No. 822,938. PATENTED JUNE 12, 1906.

C. GABRIELSON.

TYPE WRITING MACHINE.

APPLICATION FILED FEB. 18, 1903.

2 SHEETS—SHEET 1.

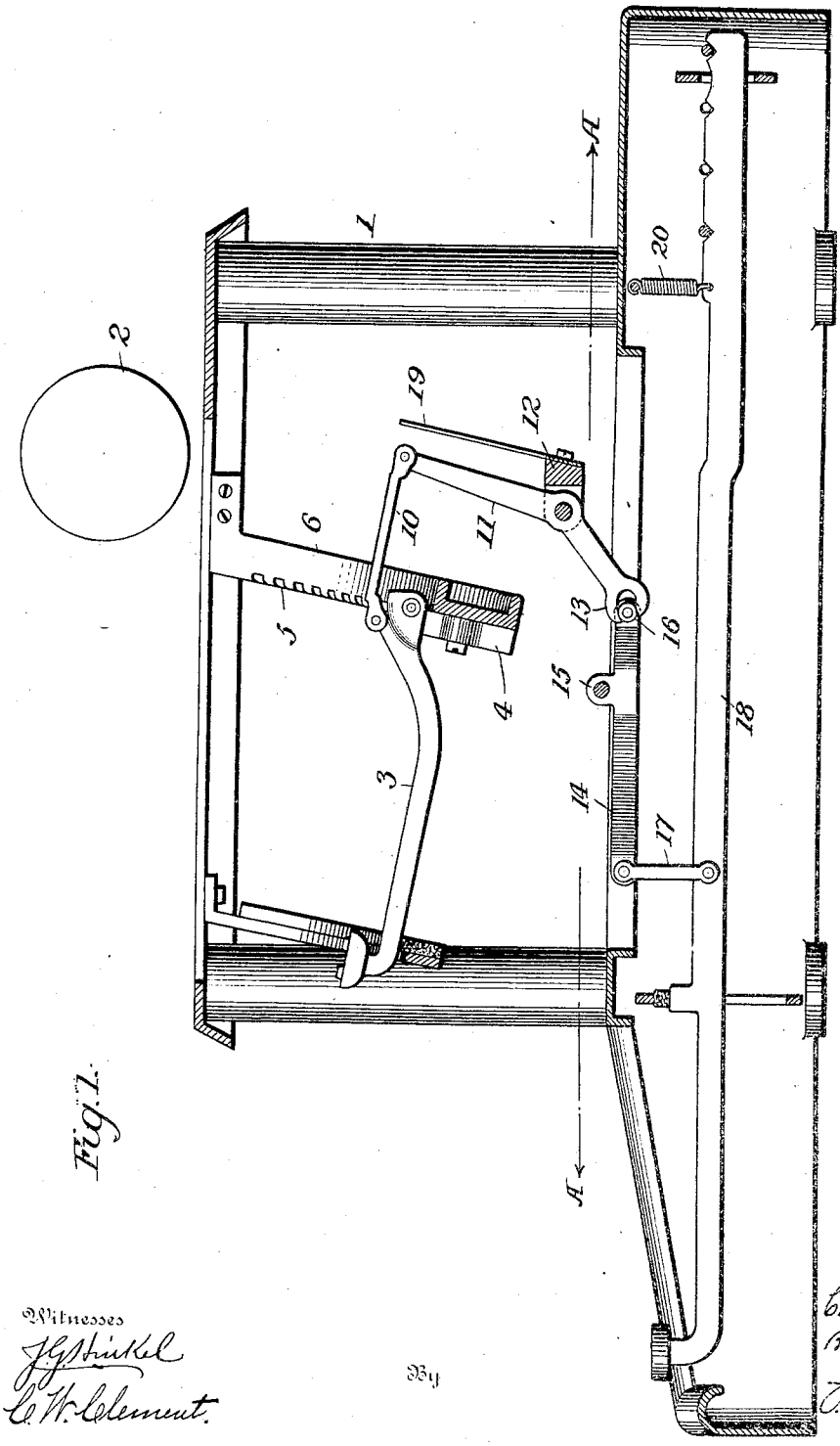

Fig. 1.

