May 8, 1951 C. F. McALEER ET AL 2,551,685

COUNTER FOR SHEETS

Filed Oct. 17, 1945 2 Sheets-Sheet 1

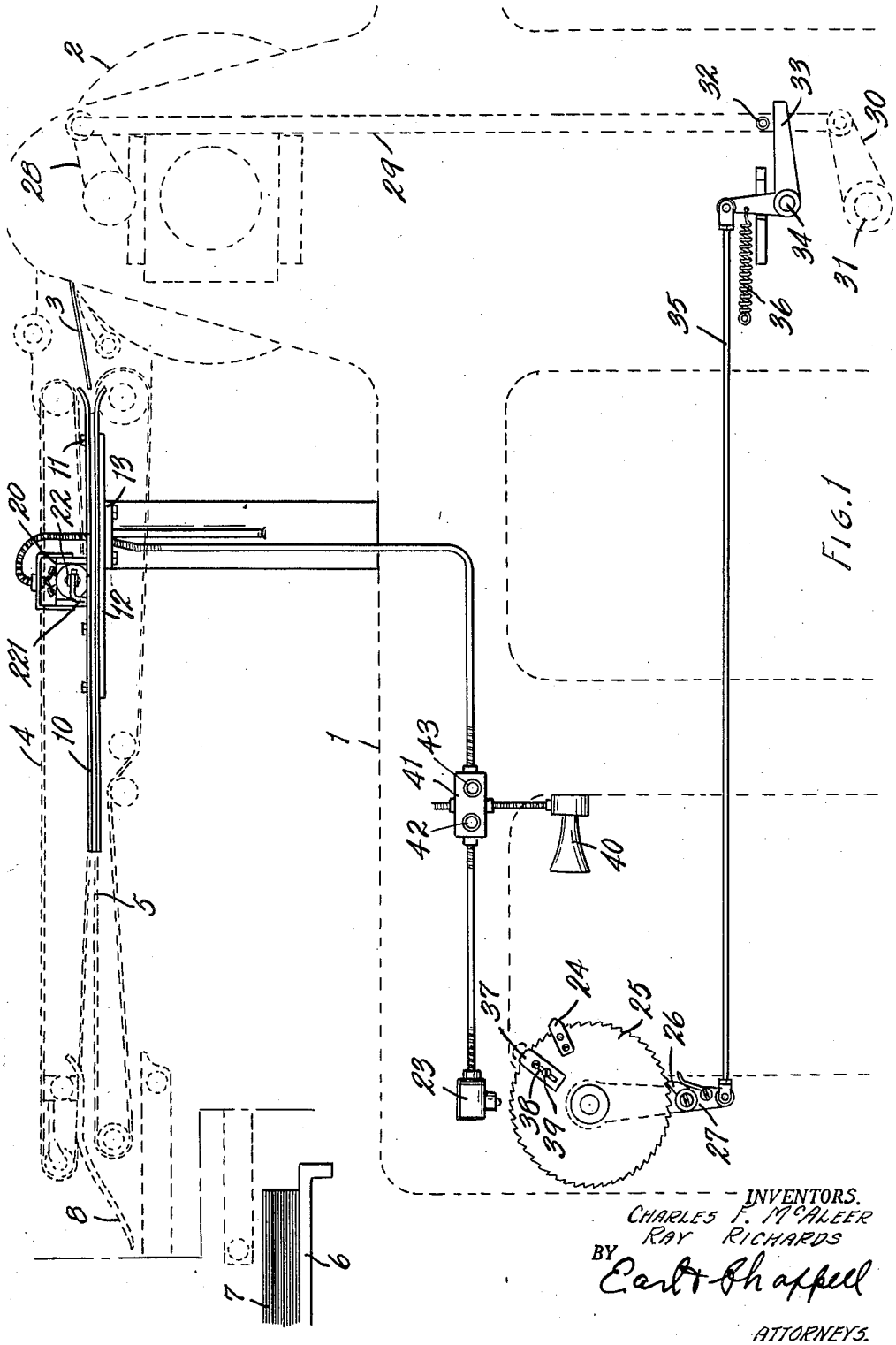


FIG. 1

INVENTORS.
CHARLES F. McALEER
RAY RICHARDS
BY Earl B. Chappell
ATTORNEYS.

