P. A. J. DUJARDIN.

Printing Telegraph.

No. 82,502. Patented Sept. 29, 1868.

Fig: 5.

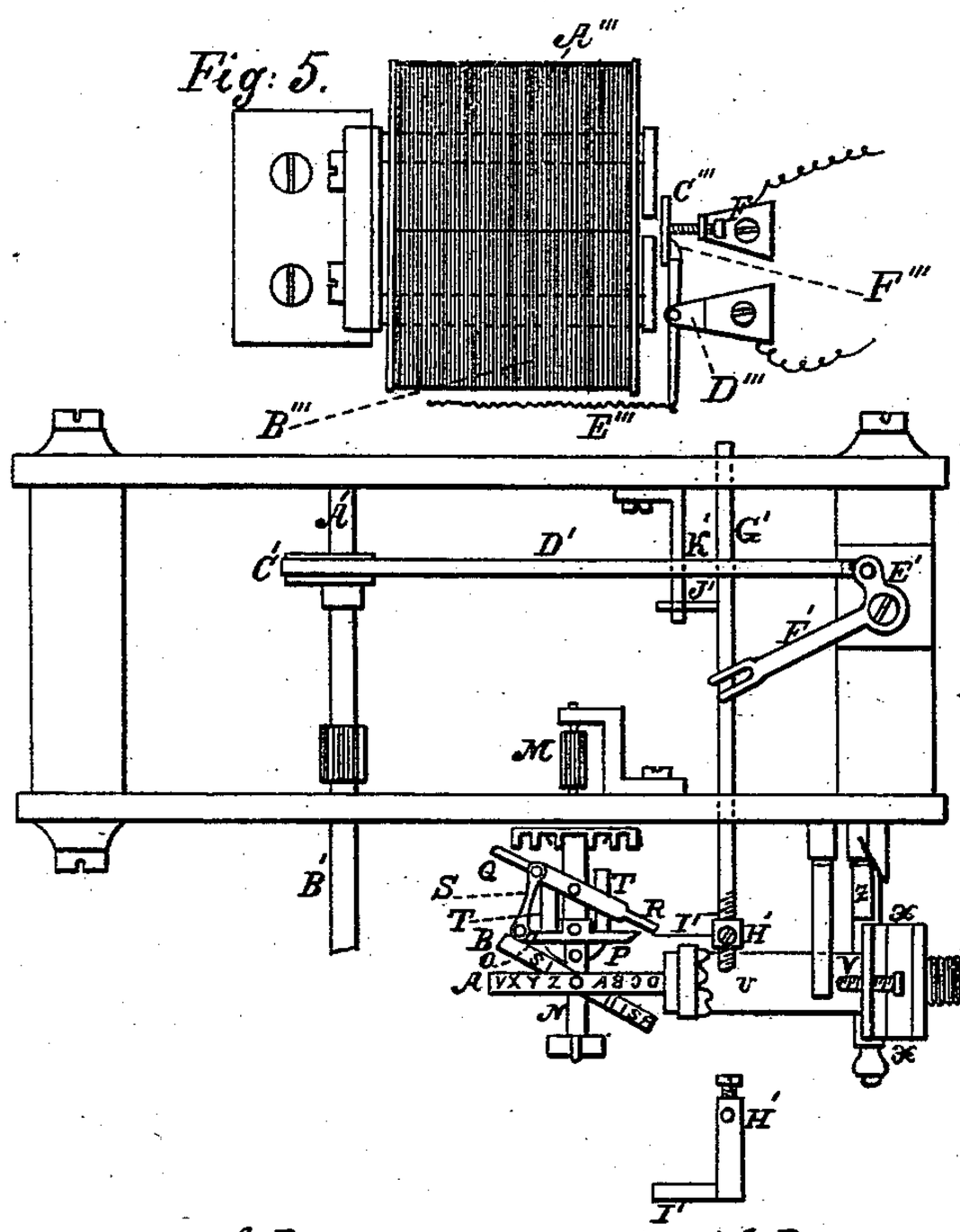


Fig: 1.

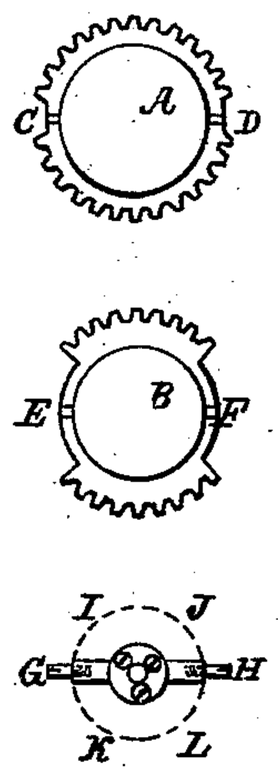


Fig: 2.