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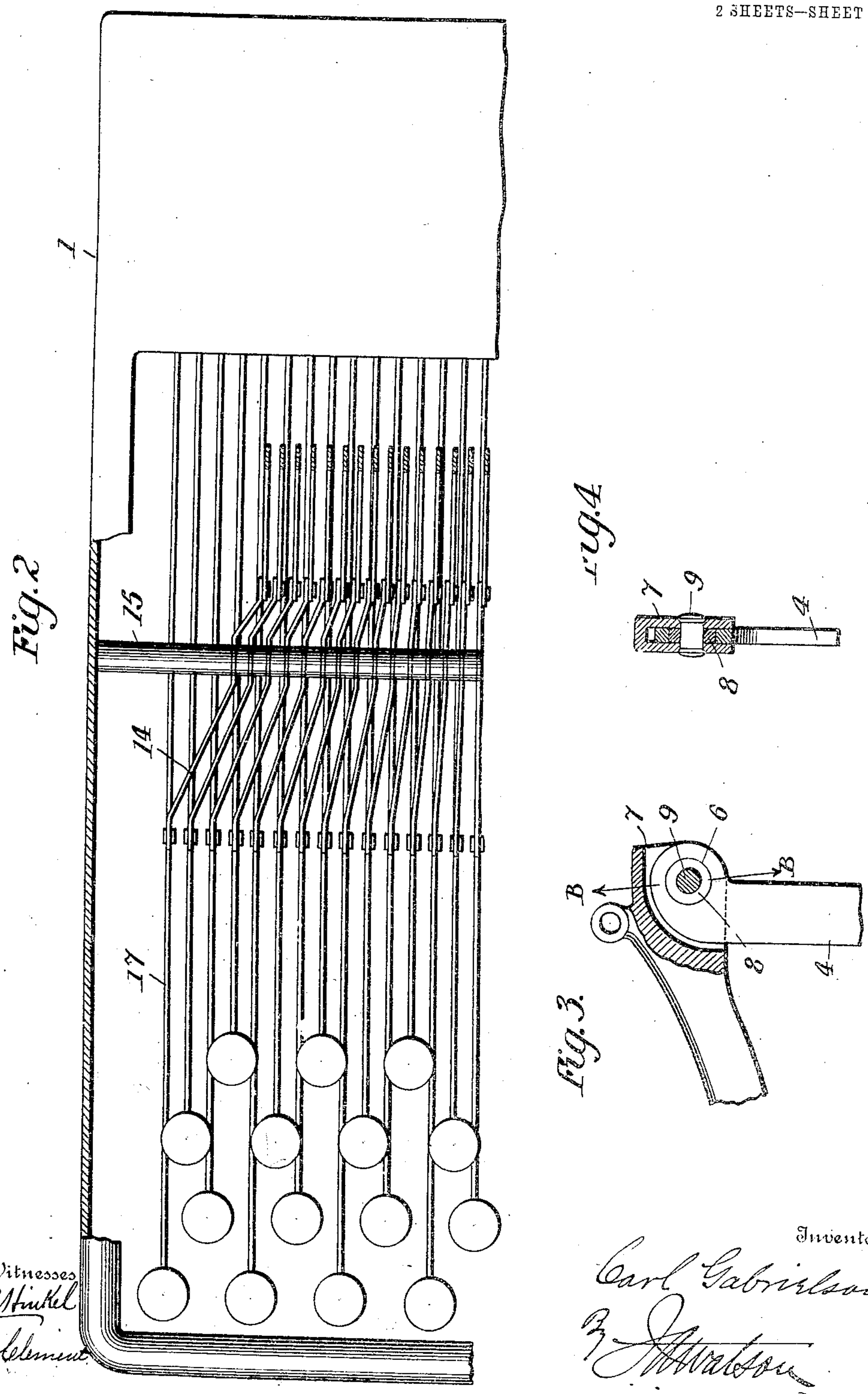

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UNITED STATES PATENT OFFICE.

CARL GABRIELSON, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO L. C. SMITH AND BROS. TYPEWRITER COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

No. 822,938. Specification of Letters Patent. Patented June 12, 1906.

Application filed February 19, 1903. Serial No. 143,897.

To all whom it may concern:

Be it known that I, CARL GABRIELSON, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention comprises improvements in type-bar-operating mechanisms of type-writing machines; and it has for its object to simplify the connections between the keys and type-bar and to improve the construction and action of said parts.

The invention will be fully described in connection with the accompanying drawings, in which—

Figure 1 is a central vertical section of a type-writing machine embodying my improvements, taken from front to rear. Fig. 2 is a plan view of half of the machine below the line A A of Fig. 1, part of the casing being broken away to show the key-levers. Fig. 3 is a side view, partly in section, showing the manner of pivoting the type-bars; and Fig. 4 is a section on the line B B of Fig. 3, illustrating the method of constructing the type-bar pivots.

