No. 881,650. PATENTED MAR. 10, 1908.

F. AUDET.

BOAT.

APPLICATION FILED MAY 10, 1906.

4 SHEETS—SHEET 1.

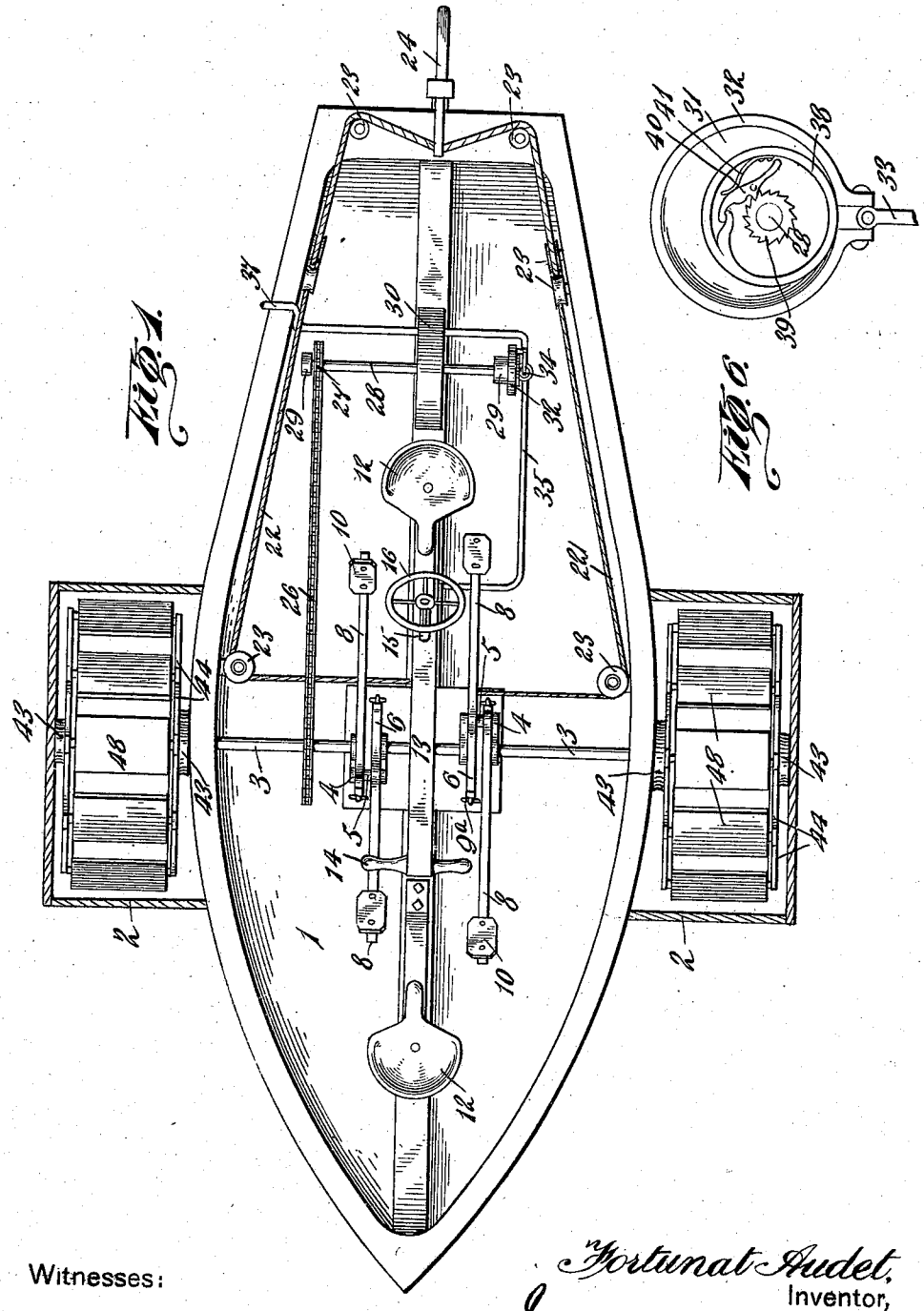


Fig. 1.



