

H. L. PEARMAN & H. W. STIBGEN.

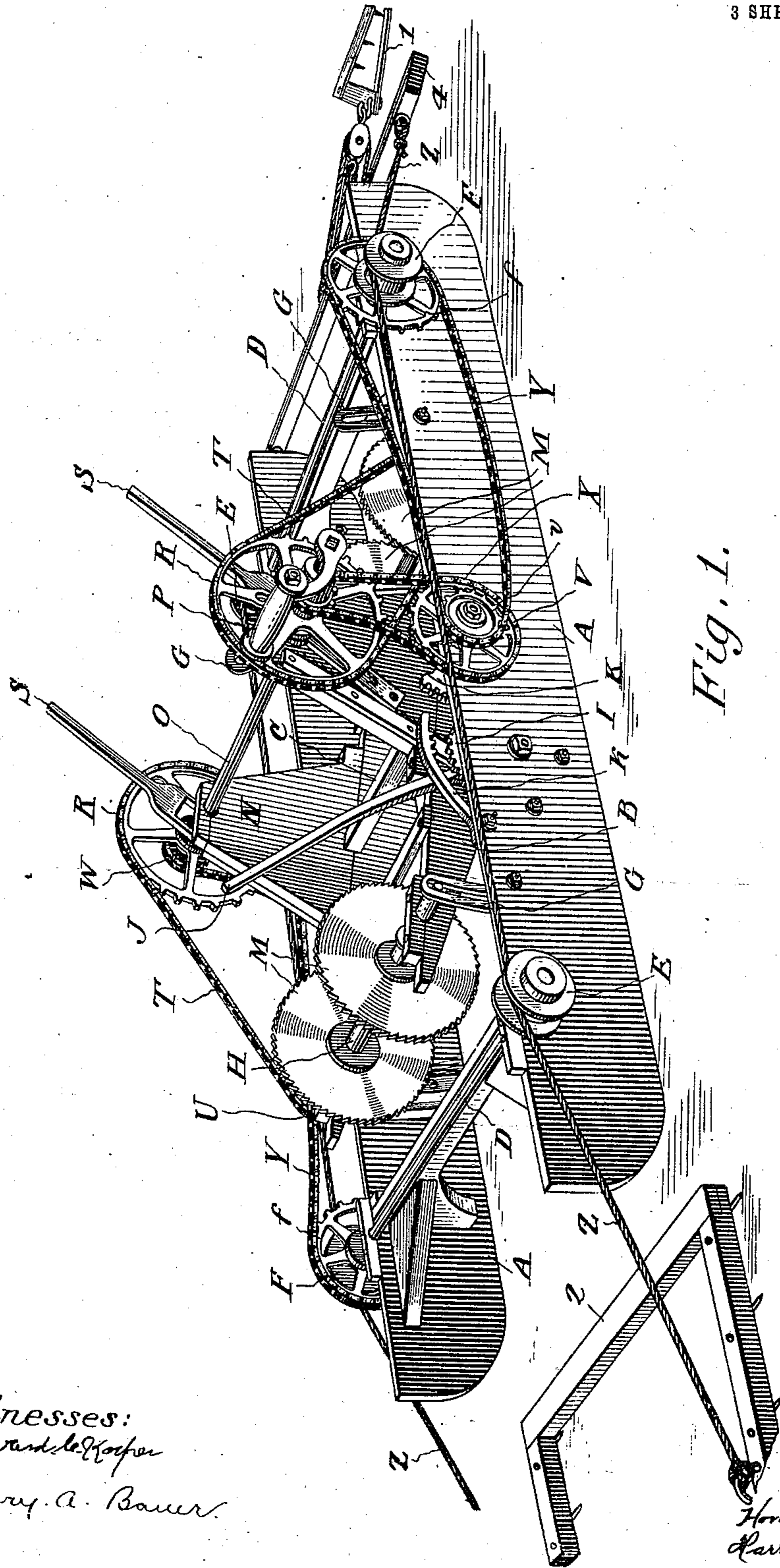
ICE CUTTING MACHINE.

APPLICATION FILED FEB. 16, 1910.

989,634.

Patented Apr. 18, 1911.

3 SHEETS—SHEET 1.



Witnesses:
Edward A. Kofen
Harry A. Bauer.

