

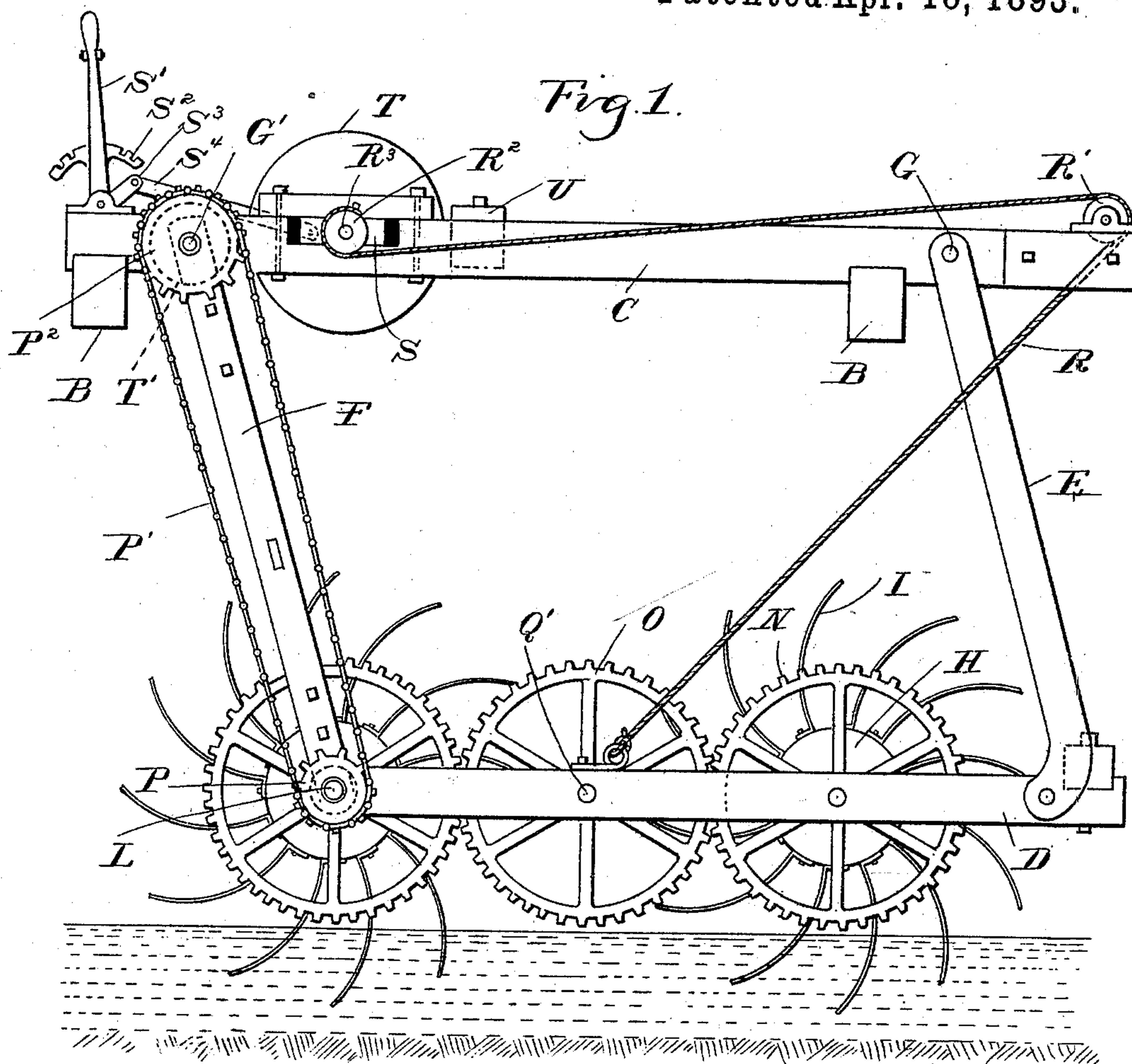
(No Model.)

W. F. BUCKMANN.
CURRENT WHEEL.

2 Sheets—Sheet 1.

No. 495,780.

Patented Apr. 18, 1893.



Inventor

William F. Buckmann

By Wm. C. Sprague & Co.
Attys.

Witnesses
A. L. Stubbie
N. L. Lindop

(No Model.)

