(No Model.) 2 Sheets—Sheet 1.

C. H. DAVIDS.

TYPE WRITER.

No. 245,353. Patented Aug. 9, 1881.

Fig. 2.

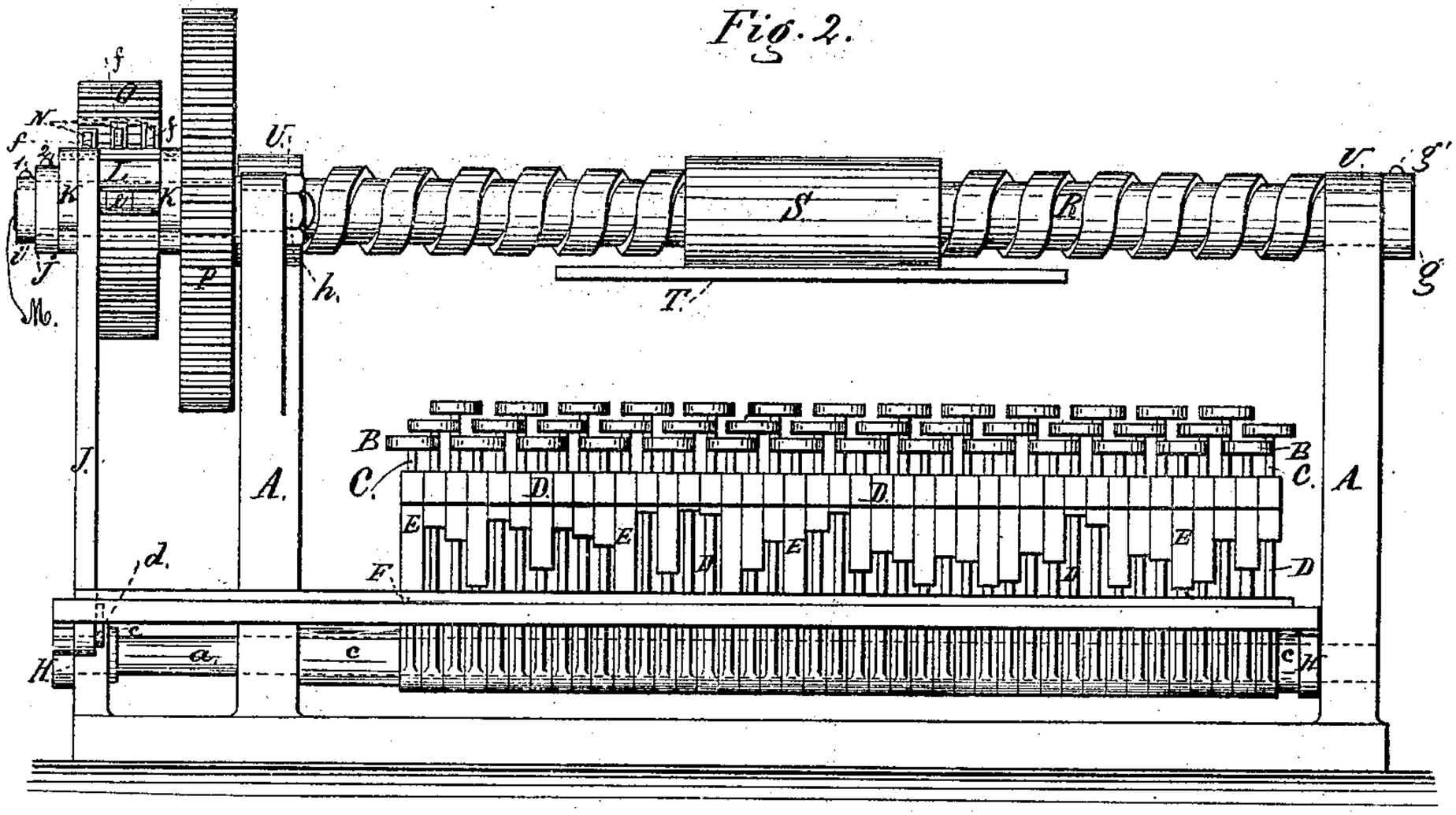
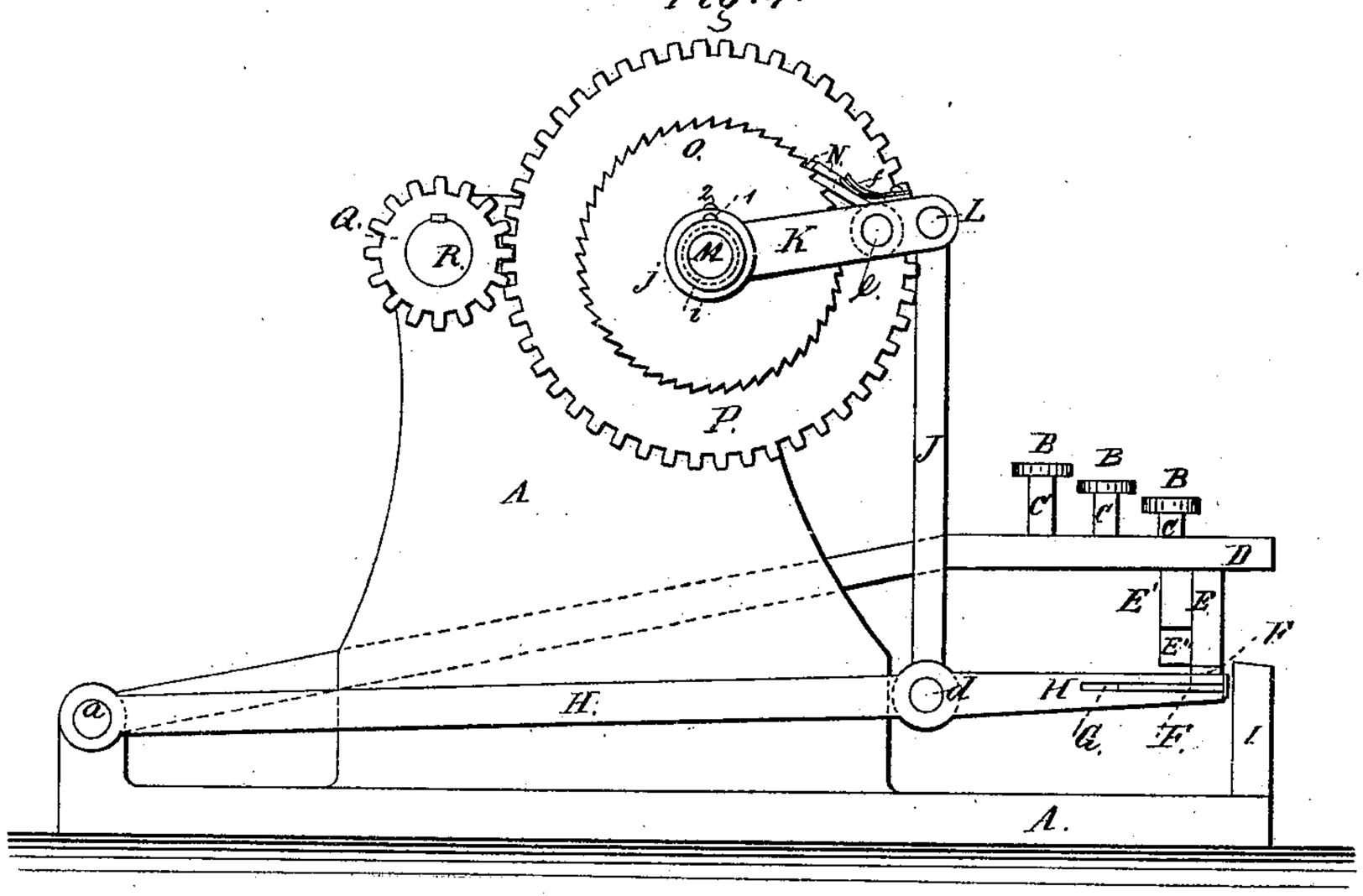


