

ROUND THE MOON.

CHAPTER XIV.

"Now," said Nichol, "Let us attack the second question, an indispensable complement of the first. I ask the honorable Commission, if the moon is not habitable, has she ever been inhabited, Citizen Barbicane?"

"My friends," replied Barbicane, "I did not undertake this journey in order to form an opinion on the past habitability of our satellite; but I will add that our personal observations only confirm me in this opinion. I believe, indeed, I affirm, that the moon has been inhabited by a human race organized like our own, that she has produced animals automatically formed like the terrestrial animals; but I add that these races, human or animal, have had their day, and are now for ever extinct."

"And now I am going to astonish you. Astish us?" said Michel Ardan.

"I firmly believe that at the period when the moon was inhabited, the nights and days did not last 354 hours!"

"And why?" asked Nichol quickly.

"Because most probably then the rotary motion of the moon upon her axis was not equal to her revolution, an equality which presents each part of her disc during fifteen hours to the action of the solar rays."

"Granted," replied Nichol, but why should not these two motions have been equal, as they are really so?"

"Because that equality has only been determined by terrestrial attraction. And who can say that this attraction was powerful enough to alter the motion of the moon at that period when the earth was still fluid?"

"Just so," replied Nichol; "and who can say that the moon has always been a satellite of the earth?"

"And who can say," exclaimed Michel Ardan, "that the moon did not exist before the earth?"

Then Nichol, who wished to end the discussion, put the second question, which had just been considered again.

"Has the moon been inhabited?" he asked.

The answer was unanimously in the affirmative. But during the discussion, fruitful in somewhat hazardous theories, the projectile was rapidly leaving from the moon; the lineaments faded away from the traveler's eyes, mountains were confused in the distance; and of all the wonderful, strange, and fantastic form of the earth's satellite, there soon remained nothing but the imperishable remembrance.

For a long time Barbicane and his companions looked silently and sadly upon that world which they had only seen from a distance, as Moses saw the land of Canaan, and which they were leaving without a possibility of ever returning to it. The projectile's position with regard to the moon had altered, and the base was now turned to the earth.

This change, which Barbicane verified, did not fail to surprise them. If the projectile was to gravitate round the satellite in an elliptical orbit, why was not its heaviest part turned towards it, as the moon turns hers to the earth? That was a difficult point.

In watching the course of the projectile they could see that on leaving the moon it followed a course analogous to that traced in approaching her. It was describing a very long ellipse, which would most likely extend to the point of equal attraction, where the influences of the earth and its satellite are neutralized.

Such was the conclusion which Barbicane very justly drew from facts already observed, a conclusion which his two friends shared with him.

"And when arrived at this dead point, what will become of us?" asked Michel Ardan.

"We don't know," replied Barbicane.

"But one can draw some hypotheses, I suppose!"

"Two," answered Barbicane; "either the projectile's speed will be insufficient, and it will remain for ever immovable on this line of double attraction."

"I prefer the other hypothesis whatever it may be," interrupted Michel.

"Or," continued Barbicane, "its speed will be sufficient, and it will continue its elliptical course, to gravitate for ever around the orb of night."

"A revolution not at all consoling," said Michel, "to pass to the state of humble servants to a moon whom we are accustomed to look upon as our own handmaid. So that is the fate in store for us!"

Neither Barbicane nor Nichol answered.

"You do not answer," continued Michel impatiently.

"There is nothing to answer," said Nichol.

"Is there nothing to try?"

"No," answered Barbicane. Do you pretend to fight against the impossible?"

"Why not? Do one Frenchman and two Americans shrink from such a word?"

"But what would you do?"

"Subdue this motion which is bearing us away."

"Subdue it?"

"Yes," continued Michel, getting animated, "or else alter it, and employ it to the accomplishment of our own ends."

"And how?"

"That is your affair. If artillerymen are not masters of their projectile they are not artillerymen. If the projectile is to command the gunner, we had better ram the gunner into the gun. My faith! fine savants! who do not know what is to become of us after inducing me!"

"Inducing you?" cried Barbicane and Nichol. "Inducing you! What do you mean by that?"

"No recrimination," said Michel. I do not complain; the trip has pleased me, the projectile agrees with me; but let us do all that is humanly possible to do to fall somewhere, even if only on the moon."

"We ask no better, my worthy Michel," replied Barbicane, "but means fail us."

"We cannot alter the motion of the projectile!"

"No."

"Nor diminish its speed!"

"No."

"Not even by lightning it, as they lighten an overloaded vessel!"

"What would [you throw out?] said

Nichol. "We have no ballast on board; and, indeed, it seems to me that if lightened it would go much quicker."