Inventors
Horace L. Pearman
Harry W. Stibgen

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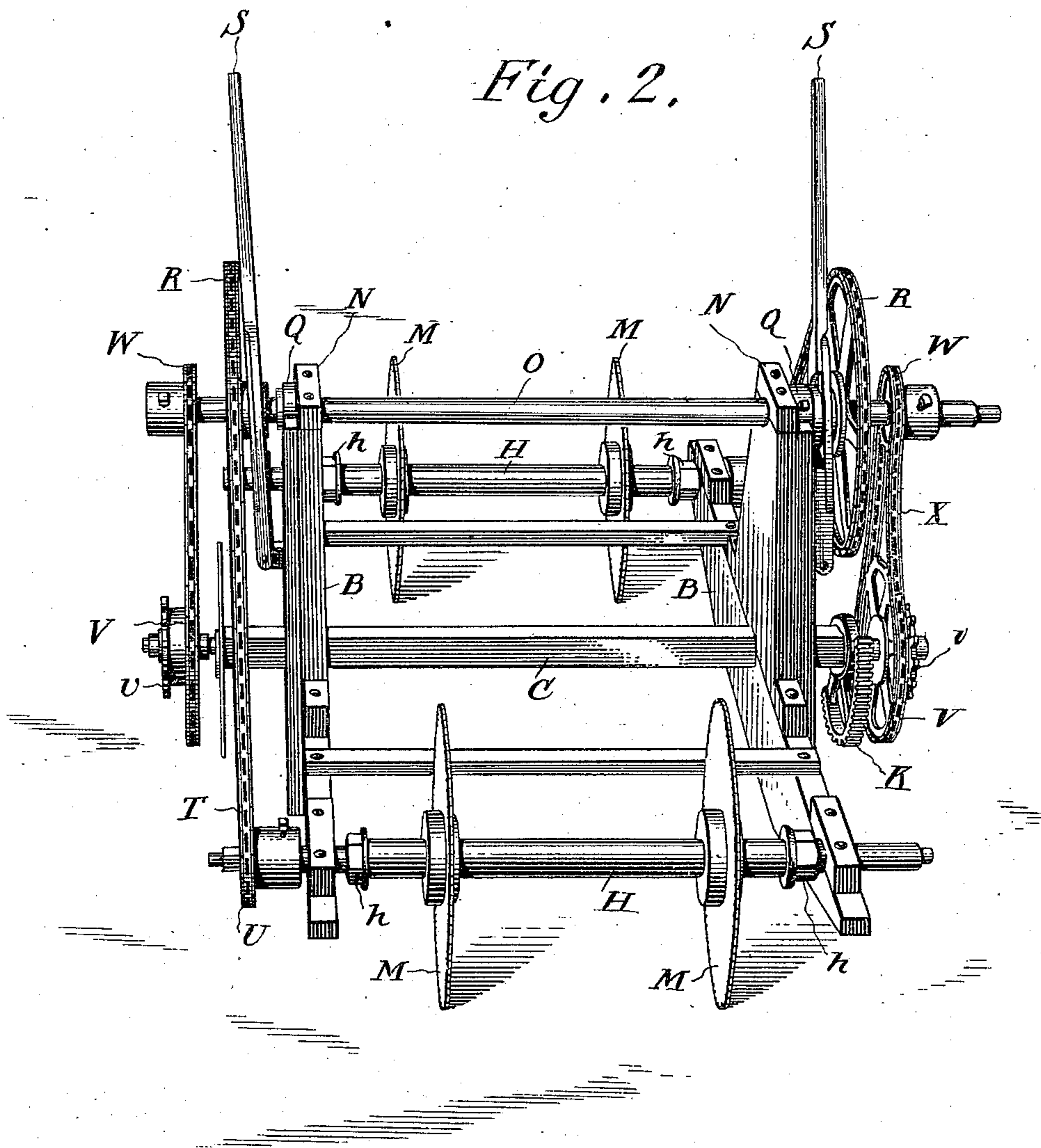
