No. 840,366. PATENTED JAN. 1, 1907.

J. G. PEDLEY.

SAWING MACHINE.

APPLICATION FILED JUNE 26, 1905.

2 SHEETS—SHEET 1.

Fig. 1

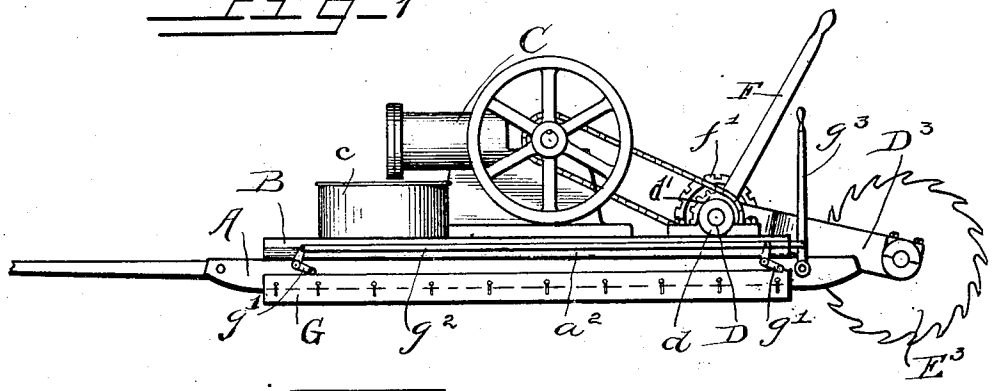
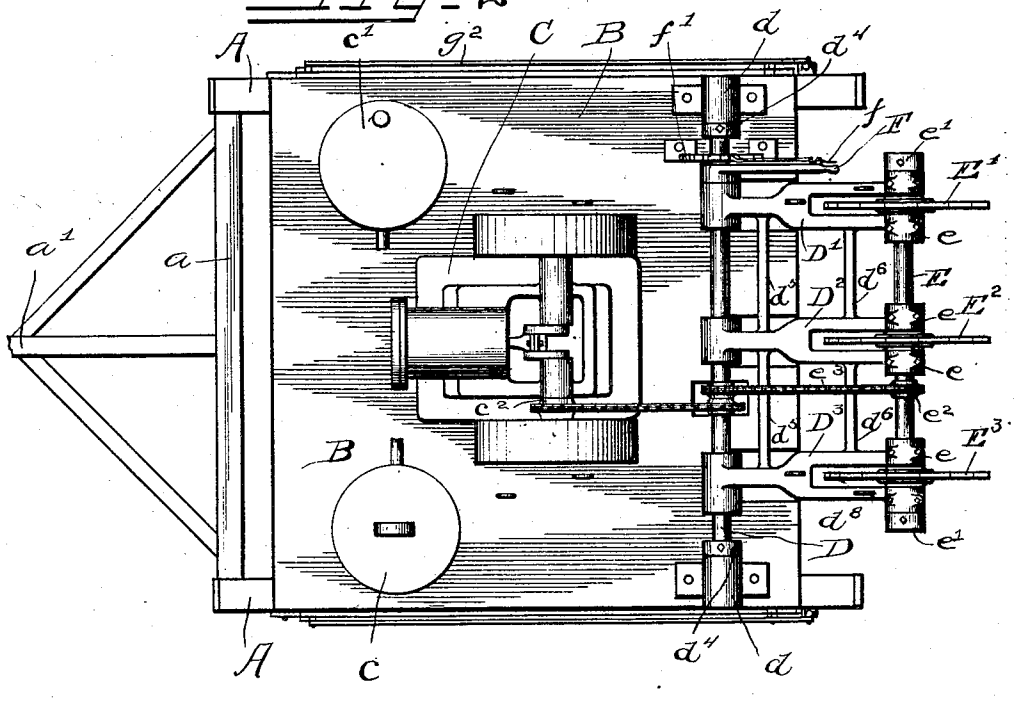



Fig. 2




Witnesses
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2 SHEETS—SHEET 2.