"Slower."

"Quicker."

"Neither slower nor quicker," said Barbicane, wishing to make his two friends agree; "for we float in space, and must no longer consider specific weight."

"Very well," cried Michel Ardan in a decided voice; "then there remains but one thing to do."

"What is it?" said Nichol.

"Breakfast," answered the cool, audacious Frenchman, who always brought up this solution at the most difficult juncture.

In any case, if this operation had no influence on the projectile's course, it could at least be tried without inconvenience, and even with success from a stomachic point of view. Certainly Michel had none but good ideas.

They breakfasted then at two in the morning; the hour mattered little. Michel served his usual repast, crowned by a glorious bottle of wine from his private cellar. If ideas did not crowd on their brains, we must despair of the Chamberlain of 1833. The repast finished, observations began again. Around the projectile, at an inviolable distance, were the objects which had been thrown out. Evidently, in its transitory motion round the moon, it had not passed through any atmosphere, for the specific weight of these different objects would have checked their relative speed.

The terrestrial sphere showed but a faint arc-line, being but a day old while the moon, on the other hand, was in its glorious lightness.

A long discussion ensued on the course and relative position of the projectile, when it was determined by practical tests that it was evidently moving towards its apocenter point; and Barbicane had reason to think that its speed would decrease up to this point, and then increase by degrees as it neared the moon. This speed would even equal *nil*, if this point joined that of equal attraction. Barbicane studied the consequences of these different situations, and thinking what inference he could draw from them, when he was roughly disturbed by a cry from Michel Ardan.

"By Jove!" he exclaimed, "I must admit we are downright simpletons!"

"I do not say we are not," replied Barbicane; "but why?"

"Because we have a very simple means of checking this speed which is bearing us from the moon, and we do not use it!"

"And what is the means?"

"To use the recoil contained in our rockets."

"Done!" said Nichol.

"We have not used this force yet," said Barbicane, "it is true, but we will do so."

"When?" asked Michel.

"When the time comes. Observe, my friends, that in the position occupied by the projectile, an oblique position with regard to the lunar disc, our rockets, in slightly altering its directions, might turn it from the moon instead of drawing it nearer!"

"Just so," replied Michel.

"Let us wait, then. By some inexplicable influence, the projectile is turning its base towards the earth. It is probable that at the point of equal attraction, its conical cap will be directed rigidly towards the moon; at that moment we may hope that its speed will be *nil*; then will be the moment to act, and with the influence of our rockets, we may perhaps provoke a fall directly on the surface of the lunar disc."

"Bravo!" said Michel. "What we did not do, what we could not do on our first passage at the dead point, because the projectile was then endowed with too great a speed."

"Very well reasoned," said Nichol.

"Let us wait patiently," continued Barbicane. "Putting every chance on our side, and after having so much despaired, I may say I think that we shall gain our end."

This conclusion was a signal for Michel Ardan's hips and hurrahs. And none of the audacious boobies remembered the question that they themselves had solved in the negative. No! the Moon is not inhabited; no! the moon is probably not habitable. And yet they were going to try every thing to reach her.

The precise moment when the projectile should reach the neutral or dead-line of attraction between Earth and moon was ascertained to be one o'clock in the morning of the 7th-8th of December.

The day passed without incident. The terrestrial midnight arrived. The 8th of December was beginning. One hour more, and the point of equal attraction would be reached. What speed would then animate the projectile? They could not estimate it. But no error could vitiate Barbicane's calculations. At one in the morning, this speed ought to be and would be *nil*.

Already the projectile's conical top was sensibly turned towards the lunar disc, presented in such a way as to utilize the whole of the recoil produced by the pressure of the rocket apparatus. The chances were in favor of the travellers. If its speed was utterly annihilated on this dead point, a decided ed movement towards the moon would suffice, however slight, to determine its fall.

"Five minutes to one," said Nichol.

"All is ready," replied Michel Ardan, directing a lighted match to the flame of the gas.

"Wait," said Barbicane, holding his chronometer in his hand.

At that moment weight had no effect. The travellers felt in themselves the entire disappearance of it. They were very near the neutral point, if they did not touch it.

"One o'clock," said Barbicane.

Michel Ardan applied the lighted match to a train in communication with the rocket. No detonation was heard in the inside, for there was no air. But, through the scuttles Barbicane saw a prolonged smoke, the flames of which were immediately extinguished.

"The projectile sustained a certain shock, which was sensibly felt from the interior."

The three friends looked and listened without speaking, and scarcely breathed. One might have heard the beat-

ing of their hearts amidst this perfect silence.

