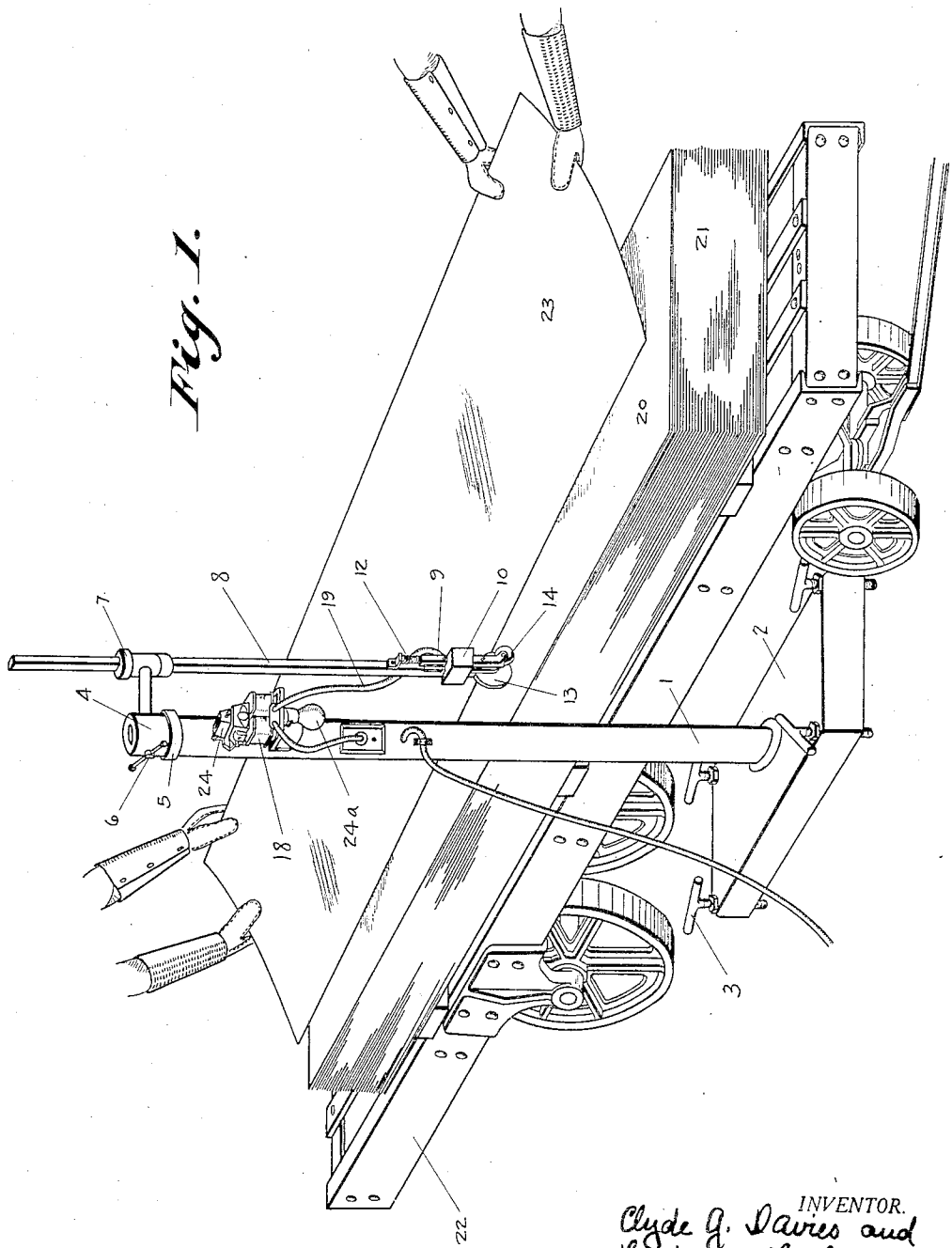
March 17, 1936. C. G. DAVIES ET AL 2,034,330

COUNTING DEVICE

Filed March 24, 1930 2 Sheets-Sheet 1

Fig. 1.



