

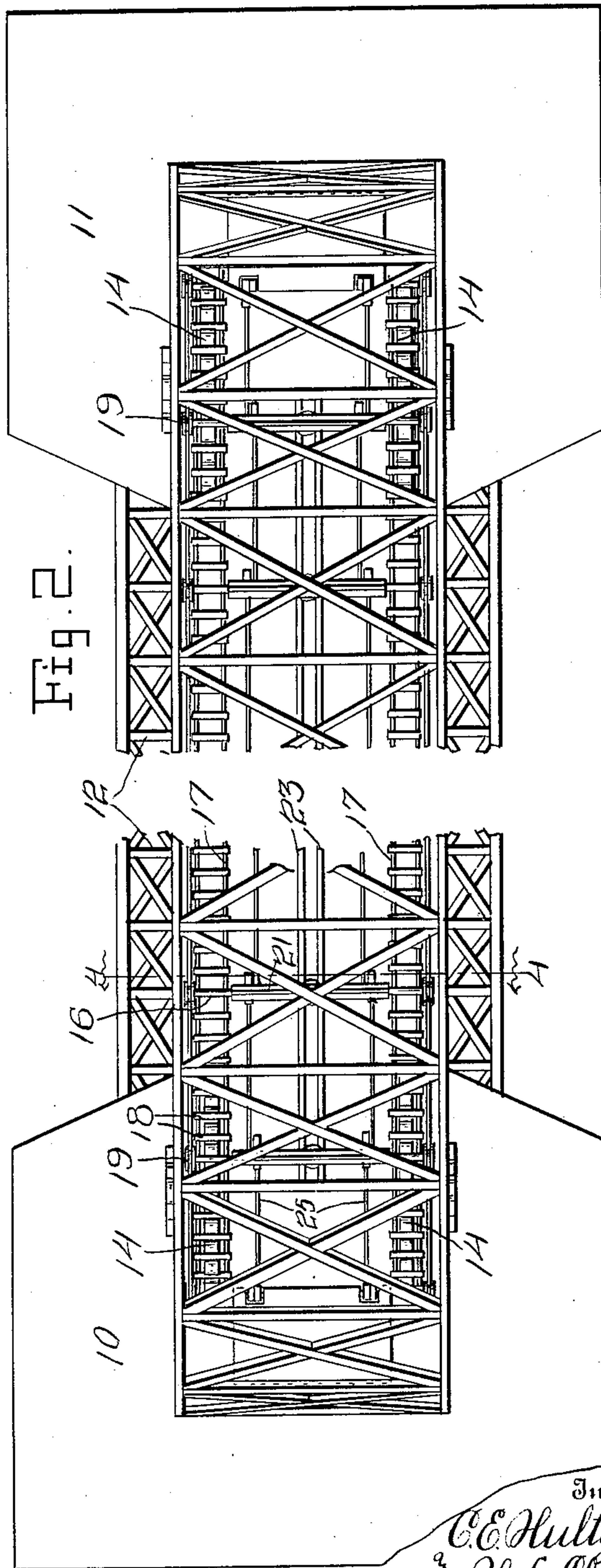
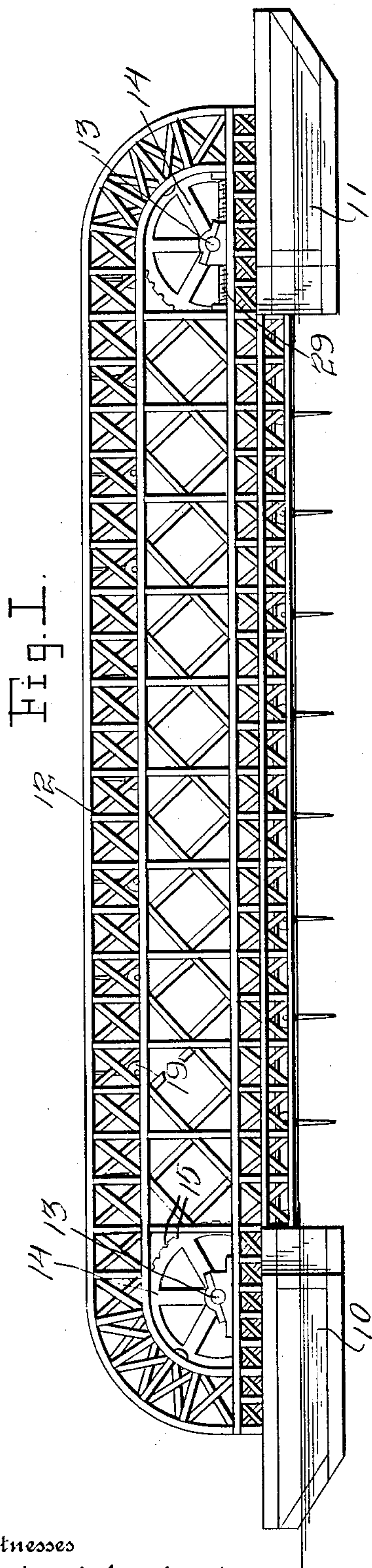
No. 862,252.