"Are we falling?" asked Michel Ardan, at length.

"No," said Nichol, "since the bottom of the projectile is not turning to the lunar disc!"

At this moment Barbicane quitted the scuttle, turning to his two companions. He was frightfully pale, his forehead wrinkled, and his lips contracted.

"We are falling!" said he.

"Ah!" cried Michel Ardan, "on the moon!"

"On the earth!"

"The devil!" exclaimed Michel Ardan, adding philosophically, "well when we came into this projectile we were very doubtful as to the case with which we should get out of it!"

And now this fearful fall had begun. The speed retained had borne the projectile beyond the dead point. The explosion of the rocket could not divert its course. This speed in going had carried it over the neutral line, and in returning had done the same thing. The laws of physics condemned it to pass through every point which it had already gone through. It was a terrible fall, from a height of 160,000 miles, and no springs to break it. According to the laws of gunnery, the projectile must strike the earth with a speed of 16,000 yards in the last second.

But to give some figures of comparison, it has been reckoned that an object thrown from the top of the tower of Notre Dame, the height of which is only 200 feet, will arrive on the pavement at a speed of 240 miles per hour. Here the projectile must strike the earth with a speed of 115,200 miles per hour.

"We are lost!" said Michel coolly.

"Very well! if we die," answered Barbicane, with a sort of religious enthusiasm, "the result of our travels will be magnificently spread. It is His own secret that God will tell us! In the other life, the soul will want to know nothing, either of machines or engines! It will be identified with eternal wisdom!"

"In fact," interrupted Michel Ardan, "the whole of the other world may well console us for the loss of that inferior orb called the moon!"

Barbicane crossed his arms on his breast, with a motion of sublime resignation, saying at the same time,—"The will of heaven be done!"

CHAPTER XV.

THE SOUNDINGS OF THE "SUSQUEHANNA"

"Well, lieutenant, and our soundings?"

"I think, sir, that the operation is nearing its completion," replied Lieutenant Blonsberry. "But who would have thought of finding such a depth so near in shore, and only 200 miles from the American coast?"

With your permission, lieutenant, where are we now?"

"Sir, at this moment we have 3508 fathoms of line out, and the ball which draws the sounding lead has not yet touched the bottom; but if so, it would have come up of itself."

"Brooks's apparatus is very ingenious," said Captain Blonsberry; "it gives us very exact soundings."

"Touch," cried at this moment one of the men at the fore-wheel, who was superintending the operation.

The captain and the lieutenant mounted the quarter-deck.

"What depth have we?" asked the captain.

"Three thousand six hundred and twenty-seven fathoms," replied the lieutenant, entering it into his notebook.

"Well, Blonsberry," said the captain, "I will take down the result. Now haul in the sounding line. It will be the work of some hours. In that time the engineer can light the furnaces, and we shall be ready to start as soon as you have finished. It is ten o'clock, and with your permission, lieutenant I will turn in."

"Do so, sir; do so!" replied the lieutenant obligingly.

The captain of the "Susquehanna," as brave a man as need be, and the humble servant of his officers, returned to his cabin, took a brandy-grog, which earned for the steward no end of praise and turned in, not without having complimented his servant upon his making beds, and slept a peaceful sleep.

It was ten at night. The eleventh day of the month of December was drawing to a close in a magnificent night.

The "Susquehanna," a corvette of 500 horse-power, of the United States' navy, was occupied in taking soundings in the Pacific Ocean about 200 miles off the American coast, following that long peninsula which stretches down the coast of New Mexico.

The wind had dropped by degrees. There was no disturbance in the air. Their permanent long motionless from the mast-top-gallant-mast truck.

Captain Jonathan Blonsberry, one of the most ardent supporters of the Gun Club, who had married an aunt of the captain and daughter of an honorable Kentucky merchant, Captain Blonsberry could not have wished for finer weather in which to bring to a close his delicate operations of sounding.

His corvette had not even felt the great tempest, which by sweeping away the groups of clouds on the Rocky Mountains, had allowed them to observe the course of the famous projectile.

Everything went well, and with all the fervor of a Presbyterian, he did not forget to thank heaven for it. The series of soundings taken by the "Susquehanna," had for its aim the finding of a favorable spot for the laying of a submarine cable to connect the Hawaiian Islands with the coast of America.

(TO BE CONTINUED.)

I. & F. BURPEE & Co.,

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HAVE on hand and to arrive by weekly steamers Bar Iron, Common and Refined; Low-mo, Sweden and Iron (Best); Sheet Iron (Common); Galvanized; Hoop Iron (Cast Steel); Flat, Square and Octagonal and Best Axle Spring Steel; Nibbles, Tins, Cables and all Machine

Churns Tin Plates, I. C. C., I. X. C. Tin Plates, Tin Strip, Tin and Solder.

