

No. 613,863.

Patented Nov. 8, 1898.

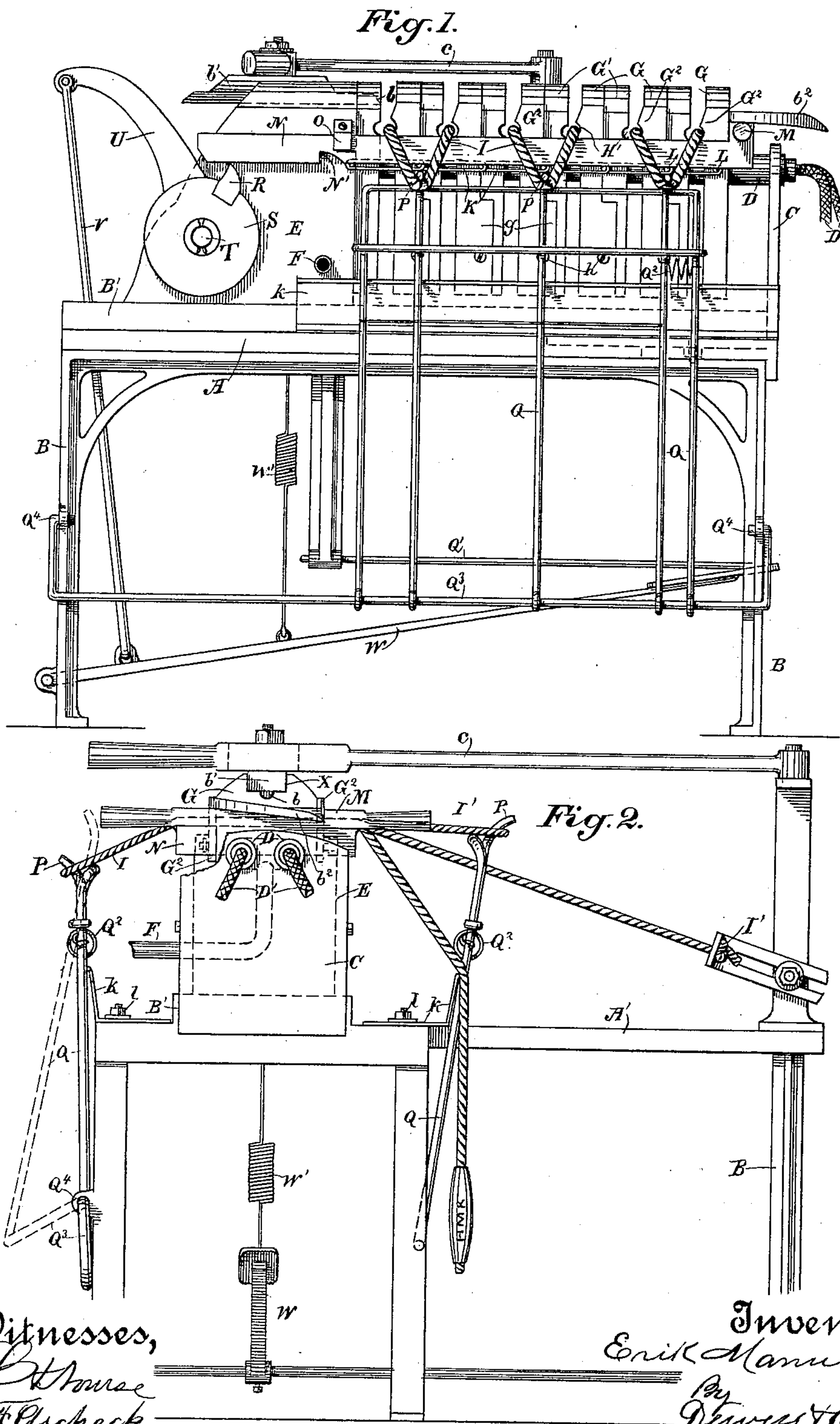
E. MANULA.

MACHINE FOR CASTING LEADS ON FISH NET LINES.

(Application filed Apr. 6, 1898.)

(No Model.)

2 Sheets—Sheet 1.



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2 Sheets—Sheet 2.

Fig. 3.