PATENTED AUG. 6, 1907.

C. E. HULTGREEN & H. L. CLEMENTS.
CURRENT MOTOR.

APPLICATION FILED AUG. 13, 1906.

4 SHEETS—SHEET 1.



Witnesses
C. K. Reichenbach
A. C. MacFarlane

Inventors
C. E. Hultgreen,
H. L. Clements.
By *[Signature]*
Attorneys

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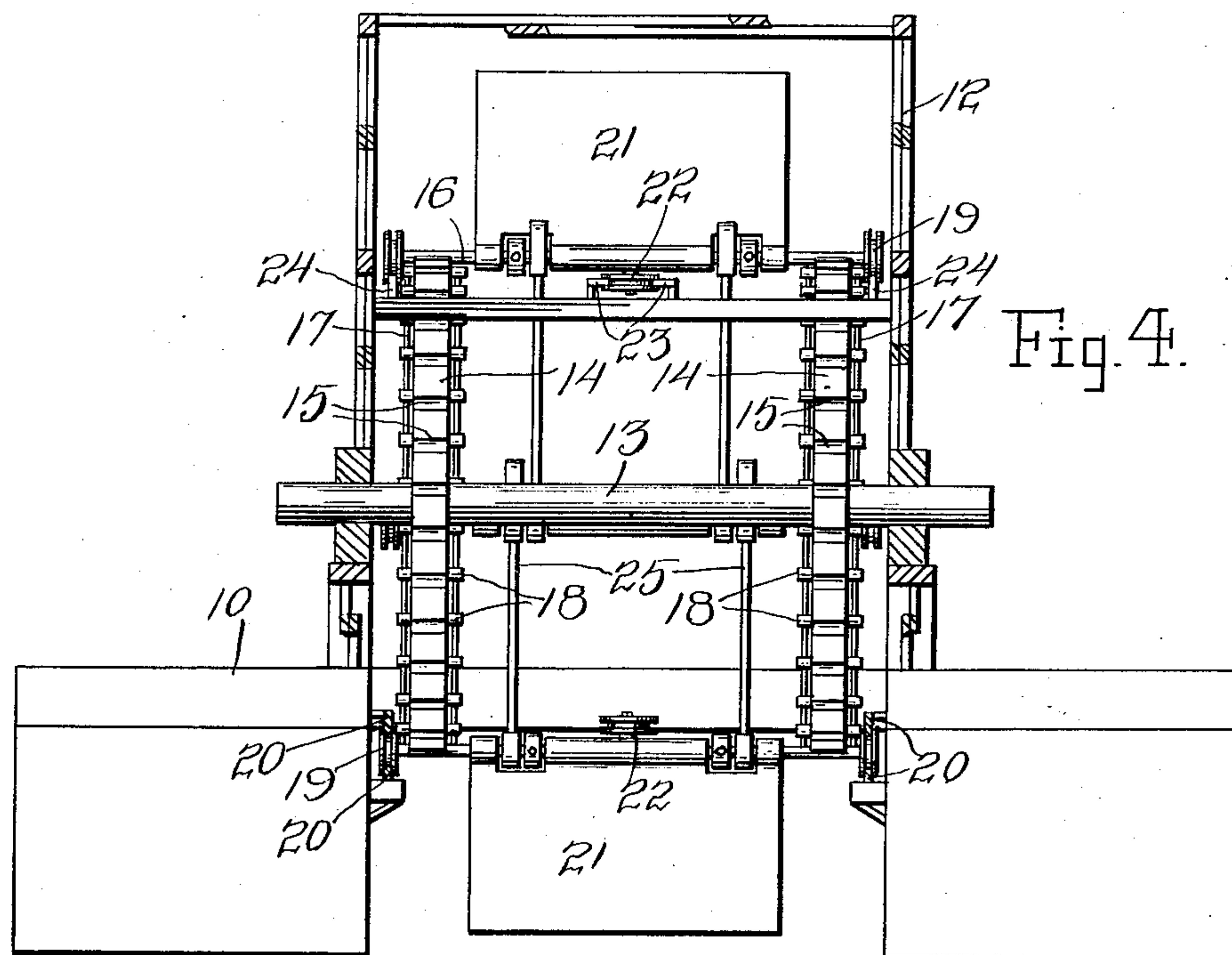
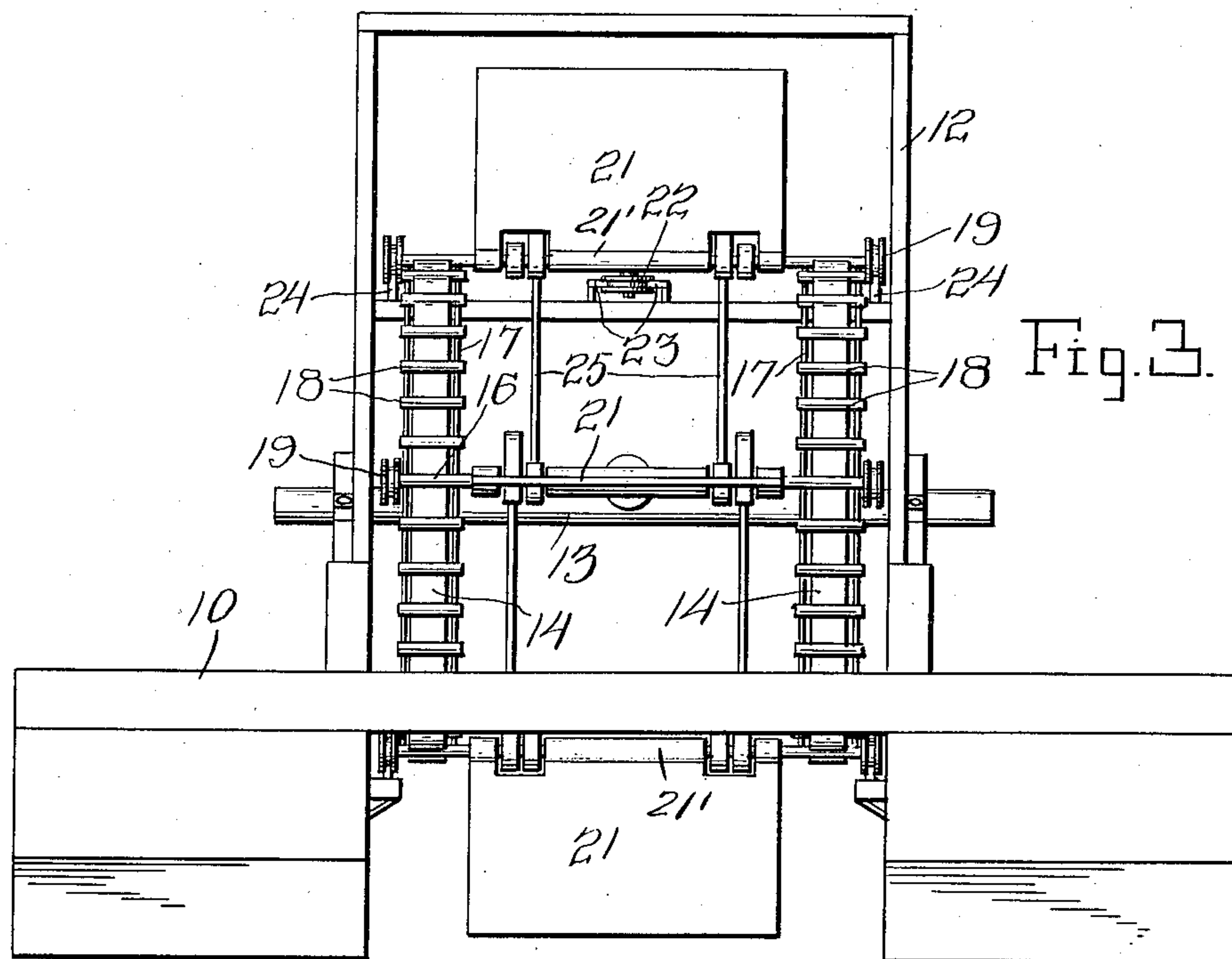
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4 SHEETS—SHEET 2.



