

## 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,  $1\frac{1}{2}$  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 *Gladiator* 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."

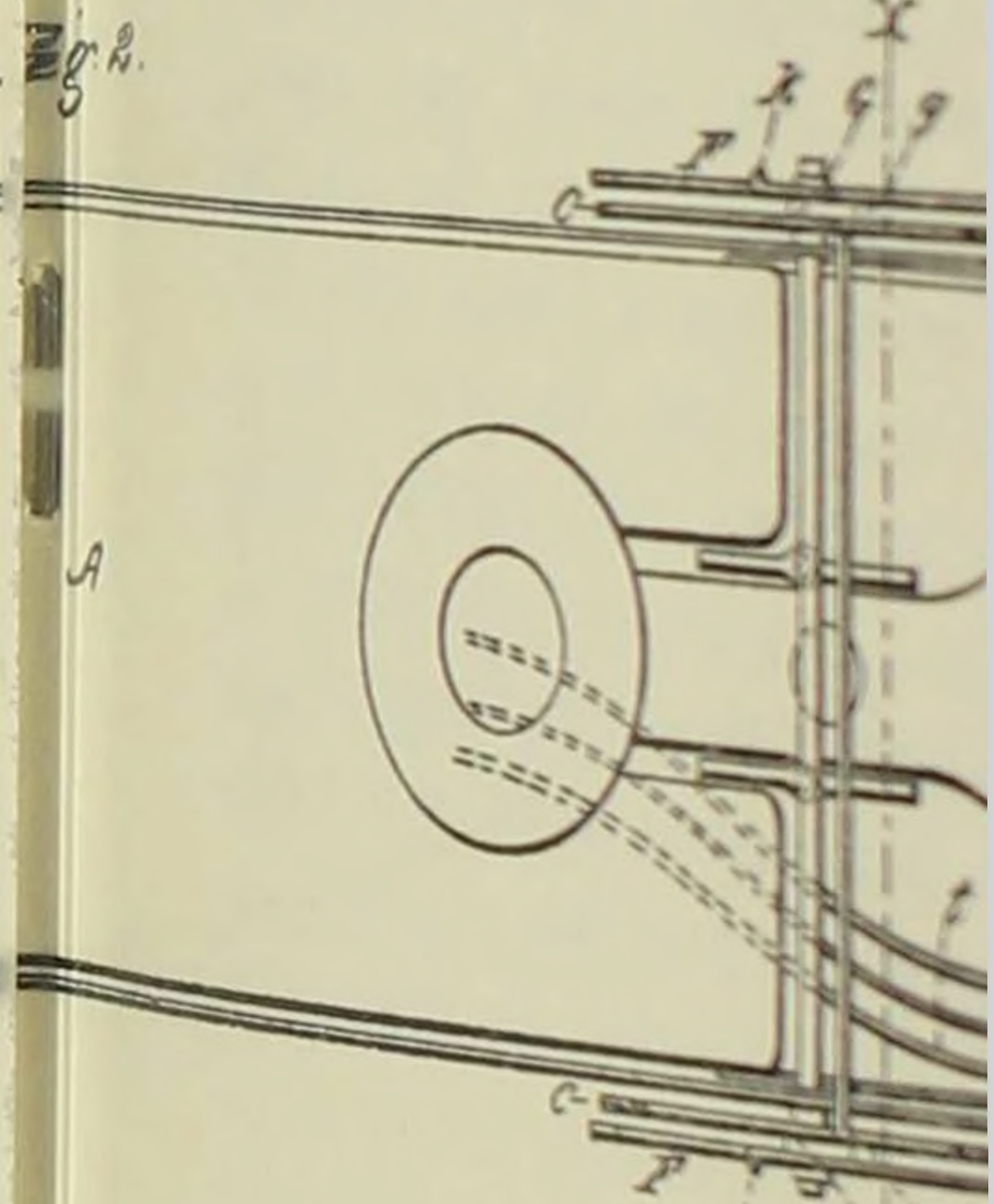
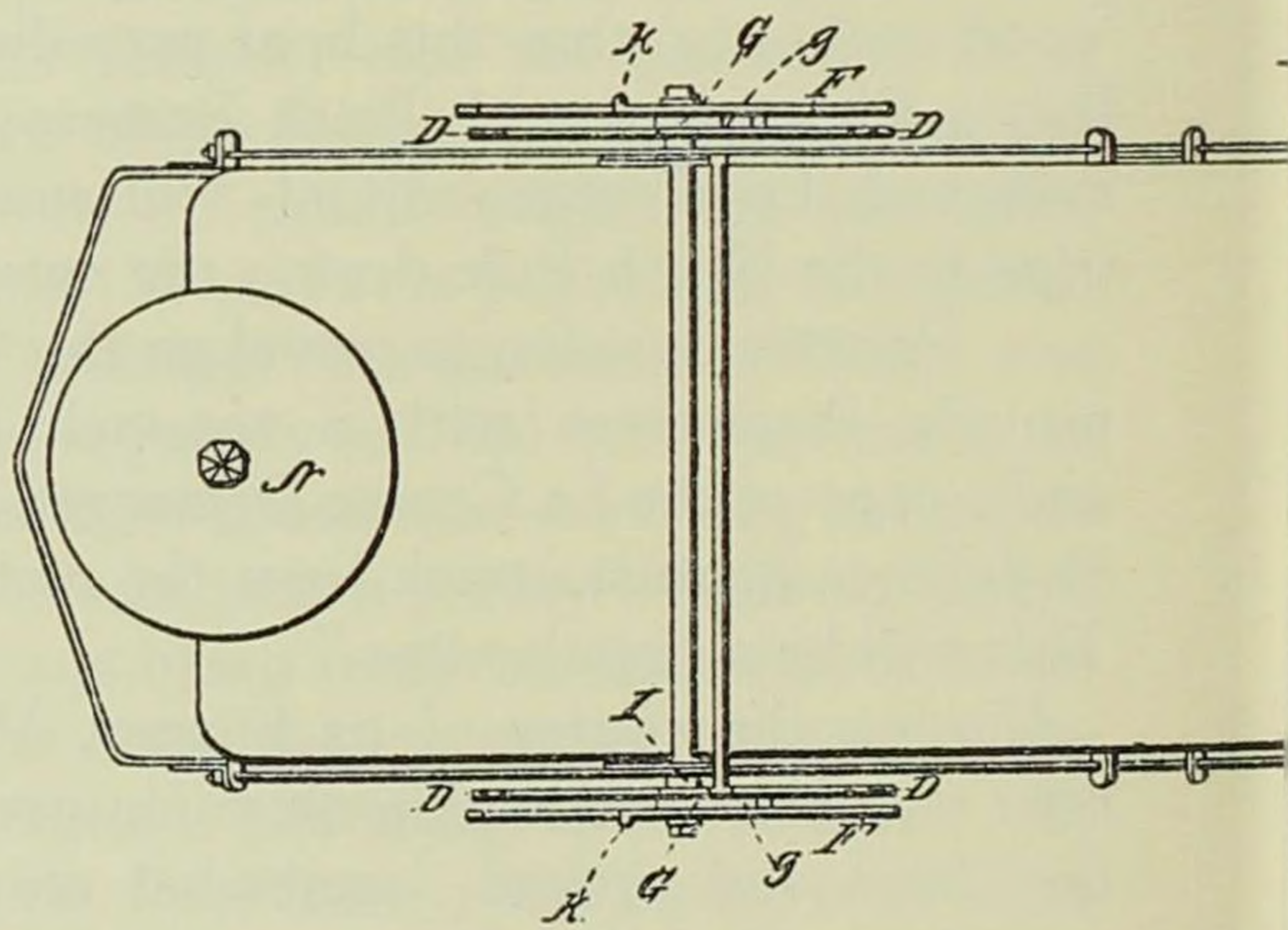
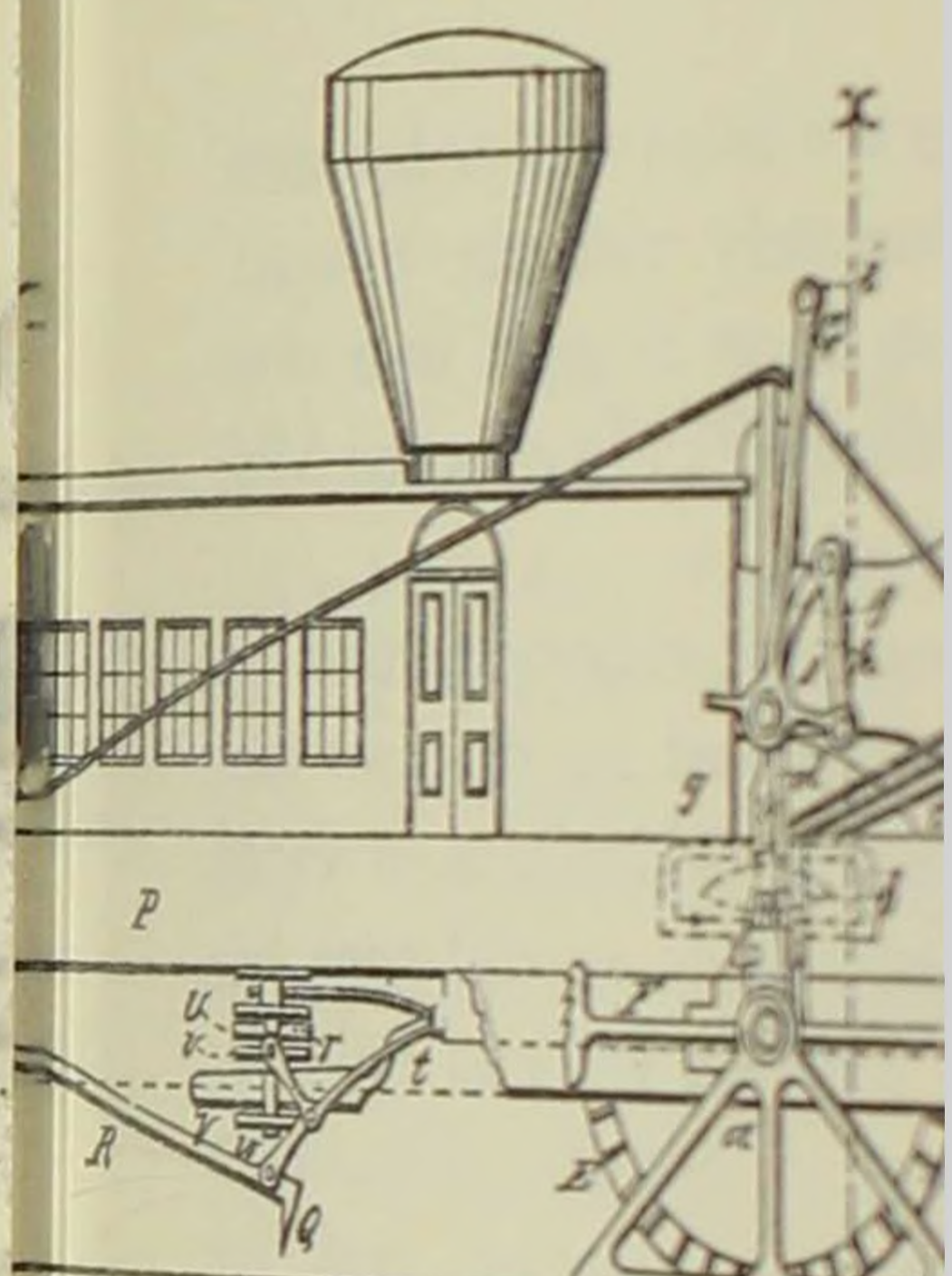
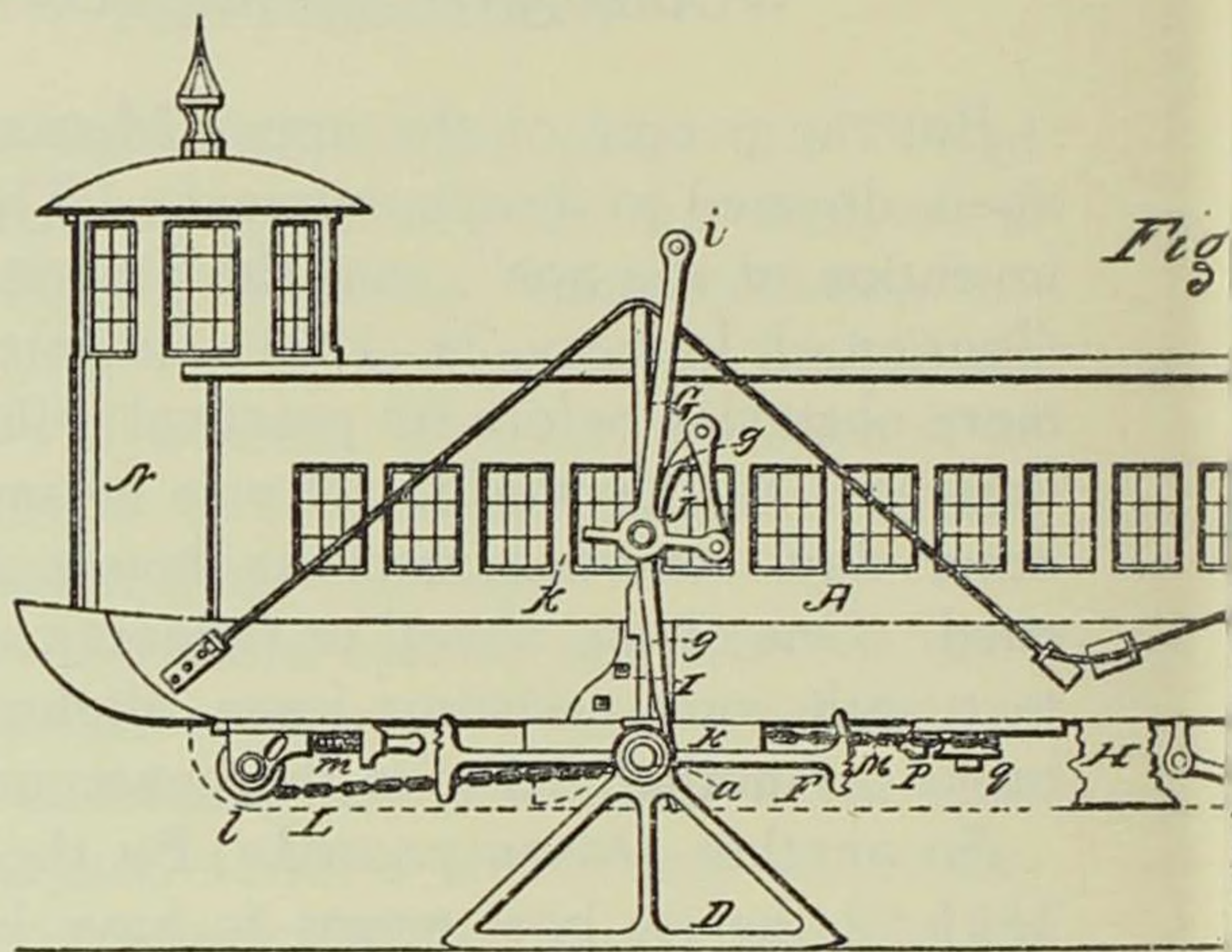