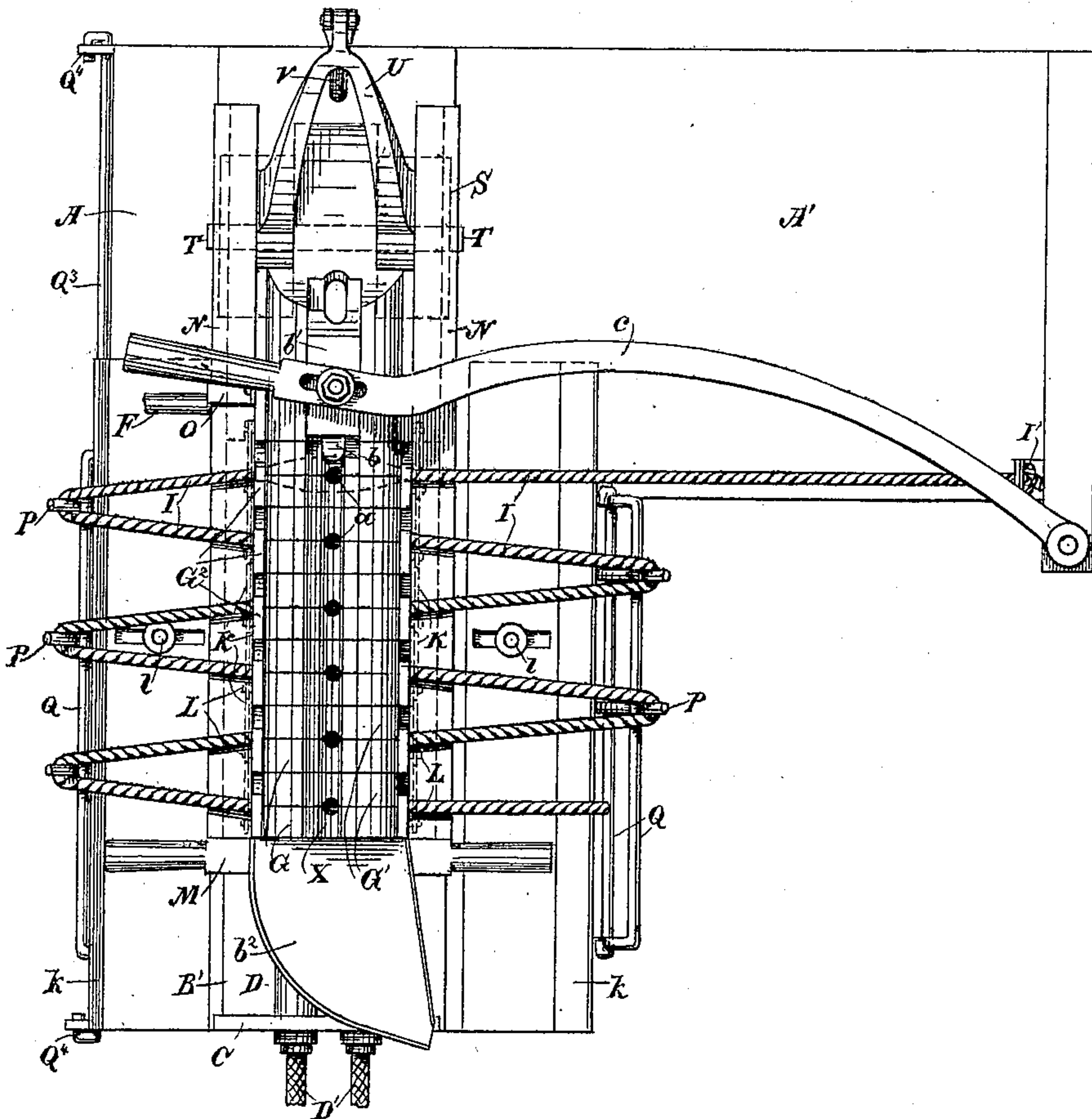


Fig. 4.

