

931,410.

C. W. GOOCH.
 ADDING MACHINE.
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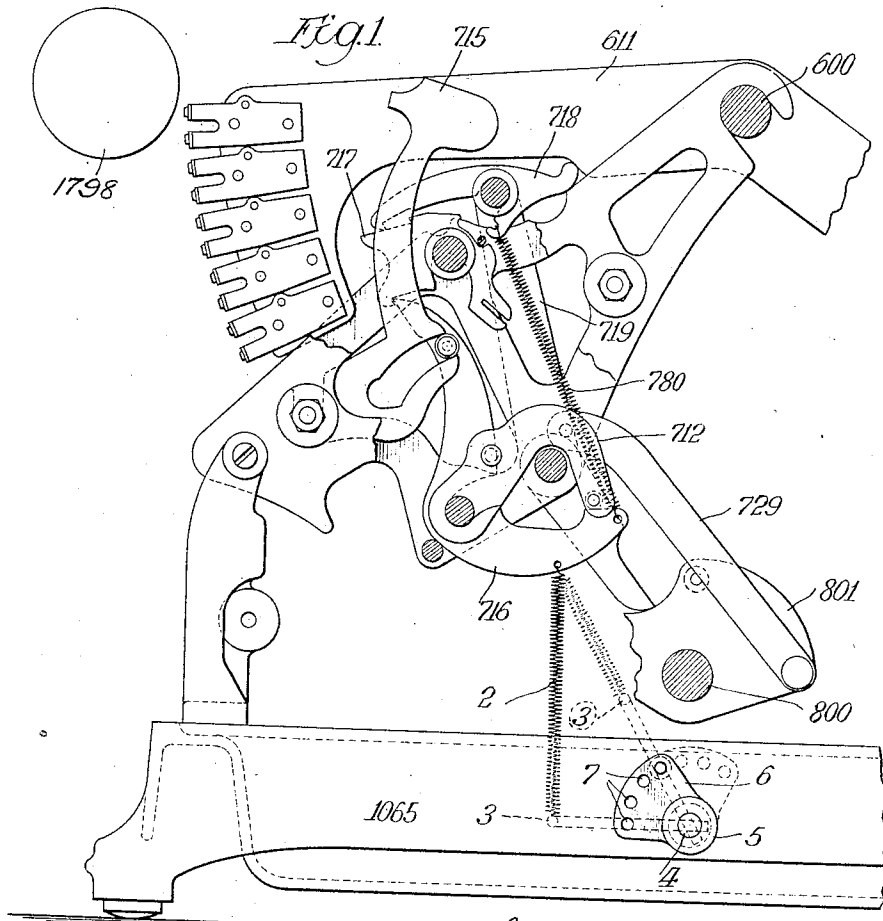
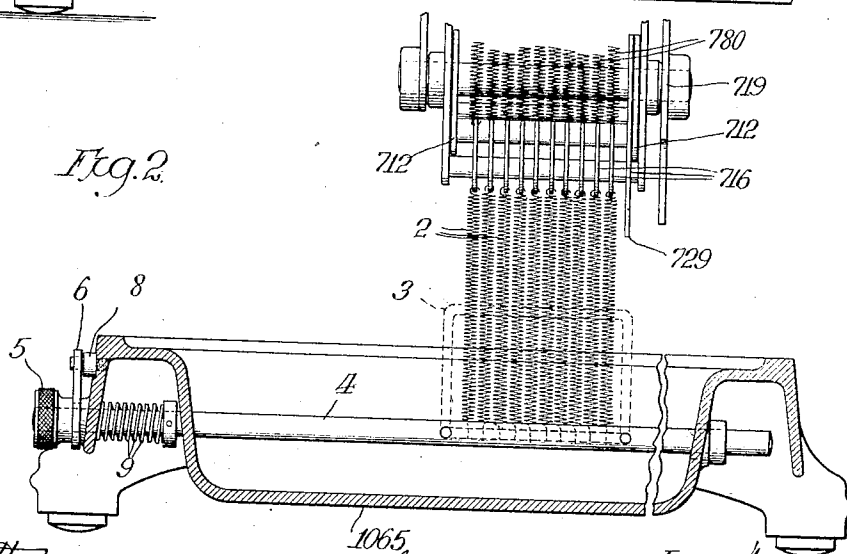


Fig. 2.



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UNITED STATES PATENT OFFICE.

CLAIBORNE W. GOOCH, OF LYNCHBURG, VIRGINIA, ASSIGNOR TO BURROUGHS ADDING MACHINE COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

ADDING-MACHINE.

