The Palimpsest

APRIL 1944

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THE PURPOSE OF THIS MAGAZINE

THE PALIMPSEST, issued monthly by the State Historical Society of Iowa, is devoted to the dissemination of Iowa History. Supplementing the other publications of this Society, it aims to present the materials of Iowa History in a form that is attractive and a style that is popular in the best sense—to the end that the story of our Commonwealth may be more widely read and cherished.

BENJ. F. SHAMBAUGH

THE MEANING OF PALIMPSEST

In early times a palimpsest was a parchment or other material from which one or more writings had been erased to give room for later records. But the erasures were not always complete; and so it became the fascinating task of scholars not only to translate the later records but also to reconstruct the original writings by deciphering the dim fragments of letters partly erased and partly covered by subsequent texts.

The history of Iowa may be likened to a palimpsest which holds the records of successive generations. To decipher these records of the past, reconstruct them, and tell the stories which they contain is the task of those who write history.

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THE PALIMPSEST

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The Icelander and Glidiator

Readers of the only newspaper in the Territory of Minnesota were attracted by a strange advertisement in the *Minnesota Pioneer* of November 15, 1849. Passengers and shippers were advised by two enterprising steamboat captains that arrangements had been concluded whereby steam transportation would be continued throughout the winter by means of "Locomotive Ice Trains" connecting the mineral region with St. Paul. Residents of the Territory were well aware that steamboats could not ply the Mississippi during the winter. They also knew the railroad had not yet reached Chicago from the East. Indeed, five years were to pass before the iron horse reached the Mississippi at Rock Island, and eighteen years would roll by before St. Paul could claim rail connections with the East. Some readers had never seen a railroad train; few, if any, could visualize a train of cars skimming up the ice-locked Mississippi in the dead of winter.

Under ordinary circumstances most subscribers to the *Minnesota Pioneer* would have dismissed the whole matter as fantastic. But the names of the two steamboat captains involved in the project could scarcely be ignored. Daniel Smith Harris had plied the upper Mississippi for a score of years and had always manifested rare courage and sincerity of purpose. Orrin Smith had been steamboating nearly as long, his career having begun aboard the *Heroine* in 1835. Both were respected and well-known Galenians of unimpeachable character, thoroughly reliable and trustworthy. It was unthinkable that either would stoop to chicanery or indulge in buffoonery.

Orrin Smith in particular was a God-fearing man. Refusing to run his steamboat on Sunday, Captain Smith would tie up to the bank wherever his boat might be at midnight on Saturday. On the following morning, if no minister was aboard, the pious skipper himself would conduct religious services. No steamboat that Orrin Smith captained was allowed to turn a wheel on the Sabbath. After midnight on Sunday the boat would raise steam and continue on her way.

With such commanders behind the proposed venture, the citizens of the frozen northland might look forward to uninterrupted intercourse with the settled area below. The "winter arrange-

ments" which Harris and Smith contemplated were apparently far more elaborate than the steam sleigh which J. D. Carson and Jonathan Haines of Galena had experimented with in 1836. These ingenious Galenians combined an engine and coach in a single water-tight sleigh equipped with seats, windows, doors, and stoves. It was said to be more comfortable and faster than other modes of transportation and perfectly safe, since it could be easily pulled out of the water if it broke through the ice or ran into an airhole.

But the settlers around Galena and Dubuque were destined to be disappointed. Although Carson and Haines were able to start their steam engine it proved to be too small and did not have sufficient power to move the sleigh. Captain George W. Girdon and many others present pronounced the demonstration a failure and considered the whole idea infeasible. Seasoned steamboatmen, who knew the vagaries of Old Man River, realized that a dependable road-bed of ice during the winter months was even less likely than a fixed stage of water during the summer. The Galena *Gazette,* on the other hand, maintained the "utility of the steam sleigh must be acknowledged quite as indispensable to the commercial world as steamboats or railroad cars." Although the editor declared that Carson and Haines had

secured a patent for their invention their petition was evidently denied for no patent was granted in Washington. The men planned to build another engine during 1836 and hoped that by the following winter their steam sleigh would work. But the failure of their first experiment seems to have dampened the ardor of the inventors for no steam sleigh appeared in 1837.

Instead of a single sleigh, Captains Harris and Smith proposed to operate two "Locomotive Ice Trains" which they appropriately named the *Icelander* and the *Glidiator*. These, consisting of an engine, a tender, and ten cars, had been "prepared expressly for travel on the ice of the Mississippi". The "passenger cars" were to be attached to the train in the rear of the "baggage cars" in order that travelers should "incur as little risk as possible". Prospective passengers were assured that ample arrangements had been made for meals and sleeping and that the usual discomforts of winter travel would be absent.

The *Icelander* was to be commanded by Orrin Smith, while Daniel Smith Harris was to captain the *Glidiator*. Apparently neither entertained any doubt regarding the speed of the locomotive ice train: it was expected that a train could leave Galena at nine in the morning, make "all the usual steamboat landings" en route, and arrive at St.

Paul and the Falls of St. Anthony twenty-four hours later. This would have meant faster time than Captain Harris was destined to make on his record-breaking run with the steamboat *Grey Eagle* in 1858. Furthermore, each train would make two round trips a week "until as near as practicable to the opening of the river in April next". The *Icelander* was scheduled to leave Galena at nine on Mondays and Thursdays, and the *Glidiator* would set out from the same winter port on Tuesdays and Fridays. Bellevue, Dubuque, Guttenberg, and McGregor were Iowa towns most likely to benefit by this remarkable means of transportation.

The price for freight and passage was to be "the same usually paid on steamboats" during September. Since this "novel enterprise" has been "attended with great expense", the sponsors hoped the public would "extend to it their liberal patronage." In addition to freight and passenger service, it was pointed out, the isolated inhabitants along the way would be furnished with "tri-weekly mails" between Galena and the Falls. Buoyed up by such prospects people along the Mississippi waited for the river to freeze.

On December 7, 1849, solid ice finally formed on the river. It would only be a matter of hours now before St. Paul citizens could welcome their

favorite steamboat captains in a new rôle. The enthusiastic editor of the *Minnesota Pioneer* pointed out that Hudson River steamboats were fitted with contrivances for breaking and cutting the ice and wondered if such a plan might not become feasible for the Mississippi, particularly since Lake Pepin always lengthened the season of isolation. But no mention was made of the ice trains. The following week the editor quoted a comment on the "Locomotive Ice Trains" in the *Independent American*. Would the *Icelander* and the *Glidiator* never come?

