No. 614,383. Patented Nov. 15, 1898.

W. R. GILBERT.

ADDING MACHINE.

(Application filed Mar. 19, 1898.)

(No Model.)

Fig. 1

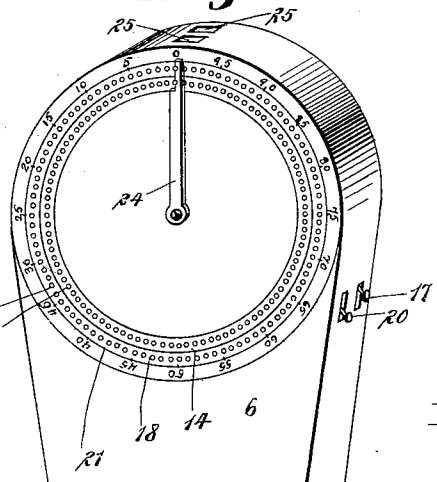


Fig. 5

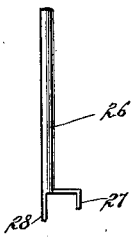


Fig. 2

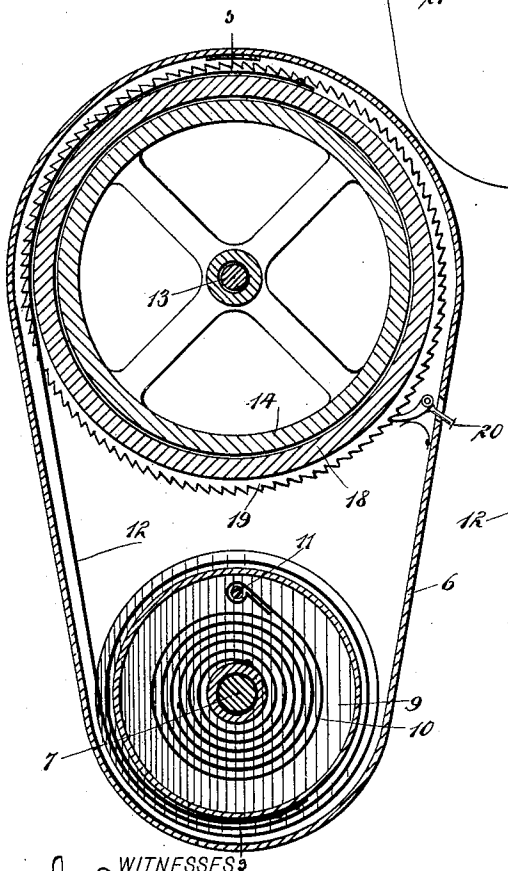


Fig. 4

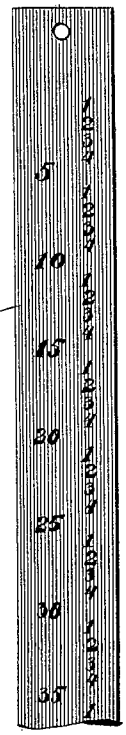
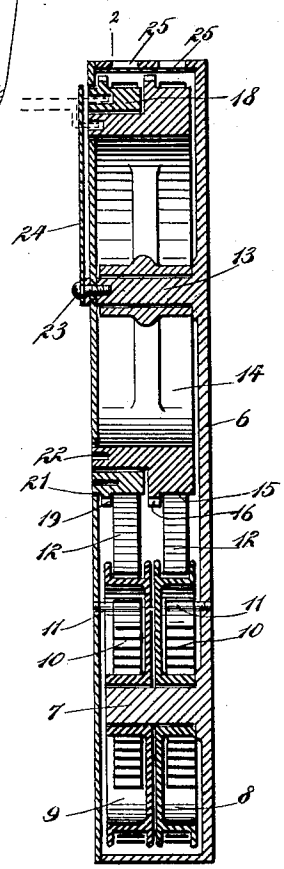


Fig. 3



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WILLIAM R. GILBERT, OF BINNSVILLE, MISSISSIPPI.

ADDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 614,383, dated November 15, 1898.

Application filed March 19, 1898. Serial No. 674,475. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. GILBERT, of Binnsville, in the county of Kemper and State of Mississippi, have invented a new and Improved Adding-Machine, of which the following is a full, clear, and exact description.

This invention is an adding-machine of compact and readily-portable form and of that class in which a tape or tapes are wound over reels and drawn from one to the other to expose figures arranged progressively on the tape or tapes, and thus show the total of the several amounts that have been added.

This specification is the disclosure of one form of my invention, while the claims define the actual scope of the invention.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view of the machine. Fig. 2 is a sectional view 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 fragmentary face view of one of the tapes, and Fig. 5 is a detail view of the operating-key used in connection with the machine.

The apparatus has a flat oblong casing 6, the edge walls of which taper toward one end and the ends of which are rounded. Mounted in the small end of the casing and on a stub-shaft 7, held rigidly at said small end, are two reels 8 and 9. Each reel has its outer side open and contains a helical spring 10, one end of each of which is attached to the hub of the corresponding reel and the other end of each of which is attached to a pin 11, in turn attached rigidly to the side walls of the casing. The reels 8 and 9 have flanged peripheries and respectively carry thereon the tapes 12, which at the beginning of the operation of the adding-machine are wound completely on the respective reels 8 and 9.

In the large end of the casing 6 a stub-shaft 13, similar to the stub-shaft 7, is arranged. This shaft 13 carries revolubly the hub of a reel 14, which has radial spokes joining a rim, the width of which is approximately equal to the thickness of the casing 6. The rear portion of the rim of the reel 14 is provided with an annular face 15, projected out beyond the remaining part of the rim of the reel and having at its inner edge a ratchet-flange 16. Around the face 15 one end of one of the tapes 12 is passed, such end being made fast to the face 15. Coacting with the ratchet-flange 16 is a spring-pressed pawl 17, (see Fig. 1,) a part of which extends through the casing 6, so as to be operative from the exterior thereof. This pawl serves to hold the reel 14 against backward movement, which tendency the reel has, owing to the spring 10 of the reel 8, the pressure of which is exerted through the medium of the attached tape 12. Mounted and turning loosely on the remaining portion of the rim of the reel 14 is an annulus 18, the face of which carries one end of the tape 12 of the reel 9 in the same manner as the face 15 of the reel 14. The outer face of the annulus 18 has a ratchet-flange 19, which serves to hold the coacting tape 12 in place and which also coacts with a spring-pressed pawl 20, similar to the pawl 17, and serving to prevent retrograde movement of the annulus 18.

The front face of the casing 6 is provided with a circular endless slot 21, through which project the front or outer edge of the annulus 18 and the front edge of the rim of the reel 14. Each of these two projecting members is provided with a number (in the present form one hundred) of orifices 22. The front face of the casing 6 has a series of figures produced thereon and extending in an endless line around the outer edge of the slot 21, these numbers being equal to the orifices 22 in the parts 14 and 18, in the present case one hundred. The disk-shaped or circular portion of the front wall of the casing 6, encircled by the slot 21, is held rigidly in place by means of a screw 23, passing into the stub-shaft 13 and holding also a radially-extending stop-arm 24, which projects toward the large end of the casing and is held rigidly in line with the zero character of the figures produced on the front wall of the casing 6. The large end of the casing 6 is provided with two glass-covered observation-orifices 25, exposing, respectively, the two tapes 12. In using the device a key 26 is employed, which is provided with two fingers 27 and 28, running parallel with each other, and the former of which is of less length than the latter, so that the finger 28 may be inserted, for example, into one of the orifices 22 of the

reel 14 to turn said reel without affecting the annulus 18, or vice versa.

