

July 7, 1925.

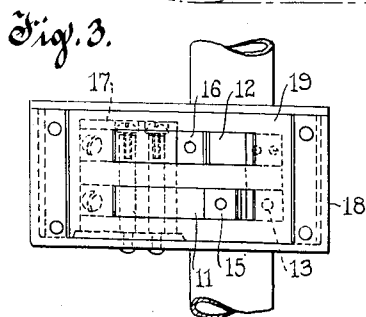
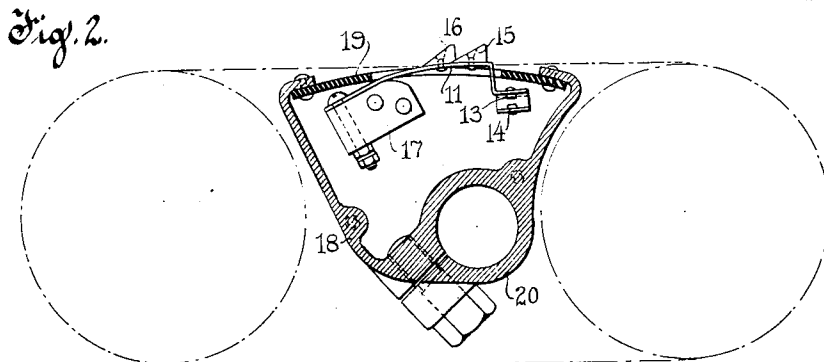
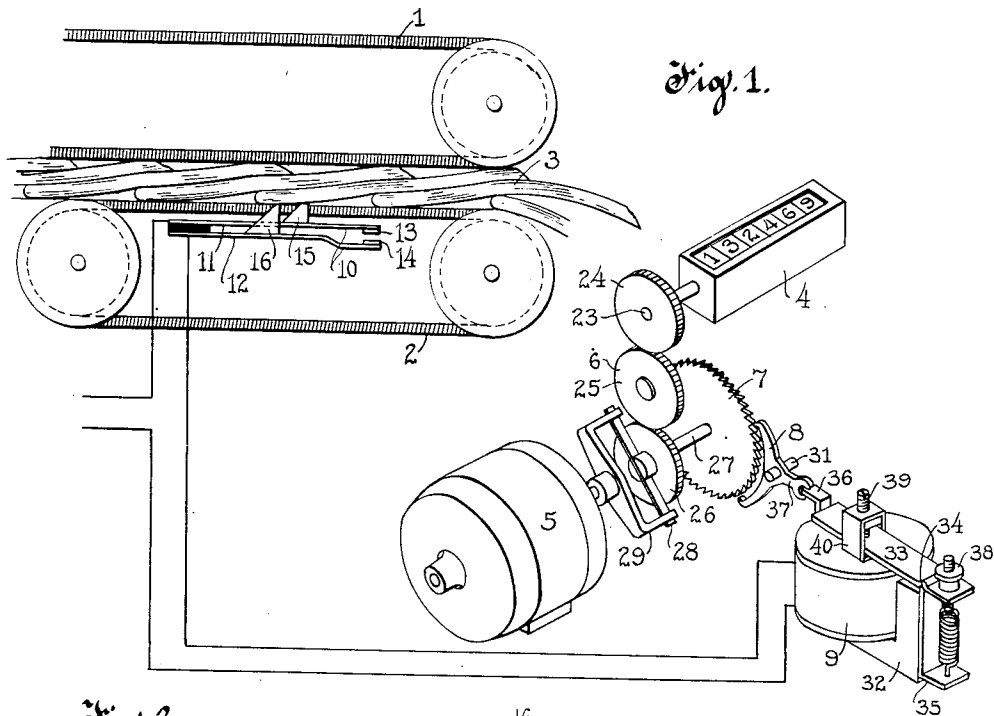
1,544,860