INVENTOR.
Clyde G. Davies and
Lewis W. Neal
BY Allen & Allen
ATTORNEYS

March 17, 1936. C. G. DAVIES ET AL 2,034,330

COUNTING DEVICE

Filed March 24, 1930 2 Sheets-Sheet 2

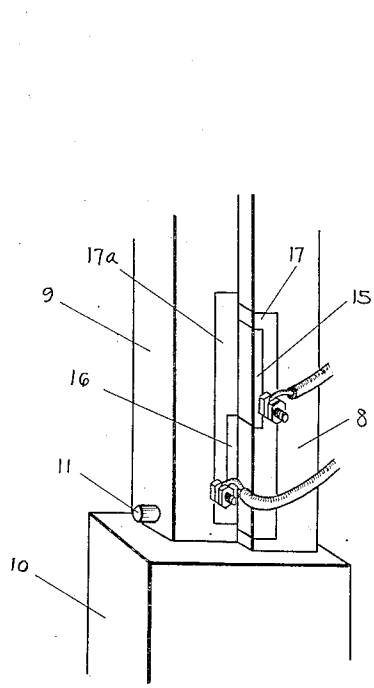


Fig. 4

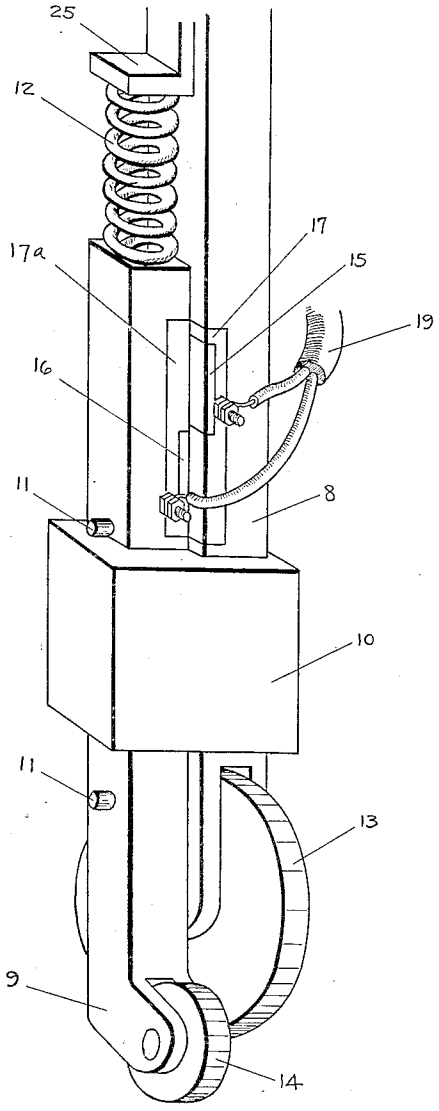


Fig. 3.

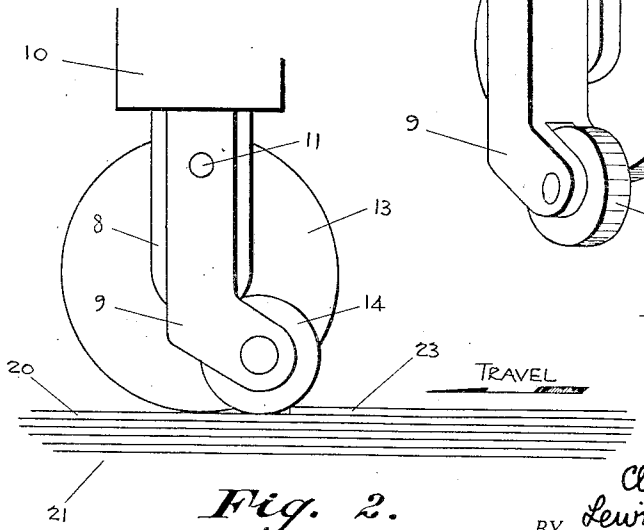


Fig. 2.

