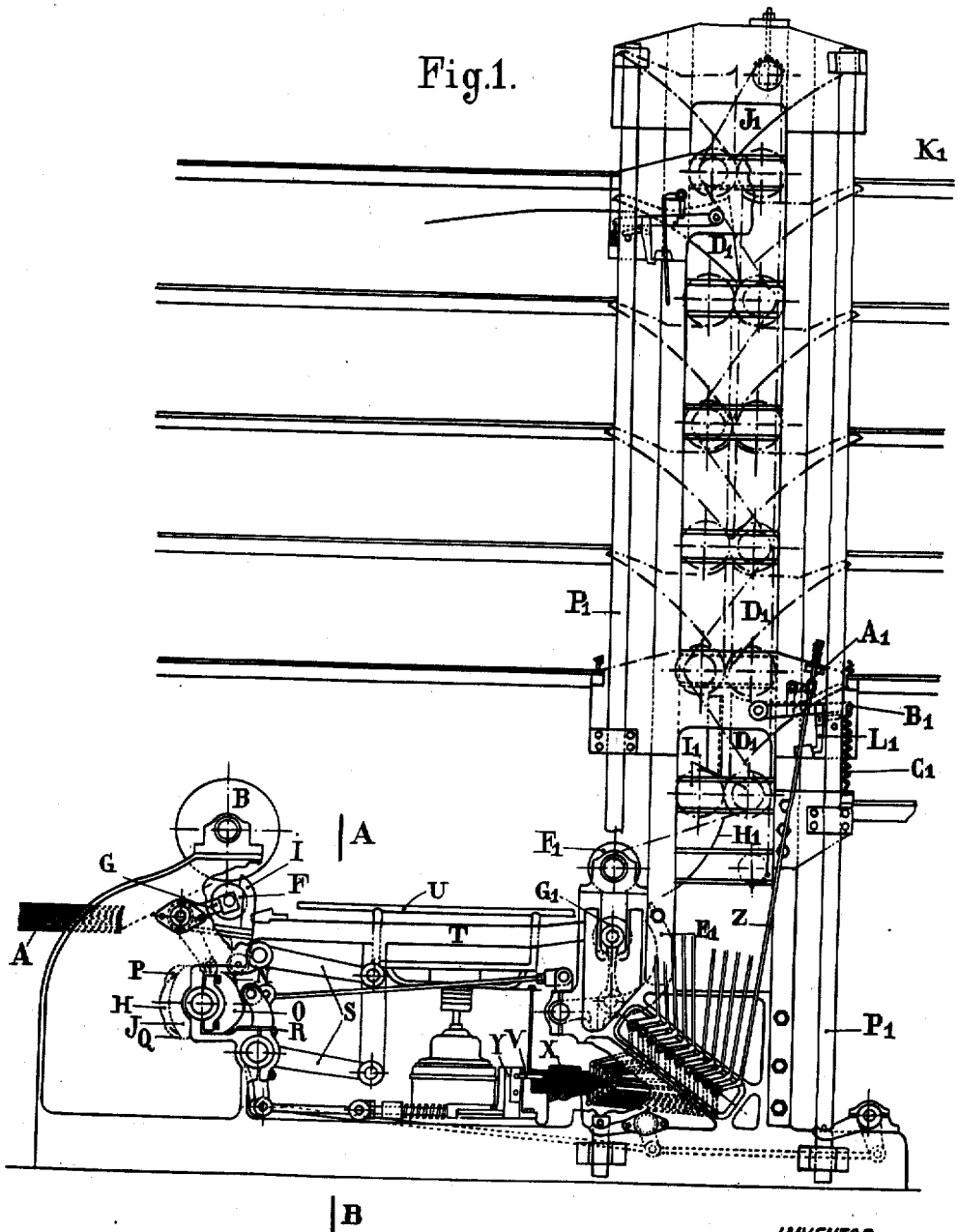
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H. PETIN

WEIGHT OPERATED PLATE OR SHEET SORTING MACHINE

Filed Feb. 5, 1926 3 Sheets-Sheet 1

Fig.1.