Fig. 6

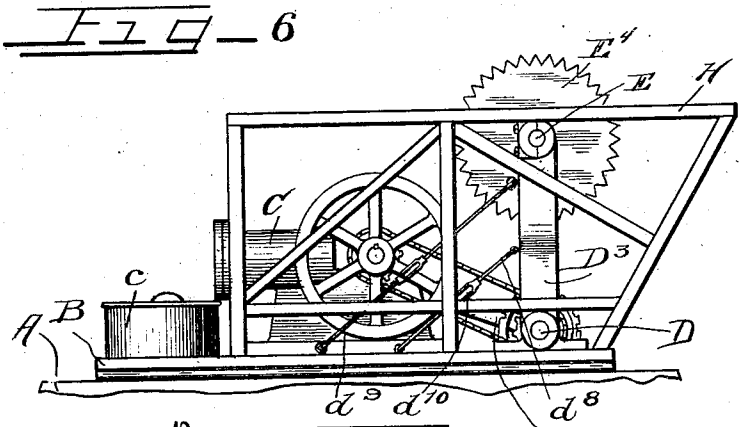



Fig. 3

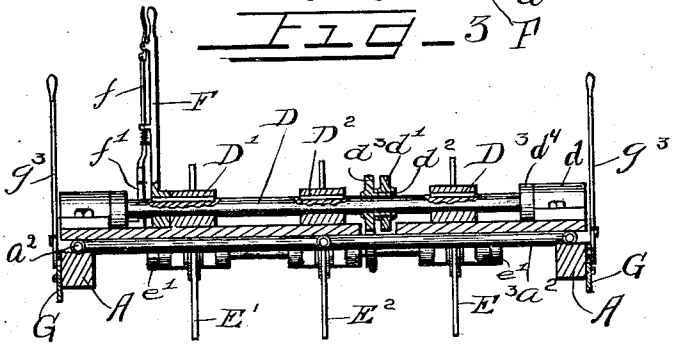



Fig. 5

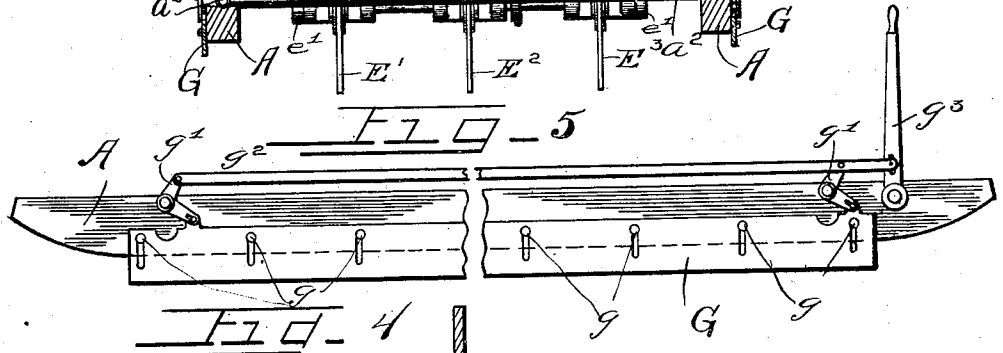
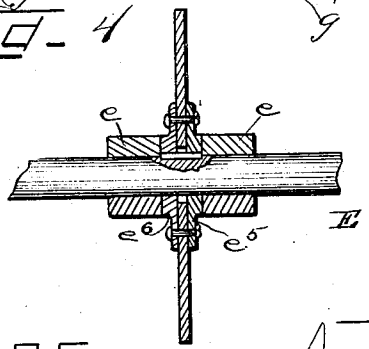



Fig. 4




Witnesses

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# UNITED STATES PATENT OFFICE.

JOHN G. PEDLEY, OF PLEASANT PRAIRIE, WISCONSIN.

## SAWING-MACHINE.

No. 840,366. Specification of Letters Patent. Patented Jan. 1, 1907.

Application filed June 26, 1905. Serial No. 266,978.

*To all whom it may concern:*

Be it known that I, JOHN G. PEDLEY, a citizen of the United States, and a resident of the city of Pleasant Prairie, Kenosha county, Wisconsin, have invented certain new and useful Improvements in Sawing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to ice-sawing machines adapted to be quickly converted into a machine for sawing wood or other material.

Heretofore in cutting ice in large quantities ice-plows have usually been used drawn by horses, and though sometimes operated in gangs it is usually necessary for the plow to traverse the cut a plurality of times before the ice has been cut sufficiently deep to enable the block to be cleaved off with an ice space.

The object of this invention is to afford a machine adapted to cut one or more lines of blocks at a time and though drawn by horses or other suitable motive power is provided with an independent motor or other suitable mechanism to drive either one or a gang of saws, as preferred.

It is also an object of this invention to afford a construction adapted to be quickly converted, principally by change of saws, from an ice to a wood cutting machine, thus affording a sawing-machine adaptable for use as a general sawing-machine.

The invention embraces many novel features and consists in the matters hereinafter described, and more fully pointed out and defined in the appended claims.

In the drawings, Figure 1 is a side elevation showing the machine adjusted for cutting ice, with the saws down. Fig. 2 is a top plan view of the same. Fig. 3 is a transverse section of the frame and saw-arms. Fig. 4 is an enlarged detail illustrating the means for securing the saws upon the shaft or arbor. Fig. 5 is an enlarged fragmentary detail illustrating the operation of the gage or guide-shoe. Fig. 6 is a side elevation of the machine, showing the same adjusted for cutting wood.