Some anxiety regarding the failure of the trains to appear must have been registered by the inhabitants of St. Paul, for the editor comforted them by pointing out that the "openness of the winter" had delayed the project. He promised, however, that "before Christmas" steam would be up and "half Galena" would be on the train. St. Paul, he declared, would welcome them.

But alas and alack, no locomotive ice train ever came. Nor were there any further announcements of the project or explanations for the failure of the *Icelander* and the *Glidiator* to put in an appearance. Diligent search of the existing files of the Galena and Dubuque papers has failed to reveal the reason for the non-appearance of the two trains. Were the engines too weak? Did the ice

fail to become "sufficiently strong"? Were the two trains ever completed and patented? The newspapers of the period are strangely silent.

At any rate, the *Icelander* and *Glidiator* project represented an effort to provide a means of transportation during the ice-bound winter months for the frontier communities of Iowa and the upper Mississippi Valley. Supplies usually ran low before the opening of navigation in the spring. Overland traffic was also suspended during the winter. But the ice train failed to fulfill the need just as the steam sleigh of two other Galenians had disappointed the isolated settlers thirteen years before.

WILLIAM J. PETERSEN

Wiard and his Ice Boat

The efforts to operate ice boats on the rivers of the United States challenged the inventive genius of two generations of Americans. In 1836 and again in 1849 residents of the upper Mississippi Valley had been disappointed by the failure of ice boats to conquer the bleak wilderness between Galena and the Falls of St. Anthony. Although both ice boats had been described as feasible, neither was patented nor succeeded in traveling under its own power.

During the late fifties a new disciple of the ice boat method of navigating the upper Mississippi attracted considerable attention. Norman Wiard, an inventor who lived at Janesville, Wisconsin, began working on his ice boat during the winter of 1856-57. In addition to inventive genius he had a talent for promoting his interests. He could honestly boast of many years experience in mechanics and he had superintended shops employing as many as 150 machinists and engineers.

By the spring of 1859 Wiard's "famous ice boat" was observed on the railroad track near the machine shop at Prairie du Chien. "It is a funny looking structure", the Milwaukee *Leader*

declared, "something of a cross between a Wabash river sternwheel boat and an itinerant daguerrian car." The reporter regretted that Wiard was unable to test his craft by a "practical slide on the ice". But the ingenious inventor planned to "have it towed up to Lake Pepin by the first boat, whether there should be any ice on the lake or not." Ice, it was pointed out, was not necessary, for Wiard's boat was constructed so that it would float.

Apparently the boat was not given a test, for on December 21, 1859, the editor of the Dubuque *Herald* expressed some doubts regarding the "great invention" whereby stagecoaches "were to be suspended or rendered useless" between Prairie du Chien and St. Paul. Indeed, it had been "noised abroad" that even if a railroad were constructed along the banks of the Mississippi, Wiard's ice train would have "out-rivaled" it in utility.

In January of 1860 Wiard's boat was reported to have made a "trial trip" upriver with twenty passengers from Prairie du Chien to Lafayette. The round trip of approximately sixty miles was made in four hours and ten minutes. The loquacious Wiard, masquerading under the title of "professor", was "greatly elated" over the success of his boat which was destined to usher in a

"new era in steam navigation". Another ice boat was said to have been ordered, to run between Galena and Prairie du Chien.

On June 20, 1860, Wiard "favored" the editor of the Dubuque *Herald* with a "sketch of his famous invention, and his ideas of ice navigation" which were deemed of interest to the people of Dubuque and "more northern nations". The optimistic inventor believed that the possibilities of using the ice boat were boundless since there were 26,000 miles of "rivers, canals and other waters in the north-western States and Territories". Fully 14,000 miles of this total were "navigated by steam and other boats" and were "frozen an average of four months of every year." Wiard believed his ice boat could navigate most of these rivers to their sources, since depth of water was not an essential factor in its operation. He also stressed the tremendous mileage in Canada and Russia.

The object of the ice boat, as stated in the patent which Wiard obtained, was to so "combine a boat with runners and skates as to propel it on the ice by locomotive steam power or other equivalent motor for the purposes of general travel and transportation during the winter in northern climates, and have it under reasonable control for such purposes, and at the same time give it the

requisite buoyant capacity of a boat for safety in case the ice should break."

The ice boat was essentially a "life boat on four runners" that was steered by "turning the front runners by the use of a pilot wheel in the front of the cabin inside, or in a pilot house above, similar to an ordinary steamboat." The runners were shod with "chilled cast iron" and were of "sufficient width and length to distribute the weight over a large surface of ice". The boat was propelled by a "light hollow driving wheel from four and a half to six feet in diameter, which penetrates the ice with its sharp, thin, corrugated edge or periphery of steel smoothly polished and penetrating continuously with an elastic pressure that is adjustable to any required depth of penetration to the extent, if necessary, of the whole weight of the rear end of the machine." This driving wheel was placed in the center toward the rear of the boat. Steam could be applied "to thaw off any ice" with which it might become loaded. Duplicate runners could be lowered in passing "a dangerously thin or weak place in the ice".

The floor of the cabin was raised above the sheet-iron hull, leaving a space twice the depth of the boat's draft. There were entrance halls on each side in which were two tin tubes "from the floor nearly down to the bottom of the boat open

from the outside to cold air and the air flowing down these tubes is warmed by steam pipes conveying the exhausted steam and rising above the end of the perpendicular tubes escapes up into the cabin through perforations in the floor, and out through ventilators in the roof, warming and ventilating the cabin completely."

The cabin was in front with windows of "double plates of glass, 1½ inches apart, with no circulation of air between" so as to keep them "clear in cold weather and free from frost", thereby ensuring an unobstructed view in every direction. An apparatus at the rear cut fine chips of ice which were carried to an "elevator with an endless band", replenished the supply of water in the boiler, and made "water stations, pumps, pipes, and tanks unnecessary."