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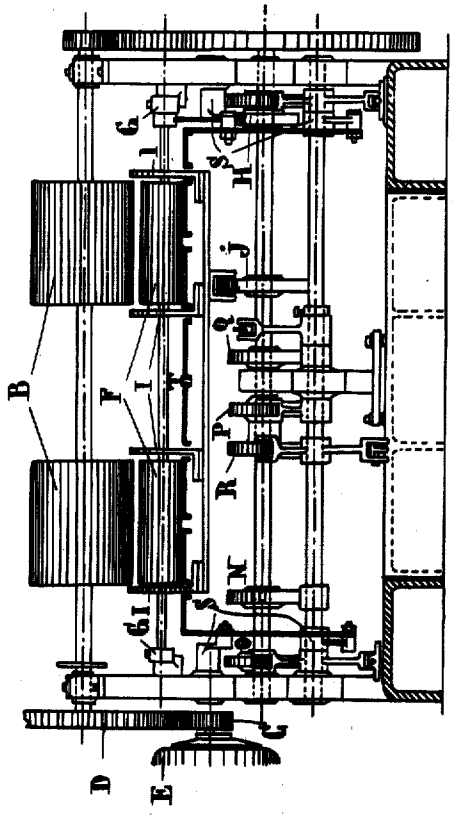
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WEIGHT OPERATED PLATE OR SHEET SORTING MACHINE

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Fig. 2



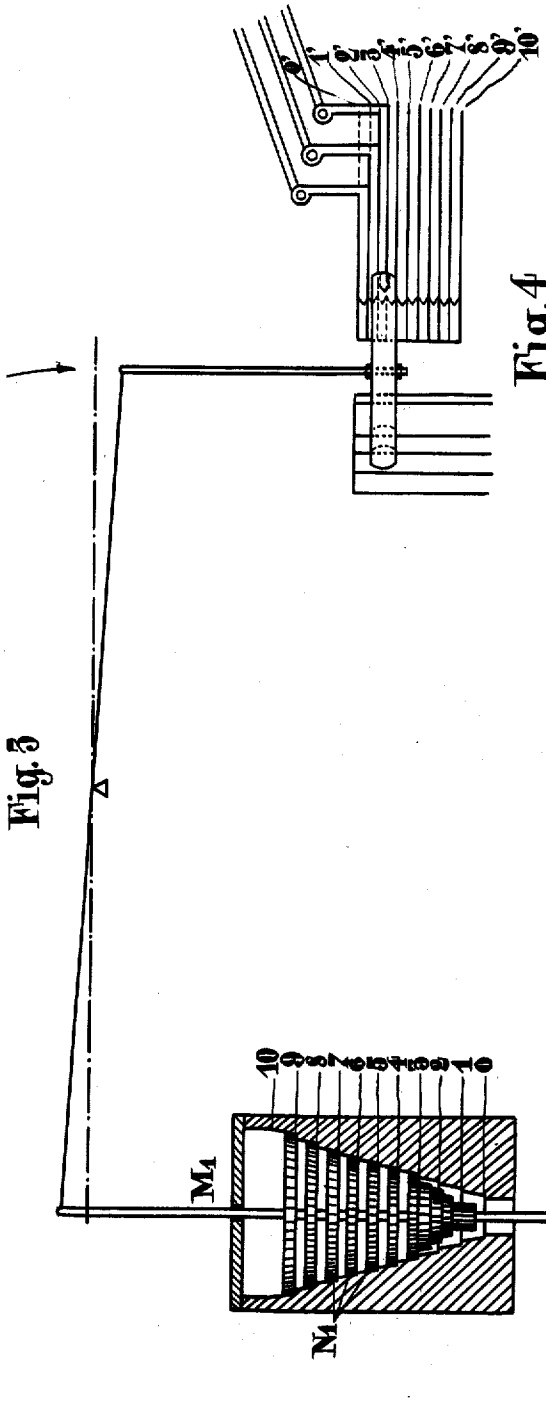
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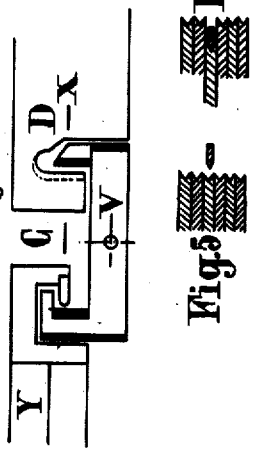
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WEIGHT OPERATED PLATE OR SHEET SORTING MACHINE

Filed Feb. 5, 1926 3 Sheets-Sheet 3





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Patented Jan. 18, 1927. 1,614,630

UNITED STATES PATENT OFFICE.

