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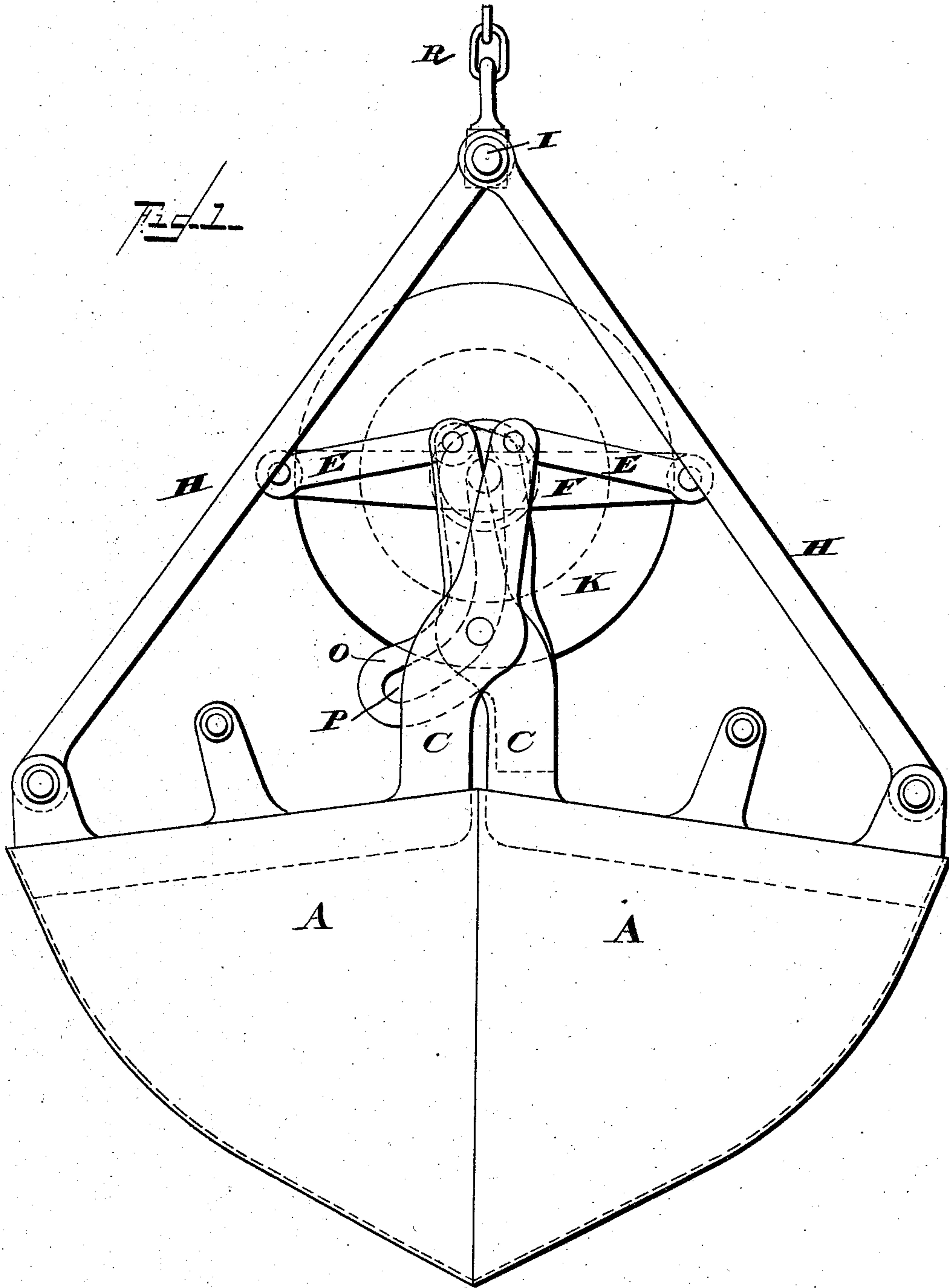
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T. McBRIDE & E. FISHER.

EXCAVATOR.

No. 412,526.

Patented Oct. 8, 1889.



WITNESSES

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(No Model.)

