

Patented Nov. 6, 1900.

**C. S. LABOFISH.**

**CALCULATING DEVICE FOR TYPE WRITERS.**

(Application filed June 27, 1900.)

(No Model.)

**2 Sheets—Sheet 1.**

Fig. 1.

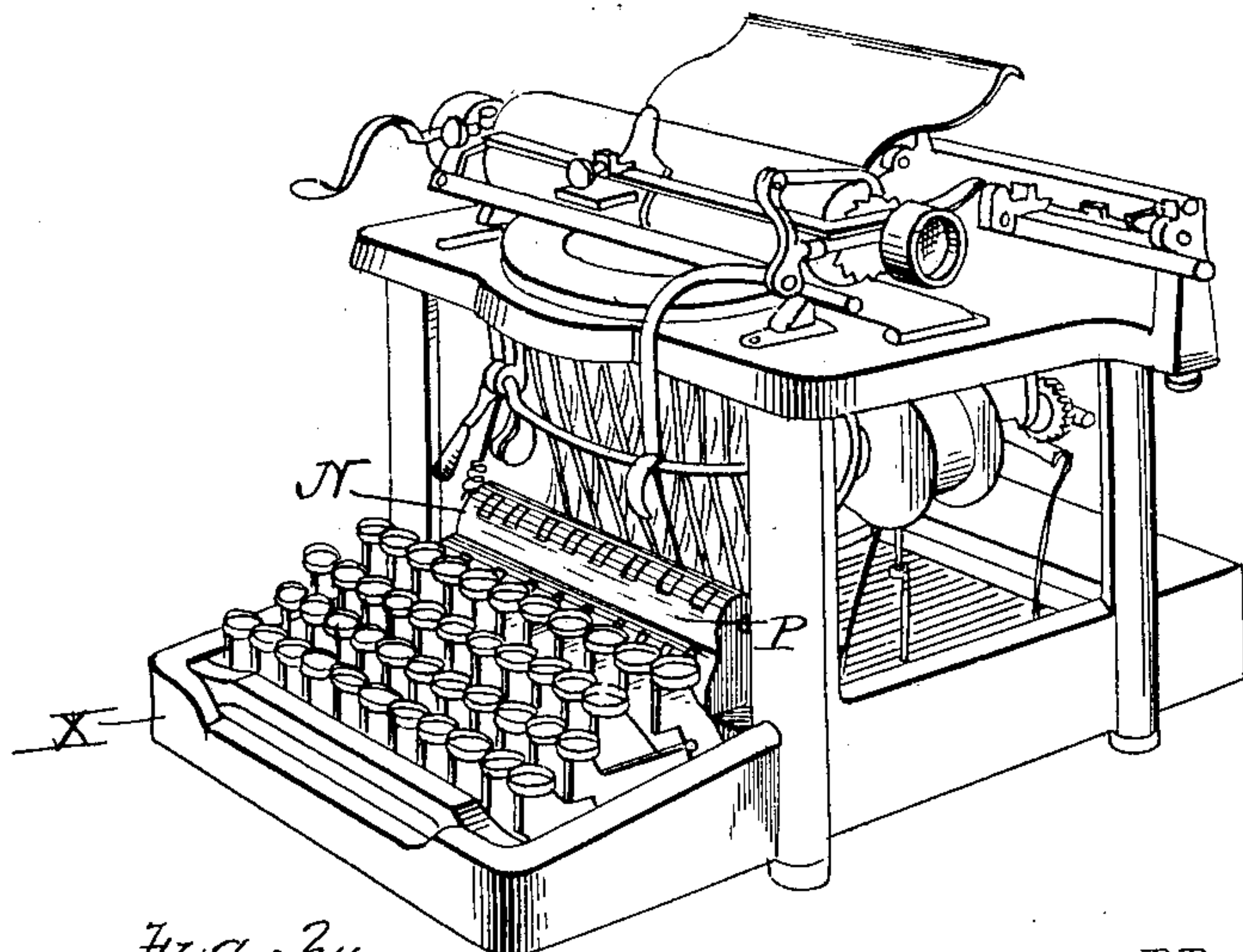
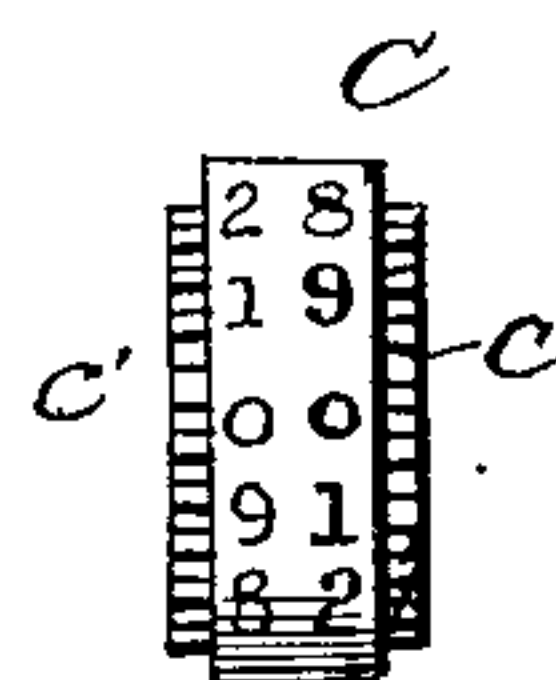


Fig. 9



Aug. 2.