Fig. 2.

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4 SHEETS—SHEET 2.

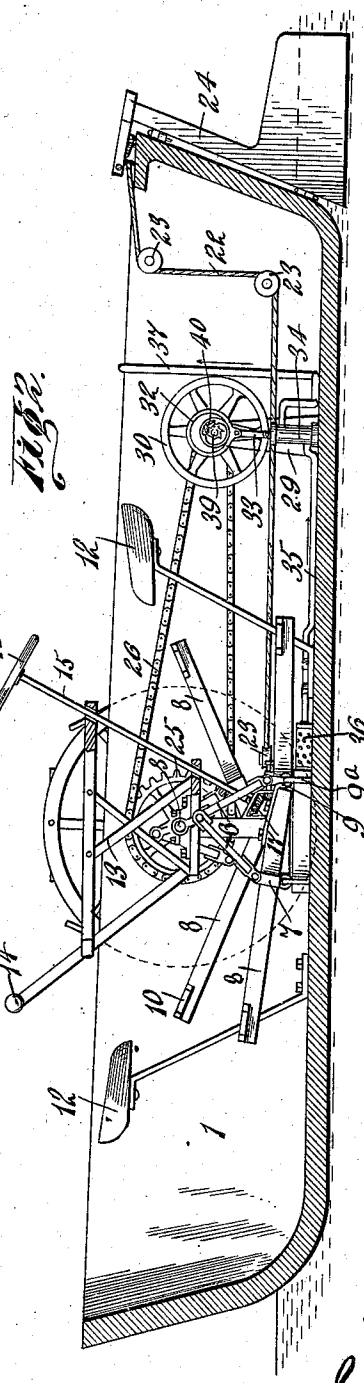


Fig. 2.

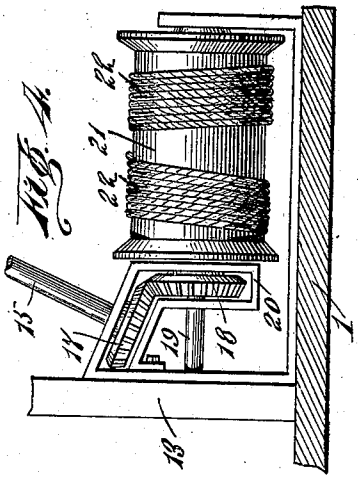


Fig. 4.

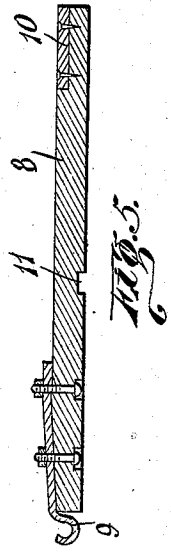


Fig. 5.

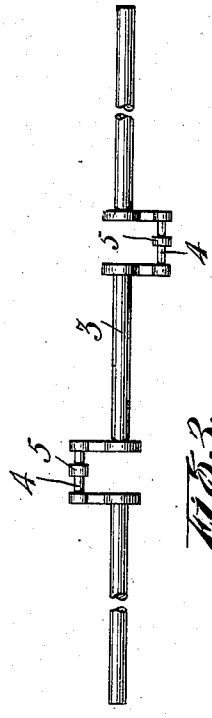


Fig. 3.

Witnesses:

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4 SHEETS—SHEET 3.

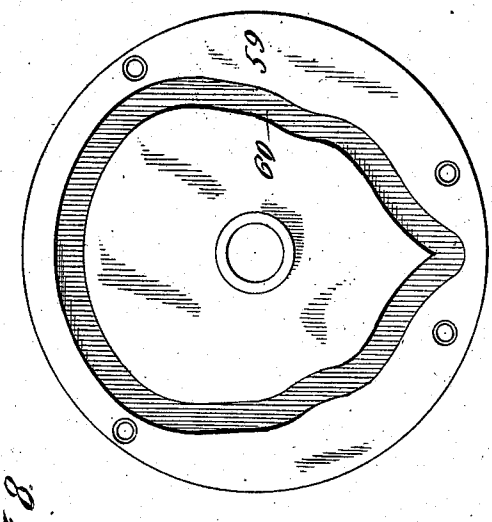



Fig. 8.