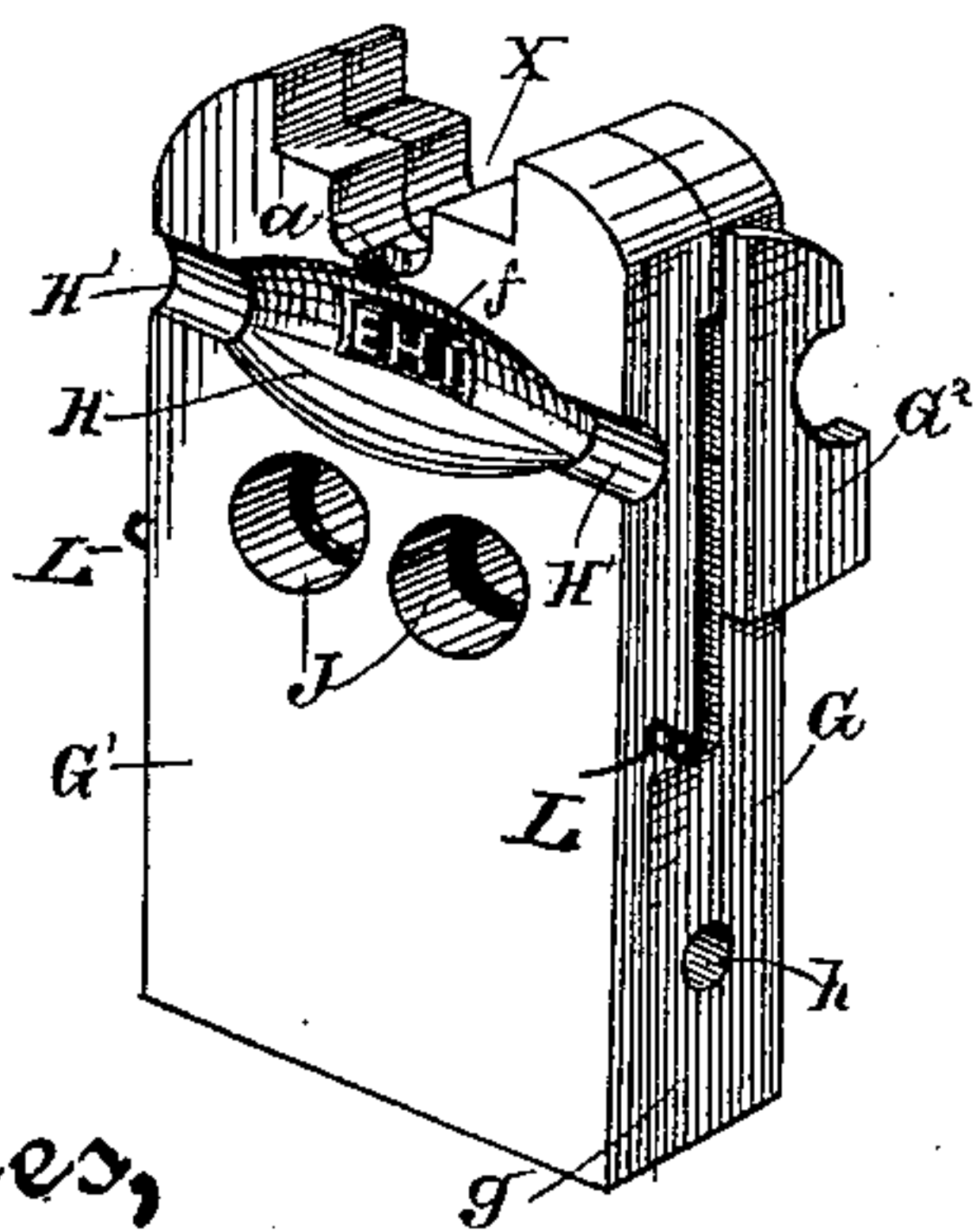


Fig. 5.