Witnesses
C. H. Reichenbach
H. C. MacArthur

By

Inventors
C. E. Hultgreen.
H. L. Clements.
Attorneys

No. 862,252.

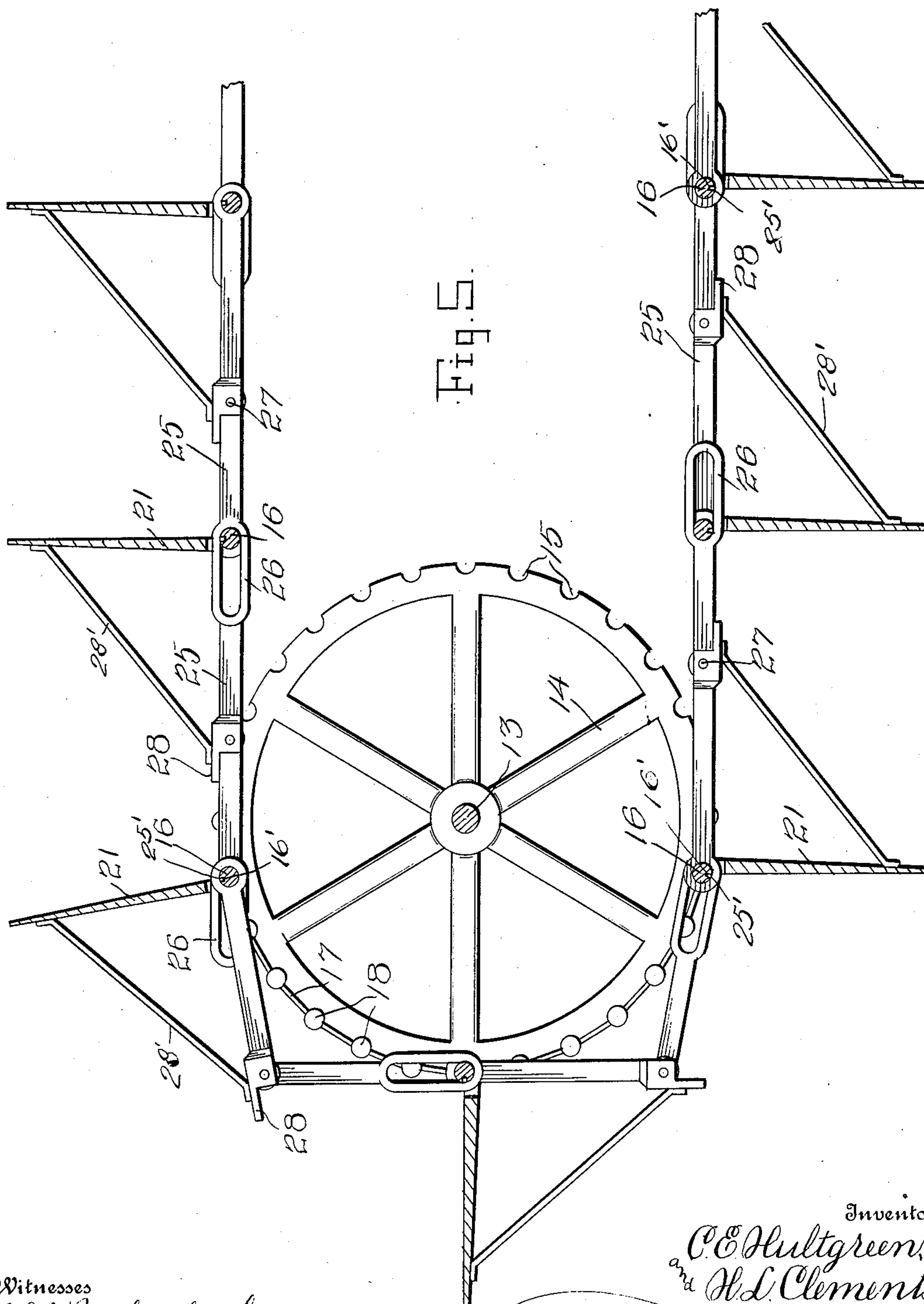
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4 SHEETS—SHEET 3.