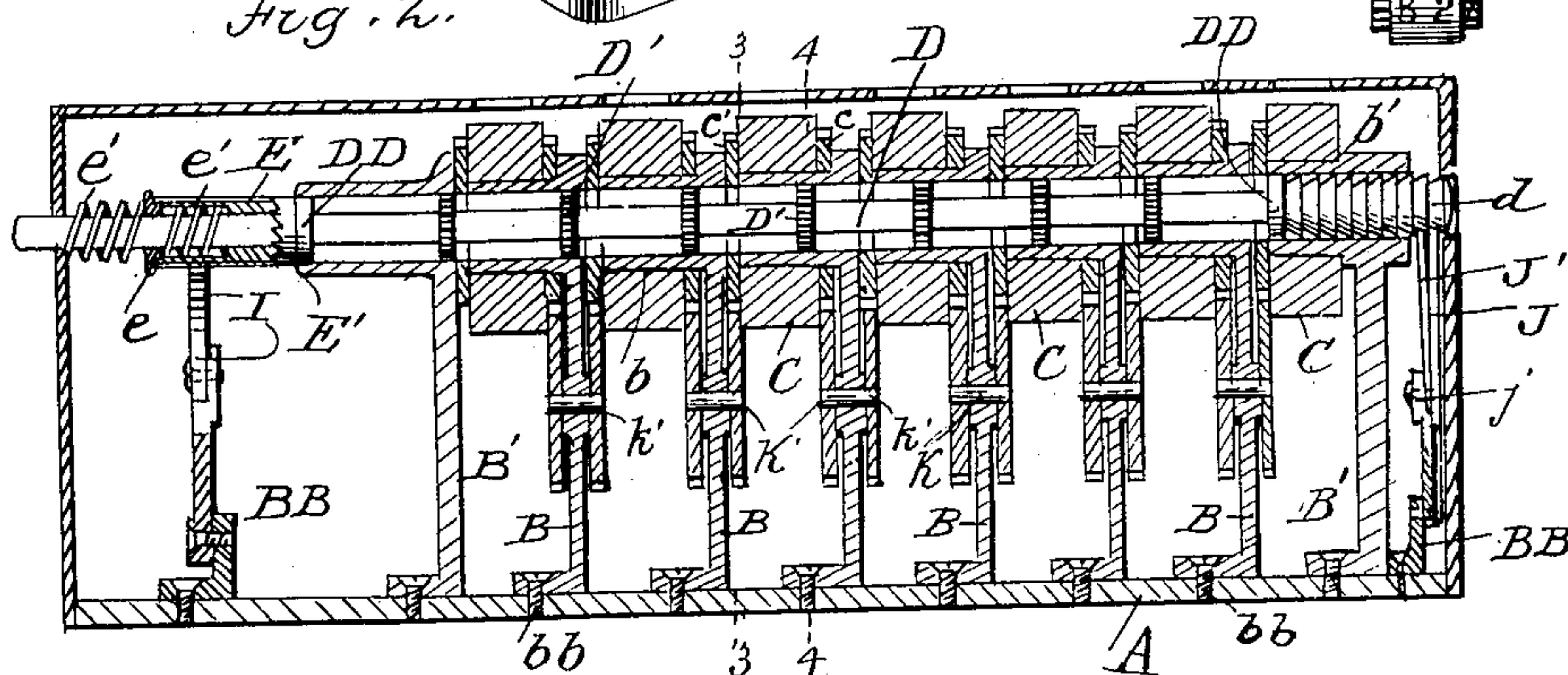


Fig. 3.

