(No Model.) 2 Sheets—Sheet 1.

H. J. WOODS.

BOAT LAUNCHING CARRIAGE.

No. 486,012. Patented Nov. 8, 1892.

Fig 1.

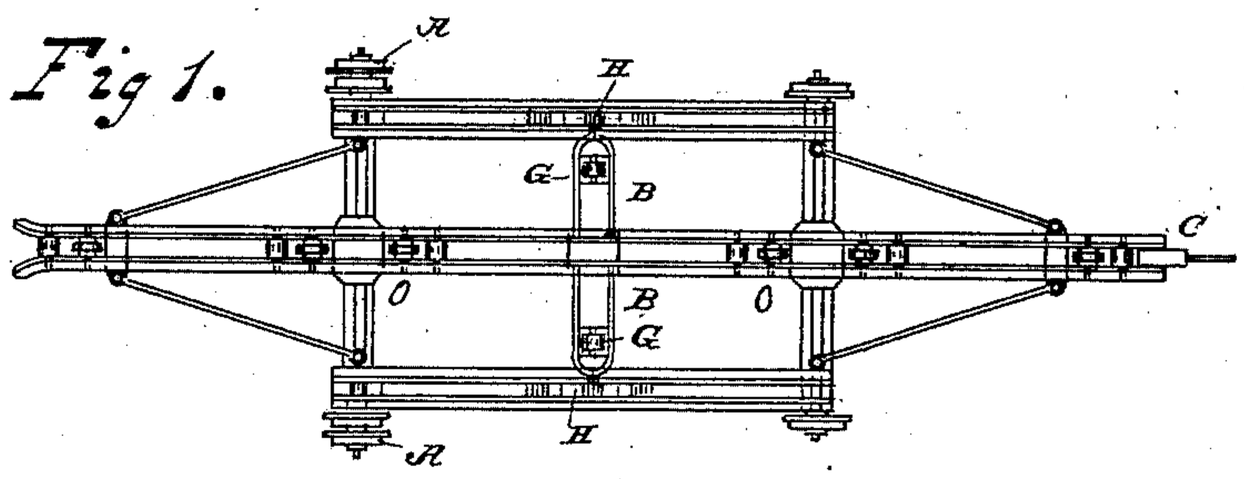


Fig 4.

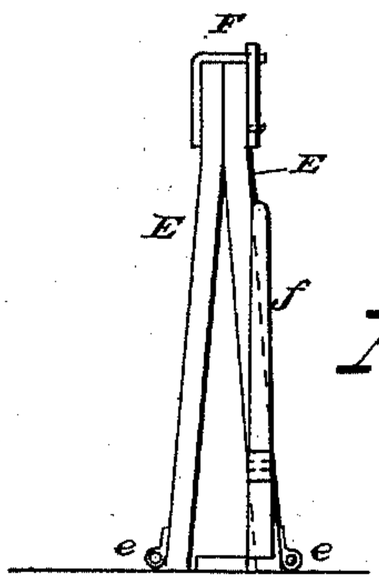


Fig 2.

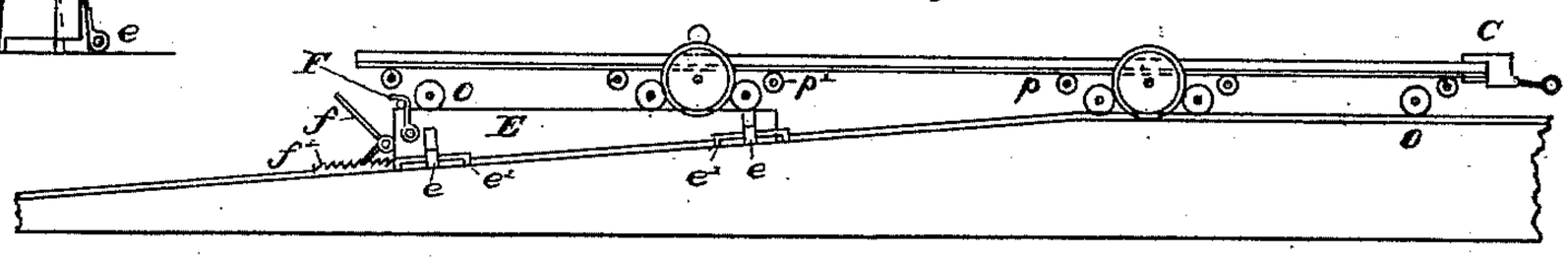


Fig 3.