Referring to the drawings, 1 indicates a suitable frame upon which the various operating parts of the machine are mounted, and 2 indicates the platen. These parts may be of any suitable construction. To avoid confusion, I have omitted from the drawings various parts of the machine which do not relate to the present invention. The type-bars 3 are pivotally connected, as shown, to hangers 4, which hangers are arranged in slots or notches 5 in a type-bar support 6, the hangers being arranged radially to the printing-point.

This invention includes a novel means of connecting the type-bar to its hanger or support, which I shall now describe. The hanger, which may be of the form shown or of any other suitable form, is pierced by a hole 6, which forms the bearing for the journal of the type-bar. The pivotal end of the type-bar is U-shaped in cross-section, as shown at 7, Fig. 4, and in the two wings of the U-section are two opposite holes of less diameter than the hole 6 in the hanger. A hardened-steel ring 8 is placed in the opening 6 of the hanger. This ring is substantially the same as the hanger in thickness and of such diameter that it will have a free working fit in the hanger. The inner opening in the ring is preferably of the same diameter as the openings in the type-bar. The type-bar is then made to embrace the hanger, as shown in Figs. 3 and 4, and a rivet 9 is passed through and headed, so as to connect the type-bar rigidly with the hardened ring 8. The opening between the wings of the type-bar is such that it will work freely, but without lost motion, on the hanger 4. I thus provide the type-bar with a hardened-steel pivot or journal. I may, if desired, also harden the end of the hanger in which the pivot 8 works. These bearings are inexpensive and very durable, and owing to their shape and character they preserve the alinement of the type.

The type-bars are connected by links 10 with the upper arms of a series of upright sublevers 11, which are pivotally supported at intermediate points by a bar 12. The lower arms of these upright sublevers have a pin-and-slot connection 13 with the rear ends of horizontal sublevers 14, which levers are also pivoted intermediate of their ends to a bar 15. As shown, the pins are arranged at the rear ends of the horizontal sublevers, and they are provided with antifriction-rollers 16, which run in slots in the levers 11. The forward ends of the horizontal sublevers are connected by links 17 with key-levers 18. The upright sublevers are arranged closer together than the key-levers, and the horizontal sublevers are arranged in substantially radial lines or in fan shape, as shown in Fig. 2. The bearing portions of each horizontal sublever 14 are preferably arranged in parallel planes, as shown in Fig. 2—that is, the portions which connect with the upright sublevers, the bar 15 and the link 17. The intermediate portions of the sublevers 14 are arranged in substantially radial lines and the three bearing portions of each sublever are thus arranged in a straight line. This construction prevents any tendency to lateral or rocking movement in the horizontal sublevers.

In the rear of the upright sublevers I arrange a corresponding series of spring-tongues 19, against which the sublevers strike as their corresponding type-bars approach the platen.

These springs throw back the type from the platen, improving and quickening their action, and tend to prevent double impression or "shadowing." As shown, these springs are connected to the bar 12, which supports the upright sublevers. The key-levers are preferably provided with springs 20, which return the keys and their connections to their normal positions.

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

1. In a type-writing machine, the combination of a series of parallel key-levers, a series of sublevers arranged closer together than the key-levers and a second series of sublevers connected respectively to the sublevers of the first-named series and to the key-levers, the sublevers of said second series having intermediate bearings arranged in line with their said connections whereby a rocking tendency is prevented.

2. In a type-writing machine, the combination of a series of key-levers, a series of upright sublevers arranged closer together than the key-levers, and a series of horizontal sublevers arranged in fan form, each horizontal sublever being connected at one end with a key-lever and at the other end with an upright sublever and having its operative points in a straight line.

3. In a type-writing machine, the combination of a series of key-levers, a series of upright sublevers arranged closer together than the key-levers, a series of horizontal sublevers connecting the key-levers with the upright sublevers, and intermediate bearings for said horizontal sublevers, the bearing or connecting portions of each horizontal sublever being in parallel planes and being arranged in substantially a straight line, whereby rocking tendency is prevented.

4. In a type-writing machine, the combination of a series of front-strike type-bars, a series of upright sublevers, a series of key-levers, said sublevers being arranged closer than the key-levers, a series of horizontal sublevers, connections between the upright sublevers and the type-bars, and connections between the horizontal sublevers and the key-levers, the said horizontal sublevers being arranged in fan form and each of said levers having its operative points in a straight line.

5. In a type-writing machine, a type-bar joint comprising a hanger, a hardened-steel ring having a working fit in said hanger, a type-bar having a U-section embracing said hanger and ring and a rivet passing through the type-bar and ring and rigidly connecting the same.

In testimony whereof I affix my signature in presence of two witnesses.

CARL GABRIELSON.

Witnesses:
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EDW. P. KING.