Plough Mounting, (Wilkes's Scotch) Plating and Shear.

Awls, Belows and Vices; Axes; Horse Shoes and Nails.

Cable Chains, Dock Spikes, Clinch Rings and Washers; Tarsels and Mullins Rope; Tar, Pitch, Rods and Oakum.

For Carriage Makers—Springs and Axles, Bolts and Nuts; Oval Iron and Best American, equal to Lowmoor; Common Wire and Annealed Wire for Hay Pressing; Pig Iron, etc.

29 1878

Miramichi Foundry & Machine Works,

CHATHAM, NEW BRUNSWICK.

JAS. W. FRASER,

PROPRIETOR.

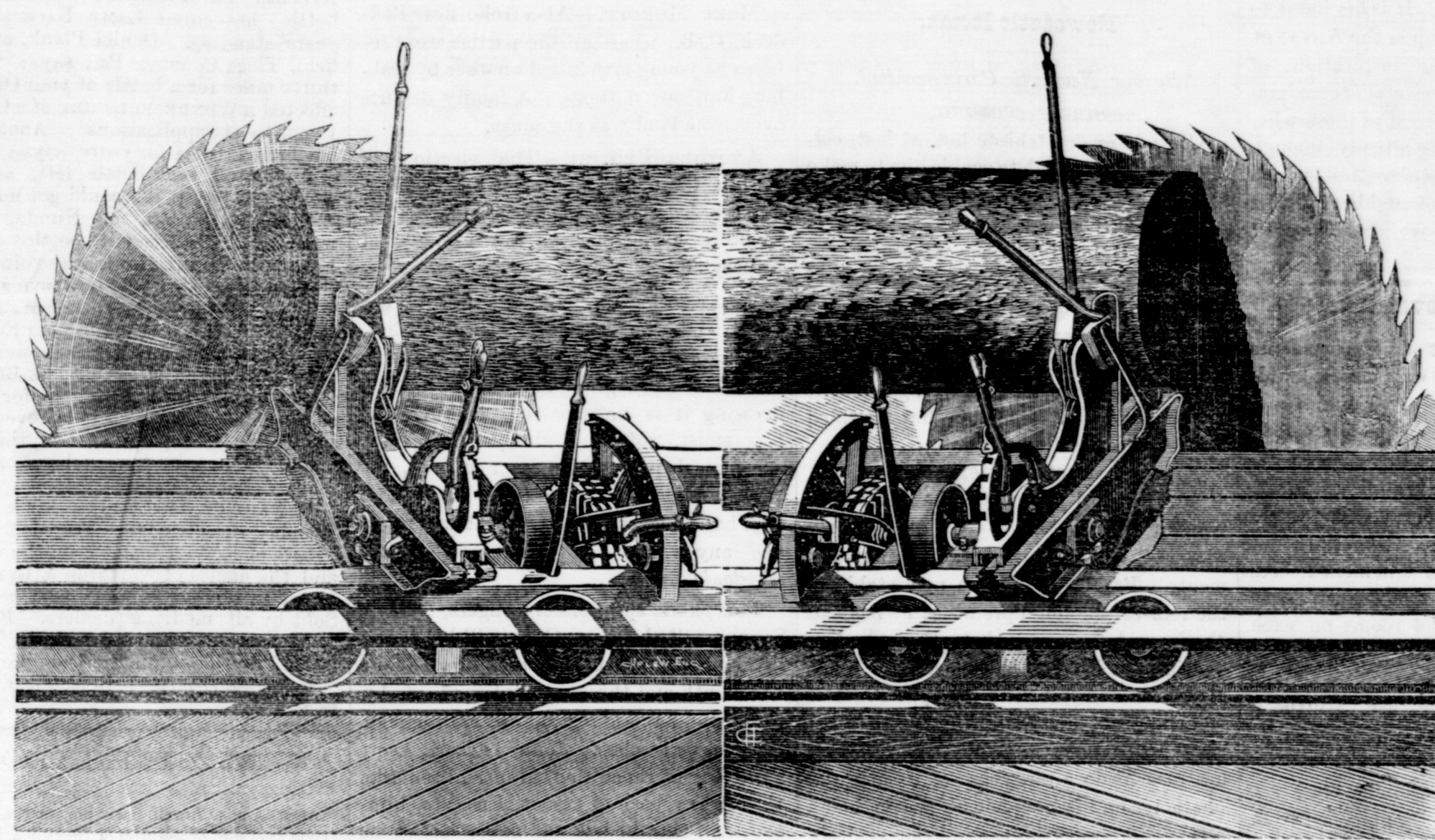
GENERAL IRON & BRASS FOUNDER,

—MANUFACTURER OF—

STEAM ENGINES AND BOILERS, GANG AND ROTARY SAW MILLS,

GANG EDGERS & SHINGLE MACHINES.