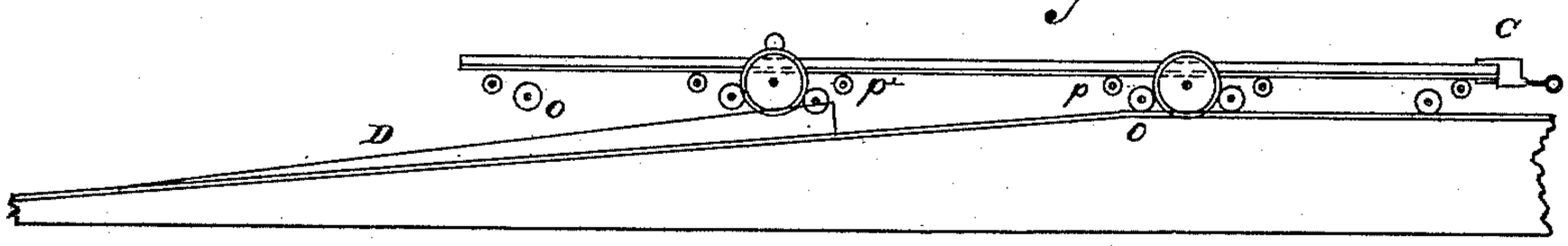


Fig 5.

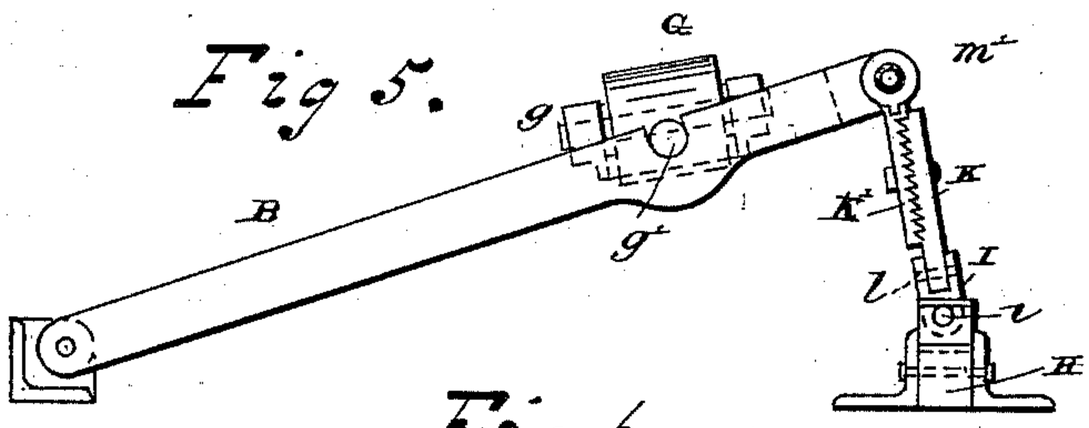


Fig 6.

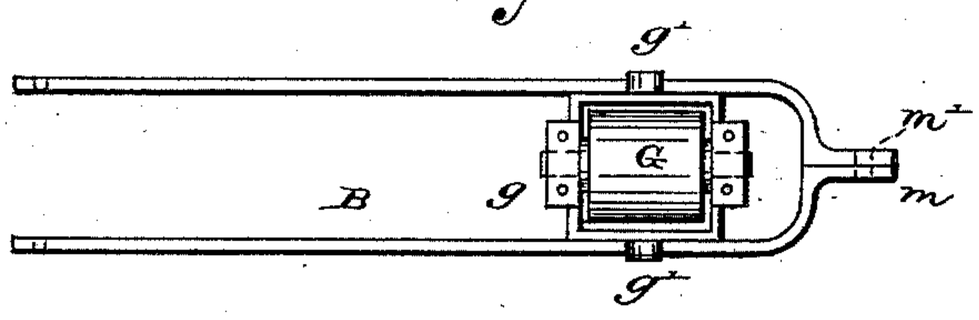


Fig 7.