But the people of the upper Mississippi were again doomed to disappointment. "This greatest invention of the age", said the *Prairie du Chien Courier* of January 24, 1861, "is fated to meet more obstacles before its practical utility is demonstrated to the world. It was steamed up the other day, removed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

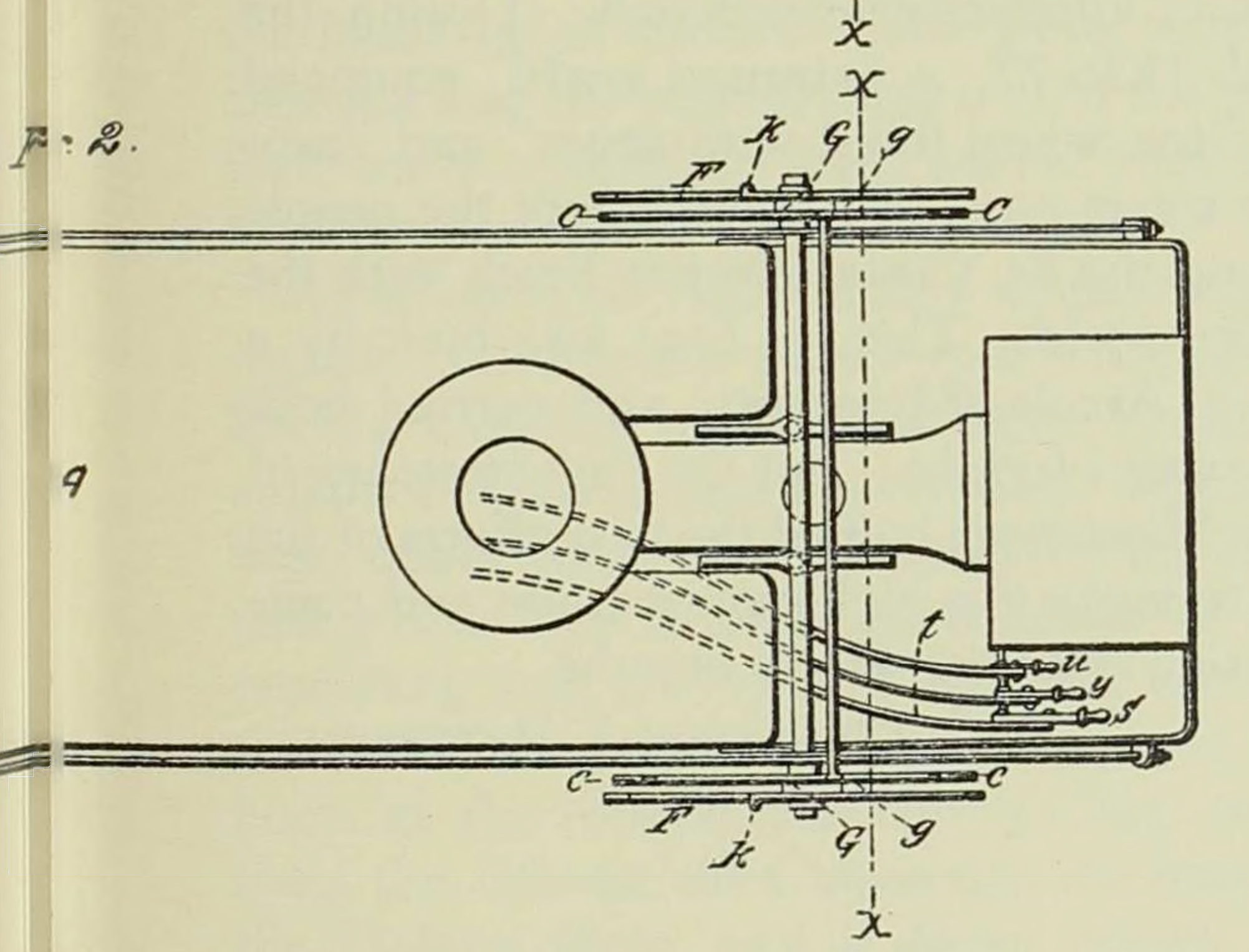
