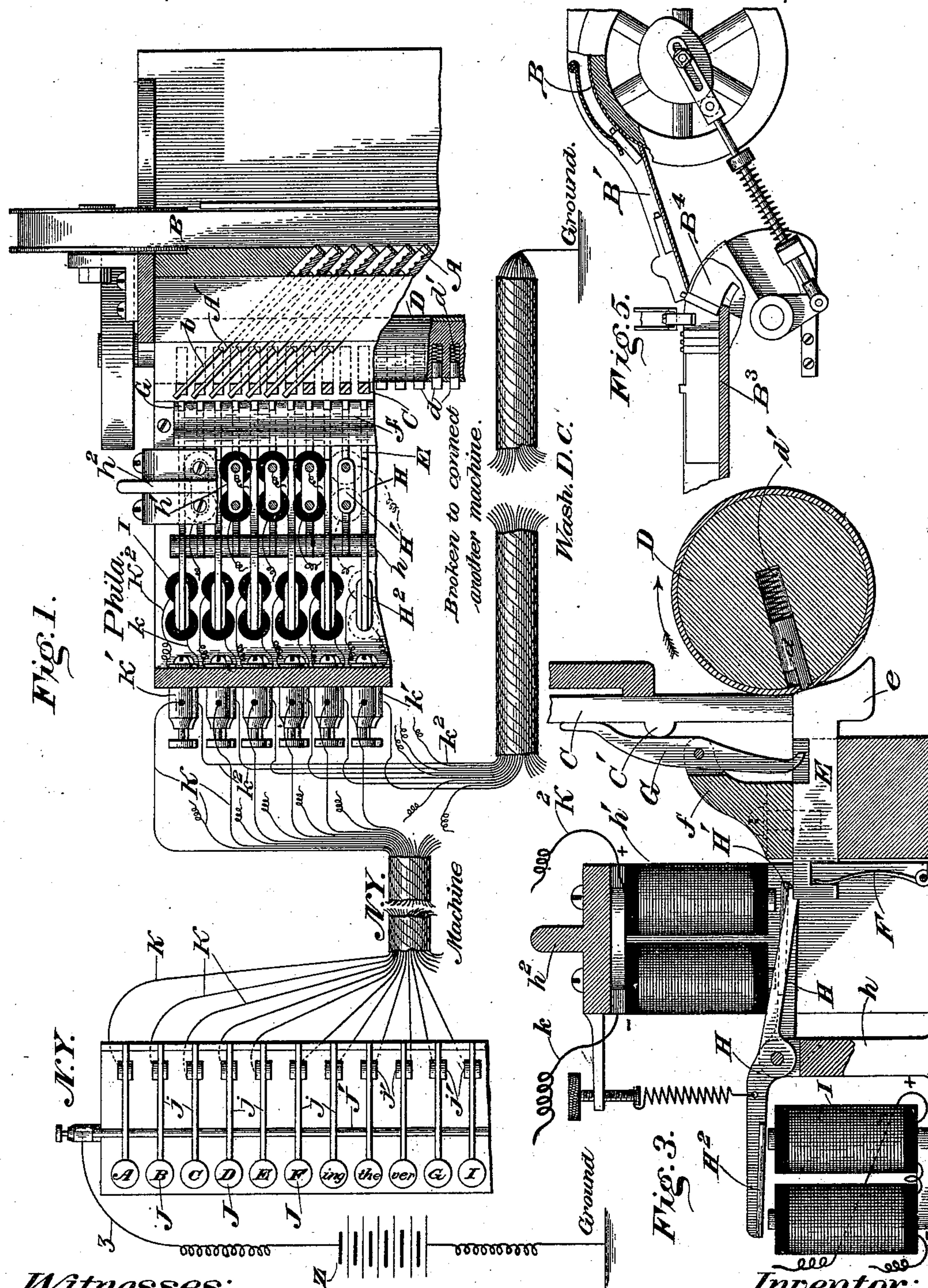


P. F. COX.
TYPE SETTING MACHINE.

No. 528,855.

Patented Nov. 6, 1894.