INVENTOR.
Clyde G. Davies and
Lewis W. Neal
BY Allen & Allen
ATTORNEY.

Patented Mar. 17, 1936

2,034,330

UNITED STATES PATENT OFFICE

2,034,330

COUNTING DEVICE

Clyde G. Davies and Lewis W. Neal, Ashland, Ky.

Application March 24, 1930, Serial No. 438,265

3 Claims. (Cl. 235—98)

The object of our invention is to provide means for counting articles as they are being assembled into a pack, stack, pile or the like, and the specific embodiment which we shall presently describe is a form of our mechanism useful for counting rolled metal sheets as they are being piled into a pack. It will be obvious that our invention is not restricted to this use, but is adapted to the counting of articles being assembled into any kind of regular aggregation in which successive articles occupy similar positions though offset in space, and quite irrespective of the shape of the articles, provided the shape is substantially uniform in a given part. Thus our mechanism is useful not only for counting sheets of metal, board, paper and fibre, but also for counting pressed, rolled, stamped, moulded and cast articles which may or may not be nested when stacked or otherwise assembled.

A further object of our invention is to provide means for counting articles in an assembly as the assembly is being formed and without movement of the assembled articles, as distinguished from counting articles as they are being conveyed toward a delivery point, so that the manner in which they are carried toward assembly is unimportant. A particular object of the specific exemplary embodiment to be described is the provision of means to count individual sheets of iron or steel or other metal as they are being stacked on a floor, truck or platform whether the sheets be stacked by hand, by machinery, or partly by both.

These and other objects of our invention which will be set forth hereinafter or will be apparent to one skilled in the art upon reading these specifications, we accomplish by that certain construction and arrangement of parts of which we will now describe the exemplary embodiment hereinabove referred to, reference being had to the drawings which accompany these specifications.

In the drawings:

Figure 1 shows our mechanism in complete perspective in use.

Figure 2 is a partial elevation of the trigger and foot devices of our mechanism showing the action thereof.

Figure 3 is a partial perspective showing the trigger and foot, and the contact making devices in open position.

Figure 4 is a partial perspective of the foot and trigger supporting means with the contact making devices in closed position.

Our mechanism makes use of means which are actuated by each successive article. These means we refer to as the trigger. It is immaterial what particular type of serial counting and registering device is used in our mechanism, a number of commercial types being satisfactory. It is equally within the scope of our invention whether the trigger actuate the counting device directly or indirectly, or whether the connection between the two be mechanical, electrical or otherwise. In the specific embodiment illustrated, the counting device is remote from the trigger and is part of an electric circuit which is made and broken by movements of the trigger.

But since the object of our invention is the provision of mechanism to count articles as stacked without such a movement of the stack as will bring each successive article into the same position in space, our invention contemplates, as will hereinafter be more fully described, means to bring the trigger into a proper position to be acted upon by each successive article whether this position be the same or different from the one occupied in counting the last preceding article, without any necessary movement of the stack itself and quite irrespective of movements of the stack. In the specific form of our invention to be described, the correct position of the trigger for counting each successive article is determined by the last preceding article in the assembly.

In a sheet counter we provide a base **2** which may have leveling screws **3**. This base supports a standard **1** which is the main supporting element in our mechanism. To the top of this support we attach an arm **4** which may be and preferably is pivoted by means of a boss **5** on the standard, and is locked in position by the screw **6**. The arm extends at an angle from the standard, and on its outer end bears a second boss **7** having a square hole in which a squared rod **8** slides vertically in inter-spaced relationship to the standard **1**. The lower end of the rod **8** is bifurcated and bears a roller or wheel **13** which may bear against the topmost sheet **20** in a stack **21** resting upon a platform or truck **22**. The wheel **13** forms a foot.