Pond's Wisconsin Patent Rotary Saw Carriage a Specialty.



LEFT HAND.

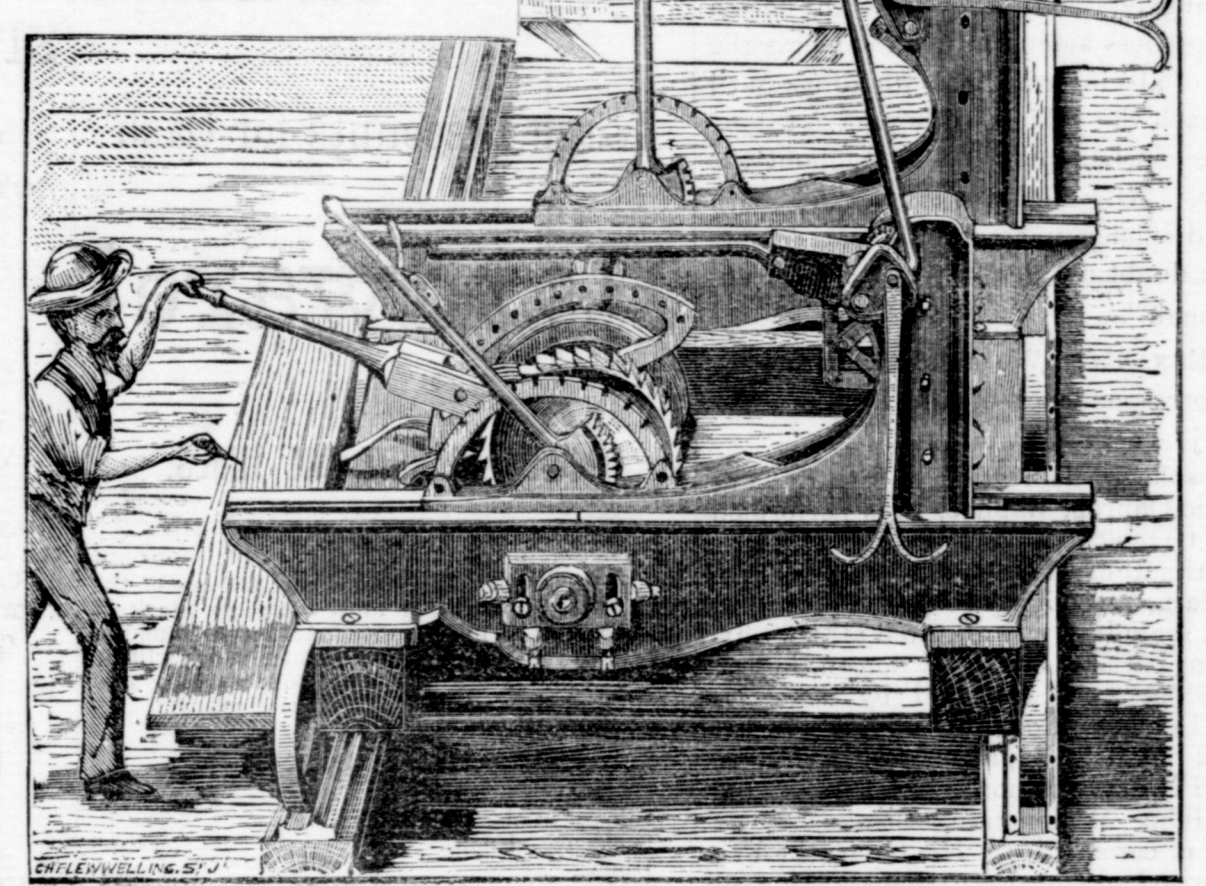
RIGHT HAND.

For the convenience of parties ordering Machines and to prevent mistakes we present diagram showing Left and Right hand Saws. When orders are given it should be stated whether the Saws are required to be right or left hand.

This cut represents Pond's Wisconsin Rotary Saw Carriage, and Self-Recording Knee Blocks manufactured by me.

Having purchased the right for the Dominion, parties wishing a first class mill would do well to make enquiries before purchasing elsewhere.

SAW MILL, CARRIAGE & SET WORKS. MANUFACTURED BY J. W. FRASER, Miramichi Foundry & Machine Works, CHATHAM, N. B.

