(No Model.) 3 Sheets—Sheet 1.

H. ORPEN.

TYPE WRITING MACHINE.

No. 297,086. Patented Apr. 15, 1884.

Fig. 1.

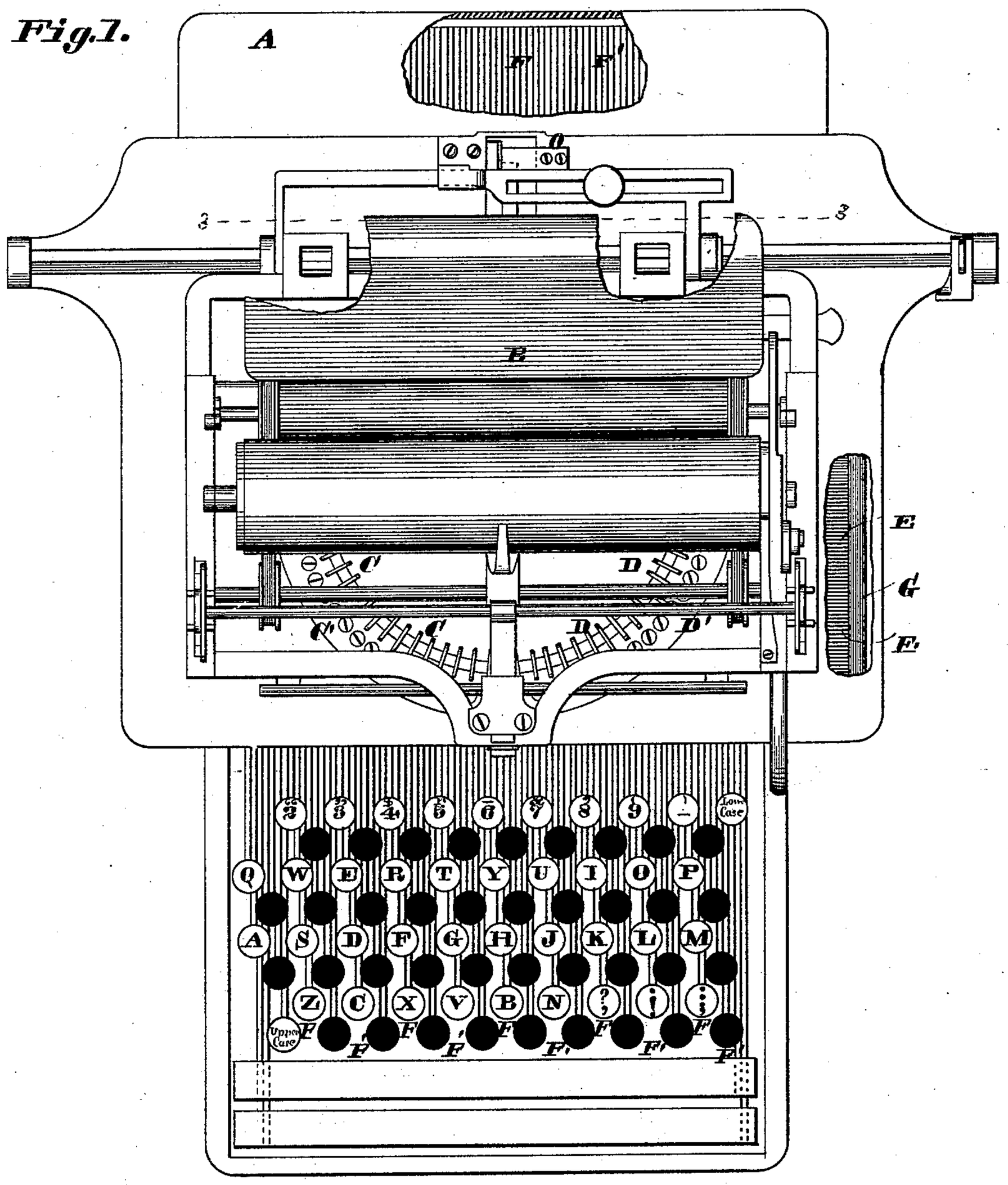
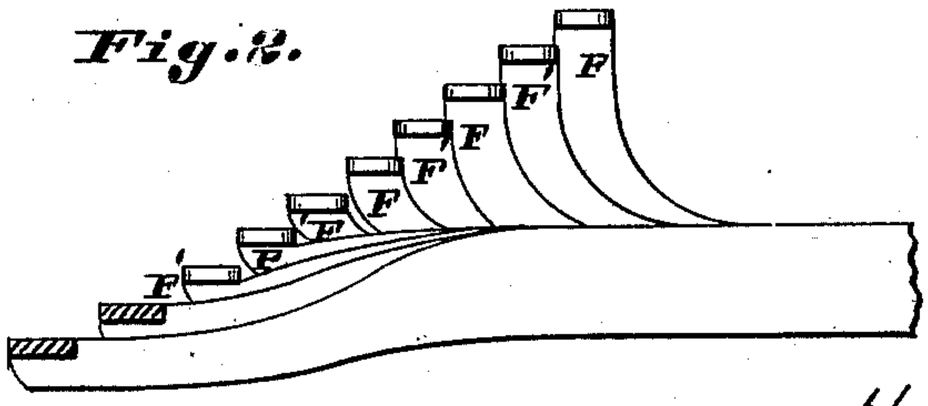