Witnesses
B. H. Reichenbach
H. C. MacGisney

Inventors
C. E. Hultgreen,
and H. L. Clements.
By *[Signature]* Attorneys

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4 SHEETS—SHEET 4.

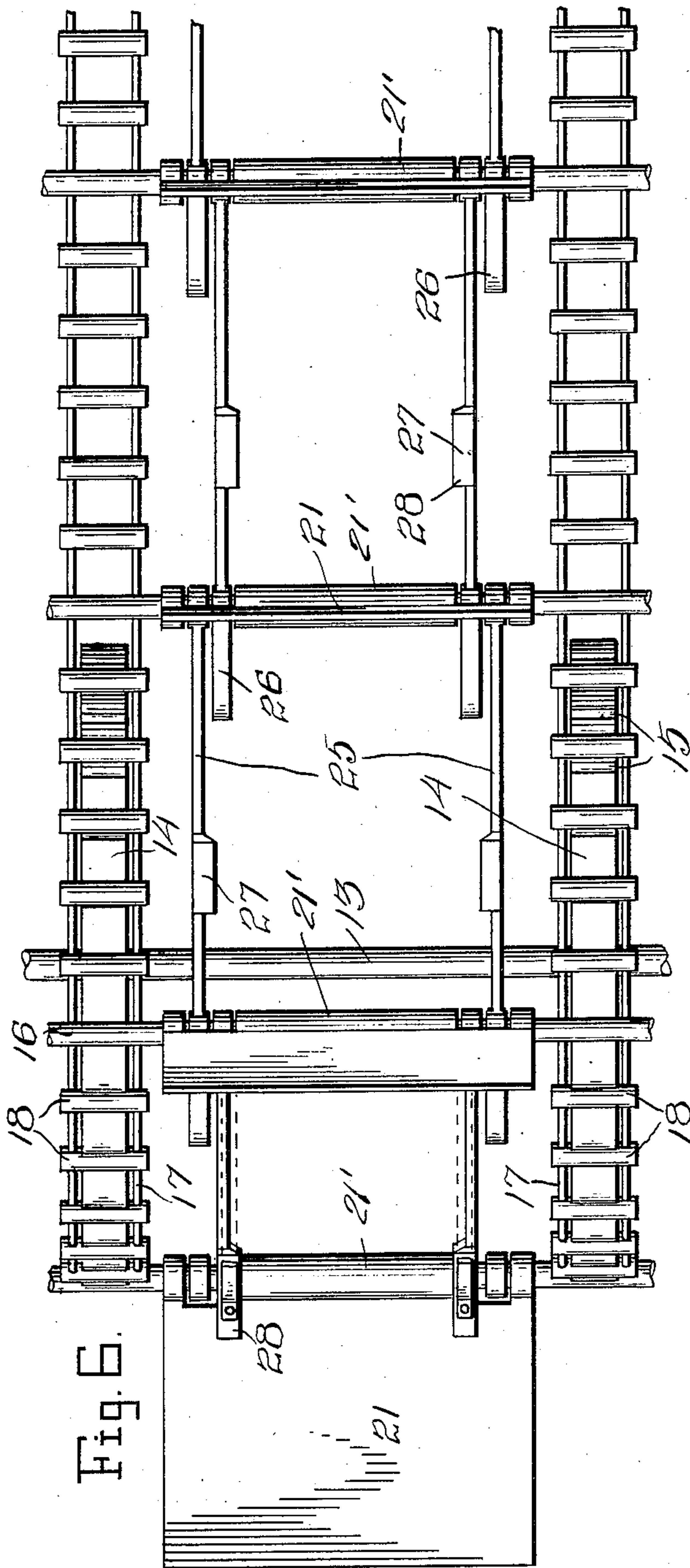
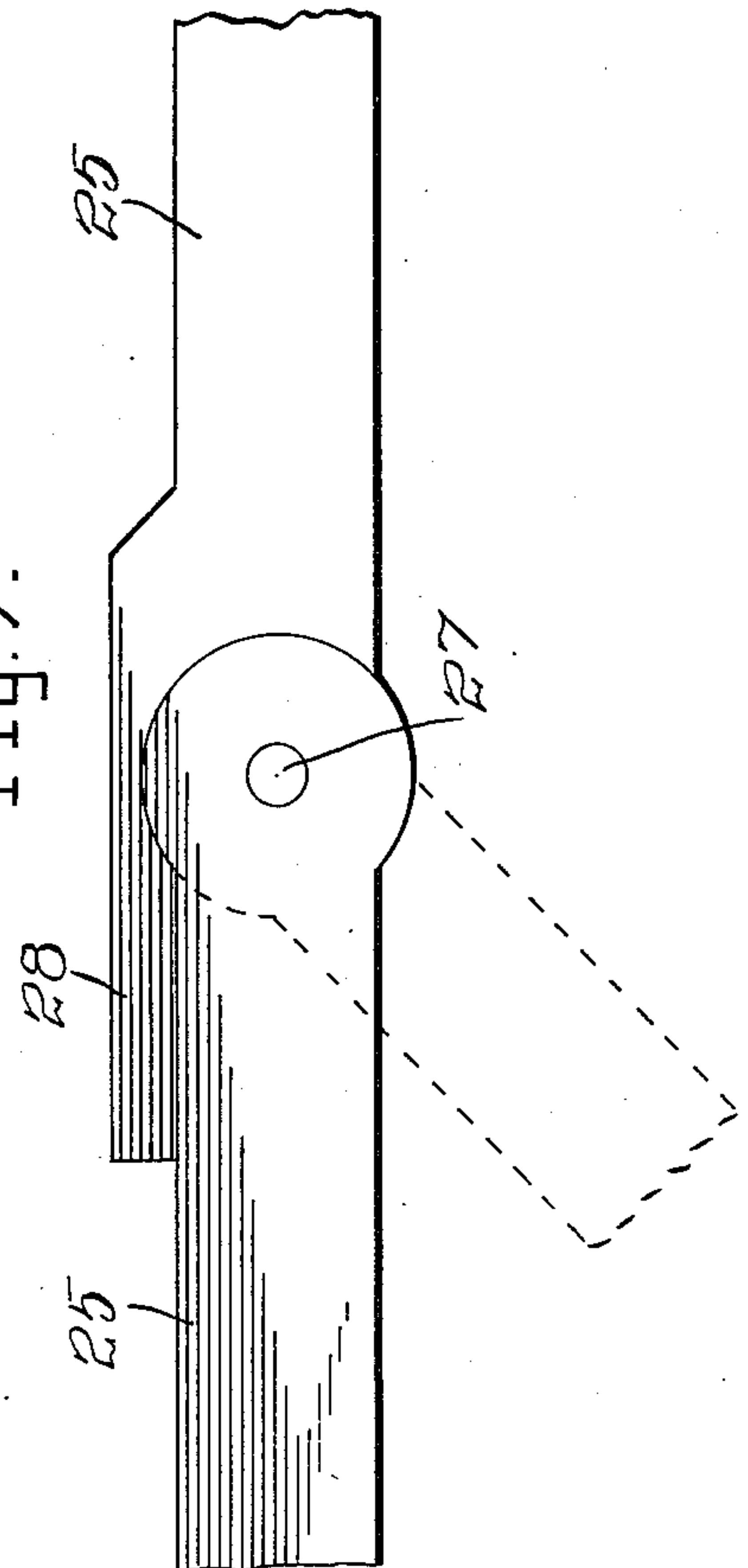