Witnesses:
M. E. Fowler
James R. Mansfield

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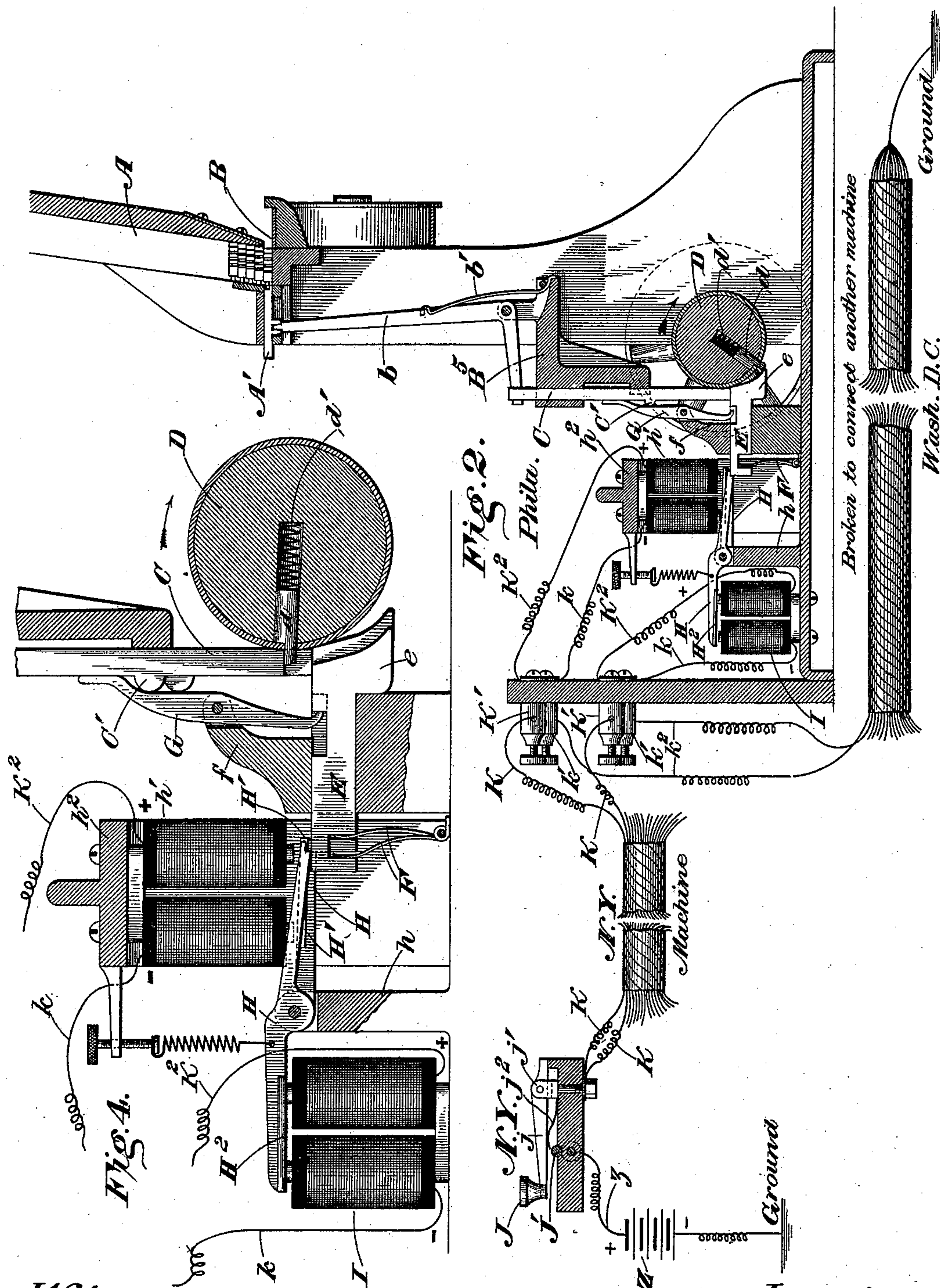
(No Model.)

2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

PAUL FLEMMING COX, OF BATTLE CREEK, MICHIGAN, ASSIGNOR TO THE COX
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TYPE-SETTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 528,855, dated November 6, 1894.

Application filed March 2, 1894. Serial No. 502,098. (No model.)

To all whom it may concern:

Be it known that I, PAUL FLEMMING COX, of Battle Creek, in the county of Calhoun and State of Michigan, have invented certain new and useful Improvements in Apparatus for Transmitting and Composing News; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

This invention is an improved system of news transmission and composition; its object being to rapidly transmit news from one point to another point or points, and to have the news as received at the several points simultaneously set up in type or matter ready for printing, so that at the receiving offices the news is first to be read in type instead of being received and taken down on paper as in the ordinary telegraphic transmission of news, where operators write down the news as received; or as in the "printing telegraph" or "telautograph" systems, where the matter is copied out upon paper by the machine itself. In both of these systems however it is necessary that the matter received be distributed to compositors and put in type subsequent to its reception, involving necessarily much time in its original transmission and reception; and more time in its composition after reception. Obviously therefore a practical invention by which the news can be transmitted great distances and appear at the receiving offices in type ready for printing would be of great value, and this is my object and what I have accomplished by my invention, one practical system and apparatus being set forth in the appended specific description and drawings.