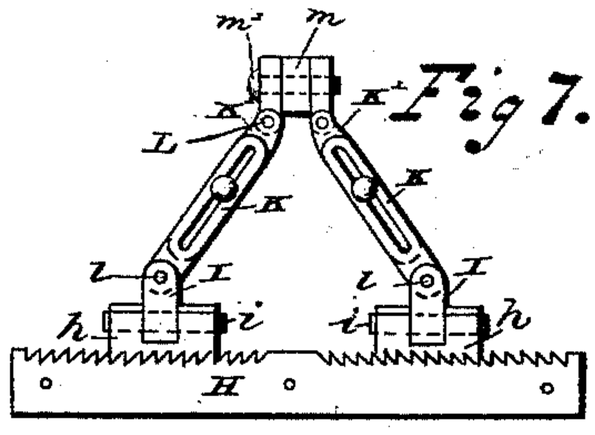


Fig 8.

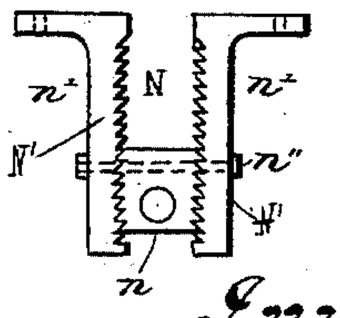
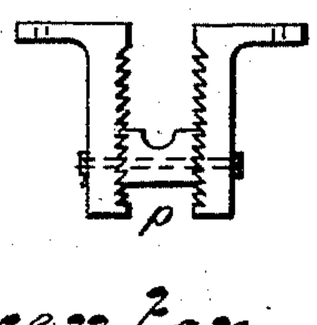


Fig 9.



Witnesses.
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Inventor.
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(No Model.) 2 Sheets—Sheet 2.

H. J. WOODS.

BOAT LAUNCHING CARRIAGE.

No. 486,012. Patented Nov. 8, 1892.

Fig 10.