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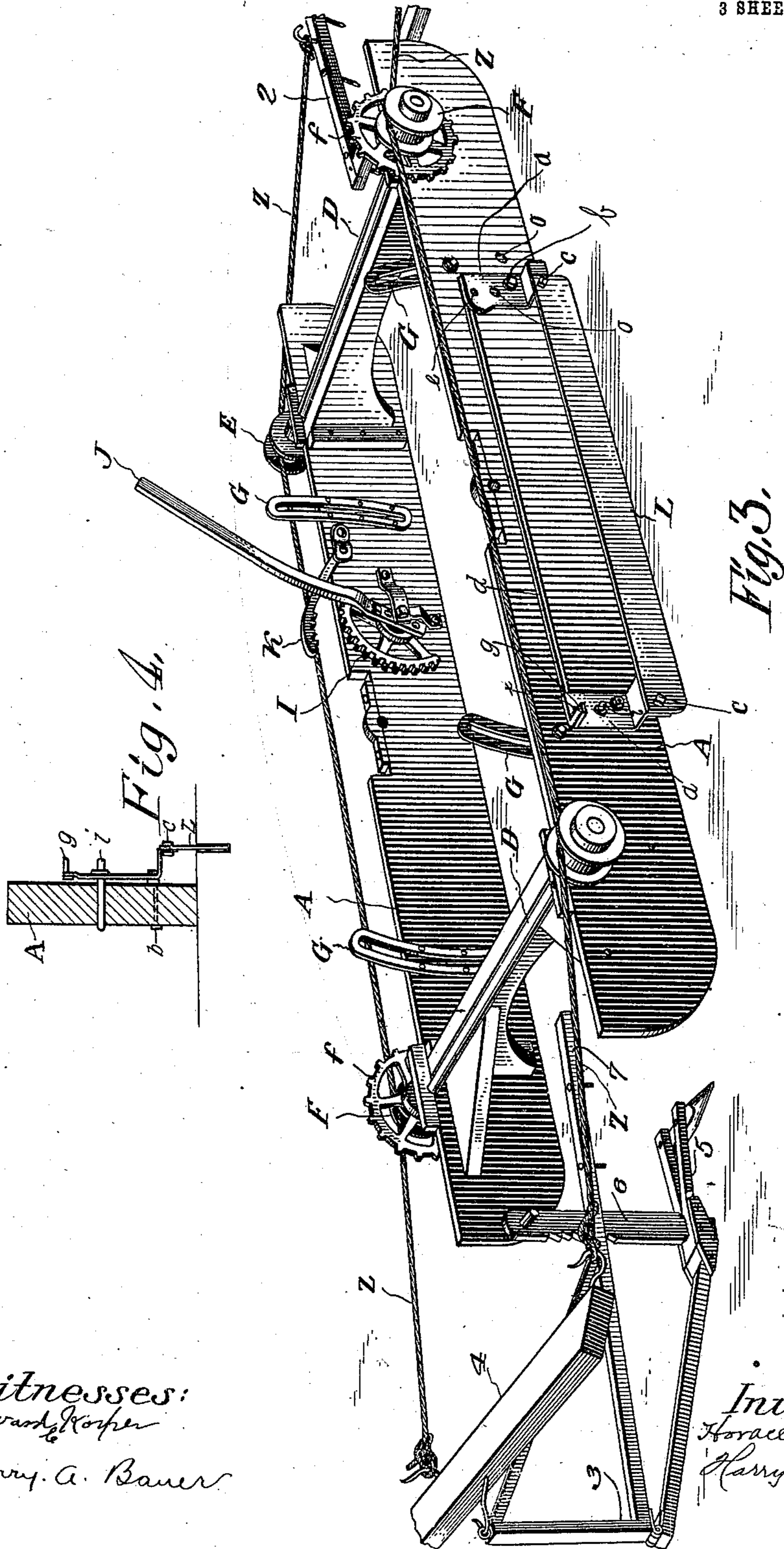
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UNITED STATES PATENT OFFICE.

