H. GONELLAZ.
Ditching-Machine.

No. 204,894. Patented June 18, 1878.

FIG. 1.

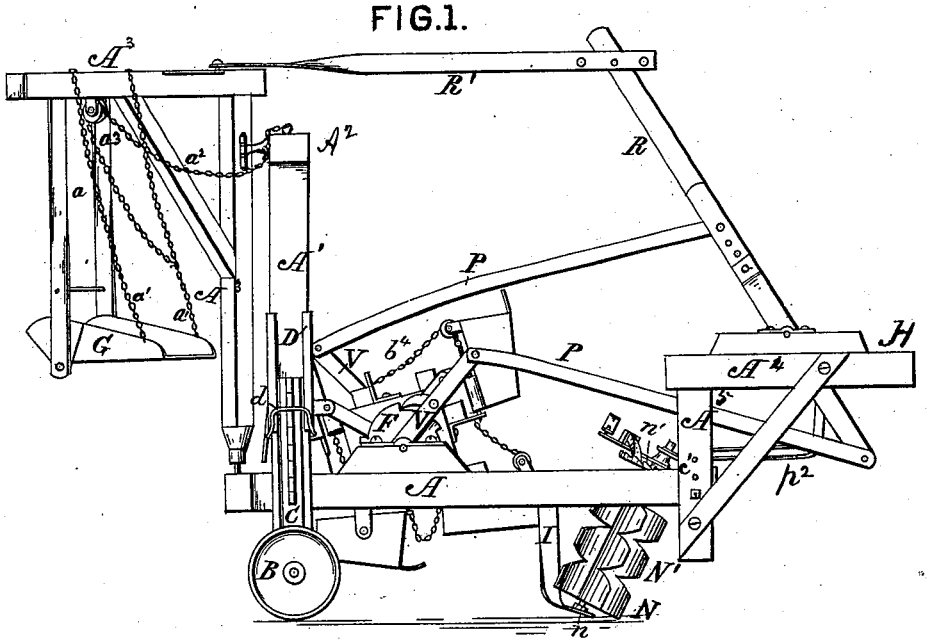


FIG. 2.

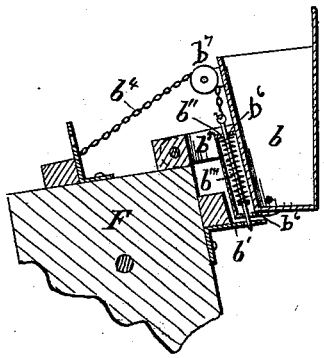
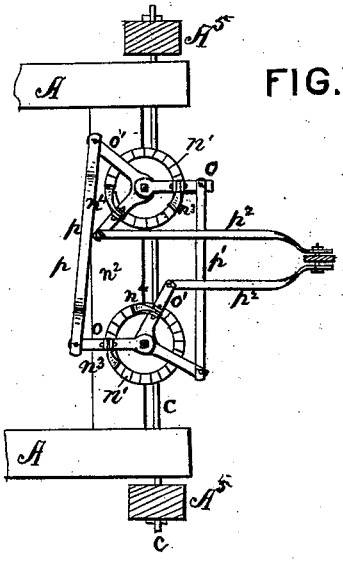


FIG. 3.



WITNESSES.
Saml R Turner
R H. Lacey

Hyacinthe Gonellaz INVENTOR
By R.S & A.P.Lacey ATTORNEYS

UNITED STATES PATENT OFFICE.

HYACINTHE GONELLAZ, OF VERMILLIONVILLE, LOUISIANA.

IMPROVEMENT IN DITCHING-MACHINES.

Specification forming part of Letters Patent No. **204,894**, dated June 18, 1878; application filed November 14, 1877.

To all whom it may concern:

Be it known that I, HYACINTHE GONELLAZ, of Vermillionville, in the parish of Lafayette and State of Louisiana, have invented certain new and useful Improvements in Ditching-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which they pertain to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The object of my invention is to improve upon my two several patents granted to me, dated, respectively, July 15, 1873, and numbered 140,820, and April 4, 1876, and numbered 175,692; and for a description of the main features thereof reference is hereby made to the before-mentioned patents, as well as the drawings accompanying this specification, the same reference-letters as to the before-referred-to parts being used in this application as will be found in the before last dated and numbered patent, while my improvements consist in the construction and arrangement of the special parts, as will be more fully hereinafter described.

In the drawings, Figure 1 is a longitudinal view of my machine with the present improvements attached in their respective positions. Fig. 2 is an enlarged sectional view of elevating-bucket and its operating connected parts in detail. Fig. 3 is a plan view of the frame and ratchet-wheels which operate the scrapers.

The main supporting-frame is composed of the horizontal bars A and the vertical posts A^1, on which is placed a cross-bar, A^2. Hinged to the main frame is the crane A^3, which carries the discharging-pan G, which is supported by the pendent arms *a* and chains a^1, and is turned up for the purpose of dumping by the chains a^2, one end of which is secured to the chains a^1, while its other end passes over pulley a^3, and is secured to the cross-bars A^2, as shown.

The front end of the main frame is secured to the forward framing B, which is composed of the horizontal bars A^4 and pendent vertical bars A^5, to which the forward ends of the bars A are secured, with capability of being set higher or lower by means of the removable rod *c* in holes c^1.