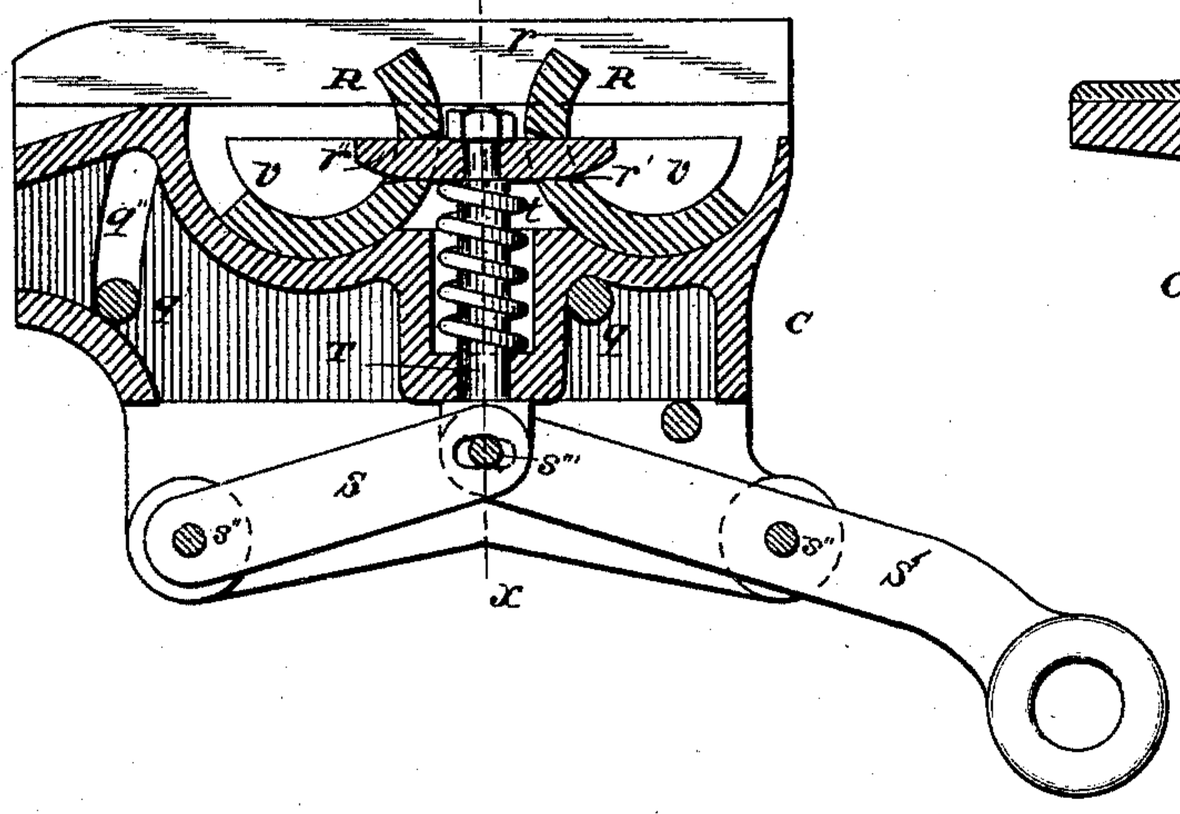


Fig12.

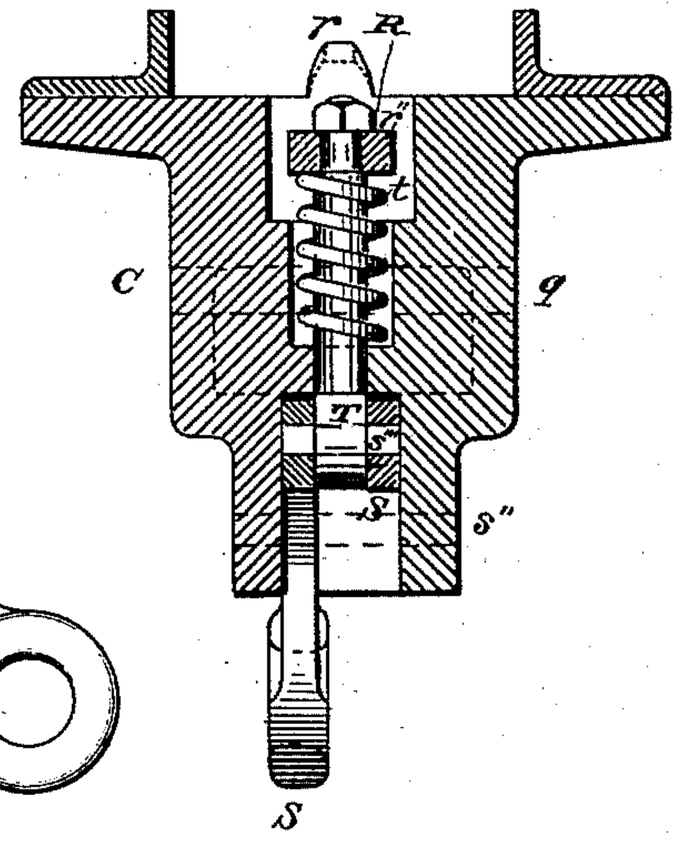


Fig11.