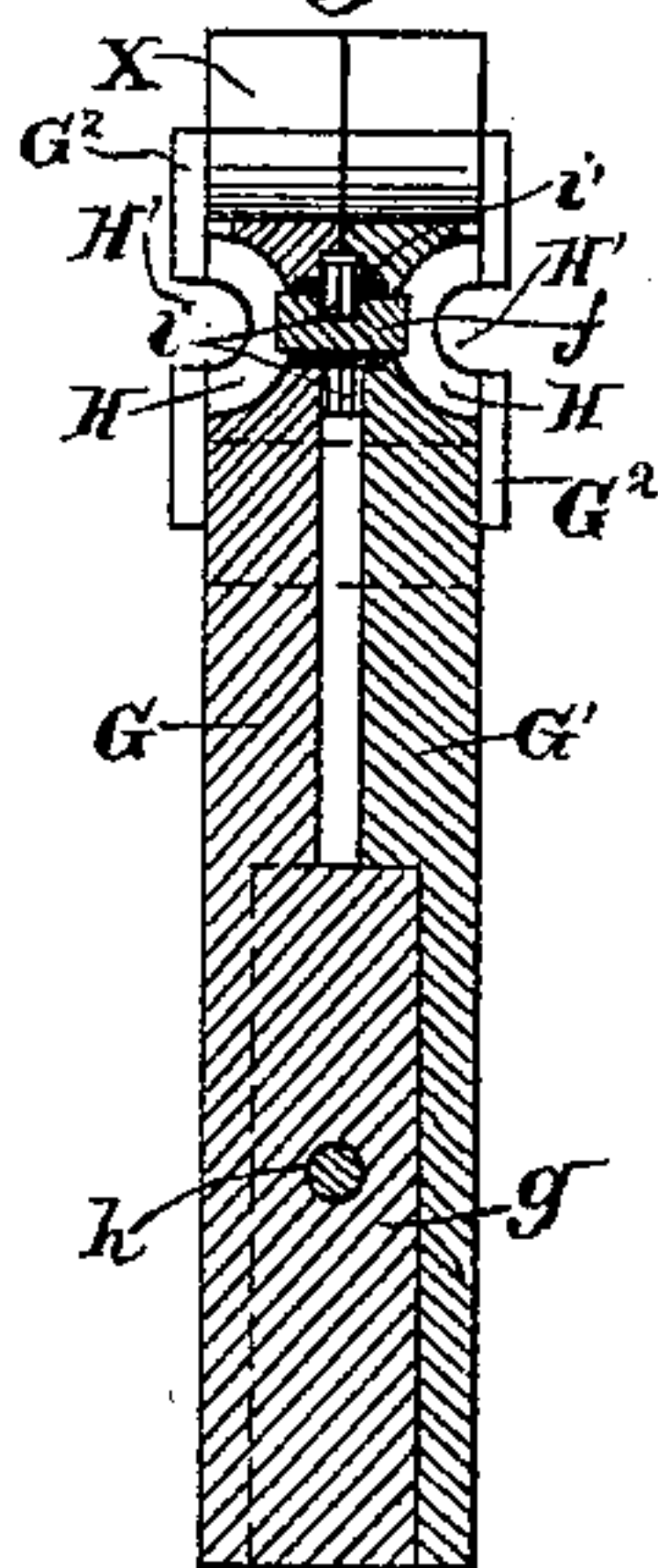


Fig. 6.



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UNITED STATES PATENT OFFICE.

ERIK MANULA, OF ASTORIA, OREGON.

MACHINE FOR CASTING LEADS ON FISH-NET LINES.

SPECIFICATION forming part of Letters Patent No. 613,863, dated November 8, 1898.

Application filed April 6, 1898. Serial No. 676,719. (No model.)

To all whom it may concern:

Be it known that I, ERIK MANULA, a citizen of the United States, residing at Astoria, county of Clatsop, State of Oregon, have invented an Improvement in Machines for Casting Leads on Fish-Net Lines; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a machine which is designed to cast leads or sinkers upon fish-net lines at such distances apart as may be desired; and it consists in the parts and the constructions and combinations of parts, which I shall hereinafter describe and claim.

Figure 1 is a side elevation of the apparatus. Fig. 2 is a front end view. Fig. 3 is a plan view. Fig. 4 is a detail of one of the double mold-sections, showing the type or marking-die. Fig. 5 is a vertical section of the same. Fig. 6 is a view of the type or die and means for holding them together.

The object of my invention is to provide for rapidly and accurately casting leads upon fish-net lines and for marking such leads so that the ownership of the net can be readily determined or for other desired purpose.

A is a table suitably supported upon legs B or otherwise. This table is made with an L-shaped extension A' for purposes to be hereinafter described. Longitudinally upon the top of this table is fixed a raised central piece B'.

