

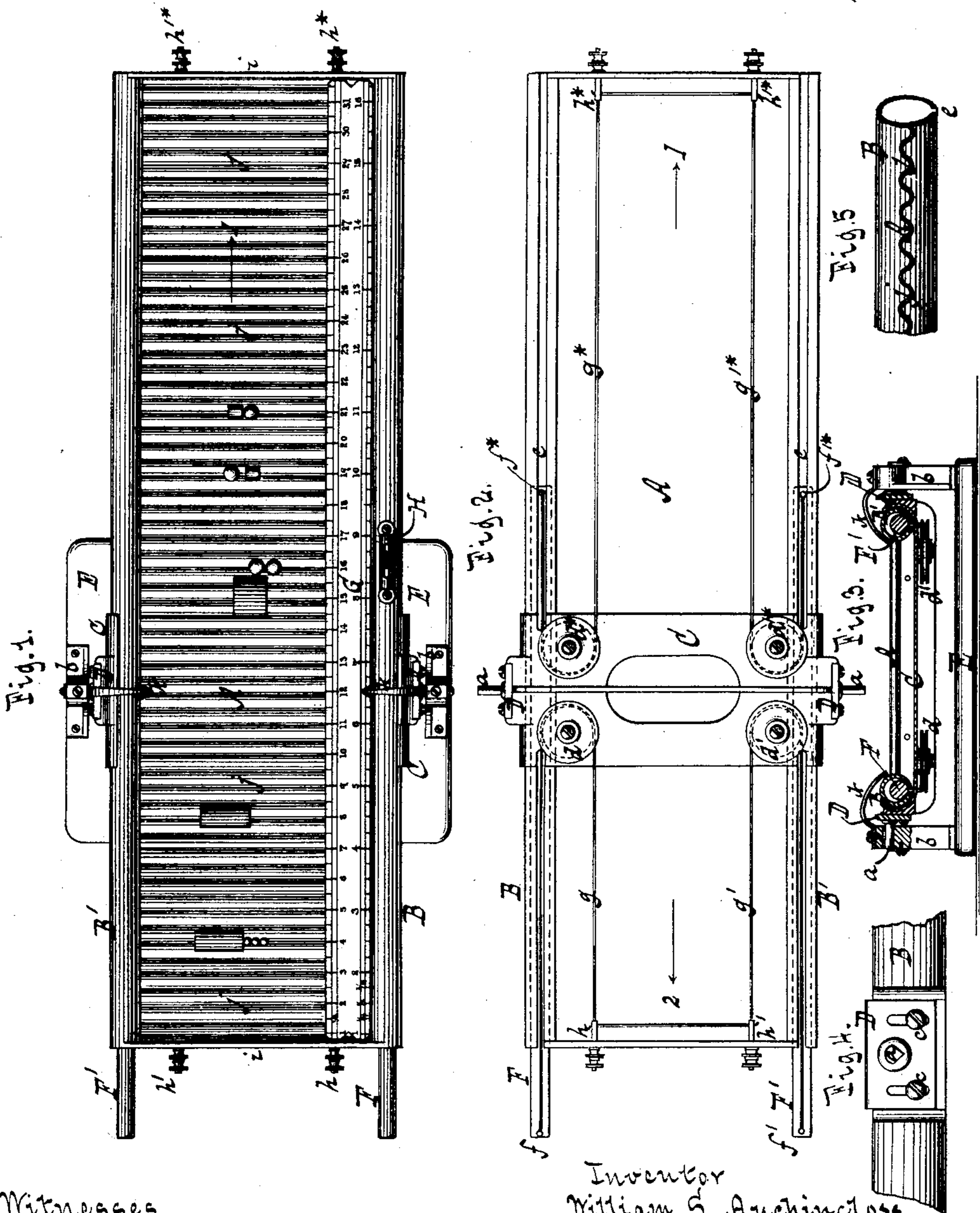
(No Model.)

W. S. AUCHINCLOSS.

AVERAGING MACHINE.

No. 257,430.

Patented May 2, 1882.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM S. AUCHINCLOSS, OF PHILADELPHIA, PENNSYLVANIA.

AVERAGING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 257,430, dated May 2, 1882.