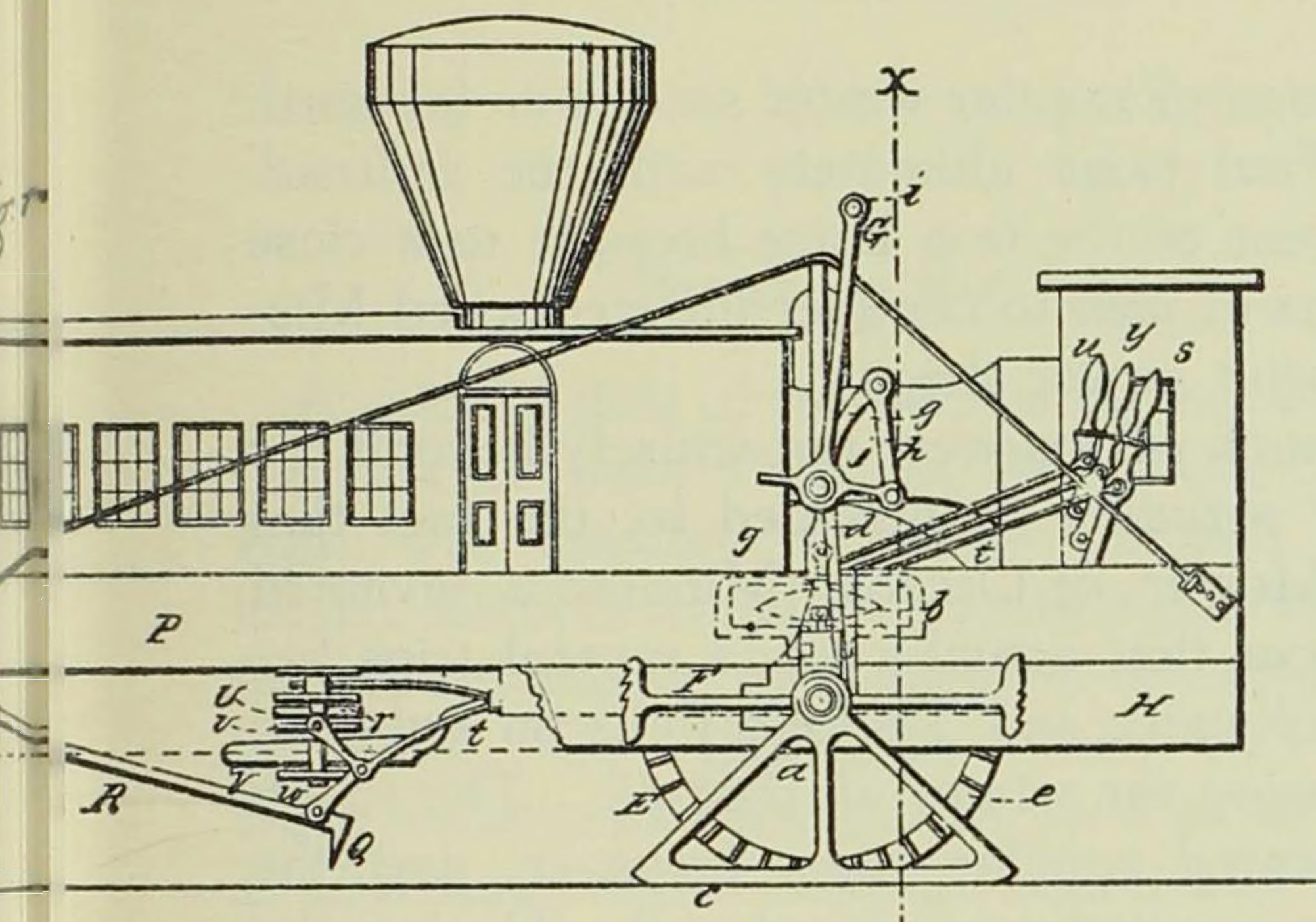
During the course of its history, Wiard's ice boat was exhibited within an enclosure at *Prairie du Chien* and proved "somewhat remunerative" as a show. It