May 8, 1951 C. F. McALEER ET AL 2,551,685

COUNTER FOR SHEETS

Filed Oct. 17, 1945 2 Sheets-Sheet 2

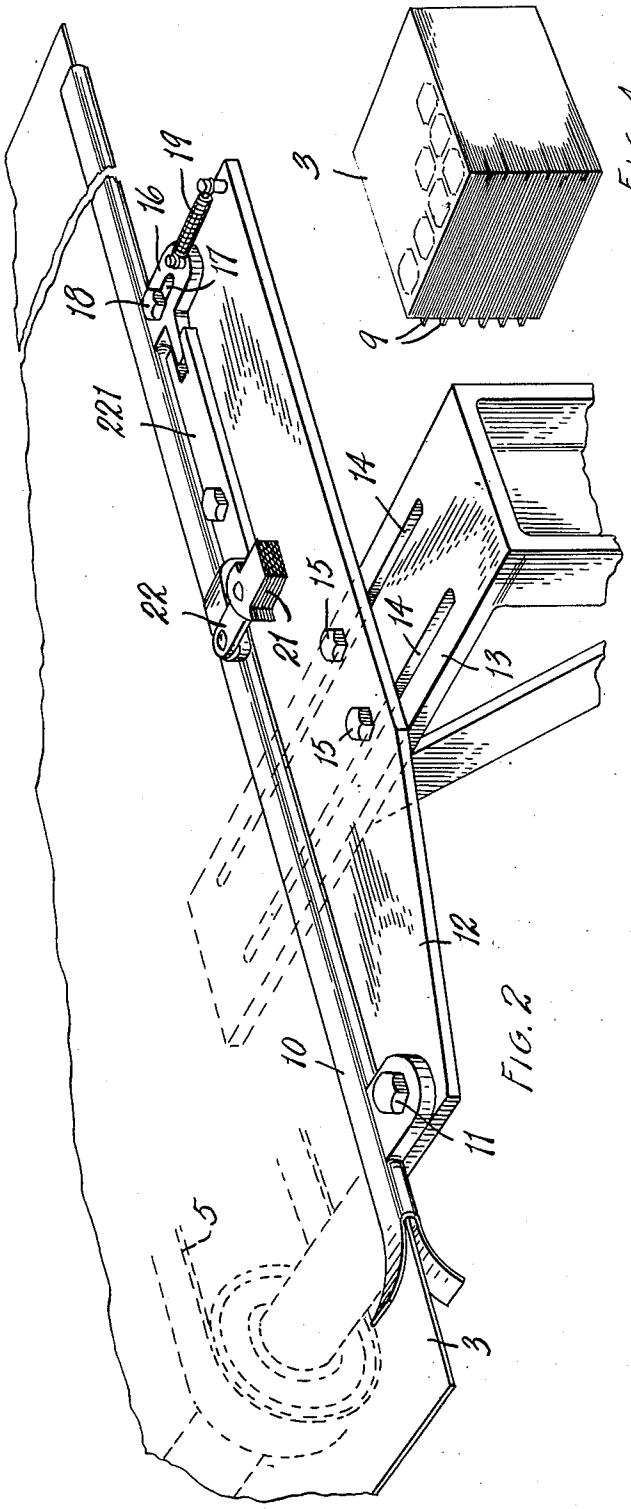


FIG. 2

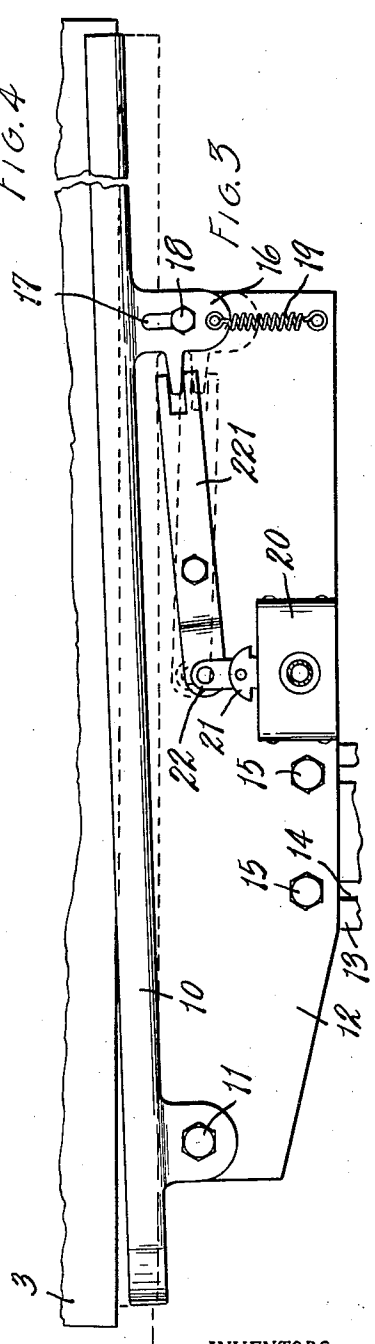


FIG. 3

FIG. 4

INVENTORS.
CHARLES F. McALEER
RAY RICHARDS
BY Earl D. Rhaffell
ATTORNEYS.

Patented May 8, 1951 2,551,685

UNITED STATES PATENT OFFICE

2,551,685

COUNTER FOR SHEETS

Charles F. McAleer and Ray Richards,
Kalamazoo, Mich.

Application October 17, 1945, Serial No. 622,836

1 Claim. (Cl. 93—93)

1

The main objects of this invention are:

First, to provide a counter for sheet cutters which delivers the sheets in stacks with certain of the sheets offset to indicate the number of sheets in the complete stack.

Second, to provide a sheet counter mechanism which avoids the necessity for a complicated counting mechanism and one which may be readily applied to or embodied in sheet counters of standard types.

Third, to provide a mechanism having these advantages in which the parts are economically produced and installed and are not likely to get out of repair.

Objects relating to details and economies of the invention will appear from the description to follow. The invention is defined and pointed out in the claim.

A preferred embodiment of the invention is illustrated in the accompanying drawing, in which:

Fig. 1 is a side elevation of an apparatus embodying our invention, the sheet cutter being shown by dotted lines and mainly conventionally.

Fig. 2 is an enlarged fragmentary perspective view showing certain of the details and structural features of our invention.

Fig. 3 is an enlarged fragmentary plan view of parts shown in Fig. 2.

Fig. 4 is a perspective view largely conventionalized of a stack of sheets illustrating the operation of our invention.

In the accompanying drawings, 1 represents the frame of a cutting machine and 2 the rotary sheet cutter which delivers the cut sheets 3 one by one. The sheets are delivered from the cutter to a conveyor comprising upper and lower opposed conveyor belts 4 and 5, these conveyor belts being adapted to translate the sheets in trailing relation as they are delivered from the cutter.