The trigger mechanism is supported upon this rod and is adapted to be actuated by a succeeding sheet **23** as it is placed in position on the stack, but before the sheet contacts the foot wheel **13**. The further movement of the sheet against the wheel will move the rod and the assembly connected therewith to a new point such that the trigger will be in correct position to count a succeeding sheet. Since the rod **8** is free to slide in

the boss 7, the foot 13 will follow movements of the pack in any event so that even if the pack be raised or lowered the counting may proceed.

The trigger may have any form or shape adapted to the nature of the articles to be counted, as will be understood. For example, but without limitation, the trigger may be in the form of a lever or finger connected directly to a serial counter mounted upon the rod 8. The foot 13 may also take such shape as is appropriate to the articles to be counted, and need not be a wheel, as shown.

In the specific embodiment we mount a collar 10 fixedly upon the rod 8, and we provide a trigger rod 9 which slides in the collar relatively to the rod 8. Pins 11 limit the movement of the trigger rod, and a spring 12, bearing against an abutment 25 holds the trigger rod in depressed position. The lower end of the rod 9 is bifurcated and bears a trigger-wheel 14. Since we prefer to employ in this embodiment an electrical counting device 18 which we mount upon the standard 1 for convenience, and which comprises the usual count-registering device 24 and a flashing lamp 24*a*, we provide means whereby the movements of the trigger may make and break an electrical circuit. To this end we let fibre blocks 17 and 17*a* into the rods 8 and 9, and fasten conductive plates 15 and 16 to these blocks. When the trigger rod 9 is in its lowermost position these plates are separated as shown in Figure 3. When the trigger rod is raised (as when contacted and moved by an article) these plates may come together (Figure 4) so as to complete an electrical circuit. The two ends of a double conductor 19 are connected to the plates as shown, and to the counter 18. The counter shown is a standard counter, not of our invention, and is obtainable commercially. As explained, the nature of the counting device, per se, is not of the essence of our invention.

As shown in Figure 2, the lower end of the trigger rod 9, the bifurcated portion which bears the trigger wheel 14, extends at an angle from the main portion of the rod. By this means the centers of the foot wheel 13 and the trigger wheel 14 are offset respectively so that the lowermost point of wheel 14 is in advance (considering the direction of travel of the articles to be counted) of the lowermost point of foot wheel 13. The foot wheel rests upon the topmost sheet 20 of stack 21, whereby the entire trigger assembly is positioned to count sheet 23. As this sheet is moved into position it contacts first the trigger wheel 14, and thereby moves the rod 9 so that contact is made between the plates 15 and 16. Thereafter it contacts foot wheel 13 and moves rod 8 upwardly without moving trigger rod 9, thereby resetting the trigger assembly to count the next succeeding sheet and changing the relative positions of rods 8 and 9 whereby the circuit is broken between plates 15 and 16. The several operations follow in rapid sequence.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent, is:—

1. In a counting mechanism for counting articles as they are being stacked, a counter, actuating means contacted by each added article, and thereby moved to actuate said counter, and means distinct from said actuating means whereby the article, after the counting actuation, advances said actuating means in accordance with the accumulation of the articles.

2. In counter actuating mechanism for counting stacked articles, having a flat surface, a slidable rod bearing a foot to rest upon a stack, said foot adapted to be moved by articles added to said stack, a counter, a trigger movably supported by said rod, said trigger located in advance of said foot, whereby said trigger is actuated by an article to be counted before said foot is moved, to effect operation of said counter, and whereby said trigger is reset for a subsequent counting operation by the relative movement of said foot with respect to the counter, when said foot mounts the counted article.

3. In counter actuating mechanism, a counter supporting means, a rod slidably supported in said means above a pile of sheets, a foot wheel on the lower end of said rod adapted to rest upon the topmost sheet, a trigger slidably mounted upon said rod, a trigger wheel on said trigger adapted to contact a sheet being added to said pile to effect operation of said counter by displacement of said trigger with respect to said rod in advance of said foot wheel whereby a count is first effected, and said trigger then being reset for a new count by the reverse relative movement of the trigger and rod when the foot wheel mounts the counted sheet.

CLYDE G. DAVIES.
LEWIS W. NEAL.