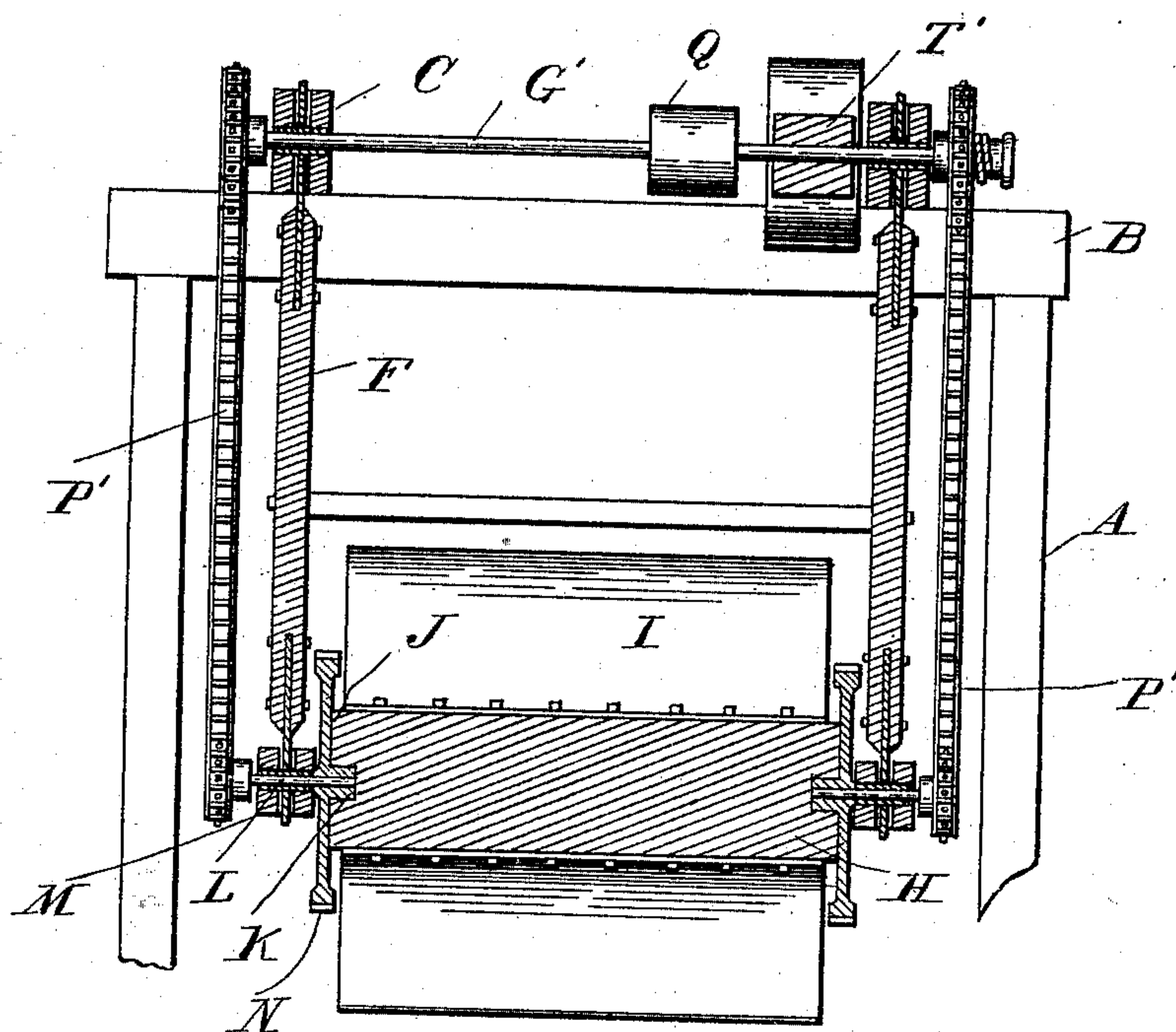
W. F. BUCKMANN.
CURRENT WHEEL.

2 Sheets—Sheet 2.

No. 495,780.

Patented Apr. 18, 1893.

Fig. 2.



Witnesses
A. L. Stobbs
N. L. Lindop

Inventor
William F. Buckmann
By *W. C. Macgregor & Co.*
Attys.

UNITED STATES PATENT OFFICE.

WILLIAM F. BUCKMANN, OF DETROIT, MICHIGAN.

CURRENT-WHEEL.

SPECIFICATION forming part of Letters Patent No. 495,780, dated April 18, 1893.

Application filed August 10, 1892. Serial No. 442,644. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. BUCKMANN, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Current-Wheels, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to new and useful improvements in current wheels, and the invention consists in the peculiar construction of a device comprising a supporting frame or structure, a frame pivotally suspended therefrom, and a series of water wheels in the suspended frame geared together and adapted to be propelled by the current to drive machinery at any desired point.

20 The invention further consists in the peculiar construction and arrangement of the raising and lowering devices for the suspended frame, and further in the peculiar arrangement and combination of the various parts, all as more fully hereinafter described.

25 In the drawings, Figure 1 is a side elevation of my improved device. Fig. 2 is a cross section thereof taken vertically through the forward spanning timber.

30 A is a frame or structure of any desired material for supporting the water wheels and arranged to span a water course or river or a portion thereof, at a point where the current has sufficient speed to drive such a wheel. In the previous experiments with such wheels as this it has been found impracticable to apply 35 them except the current was of high speed, while with the construction which I have shown it may be employed where the current is of ordinary speed, say from four to eight 40 miles and higher, so that it may be utilized in many places where it has been found heretofore impossible to apply the power of the running water.