Briefly the invention consists in the combination with a transmitter for sending words, syllables, letters, &c., of a machine or machines situated more or less remote from the transmitter, and electrically connected therewith, adapted to receive and simultaneously compose the matter transmitted so that it can be at once taken to the press or stereotyping

rooms the transmitted matter actually appearing in type.

Moreover the invention not only saves time at the receiving stations by composing the matter transmitted automatically; but at the transmitting station also, for the transmitter can be so arranged that it can be worked like an ordinary type writer by persons unskilled, a simple depression of a key of the transmitter bearing the proper letter or character insuring the simultaneous "composing" of a type character, corresponding to the character on the depressed transmitter key, at the receiving stations, and the machines being capable of composing matter about as fast as the keys of the transmitter can be operated the number of words which can be transmitted in a given time will far exceed the speed with which ordinary telegraphic messages can be sent.

My invention is chiefly designed for press reports, and by employing it a reporter can not only send his news himself, but also compose it in type by one and the same operation so far as he is concerned, and with almost as much speed as he could write.

More specifically the invention consists in a plurality of independent similar machines for composing matter to be printed, located at separate points, and a transmitter having a series of keys one for each printing character or type contained in each of the said machines, and electrical connections between each of the keys of said transmitter and the corresponding character manipulating device of each mechanism; whereby upon the depression of any key of the transmitter the corresponding character is composed in each of the said mechanisms.

I have illustrated my invention in connection with machines for setting ordinary type and one feature of my invention is the electrical devices whereby such a machine may be electrically operated; yet I do not consider it limited to the employment of machines for setting common font type, as it is obviously possible, with my invention known, to employ other machines, which will com-

pose the matter simultaneously with its reception, and various other mechanisms may be devised and adapted for the mechanical parts of my invention without departure from the essence thereof.

My invention must not be confounded with machines and systems for simply transmitting words, as in ordinary telegraphic communication such as I above mentioned, as with these this invention has nothing to do, being for an entirely distinct purpose which such machines are wholly incapable of performing. Such heretofore known machines for the purpose of ordinary telegraphic communication I disclaim.

I will now describe an operative novel apparatus by which my invention can be worked.

Referring to the accompanying drawings:—

Figure 1 is a diagrammatic plan view illustrating the invention, and showing in detail part of the transmitter, and part of one of the composing machines, and electrical connections therebetween, sufficient to impart a clear understanding of the invention in connection with this description. Fig. 2 is a diagrammatic sectional view of Fig. 1. Figs. 3 and 4 are enlarged detail vertical sectional views of the mechanism for operating the ejectors and the electrical controlling devices. Fig. 5 is a detail view of the device for aligning the type.

The composing machine.—The composing machines which I propose to employ are constructed like that shown in my application for Letters Patent so far as relates to the arrangement of the type reservoirs, the carrier belts, and the composing or assembling mechanism, but the present invention involves an improvement on said machines, which is the providing of novel means for operating the type ejectors and controlling the action thereof by electricity.

I have deemed it unnecessary to show herein the entire machine, but have illustrated enough to give a clear understanding of the invention.

Referring to the drawings by letters, therefore, the composing mechanism, is provided with a series of type holders A each adapted to contain a set of similar types or logotypes, which can be ejected singly by means of ejectors A' upon an endless carrier belt B, by which the types are conducted to a chute B' through which they pass into a composing channel or raceway B³, wherein they are aligned and pushed forward by a rocking setter B⁴. The ejectors are operated by means of bell crank levers b pivoted at their bends on a suitable support B⁵ below the ejectors, and positively rocked in one direction by means hereinafter described and pushed back, to retract the ejectors by springs b' as shown. These above mentioned parts are constructed and arranged substantially as described in my aforesaid application and need no further description herein. A parallel se-

ries of vertical push rods C is arranged below the horizontal arms of the levers, one rod for each lever, the rods being suitably guided in the support B⁵. Close to and parallel with the series of rods C is a shaft D which is rapidly rotated by any prime mover, not shown, (as by the electrical motor which drives the carrier belt.) This shaft carries a set of dogs d, one for each push rod, which are confined in radial sockets or bores in the shaft, and are normally projected by springs d'. If not retracted, these dogs will strike the lower ends of the push rods and lift them thereby rocking the levers and pushing the ejectors forward ejecting types from the holders upon the belts. As the shaft rotates the dogs will disengage the rods and allow them to drop, the springs immediately throwing the ejectors back.

