sheave; 30 substantially as described.

3. In a dredging-bucket, the combination with the lower block or frame, the arms piv-
35 oted to said block at one end and rigidly connected to the bucket at the other the rods pivoted to the upper block and bucket, the arms or supports carried by the frame the lever pivotally mounted in said arms, and weighted at one end, the link connected to one end of the lever and to the upper block, the sheave 40 mounted in the weighted end of the lever and the rope or chain connected to the upper block and passing around the sheave; substantially as described.

JOSEPH A. MUMFORD.

Witnesses:

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