45 The frame A at the top is provided with cross timbers B and longitudinal timbers C. From this superstructure I suspend the frame D by means of the spanning timbers E and F arranged in pairs at front and rear of the frame D. The spanning timbers E are pivoted upon the shaft G while the spanning timbers F are pivoted upon the shaft G'.

Transversely across the frame D and between the sides thereof are a series of closed buoyant cylindrical bodies H, upon the periphery of which are secured a series of curved 55 blades I, forming a water wheel with a solid central body portion and the radially extending blades as plainly shown in Fig. 1. These blades may be secured to the cylindrical body in any desired manner. These cylinders at 60 the end are provided with heads J having hubs K carrying shafts L which are journaled in boxes M in the side bars of the frame D.

N are gears preferably formed integral with the heads J. These gears upon the various 65 water wheels being geared together in any suitable manner, preferably by means of an intermediate gear wheel O journaled upon the shaft Q' in the side bars of the frame D.

70 Upon the end of the shafts L is a drive pinion P preferably the sprocket wheel over which passes the sprocket chain P' engaging with the sprocket wheel P² secured upon the end of the shaft G' and upon the stub shaft, substantially in line therewith. In the upper 75 frame I preferably arrange these drive pinions and wheels at both ends of the shafts L and G', as shown in Fig. 2. Upon the shaft G' is secured a suitable drive pulley Q over which any desired machinery may be driven. 80 To raise and lower this frame I swing the lower end upward in the arc of a circle in any desired manner, the means which I preferably employ for adjusting it consisting of the rope R secured centrally to the frame, passing over 85 the sheave R' on the upper frame and then forward and over the winding drum R² upon the shaft R³ at the front of the machine. This shaft is secured in a sliding box S, which is secured by means of the end lever S' having 90 a latch adapted to engage the notched segment S² and the arm S³ having a connecting rod S⁴ connecting that arm with the box S.

T is a friction wheel secured to the shaft R³ and T' is a friction wheel on the shaft G'. 95

The machine being in operation, to raise it the operator releases the spring catch from the notched segment S² and drives the lever forward, drawing the friction wheel T into contact with the friction wheel T', causing 100 that wheel to revolve and also the drum R² winding up the rope R and thereby raising

the frame so that the wheels will be lifted more or less out of the way. When it has reached the desired point the operator throws the lever S' in the opposite direction causing the friction wheel T to impinge against the stationary friction block U thereby locking the frame in its adjusted position. By making the body of the wheel a closed cylinder or a solid cylindrical body the current will exert its full effect upon the blades in turning the wheels and thus I will obtain a maximum of power from my construction, while in the wheels of the type heretofore used, which have been such as the ordinary paddle wheels on boats, the current could flow above and below the blades and thus much of its effect was lost. It is also obvious that with my construction as many of such wheels as desired may be placed together, either arranged in longitudinal series or side by side, or both, utilizing the current for a long distance and for any desired width, and at the same time I employ provision for any rise or fall in the current and for adjusting the water wheels to have any depth of dip desired.

What I claim as my invention is—

1. In a current wheel, the combination with a supporting structure, of a frame below the structure, spanning timbers pivotally connected at opposite ends with the opposite ends of the structure and frame respectively, water wheels mounted on the frame, a gear on one of the wheels, a drive chain on the gear, a gear on the structure over which the chain passes, a pulley on the structure, a friction wheel actuated by the movement of the chain, a friction wheel slidingly mounted on the supporting structure adjacent to the other friction wheel, a winding drum actuated by the sliding friction wheel, a flexible connection

connected to the drum passing over the pulley and having its lower end secured to the frame, and a lever for moving the sliding wheel, substantially as described.

2. In a current wheel, the combination with a support and a swinging frame thereon, of water wheels mounted on the frame, a sliding friction wheel on the support, a flexible connection between the same and frame, means for moving the sliding friction wheel back and forth, a lock for the moving means and gearing actuated by the water wheels for rotating the sliding wheel to elevate the frame, substantially as described.

3. In a current wheel, the combination with a support, of a swinging frame carried thereby, water wheels on the frame, an adjustable winding wheel on the support, a flexible connection between the same and frame, means for adjusting the winding wheel, gearing actuated by a water wheel for rotating the winding wheel, a lock for the winding wheel, and means for retaining the winding wheel in contact with the lock substantially as described.

4. In a current wheel, the combination with a shaft, of a swinging frame thereon, water wheels on the frame, elevating mechanism located at one end of the support, a driving connection between the water wheels and said mechanism, and a flexible connection connected with the elevating mechanism, passing over the opposite end of the support and connected with the frame, at a point between the ends thereof, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM F. BUCKMANN.

Witnesses:

N. L. LINDOP,

JAMES WHITTEMORE.