Fig. 1.



Witnesses:
Harold Serrell
J. Hailz

Inventor
Charles H. Davids
per Lemuel W. Serrell atty

(No Model.) 2 Sheets—Sheet 2.

C. H. DAVIDS.

TYPE WRITER.

No. 245,353. Patented Aug. 9, 1881.

Fig. 4.

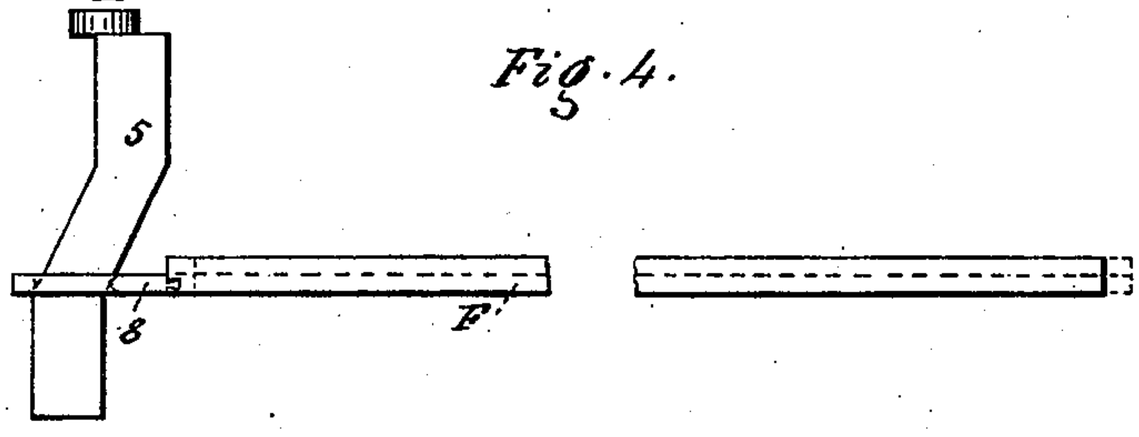


Fig. 3.

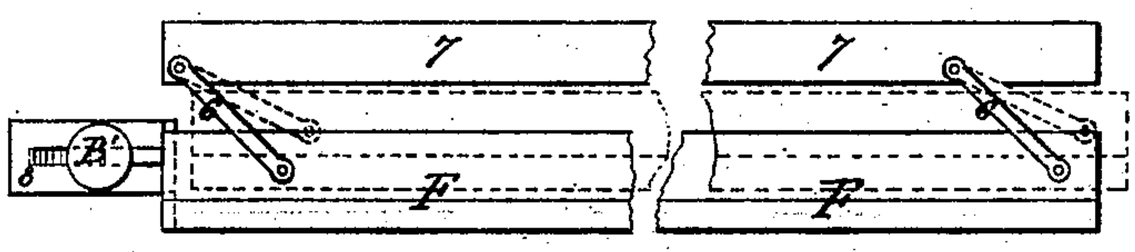


Fig. 6.

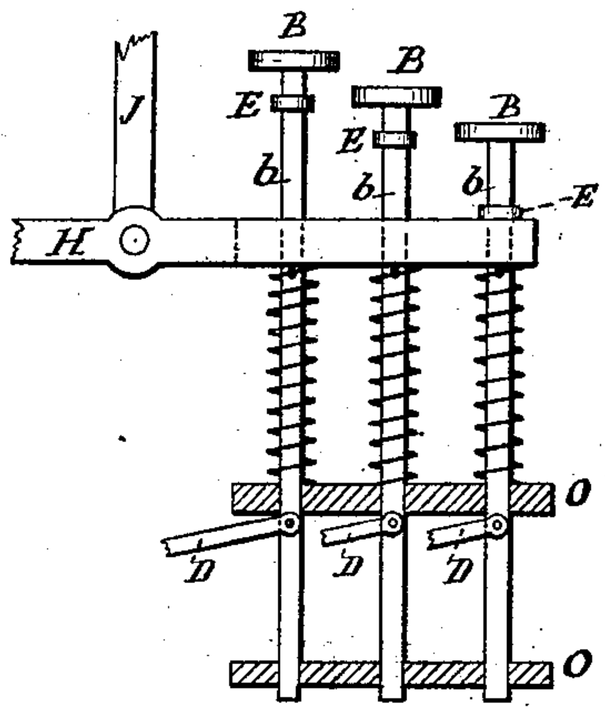
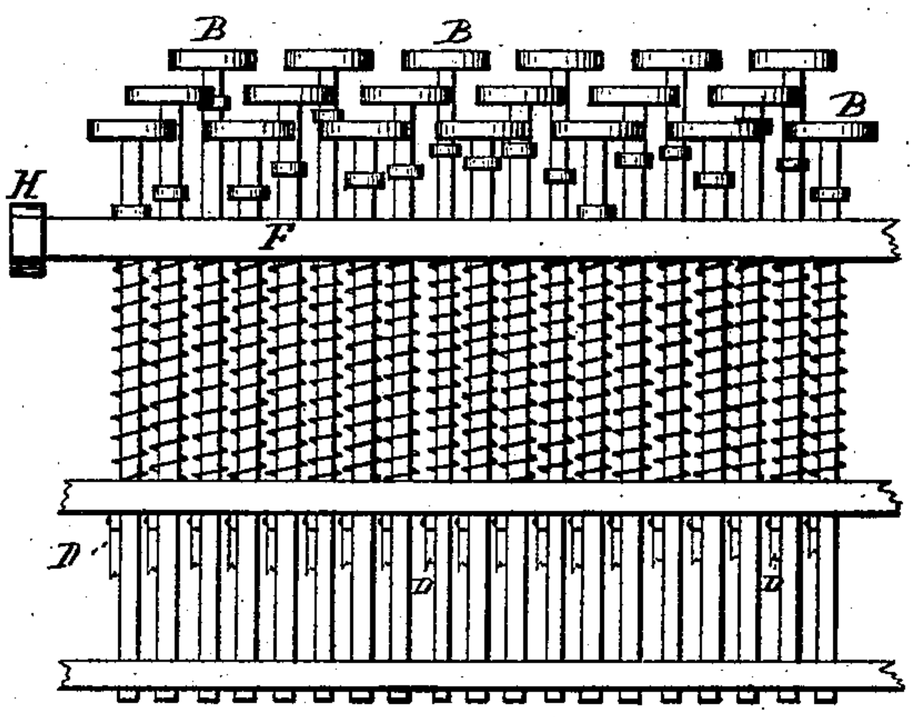