HECTOR PETIN, OF PARIS, FRANCE, ASSIGNOR TO SOCIÉTÉ ETABLISSEMENTS J. J. CAMAUD & FORGES DE BASSE-INDRE, OF PARIS, FRANCE.

WEIGHT-OPERATED PLATE OR SHEET SORTING MACHINE.

Application filed February 5, 1926, Serial No. 86,258, and in France December 28, 1925.

Up to the present time, it has been usual to effect the sorting of tin plates or sheets by hand, by more or less skilled work-girls who, by guesswork and simply by lifting the sheets, pick out the heavier ones. Obviously such a method involves both heavy cost and slight accuracy. Ordinary scales are also used for the purpose, but this manner of sorting entails much time and expense, while not free from errors since the arrangement in stacks is still effected by hand.

The object of my invention is to provide a machine that will do away with these drawbacks, being fool-proof and adapted automatically to sort plates or sheets in a number of different stacks, each of which can be restricted within as close weight limits as desired.

As will be readily realized, the improved machine is suitable for classifying, i. e. sorting and stacking, any thin plates or sheets of different weights, whatever their nature and purpose.

To achieve this object I take advantage of the various positions successively occupied under different loads by the pan of an ordinary balance fitted with a special device permitting the pan to be stopped always in one and the same position whenever carrying a plate or sheet weighing within predetermined weight limits and possessing, therefore, a predetermined thickness.

At each of the said balanced positions the pan operates a finger which moves in front of a set of slides, each of which corresponds to a predetermined position of the pan.

Actuated by a suitable pulling member, said finger operates the proper slide which, through levers, opens a corresponding chamber or compartment whereinto the weighed plate or sheet is selectively delivered, any such compartment being always the same for one and the same position of the pan.

In order to make the invention more clearly understood, I have illustrated, as an example, an embodiment thereof in and by drawings appended hereto and wherein:

Figure 1 is a side elevation of a machine constructed in accordance with the invention.

Figure 2 is a sectional view of the same on line A—B of Figure 1;

Figure 3 shows a detail of the coupling-finger V, the slides X and the device M^1 hereinafter described.

Figure 4 is a top plan view of the said finger and slides.

Figures 5 and 6 are sectional views on line C—D of Figure 4.

In all the figures the same reference letters denote the same parts.

It will be assumed for present purposes that the machine comprises a double balance, sorting and arranging in eleven classes at least forty plates or sheets per minute.

Such a machine includes, from left to right as one looks at the drawing, a guide-table A permitting the plate or sheet to be fed by hand or by an automatic feeder into immediate contact with the lower parts of a pair of steel rollers B (Fig. 2). The latter are revolved from a suitable motor E through gearing C, D. A second pair of rollers F, supported by movable arms G, are loose on their shaft and serve to press the sheet or plate against the rollers B so as to ensure a drive. A cam H transmits to rollers F, through a lever, an up and down motion. Said motion, combined with the motion of the pairs of tappets I controlled by a cam J, is such that the rollers F are out of the way when the tappets are in their upper position. A cam-shaft, revolved at a suitable minimum speed, carries, between the two cams H and J, five other cams N, O, P, Q, R. The first one N controls, through a parallel motion device S, the vertical movement of a frame T intended to receive the sheet when said sheet issues from the feeding rollers and to lay it on the pan U of the balance. To effect this, said frame, which is constituted by light channel-steel work, is so arranged as to pass in the course of its upward motion through suitable recesses provided in the pan. The balance beam is connected on one side with a device M^1 Fig. 3 comprising a series of six disks N^1 arranged stepwise in a box and a number of which are lifted when the pan of the balance descends. A damper O^1 prevents oscillations liable to limit the weighing speed.

Said pan carries, hanging from a rod, a knife-finger V so shaped in cross-section

that during its vertical movements it will freely work between the slides X and the pull-rod Y.