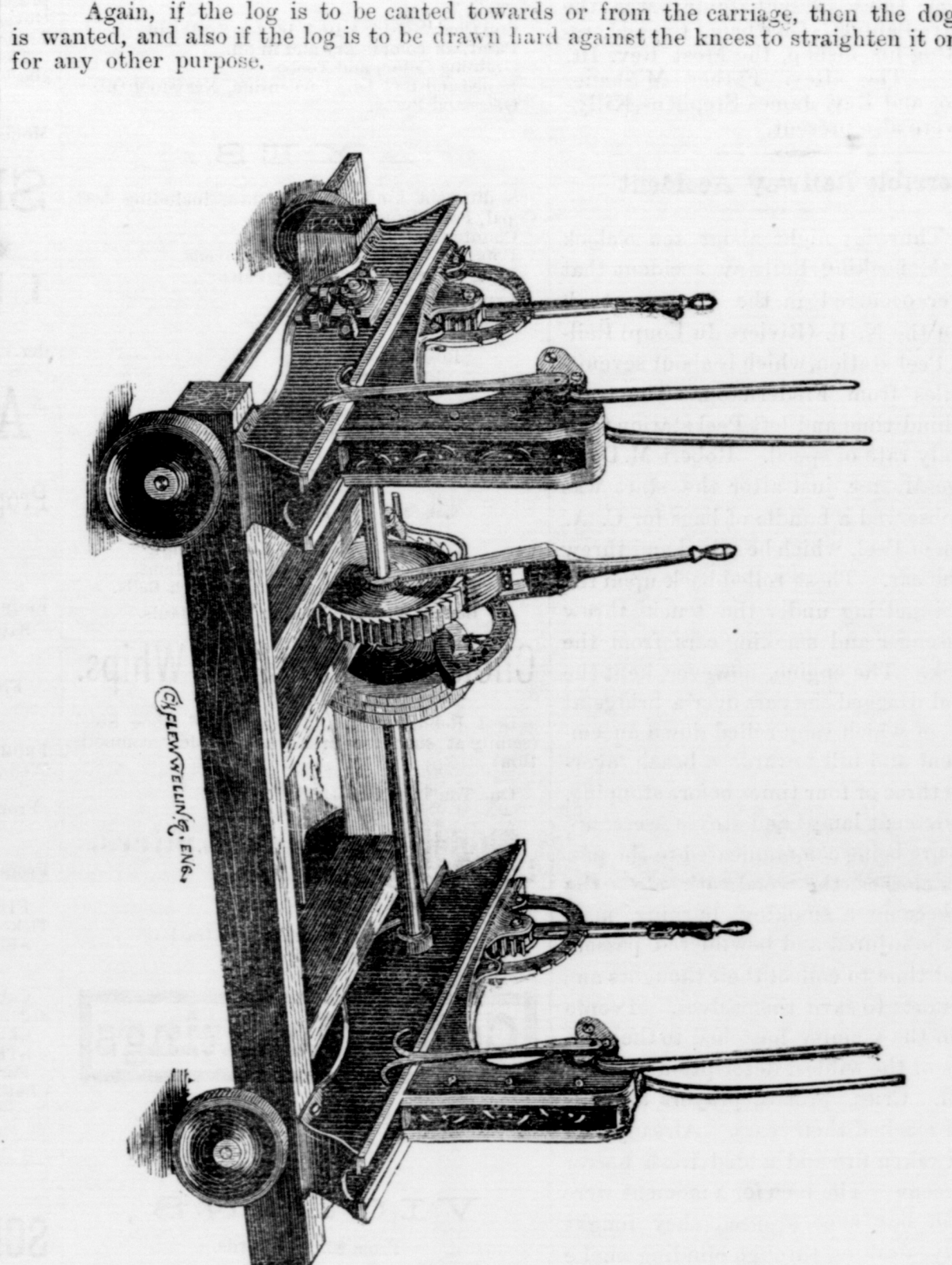


These Set-Works are widely and favourably known in the West and also on the Miramichi, and are especially adapted for accurate and rapid work. All of the working parts are of brass and steel and the Blocks and Knees are also faced with steel.

I have a very powerful and accurate taper-movement for logs with large ends, or for crooked ones. In the annexed cut the Blocks have a throw of eight inches—four forward and four back of line.

The Cant Hook or Double Crook Dog, as seen in the cut, is a very necessary appendage, not used on every log, but, when it is wanted, it is indispensable; and answers the demand fully. If the log catches a bark between itself and the head block, then the dog is wanted, and holds in perfect safety to the man's fingers until the bark is removed.