Projecting upwardly from the framework is a plate or standard C, which serves as a guide and stop to regulate the opening and closing of the molds and removable with its attached slide to allow access to the molds or the removal of them when desired. It also serves to support the ends of the water-pipes, which serve as guides upon which the mold-sections are horizontally movable. These pipes D project through the plate C and have flexible connecting-pipes D' for the discharge of water. These pipes lie horizontally and extend from the plate C into a water-chamber E, which is fixed at the opposite end of the table A and supported upon the longitudinal elevated strip B, as shown. By means of a suitable supply-pipe, as shown at F, water is admitted into this chamber whenever desired, and passing through the pipes D is discharged at the opposite end.

Upon the pipes D are slidably mounted the molds within which the leads are to be cast. These molds are made in pairs G G', placed back to back, as shown plainly in Figs. 1, 4, and 5, and having the mold shapes or forms H made in the outer faces of each of the plates G G'.

H' are semicylindrical channels extending outwardly from the transverse semimolds H, and these channels serve to receive the lines or cords I, which pass through them, lying within the molds so that the lead may be cast around the cords within the molds after the latter are closed. The two sections G G' of these molds are secured together by a bolt passing through tongues g, which overlap each other and have holes h made through them for the reception of the locking-pin. This pin, passing through the tongues, holds the parts G G' together back to back, each one of the sections presenting a half-mold H outwardly. These molds also have holes J made transversely through them, so that the molds are slidable upon the cooling-tubes D.

The half-mold which is adjacent to the water-chamber E is permanently fixed. The others are all slidable upon the pipes D and are connected together by elongated links K, fitting over pins L, which project from the edges of the molds. These links are of such length that when the molds are closed together the links K lie loosely upon the pins, there being sufficient space longitudinally to allow the mold-sections to be drawn apart until the ends of the links strike the pins, when the mold-sections will have been separated sufficiently for the introduction of the cords before casting and the subsequent removal of the cords and leads after the casting has been completed.

The mold half-section farthest from the water-chamber E has connected with it a transverse bar or handle M, by which it may be pulled backwardly, sliding upon the guide-pipes D. This bar is also secured to longitudinal side bars N, which are slidable in suitable guides O upon the sides of the chamber E, the bar M serving to retain the other ends in proper position, so that they may slide backward and forward when this bar is moved.

When by means of the handles M the molds

are drawn apart, sliding upon the pipes D and each arrested by the connecting-links K, an open channel or space will be left between each of the sections, which when closed form the mold, and by means of guiding strips or plates G² the cord will be easily directed into the open space, lying longitudinally within the mold H and passing out of each side through the channels H'. The line is carried backward and forward, passing first through the first mold, thence over pins P upon adjustable frames or carriers Q, backward and forward through all the molds to the end of the apparatus. The molds are then closed by pushing upon the handle or bar M, causing them to slide upon the guide-pipes D until they are closed.

The sliding bars N, which are movable, as previously described, in unison with the handle M, have notches N' formed in the lower part, as shown in Fig. 1, and these are engaged by lugs or hooks R projecting from the peripheries of disks S, which are fixed upon the transverse shaft T. This shaft is suitably journaled in a support at the end beyond the water-tank E, and by means of a lever U, connected with the shaft or the disks, a connecting-rod or pitman V, and a treadle W the operator may clamp the molds tightly together, because when by pressing upon the handle M the molds have been closed the sliding bar N will be moved far enough to cause the notches N' to engage with the lugs R upon the disks S. Then the operator may place his foot upon the end of the treadle W which is nearest him, and through the connections previously described turn the disks, so as to pull upon the bars N and clamp the molds tightly together.

In the upper part of the mold-sections is a continuous channel X sufficient to receive the metal of which the weights upon the line are to be formed. Holes extend directly down through the meeting faces of each part of the mold, as shown at *a*, Fig. 3, and the lead poured into the channel X, running along this channel, will pass into the holes and fill the molds. The water running through the pipes D, upon which the molds are slidable, assists to cool the castings with sufficient rapidity, so that the molds may be soon opened to take them out and prepare for others. After the casting has been completed the surplus lead is cut away by means of a cutter *b*, fitting the channel X and attached to a carrier *b'*. This carrier is manipulated by means of a lever *c*, fulcrumed to a post or standard upon the end or extension of the table A', as shown, and having a handle by which it can be pushed so as to cause the cutter to travel along the groove and cut off the surplus lead in the channel X. This surplus lead is discharged upon the directing-table *b*², which is conveniently fixed at the discharge end of the machine. This being done, the operator removes his foot from the pedal, and by means of a spring W' the pedal is returned to its normal

position, and through its connections the disks S are rotated backward, thus relieving the slides N of pressure, and the operator may take hold of the handle M and withdraw the molds toward the end of the machine.