The slides X, ten in number, constitute, in normal position, a single block from which they are adapted to be pulled forward one at a time.

This result is obtained by providing in each slide a V-shaped notch (Fig. 6) in which the adjacent end of the coupling finger V can engage.

Cam O, imparting through levers a horizontal motion to the pulling member Y and thereby to the coupling-finger, controls the release or pulling of slides X as soon as the pan is balanced.

Any displacement of a slide is transmitted to rods Z Fig. 1 which, acting on catches A^1, disengage levers B^1, which latter are acted on by springs C^1 that cause them, during their rotation, to displace shutters D^1 on the axis of which they are keyed.

On the right hand side of the movable frame T is found the same arrangement as on its left hand side, a pair of tappets E^1, controlled by a cam P and two pairs of rollers F^1 and G^1.

The first pair of rollers F^1 is stationary, is rotated at a speed higher than the one at which the pair of feeding rollers B is revolved. The second pair G^1 is loose and on its shaft and is moved up and down by a cam Q.

This motion is such that the rollers G^1 remain at the bottom of their travel during weighing and then rise to start the sheet; said sheet being fed by a sheet-iron guide H^1 between the first two rollers I^1 of a series of six pairs.

Said sheet is led by a series of six pairs of rollers arranged vertically and spaced by intervals corresponding to the sorting chambers or compartments.

A pathway formed by the back of shutters D^1 succeeding pairs of equally coupled continues to guide the sheet between the rollers.

The end of that pathway leads by means of a second sheet-iron guide J^1 to a chamber or compartment K^1 intended for the overheavy plates or sheets.

The other sheets are diverted from their path to the sloping shutters released by the mechanism and are led to the chambers corresponding to their respective weights.

After each sorting operation the shutters are returned to their original position by rods P^1 which, having an upward motion imparted to them by cam R, unlock catches L^1 and re-lock catches A^1.

For safety's sake the effect of this motion is also extended to the mechanism of all the shutters.

The operation is as follows:

The plate or sheet to be weighed being fed under rollers B is stopped there by tappets I until, said tappets being moved out of the way, the movable rollers F are raised. The drive then begins, bringing the plate or sheet onto the movable frame T while the latter is in its upper position.

As soon as the plate or sheet is stopped on said frame by tappets E^1, said frame comes down and lays the sheet on the balance pan. This pan then comes down. Meanwhile, the other arm of the balance beam goes up and lifts all or any of the disks in device M^1. The balance becomes promptly balanced in a position corresponding to the pile wherein the sheet or plate is to be deposited.

At the same time, coupling finger V is positioned between the set of slides X and the pulling member Y opposite the slide corresponding to such pile, whereupon the pulling member Y instantly actuates the slide concerned.

The latter's displacement is transmitted through rods Z to catch A^1, thereby unlocking lever B^1, which, influenced by its spring C^1, drags with it in its rotation the group of shutters D^1 on the axis of which it is keyed.

Thus being caused to project into the pathway formed between the rollers, said shutters stop the sheet or plate, which, after having been carried up with the movable frame and removed therefrom by the discharging rollers, is deposited in the proper chamber or compartment assigned to it.

Once this operation is completed, the shutters are locked again in their original position by catches A^1.

While this is going on the next plate or sheet has already gone through several of the above set forth operations.

The invention is not limited merely to the above described kind of machine, but can also be applied, for instance, to machines for sorting and arranging sheets in numbered or counted packets and for automatically removing such packets from their respective compartments or chambers.

I wish it to be clearly understood that I reserve the right to introduce any constructional alterations without being deemed to depart from the scope of my invention, since, obviously, forms, details, materials and dimensions can be varied while retaining the principle thereof.

I claim as my invention:

1. In a sorting apparatus, the combination of weighing mechanism; a set of compartments to receive weighed articles of different definite weights, each compartment having means for normally closing it; means controlled by the action of the weighing mechanism to open the closure of the compartment corresponding to the weight of the article being weighed; and means for automatically delivering the weighed article

from the weighing mechanism to the open compartment.