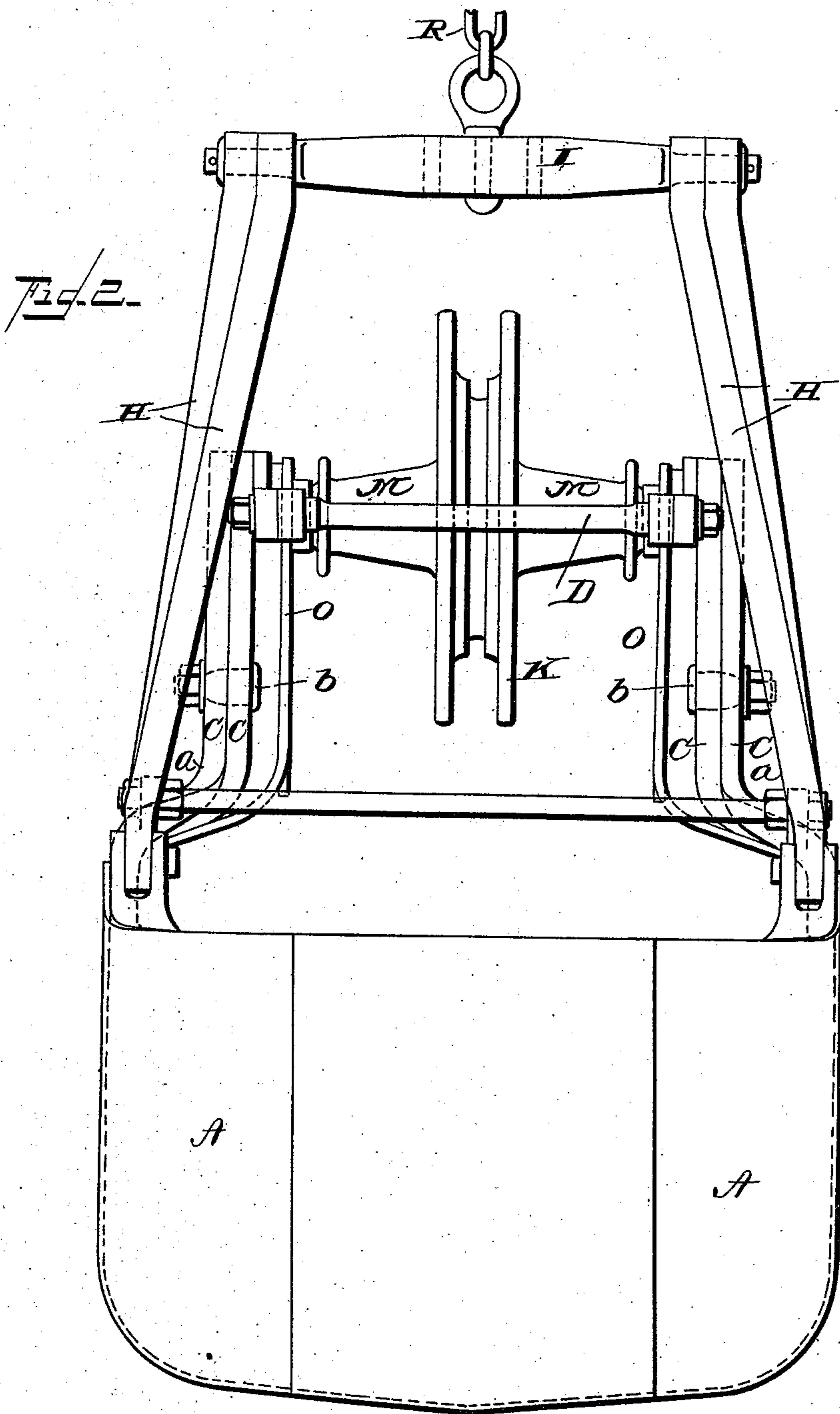
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