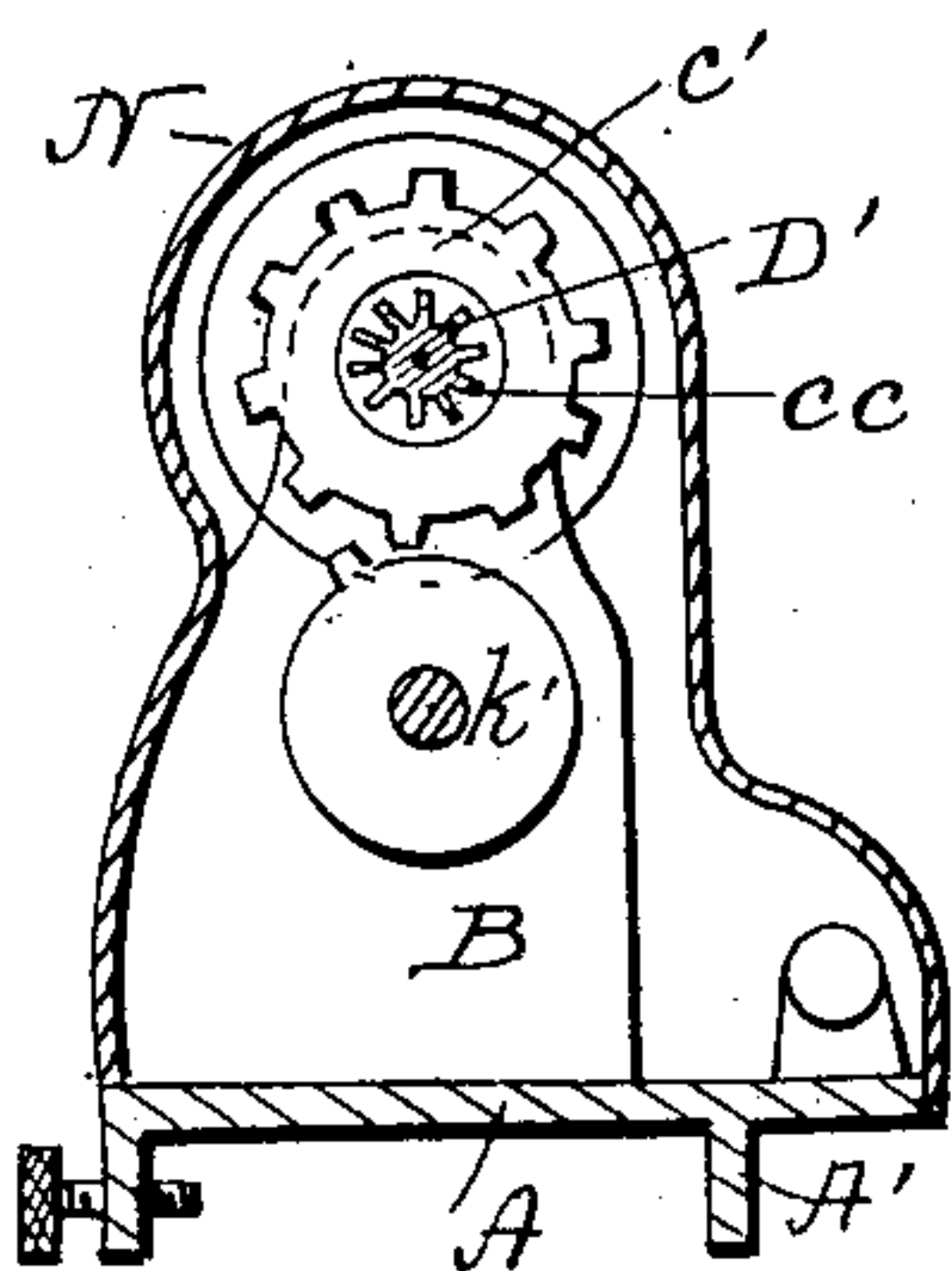


Fig. 4

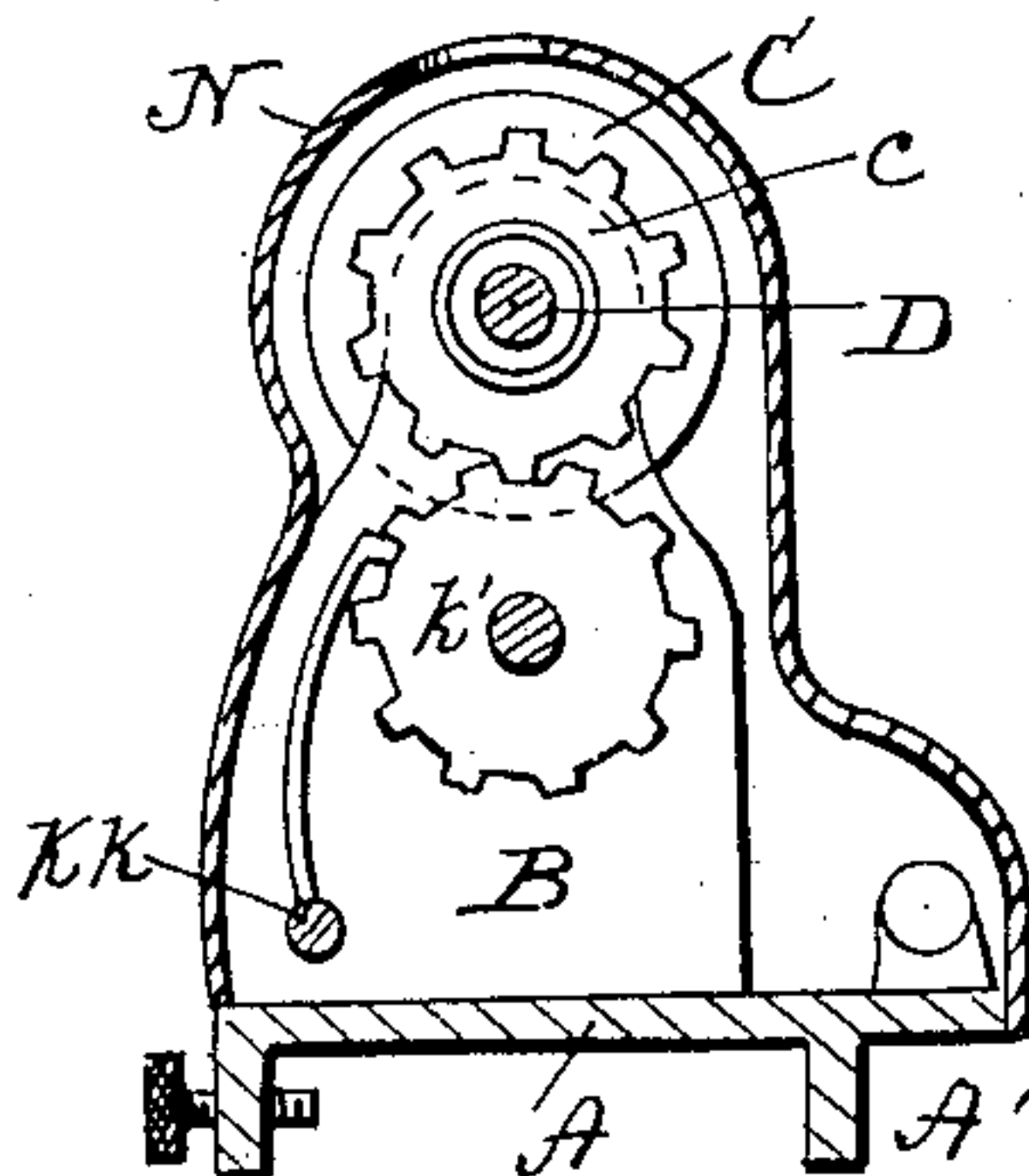
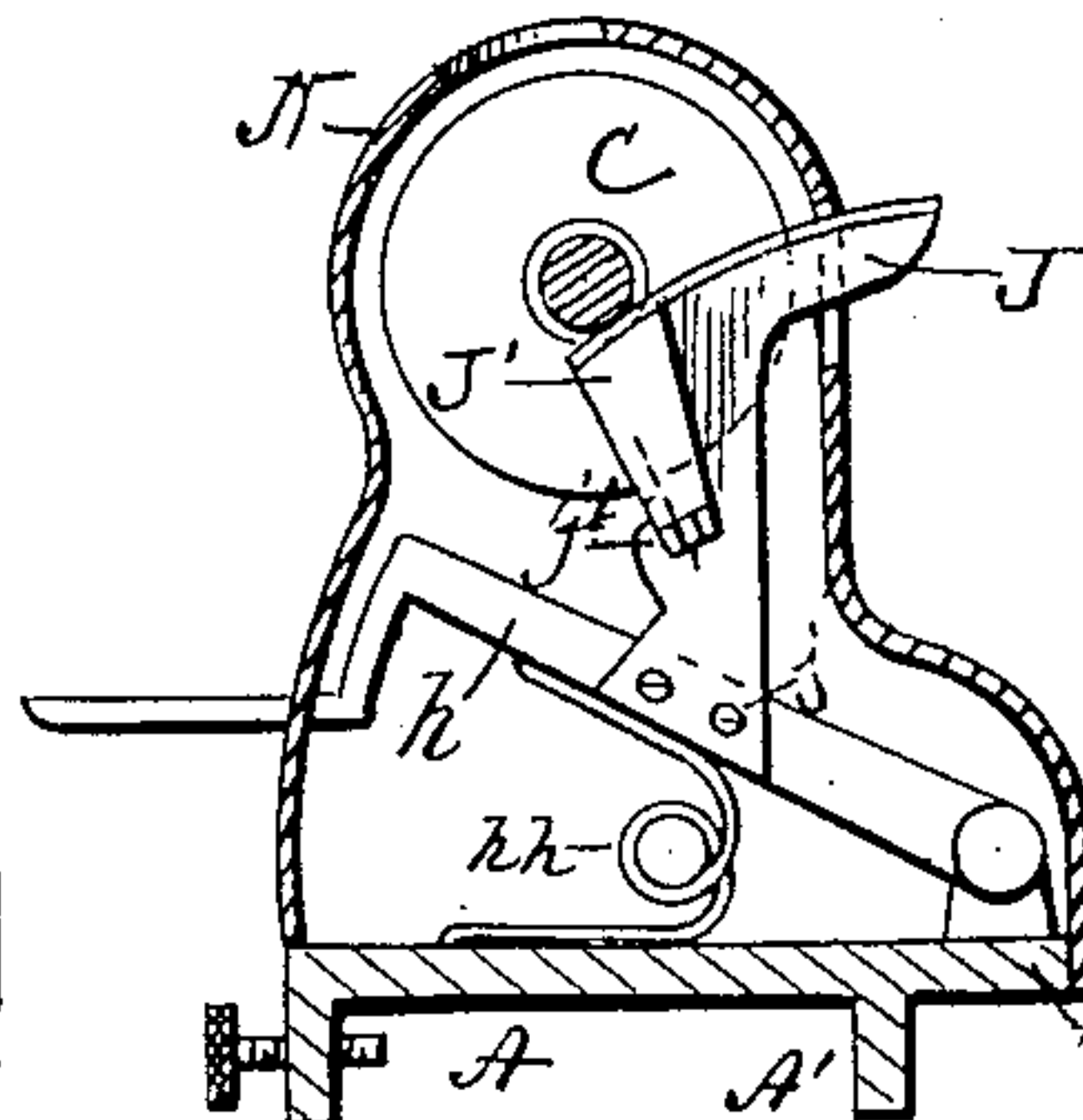


Fig. 5.



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**No. 661,058.**

**Patented Nov. 6, 1900.**

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### CALCULATING DEVICE FOR TYPE WRITERS.

(Application filed June 27, 1900.)