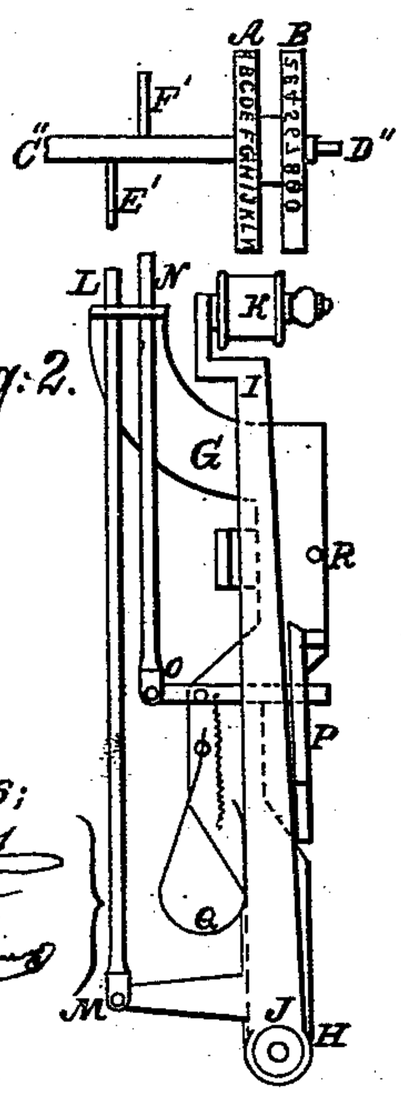


Fig: 3.

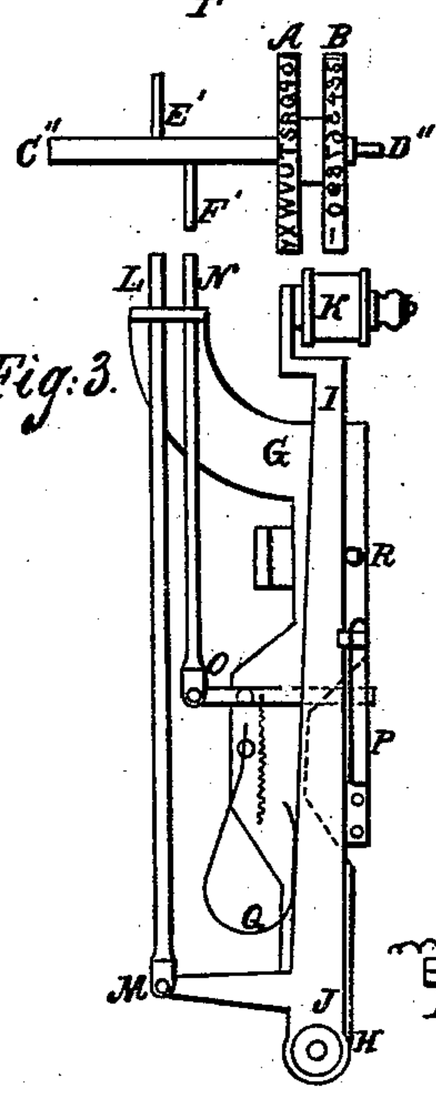
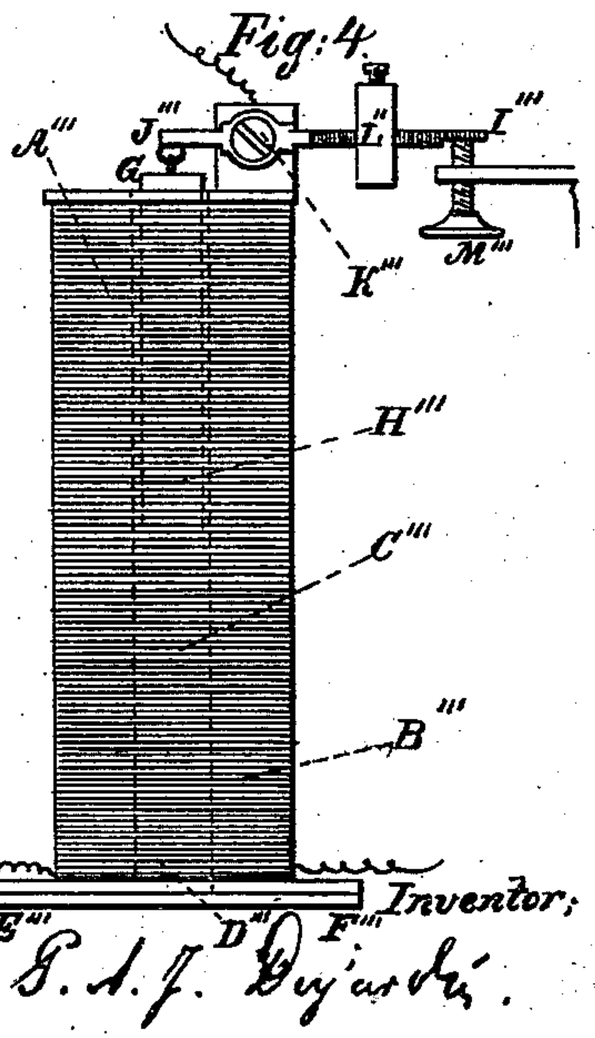