Again, if the log is to be cantled towards or from the carriage, then the dog is wanted, and also if the log is to be drawn hard against the knees to straighten it or for any other purpose.



This cut shows longitudinal view of Saw Carriage, Cant Hooks, interlocking Lever Dogs, Ratchet and Index Wheel, and mode of operating same; quadrant has levers and stop which set inches and parts, from one half inch to three inches, with one stroke of lever.

The Index Wheel and Graduated Scale is geared to the set shaft with fine cut wrought iron gears, and as the Knees move toward the Saw, the Index wheel turns towards the set shaft, showing in its figured face the exact distance of the Knee from the Saw at any point.

There is also another Index fastened to side of Knees with pointer on log-seat.

I manufacture this Mill with from two to five Blocks. This Mill has an Iron Saw Frame (not shown in cut), 10 inches deep, and heavily flanged top and bottom. The Feed is belted from tail of arbor and gig, driven by the tight side of main belt, working on a thirty-inch pulley. The Pinion Shaft is driven by a thirty-inch friction pulley with twelve-inch face, turned all over, and is worked between the feed and gig paper frictions, which are twelve inches diameter and thirteen inches face, by means of an eccentric box operated through levers by the sawyer.

The Arbor is of steel three and a half inches diameter and not cut down at bearings.

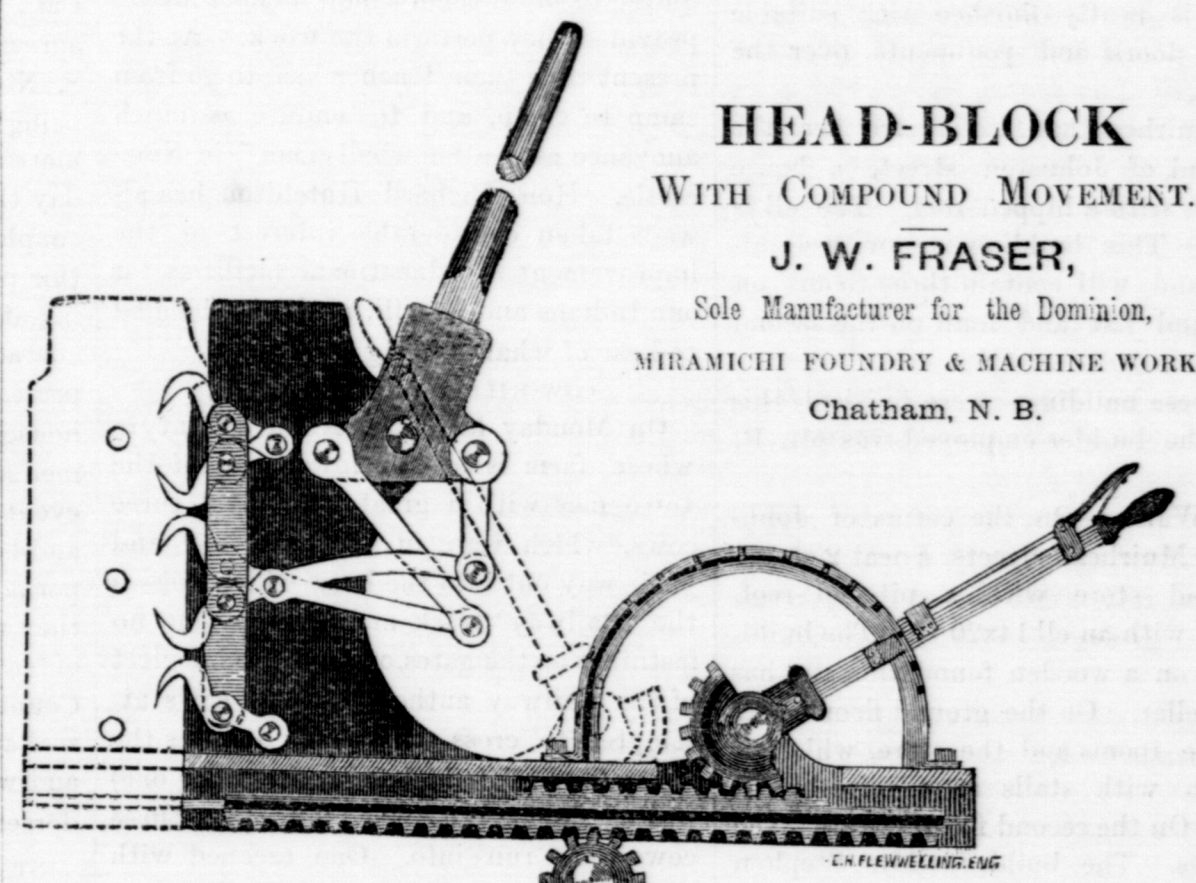
MANUFACTURED BY J. W. FRASER, MIRAMICHI FOUNDRY AND MACHINE WORKS.