**(No Model.)**

**2 Sheets—Sheet 2.**

Fig. 6

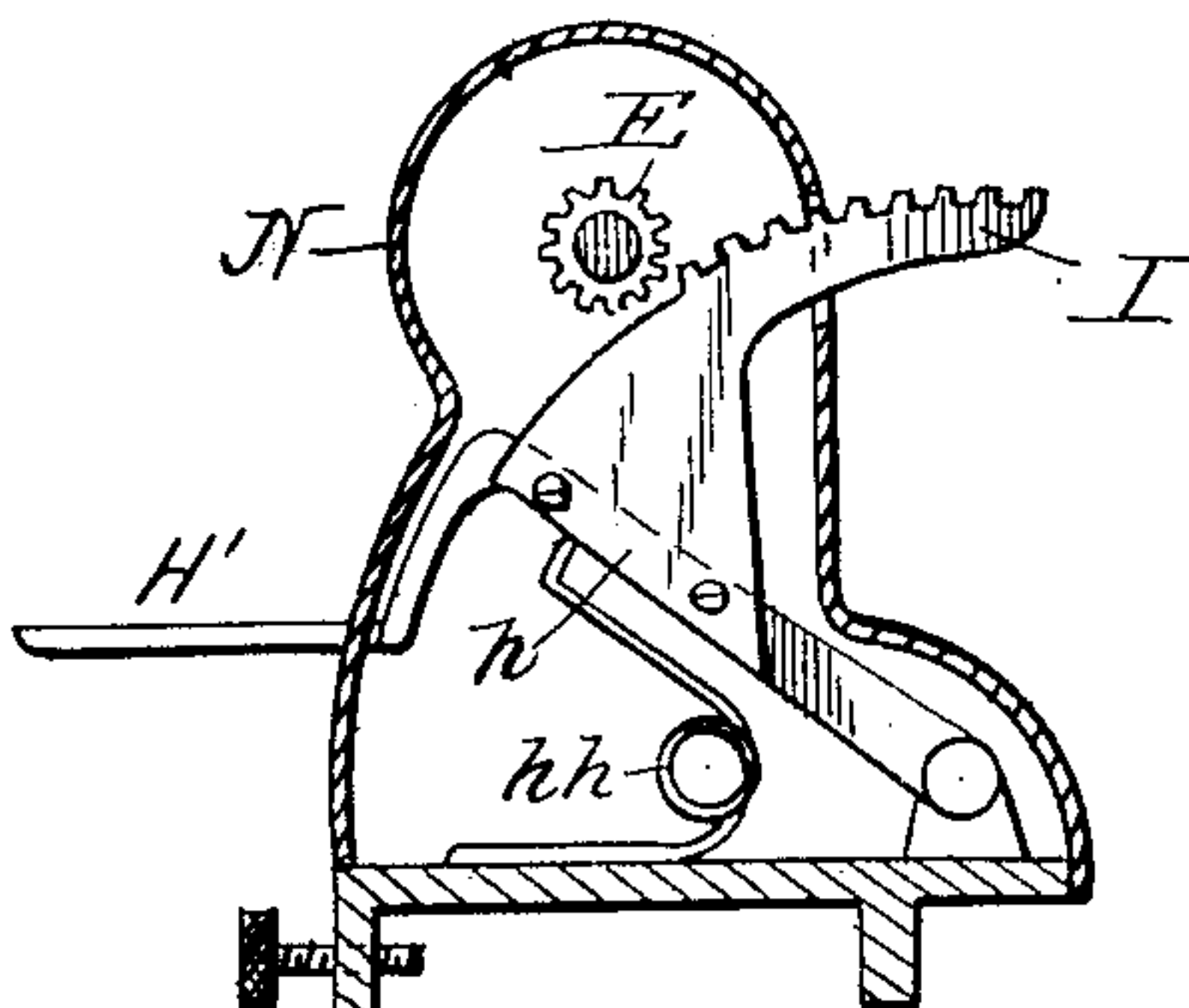


Fig. 7.

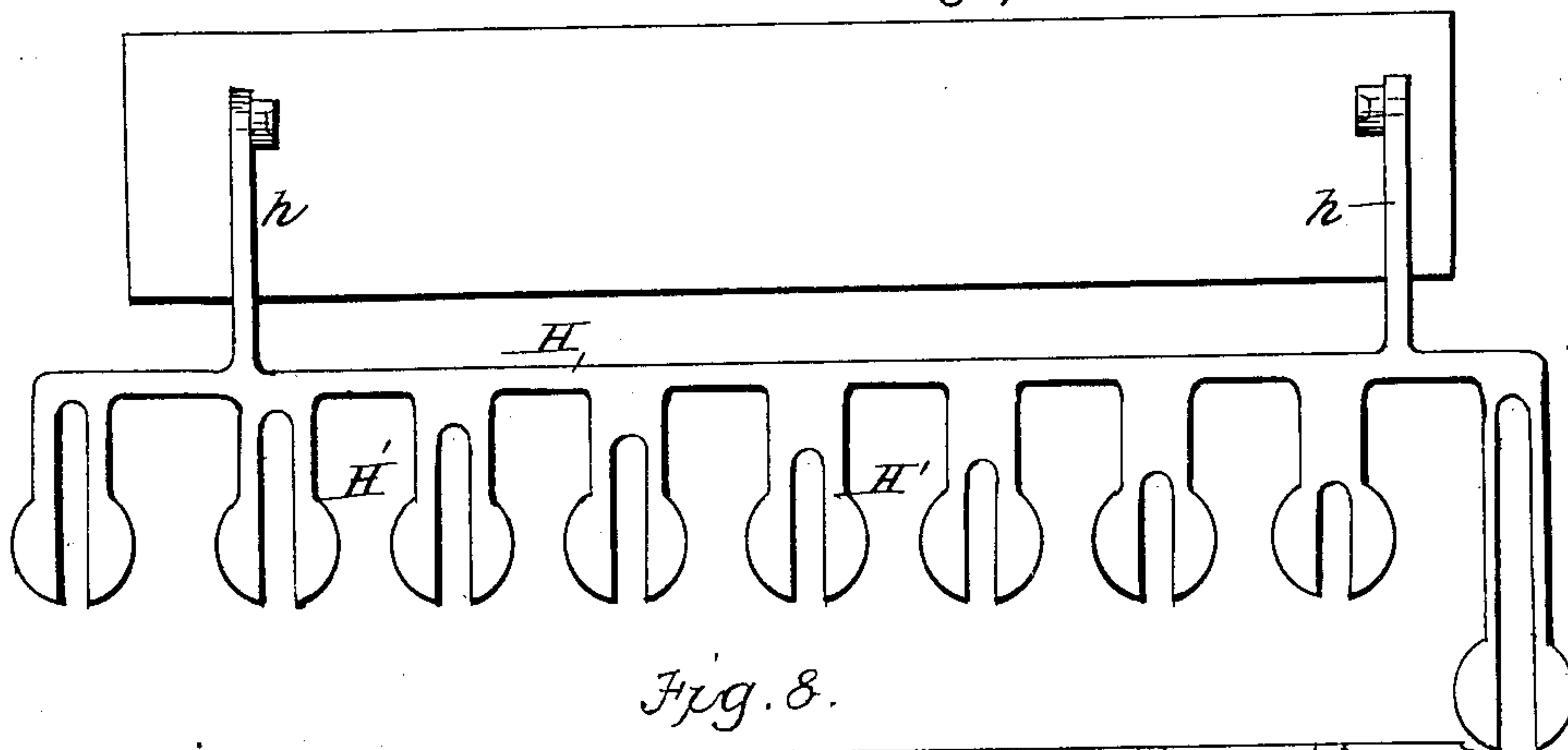


Fig. 8.