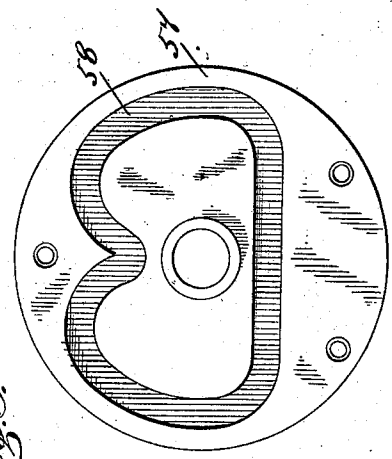



Fig. 9.

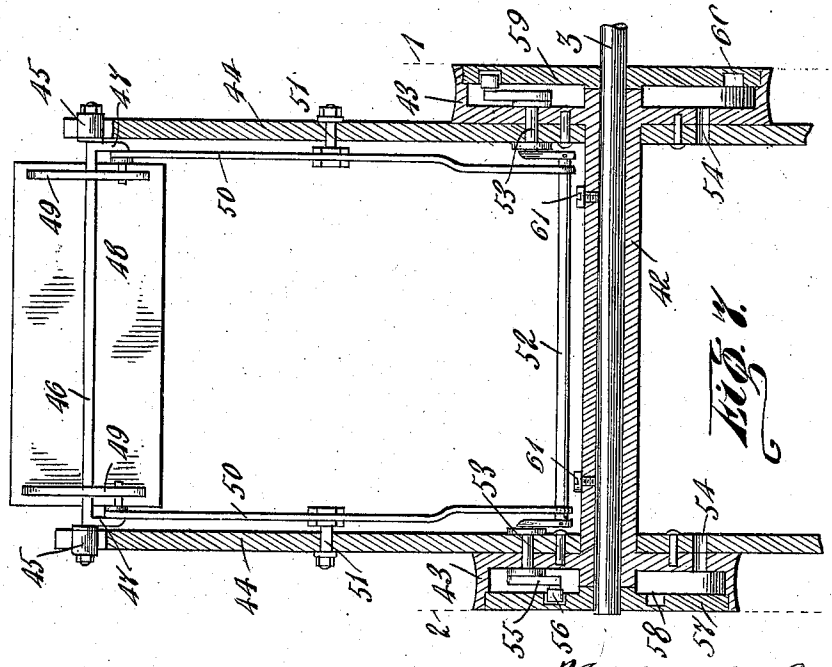



Fig. 1.

Witnesses:

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4 SHEETS—SHEET 4.