Fig: 4.



Witnesses;

1. Ernest

2. Lewis

Inventor;

P. A. J. Dujardin.

UNITED STATES PATENT OFFICE.

PIERRE ANTOINE JOSEPH DUJARDIN, OF LILLE, FRANCE.

IMPROVEMENT IN ELECTRO-MAGNETIC PRINTING-TELEGRAPHS.

Specification forming part of Letters Patent No. **82,502,** dated September 29, 1868.

To all whom it may concern:

Be it known that I, PIERRE ANTOINE JOSEPH DUJARDIN, of Lille, France, physician, have invented Improvements in Electric Telegraphs; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed sheet of drawings, making a part of the same.

Several combinations have been contrived and employed in printing-telegraphs for printing either letters or figures at will. I will describe two more, one being a modification of the other, and both of my invention.

In both cases I make use of two type-wheels, the one for printing letters and the other for printing figures.

In the first system, the type-wheels, fixed crosswise over one another, are rocking on their common axis, and are placed, now the one, now the other, opposite to the paper strip, which always keeps the same direction, while in the second system the type-wheels are parallel and stationary on their axis, the printing plug or anvil alone being rocked and setting the paper strip opposite to now one type-wheel, now the other.

Figures 1, 2, 3, 4, 5 of the drawing illustrate all the parts.

Fig. 1 is a top view of the receiving apparatus, in which A and B are two type-wheels, cut out in a ring shape. A is the letter-wheel, and B the figure or other complemental-mark wheel. The letter-wheel A has, at C D, two holes formed through both ends of one of its diameters, and the figure-wheel B has, at E F, two similar perforations through the two ends of one of its diameters. The wheel B is made to enter the wheel A so that the holes C E and D E may coincide. A and B are made to cross over one another, and are secured to each other by rivets.

I J K L represent a metallic disk, fitting exactly within the wheel B. This disk being placed within the wheel B, two screw-cut holes are pierced in its periphery through the apertures E F, into which holes are engaged headless screws G H, upon which the cross-wheels are pivoted. The disk is then so cut out as to only preserve a central ground and two spokes, both ground and spokes constituting the rocking axis of the cross-wheels. The cross-wheels thus prepared are fixed on the last-driven axis of the clock-work, whereby the type-wheels are rotated. A piece of steel, O P, serving as a stop to the cross-wheel, is screwed on M N, and a double lever, Q R, is securely fitted in a slide formed into M N. A connecting-rod, S, is jointed to the double lever and the figure-wheel. A horseshoe-like spring, T, presses on the two ends of the double lever, so as to give the cross-wheels proper steadiness.

I will now describe the mechanism whereby the cross-wheels are made to oscillate.

A′ B′ is the last-driven axis of the clock-work which serves for printing. It makes a complete revolution every time a type is printed. It carries an eccentric, C′, which, through the connecting-rod D′ and the bell-crank or bent lever E′ F′, causes a to-and-fro motion being made by the rod G′ H′, which is elbowed at H′, and terminated by a spring, I′. A pin, J′, fixed into G′ H′, and sliding in a groove formed in the knee K′, serves to maintain G′ H′ in an invariable direction.

When, by means of the transmitter of the apparatus, one of the double-lever ends Q R is set in contact with the spring I′, the printing action causes the oscillation of the cross-wheels in one direction, until they are stopped by the stop-piece O P.

The inking plug or apparatus consists of a tube, U, Fig. 1, to the top side of which is applied a piece of velvet, fixed thereto by means of an edging, and inside which enters a piston-like-acting screw, V—a thick leather washer, X, fixed by rivets to the mouth of tube U, serving as female screw to admit the screw V.