An added feature of the ice boat which was reminiscent of the *Icelander* and the *Glidiator* was an arrangement whereby freight could be "moved by a locomotive in trains of cars, each a boat, and with but one pair of runners". The freight cars were "coupled to each other like the cars on a railroad", and each pressed "a cutter through the runner of the car behind it in the center of its length, and by this device the whole train follows in the same track".

Wiard had taken into account the possibility

of his ice boat getting stuck in a drift or breaking through the ice. In that event the engines would serve as "stevedore or warping engines to draw the boat out of the water, through or over snow or any obstruction". The inventor had provided "peculiar light anchors" by means of which the engines could exert power to warp the boat in any direction. "The boat", Wiard explained, "is deeper at the ends, and may rest in the water with either end on the ice without danger; and if it enters the water in an air hole 80 feet in diameter, would, with its own momentum, pass over the surface of the water and slide out without any of the machinery getting foul, as the ordinary runners are jointed heaviest at their rear end, and have a lock in the joint; that prevents the forward end from dipping in passing a hole, and the instant the back end leaves the ice the front end springs up to enter above the bearing of the duplicate runner."

When "Professor" Wiard lectured at the Julien Theatre in Dubuque he exhibited a "perfect model" of his novel craft. A Dubuque editor who sat in the audience described the inventor as a "mechanic" and not a "lecturer". Nevertheless, Wiard impressed him with the "great simplicity" of his invention, together with its cheapness, strength, lightness, adaptability, and safety. In

the "humble opinion" of this editor the Wiard boat was "entirely practical", and he emphasized the desirability of restoring "communication between the river towns, now annually broken off by the frosts of winter. This consideration is of the first moment to all commercial and business men along the upper Mississippi."

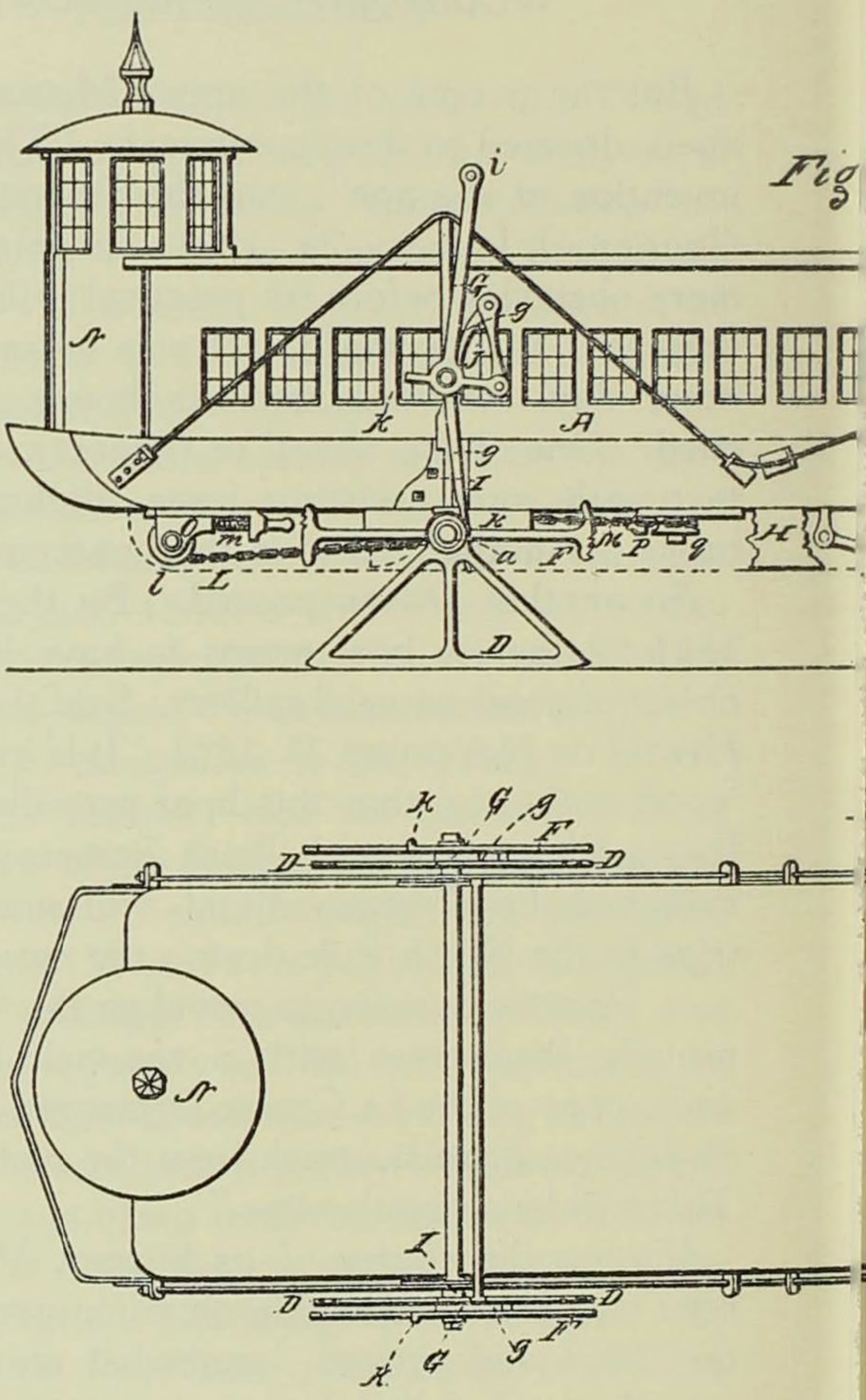
Whatever the public opinion might be concerning his ability as a lecturer, Wiard continued to exhibit his model and deliver lectures on the subject. In August, 1860, a Red Wing editor declared that the inventor of the "much talked of ice boat" had expressed "a determination to give a lecture" on ice navigation at Red Wing.

With such publicity and the generally favorable reception of the idea, it was expected that the winter of 1860-61 would witness the successful introduction of Wiard's ice boat as an instrument of upper Mississippi transportation. There was general rejoicing early in 1861 when a Prairie du Chien editor announced that the "long talked of experiment has become a reality — it is no longer a myth. It was being removed yesterday from its summer berth on to the ice, under the supervision of Mr. Sherman, a gentleman from the East. As soon as our St. Paul friends will freeze over Lake Pepin, they may expect a visit from the Lady Franklin."