G. B. REISBACH

COUNTING APPARATUS

Filed Sept. 22, 1919

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

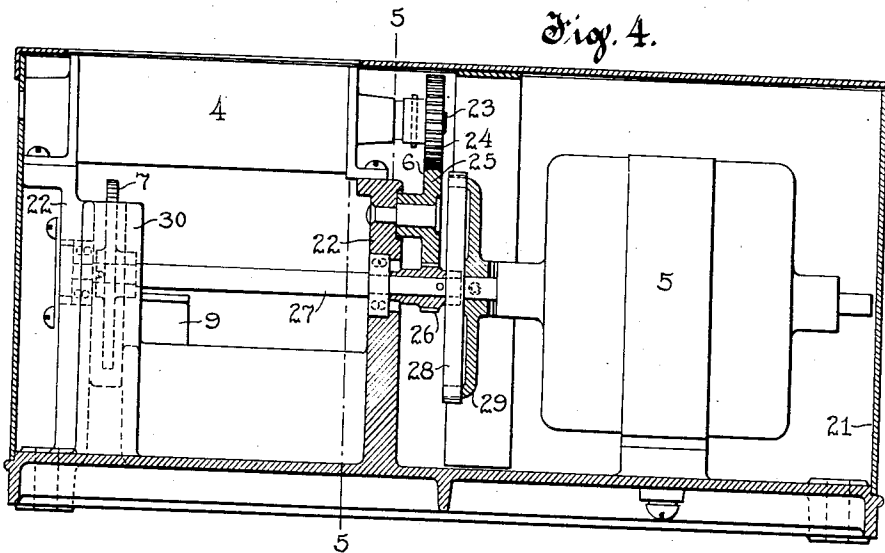
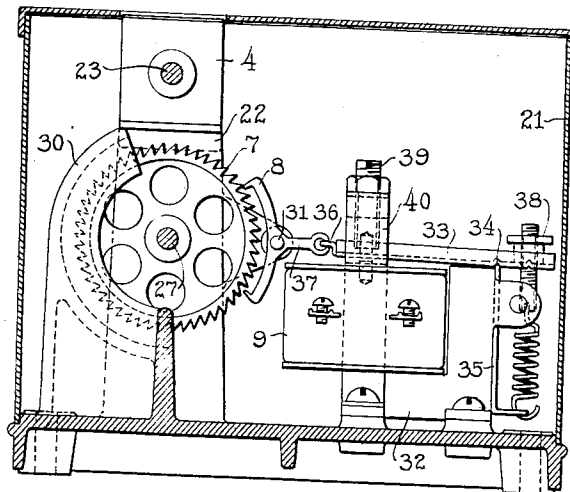


Fig. 5.



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UNITED STATES PATENT OFFICE.

GUSTAVE B. REISBACH, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO THE CUTLER-HAMMER MFG. CO., OF MILWAUKEE, WISCONSIN, A CORPORATION OF WISCONSIN.

COUNTING APPARATUS.

Application filed September 22, 1919. Serial No. 325,468.

To all whom it may concern:

Be it known that I, GUSTAVE B. REISBACH, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Counting Apparatus, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawing, forming a part of this specification.

This invention relates to counting apparatus particularly adapted for use in connection with high speed newspaper presses to count the output thereof delivered at a given point, although apparatus embodying the invention may be advantageously used for counting various other articles or parts thereof.

Newspaper counting apparatus has heretofore been proposed whereby the count is taken immediately as the papers leave the press with the result that removal of any papers from the conveyor prior to reaching the delivery table renders the count inaccurate as regards the number of papers received at the delivery table. Also, great difficulty has heretofore been experienced in obtaining an accurate count of the papers actually passing the point at which the count is taken.

The present invention has among its objects to provide apparatus affording a more accurate count and enabling the count to be taken at the delivery table or other preferred point in the travel of the newspapers or other articles to be counted.

Another object is to provide apparatus for counting newspapers or other articles carried on belt or other conveyors wherein means are provided to minimize the chance of a miscount due to improper spacing of the articles on the conveyor or to vibrations of the conveyor.