HORACE L. PEARMAN AND HARRY W. STIBGEN, OF WILKES-BARRE, PENNSYLVANIA.

ICE-CUTTING MACHINE.

989,634.

Specification of Letters Patent.

Patented Apr. 18, 1911.

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To all whom it may concern:

Be it known that we, HORACE L. PEARMAN and HARRY W. STIBGEN, citizens of the United States, residing at Wilkes-Barre, in the county of Luzerne and State of Pennsylvania, have invented a new and useful Ice-Cutting Machine, of which the following is a specification.

This invention relates to machines for cutting ice, and has for its object to provide a machine of this character having two gangs of saws mounted upon a tiltable table adapted to shift so as to bring either gang into engagement with the ice, according to the direction in which the machine is moving.

A further object is to provide an ice cutter utilizing a novel form of gage, whereby the same can be properly guided during its back and forth movement over the ice field.

A still further object is to provide flexible guide elements having improved means for anchoring them to the ice, there being means upon the machine for engaging these elements and pulling upon them so as to move the machine in either direction desired.

With the foregoing and other objects in view, the invention consists in certain novel details of construction and combination of parts hereinafter more fully described and pointed out in the claims.

In the accompanying drawings, the preferred form of the invention has been shown.

In such drawings:—Figure 1 is a perspective view of the machine. Fig. 2 is a perspective view of the table and parts carried thereby. Fig. 3 is a perspective view of the supporting structure and showing a modified form of anchor combined therewith. Fig. 4 is an end view of the gage.

Referring to the figures by characters of reference, A designates the main supporting frame made up of runners or the like, connected at suitable points, and an axle C extends transversely of the center portion of this structure and carries a tiltable table B. Journaled upon each end portion of this table is a saw shaft H, which extends transversely of the table, and has its terminals mounted in arcuate guide plates G extending upwardly from the structure A. Each shaft H has a gang of saws M thereon, it being understood that any desired number of saws may constitute each gang. A segmental gear K is secured to one end portion of the axle C and meshes with a gear I jour-

naled upon one side of the structure A and having a controlling lever J extending upwardly therefrom. A locking dog *h* is mounted on the structure A and is adapted to engage the gear I so as to hold it against movement. Obviously, by rotating gear I by means of lever J, the segmental gear K can be rotated a desired distance, so as to cause a corresponding movement of the axle C and of the table B.

Standards N are mounted upon the side portions of the table B at the centers thereof, and have a shaft O journaled upon them, this shaft extending transversely of the table. A clutch member Q is secured to each end portion of the shaft O and is adapted to be engaged by a movable clutch member forming the hub portion of a sprocket R, this sprocket and its clutch member being loosely mounted on the shaft. An actuating lever S engages the clutch member of each sprocket R, and by means thereof said clutch member can be shifted into and out of engagement with the clutch member Q. Each sprocket R drives a chain T which is mounted on a sprocket U secured to one of the shafts H, it being obvious that the two sprockets thus serve to drive the respective gangs of saws. The shaft O is provided with a crank P or the like, whereby it can be driven by hand in either direction.

A small sprocket W is secured to each sprocket R, each of these sprockets W driving a chain X which serves to transmit motion to a sprocket V secured to one end portion of the axle C. These sprockets are loosely mounted on the axle, and each of them has a similar sprocket *v* revoluble with it.

Mounted on each end portion of the supporting structure A is a transverse shaft D, each of these shafts being provided, adjacent one end, with a sprocket *f* which is keyed or otherwise secured to it, and is connected to one of the sprockets *v* by means of a chain Y. Drums E and F are secured to the ends of each of the shafts D, the two drums at each side of the machine being adapted to engage one of a pair of guide cables Z which are extended throughout the length of the ice field to be cut, the ends of these cables being attached to anchors, such as shown, for example, at 1 and 2 of Fig. 1. The anchor 1 preferably consists of a triangular metal structure having prongs or spurs adapted to bite

into the ice, this anchor being connected by block and tackle to an equalizer 4 to which the two cables Z are connected at one end. The anchor to which the other ends of the
 5 cables are attached is preferably in the form of a frame 2 having ice engaging prongs or teeth extending downwardly therefrom.

When it is desired to use the machine for
 10 cutting to and from an open channel, an anchor such as has been illustrated in Fig. 3 may be employed, this anchor consisting of a toothed base 5 having a standard 6 adjustably engaged by a tongue 7 extend-
 15 ing forwardly from an upstanding frame 3 to which an equalizer may be attached. In order that blocks of the proper width may be cut, a gage such as has been illustrated in detail in Figs. 3 and 4 may be mounted
 20 upon one side of the supporting structure. This gage consists of levers *a* fulcrumed at *b* upon the side of the structure A and pivotally connected, at their lower ends, as indicated at *c*, to the end portions of a
 25 blade L. The upper ends of the levers are pivotally attached to a connecting rod *d*, the points of connection being indicated at *e*. A handle *g* may be extended from one of the levers to facilitate the actuation of
 30 the gage. Openings *o* are formed within the levers *a* and the side of the structure A and are adapted to register when the levers are extended perpendicular to the base of the machine. A locking pin *i* may
 35 be extended into these registering openings so as to hold the gage against movement.