Fig. 2.



Attest:
Charles Pickles
Harry E. Knight

Inventor:
Henry Orpen
By Knight Bros
attys

(No Model.) 3 Sheets—Sheet 2.

H. ORPEN.

TYPE WRITING MACHINE.

No. 297,086. Patented Apr. 15, 1884.

Fig. 3.

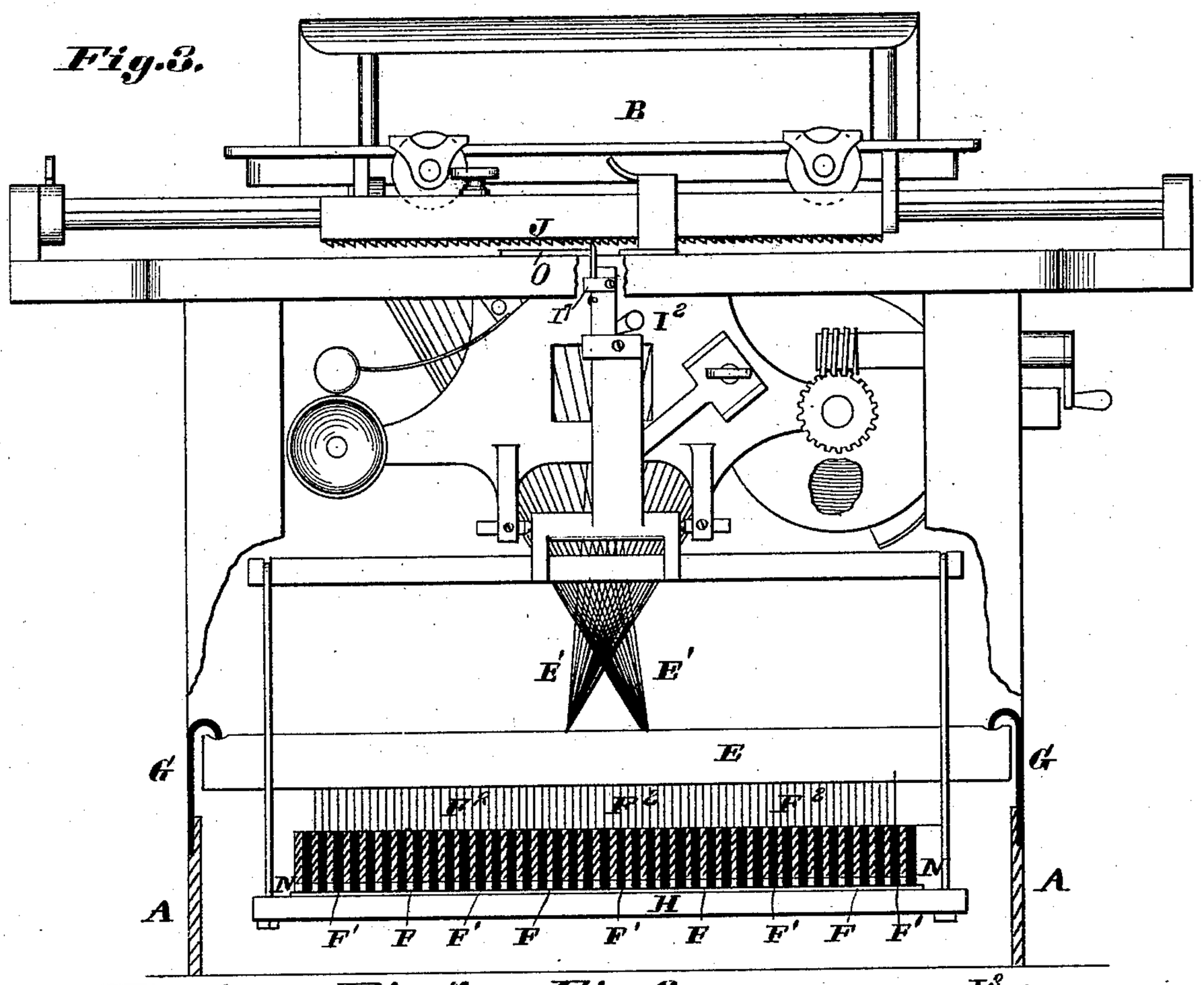


Fig. 4.

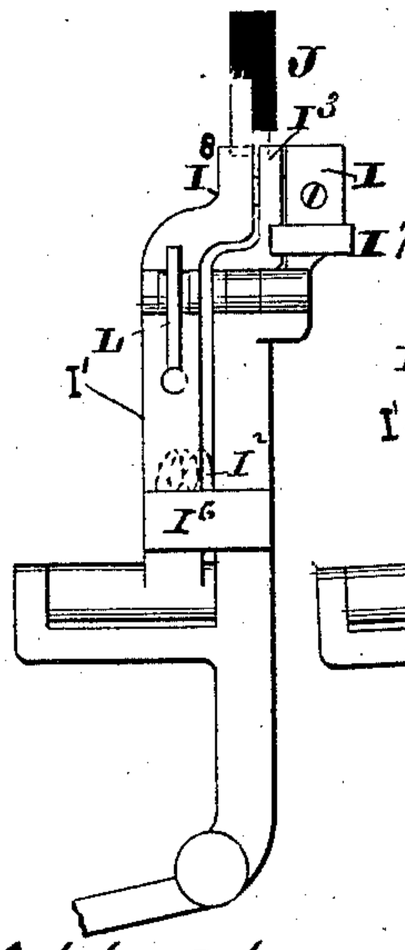


Fig. 5.

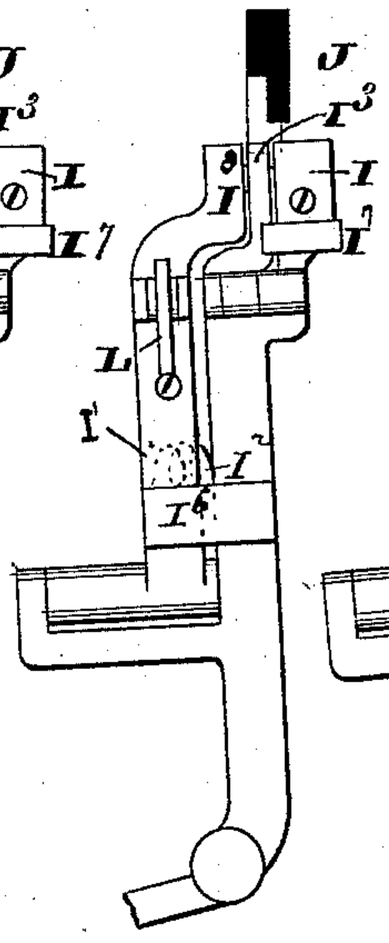


Fig. 6.