In order to prevent the rods being lifted, except as desired in the operation of type-setting or composing matter, some means must be employed to keep the dogs retracted. As shown I employ an independent retractor E for each dog. The retractor consists of a horizontal metal plate set underneath the rod and opposite the operative dog thereof, with its head end e standing normally in the path of the dog, and curved or beveled in such manner that when the retractor is pushed forward until it almost touches the shaft, the dog which normally projects from the shaft, will strike thereagainst and as the shaft rotates be forced inward by the converging surfaces of the retractor and shaft which will be clearly understood by observation of Figs. 3 and 4. The lower end of rod C rests upon the head e, and when the retractor is pushed toward the shaft, as it is normally, it is impossible for the dog to catch under the end of rod. See Fig. 3. When the retractor is drawn back out of the way however (as in Fig. 4) the dog will catch and lift the rod.

The retractor is thrown back by a spring F, and is thrown forward, at each lifting of the rod C, by an oscillating lever G which is fulcrumed on a support f above the retractor, its lower end engaging a notch E' in the upper edge of the retractor its upper end standing close against rod C in position to be engaged by a cam lug C' thereon. When the retractor is thrown back rod C will be lifted, and thereupon operate the ejector, throwing out the type upon the belt, and as the rod rises cam C' contacts the upper end of lever G rocking it, and causing it to positively move the retractor outward against or toward the shaft and tension spring F in which position the retractor is locked by a catch H pivoted on a support h attached to the top of the machine as shown. The rod C drops by gravity, aided by spring b', to the position shown in Fig. 3.

There is a retractor and its actuating and controlling devices for each rod, and as they are close together the alternating catches H

are made of different lengths. The shorter ones each have an armature H' on top, and the longer ones an armature H^2 on the lower side of their outer arm. Above each armature H' an electro magnet h' is suspended from a bar h^2 , and below each armature H^2 is an electro magnet I arranged substantially as shown. Springs may be employed to throw the catches in position to lock the retractors. Now when either magnet is energized by the passage of an electric current it will attract the armature on the proximate latch H , and disengage the latch from the retractor, whereupon the spring throws the retractor back, and immediately the dog on the revolving shaft lifts the proximate push rod and the corresponding type is ejected. This being clear, it is only necessary to provide a means for energizing any magnet at will, to enable the machine to be electrically operated to compose matter. This I accomplish as follows:

A transmitter having a number of keys, each marked with a letter, figure, punctuation mark, logotype, space, &c., is located at a suitable point for receiving and transmitting news. There is one key on the transmitter for every type character, logotype, space, &c., employed in the composing machine. The keys may be arranged like telegraphic transmitters so as to respectively establish an electrical circuit when depressed. As shown each key J is mounted on a bar j insulated from the others and pivoted on a stud j' at rear and upheld by a spring j^2 , but when depressed bar j will contact with a rod J' which is electrically connected through wire z with the positive pole of a battery Z or other source of electrical energy, the negative pole of which is in electrical communication with the earth or a return wire. Each key-bar is connected by a wire K with a binding post K' on the machine, and from this post by a wire K^2 with the positive pole of the electro magnet controlling the operation of the mechanism for ejecting the type corresponding to the character upon the key-bar in the transmitter; the current passing from the electro-magnet through a wire k to another binding post k' , and from thence through a wire k^2 on to another machine or to the ground. Every key of the transmitter is thus electrically connected to and controls the corresponding type mechanism in the composing machine, or machines, for practically it is intended that there shall be a number of similar machines at different points which are all connected in the same electrical circuits from the transmitter, so that upon the depression of any key of the transmitter the corresponding character will be simultaneously composed in the several machines in the circuit. For instance the transmitter may be in New York, and machines may be in New York, Philadelphia and Washington or other widely separated points, but when any transmitter key is depressed the electrical current thereby established circulates from the transmitter to

and through each machine, releasing the corresponding character composing mechanism therein and thus machines hundreds of miles distant from the operator and from each other can be simultaneously worked.

The matter composed may be justified by hand, or mechanically, this justification not being of the essence of the invention.