Fig. 5.



I

I

Witnesses
Harold Serrell
J. Stahl

Inventor
Charles H. Davids
per
Lemuel W. Serrell
atty

UNITED STATES PATENT OFFICE.

CHARLES H. DAVIDS, OF BROOKLYN, ASSIGNOR TO HIMSELF ANE DAVID F. DAVIDS AND MAY DOW DAVIDS, BOTH OF NEW ROCHELLE, NEW YORK.

TYPE-WRITER.

SPECIFICATION forming part of Letters Patent No. 245,353, dated August 9, 1881.

Application filed April 20, 1881. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. DAVIDS, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented a new and useful improvement in spacing devices for type-writers and other machines in which types or stamps print, cut, or are impressed on or into paper or other substances; and the following is a specification of said invention.

The object of my invention is to give to each individual impressed or printed character the particular amount of space required by it in the line in which it occurs.

In type-writers as generally constructed an equal amount of space is given to each character, regardless of its width of face, and with the view of partially remedying the imperfect appearance thus caused in the work done on such machines special faces of type are generally used in which the wide letters are condensed and the narrow letters are expanded out of their proper proportions. Thus where a number of narrow letters consecutively appear too much space is shown, and where several wide letters occur the matter is too condensed, in each case giving it an awkward and unsightly appearance, besides using more material and more of the operator's time than would be necessary were all the letters of fair proportions and properly spaced. By the use of my invention the work done by these machines will be typographically perfect, and the necessity for using the beforementioned special faces of type will be obviated. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is an end elevation of the spacing device. Fig. 2 is a front elevation of the mechanism with the stop-bar I removed. Fig. 3 is a plan of the pressure-bar F and mechanism for moving it, and Fig. 4 is an elevation of the same.

A A is the frame of the machine.

B B B are keys, secured by the stems C C C to the key-levers D D D. Space-stops E E E of different lengths, proportioned to the spaces required by the various types or punches, are connected with the key-levers D D D. The stop-bar I is attached to the front of the machine, under the free ends of the key-levers D D D.

F is a pressure-bar, the ends of which may move freely in slots G in the ends of the front part of the swinging frame H H, which swings on the shaft *a*. This shaft extends entirely across the machine, and on it the key-levers D D D also swing. The collars *c c c* prevent lateral motion of the shaft *a*, and retain the key-levers D D D in their places thereon.

The link J is connected with the swinging frame H by the stud *d*, and with the pawl-levers K K by the joint L. The pawl-lever K carries the pawls N N N by means of the stud *e*. The pawls N N N, which may be of any suitable number, are of different lengths, to finely graduate the difference in motion which they will communicate to the ratchet-wheel O, at the same time permitting large teeth to be used in the ratchet-wheel O. These pawls are held against the ratchet-wheel O by the springs *f f f*. The gear-wheel P has a prolongation of its hub, forming a sleeve, on which the ratchet-wheel O is secured, and on which the pawl-lever K swings, and it is retained in its place by the collar *j* and screw 2. The collar *i* and set-screw 1 retain the gear-wheel P on the stud M, which is secured to the frame A by the nut *h*. The gear-wheel P engages with the pinion Q on the shaft R, said shaft R having a screw-thread formed thereon between the bearings U U. Lateral motion of the screw-shaft R is prevented by the pinion Q at one end, and the collar *g* and set-screw *g'* at the other end. The screw-shaft R carries the nut S, to which is attached the bed T or other support for the material to be operated upon.