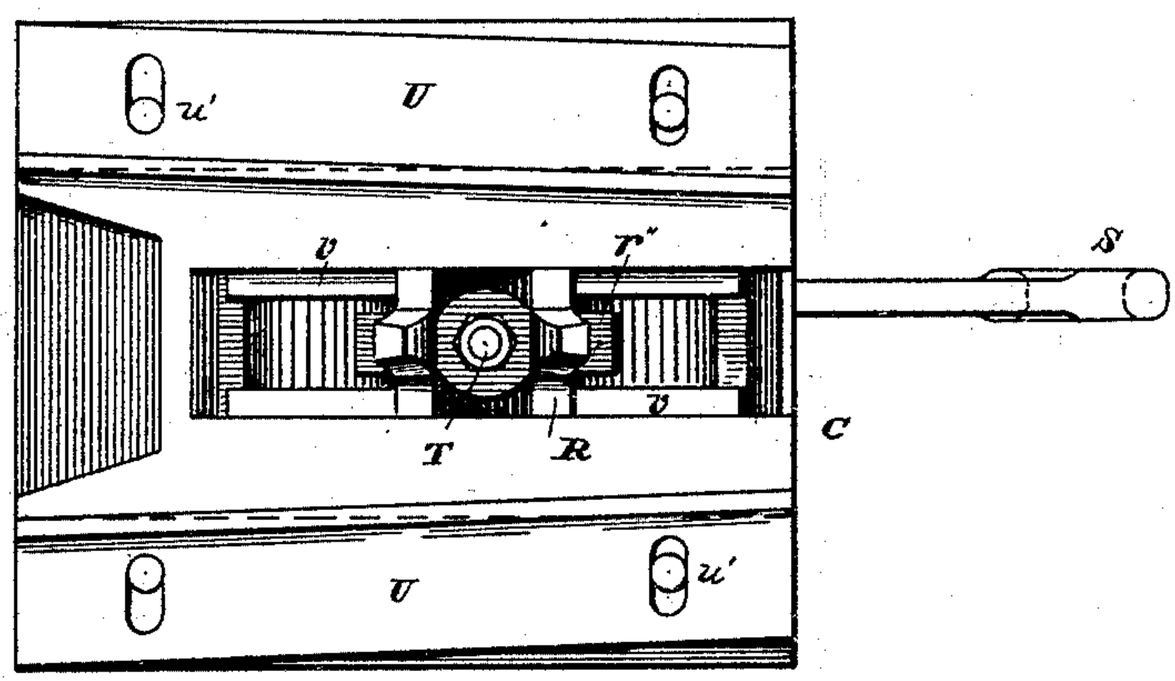


Fig14.

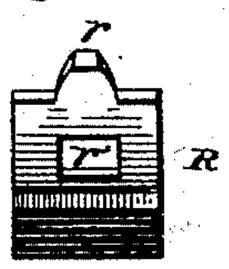
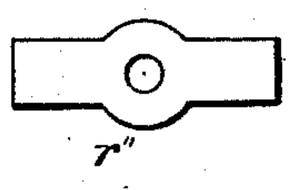


Fig13.



Witnesses:
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Inventor.
Henry J. Woods
per Fred'k Gasken. Atty.

UNITED STATES PATENT OFFICE.

HENRY J. WOODS, OF MUSKEGON, MICHIGAN.

BOAT-LAUNCHING CARRIAGE.

SPECIFICATION forming part of Letters Patent No. 486,012, dated November 8, 1892.

Application filed February 11, 1892. Serial No. 421,114. (No model.)

To all whom it may concern:

Be it known that I, HENRY J. WOODS, a citizen of the United States, residing at Muskegon, in the county of Muskegon and State of Michigan, have invented certain new and useful Improvements in Boat-Launching Carriages; and I do hereby declare the following to be 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 present invention relates to an improvement in carriages for life or other boats by means of which they may be easily and quickly drawn from the water and readily launched therein.

The object of my present invention is to so construct the tracks and holding and supporting devices that when the boat is brought to rest the boat and carriage will both be on a level instead of on an incline, the purpose being to prevent the water that may be left in the bottom of the boat from lodging in one particular place, and consequently rotting that particular portion thereof; and the invention further consists in improved devices for keeping the boat in a perpendicular position when resting on the carriage and in the provisions made for supporting the end of the carriage between the level and the inclined plane, together with the means adapted for relieving the boat when it has reached the water; and, further, the invention comprises certain details in the construction, arrangement, and combination of parts, substantially as will be hereinafter described and claimed.