Application filed February 16, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. AUCHINCLOSS, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented new and useful Improvements in Averaging-Machines, of which the following is a specification.

This invention relates to an improvement on that class of machines which I have described in Letters Patent No. 235,723, dated December 21, 1880, said improvement consisting principally in the combination of the platform with the pivots or knife-edge bearings on which said platform oscillates, and with mechanism for changing in a horizontal direction the relative position of the platform and its bearings, said platform being provided with a series of suitable grooves or receptacles to receive representative weights, and corresponding to marks on a scale, as will more fully appear hereinafter. With the platform are combined counter-weights, which when the platform is moved in one direction move out in the opposite direction, so as to preserve the equilibrium of said platform on its bearings in any position into which said platform may be moved.

My invention further relates to some details in the construction of the machine, as fully explained in the following specification.

In the accompanying drawings, Figure 1 represents a plan or top view of my machine. Fig. 2 is an inverted plan of the same. Fig. 3 is a transverse vertical section of the same. Fig. 4 is a face view of one of the plates which carry the knife-edge bearings on a larger scale than the previous figures. Fig. 5 is a partial longitudinal section on a larger scale than Figs. 1, 2, and 3.

Similar letters indicate corresponding parts.

In these drawings, the letter A designates the platform, which in the example shown is provided with tubular side bars, B B', and which rests in the saddle C, the edges of which are curved up to fit the side bars, B B', (see Fig. 3,) so that the platform can be moved in the direction of its length on said saddle, or if the platform is held stationary the saddle can be moved in the direction of the length of said platform.

On each end of the saddle C is secured a plate, D, (best seen in Fig. 4,) and from these

plates extend the knife-edge bearings *a a*, Figs. 2 and 3; the seats of which are in standards *b b*, rising from the base E. The plates D are secured to the saddle C by screws *c c*, passing through slots, so that said plates, together with the knife-edge bearings, can be adjusted up and down and the knife-edge bearings can be brought in the proper relation in regard to the center of gravity of the platform A.

Into the tubular side bars, B B', of the platform A are fitted cylindrical bars F F', which form the counter-weights, which will be hereinafter more fully explained. From the under sides of these counter-weights project pins *f f* f' f'**, (best seen in Fig. 2,) which extend through slots *e* in the tubular side bars, B B'.

On the bottom plate of the saddle C are secured four pulleys, *d d* d' d'**, and from the pins *f f* f' f'** extend chains *g g* g' g'** round the pulleys *d d* d' d'** respectively, to eyebolts *h h* h' h'**, which are secured in the end pieces, *i i*, of the platform, and which serve to keep the chains taut. If the platform is drawn out in the direction of arrow 1, the counter-weights F F' are moved in the opposite direction by the action of the chains *g* g'**, and if the platform is drawn out in the direction of arrow 2 the counter-weights F F' are moved in the opposite direction by the action of the chains *g* g'**, the motion imparted to the counter-weights being always twice that imparted to the platform. The weight of the counter-weights, together with the chains, is so adjusted that the equilibrium of the platform is preserved when it is drawn out in one direction as well as when it is drawn out in the opposite direction or brought in its central position, provided the paper scale G is placed upon the platform. This paper scale consists of a piece of pasteboard about one inch wide and just long enough to drop between the end bars of the platform, and its weight must be taken into account, because when the platform is drawn out the paper scale moves with it—or, in other words, because this paper scale, when placed upon the platform, forms in fact an integral part of said platform. Of course this scale may be made of sheet metal or any other material.

The platform is provided with a series of transverse grooves, *j*, which are at equal dis-

tances apart and correspond to the marks on the paper scale. In practice I make the platform of corrugated sheet metal, as indicated in Fig. 5.

5 On the standards *b b* are fixed indices *k k*, which project over the side bars of the platform and point to the grooves *j*, or to the marks on the paper scale. On one of the side bars, *B*, is secured a spirit-level, *H*.