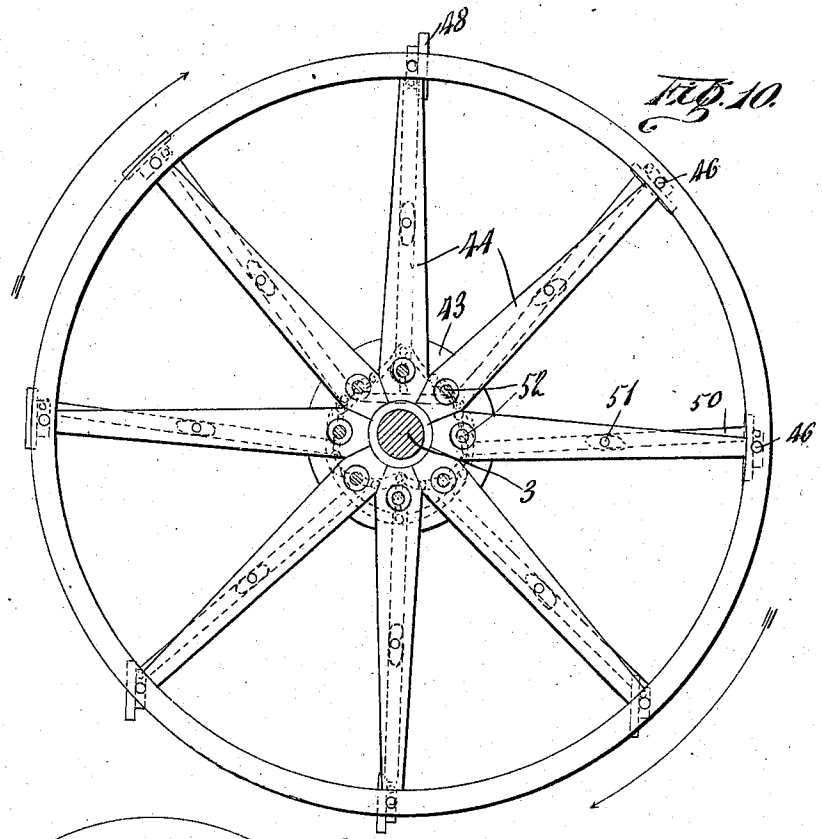



Fig. 10.

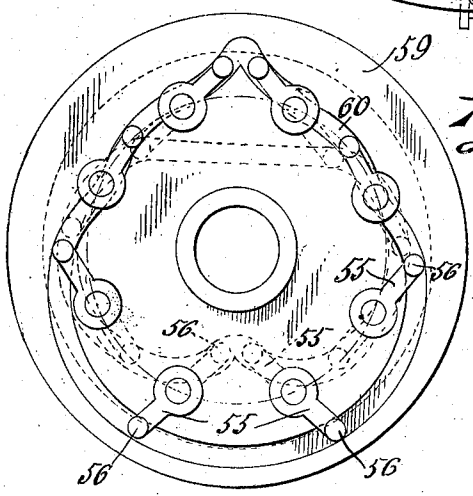



Fig. 11.

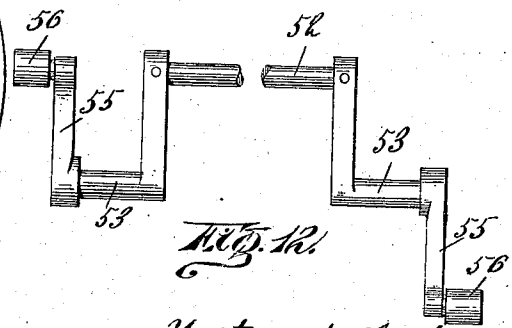



Fig. 12.

Witnesses:

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# UNITED STATES PATENT OFFICE.

FORTUNAT AUDET, OF ST. JEAN DES CHAILLONS, QUEBEC, CANADA.

## BOAT.

No. 881,650. Specification of Letters Patent. Patented March 10, 1908.

Application filed May 10, 1906. Serial No. 316,063.

*To all whom it may concern:*

Be it known that I, FORTUNAT AUDET, a subject of the King of Great Britain, residing at St. Jean Des Chaillons, county of Lotbiniere, in the Province of Quebec, Canada, have invented certain new and useful Improvements in Boats; and I do hereby declare that the following is 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.

My invention relates to boats; the object of my invention is to provide a paddle wheel with pivotally supported blades, and means for feathering the blades; a further object is to provide means for rotating the paddle wheels of a boat by foot power; a further object is to provide means for steering the boat; a further object is to provide means for pumping water out of the boat; and, my invention consists of the construction, combination and arrangement of parts, as herein illustrated, described and claimed.

In the accompanying drawings, forming part of this application, I have illustrated one form of embodiment of my invention, in which drawings similar reference characters designate corresponding parts, and in which:

Figure 1 is a plan view; Fig. 2 is a longitudinal vertical section taken centrally of the boat; Fig. 3 is a plan view of the paddle wheel shaft; Fig. 4 is a side elevation of the steering gear winding drum and its actuating means; Fig. 5 is a longitudinal section through one of the levers for actuating the paddle wheel shaft; Fig. 6 is an end elevation of the balance wheel shaft, showing the eccentric connection thereon for running a pump; Fig. 7 is a vertical transverse section through the upper half of a propeller wheel; Fig. 8 is an inside elevation of a channeled plate secured to the hub of the boat, and adapted to cause the blades of the paddle wheels to feather; and Fig. 9 is an inside elevation of a plate secured to one of the paddle boxes of the boat and adapted to coöperate with the plate shown in Fig. 8 to cause feathering of the blades of the paddle wheel. Fig. 10 is a diagrammatic view showing the position assumed by the rockable blades of the paddle wheel during the course of one rotation; Fig. 11 is a diagrammatic view showing in full lines the course of movement of the crank shafts adapted to feather the rockable blades on one side of the paddle wheel, and showing in dotted lines the position of the crank shafts on the opposite side of the wheel; and, Fig. 12 is a plan view of the crank shaft and its rollers adapted to feather the blades of the paddle wheel.