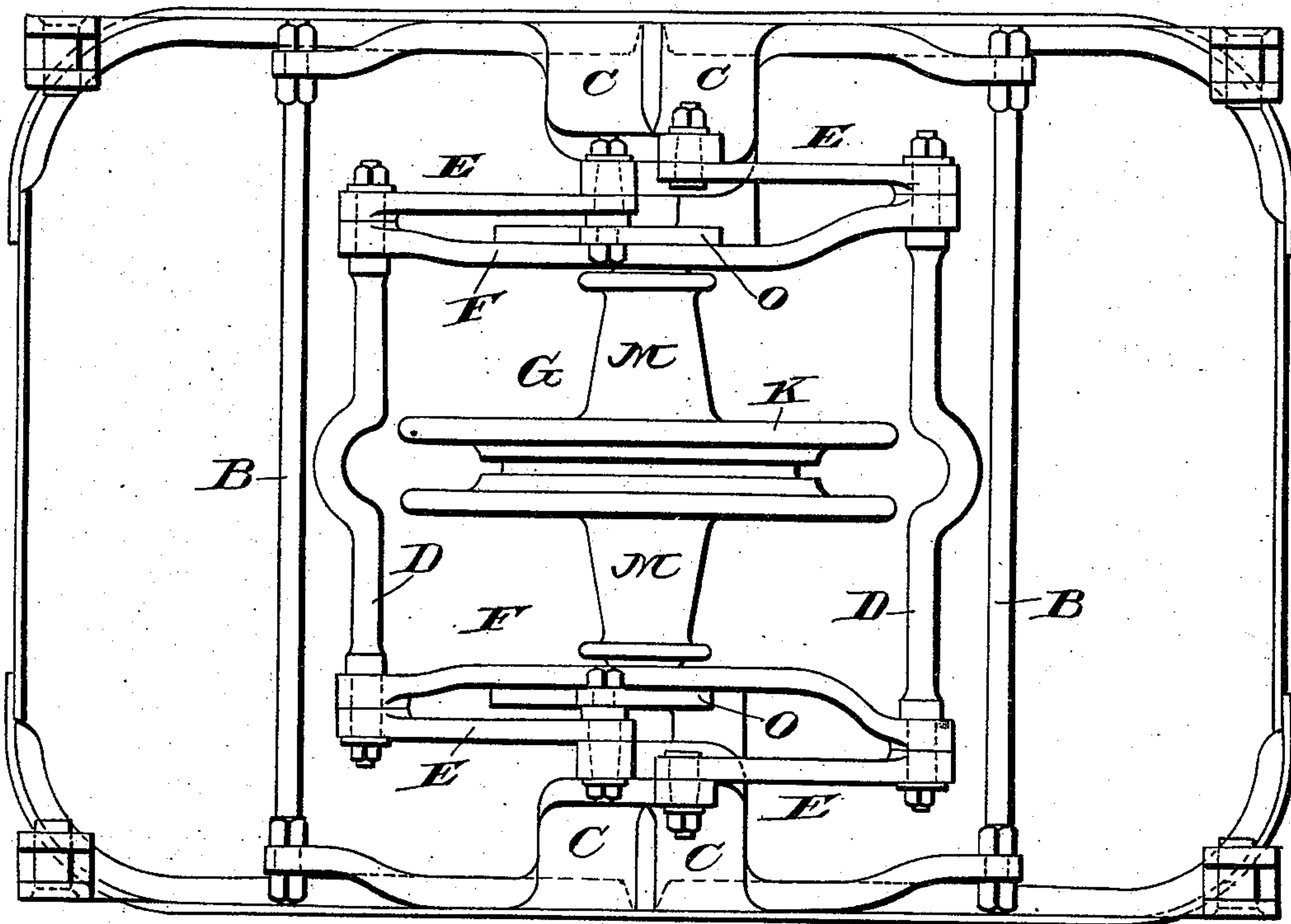
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*Fig. 3.*