No. 931,410.

Specification of Letters Patent.

Patented Aug. 17, 1909.

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To all whom it may concern:

Be it known that I, CLAIBORNE W. GOOCH, a citizen of the United States, residing at Lynchburg, in the county of Campbell and State of Virginia, have invented certain new and useful Improvements in Adding-Machines, of which the following is a specification.

The present invention relates more particularly to the recording or printing mechanism of an adding machine, and the object is to provide an improved form of means for regulating the force of the blow of the hammers which drive the type against the platen. This is desirable in order to provide for properly adjusting the machine to the work in hand. Thus when a considerable number of carbon copies are to be made greater force in the hammer blow is necessary than when a less number of carbon copies or no carbons at all are to be produced. Of course with the hammer-actuating devices arranged to effect a printing blow sufficient for the maximum number of carbon copies the machine would be equipped to perform all sorts of work without absolutely requiring different adjustments for different kinds of work in hand. However, the use of the machine with hammer-actuating springs under excessive tension would be productive of undue wear and so it is desirable to provide for regulating the tension of such springs according to the requirements of the work to be performed.

In the present instance the invention is shown and described as adapted to a well-known form of adding machine, to-wit the Burroughs machine exemplified in prior patents Nos. 504,963 and 505,078 issued September 12, 1893. It is to be understood, however, that the invention may be adapted to other types of adding machines.

In the accompanying drawings which form part of this specification Figure 1 represents in left side elevation, partly in section, a sufficient portion of an adding machine of the Burroughs type to show the present invention embodied therein; and Fig. 2 represents a partial cross-section of such machine, the parts introduced for carrying out the present invention appearing in front elevation.

Many of the mechanical elements illustrated in the drawings do not differ in form

or arrangement from those familiarly employed in the well-known Burroughs machine and hence require no extended discussion although they will be briefly referred to inasmuch as the new parts for carrying out the present invention are more or less directly associated with them.

The reference numeral 600 designates a cross-shaft on which are loosely hung a series of levers 611 with segmental rear ends carrying type plates 618.

The reference numeral 1798 designates a roller platen against which the type plates are driven by hammers 715, the latter being pivotally mounted and operatively engaged with the driving levers 716, also pivotally mounted. The latter have springs 780 connected with them and tending to impel them rearwardly and thus drive the hammers against the type plates. Said driving levers are normally restrained by latches 717 pivoted upon a suitable cross-shaft and engaging the upper ends of the driving levers respectively. The displacement of these latches to release the hammers is brought about through pawls 718 engaging shoulders of the latches, these pawls being pivotally mounted upon the cross-bar or rod of a bail 719 which vibrates at each operation of the machine. The springs 780 are connected with said pawls so as to serve the double purpose of actuating the driving levers 716 and holding the pawls in engagement with the latches. The hammers and their drivers are retracted by a bail 712 which is connected by a link 729 with a crank plate 801 on a rock-shaft 800 which oscillates in every operation of the machine.

All of the above designated mechanical elements are old and they operate in a well-known manner. However, in the present instance the springs 780 are made considerably stronger than corresponding springs usually employed. These springs in the present instance are made strong enough to drive the hammers with the maximum force. As before stated undue wear would result from the action of such springs when the work in hand does not require such force in the hammer blow as when less than the maximum number of carbon copies are to be made or no carbon copies at all.

In carrying out the present invention

means are provided for lessening the force of the springs 780 in varying degree according to the work in hand. Thus additional springs 2 are attached to the forwardly-extending portions of the driving levers 717 so as to act in opposition to the springs 780. These additional springs are attached to the cross-rod of a bail 3 whose side arms are secured to a rock-shaft 4 journaled in the base casting 1065 of the machine. When the springs 2 are in line with the bail as illustrated in dotted lines in Fig. 1 they present no appreciable resistance to the full action of the springs 780 in delivering the hammer blow. However, by swinging the bail 3 rearwardly and downwardly the springs 2 may be put under tension in varying degree so as to offer more or less resistance to the springs 780 although of course when stretched to the limit the springs 2 will not offer sufficient resistance to prevent the springs 780 from causing an effective hammer blow. The adjustment of the springs 2 is brought about through the turning of the rock-shaft 4 and to facilitate this said shaft has one end projecting beyond the base casting of the machine and equipped with a thumb-piece or knob 5. For the purpose of locking the bail in different adjustments there is secured to the rock-shaft just in rear of said knob a segmental plate 6 with a series of perforations or apertures 7 and there is mounted upon the base casting 1065 a screw stud 8 designed to engage any one of said apertures. The rock-shaft 4 is permitted a slight longitudinal movement sufficient to disengage the plate 6 from said pin or stud so that it may be turned to different positions and the plate reengaged with the stud. A spiral spring 9, surrounding the shaft between the collar thereon and a part of the base casting 1065, normally holds said plate engaged with the stud.