Various other objects and advantages of the invention will hereinafter appear.

The accompanying drawing illustrates one embodiment of the invention and the same will now be described, it being understood that the invention is susceptible of various modifications without departing from the scope of the appended claims.

In the drawing,

Figure 1 is a diagrammatic view showing one form of counting apparatus used in conjunction with a newspaper conveyor;

Fig. 2 is a side view of a switch forming part of the apparatus;

Fig. 3 is a top plan view of said switch;

Fig. 4 is an elevational view, partly in section, of the counting device of the apparatus and its driving means; and,

Fig. 5 is a sectional view taken on line 5—5 of Fig. 4.

Referring to Fig. 1, the same shows diagrammatically the delivery table of a newspaper conveyor comprising belts 1 and 2 carrying therebetween a number of newspapers 3 arranged in the usual overlapped relation. Further, this view shows diagrammatically the various elements of the counting apparatus, namely, a counting device 4, a motor 5 for driving said counting device through suitable gearing 6, a ratchet wheel 7 and pawl 8 forming an escapement for controlling the operation of said device 4, an electromagnet 9 for controlling the escapement pawl and a switch 10 engageable with and operable by the newspapers to control the circuit of the electromagnet 9. The arrangement is such that each paper in passing over the switch 10 causes the same to make and break the circuit of the electromagnet 9 thereby permitting a counting operation of the device 4 by the motor which is preferably continuously energized.

The switch 10 comprises two leaf springs 11 and 12 fixed at one end to a suitable support but insulated from one another and carrying at their free ends engageable contacts 13 and 14. The springs are respectively provided with upstanding lugs 15 and 16 to bear against the newspapers when said springs are positioned relatively to the latter, as shown in Fig. 1. The lug 16 is arranged in advance of the lug 15 and said lugs are of such relative length that when both are engaged by the same paper the springs are spread to separate their contacts whereas said springs are so positioned relatively to the conveyor as to be deflected downwardly by the papers under normal conditions. Accordingly each paper in engaging and passing over the lugs 15 and 16 first effects separation of the contacts 13 and 14 and then releases spring 12 while holding spring 11 in a fixed position for reengagement of the contacts. Finally when the paper disengages lug 15 the spring 11 is permitted to assume normal position thereby elevating the contact 13 and lug 15.

Thus the springs tend to assume positions insuring their operation as above described even through the papers, because of improper spacing or because of vibrations of the conveyor, pass over the lugs 15 and 16 in a plane above the normal plane thereof. On the other hand, upon sagging of the papers the springs are both deflected downwardly whereby their aforescribed co-

action is in no wise impaired. As shown in Fig. 2, the springs 11 and 12 are fixed to an insulating block 17 carried within a box 18, said springs being mounted side by side as best shown in Fig. 3 and having their contacts 13 and 14 provided with laterally projecting overlapping portions to be engaged and disengaged, as above described. The box is provided with a slotted insulating cover 19 through which the lugs of said springs project and with a portion 20 to be clamped to a pipe support. The box illustrated is particularly designed for mounting on a delivery table but it is of course to be understood the same might be of different construction and designed for mounting in other relations.

Referring to Figs. 4 and 5, the counting device, its driving motor and escapement mechanism are arranged for mounting in a casing 21, said casing having an opening therein to render the counting device visible. The counting device, which is of a conventional type, is mounted on upstanding lugs 22 provided in said casing and has an operating shaft 23 to which is fixed the pinion 24. This pinion meshes with an idle pinion 25 mounted on one of the lugs 22 and said idle pinion meshes with a pinion 26 mounted on a shaft 27 supported by the lugs 22 and forming an extension of the shaft of motor 5 which is fixed to the bottom of the casing. The shaft 27 and the motor shaft are connected through a resilient coupling comprising a leaf spring 28 fixed to the former shaft and a disk 29 fixed to the latter shaft, said disk having a peripheral flange provided with diametrically opposed slots to receive the ends of said spring. This flexible coupling is provided to obviate the necessity for accurate alignment of the shafts and also to minimize wear on the escapement mechanism.