In using the machine, the anchoring de-
 40 vices 1 and 2 or 1 and 3 are placed in engagement with the ice at the ends of the path to be traveled, and the cables Z are wrapped about the drums E and F. Said cables are then drawn taut by means of the block and tackle, and the shaft O is set in motion. As long as the clutch members
 45 Q are out of engagement with the members R motion will not be transmitted from the shaft to the shafts D and, therefore, the shafts D and the drums E and F will not be rotated. To drive the machine in one
 50 direction, one of the clutches Q is shifted by its lever S into engagement with the clutch member on adjacent sprocket R and motion will thereby be transmitted from said member R through chains T to one of
 55 the gangs of saws and, through one of the chains X to the sprockets V and *v*. Said sprocket *v* will, therefore, drive chain Y and sprocket *f* and the drums E and F actuated by said sprocket will pull upon the cables
 60 and thus cause the machine to travel over the ice toward one of the anchors. By shifting the lever J the table B can be tilted so as to bring the rear gang of saws into engagement with the ice. When the machine
 65 reaches one of the limits of its movement,

the person handling the block and tackle will loosen the same so as to slacken the cable Z and further rotation of the drums E and F will thus be without effect, as said drums will rotate freely within the loops 70 in which they are mounted. The machine is shifted bodily so as to bring the gage L above the cut and said gage is then lowered into the cut and held by means of the pins *z*. The clutches are shifted so as to place the
 75 drums E and F at the other end of the machine into operative relation with the shaft O and the table is tilted to bring the other gang of saws into engagement with the ice. Cables Z are then drawn taut by means of
 80 the block and tackle, and will frictionally engage the driven drums E and F and thus cause said drums to pull the machine toward the other end of its field of movement when the crank P is turned in the
 85 opposite direction.

From the foregoing description it will be seen that the movement of the machine is under the control at all times of a person operating the block and tackle and the di-
 90 rection of travel is under the control of a person accompanying the machine in its movement back and forth between the anchors. It requires but three persons to operate the plow, one being located at each
 95 anchor and one accompanies the machine.

The entire machine is very simple and durable in construction, can be easily operated, and will act to efficiently cut the ice.

Various changes can, of course, be made in
 100 the construction and arrangement of parts without departing from the spirit or sacrificing any of the advantages of the invention as defined in the appended claims.

What is claimed is:—

1. The combination with a movable structure, ice cutting devices carried thereby, and an operating frame mounted for tilting on the structure, of a revoluble drum, a flexible guide device having an intermediate portion
 110 engaging the drum, means for anchoring both ends of said device at points removed from the structure, and means for tightening and slackening said device relative to the drum to control the movement of the struc-
 115 ture.

2. The combination with a movable structure and a revoluble drum carried thereby, of a flexible guide device having an intermediate portion engaging the drum, means
 120 for anchoring both ends of said device at points removed from the structure, and means for tightening the device to place it in frictional engagement with the rotating drum.

3. A movable structure, an actuating drum mounted for rotation thereon, a flexible guide device wrapped about the drum and extending beyond both ends of the structure, means for anchoring said device
 130

at both ends, and means for drawing said device taut to place it in frictional engagement with the actuating drum.

4. A movable structure, actuating drums 5 mounted for rotation thereon, a drive shaft, means for transmitting motion from said shaft to either drum, a flexible guide device wrapped about each drum and having its ends projecting beyond the ends of the 10 structure, means for anchoring one end of said device, and means engaging the other end of said device for rendering it taut and placing it in frictional engagement with the drums.

15 5. The combination with a movable structure, actuating drums mounted for rotation thereon, and means for operating either of said drums, of a single flexible guide device, means for anchoring one end portion there- 20 of, said device being wrapped about the drums and extending beyond both ends of the structure, and means for drawing said device longitudinally to tighten it and to place it in frictional engagement with the 25 rotating drums.

6. An ice cutter including a supporting structure, a table tiltably mounted thereon,

an axle revoluble with the table, a gear se- 30 cured to the axle, another gear meshing therewith, a lever extending from the last mentioned gear, means for engaging said last mentioned gear to hold the two gears and the axle against rotation, a gang of 35 saws upon each end portion of the table, an actuating shaft, and separate means operated by the shaft for driving said saws.

7. An ice cutter including a supporting structure, ice cutting means carried thereby, means for actuating the cutter, a gage plate 40 extending parallel with the path of movement of the cutter, levers fulcrumed upon the side of the structure and pivotally connected to the plate, a connecting rod pivotally attached to the upper ends of the levers, 45 a handle extending from one of the levers, and locking means engaging one of the levers and the structure for holding the gage in raised or lowered position relative to the structure.

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