In the annexed drawings, illustrating my invention, Figure 1 is a top plan view of my improved boat-launching carriage complete. Fig. 2 is a side elevation of the carriage when at rest, showing the inclined track and the end support. Fig. 3 is a similar view showing the outside inclined track for raising the boat to a level. Fig. 4 is an end elevation of the support for the after end of the carriage. Fig. 5 is a side view of the device for holding the boat perpendicularly when at rest. Fig. 6 is a plan view of the same. Fig. 7 is an end view of the same. Figs. 8 and 9 are side views of the two journal-boxes for carrying the central rollers. Fig. 10 is a sectional side elevation of the catch device for securing the boat to the carriage. Fig. 11 is a top plan view of the same. Fig. 12 is a partial sectional elevation on the line *x x* of Fig. 10. Fig. 13 is a detail view of one of the plates against which the upper end of the spindle-shoulder of the catch device rests. Fig. 14 is a detail view of one of the catches.

Similar letters of reference designate corresponding parts throughout all the different figures of the drawings.

In a former patent of mine, No. 390,543, dated October 2, 1888, I have shown and described a form of frame the essential parts of which are preferably employed herein, and therefore the description of said frame is unnecessary in this case.

In the drawings, A are the extra flanged wheels on the after axle, which run on the outside track D. (See Figs. 1 and 3.) These wheels are smaller in diameter than the main wheels, so that the rim will clear the floor when the entire carriage is on the main track. The faces of both wheels can be cast in one piece, if desired, the larger face or inside one taking the main track and the smaller face the raised track D. The wall between the outside and inside wheels constitutes a flange for keeping the smaller wheel on the track when traveling up the outer incline.

B B are two frames, hinged to the central angle-irons and capable of being raised and lowered to suit the formation of the hulls of different boats.

C is a casting containing the catches and is fastened to the angle-iron bars at the front end of the carriage.

D D are two inclined tracks, one on each side of the carriage. These tracks have a greater incline than the main tracks on which the carriage travels when leaving the water and are for the purpose of raising the carriage to a level line by the provision of the outside wheels A traveling thereon.

E E are two supporting-pieces for the rear end of the carriage. When the carriage is traveling up the incline, as at Fig. 3, the supports E are lying flat on the floor. When the carriage has gained the position shown in Fig. 2, these supports are raised perpendicularly, so as to take the weight of the carriage at the rear end. The supports are provided with hinges *e e*, which are adapted to slide some distance on the rods *e' e'*, fastened

to the floor. (See Fig. 2.) When the supports are in a perpendicular position, they are held together by means of the clamps F, fastened to one side, while the other side is provided with a pivotal right-angled clamp. To the back of one of these supports is pivoted a ratchet-pawl *f*, which engages with a ratchet *f'*, which is fastened to the floor.

G G are suitable rollers journaled on the movable boxes *g g*, (see Figs. 1, 5, and 6,) which oscillate on the pins *g'*. These boxes *g* are pivoted, as shown in Figs. 5 and 6, which are enlarged views of the device shown in Fig. 1. These boxes may also be arranged so as to be adjustable longitudinally on the frame B. The object of having these box-frames movably journaled in the frame B is to allow the rollers G to adapt themselves to the outline or shape of the bottom of the boat, which may rest upon them.

H is a ratchet-casting bolted between the longitudinal side angle-irons of the carriage. (See Figs. 1 and 7.)

h h are two boxes, provided on the under side with ratchet-teeth, which engage with the plate H. These boxes when in position are fastened to the plate H by bolts or otherwise after being suitably adjusted thereon.

I I are double-jawed brackets, which oscillate on the pins *i* of the boxes *h*.

K K' are ratchet-braces, provided with a long slot in each for raising or lowering the frame B and fastened together by suitable bolts or clamps. These braces also oscillate on the pins *l* of the brackets I. This arrangement constitutes a universal joint at the lower end of the braces K, thus keeping the frame B from cramping in any position in which it may be placed.

L in Fig. 7 represents a hinged connection for the braces K, for the purpose of preventing any cramping when the device is adjusted to different positions. Between the upper ends of the braces K is pivoted the end *m* of the frame B by the pin *m'*.

N in Fig. 8 is an enlarged view of a journal-box for carrying the central rollers O. The hangers N', which are bolted to the angle-irons, are provided with ratchet-teeth, and the boxes on the sides also have such teeth to enable said journal-boxes to be suitably adjusted. When the wheel O is in its proper position, the whole is firmly clamped together by means of the bolt *n''*. The box *p* is constructed in the same manner and carries the rollers *p'* of the carriage. These boxes are constructed in this manner so as to adjust the rollers up or down to conform to the boat's keel, thereby providing a support for the boat its entire length. Figs. 2 and 3 show the position of the several rollers which are journaled in the boxes, the boxes being omitted from these views.