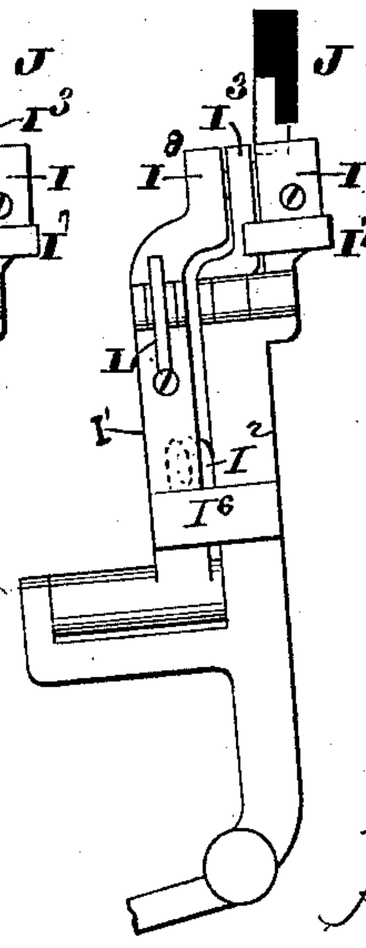


Fig. 7.

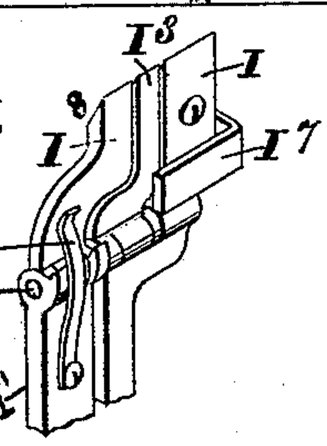


Fig. 8.

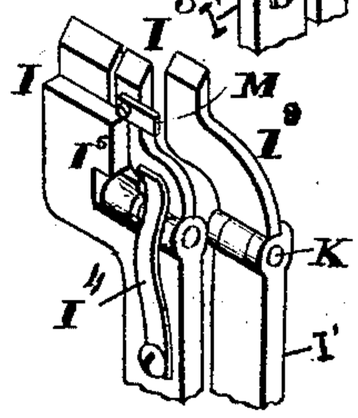
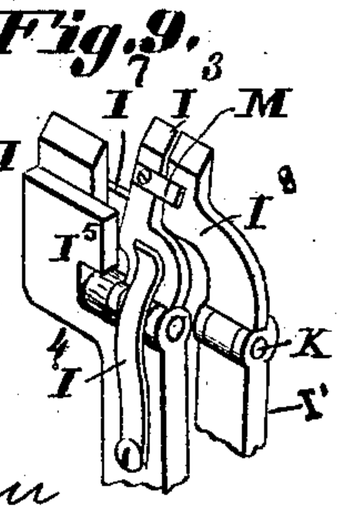


Fig. 9.



Attest:
Charles Pickles
Harry E. Knight

Inventor:
Henry Orpen
By Knight Bros
attys

(No Model.) 3 Sheets—Sheet 3.

H. ORPEN.

TYPE WRITING MACHINE.

No. 297,086. Patented Apr. 15, 1884.

Fig 10.