I have provided two tapes 12 and the reel 14 and annulus 18, so that the adding-machine may have a duplex character and be adapted not only for adding dollars and cents, but for keeping all sorts of tallies and performing various calculations that require two columns which may be controlled either independently or together.

In operating the apparatus, assuming that the parts are in the normal or zero position, and should it be desired to use only one tape the finger 28 of the key 26 is inserted into the orifice 22 of the annulus 18 at the point opposite the number on the casing 6, which number is to be the first of those added, and the annulus 18 is then turned through the medium of the key 26, so as to wind the coacting tape 12 on the annulus. The tapes, as shown in Fig. 4, are provided with numbers on their outer faces running consecutively from one to any amount that is desired as the limit of the capacity of the machine. The pawl 20 now serves to hold the annulus 18 in the position in which it is placed, and through one of the orifices 25 an observer will find the first number of the column added. This operation is now repeated for each number to be added, and it is obvious that one of the orifices 25 will permit the observation of the total sum. The numbers on the casing 6 and running around the slot 21 are the gage by which the operator is informed of the proper orifices 22, into which the key 26 should be inserted. The rigid stop-arm 24 being located at the zero-point of these numbers insures by the engagement of the key with the arm that the reel 14 and annulus 18 always stop at the proper point, so that no miscalculation is possible. Should it be desired to operate both the reel 14 and annulus 18 simultaneously with each other, the fingers 27 and 28 are connected, one with the reel 14 and the other with the annulus 18, as indicated by dotted lines in Fig. 3, whereupon both the said members are moved. When an operation has been completed and it is desired to return the parts to their normal or zero position, the pawls 17 and 20 are thrown upward, whereupon the ratchet-flanges 16 and 19 are released and the reel 14 and annulus 18 are drawn back by the actions of the springs 10.

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

1. An adding-machine having a casing, two independent reels mounted in one end of said casing, a spring actuating each reel to return the same to a normal position, a third reel mounted in the opposite end of the casing, an annulus turning on the periphery of the third reel, two tapes respectively attached to the two first-named reels and wound respectively around the third reel and around the annulus, the said third reel and the annulus having portions projected without the casing to permit turning the third reel and the annulus, and a stop-arm held rigidly by the casing to indicate the limit of movement to which said third reel and annulus are to be turned.

2. In an adding-machine, the combination with a casing, of two reels mounted in the casing, means actuating the reels to return them to a normal position, a third reel mounted in the casing, an annulus carried to turn on the third reel, the annulus and the third reel having portions projected without the casing whereby to turn the third reel and annulus, a ribbon wound over each of the two first-named reels the ribbons being also wound respectively over the third reel and over the annulus, and means carried by the casing and located in proximity with the third reel and annulus, to indicate the limit of movement to which such parts are to be turned.

3. In an adding-machine, the combination of a casing having a circular endless slot in one face, a reel mounted in the casing and having a portion of its periphery projected through said slot, so that access may be had to the reel to turn the same, an annulus located in the casing and mounted to turn on the periphery of the reel, and having a portion projected through the slot in the casing to permit turning the annulus, and means held by the casing and in proximity to the reel and annulus by which to indicate the limit of movement to which the reel and the annulus are to be turned.

4. An adding-machine having a casing, with a circular endless slot in one face thereof, two reels mounted in the casing, a spring actuating each reel to return the reels to their normal positions, a third reel mounted in the casing and having a portion of its periphery projected through the slot thereof, a pawl engaging the third reel to prevent retrograde movement thereof, an annulus mounted to turn on the periphery of the third reel and also having a portion projected through the slot in the casing, the pawl engaging the annulus to prevent retrograde movement thereof, two tapes respectively attached to the two first-named reels and respectively wound over the third reel and over the annulus, and a stop-arm carried rigidly by the casing and extending across the slot therein to limit the movement to which the third reel and annulus are to be moved.

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Witnesses:
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R. M. QUARLES.