Fig. 6.

Witnesses
C. H. Reichenbach.

H. C. M. D. M.

Fig. 7.



Inventors
C. E. Hultgreen,
and H. L. Clements.
334
Hansen & Hansen
Attorneys

UNITED STATES PATENT OFFICE.

CHARLES E. HULTGREEN AND HAROLD L. CLEMENTS, OF DAWSON CITY, YUKON TERRITORY,
CANADA.

CURRENT-MOTOR.

No. 862,252.

Specification of Letters Patent.

Patented Aug. 6, 1907.

Application filed August 13, 1906. Serial No. 830,341.

To all whom it may concern:

Be it known that we, CHARLES E. HULTGREEN and HAROLD L. CLEMENTS, citizens of the United States, residing at Dawson City, in the Territory of Yukon, Dominion of Canada, have invented certain new and useful Improvements in Current-Motors; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to current motors, the general object thereof being to provide a machine of that character, which will utilize the current of a running body of water for the purpose of giving power to drive machinery.

The particular improvements consist in the construction of the links connecting the vanes or paddles, the manner of driving the sprocket chains carrying the paddles, and the manner of supporting the paddles.

With these objects in view, the invention consists in the construction, combination, and arrangement of parts, all as hereinafter described, and illustrated in the accompanying drawings, in which:—

Figure 1 is a side elevation of a current motor constructed in accordance with this invention. Fig. 2 is a top plan view of the same. Fig. 3 is an end view. Fig. 4 is an enlarged transverse vertical section on the line 4—4 of Fig. 2. Fig. 5 is an enlarged detail of a portion of one of the sprocket wheels, and the links of the chain engaging therewith. Fig. 6 is an enlarged front elevation of one of the paddles or vanes. Fig. 7 is a top view of Fig. 6.

Like parts are designated by similar numerals in the several views.

As shown in the drawings, the motor comprises a pair of floats or scows 10 and 11, arranged with water-tight compartments to be used, if required, for water, or other ballast, for the purpose of regulating the depth of the machine. The floats or scows are connected by a suitable steel framework 12, properly braced so as to withstand all strains and the like. Mounted upon each scow is a transverse shaft 13, having a large sprocket wheel 14 mounted thereon, and grooved, as shown at 15, Figs. 1 and 2, to receive the vane shafts 16 connected to the double sprocket chains 17, 17, passing over each wheel. Each sprocket chain, as shown in Fig. 6, comprises a pair of cables connected by a series of rods 18 provided with openings formed through their opposite ends, through which the cables pass, any preferred means (not shown) being made use of for holding the rods in fixed position thereon. These rods are dispensed with, however, at the points where the vane shafts 16 are disposed, the latter taking the place of the rods at such points, and being provided, to that end,

with openings similar to those above referred to, through which the cables pass. The vane shafts extend at each end beyond the outer member of the sprocket chains and carry at their outer ends a grooved wheel 19, arranged to travel between a pair of tracks 20, provided at the lower portion of the connecting framework, as shown in Fig. 4.