But the people of the upper Mississippi were again doomed to disappointment. "This greatest invention of the age", said the Prairie du Chien *Courier* of January 24, 1861, "is fated to meet more obstacles before its practical utility is demonstrated to the world. It was steamed up the other day, removed from its house, and — *not* tried. One of the 'shoes' or runners came in contact with some resisting force, slightually [sic] broke. Another delay is the consequence."

So another season passed. By the winter of 1861-62 the ice boat seems to have become the object of good-natured raillery. Said the Dubuque *Herald* on November 27, 1861, "It is 'rumored' on 'good authority' that this boat propelled by Dan Rice's Rhinoceros and 'Brick Pomeroy' [a much maligned La Crosse editor] will make regular trips to the North Pole during the coming season . . . Persons desiring to travel on this line should provide themselves with a ten-inch Columbiad and a copy of the La Crosse Democrat, as a means of defence against attack from the motive power. This will be a popular line."

During the course of its history, Wiard's ice boat was exhibited within an enclosure at Prairie du Chien and proved "somewhat remunerative" as a show. It failed, however, to inaugurate winter transportation on the upper Mississippi: the



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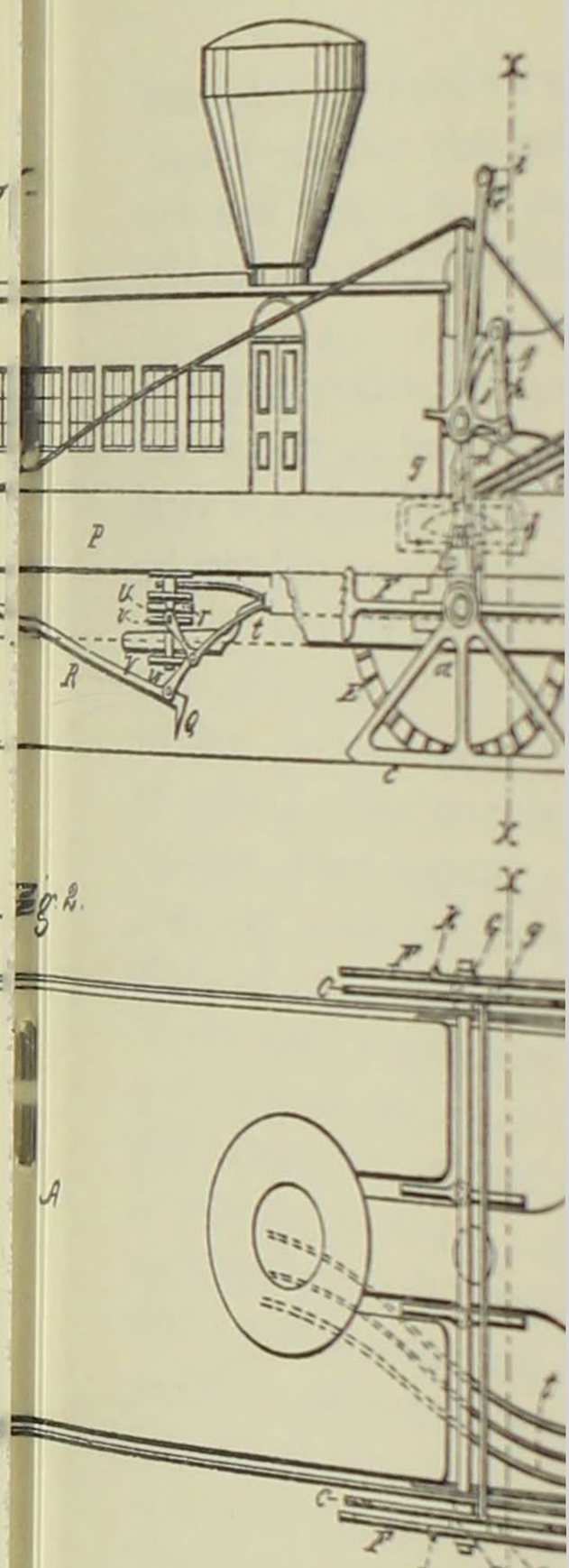
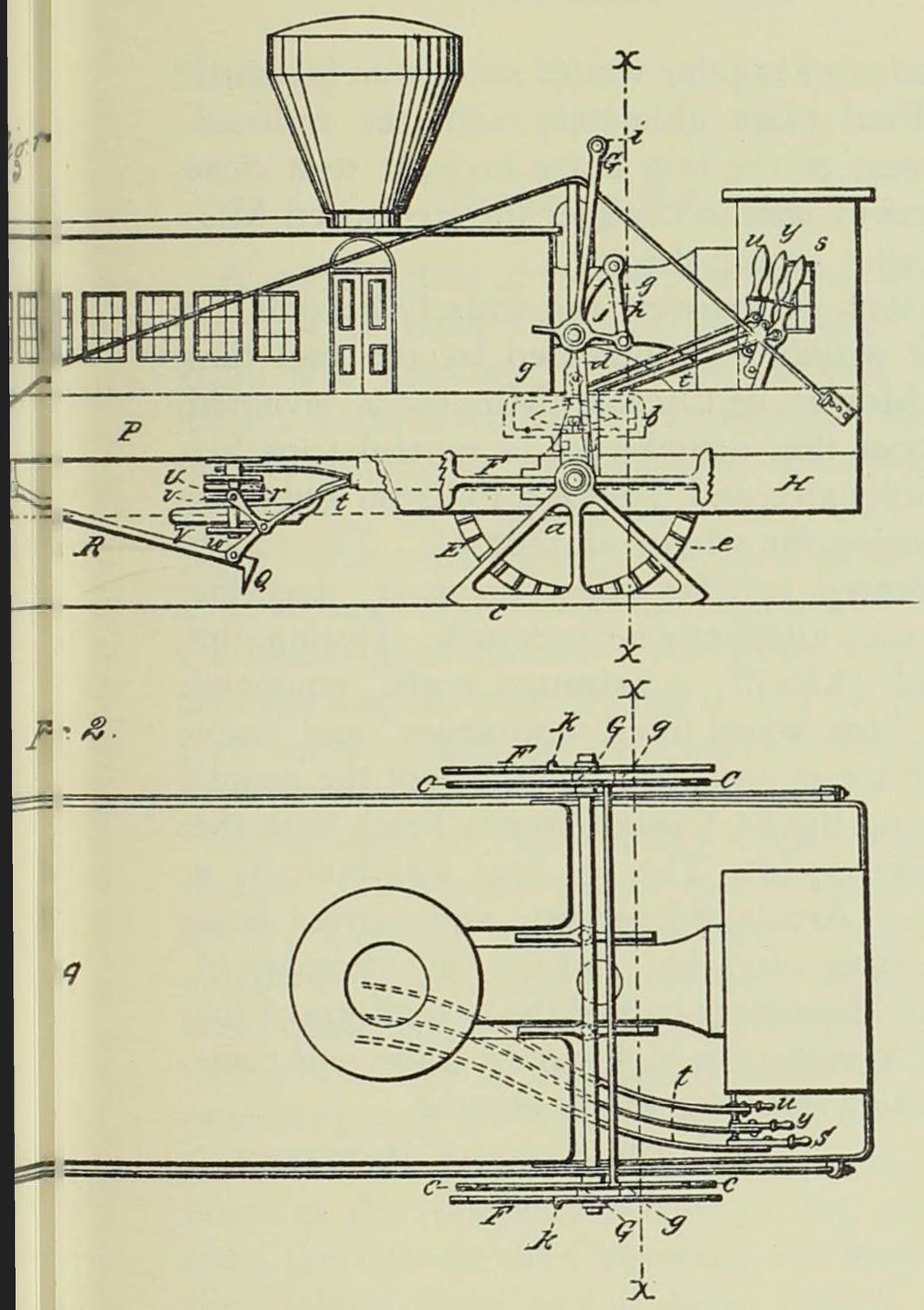
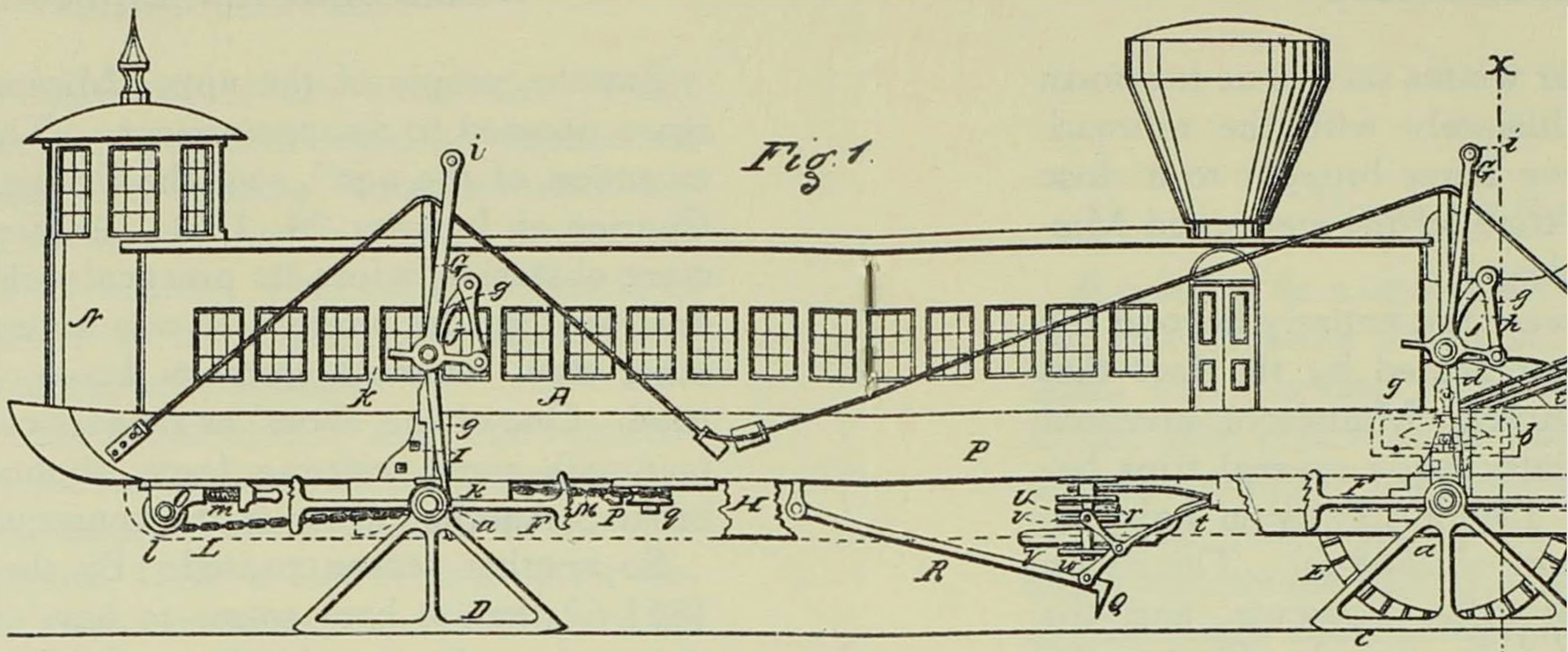