The pawls N N N are of such lengths that their ends subdivide equally the space between the faces of one tooth of the ratchet-wheel and the next.

Suitable springs (left out of the drawings to prevent complication) may be attached to the key-levers D D D and to the swinging frame H as well, to raise them after they have been depressed.

In operation a key, B, being depressed carries a key-lever, D, with its space-stop E until the free end of the key-lever strikes the stop-bar I. The space-stop E depresses the press-

ure-bar F, swinging frame H, link J, pawl-levers K K, and pawls N N N. Pressure on the key B being removed, one of the pawls N N N engages with the ratchet-wheel O and revolves it the proper distance, which is determined by the length of the space-stop E, which in each stop is adapted to the character that is impressed by the depression of the key with which the stop is connected. The ratchet-wheel O being turned moves the gear-wheel P, the pinion Q, the screw-shaft R, nut S, and material upon T, and the parts are proportioned so that the material on T is moved the proper distance for the character that has been impressed, so that the next character will fall at the proper distance from the one so previously impressed.

In machines operating two or more sets of characters with one set of keys it will be necessary to have the same number of sets of space-stops. In this case the pressure-bar F may be moved under either set of space-stops, as desired.

Duplex space-stops are shown in Figs. 1 and 2, in which E E may be lower-case space-stops, and E′ E² may be upper-case space-stops, the pressure-bar F being moved under either set, as required. One method of doing this is shown in Figs. 3 and 4, in which B′ is a key, to which is attached a plate, 5, having an inclined plane midway at each edge, with vertical spaces above and below. 6 6 are links connecting the pressure-bar F with the fixed bar 7. 8 is a slotted plate, dovetailed in the end of the pressure-bar F to permit lateral motion therein. By depressing the key B′ the plate 5 exerts an end pressure against the pressure-bar F and also causes it to swing forward, as shown by the dotted lines, the vertical parts of the edges of plate 5 permitting the pressure-bar F to be raised or depressed without changing its position under the space-stops.

Other mechanism may be substituted for the screw-shaft R and nut S, my invention having no special reference to these parts.

The space-stops E E E may be made adjustable, if necessary. They may be attached to the stop-bar I or to the pressure-bar F, my invention not being limited in this particular.

In Figs. 5 and 6 I have represented a modification of my said improvement. The key-levers D are hinged to sliding rods *b* passing through the pressure-bar F of the levers H, with finger-buttons B at their upper ends and with space-stop collars E around them. These rods *b* are guided by the plates *o o*, through which they slide freely. The keys have a definite movement to the stop-bar I. The key-rods B slide freely through the pressure-bar F a greater or less distance before the pressure-bar is moved by the stop E coming into contact with it, and the extent of motion given to the pressure-bar F will depend upon the distance that the parts move after the stop E comes into contact with such pressure-bar, and before the key is arrested by the stop I. Springs are provided for raising the keys B.

I do not claim, broadly, a device for spacing different widths for different types.

What I do claim, and desire to secure by Letters Patent, is—

1. In a machine for impressing types, the frame H, pivoted at *a*, and having a pressure-bar, F, across the front end, in combination with the depressible keys having a space-stop upon each key, acting against the pressure-bar F to move the same a greater or less distance, and the connection J from the frame H, the lever K, pawls N, and wheel O, and the mechanism, substantially such as described, for moving the surface that is to be impressed, substantially as specified.

2. The combination, with the key-levers D and two space-stops to each key, of the stop-bar I, movable pressure-bar F, and means for moving said pressure-bar, substantially as set forth.

3. The combination, in a machine for impressing types successively, of a ratchet-wheel, O, two or more pawls, N, of varying lengths, one pivot, *e*, for these pawls, the link J and arm K, connected by the pivot L, the swinging frame H, the presser-bar of which extends under all the key-levers, and key-levers and stops, substantially as specified.

Signed by me this 18th day of April A. D. 1881.

CHARLES H. DAVIDS.

Witnesses:
GEO. T. PINCKNEY,
WILLIAM G. MOTT.