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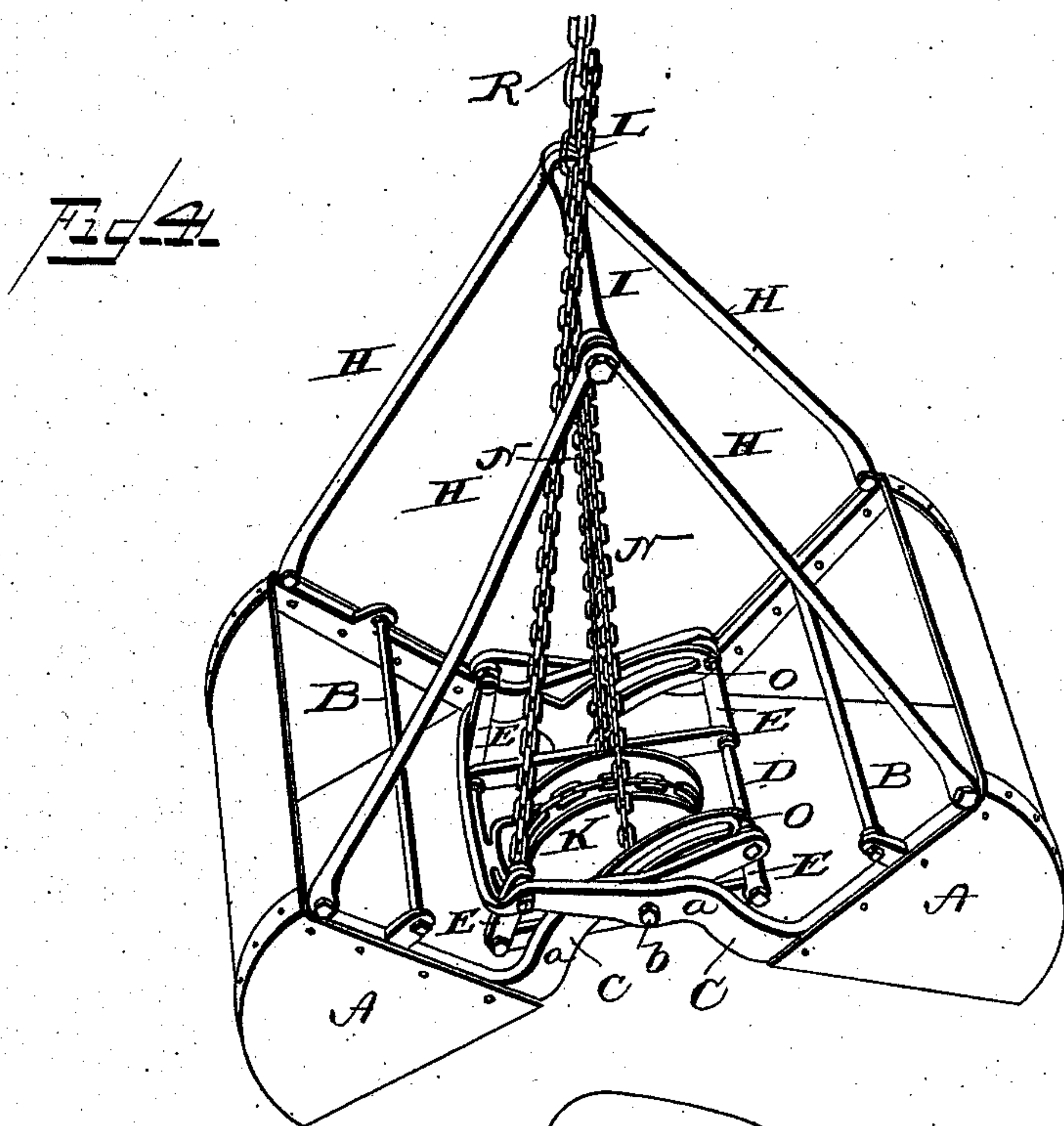
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T. McBRIDE & E. FISHER.