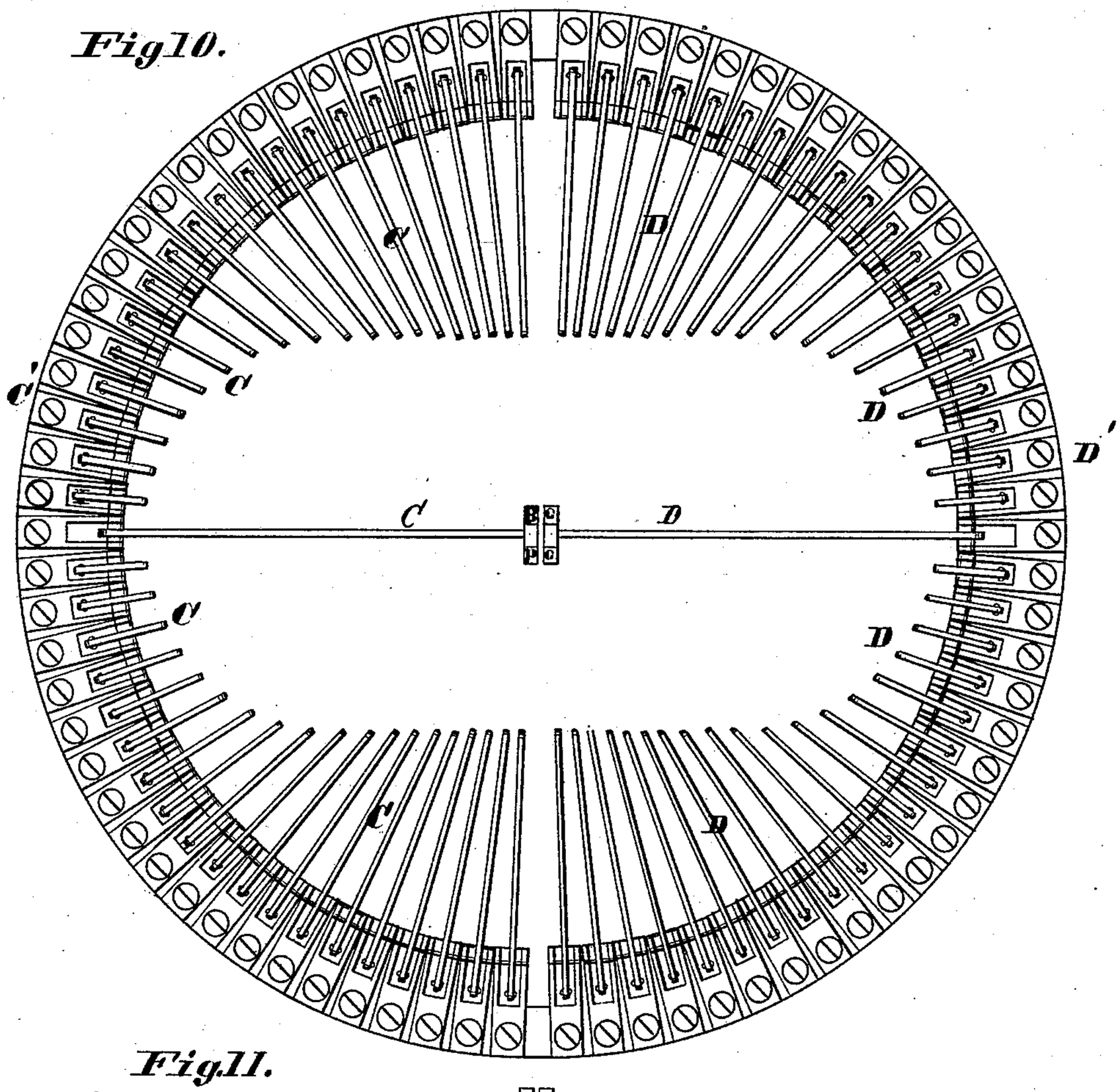


Fig 11.