The plug is set on an axis, on which it is free to rock, an adjusting-screw, Y, and its abutment allowing of the plug being brought more or less close to the type-wheels, so that the nap only, and never the foundation of the fabric itself, can touch the wheels. A spring, Z, throws said plug on the type-wheels.

In the tube U, I put some cotton impregnated with an oleic ink, and by means of piston V the ink is made to ooze through the velvet gradually and as wanted.

In Figs. 2 and 3, which are views of a modification of the inking-plug, A B represent face views of parallel type-wheels. These are fixed on C″ D″, the last gearing-axis whereby they

are caused to rotate. Two pins, E′ F′, driven into C″ D″, cause the rocking action of the printing-plug.

G H is a metallic blade screwed on the printing-lever. (Not shown.) At the lower part of the blade, at H, is a pivot, on which is fitted another blade, I J. The printing-plug K, on which is applied the strip of paper, is fixed to the top part of the blade I J.

L M N O are two connecting-rods, abutting on pins E′ F′, to procure the rocking motion of the blade I J, and consequently of the plug K. The rod L M causes the plug to oscillate on left, and places it under the type-wheel, as shown at Fig. 2. The spring P, fixed on I J, clamps, by means of a little stop, the blade I J on the blade G H, so as to retain it in position, while the rod N O, by raising the spring P, unlocks the blade I J, which, on being released and pressed on by the main spring Q, oscillates to the right so far as the stop R, and thus places the plug under the figure-wheel, as shown at Fig. 3, which is no other than Fig. 2 reproduced. All the constituent pieces of this system should be made of aluminium, so as not to overcharge the printing-lever.

Fig. 4 represents a side elevation of an electro-magnet as distributer of printing-currents. A‴ B‴ is a vertical thin wire coil, run through by the line-currents. Inside the same is fixed a soft-iron cylinder, C‴ D‴, terminated at its lower part by a soft-iron washer, E‴ F‴. Another cylinder, G‴ H‴, of similar metal, hollow, and thinner than C‴ D‴, is suspended above C‴ D‴, from the end of the lever I‴ J‴, oscillating about the point K‴. This lever is provided with a movable counter-weight, L‴, for which may be substituted a reacting spring. The end I‴ of the lever is abutting against the adjusting-screw M‴.

The local current which serves for printing enters the lever I‴ J‴ at K‴, and is conveyed through the regulating-screw to the printing electro-magnet.

I judge it proper to observe here that the type-wheels of my receiving apparatus rotate through the action of alternate positive and negative currents, succeeding each other without any perceptible interruption, and that printing is produced by cutting off the line-current corresponding to the type which is to be printed.

Now, when it is desired to set the type-wheels in motion, the iron cylinder G‴ H‴ is drawn continuously by the cylinder C‴ D‴, and the local or printing current is cut off at I‴ M‴. When the line-current is cut off, G‴ H‴ being no longer attracted by C‴ D‴, the lever I‴ J‴ falls back on M‴. On the local current passing into the electro-printer, printing is produced. As soon as the current is returned to the line, the local current is broken, and so on.

Fig. 5 represents another form of electro-magnet for distributing the printing-currents. A‴ B‴ is a thin wire electro-magnet, run through by the line-currents. The pallet C‴ is very light, and so is its rod. It oscillates about the point D‴. E‴ is its reacting spring. F‴ is both an abutment and adjusting-screw. The local current enters the system through the support of screw F‴, and goes out through the support of the armature C‴.

When the type-wheels are set in motion the pallet C‴ is attracted by the electro-magnet A‴ B‴, and the local current is broken at F‴.

When the line-current is cut off, the armature, being no longer drawn, rushes on the screw F‴, and gives passage to the local current, whereby printing is going to be effected.

When the current is returned to the line, the armature C‴ cuts off the local current, and so forth.

Nota Bene.—The electro-magnet and its armature may vary in their shapes and sizes indefinitely, which is unimportant, the main point being that the wire of distributing electro-magnet and that of the electro-magnet by which are rotated the type-wheels can receive the line-current in different ways.

I claim—

1. In a printing-telegraph, the construction and application of cross type-wheels, oscillating on their common axis, and the mechanical means described, or other equivalents, to produce their oscillating motions.

2. The construction and application of the adjustable inking-plug, in combination with the double printing-wheels, substantially as described.

P. A. J. DUJARDIN.

Witnesses:
DEMOS,
LEMONNIER.