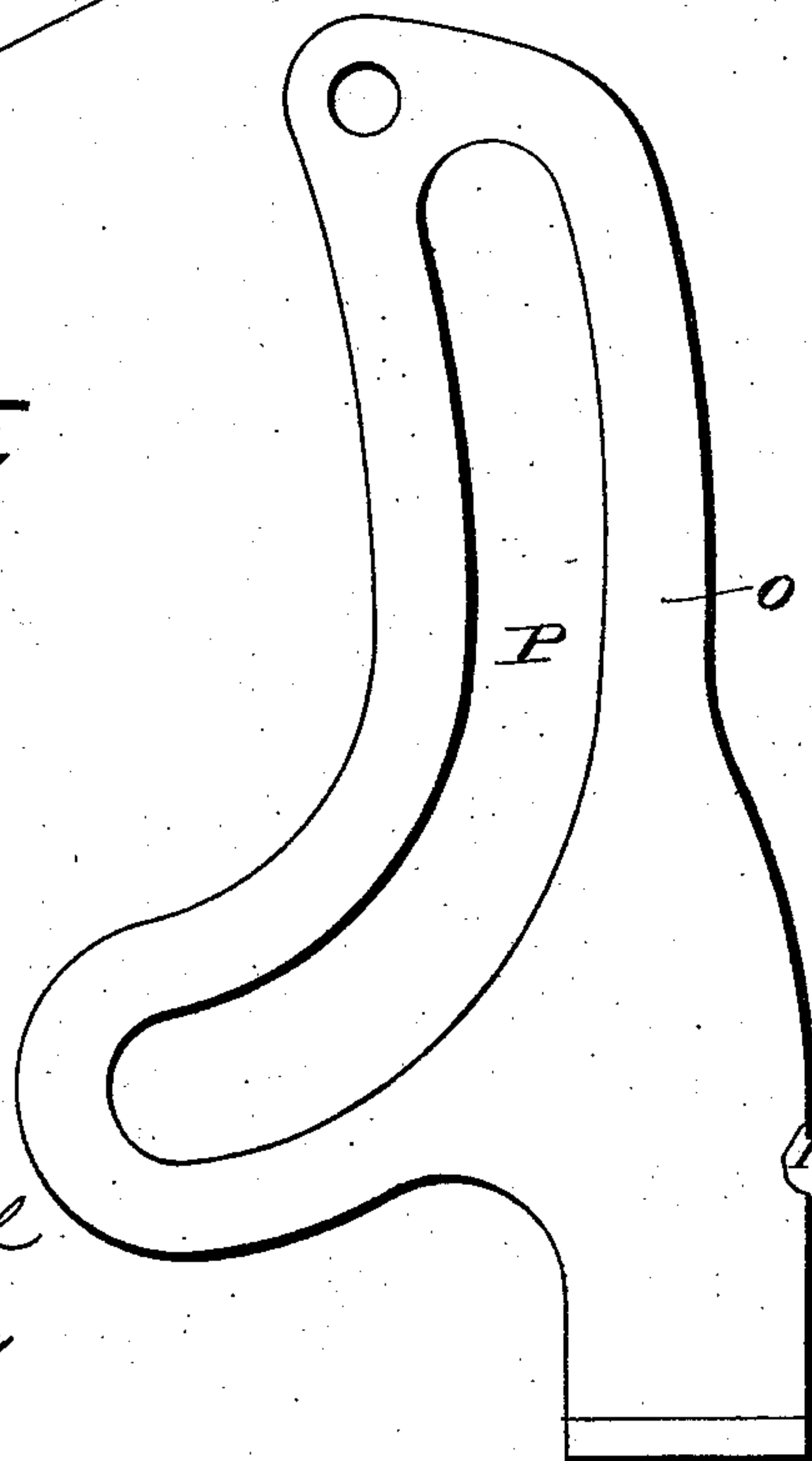
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*Fig 5*