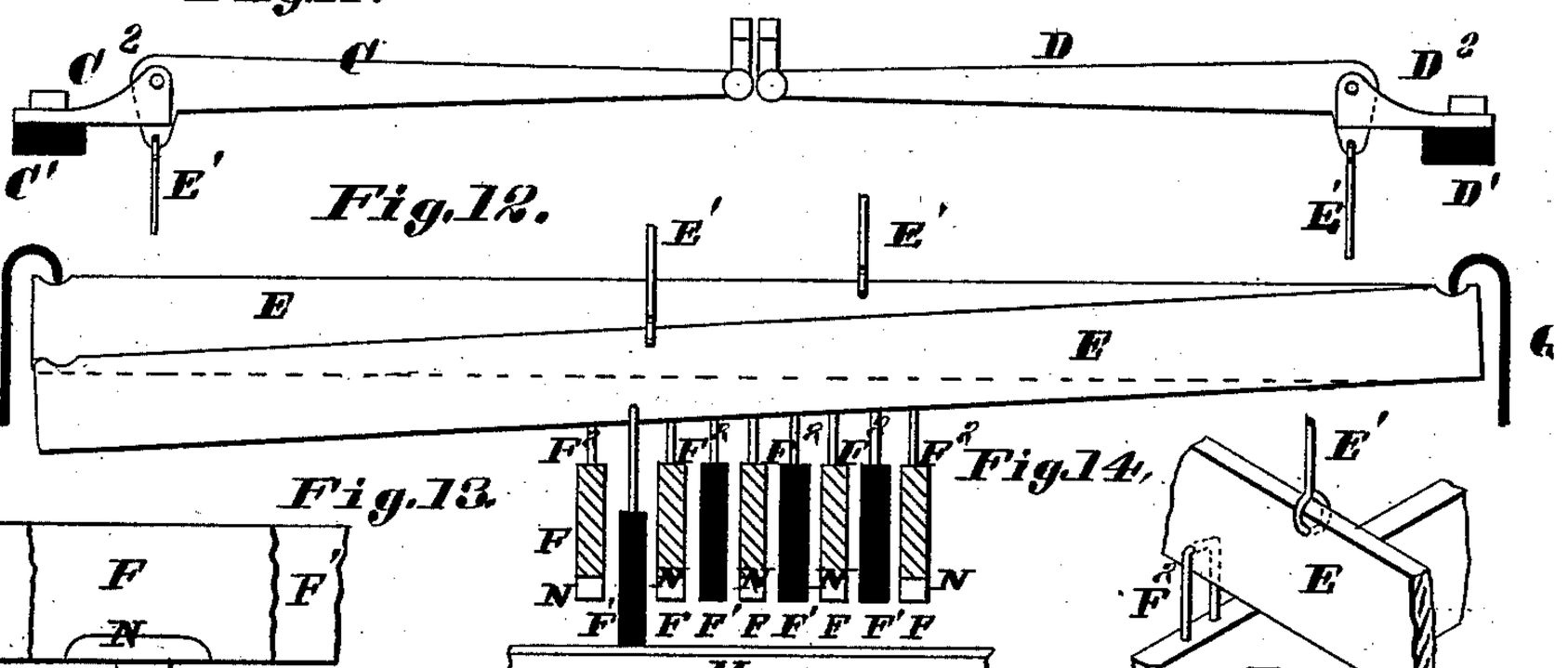
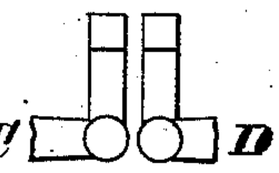


Fig 12.

Fig 13.

Fig 14.

Fig 15.



Attest;
Charles Pickles
Harry E Knight

Inventor;
Henry Orpen
By Knight Bros
attys

UNITED STATES PATENT OFFICE.

HENRY ORPEN, OF ST. LOUIS, MISSOURI.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 297,086, dated April 15, 1884.

Application filed December 12, 1882. (No model.)

To all whom it may concern:

Be it known that I, HENRY ORPEN, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Type-Writing Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure 1 is a top view of a type-writing machine, embodying my improvements. Fig. 2 is a detail view of the keys and spacing-bars. Fig. 3 is a rear elevation, the lower part of the machine being in section, taken on line 3 3, Fig. 1. Figs. 4, 5, 6, 7, 8, and 9 illustrate the different positions of the carriage-dog, hereinafter fully described, Figs. 4, 5, and 6 being front elevations, Fig. 7 a front perspective, and Figs. 8 and 9 rear perspective, views. Fig. 10 is a top view of the semicircles, the carriage being removed. Fig. 11 is a side view of two of the type-carrying levers in their upper or raised position, illustrating how two types, one from each semicircle, can be raised at the same time. Fig. 12 is part in side view and part in transverse section, the keys being in section, and bars, to which the keys are connected and which are themselves connected with the type-carrying levers, being in side view. Only part of the keys, however, are shown. Fig. 13 is a detail side view of the said keys; and Fig. 14 is a perspective view of one of the same and one of the bars, illustrating a manner of connecting them. Fig. 15 is an enlarged side view of the inner ends of two of the type-carrying levers in raised position.