By means of the links K and the pins L the links will allow the first section to be drawn out, so as to fully open the mold, and the continuation of the movement causes the next link to pull the next section of the mold open, and so on to the end of the apparatus. The links sliding upon the pins allow the molds to be closed in the same manner. As soon as the molds are opened the leads are removed and a new section of the line or cord introduced.

The frames or carriers Q, upon the upper ends of which pins P are fixed, extend downwardly and are suitably pivoted or fulcrumed upon the frame of the machine by means of longitudinally-extending rods. One of these rods may be stationary, and the arms Q are connected with it and are separated from each other by means of springs, as shown at Q². The upper ends of these arms Q, which carry the pins P, are thus allowed to swing about their fulcrum-points upon the shafts Q', so that the molds may be opened, as shown in Fig. 1, or closed, as shown in Fig. 3, the movement of the line or cord I being permitted by the swinging of these arms.

In order to draw the cords tight after they have been introduced into the molds, one end being fixed to the frame A', as shown at I', Fig. 3, after having been carried backward and forward through the molds, the arm Q³ is in the form of a crank-arm, the ends pivoted to the frame, as shown at Q⁴, so that it is turnable about these pivot-points. This allows the part Q³ to be drawn downward, as shown in Fig. 2, and this pulls on the points or hooks P, so as to produce the desired tension upon the cord I where it passes through the molds. After the casting is complete and the cord is to be removed it is only necessary to turn the bar Q³ upward, as shown in dotted lines, Fig. 2, when the tension is relieved and the cord can be removed.

It is desirable to mark the leads as they are cast with some figure or inscription either to show ownership of the net or for other purpose. For this purpose I have shown my mold-sections G G' having slots or channels made between them, as shown plainly in the section Fig. 5, and adapted to receive the type or marking-dies *f*. These dies are made with the figures or letters upon opposite faces, and they are locked in place between the two sections G G', as shown in Figs. 5 and 6, by means of overlapping slotted slides *i*, which fit into grooves or channels *i'*, made transversely in the type-sections or dies, as shown plainly in Figs. 5 and 6. These slides, being pushed in crosswise from opposite ends of the dies, fit into these grooves or channels *i'*, and after being thus fitted the sections G G' are put together and secured by the pins passing

through the holes *h*, previously described, thus leaving the half-molds facing outwardly with the type-sections *f* projecting into each half-mold, so that when the lead is cast it will be imprinted with the desired letters or design.

The distance between the leads upon the line is regulated by means of adjustable plates *k*, fixed upon the table *A*, having transverse slots or channels and lockingscrews and nuts *l*, which allow these plates *k* to be set farther apart or nearer together, so that where the yokes or frames *Q*, which carry the points *P*, contact with the plates *k* they determine the spread of the hooks *P* and the distance between the leads. This enables me to make any desired adjustment of the apparatus and to rapidly and accurately cast the leads upon the lines.

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

1. In a machine for casting leads upon lines, the combination of sections each having a half-mold formed upon its outer face with channels extending outwardly therefrom in opposite directions, said channels adapted to receive a line which is passed backward and forward through the entire series of channels and molds and vertically-movable hook appliances adapted to engage the bights of the line to produce a tension thereon and means for opening and closing the sections.

2. In a machine for casting leads upon lines, the combination of sections each having a half-mold formed upon its outer face with channels extending outwardly therefrom in opposite directions, said channels adapted to receive a line which is passed backward and forward through the series of channels and molds, means for opening and closing the molds in series, vertically-movable hook appliances adapted to engage the bights of the line to produce a tension thereon, pins projecting from the molds and horizontally-disposed slotted links receiving said pins and limiting the separation of the mold-sections.

3. In a machine for casting leads upon lines, the combination of a framework and horizontal guides, independent sections slidable on said guides and each having a half-mold formed upon its outer face, with channels extending outwardly therefrom in opposite directions, said channels adapted to receive a line which is passed backward and forward through the series of channels and molds, vertically-movable hook appliances adapted to engage the bights of the line to produce a tension thereon, a transverse bar, and bars connected therewith and horizontally slidable, and adapted to retain the upper portions of the mold-sections in position.