SIDE ELEVATION AND UNDERSIDE VIEW OF VIARD'S ICE BOAT AS PATENTED ON JANUARY 24, 186



ARD'S ICE BOAT AS PATENTED ON JANUARY 24, 1860

Fig. 1.



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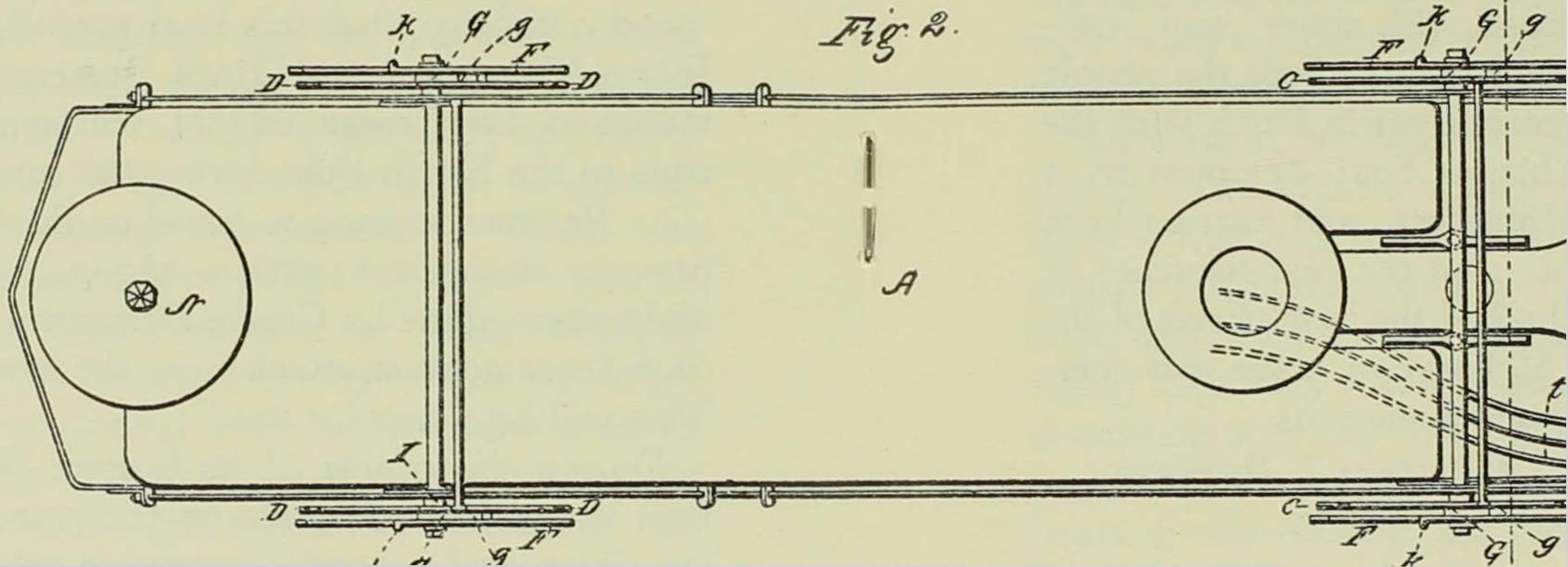

introduction of regular winter service as far north as St. Paul came ultimately with the railroad. The advent of the iron horse brought to a close the efforts of men to conquer the ice-locked Mississippi with power sleighs.

That such efforts were not entirely beyond the realm of actuality is indicated by the fact that Martin Mower, of Osceola, Minnesota, invented an ice boat that actually made several trips between Stillwater and Taylor's Falls on Lake St. Croix during the winter of 1868-69. The rough ice prevented regular trips, however, and the project was ultimately abandoned. During the winter of 1876-77, a "strange craft" equipped with an "iron wheel fitted with spurs" and "propelled by steam on steel runners" kept the people living along the St. Croix River in touch with the rest of the world. This ice boat was built by a resident of Arcola, Minnesota, and carried both passengers and freight. But the vast stretches of the upper Mississippi baffled the best efforts of the pioneers to make it a highway of trade and commerce during the long winter months.

WILLIAM J. PETERSEN

Breaking the Ice

A colorful fleet of steamboats lay marshalled at the foot of Lake Pepin in the spring of 1857. April was drawing to a close but still the ice-locked lake presented an impenetrable barrier to vessels striving to reach the head of navigation at St. Paul. On April 29th twenty-two heavily laden steamboats hailing from ports as far distant as Cincinnati and Pittsburgh impatiently awaited the break-up of the ice. The more venturesome captains had for several days butted the prows of their boats against the solid wall in vain attempts to crash through.

All at once, on April 30th, a mighty convulsion ripped Lake Pepin's winter coat wide open from Read's Landing to Maiden Rock, presenting a narrow but dangerous lane through which steamboats might venture. And venture they did! Battering their way through giant blocks of shifting, crumbling ice, the *War Eagle* and the *Galena* started up the ice-chocked lake, followed by such boats as the *Rescue*, the *Henry Clay*, the *Hamburg*, the *Atlanta*, the *Conewago*, the *Sam Young*, the *Golden State*, and a dozen others. When the *War Eagle* stopped to rescue a deck-hand

who had fallen overboard, the *Galena* forged ahead, Captain W. H. Laughton bringing his victorious craft up to the St. Paul levee at 2:00 A. M. on May 1, 1857.

The opening of navigation at St. Paul that year was the latest date on record between 1844 and 1884, though the river had been open at Dubuque on March 25th and was free of ice at Winona on April 1st. The average date of arrival at St. Paul for this period of forty-one years was April 13th. The earliest arrival was made in 1858 when the *Grey Eagle* whisked up to the St. Paul levee on March 25th. Only three other boats succeeded in reaching St. Paul before April 1st, the *Annie* tying the record of the *Grey Eagle* when she arrived on March 25, 1878.

During pioneer days the arrival of the first boat of the season was hailed with delight by river towns in Iowa. Isolated throughout the long winter months and with only fragmentary news dispatches trickling in from the outside world, the first steamboat arrival was a memorable event and remained the topic of conversation for weeks. In contrast the towns along the lower Mississippi were not concerned with the opening and closing of navigation. The levee at St. Louis was blocked on an average of only twenty-nine days yearly between 1865 and 1882. But as steamboats as-

cended the Mississippi above the mouth of the Missouri, the opening of navigation became more important. Between Keokuk and Dubuque the river was ice-locked on an average of from 75 to 105 days each year. The season of navigation for the port of St. Paul averaged only 222 days between the years 1849 and 1866, or a little over seven months. Ports below the foot of Lake Pepin could usually depend on a month more of navigation than St. Paul.

Of course the completion of various railroad lines to the Mississippi and the spread of the telegraph throughout the upper Mississippi Valley lessened the interest of most river towns in the opening of navigation. With the decline of steamboating early in the twentieth century the thrill attending the opening of navigation became only a cherished memory for old-time rivermen.

The inauguration of upper Mississippi traffic by the Federal Barge Line in 1927 caused river towns once more to consider the handicaps that resulted from the limited season of navigation. As work on the twenty-six locks and dams progressed and river commerce increased, citizens along the upper river took a more than casual interest in the revival of steamboating. "Ahoy there, you river barges!" sang out the Minneapolis *Star* on April 12, 1934. "Two thousand-ton omen of

Spring, vanguard of renewed river traffic, harbinger of Spring business, Spring optimism and Spring enthusiasm! Of all vernal emblems . . . the first barge tow is the most impressive and convincing. Robins aren't in it with the first glimpse of the S. S. John W. Weeks chugging up Ol' Man River with barges of merchandise from the sunny south." The opening of navigation in 1934 was one day earlier than the average between 1844 and 1884.