I have shown my invention applied to the Remington type-writing machine; but it may be applied to the caligraph, if desired.

My invention relates to a type-writing machine wherein two types may be operated at the same time, so that two letters may be printed at the same time, thus increasing the speed of the machine, which is the principal object of my invention.

My invention consists in points of novelty hereinafter fully described, and pointed out in the claims.

Referring to the drawings, A represents the base of the machine, and B is the carriage, which is constructed and operated in the well-known manner, my invention not affecting it in any way.

C D represent the type-carrying levers, those marked C being pivoted to a semicircular bar or plate, C′, and those marked D to a similar plate or bar, D′, these bars C′ D′ being a little distance apart, as shown in Fig. 10, so that two of the levers may be operated at the same time, one from each semicircle, without the types striking each other, all the types of either semicircle coming up to the same point, as all the types do in the circle of the Remington machine. It will thus be seen that any lever of one semicircle may be operated at the same time with any lever of the other semicircle, and the two types be brought into printing position without interfering with or striking each other, as shown in Figs. 10 and 15. The levers are pivoted on the ends of arms or brackets C^2 D^2, which secure them to the bars C′ D′. I prefer placing an upper and lower case letter on one of the sets of levers and two lower-case letters on the other set, as shown in Fig. 10, so that when the carriage is run back, as in the Remington machine, to print a capital letter, a small letter may be printed at the same time from the other semicircle; and it would not be necessary to have capitals on both sets of levers, because two capitals are never wanted at the same time, or, if ever, it is seldom the case; and should it be desired at any time to have two or more of them together, they can both be taken from the same semicircle.

I will now describe how the type-carrying levers are connected with the operating-keys.

E represents bars—one for each type-lever—to which they are connected by suitable wires or strings, E′. These bars cross the machine in a transverse or opposite direction to the keys F F′, to which they are connected by suitable wires or rods, F^2. The keys, as in the Remington machine, are pivoted at one end, and their free ends are supported by suitable springs. The bars E are supported by the levers C D; or, if necessary, the springs beneath the keys may be made a little stronger than is necessary to raise the keys, and they would thus assist in raising the bars E. The upward movement of the bars is limited by in-turned ends of plates G, secured to the sides of the

base of the machine. The ends of the bars preferably have notches which receive the in and down turned edges of the plates, as shown in Fig. 12. It will thus be seen that either end of a bar may be pulled down, and the other end will act as if pivoted. The end of any particular bar that is pulled down depends, of course, upon where the key that operates it is attached to it and the point at which it itself is attached to the type-carrying lever. These positions, of course, vary.

I double the number of letter-keys, those marked F representing the keys of a common type-writer, which are connected to one of the sets of type-carrying levers—say to those marked C—and those marked F′ representing the additional keys, and which are connected to the other set of type-carrying levers. They all have the finger-pieces, and it is preferred to letter one set and have the other set plain, but located so as to be conveniently designated, as, for instance, I have lettered the finger-pieces of the keys F, and have placed the corresponding finger-pieces of the keys F′ a little beneath and to the right. Thus it will be seen that, by striking simultaneously the letter "O" and the plain key just beneath and a little to the right of the letter "T," the two letters "O" and "T" will be printed at the same time, one letter coming from one semicircle and the other from the other semicircle, and so on any two letters may be printed at the same time, or two of the same letters—as by striking the letter "O" and the plain key just beneath and to the right thereof.