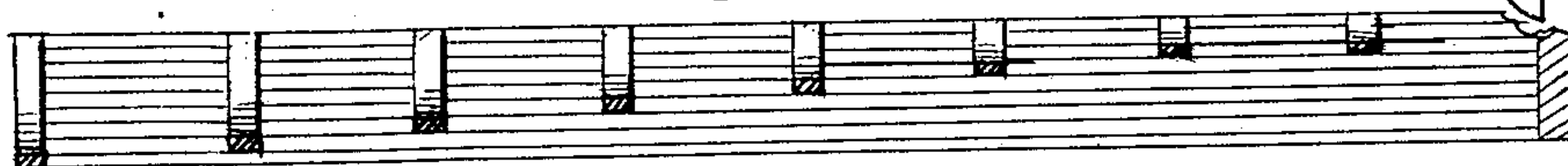


Fig. 12.

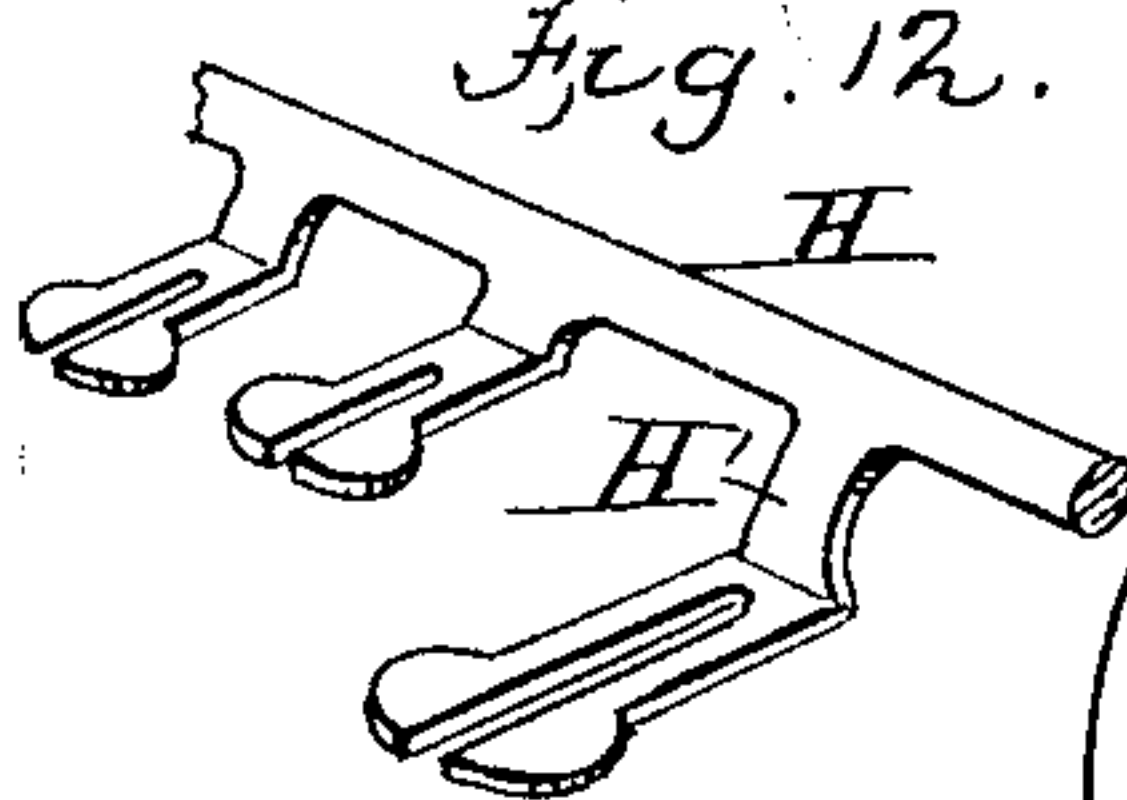


Fig. 10

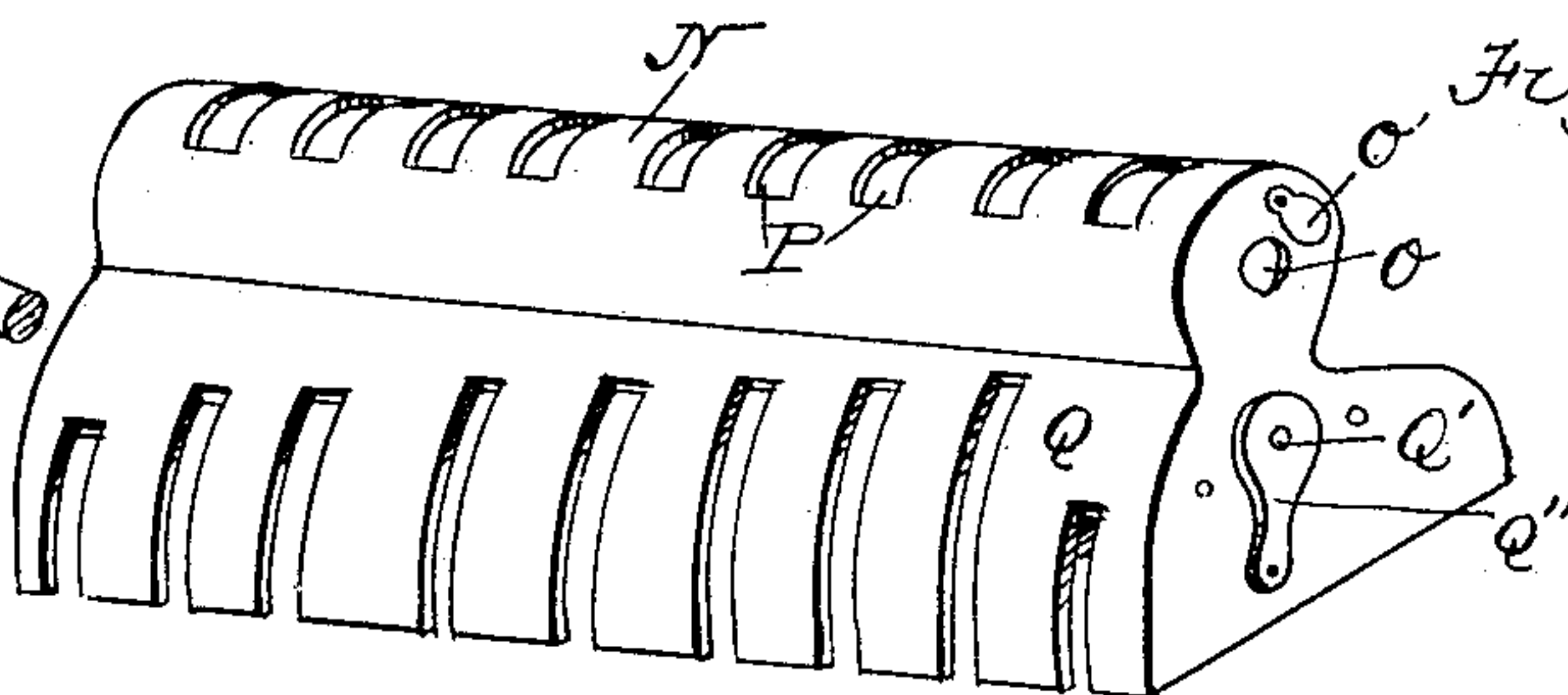
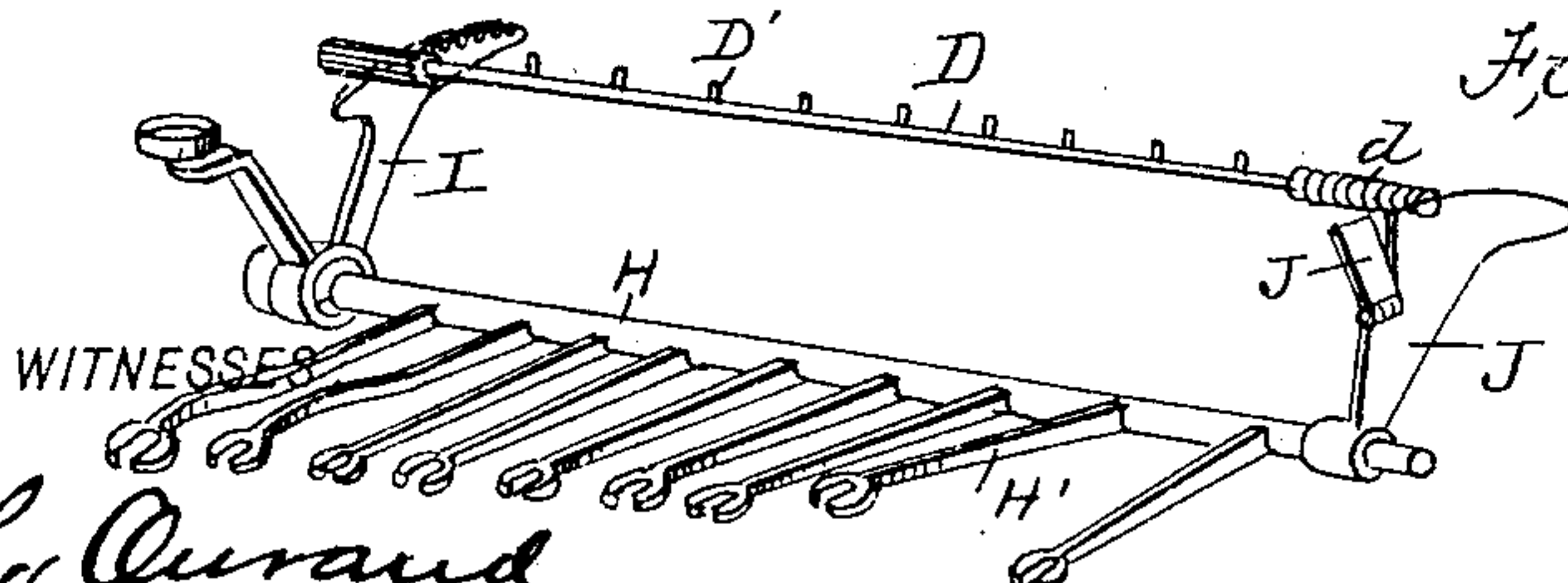


Fig. 11.



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# UNITED STATES PATENT OFFICE.

CHARLES S. LABOFISH, OF WASHINGTON, DISTRICT OF COLUMBIA.

## CALCULATING DEVICE FOR TYPE-WRITERS.

SPECIFICATION forming part of Letters Patent No. 661,058, dated November 6, 1900.

Application filed June 27, 1900. Serial No. 21,793. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES S. LABOFISH, of Washington, in the District of Columbia, have invented a new and useful Improvement in Calculating Devices for Type-Writers, of which the following is a full, clear, and exact description.

My invention relates to improvements in calculating devices, and more particularly to that class of calculating devices that operate in conjunction with type-writing machines; and the object of my invention is to produce a calculating device which can be readily secured to the frame and coupled with the type-writer keys, so that the depression of the type-writer keys to print certain figures will simultaneously register and add these figures within the device; one which may be operated to perform the various operations of addition and subtraction by the same operation of depressing the type-writer keys to print the desired figures; one that is so compact as to enable it to be mounted adjacent to the upper bank of type-writer keys and parallel therewith, so that the registry will always be in plain view of the operator, and one which can be instantly thrown out of engagement with the type-writer, thereby enabling the operator to write dates and certain sentences containing figures without affecting the registry within the device in the least.