As shown in said drawings, A A indicate runners or skids connected, as shown at the front, by means of a roller $a$, to which is secured a pole or tongue $a'$ in the usual manner, affording means for attaching draft-animals. Said runners or skids are connected at the rear of the roll $a$ by means of connected pipes $a^2$, which may serve as radiators for cooling the motor should a water-cooling explosive-engine be used. Supported on said pipe is a rigid platform or deck B, on which is secured an explosive-engine of any desired horse-power or construction, and the cylinder thereof may be cooled by water, if preferred. For this purpose a water-tank $c$ is shown supported near the front upon one side of the platform, while the gasolene tank or reservoir $c'$ is supported on the opposite side of the platform, thus distributing the weight over the platform as uniformly as possible. Journaled on said frame and runners transversely of the same near the rear end thereof is a shaft. D, the ends of which have bearings in the boxes $d$ at each side the machine and upon which in alinement with the sprocket-wheel $c^2$ of the engine is a sprocket-wheel $d'$, which is rigidly secured upon an elongated sleeve-hub $d^2$ of the sprocket-wheel $d^3$, from whence the saws are driven. Collars $d^4$ are rigidly secured on each end of the shaft D, bearing against the inner end of the boxes $d$ and act to hold said shaft from longitudinal movement, and rigidly secured on said shaft, at a distance apart corresponding with the width of cut desired are rearwardly-directed parallel arms D′, D², and D³, each of which is slotted longitudinally at the outer end to receive a saw. Said arms are rigidly connected by rods $d^5$ and $d^6$, which may be secured in any suitable manner upon the arms D′ and D² and D³. Journaled on the outer end of said arms in suitable bearings, which, as shown, are provided with removable caps $e$, is an arbor E, provided with collars $e'$ at each end of the same to hold the same from longitudinal movement, and rigidly secured thereon is a sprocket-wheel $e^2$ in alinement with the sprocket-wheel $d^3$ and receiving the sprocket-chain $e^3$ therefrom. Upon said arbor E, between the bearings afforded by the forked ends of the arms D′ and D² and D³, are saws E′, E², and E³, which, as shown, are rigidly bolted to collars $e^5$ and $e^6$, keyed on the arbor E, and which fit between the bearings at the end of each arm, as shown in Figs. 2 and 4. Said saws when used for cutting ice either singly or in gangs, as shown in Figs. 1, 2, and 3, are gummed, as is usual for a rip-saw—that is to say, are gummed to afford considerable lead for each tooth—and said

saws are arranged upon the shaft, as shown in Fig. 1, so that the saw rotates rearwardly, whereby the saw or saws in cutting draw the rear end of the machine downwardly upon the ice.

Means are provided for elevating the saws or lowering the same at the will of the operator comprising a lever F, provided with a spring-detent $f$ and rigidly secured upon the shaft D in position for its detent to engage a toothed segment $f''$, secured on the platform, and whereby the operator is able to rotate the shaft D, adjusting the saws either for cutting below the sled or with the arms directed vertically to enable the machine to be used for wood-cutting.

A guide G is provided on each runner to hold the machine to the cut when sawing ice. For this purpose a plate or blade, of steel or other suitable material, is provided with a plurality of transverse slots and engaged upon pins or screw-bolts $g$, extending through the slots and secured in the side of the runner. Bell-crank levers $g'$ are pivoted on the side of the runner above and at each end of the guides G, and corresponding arms of the same are connected with the upper edges of said plates. The upwardly-directed arms thereof are pivotally connected with rods $g^2$, one for each plate and the ends. Preferably the rear end of each rod is engaged by a lever $g^3$, whereby said rod $g^2$ is adapted to be shifted forwardly in elevating the plate or rearwardly in lowering the plate into a cut formerly made in the ice. Said saws are so arranged that the end saws on the arbor are at a distance from the adjacent guide-plate G equal to the distance between the saws E′ and E², or, in other words, the desired width of the ice block.

When it is not desired to use the machine for sawing ice, it may be converted into a machine for either ripping or cross-cutting wood. This is done by removing the cap $e$ from the boxes for the arbor and removing all the saws from the arbor and substituting a single crosscut-saw, as shown by E⁴, or a rip-saw, dependent upon the work to be done. The lever F enables the arms to be thrown to a vertical position, as indicated in Fig. 6, and when so elevated spuds $d^8$, preferably pivoted upon the platform, engage at their rear ends in eyes in each arm, affording a brace therefor, and tension-rods $d^9$, preferably each provided with a turnbuckle $d^{10}$, extend from an eye on each arm D′ and D³ and forwardly and engage upon the platform, thus when the arms are elevated for wood-sawing rigidly bracing the same and preventing vibration when the saw is in operation.