If desired, the plain finger-pieces may be lettered also; but I prefer the arrangement shown. When two letters are thus printed at the same time, the carriage will have to move twice the distance that it does when only one letter is printed at a time. This is accomplished as follows:

H is the transverse bar, that extends all the way across beneath the keys, as in the Remington, and connected to the dog that engages with the rack J of the carriage. It will be understood that in the Remington machine this dog consists of two members—a stationary part, I, and a hinged part, I′. This is still the case, as far as these parts are concerned, and when a key, F, is operated, the pivoted part of the dog is relieved from the teeth of the rack, and is thrown forward one tooth or notch by its spring I^2, as usual. This part I′ in the Remington machine is in one piece; but as I now construct it, it is in two pieces, which are connected together by a pin, K, the connection being such that the upper piece or part, I^8, can be forced forward when desired, but held in line, when not thus pushed forward, with the lower piece or part by a spring, L. I^6 is a stop on the dog I to limit the forward movement of the part I′. Between the upper ends of these parts I and I′ of the dog, I place a third part, I^3, which is hinged or pivoted to the part I, as shown, and bearing upon its rear part is a spring, I^4, which is secured to the part I sufficiently strong to overcome the spring L, bearing against the front of the part I^8. When one of the keys F is operated, the part I^8 of the dog, as before stated, is pulled over out of contact with the teeth of the rack, and then when a key, F′, is operated, the part I^3 is pulled over out of contact with the teeth of the rack, and its spring I^4 throws it forward the distance of two teeth or notches, and by means of a lug or small plate, M, secured to it, it comes in contact with and carries forward the part I^8 the distance of another tooth or notch, it having already moved one, as stated, the spring I^4 overcoming the spring L, and then, when the key is released, it will be understood that the carriage will be allowed to move to the rear of the dog the distance of two notches. The part I^3 is limited in its forward movement by a stop, I^7.

In order that the keys F will not carry the dog far enough over to disengage the part I^3 from the rack, I notch them, as shown at N, Figs. 12 and 13, so that they have that much movement before they begin to act on the bar H; and as the keys F′ are not thus notched they will, of course, having the same movement, force the bar H that much farther down, drawing the dog over the necessary distance to release the part I^3. A projection, I^5, on the piece I prevents the carriage from carrying the part I^3 too far rearward, and the plate M acts in the same way, to limit the rearward movement of the part I, and when the dog is in its outer position a plate, O, secured to the machine-frame prevents the part I^3 from being forced forward under the influence of the spring I^4. The part I^3 of the dog should, by rights, be narrower than the teeth of the rack, so that on the outward movement of the dog both parts I^3 and I′ will be engaged with the rack before the stationary part I leaves it.

I use two sets of spacing-bars, one of which is notched the same as the keys F, and the other not notched, so that by striking one set the part I′ of the dog is disengaged from the rack and by striking the other a further movement of the dog is had, and the part I^3 released from the teeth, the same as described in speaking of the keys F and F′.

If desired, the keys F may be operated by themselves, so that a machine embodying my improvements may be operated in a manner identical with the machines in use.

I claim as my invention—

1. In a type-writing machine, two sets of type-carrying levers arranged, substantially as described, so that the types of each set will strike a center common to the levers of that set, in combination with suitable operating mechanism, as set forth.

2. In a type-writing machine, two sets of type-carrying levers arranged, substantially as described, so that the types of each set will strike a center common to the levers of that set and being hinged to semicircular bars

placed a short distance apart, so that two letters can be printed at the same time—one from each set—substantially as set forth.

3. In a type-writing machine, two sets of type-carrying levers hinged to semicircular bars placed a short distance apart, so that two letters can be printed at the same time—one from each set—one set of the levers having upper and lower case letters and the other set having lower-case letters only, substantially as and for the purpose set forth.

4. In a type-writing machine, the two sets of keys connecting with the two sets of type-carrying levers by means of transverse bars, substantially as set forth.

5. A type-writing machine having two independent series of type-carrying levers provided, respectively, with operating-keys, the finger-pieces of one set being placed near the corresponding finger-pieces of the other, substantially as shown and described.

6. In a type-writing-machine, the two sets of keys connecting with two sets of type-carrying levers by means of transverse bars which are loose at both ends, and held from upward movement by plates secured to the base of the machine, substantially as shown and described, for the purpose set forth.

7. In a type-writing-machine, the three-part dog for engaging with the rack of the carriage, in combination with two sets of keys arranged to operate the different parts of the dog, substantially as and for the purpose set forth.

HENRY ORPEN.

In presence of—
SAML. KNIGHT,
GEO. H. KNIGHT.