10 The following example will readily explain the operation of my machine. A man buys the following lots of goods:

	On the 4th of the month for	\$530
	On the 8th " " "	500
15	On the 15th " " "	1,000
	On the 16th " " "	200
	On the 19th " " "	150
	On the 21st " " "	150

20 \$2,530

Place one weight representing 500 and three weights representing 10 each into groove No. 4 of the platform *A*; one weight representing 500 into groove No. 8; one weight representing 1,000 into groove No. 15; one weight representing 200 into groove No. 16; one weight representing 100 and one representing 50 into groove No. 19; one weight representing 100 and one representing 50 into groove No. 21, the number of each groove being indicated by the inner row of figures on the paper scale. Then draw out the platform in the direction of arrow 1 until the equilibrium is restored, and the Figure 12 opposite to the indices *k* gives the average date of purchase—that is to say, the man who bought the above lots, say, on thirty days, would have to pay \$2,530 on the 12th of the following month.

40 If payments are to be calculated for sixty or for ninety days, the average date of purchase is found in the same way, and the paper scales can readily be marked off to correspond to different problems. In fact, I propose to add to each of my machines a number of different scales—such, for instance, as for one month, for two months, for four months, for eight months, also for fifteen days, for thirty-one days, for sixty-two days, for one hundred and twenty-four days, and so on, as may be required by the purchaser and by the nature of the problem to be solved by my machine.

From the foregoing description it will be seen that by means of my machine I am enabled to determine the center of gravity of any combination of representative weights by retaining said weights in suitable grooves or guides on a platform perfectly balanced on suitable bearings, and then moving said platform or its bearings, or both, horizontally until the combination of weights is in equipoise about the common bearings or fulcrum, and thereby their point of common effect or their average location is ascertained.

65 It will be noticed from this description that in the apparatus above described the representative weights have no counter-balance

whatever, and the platform alone has a counter-balance, while in the apparatus described in my Patent, No. 235,723, the representative weights and the platform have separate and distinct counter-balances. 70

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

1. The combination, substantially as hereinbefore described, of the platform provided with a series of suitable grooves or receptacles to receive the representative weights, and corresponding to the marks on a scale, the pivots or knife-edge bearings on which said platform oscillates, and mechanism for changing in a horizontal direction the position of said platform in relation to its bearings. 75 80

2. The combination, substantially as hereinbefore described, of the platform provided with a series of suitable grooves or receptacles to receive the representative weights, and corresponding to the marks on a scale, the pivots or knife-edge bearings on which said platform oscillates, mechanism for changing in a horizontal direction the position of said platform in relation to its bearings, and the counter-weight. 85 90

3. The combination, substantially as hereinbefore described, of the platform provided with a series of suitable grooves or receptacles to receive the representative weights, and corresponding to the marks on a scale, the saddle which supports said platform and allows of moving the same in the direction of its length, and the knife edge bearings extending from the saddle. 95 100

4. The combination, substantially as hereinbefore described, of the platform provided with a series of suitable grooves or receptacles to receive the representative weights, and corresponding to the marks on a scale, the saddle which supports said platform and allows of moving the same in the direction of its length, the knife-edge bearings extending from the saddle, and a counter-weight connected to the platform so as to move in a direction opposite to that in which the platform is moved. 105 110

5. The combination, substantially as hereinbefore described, of the platform, the saddle which supports the platform and allows of moving the same in the direction of its length, the knife-edge bearings extending from the saddle, the counter-weights connected to the platform, the pulleys secured on the saddle, and the chains or cords extending from the counter-weights round the pulleys to the platform. 115 120

6. The combination, substantially as hereinbefore described, of the platform, the saddle which supports said platform and allows of moving the same in the direction of its length, the knife-edge bearings extending from the saddle, the tubular side bars of the platform, the counter-weights fitted into said side bars, and mechanism for connecting the counter-weights and the platform so as to cause them, when moved, to move in opposite directions. 125 130

7. The method, substantially as hereinbefore described, of determining the point of common effect or the average location of a number of representative weights by distributing said weights on a balanced platform and then changing in a horizontal direction the position of said platform in relation to its bearings without disturbing the equilibrium of the platform until the representative weights are

in equilibrium in regard to the bearings of the platform.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

WM. S. AUCHINCLOSS. [L. S.]

Witnesses:

JOSEPH WILLIAM BATES,
JOHN W. WHITE.