Each vane shaft carries a vane 21 of rectangular shape and formed of sheet metal or boiler material, the rear edge of each vane shaft being enlarged to form a sleeve 21', through which the vane shaft passes, the sleeve and shaft being readily connected in any suitable manner. Located intermediate the ends of each vane shaft is a horizontally arranged grooved wheel 22 mounted thereon and adapted for travel upon tracks 23, likewise arranged in the lower portion of the framework. By attaching the wheels 19 to the outer ends of the vane shafts, the full weight of the vanes and the sprocket chains will be carried by the outer tracks, and said wheels are likewise prevented from jumping their tracks by the vertical arrangement of the track rails, as shown. The center wheel 22 is provided for the purpose of steadying the vanes.

A single upper rail 24 is carried at each side of the framework, the wheels 19 on the vane shafts traveling thereon in the upper stretch of the chains.

The vane shafts are spaced a suitable distance apart from each other upon their carrying chains, and are connected with each other by a pair of links 25, as shown in Fig. 5, each shaft having a key seat 16' formed in its opposite ends and adapted to receive a key 25' formed on the eye end of the rear member of each pair of links, as shown, such construction serving as a means of connection between the vane shafts and links. The front link of each pair is slotted at its forward end, as at 26, and the two links are hinged together, as at 27, the rear link having an extension 28 forming a stop when the links are in horizontal position, and retaining the same in place. Owing to the slotted formation of the front link, said links will readily accommodate themselves in passing around the sprocket wheels mounted upon the scows. Each vane is further connected directly to the extension 28 of the corresponding link by a diagonal brace 28'.

The forward sprocket wheel, with respect to Figs. 1 and 2, has a suitable connection, not shown, for transmitting the power generated by the machine, while the rear sprocket wheel is arranged to slide backward and forward to regulate the tension of the sprocket chains, owing to the adjustable mounting of its shaft and boxing, as shown at 29.

The operation of the machine is as follows: The machine is anchored quite stationary at the upstream end by means of vertical sliding posts at the ends of the

scows, similar to those used by dredgers, allowing the downstream end to float loose, but held in place by means of a cable running from one shore, which cable being attached to a capstan on board the machine, can
 5 be drawn in or let out as desired, in order that the machine may be worked at any required angle. The machine can also be built up between butments in a stream, and operated in the same manner as when built with floating scows. This last method has the disadvantage of not allowing the machine to adjust itself to
 10 the rise and fall of the water.

Obvious modifications and changes may be made within the scope of the claims, and without departing from the spirit of the invention, and it is therefore not
 15 intended that the invention be limited to the exact details shown and described.

What is claimed is:—

1. A current motor comprising in combination, a pair of scows and a connecting framework; a transverse shaft
 20 mounted on each scow, a sprocket wheel mounted on each shaft; sprocket chains connecting said sprocket wheels; vane shafts carried by said chains; vanes mounted on said vane shafts; tracks mounted in said framework; wheels mounted on said vane shafts, and adapted to travel on
 25 said tracks; and pairs of links connecting succeeding vane shafts, and hinged together, the forward end of each front

link being formed with a slot to receive the end of the adjacent vane shaft.

2. In a current motor the combination with a pair of scows and a connecting frame work, a transverse shaft
 30 mounted on each scow, sprocket wheels mounted on each shaft in pairs, and parallel sprocket chains trained over the corresponding sprocket wheels, of vane shafts suspended transversely between said chains, vanes carried by said shafts, and pairs of links connecting succeeding vane
 35 shafts and hinged together, the forward end of each front link being formed with a slot to receive the end of the adjacent vane shaft.

3. In a current motor the combination with a pair of scows and a connecting frame work, a transverse shaft
 40 mounted on each scow, sprocket wheels mounted on each shaft in pairs, and parallel sprocket chains trained over corresponding sprocket wheels, of vane shafts suspended transversely between said chains, vanes mounted on said vane shafts, and pairs of links connecting succeeding vane
 45 shafts and hinged together, one of said links being formed with a projection adjacent its hinged connection with the other link, said projection constituting a stop, to prevent said links from sagging.

In testimony whereof, we affix our signatures, in presence of two witnesses. 50

CHARLES E. HULTGREEN.
 HAROLD L. CLEMENTS.

Witnesses:

THOMAS A. FIRTH,
 C. WOODWORTH.