The ratchet disk of the escapement mechanism, as best illustrated in Fig. 4 is mounted on the left hand end of the shaft 27 leaving a space between the same and the counting device gears for an auxiliary mechanism, not shown. The casing contains a part 30 forming a shield for the ratchet wheel and a support for the pawl 8 which is pivotally secured to said part by a pin 31. The control magnet for the pawl is mounted to the rear of said pawl and comprises a U-shaped magnetic frame 32 for the winding 9 and an armature member 33

having a knife edge bearing 34 on a plate 35 fixed to said magnet frame, said armature having at its free end a projection 36 fitting within a slotted arm 37 of the pawl 8. The armature is biased away from the winding 9 by an adjustable tension device 38 connecting an extension of said armature to the fixed plate 35, the movement of said armature under the influence of said tension device being limited by an adjustable stop 39 carried by a U-shaped member 40 fixed to the magnet frame and straddling the armature.

As will be understood the counting mechanism may be arranged in any convenient location either adjacent to or remote from the switch 10, the motor being connected to any suitable source of current. Also, as will be understood, various modifications may be made in the apparatus illustrated without departure from the principles embodied therein.

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

1. In a counting apparatus, in combination, a counting device and control means therefor subjecting the same to control by the articles to be counted, said control means including means rendering the same adjustable in position automatically to function uniformly under varying conditions pertaining to the articles to be counted.

2. In a counting apparatus, in combination, a counting device and control means therefor including means subject to movement by the articles to be counted for effecting operation of said device and also subject to independent movement under control by the articles to be counted for adapting said control means to varying conditions pertaining to such articles.

3. In a counting apparatus, in combination, a counting device and control means therefor including means subject to progressive independent movements under control by each of the articles to be counted, the first movement being one of adjustment in position without affecting said device to compensate for variation in position of the controlling article relative to said means and the following movement being one effecting operation of said device.

4. In apparatus for counting newspapers and other articles, the combination with a counting device, of a driving motor therefor, a flexible coupling including a resilient member connected to said device and said motor, and an escapement mechanism inherently restricted to intermittent operation having a part operable by each article to be counted to effect step by step operation of said counting device.

5. In apparatus for counting newspapers or other articles, carried by a conveyor, in combination, a power operated counting de-

vice and control means for said device including a switch operable by the articles to be counted, said switch comprising means tending to maintain the same in an operative relation with the articles upon variations in the plane in which the latter approach said switch.

6. In apparatus for counting newspapers and other articles carried by a conveyor, in combination, a power operated counting device and control means therefor including a switch engageable with and operable by the moving articles, said switch including a contact resiliently mounted to assume a position determinable by the plane of each article prior to actuation of said switch for control of said device.

7. In apparatus for counting newspapers and other articles carried by a conveyor, in combination, a power operated counting device and control means therefor including a switch comprising two resilient contact carrying members both biased to bear against the moving articles, and one of said contacts being operable by the moving article for engagement with the other intermittently.

8. In apparatus for counting newspapers and other articles carried by a conveyor, in combination, a counting device, a motor for operating said device and tending to operate the same continuously, an electromagnetically controlled escapement mechanism restricting said device to intermittent operation and a control switch for said escapement mechanism operable by the moving articles.

9. In apparatus for counting newspapers and other articles carried by a conveyor, in combination, a counting device, a motor for operating said device and tending to operate the same continuously, an electromagnetically controlled escapement mechanism restricting said device to intermittent operation and a control switch for said escapement mechanism operable by the moving articles, said switch comprising means tending to maintain a given relation between said switch and articles moving in different planes.

In witness whereof, I have hereunto subscribed my name.

GUSTAVE B. REISBACH.