Sole Right to Manufacture for the Dominion.

SEND FOR PRICE LIST.

Manufacturers requiring Machinery for Mills, Steamboats, Factories, etc., are invited to correspond with the Subscriber in reference thereto. Contracts for manufacture and delivery with guarantee entered into at short notice and executed with despatch.

JAS. W. FRASER, CHATHAM, N. B.



The above cut shows more clearly the style of Inside Knee Dogs used on the Set-Works. We present a longitudinal section of the Knee, showing a compound or taper movement, and double-riveted Hook Dogs, working both ways. These Dogs are made of cast steel and will not break, and are so made that in Dogging flat surfaces they towards the Knee, thus insuring a parallel piece.

The time saved with these Dogs over the old style I consider equal to six thousand feet of sawn lumber per day.

These Dogs I have the exclusive right to manufacture for the Dominion, and any parties selling, or using, the Pivoted Hook Dog, working both ways, without my permission, are infringing rights which I must necessarily protect.

I also manufacture Steam Engines and Boilers, Shafting, Pulleys, and a superior Gang Edger, and will furnish Belting, Saws, or any kind of Mill Machinery.

SOLE MANUFACTURER IN NEW BRUNSWICK

OF SMALLWOOD'S

Patent Lever Feed Shingle Machine.

I have secured the right to manufacture this Machine which has invariably taken the lead wherever it has been introduced.

It is easily operated, simple in construction, and very fast cutting.

It is a side cutting Machine, the Saw cutting with the grain of the wood, the block standing on end. The peculiarity of this Machine is the Feed Works, which operate the Carriage to and from the Saw without jarring and racking as in other Machines.

There is a total absence of weights, springs, trip gear and other uncertain appliances for effecting the necessary motion to the Carriage. Smallwood's Patent Lever Feed! draws the Carriage toward the Saw, while cutting at an even and steady rate and it forces it back again by a quick return movement without jerk or jar. The advantages of this Feed are many:—In the first place, on account of the smoothness of its working it can be worked fifty per cent. faster than if worked with springs, weights, or trip gear; and, secondly, on the same account it can be built much lighter, as it is not struck against the end of the Machine at every return stroke. Again, this Machine, working so easily and quietly, the Saw can be driven faster and will work truer than if placed in a Machine that is thumped and racked as in a Machine of the old style.

In the Patent Lever Feed arrangement the action is positive, as no part of the Feed Works can ungar except at the will of the operator. The Feed Works are placed in such a position that saw-dust or other refuse cannot fall into them to clog them while working.

THE ROLLERS

on which the Carriage runs are attached to it at the top so that the Carriage hangs on them in place of at the bottom as is commonly the case. There is a great advantage in this, as it prevents saw-dust and refuse from falling on the track and throwing Carriage on Saw. The proof of the advantages of these arrangements is that parties owning other Machines have repeatedly applied to know if it could not be applied to their Machines.

This Machine will saw blocks from fourteen to eighteen inches long. It makes no difference whether the blocks are round, square, or have been quartered from logs; neither does it matter whether they are cut square or angling on either end.

BARREL HEADING

can also be sawn with scarcely any change to the Machine.

THE JOINTER

is of cast iron turned off true on the face and holding six knives, and is driven by a new and simple contrivance, which allows it to be placed at any angle to the Machine which the sawyer may consider most convenient.

Twenty-five thousand can be cut per day of ten hours. From fifteen to twenty thousand is the regular average of some Machines. The amount performed will, however, depend entirely on the power, speed at which the Saw is driven, the size of blocks and the experience of the attendant.

Parties wanting a Machine would do well to send for price list.

Smallwood & Bovy's Lever Feed Shingle Machines,

MANUFACTURED AT THE MIRAMICHI FOUNDRY AND MACHINE WORKS.

SMALL STEAMBOATS, either Paddle Wheel or Screw Propeller, a specialty.

Having a fine stock of patterns for small as well as large Marine Engines, and good facilities for turning out work, parties in want of a first class Boat, would do well to make enquiries of me, as for material and workmanship they cannot be surpassed.

All Boilers manufactured by me are of best American stock.

Manufacturers requiring Machinery for Mills, Steamboats, Factories, etc., are invited to correspond with the Subscriber in reference thereto. Contracts for manufacture and delivery with guarantee entered into at short notice and executed with despatch.