failed, however, to inaugurate winter transportation on the upper Mississippi: the





SIDE ELEVATION AND UNDERSIDE VIEW OF WIARD'S ICE BOAT AS PATENTED ON JANUARY 24, 1860





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



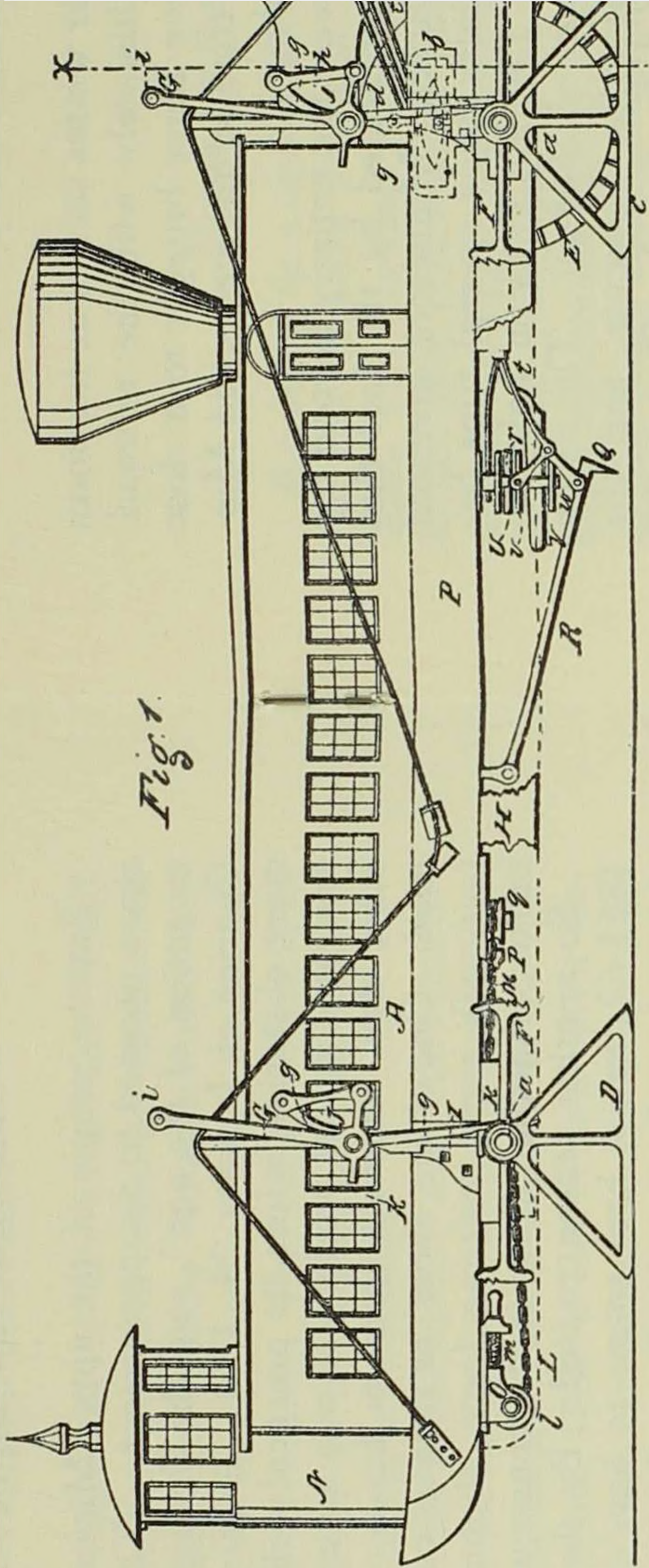


Fig. 1.

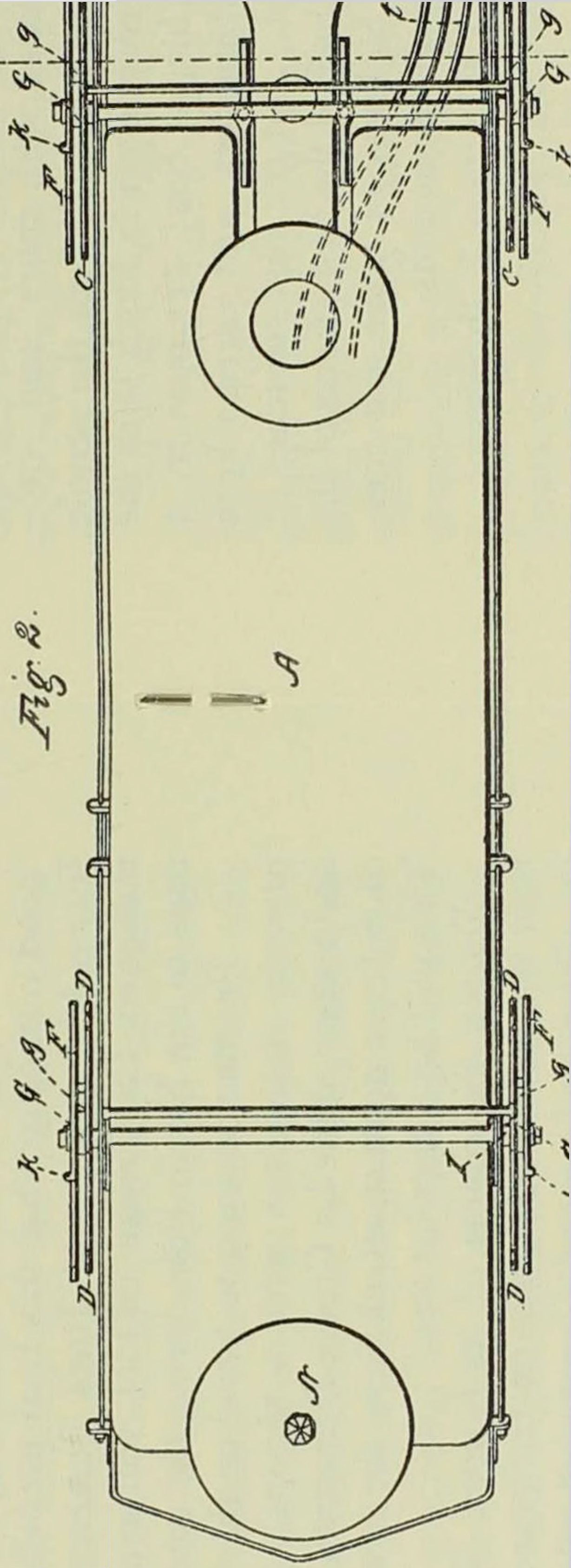


Fig. 2.



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