It will be seen that the above-described construction provides means under control of the operator whereby the force of the hammer blow can be readily regulated according to the requirements of the work in hand and thus the object of the invention is fulfilled. While the particular form of means above described is well adapted to the fulfillment of that object it is nevertheless to be understood that modifications may be made without necessarily departing from the scope of the invention.

What is claimed is:

1. In a machine of the character described, the combination of a hammer adapted to strike a printing blow, a spring for actuating said hammer to effect such blow with maximum force, and means for counteracting said spring in varying degree.

2. In a machine of the character described, the combination of a hammer adapted to strike a printing blow, a spring for actuating

said hammer, and a second spring acting upon said hammer in opposition to the first-mentioned spring and adjustable as to tension for varying the force of the printing blow of the hammer.

3. In a machine of the character described, the combination of a hammer adapted to strike a printing blow, a spring for actuating said hammer, a second spring acting upon said hammer, and means for adjusting the latter spring to vary the force of the printing blow effected by the first-mentioned spring.

4. In a machine of the character described, the combination of a printing hammer, a spring for actuating the same, a second spring acting in opposition to the first-mentioned spring, and means for varying the tension of the second spring to vary the force of the printing blow of the hammer.

5. The combination with a platen, type, a pivoted hammer to drive the type against the platen, a pivoted driver for said hammer, and a spring actuating said driver; of a second spring applied to the latter in opposition to the first-mentioned spring, and means for varying the tension of said second spring.

6. In a machine of the character described, the combination of a printing hammer, a spring for actuating the same, a second spring acting in opposition to the first-mentioned spring, and means for varying the tension of the second spring to vary the force of the printing blow of the hammer, said means comprising an adjustable arm supporting one end of said second spring.

7. In a machine of the character described, the combination of a printing hammer, a spring for actuating the same, a second spring acting in opposition to the first-mentioned spring, and means for varying the tension of the second spring to vary the force of the printing blow of the hammer, said means comprising a pivoted arm supporting one end of said second spring and adapted through its pivotal movement to vary the tension thereof.

8. In a machine of the character described, the combination of a printing hammer, a spring for actuating the same, a second spring acting in opposition to the first-mentioned spring, and means for varying the tension of the second spring to vary the force of the printing blow of the hammer, said means comprising an adjustable arm supporting one end of said second spring, and means for locking said arm at different adjustments.

9. In a machine of the character described, the combination of a printing hammer, a spring for actuating the same, a second spring acting in opposition to the first-mentioned spring, means for varying the tension of the second spring to vary the force of the printing blow of the hammer, said means comprising a pivoted arm supporting one end of said second spring and adapted through

its pivotal movement to vary the tension thereof, and means for locking said arm at different adjustments.

10. The combination with a platen, type, 5
a pivoted hammer to drive the type against the platen, a pivoted driver for said hammer, and a spring actuating said driver; of a second spring attached at one end to the latter and acting in opposition to said first-mentioned spring, and an arm supporting the 10
other end of said second spring and adjustable to vary the tension thereof.

11. The combination with a platen, type, 15
a pivoted hammer to drive the type against the platen, a pivoted driver for said hammer, and a spring actuating said driver; of a second spring attached at one end to the latter and acting in opposition to said first-mentioned spring, and a pivoted arm supporting 20
the other end of said second spring and adapted through its pivotal movement to vary the tension thereof.

12. The combination with a platen, type, a pivoted hammer to drive the type against

the platen, a pivoted driver for said hammer, 25
and a spring actuating said driver; of a second spring attached at one end to the latter and acting in opposition to said first-mentioned spring, an arm supporting the other 30
end of said second spring and adjustable to vary the tension thereof, and means for locking said arm at different adjustments.

13. The combination with a platen, type, a pivoted hammer to drive the type against 35
the platen, a pivoted driver for said hammer, and a spring actuating said driver; of a second spring attached at one end to the latter and acting in opposition to said first-mentioned spring, a pivoted arm supporting the 40
other end of said second spring and adapted through its pivotal movement to vary the tension thereof, and means for locking said arm at different adjustments.

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