Referring to the drawings, 1 designates a hull, to the opposite side walls of which are secured paddle boxes 2. Carried by the hull is a main shaft 3, having its ends projecting into the paddle boxes 2, and provided intermediate of its ends with crank portions 4. The crank portions 4 are divided by the collars 5, on each side of which collars are disposed the links 6 secured on the cranks 4, and adapted to rotate the shaft 3.

Carried by the links 6 are collars 7, through which are inserted the levers 8, having secured on their ends the hooked bearings 9 adapted to engage the staples $9^a$, secured on the hull 1. Secured on the free end of each lever 8, is a foot plate 10, and each lever is provided with a mortise 11 intermediate of its ends, adapted to receive the collars 7. The cranks 4, the links 6, and the levers 8 are so arranged that all dead centers are overcome, and reciprocation of the levers 8 will maintain the shaft 3 steadily rotating.

Carried by the hull on each side of the driving mechanism described, are seats 12, between which seats is a framework 13, on one side of which is a steadying handle 14, and on the opposite end of which framework is a steering rod 15, provided at its upper end with a hand-wheel 16, and provided with a beveled pinion 17 on its lower end. In mesh with the beveled pinion 17 is a beveled gear 18 carried on one end of a shaft 19, disposed in a framework 20. Carried on the shaft 19 is a winding drum 21, adapted to receive the steering ropes 22, which ropes pass over the guide pulleys 23 to the rudder 24.

Secured on the main shaft 3, is a sprocket wheel 25, over which is run a chain 26, connecting with a sprocket wheel 27, on a shaft 28. Said shaft is disposed in bearings 29, and has thereon centrally of the hull 1, a balance wheel 30, adapted to cause the shaft 3 to run steady and prevent the vibration which might be caused by the shaft being rotated by the foot power levers, as described.

Loosely disposed on one end of the shaft 28, is an eccentric, 31, over which is disposed an eccentric strap 32, connecting with a pump rod 33, adapted to run a pump 34. Leading from the pump is a pipe 35, having

a strainer 36 disposed adjacent the propelling mechanism of the boat, and leading from the pump is a discharge pipe 37, extending over the side of the hub.

Secured to the eccentric 31 is an annulus 38, and secured on the shaft 28 is a ratchet wheel 39, adapted to be engaged by a pawl 40 carried by the annulus and maintained in position normally by means of the spring 41, by means of which construction the eccentric 31 may be caused to rotate with the shaft 28, or the shaft 28 may rotate without rotating the eccentric.

Secured on each end of the shaft 3, outside of the hull 1, and adapted to rotate in the paddle boxes 2, is a hub 42. Each hub has at its opposite ends casings 43, and each hub carries the radiating spokes 44. Secured to the outer ends of the spokes are bearings 45, in which are rockably disposed the shafts 46, which shafts have the extensions 47. Disposed between each pair of spokes is a paddle 48, having lugs 49, which lugs are engaged by the shaft 46 and the extension 47 thereon. Secured to the extensions 47, are levers 50, which are pivoted centrally of their length, as at 51, and have their inner ends secured to auxiliary shafts 52. The auxiliary shafts 52 are provided with cranks 53, disposed in bearings 54 in the hub 42, and each crank 53 has thereon a crank 55 bearing on its end a roller 56.

Secured on the outer wall of the paddle boxes 2, are plates 57, provided with irregular channels 58, adapted to receive the roller 56 on the end of the auxiliary shaft 52 next adjacent the paddle box. Secured to the hull 1, is a plate 59, provided with a channel 60, adapted to receive the roller 56 of the adjacent end of the auxiliary shaft 52.