To these ends my invention consists of certain features of construction and combinations of parts, which will be hereinafter described and claimed, reference being had to the accompanying drawings, forming part of this specification, in which the same letters of reference indicate the same or corresponding parts in all the views.

Figure 1 is a view of a type-writer fitted with my calculating device. Fig. 2 is a sectional view of the device on the line 2 2 of Fig. 3. Fig. 3 is a sectional view on the line 3 3 of Fig. 2. Fig. 4 is a section on the line 4 4 of Fig. 2. Fig. 5 is a section on the line 5 5 of Fig. 2. Fig. 6 is a section on the line 6 6 of Fig. 2. Fig. 7 is a plan view of the rocker with its slotted projecting arms disposed in a stepped-off or rising order. Fig. 8 is a vertical sectional view of same. Fig. 9 is a detailed view of one of the registering-

wheels, showing the two rows of figures running in reverse order. Fig. 10 is a view of the outer cover or casing of the calculating device. Fig. 11 is a similar view of the rocker as it is formed for certain type-writer frames that have no cross-bar. Fig. 12 is a side elevation of the rocker shown in Fig. 7.

A is a metal base formed with suitable lugs A'. These lugs are for the purpose of securing the base to the type-writer frame X and may be made of any desirable shape or form to accommodate the various constructions of type-writer frames.