Figs. 10, 11, 12, 13, and 14 are enlarged views of the catch devices for holding the boat to the carriage. To the front end of the carriage are secured two pieces of iron plate or bars. Between these plates the casting C is placed and is kept in position by the bolts *q q'*. The casting is provided with a radial slot *q''*. This arrangement allows of the casting C adjusting itself by inclination to the different shapes or sheer of the boat-keel, so as to permit of its locking itself to the boat's keel, the bolt *q* being the fulcrum on which the casting turns or oscillates. The catches R are of a circular form and have their upper portions formed something like a tooth, as at *r*, and are provided with openings *r'*, more clearly shown at Fig. 14. Through these openings extend the plates *r''*, a plan view of which is shown at Fig. 13. S S' are two links, both pivoted between the jaws of the casting C by the pins *s''*. The other ends of these links are provided with slots through which the pin *s'''* passes. Between the links is pivoted on the same pin the vertical spindle T, the lower end of which is provided with a shoulder whose contact with the main casting allows the catches R to rise only to the proper height. The upper end of the spindle-shoulder rests against the plate *r''*, to which it is securely fastened by means of a nut. Enveloping this spindle is the spiral spring *t*.

U U are two movable angle-irons or plates, which are fastened to the upper surface of the casting by the screws *u' u'*. The angle-irons are slotted, so as to allow them to be sufficiently angled for the free entrance of the keel and acting as guides at the narrow end, so that the openings in the keel will be directly over the catches, when the boat will lock itself automatically to the carriage. The main casting has circular pieces, as at *v*, projecting only far enough in toward the center to be a support for the proper working of the catches in the circular groove. The present catch is applicable to boats without a projecting keel. A plate of iron with the necessary openings therein to engage the catches is secured to the bottom of the keel. Hence this arrangement of the two catches, operating as shown at Fig. 10, is necessary in order to hold the boat and carriage together until automatically released by the launching-line.

In Figs. 2 and 4 are shown the supporting-pieces E, carrying three rollers of the carriage. This arrangement is used with what is called the "life-boat." The carriage for a surf-boat has only one wheel, as at O, at each end of the carriage, and instead of the long supporting-piece, as in this case, I substitute an arm pivoted on each end of the roller-spindle or otherwise. After the boat is in position these arms are let down to the floor. This keeps the rear end of the carriage on a level line. When the boat is being drawn into the house, these arms are hooked up clear of the floor.

In operating the device the carriage is run down the inclined floor and is partially submerged in the water. The boat is then drawn onto the carriage, the keel of which travels on the rollers O O, which can be adjusted to suit the same, the outer-flanged wheels A rid-

ing upon the supplemental incline D and the rear end of the carriage being suitably supported by means of the supports E E, which are properly adjusted for said purpose. On reaching the upper end of the carriage, the keel forces down the automatic boat-holding devices until the perforations in the iron-plate on the bottom of the keel come into coincidence by the aid of the angle-irons U U with the catches in the holding device. Then by means of the spiral spring, the catches are forced into the perforations in the keel, thereby firmly engaging the same and holding the boat firmly in position upon the launching-carriage.

Various modifications in the construction and arrangement of the herein-described devices may be made in order to adapt them to different situations, and I reserve the liberty of so doing without departing from the spirit of my invention.

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

1. In a boat-launching carriage, the combination, with the main frame provided with suitable wheels or rollers running on an inclined track, of the supplemental wheels secured to said frame and the supplemental inclined track on which said supplemental wheels run, located adjacent to the main track and parallel thereto, substantially as described.

2. In a boat-launching carriage, the combination, with the main frame provided with suitable axles carrying flanged wheels running on an inclined track, of the supplemental flanged wheels journaled to the rear axle and the supplemental inclined track on which the said supplemental wheels run, located adjacent to the main track and parallel thereto, and the supports, constructed substantially as described, for the after end of the carriage, whereby said carriage is held in a level position, as and for the purpose set forth.