2. In a sorting apparatus, the combination of weighing mechanism including a movable platform to receive the articles to be weighed, and a balance beam to which the platform is connected; a set of compartments to receive weighed articles of different definite weights, each compartment having means for normally closing it; mechanism controlled by the beam for opening the closure of the compartment corresponding to the weight of the article on the platform; and mechanism for automatically delivering the weighed article from the platform to the open compartment.

3. In a sorting apparatus, the combination of weighing mechanism embodying a movable platform to receive the articles to be weighed, a beam to which the platform is connected, a set of weights for balancing the beam in different definite positions corresponding to the weights of the articles on the platform, and means for automatically selecting the proper weights to act upon the beam; a set of receiving compartments, one for each balance position of the beam, having means for normally closing them; mechanism controlled by the beam for opening the closure of the compartment corresponding to the weight of the article on the platform; and mechanism for automatically delivering the weighed article from the platform to the open compartment.

4. In a sorting apparatus, the combination of weighing mechanism; a set of compartments to receive weighed articles of different definite weights, each compartment having means for normally closing it; a set of slides, one for each closure; a connection between each slide and closure for transmitting the movement of the former to the latter to open the same; a normally-interrupted operating train common to the slides; means operated by the action of the weighing mechanism for completing the connection of said train to the slide corresponding to the compartment to receive the article being weighed; and means for automatically delivering the weighed article from the weighing mechanism to the open compartment.

5. In a sorting apparatus, the combination of weighing mechanism; a set of compartments to receive weighed articles of different definite weights, each compartment having means for normally closing it; a set of slides, one for each closure; a connection between each slide and closure for transmitting the movement of the former to the latter to open the same; a pull-rod for selectively operating the slides; a coupler movable between the pull-rod and the slides to couple said rod to a selected slide; means operated by the action of the weighing mechanism for positioning the coupler to engage the slide corresponding to the compartment to receive the article being weighed; and means for automatically delivering the weighed article from the weighing mechanism to the open compartment.

6. Sorting apparatus according to claim 5, in which the weighing mechanism includes a balance beam whereto the coupler is connected.

7. In a sorting apparatus, the combination of weighing mechanism; a vertical series of compartments to receive articles of different definite weights; feeding mechanism adjacent the inlets of the compartments; means associated with each compartment for deflecting a weighed article thereinto from the feeding mechanism; means controlled by the action of the weighing mechanism for moving into operative position the deflecting means of the compartment corresponding to the weight of the article being weighed; and mechanism for delivering the weighed article from the weighing mechanism to the feeding mechanism.

In testimony whereof I affix my signature.

HECTOR PETIN.

from the weighing mechanism to the open compartment.

2. In a sorting apparatus, the combination of weighing mechanism including a movable platform to receive the articles to be weighed, and a balance beam to which the platform is connected; a set of compartments to receive weighed articles of different definite weights, each compartment having means for normally closing it; mechanism controlled by the beam for opening the closure of the compartment corresponding to the weight of the article on the platform; and mechanism for automatically delivering the weighed article from the platform to the open compartment.

3. In a sorting apparatus, the combination of weighing mechanism embodying a movable platform to receive the articles to be weighed, a beam to which the platform is connected, a set of weights for balancing the beam in different definite positions corresponding to the weights of the articles on the platform, and means for automatically selecting the proper weights to act upon the beam; a set of receiving compartments, one for each balance position of the beam, having means for normally closing them; mechanism controlled by the beam for opening the closure of the compartment corresponding to the weight of the article on the platform; and mechanism for automatically delivering the weighed article from the platform to the open compartment.

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In testimony whereof I affix my signature.

HECTOR PETIN.

CERTIFICATE OF CORRECTION.

Patent No. 1,614,630. Granted January 18, 1927, to

HECTOR PETIN.

It is hereby certified that the name of the assignee in the above mentioned patent was erroneously written and printed as Société Etablissements J. J. Camaud & Forges De Basse-Indre, of Paris, France, whereas said name should have been written and printed as Société Etablissements J. J. Carnaud & Forges De Basse-Indre, of Paris, France, as shown by the records of assignments in this office; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 15th day of March, A. D. 1927.

Seal.

M. J. Moore,
Acting Commissioner of Patents.

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