B indicates a series of standards formed with hollow bosses *b*, upon which the registering-wheels C are journaled. The standards B are secured to the base by means of screws *bb*. A shaft D, formed with a series of inclined circumferential grooves *d* at one end and a series of ten-toothed gear-like wheels or notched collars D', corresponding in number to that of the number of registering-wheels in the device, and two collars DD, is fitted to slide and bear in the bosses *b*, so that the notched collars D' are sliding freely in the bosses *b*. The registering-wheels C have each two rows of figures running in reverse order printed or impressed upon their peripheries and two gear-wheels *c c'* secured to both sides, as shown in Fig. 9. The gear-wheel *c* has a central opening corresponding in diameter to that of the registering-wheels, while the gear *c'* has a smaller opening, and in this opening are cut ten internal notches *cc*, through which the shaft D is sliding freely and which the notched collars engage to turn the registering-wheels. (See Figs. 2 and 6.)

A rocker H, formed with nine projecting slotted arms H', is pivoted upon the base to the two short standards BB by the two projecting bars *h*. A spring *hh* holds the rocker with its arms upward when it is in its normal position. To the rock-bars *h* is secured a sector I and a split dog J. An elongated ten-toothed pinion E is journaled upon the shaft D. The pinion has ten inclined clutching-teeth cut in its side. These teeth engage similar teeth formed upon a collar E', which is secured to the shaft. The sector I engages the pinion on its forward movement and turns the shaft D, while on the return of the sector the inclined teeth of the pinion ride over the



inclined teeth of the secured collar, while the shaft remains at rest. The arms  $H'$  referred to heretofore are disposed upon the rocker in a stepped-off order—that is, the arm engaging the type-writer key-lever carrying the numeral “9” upon its key-top is close under the key-top, so that when that key is depressed the sector will move forward its full length and having nine teeth will turn the shaft  $D$  nine-tenths of a revolution, and the arm engaging the key-lever bearing the numeral “8” upon its key-top is dropped one space, corresponding to a tooth upon the sector, lower so that its depression will move the sector forward a distance of eight-tenths of a revolution, and so on, so that the arm engaging the key-lever bearing the numeral “1” upon its key-top is very close to the bottom of the key-lever and the key-top will have to be depressed down nearly to print before it will touch the arm  $H'$ , when it will turn the shaft a distance of one-tenth of a revolution only, as clearly shown in Figs. 6, 7, 11, and 12.

The dog  $J$ , which is held by the screw  $j$  to the rock-bar  $h$ , consists, essentially, of the rigid dog  $J$  and the loose dog  $J'$ , which is hinged to the rigid lug  $j'$ . When the dog is moved forward, the loose dog is thrown out of line with the rigid dog by the spring  $j'$ , while the rigid dog is still in engagement with one of the circumferential grooves of the shaft. On the return of the dog to its normal position the extending loose dog  $J'$  enters the next adjacent groove  $d$ , when the spring  $e'$  forces it immediately back in line with the rigid dog, thereby sliding the shaft a distance of one space forward, bringing the next adjacent notched collar  $D'$  in engagement with the next registering-wheel to the right. Thus the operation of engaging the registering-wheels by the notched collars is carried on successively without the aid of the operator throughout the working of the machine.

The casing  $N$  (see Fig. 10) is made of light sheet metal or other suitable material. It has a number of sight-holes  $P$ , corresponding in number to that of the registering-wheels, through which one pair of the double numerals of the registering-wheels referred to heretofore can be seen, and nine downward slots  $Q$ , in which the projecting arms have a free up-and-down movement, and also an aperture  $O$  on its right-end side, through which the sliding shaft  $D$  slides out of the casing. To return the sliding shaft to its normal position, the projecting end of the shaft through the aperture  $O$  is pushed inward. The number of circumferential grooves it went in indicates the number of digits it is desired to print and add. To throw the device out of engagement with the type-writer, all it is necessary to do is to push the shaft in into the aperture until the end is flush with the outer casing. The closure  $O'$  is then slid over the aperture, when the shaft will be confined in the casing, and neither of the notched collars will be in engagement with the registering-

wheels, or it may be allowed to come out its entire length until the notched collar to the right has passed the internally-notched gear-wheel secured to the first registering-wheel representing units. When the calculating device is not in use and in order to relieve the numbered type-writer keys of the burden of rocking the rocker at every descent of the keys, a spring-lever  $Q''$ , carrying a pin  $Q'$  at its free end, is pivoted, preferably, to the right-hand side of the casing  $N$ . (See Fig. 10.) The pin  $Q'$  projects through the small aperture in the casing, reaching the rocker-arm  $h$ . The rocker is depressed to its full extent, and the pin  $Q'$  is inserted into the lower opening. This brings the pin  $Q'$  to bear upon the rocker-arm  $h$  against the tension of the spring  $hh$ , holding same from returning to its normal position. The type-writer keys are then entirely free to depress without touching the rocker.

In order to provide for carrying one in working this device, it is necessary to have means for turning one wheel a distance of one number at each rotation of the next adjacent registering-wheel representing a lower denomination, and to this end each standard  $B$  is drilled at  $K$  for the purpose of journaling loosely a short shaft  $K'$ , to which is secured a ten-toothed gear-wheel  $k$  at one end and a one-toothed wheel  $k'$  at the other. The ten-toothed wheel  $k$  is in constant engagement with the gear-wheel  $c$ , while the one-toothed wheel  $k'$  engages the gear-wheel  $c'$  of the registering-wheel at each complete rotation. A spring-detent  $kk$  is secured to the standard  $B$  at a point below the gear-wheel  $k$ , which detents same with its registering-wheel after the latter has been turned the desired distance. This constitutes the carrying mechanism of this device.

The device is operated by the depression of the numbered type-writer keys bearing the numerals it is desired to print and add. Previous to the depression of the keys the sliding shaft  $D$  is pushed inwardly. The number of circumferential grooves went in indicate the number of digits the device will register and add. We will suppose, for instance, that the number “341” is to be added to the number already indicated in the sight-slots  $P$ . The shaft is pushed in a distance of three grooves. The third notched collar  $D'$  will then be in engagement with the notches  $cc$  of the third registering-wheel, representing hundreds. The depression of the type-writer key bearing the numeral “3” will print a “3” on the sheet and at the same time turn the registering-wheel in engagement a distance of three-tenths of a revolution. When the type-writer-key is released, the rocker will be thrown back to its normal position by the spring  $hh$ . On the return of the rocker with the dog  $J'$  extending forward, as described above, the loose dog engages the next adjacent groove, while the tension of the spring  $e'$  presses the shaft forward, bringing the loose



dog in line with the rigid dog, when the next adjacent registering-wheel, representing a lower denomination or "tenths," will be in engagement with the sliding rod or shaft, and the depression of the type-writer key bearing the numeral "4" on its key-top will turn the registering-wheel a distance of four-tenths of a revolution. The key bearing the numeral "1" is then depressed, and the figures "341" will then be printed on the sheet and added within the device. The sums of addition are exhibited by the right-hand figures in the sight-slots, and if subtraction or division is performed the results are shown by the left-hand row of figures. In subtraction the operation is exactly the same as in addition, except that reference is made to the left-hand row of figures in the sight-holes, and when the type-writer keys are depressed the left-hand row of figures diminish at the same rate the right-hand figures increase. If then the number "341" is to be subtracted from the number already shown in the sight-slots in the device, the same steps are taken as above described; but in the units, tens, and hundreds sight-holes numbers will appear which are "one," "four," and "three," respectively, less than the numbers previously shown. As multiplication is successive additions and division successive subtractions, it will be seen that these operations may be performed by simply pushing in the slide-shaft in a manner to repeat the additions or subtractions.