Any suitable sawing frame or platform may be constructed, as indicated in Fig. 6, and the same may be constructed of wood or metal, as preferred, and the form of the same may of course vary, dependent upon the use to which the saw is to be put, either for cross-cutting or ripping material. Usually, however, a simple frame is constructed of any material and sufficiently braced to support the material and may either be furnished with the machine when sold or may be constructed by the owner, as preferred.

The operation is as follows: When cutting ice, the engine is started with the saws somewhat elevated from the ice, and the desired ice-field having been selected the machine is positioned at one corner of the field and the saws lowered to operative position and driven by the motor. The sled is then drawn in a straight line to the opposite end of the field. The machine is then turned about, the guide G is inserted in the last cut made, and the course is retracted, thus providing as many parallel cuts longitudinally of the field as desired, the horses all the time walking upon solid or uncut ice. The saws are adjusted to leave a sufficient thickness of ice at the bottom to support the team and machine in cross-cutting. Having laid off the field longitudinally, the machine is then started at one end of the field and in the same manner is drawn transversely of the previous cut, and, as shown, as the first-line cuts have been made transversely the ice may be blocked out and removed as fast as the cutting proceeds. In this way any number of saws may be used on a single machine and operate at one time, and of course the saws being driven by the motor the rate of cut can be adjusted to require very slight draft on the team. When used for wood-sawing, either cross-cutting or ripping, a saw of the proper kind is secured in place upon the arbor, and the saws are elevated, as shown in Fig. 6, and rigidly braced in position by means of the spuds $d^8$ and brace-rods $d^9$ and when thus firmly secured may be used as any other wood sawing or ripping machine either for shop purposes or, if desired, in the woodyard.

Obviously inasmuch as I have shown but one construction embodying my invention I do not purpose limiting this application for patent otherwise than necessitated by the prior art, as many details of construction and operation may be varied, and, if preferred, instead of supporting the machine on runners wheels or trucks may be used, and any variety or type of motors, saws, or connection between the motors and saws may be employed without departing from the principles of my invention.

I claim as my invention—

1. In a machine of the class described the combination with a frame of a motor thereon, a shaft journaled on said frame, a plurality of forked arms rigidly engaged on said shaft, means rigidly connecting said arms intermediate the shaft and their outer ends, a shaft journaled in the outer end of said arms,

a saw rigidly engaged thereon in the fork of each arm, means adapted to adjust said saws as to height, a slotted guide-plate on the side of the frame adapted to space the saws the required distance from the previous cut, a plurality of bolts rigidly engaged on said frame and extending through said slotted guide-plates, bell-crank levers pivotally engaged on said guide-plates and frame at each end thereof, a bar pivotally engaging said levers and a lever pivoted thereto adapted to raise and lower said guide-plates.

2. In an ice-cutting machine, the combination with a platform of runners therefor, a shaft journaled in said frame, a plurality of rearwardly-directed arms on said shaft, a saw journaled at the outer end of each arm and adapted to operate with upward cut, a lever rigidly engaged on said shaft adapted to hold the saws in adjusted position, guide-plates slidably engaged on the outer side of each runner and adapted to space the saws the required distance from the edge of the guides, a bell-crank lever on each end of the plate and pivoted on the runner, a bar connecting the bell-crank levers of each plate and an operating-lever connected with each bar adapted to raise and lower said plate.

3. In a sawing-machine the combination with a sled, of a rigid platform thereon, a slotted guide-plate on each runner of the sled, a bell-crank lever at each end of said guides and pivoted to the runner, a lever connected therewith and adapted to slide said guides vertically, means for operating said levers, a motor on the platform, an arbor journaled at the rear end of the sled and adapted to be adjusted vertically above or below the platform, a plurality of saws removably engaged on said arbor and a lever and segment acting to rigidly hold the arbor in its adjusted position.

4. In a combined ice and wood sawing machine, the combination with a sled having a rigid platform thereon, a shaft journaled on said frame, rearwardly-directed forked arms on said shaft, transverse bars connecting said arms, an arbor journaled in said arms, saws thereon, means for rotating said shaft and bringing said arms to a vertical position, removable braces connected with said arms and with said platform, means on said braces adapted to apply tension to the arm a frame rigidly engaged on said platform for supporting material thereon and means for driving said saws.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

JOHN G. PEDLEY.

Witnesses:
JOHN C. SLATER,
JAMES GORMAN.