F is the revolving ditching-wheel, to which are secured the slotted catches or plates *b'*, and to which are pivoted the series of rocking buckets or elevators *b*. Each bucket *b* is supported on the wheel F by short arms b^5, with capability of a rocking movement, so that it can be tipped forward sufficiently to dump its contents into the pan G. It is provided on its under side with a catch-pin, *b''*, which slides horizontally in bearing b^6 on the under side of, and engages, the slotted catch *b'* and holds the bucket firmly in place until discharged by the pan G, as hereinafter described. The pin *b''* is held in proper position by a spring, *b'''*, and has attached to its outer end one end of a chain, b^4, the opposite end of which passes over a friction-pulley, b^7, on the under side of the bucket *b*, and is secured to the wheel F, as shown. The bucket *b* is emptied by the pan G coming in contact with the chain b^4, and draws the pin *b'''* out of the slot in the plate *b'*, and causes the open end to turn down sufficiently to permit the contents to slide out into the said pan G. The pan G, having received the contents of the bucket *b*, is withdrawn from the ditch-wheel by the further movement of the machinery acting on the crank V, lever P, rock-shaft R, and arm R^1, which causes the crane A^3 to swing outward. The ditch-wheel then revolves, and the bucket *b*, as soon as it comes in contact with the earth, is turned backward, and the pin *b'''* engages the plate *b'* and secures it firmly in place.

n is the scraper or share for cutting the earth in the bottom of the ditch. It is supported by standard I, secured to the beams A.

N are two rotary cutters, which are journaled in bearings on the upper side of the share *n*, and in bearings in the cross-bar n^2 of the main frame. They are inclined forward, as shown, so that they cut in advance of the share, and they have their upper ends inclined outward, so that they will cut a channel or ditch, the sides sloping downward and inward. They are made of a series of blades, N', which are curved, as shown, to facilitate the throwing back of the cut earth over the share *n*. The blades N' are so formed and arranged that their lower ends cut the earth

not only in advance of, but slightly below, a horizontal line from the edge of the share *n*, by which provision the strain is removed from the cutter, which, following, gives shape to the bottom of the ditch.

Each cutter N has affixed to the upper end of its axis, and is revolved by, a ratchet-wheel, n^1, which is engaged by pawls n^3 n^4, supported on lever-arm *o* and bell-crank lever *o'*. The bell-crank levers *o'* have one arm of each connected with the levers *o* by the rods *p* p^1, while their other arms are connected with the actuating-levers p^2, which are connected with and operated by the rocking lever R. By this construction and arrangement a continuous and simultaneous revolving movement is imparted to the cutters; for, as one of the pawls is being drawn back for a new hold, the other is engaged and is acting on the ratchet-wheel, causing it to revolve.

The forward frame is supported on wheels, which run on the ground on the sides of the ditch. It is connected by any suitable means to the wagon or other power on the land, off to one side of the ditch. The place of the cutters is always in advance of the buckets *b*, whether or not the machine be in the front or rear of the wagon, engine, or boat through which the motive power is received.

C is a rack-bar, which slides in guides or ways D, said guides or ways being permanently attached to the frame A, and differing materially from that in my former patent. Said bar C, after being lowered or raised, so that the machine can be properly adjusted as the ditch increases or diminishes in depth, is held in position by means of iron rod or stirrup *d*, pivoted to frame A, and passing over the notches of the rack-bar C, as seen in Fig. 1.

As the ditch is deepened the frame supporting the cutters and buckets is lowered by means of the rack-bar C and pin or rod *c* in holes c^1.

In digging down a new canal, the machine must be in advance of the boat to open its way, and the scrapers must be in sufficient number to cut a way large enough for the boat to freely pass in it.

My present machine, with the improvements herein mentioned attached, is intended to be operated by steam. The piston should be connected with the vibratory lever on any part, or, as is represented, by the small crank.

Having thus described my improvement, I claim and desire to secure by Letters Patent—

1. Bucket *b*, slotted plate *b'*, pin *b''*, spring *b'''*, chain b^4, rotating bucket-wheel F, and discharging-pan G, in combination with cutters N, said cutters being arranged in advance of the bucket-wheel, as described, substantially in the manner as and for the purpose set forth.

2. Cutters N, constructed as shown, standards I, supporting cross-bar *n*, with the cutters arranged to cut below and in front of said cross-bars, as described, ratchet-wheels n^1, and their connecting-frames, in combination with frame A and ditch-wheel F, substantially as and for the purpose herein shown and set forth.

3. Frame A, with one end supported by and mounted on wheel B, and the other end pinned to guides A^5 in frame H, as herein described, in combination with ditching-wheel F, discharging-pan G, scrapers N, ratchet-wheels n^1 and their connecting-frames, cranks P, and the lever R, that operates the machine simultaneously, substantially as herein shown and described.

4. The combination with cutters N, having the ratchet-wheels n^1 n^1, levers *o*, bell-crank levers *o'*, pawls n^3 n^4, rods *p* p^1 and arms p^2 p^2, connected by suitable levers with the operating machinery of the machine, substantially as set forth.

5. The rocking bucket *b*, provided with the supports or arms b^5, bearings b^6, and friction-pulley b^7, in combination with the wheel F, having chain b^4, catch *b'*, spring *b'''*, and pin *b''*, arranged to operate substantially as set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

HYACINTHE GONELLAZ.

Witnesses:
M. T. MARTIN,
CHAS. CAFFERY.