Twentieth century rivermen no longer thought in terms of steam sleighs or steam trains running up the frozen Mississippi, for railroad tracks already paralleled both sides. Instead they turned their attention to some device for keeping the channel open. In May, 1935, the *Upper Mississippi River Bulletin* noted that the U. S. Coast Guard cutter *Escanaba* had cleared the Straits of Mackinac of ice and enabled navigation on the Great Lakes to open twenty-five days earlier than in 1934. There was no reason, engineers declared, why inland waterways could not be kept open the year round by the use of ice cutters. The prospects seemed particularly good on the Illinois River and a substantial portion of the upper Mississippi.

On January 21, 1938, Colonel Philip B. Fleming announced that the United States Engineers

in the St. Paul district were considering the advisability of acquiring an ice breaker for the purpose of extending the dates of through navigation on the upper Mississippi between Prairie du Chien and Minneapolis. After pointing out that Lake Pepin formed a real bottleneck each winter, Colonel Fleming concluded: "It is estimated that the use of an ice breaker for the creation of a navigable passage in Lake Pepin during spring ice break up period should advance the future opening dates of through navigation by a period of from two to three weeks, and in addition the possession of an ice breaker will probably give reasonable assurance that tows will be able to operate up to November 20, instead of November 10, as at present, the above making a total extension in the navigation period of approximately one month."

Three years later, in the spring of 1941, the season of navigation at Minneapolis was opened by the Federal Barge Line steamer *Huck Finn*. Although Lake Pepin offered less resistance because a rise in the water softened the ice, Captain Raymond Fugina of the *Huck Finn* found it no easy task bringing his boat through. "Coming through Lake Pepin", the veteran riverman declared, "we bucked sixteen-inch ice for ten miles, not to mention five miles of lighter ice. It took eighteen hours to get through."

The St. Paul *Dispatch* was delighted with the prospects for 1941. "Fifty-seven tow boats are now operating on the upper river between St. Paul and St. Louis. Barges of 2,000-ton capacity—equal to a 100-car freight train—are common. As many as 3½ million gallons of gasoline have been brought here in a single tow, and experts say that's only a starter." This was no mere flash of optimism, for when the season of navigation closed St. Paul could point with pride to 644,736 tons of barge traffic compared with 7,108 tons in 1927, 105,184 tons in 1937, and 598,481 tons in 1940. The entire upper Mississippi had enjoyed a similar growth—approximately 4,000,000 tons of freight having been moved between St. Louis and St. Paul during the course of the season.

The treacherous attack on Pearl Harbor found the upper Mississippi well-prepared for extra war duty. The twenty-six locks and dams had been completed and a nine foot channel assured. Modern freight terminals were located at strategic points between St. Louis and Minneapolis—those at Burlington, Rock Island, and Dubuque being among the best. Oil terminals had also been planted along the Mississippi encouraging the phenomenal growth of oil cargoes to the point where petroleum exceeded the combined tonnage of all other freight carried on the Mississippi be-

tween Minneapolis and New Orleans. On April 6, 1941, the Davenport *Democrat* rejoiced over the inauguration of a new feature in upper Mississippi traffic when the *Bob Gresham* and the *Helen B.* arrived at the Bettendorf terminal of the Quaker Petroleum Company with four barges of gasoline from Galveston, Texas! A few months later the Minneapolis *Times* chronicled the arrival of a huge cargo of gasoline from Louisiana aboard the *Minneapolis Husky*—the only inland oil tanker in the United States. Meanwhile, towboats were arriving at St. Paul and Minneapolis with from 10,000 to 14,000 tons of coal in tow. At the same time the *Charles F. Richardson* astounded residents of the Twin Cities when she brought up three and a half million gallons of fuel oil weighing 12,800 tons, believed to be the largest oil tow ever transported on the upper Mississippi. Such figures stand in sharp contrast to the 2200 tons of freight discharged at the St. Paul levee in 1857 by twenty-two steamboats!

One of the first efforts of the United States Coast Guard following Pearl Harbor was to extend the season of navigation on the upper Mississippi and Illinois rivers. The first experiments were undertaken on the latter stream, where the steamers *Illinois* and *Tom Sawyer* of the Federal Barge Line experienced considerable success. The

Illinois received a tremendous ovation at Alton in mid-January when she plowed upstream through eight-inch ice to begin her work. By January 22, 1942, Captain S. S. Yeandle of the Ninth Naval District at St. Louis was able to report that conditions on the Illinois River were rapidly returning to normal despite some unusually thick ice. On one occasion it took the combined efforts of the *Tom Sawyer*, the *Shepard*, and the *Sylvia T.* to open a gorge near Marseilles composed of ice from twelve to fourteen inches thick.

Not enough equipment was available in the spring of 1942 to tackle the upper Mississippi, hence it was not until mid-March of 1943 that the United States Coast Guard undertook to open that very stubborn stream. The *Del Commune* of the United States Engineers fleet, was fitted with an 85-ton Amsterdam-like ice plow—an ingenious device in the shape of a horse-collar which encircled the bow of the boat. Filled with water to increase its weight, this plow bore the brunt of the attack against the ice and protected the *Del Commune* from damage. As the enormous collar was driven forward on top of the ice, the weight was sufficient to break through eight-inch ice with ease, but in thicker ice the going was slower.

The *Del Commune* met its first difficulties at Clarksville, Missouri. There a huge ice gorge

blocked the way but persistent bucking and smashing finally broke the jam and the *Del Commune* continued northward, passed Muscatine on March 16th and arrived at Dubuque on March 18th. The powerful boat failed in her attempt to smash the twelve- to eighteen-inch ice which bracketed the river five miles north of Dam Eleven and was forced to return to Dubuque for repairs, where she remained until March 29th. The unseasonably cold weather was an important factor in Old Man River winning this battle against the best efforts of the Coast Guard.