4. In a machine for casting leads upon lines, the combination of a framework, sections slidable thereon and each having a half-mold formed upon its outer face with channels ex-

tending outwardly therefrom in opposite directions, said channels adapted to receive a line which is passed backward and forward through the series of channels and molds, vertically-movable hook appliances adapted to engage the bights of the line to produce a tension thereon, horizontal slide-bars along the sides of the sections and having notches formed in them, and adapted to retain the upper portions of the sections in position, a transverse bar whereby said sections are opened and closed, and axially-movable devices having lugs adapted to engage the notches in the slide-bars, for locking said sections in a closed position.

5. In a machine for casting leads upon lines, the combination of a framework, mold-sections and means for opening and closing the same, said sections having channels leading from opposite sides into the mold-cavity, adapted to receive a line which is passed backward and forward through said channels and alternately through said sections, yokes or frames, one on each side of the framework, pivotally mounted at one end and having hooks at the opposite end and adapted to engage the bights of the line, to hold said line in position and regulate the distance between the leads.

6. In a machine for casting leads upon lines, the combination of a main frame having guides, mold-sections slidable upon said guides and having transverse channels adapted to receive the line upon which the leads are cast, means for closing and opening said sections, frames or yokes fulcrumed upon the main frame and comprising arms with hooks at their outer ends adapted to engage the line, and spring connections whereby the arms are allowed to yield sidewise in unison with the movements of the mold-sections.

7. In a machine for casting leads upon lines, mold-sections having semimolds formed upon their outer faces, guides upon which said sections are slidable toward and from each other, means for regulating the opening of the sections and a horizontally-disposed transverse bar by which the sections are movable, bars extending horizontally upon each side of the sections having notches formed in them, revolvable disks having projecting lugs with which the notches are in position to engage when the molds have been closed, and a lever connected with said disks whereby the molds are securely clamped together after being closed.

8. In a machine for casting leads upon lines, mold-sections having semimolds formed upon their outer faces, guides upon which said sections are horizontally slidable whereby the molds may be opened or closed, connecting-links between the mold-sections and a transverse horizontally-disposed bar by which the sections are movable to or from each other upon their guides, horizontally-guided bars connecting with the operating-bar and having notches formed in them, disks with project-

ing lugs adapted to engage said notches when the mold-sections have been closed, a lever-arm connected with the disks and a treadle with which said arm is connected whereby the pressure of the treadle clamps the mold-sections together and a spring whereby the treadle is returned to its normal position and the clamping-bars disengaged from the disk-lugs to allow the mold-sections to be opened.

10 9. In a machine for casting leads upon lines, mold-sections, horizontal guides upon which the sections are slidable and mechanism whereby the sections may be opened to receive the lines which pass through the molds, 15 and closed thereon, yokes or frames fulcrumed to the machine, having pins at the upper ends about which the lines are alternately passed backward and forward between the mold-sections, one of said yokes having a pivoted 20 crank-arm about which it is movable whereby the line is drawn tight previous to the casting of the lead thereon.

10. In a machine for casting leads upon lines, sections each having a half-mold formed 25 upon its outer face and means whereby the sections are closed together and separated, channels made between the backs of the half-molds and openings from said channels into the half-molds, and type or dies adapted to 30 be secured in said channels and to extend through the openings therefrom so as to pre-

sent their printing-faces into each of the half-molds.

11. In a machine for casting leads upon lines, sections having overlapping tongues 35 and means for locking them together, each section having a half-mold upon its outward face, channels made between the backs of said half-molds and openings from said channels into the half-molds, and type or dies 40 adapted to be secured in said channels and to extend through said openings whereby the cast made within the mold is imprinted, said die or dies having channels made in the top and bottom and slotted plates slidable from 45 opposite ends into said channels.

12. In a machine for casting leads upon lines, sections each having a half-mold formed upon its outer face, an apertured tongue on each section, the tongues of the two sections 50 being arranged to overlap, and pins passing through the holes in said tongues whereby they are detachably locked together, said sections having, also, strips or plates adapted to guide the line to position between the sec- 55 tions.

In witness whereof I have hereunto set my hand.

ERIK MANULA.

Witnesses:

JOHN T. LIGHTER,
JAMES P. CLANCY.