I have illustrated a separate wire and therefore separate current or circuit for each character. This obviates the danger of confusion of currents or of improper action of the apparatus, by reason of induction and variation in the current, which has been found a serious, and frequently insurmountable obstacle to the operation of electrical writing machines intended to be controlled by variation in the power or quality of a current transmitted over a single wire. As however the current in a circuit may vary in intensity, &c., it will not alter the result, the only thing required being that the current be of sufficient strength to energize the magnets, and release the catches, the other work being accomplished by the local power which drives the shaft D , of each machine. In order to save power at the local offices, one of the keys of the transmitter may be arranged to start and stop the motors which drive the machines, but this forms no part of present invention.

The cable can be cut wherever it is desired to locate a composing machine.

Having thus fully described my invention, what I claim as new is—

1. The combination of a plurality of independent machines for composing matter to be printed each having type holding channels, type ejectors, push rods and connections for operating said ejectors, a rotary shaft provided with a series of dogs adapted to operate said rods, a series of retractors for normally preventing engagement of said dogs with the rods, an electric locking device for each retractor, and means for resetting it upon the movement of the corresponding push rod; with a transmitter having a series of keys, one for each printing character or type contained in each of said mechanisms, with independent electric connections between each key of said transmitter and the electric locking devices of the corresponding characters in the several mechanisms, whereby upon the depression of any key of the transmitter the corresponding character is composed in each of said machines, substantially as and for the purpose set forth.

2. The combination of a push rod, a rotating dog, and a retractor, a lock and a releasing device therefor, substantially as described.

3. The combination of a push rod, a radially movable rotating dog, a retractor, and an electrically controlled locking device for said retractor, substantially as described.

4. The combination of a push rod, a movable dog adapted to engage therewith, a rotating shaft carrying said dog means for nor-

mally preventing engagement of the dog with said rod, and devices for withdrawing said means, substantially as described.

5 The combination of mechanism for ejecting a type, a rotating dog for operating said mechanism, a retractor for normally preventing said dog operating said mechanism a lock for said retractor and an electrical device for releasing said lock, substantially as and for
10 the purpose set forth.

6. The combination of a push rod, a rotating dog for operating said rod, a retractor for normally preventing engagement of the dog with the rod, and means whereby said
15 retractor is thrown back to normal position upon the lifting of the rod, substantially as described.

7. The combination of a type ejector, a bell crank lever and push rod for operating
20 said ejector, a rotary dog for lifting said rod, a retractor for normally preventing engagement of the dog and rod, means for withdrawing said retractor when released, and an electrically controlled locking device therefor;
25 substantially as set forth.

8. The combination of a type ejector, a bell crank lever and push rod for operating said ejector, a rotary dog for lifting said rod, a retractor for normally preventing engagement of the dog and rod; means for withdrawing said retractor when released, and an electrically controlled locking device therefor,
30 and means whereby upon the lifting of the rod said retractor is moved back to normal position.
35

9. The combination of the series of push rods, a rotating shaft having a series of dogs respectively adapted to operate one of said rods; separate devices for normally preventing said dogs engaging said rods, and electrically controlled mechanism whereby either of said devices may be released, thereby allowing the relative dog to lift the rod, and means for resetting the device at each lifting
40 of the rod, substantially as specified.
45

10. The combination of the push rods, the rotating dogs adapted to engage therewith, the retractors, the springs for withdrawing them, devices for separately locking the re-

tractors in forward position, and the electro
50 magnets for releasing said locking devices, substantially as described.

11. The combination of the push rods, the rotating dogs adapted to engage therewith, the retractors, the springs for withdrawing
55 them, devices for separately locking the retractors in forward position, and the electro magnets for releasing said locking devices, and means for resetting each retractor each time the corresponding rod is moved by the
60 dog, substantially as described.

12. The combination of the push rod, the retractile dog carried by said shaft, the retractor adapted to prevent engagement of the dog with the rod, the spring for withdrawing
65 said retractor; the electrically controlled locking device for said retractor, and the oscillating lever whereby the retractor is moved back to normal position by the lifting of the rod, substantially as described.
70

13. The combination with the type-ejectors of a type setting machine, the push rods and connections for operating said ejectors; a rotating shaft carrying a series of spring projected dogs adapted to operate said rods, the
75 series of retractors for normally preventing engagement of said dogs with the rods, an electrical locking device for each retractor, and means for withdrawing it when released, and for resetting it upon the movement of its
80 push rod; with a transmitter having a series of keys, and independent electrical circuit connections between each key of the transmitter and the locking device of the retractor controlling the mechanism for ejecting the
85 type corresponding to the transmitter key, whereby upon the depression of any key of the transmitter the corresponding type is ejected and composed in the machine, substantially as and for the purpose set forth.
90

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

PAUL FLEMMING COX.

Witnesses:

J. L. COX,

W. S. LEONARD.