Muscatine did not greet its first commercial tow in 1943 until March 21st when the *Stanolind A* with her four-barge oil tow passed through Lock Sixteen. The *Tom Sawyer*, equipped with an ice plow, had preceded the *Stanolind A* up the river. According to Mabel Bartenhagen, veteran Muscatine river reporter, the *Sawyer* had met plenty of ice on the way up. "The ice plow shows evidence of the heavy-going the boat has encountered on the trip up the river. The rail on the plow on the port side was broken off and on the starboard side the rail was bent and out of line. The paint has been scraped off the plow showing the red lead all the way to the top of the plow."

A better opportunity was afforded the United States Coast Guard in the spring of 1944. Al-

though the season of 1943-44 was comparatively mild, efforts to open the upper Mississippi did not get under way until mid-March. On Saturday, March 11th, the Federal Barge Line towboat *Tom Sawyer* fitted with an Amsterdam ice plow, passed upstream through the Rock Island locks. The *Sawyer* was followed by the Coast Guard Cutter *Sycamore,* also fitted with an ice plow. The boats were opening a channel for the first tow of the season which was expected to reach Davenport late on Sunday or early Monday. The Clinton *Herald* reported the *Tom Sawyer* passing through the Chicago and North Western drawbridge at 2:21 P. M. on Saturday, closely followed by the *Sycamore.*

The speed with which the boats traveled from Davenport to Clinton is evidence that ice offered little hindrance. Much the same conditions prevailed as far north as Dubuque, though solid ice still remained above Dam Twelve at Bellevue. The Dubuque *Telegraph-Herald* reported a "rising trend" in prospect but no serious floods currently indicated. "The pools are frozen immediately above and as far upstream as can be seen from the dams. Some breaking of the ice is to be expected over this weekend." By Tuesday, March 14th, the *Telegraph-Herald* recorded that "Much of the ice which remains, and most of

which is confined to the reaches immediately above the dams should become broken today, and much of it should move out today and tonight. The ice has become quite soft in the pools, with many openings appearing, while below the dams only shore ice or floating ice is reported for several miles." From Dubuque the *Tom Sawyer* set out for Minneapolis on March 15th and reached the United States locks at Lynxville at noon on the 16th. The river along the entire eastern border of Iowa was open to navigation by mid-March.

It was not until March 13th that the first commercial tow of the season arrived at Davenport, the powerful 1200-horsepower diesel towboat *Wayne H.* shoving five barges of petroleum products through the Rock Island locks and up to the Bettendorf terminal of the Paroland Oil Company. The *Wayne H.* had reached Lock Sixteen at Muscatine on Sunday night but was unable to make an early start Monday morning because of fog. Floating ice proved to be no handicap, however, and despite the absence of river buoys she was able to put in at Davenport Monday afternoon.

Some idea of the activity attending the opening of navigation in 1944 may be gleaned from the river news contained in the newspaper columns of a typical Mississippi river town. Since Davenport lies about midway between Keokuk and

Dubuque it forms a fairly representative Iowa river town. Moreover, the Davenport *Democrat* is particularly alert to river news. Following the arrival of the *Wayne H.* on March 13th, the *Kansas City Socony* arrived on March 17th with a large cargo for the Socony Vacuum terminal. The *Tri-Cities* was reported in the Canton pool (formed by Dam Twenty) also headed for Bettendorf with gasoline. The arrival of huge cargoes of fuel oil and gasoline did much to relieve shortages. It should be pointed out that the *Wayne H.*, the *Kansas City Socony*, and the *Tri-Cities* probably discharged a greater tonnage for the Davenport area than would have been delivered there by a hundred boats of pioneer days.

Hard in the wake of these oil tows came the coal barges. The first through tow of the season consisted of four barges containing 8800 tons of coal, according to President C. C. Thompson of the Federal Barge Line. The steamer *Huck Finn* had left Alton, Illinois, with this immense tow on March 14th and arrived at the Davenport lock with it at 8:30 A. M. on March 21st. The *Huck Finn*, the *James W. Good*, and the *Patrick Hurley*, together with the *Tom Sawyer*, which was engaged in breaking a channel through the ice on Lake Pepin, were scheduled to form the upper Mississippi fleet for the Federal Barge Line in 1944.

Ten days later, on March 27th, the Davenport *Democrat* reported ten towboats in the Rock Island district and prophesied that the year 1944 would set new tonnage records. The *Patrick Hurley,* the *Helena,* the *Wheelock Whitney,* and the *Mid-west Cities* had passed through the locks in the preceding twenty-four hours and the *Tri-Cities* and the *Twin-Cities* were both in the district. The *Kansas City Socony* had put in its second appearance at Bettendorf while the *Stanolind A* made her initial appearance.

Despite this activity in the Rock Island district, the season of navigation had not yet opened at St. Paul. The ice on Lake Pepin was still reported to be "hard and clear and 20 inches thick" on March 23rd and the Coast Guard ice breaker *Fern* lay at Wabasha, Minnesota. Veteran rivermen looked back with triumph to the good old days when the *Grey Eagle* and the *Annie* (frail craft compared with modern steel towboats) reached St. Paul on March 25th. Many of these old timers have scoffed at the effectiveness of ice plows, but their skepticism was shaken somewhat when the *Fern* plowed through Lake Pepin on Tuesday morning, March 28th, and reached St. Paul the same afternoon. It was the earliest opening in fourteen years and tied the record established by the *Milwaukee* in 1860. In the wake of the *Fern* came

the *Demopolis,* the *Huck Finn,* and the *Helena.*

The relative mildness of the winter of 1943-44, the power of modern towboats and the ingenious nature of such devices as the Amsterdam ice-breaker, the desperate need of solving the transportation bottlenecks of World War II, the necessity of conserving precious motor fuel and tires, the urgency of diverting hard-pressed railroad tank cars to the more populous Atlantic seaboard, and the overwhelming demands on railroads, tankers, and pipe lines to provide military depots with the materiel of war — all these factors point to greater use of river transportation, particularly by shortening the closed winter season.

It does not seem unreasonable to suggest that the Davenport-Bettendorf area might have been kept open eleven months during the past season, instead of nine months. The strategic character of this region, the vital service the upper Mississippi might be called upon to play in transporting iron ore southward to supplement the lake route, and the ordinary demands of the upper Mississippi Valley for fuel oil and coal during protracted cold spells demand an early solution of this problem. With sufficient ice-breaking equipment, constant markets, and official determination the river may be kept in use much farther north.

WILLIAM J. PETERSEN

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