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# UNITED STATES PATENT OFFICE.

THOMAS McBRIDE, OF PHILADELPHIA, PENNSYLVANIA, AND EBENEZER FISHER, OF KINCARDINE, ONTARIO, CANADA.

## EXCAVATOR.

SPECIFICATION forming part of Letters Patent No. 412,526, dated October 8, 1889.

Application filed June 15, 1889. Serial No. 314,480. (No model.)

*To all whom it may concern:*

Be it known that we, THOMAS McBRIDE, a citizen of the United States, and a resident of Philadelphia, of the State of Pennsylvania, and EBENEZER FISHER, a subject of the Queen of Great Britain, and a resident of Kincardine, in the Province of Ontario and Dominion of Canada, have invented new and useful Improvements in Excavators; and we do hereby declare the following to be a full, clear, and exact description of said invention, reference being had to the accompanying drawings, and to the letters or figures of reference marked thereon, which form a part of this specification.

Our invention relates to improvements in devices for excavating coal, sand, gravel, &c., and is designed as an improvement on the devices for which we have made application for Letters Patent of the United States, filed November 22, 1888, Serial No. 291,531, and allowed June 4, 1889.

Our invention consists in confining the axles of the winding-drum, which operates the chains for closing and opening the scoops, in segmental or eccentric slots formed in guide-bars, whereby said winding-drum is steadied and guided in its operations.

Figure 1 is an end view of our excavating-bucket in a closed position. Fig. 2 is a side view. Fig. 3 is a top or plan view. Fig. 4 is a view in perspective. Fig. 5 is a side view of one of the guide-bars detached from the device.

A indicates the scoops forming the bucket, said scoops being of the usual clam-shell shape and of any suitable material which will withstand the hard usage to which such devices are subjected, the upper edges of said scoops being connected by the bars B, which gives strength and rigidity to the structure.

C are levers or arms secured to the upper inner corners of the scoops, and are bent inward at their central portions, as shown at *a*, so that their upper ends will set in a short distance from the ends of the scoops.

The levers or arms C are crossed and pivoted together after the fashion of a pair of shears by the bolts *b*, the outer or free ends of said levers C being connected to the ends of the bars D by means of the toggle-levers

E. The bars D are joined together at their ends by means of suitable stays or brace-rods F, so as to form a frame in which the winding-drum G is mounted.

H are brace or stay rods, the lower ends of which are hinged to the rear upper corners of the scoops, while the upper ends of said bars or rods are secured to the rod or cross-bar I, the offices or function of which is to force down the scoops while the links or toggles are closing on the material.

The cross-bar I, to which the brace-rods H are secured, is connected to the derrick or other hoisting device by means of the chain R.

As before intimated, G is a winding-drum, the ends of which are mounted in suitable bearings in the bars F, said drum being provided at its center with a grooved wheel K, around which the hoisting-chain L is wound, the other end of said chain being passed over pulley-blocks on the derrick and to a suitable winding-drum.

The drum G, on each side of the grooved wheel K, is provided with spool-shaped hubs M to receive the chains N, one end of said chains being secured to the hubs M, the other ends being secured to the cross-bar I.

O are guide-bars secured to the inside of the upper ends of the inner levers C, as shown in Fig. 4, said guide-bars being provided with a segmental or eccentrically-formed slot P, through which are passed the ends or axis of the drum G. The object of these guide-bars is to hold the drum at all times in a central position and cause the scoops to move uniformly down into the material to be excavated and to close on the central line.

The operation of our device is as follows: The scoops being opened, as indicated in Fig. 4, they are let down onto the material to be excavated. The opening of the scoops and the consequent lowering of the winding-drum down between the levers C causes the chains N to unwind from the drum, and by this motion the chain L is wound upon the grooved wheel K. Power is now applied to chain L, which turns the drum, winding the chains N onto the drum M, and while the chain L is being unwound from the drum the lifting-power is still continued on the chain L and the weight of the device comes onto the drum.

The link motion causes the drum to rise above the pivoted point, as shown in Fig. 1, and through the action of the toggles, the levers E, and levers C the scoops are closed. After the  
5 scoops are closed the device is carried with its load to the place where it is to be deposited, when the weight of the device with its load is transferred to the chain R. This pulls on the rods H to open the scoops and allows  
10 the drum G to descend, unwinding from the spools the chains N and winding the chain L onto the wheel K.

What we claim is—

15 In an excavating device of the character described, the chain-operating drum mounted

in suitable bearings in a frame, said frame being connected to the arms or levers of the scoops by toggle-levers, and segmentally-slotted guide-bars adapted to receive the axis of the winding-drum, whereby the drum is cen- 20 trally guided in its rising and falling motion to open and close the scoops, as set forth.

In testimony whereof we affix our signatures in presence of two subscribing witnesses.

THOMAS McBRIDE.  
EBENEZER FISHER.

Witnesses:

GEORGE McBRIDE,  
JOHN McBRIDE.