The shaft 3 being rotated as described, the hub 42, which may be conveniently secured thereto by set-screws 61, will be caused to rotate carrying with it the paddles 48. The plates 57 and 59 being rigidly held in position, the shafts 52 will be caused to rock, causing rocking of the levers 50, and the consequent rocking of the paddle wheels 48. The different positions assumed by the paddle wheels are best shown in Fig. 10. As shown in that figure, the paddle wheels 48 always set in the water in a vertical position, so that any force exerted thereby will be in a straight line opposite to the direction of the boat, so that the boat is propelled forward without any force being exerted in any direction except one which will force the boat forward.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a boat, paddle wheels for propelling the same, a shaft for driving said paddle wheels, a plurality of rocking paddles attached to said wheels and means for rocking said paddles, said means comprising stationary plates with cam grooves therein, crank shafts journaled in the paddle wheels and having crank arms traveling in the aforesaid cam grooves whereby said shafts are rocked by the rotation of the paddle wheels, and links connecting said shafts and the aforesaid blades.

2. In a boat, paddle wheels for propelling the same, a shaft for driving said paddle wheels, a plurality of rocking paddles attached to said wheels and means for rocking said paddles said means comprising fixed plates having cam grooves therein, crank shafts journaled in said paddle wheels and having cranks traversing said cam grooves whereby said shafts are rocked, and lever links connecting the paddles and said rock shafts said links being pivoted intermediate their lengths whereby the rotary motion of the shafts is positively translated into reciprocating motion of the lever links.

3. In a boat, paddle wheels for propelling the same, a shaft for driving said paddle wheels, a plurality of rocking paddles attached to said wheels and means for rocking said paddles, said means comprising fixed plates having cam grooves therein, crank shafts journaled in the paddle wheels and having cranks traversing said cam grooves whereby said shafts are rocked, parallel links connecting said shafts and the opposite ends of the aforesaid paddles whereby said paddles are rocked, and a loose sliding pivotal support for each of said links intermediate its ends.

4. In combination with the hull of a boat, a main shaft provided with crank portions, paddle wheels secured to the outer end of the main shaft, links secured to the crank portions of the main shaft and provided with collars, levers disposed through the collars, hooked plates secured to one end of the levers, foot plates secured to the opposite ends of the lever, seats secured to the hull adjacent the ends of the levers, and a balance wheel disposed centrally of the hull and connected with the main crank shaft.

5. In combination with the hull of a boat, a main shaft, paddle wheels secured to the ends of the shaft, means for driving the shaft, seats adjacent the driving means, a framework disposed centrally of the driving means and provided with a steadying handle adjacent one side, a steering rod carried by the opposite side of the framework and provided with a hand-wheel, a beveled pinion on the end of the steering rod, a framework supported adjacent the lower end of the steering rod, a shaft carried by the framework, a beveled gear in mesh with the beveled pinion on said shaft, a winding drum on the shaft, and a balance wheel connected with the main shaft and disposed centrally of the hull.

6. In combination with the hull of a boat, a main shaft, means for driving the main shaft, paddle wheels carried by the ends of the main shaft, a sprocket wheel on the main shaft, a chain disposed over the sprocket wheel, a second sprocket wheel adapted to receive the chain, a counter shaft adapted to support the second sprocket wheel, a balance wheel disposed on the counter shaft centrally of the hull, and pumping mechanism adapted to be actuated by the counter shaft.

7. In combination with the hull of a boat, a main shaft, means for driving the main shaft, paddle wheels carried by the ends of the main shaft, a sprocket wheel on the main shaft, a chain disposed over the sprocket wheel, a second sprocket wheel adapted to receive the chain, a counter shaft adapted to support the second sprocket wheel, a balance wheel disposed on the counter shaft centrally of the hull, an eccentric on the counter shaft, a strap over the eccentric, a rod on the strap, a pump adapted to be actuated by the rod, a ratchet secured on the counter shaft, an annulus carried by the eccentric, and a spring-pressed pawl adapted to engage the ratchet and cause rotation of the eccentric.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

FORTUNAT AUDET.

Witnesses:
T. MYNARD,
JOS. J. B. CHARBONNEAU.