It is evident that numerous slight changes might be made in the general arrangement and formation of parts herein shown and described without departing from the spirit and scope of my invention. Hence I would have it understood that I do not limit myself to the precise details shown, but consider myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a type-writer, a calculating device comprising a base, a series of registering-wheels mounted thereon, a rocker formed with projecting arms held pivotally upon the said base operating the registering-wheels, said calculating device being secured to the type-writer frame intermediate between the movable carriage and the type-writer keys, so that the said projecting arms engage the type-writer keys, substantially as described.

2. In a type-writer, a calculating device secured to its frame intermediate between the movable carriage and the type-writer keys, said calculating device comprising a base, and a suitable casing having sight and front slots therein, a series of registering-wheels and a rocker formed with projecting arms underneath said casing, said projecting arms having a free movement in the front slots of the said casing in engagement with the type-writer keys, substantially as described.

3. In a type-writer, a calculating device secured to the said type-writer frame above the upper row of type-writer keys and parallel therewith, said calculating device comprising a base, a series of registering-wheels mounted thereon, a slidable rod provided with suitable means for engaging the registering-wheels successively, sliding through the registering-wheels, and operative connection between the registering-wheels and the type-writer keys, as set forth.

4. In combination with the type-writer, of a calculating device comprising a fixed base horizontally disposed above the upper row of the type-writer keys, registering-wheels mounted upon the said base, a shaft for said wheels and an operative arm connecting the said shaft to the type-writer keys, substantially as described.

5. A calculating device comprising a base, a series of registering-wheels mounted thereon, of a rocker comprising a rod, formed with inwardly-projecting arms whereby it is pivoted to the base, so that the said rod will have a vertical movement in front of and parallel with the registering-wheels, and a series of forward-projecting arms disposed upon the said vertical movable rod adapted to be depressed to turn the registering-wheels substantially as described.

6. A calculating device comprising a base, registering-wheels mounted thereon, of a slidable rod formed with a series of circumferential grooves whereby it is moved laterally and suitable means for engaging the registering-wheels successively held slidable through the central openings of the said registering-wheels, substantially as described.

7. A calculating device comprising a base, a series of registering-wheels mounted thereon, of a slidable rod formed with a series of inclined circumferential grooves and a series of notched collars adapted to engage the registering-wheels successively sliding through the said registering-wheels, as set forth.

8. In a type-writer, a calculating device secured to its frame said calculating device comprising a base, a series of standards formed with hollow bosses mounted thereon, registering-wheels journaled upon the said bosses, and provided with suitable means for engaging the registering-wheels successively held slidable within the said bosses, an operative connection between the said slidable rod and the type-writer keys, as set forth.

9. A calculating device comprising a base, a series of registering-wheels mounted thereon, a rod provided with suitable means for engaging the registering-wheels successively in the central opening of the said registering-wheels, a jaw-clutch upon the said rod, said jaw-clutch being adapted to turn the rod in one direction and release it, as set forth and described.

10. A calculating device comprising a base, registering-wheels mounted thereon, of a rod provided with suitable means for engaging



the registering-wheels successively held slidable through the central openings of the said registering-wheels and having a jaw-clutch one part of which is fixed upon the rod and the other is loosely journaled thereon, substantially as described.

11. The dog-escapement comprising a slidable rod provided with suitable means for engaging the registering-wheels successively in combination with a split dog held pivotally upon the base in engagement with the said slidable rod, as and for the purpose specified.

12. In a calculating device, a base, a series of registering-wheels mounted thereon, a rod provided with suitable means for engaging the registering-wheels successively held slidably within the registering-wheels, in combination with a pivoted dog in operative connection with the said slidable rod, and a spring pressing the said rod forward said dog limiting the movement of the said rod and holding it against the tension of the said spring, substantially as described.

13. The herein registering-wheels having ten-toothed gear-wheels secured on both sides, one of the said gear-wheels having a central opening corresponding in diameter to that of the registering-wheels and the other being smaller and having ten internal notches cut therein, as and for the purpose specified.

14. A calculating device comprising a base, registering-wheels mounted thereon, of a slidable rod provided with means for engaging the registering-wheels successively, having a jaw-clutch, one part of which is secured to the said rod and the other is loosely mounted thereon, and having gear-wheel teeth cut upon its periphery, substantially as described.

15. A calculating device comprising a base, standards supporting registering-wheels secured thereto, a rod provided with a series of grooves or their equivalent, and a series of notched collars adapted to engage the registering-wheels successively, held slidable through the registering-wheels, in combination with a rocker carrying suitable means for engaging the said slidable rod so as to turn and slide the said rods alternately, as set forth.

16. A calculating device comprising a base, a series of registering-wheels mounted there-

on, a rod held slidable through the registering-wheels, of a casing or covering for the said registering-wheels having an aperture therein coaxial with the said rod, as and for the purpose specified.

17. A calculating device comprising a base a series of registering-wheels and a rocker mounted thereon a suitable casing or covering for the said registering-wheels, of a stop-pin passing through the said casing adapted to limit and retard the movement of the said rocker, substantially as described.

18. In a type-writer, a calculating device secured to its frame said calculating device comprising a base, registering-wheels mounted thereon, a pivoted rocker operating the said registering-wheels, arms projecting from the said rocker in engagement with the type-writer keys in combination with suitable means for retarding the said rocker from engaging the type-writer keys, as set forth.

19. In a type-writer, a calculating device secured thereto above the upper row of its keys, said calculating device comprising a base, a series of registering-wheels mounted thereon a rocker formed with projecting arms operating the said registering-wheels, said projecting arms being forked out at their outer extremities to engage the type-writer keys, substantially as described.

20. A calculating device comprising a base, registering-wheels mounted thereon, of a rod having a series of ten-toothed notched collars adapted to engage the registering-wheels successively, held slidably through the central opening of the said registering-wheels, substantially as described.

21. A calculating device comprising a base, registering-wheels mounted thereon, a rod provided with suitable means for engaging the registering-wheels successively, of a spacing-dog operating the said slidable rod to engage the registering-wheels successively, as set forth.

In testimony whereof I have signed my name in the presence of two witnesses.

CHARLES S. LABOFISH.

Witnesses:

W. J. HUTCHINSON,  
JOHN THOMAS KENNEY.