3. In a boat-launching carriage, the combination of the adjustable devices for supporting the keel of the boat, secured to the central longitudinal irons of the main frame and consisting of journal-boxes carrying rollers, the hangers bolted to the angle-irons of the main frame, said hangers being provided with ratchet-teeth and the journal-box being also provided with ratchet-teeth, the whole being adjusted properly and clamped firmly in position by means of a suitable clamp, together with the adjustable devices secured near the center of the main frame for supporting the boat in an upright or perpendicular position, substantially as described.

4. In a boat-launching carriage, the combination, with the main frame, of the adjustable rollers for supporting the boat's keel, secured to the central longitudinal members of the main frame, and the adjustable devices for supporting the sides or hull of the boat, consisting of suitable frames pivoted to the main frame near its middle point, said frames having journaled thereon suitable boxes carrying rollers, which rollers are movable in said boxes to adapt them to conform to the shape or contour of the hull, the ratchet-braces for connecting said frame to the ratchet-boxes, the ratchet-boxes, and the ratchet-plates secured to the side irons of the main frame, all arranged and operating substantially as shown and described.

5. The combination, with the main frame, of the adjustable central rollers for supporting the keel of the boat, the adjustable rollers for supporting the hull secured near the central portion of the main frame, and the locking devices for holding the boat in position upon the carriage, consisting of a suitable casting movably secured near the front ends of the central longitudinal irons of the main frame and provided with a radial slot in which one of the securing-bolts works, the catches for engaging with suitable perforations on the keel of the boat, the links pivoted between the casting, the vertical spindle connected at its lower end to said links, and the spring for operating said catches, all arranged substantially as described.

6. The combination, with the main frame and devices constructed substantially as shown and described for suitably supporting the boat in position upon the carriage, of a locking device consisting of a suitable casting C, secured in place by pins or bolts to the front ends of the central longitudinal irons of the main frame and provided with a radial recess or slot in which one of the bolts works, the links S and S′, pivoted within the casing, the vertical spindle T, pivoted to said links at its lower end, the spring enveloping the same, the plate r'', catches R, working in said casting and operated through suitable connections by the aforesaid links, formed with the tooth-like projections r for engaging the boat's keel, and the adjustable irons or plates U U, working in slots u' u', substantially as described.

7. In a boat-launching carriage, the combination, with the central adjustable rollers for supporting the keel of the boat and secured to the central longitudinal members of the main frame, of the hull-supporting devices secured to the main frame near the center thereof and consisting of the parts B B, carrying rollers G G, journaled in boxes g g, and the adjustable devices for raising or lowering the same, secured to the outside irons of the main frame and consisting of the ratchet-plate H, the ratchet-boxes h h, engaging the same, the ratchet-braces K and K′, journaled in the ratchet-boxes h h, said ratchet-braces being pivoted at L to the frame B, all arranged and combined substantially in the manner herein shown and described.

8. In a boat-launching carriage, the combination, with the hull-supporting devices and

the locking devices constructed substantially as described, of the roller-carrying brackets for the rollers which support the keel of the boat, said brackets being secured to the central longitudinal members of the main frame and consisting of the journal-boxes N, the roller O, the hangers N′, bolted to the angle-irons of the main frame, and the bolt N″ for clamping the roller-box firmly in position, substantially as shown and described.

9. The combination, with the boat-launching carriage, of the supports E E, secured movably to the flooring of the inclined track, the clamp F for holding said supports together, said supports being provided with the hinges *e e*, secured to their bottom, the rods *e′*, secured to the flooring, the pawl *f*, pivoted to the back of one of the supports, and the ratchet *f′*, secured to the flooring, all combined and operating substantially in the manner and for the purpose set forth.

10. The combination, with the carriage having the locking and supporting devices constructed substantially as described, of the supplemental flanged wheels A A, secured to the rear axle of the carriage, and the supplemental inclined track D, connected to the flooring of the main track and constructed substantially as shown and described for supporting the boat in a level position, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY J. WOODS.

Witnesses:
ROBERT WEIR,
WILLIAM H. WILSON.