A stacking table 6 is arranged at the rear of the conveyor to receive the sheets, the stacked sheets being conventionally illustrated at 7. 8 is a deflector directing the sheets downwardly onto the table.

The sheets are translated by the conveyor belts in a manner to permit their being laterally offset on the conveyor belts and while they are being translated thereon. It is the purpose of our invention to laterally offset certain of the sheets shown at 9 in Fig. 4, the sheets between the offset sheets being of a predetermined number, commonly of 100 or 200 or 250, whatever may be desired in the particular case.

2

The offsetting means in the embodiment illustrated comprises a shifter bar 10 of inwardly facing U-section receiving the edges of the sheets 3 as they are translated by the conveyor, the edges of the sheets projecting from the conveyor to travel in the channel of the bar 10, see Fig. 2.

This offsetting or shifting bar is pivotally mounted at 11 on the bed plate 12 which is adjustably supported on the horizontal arm 13 of the supporting pedestal or upright mounted on the frame 1 of the sheet cutter. This arm 13 has longitudinal slots 14 receiving the bolts 15. This permits the adjustment of the supporting plate 12 to and from the conveyor, adapting it to the sheets of varying width.

The shifting bar 10 is further supported by the bracket 16 projecting laterally therefrom and slotted at 17 to receive the bolt 18 which is not in clamping adjustment but does serve to swingably support the bar. The coiled spring 19 yieldingly holds the bar in its retracted position.

The bar is actuated by the solenoid 20, the armature 21 of which is connected by the link 22 to the shifting lever 221. The actuation of the solenoid is controlled by the switch 23 which is positioned to be engaged by the tappet 24 on the counter wheel 25. This counter wheel is provided with a number of teeth preferably ratchet teeth corresponding to the count units indicated by the offset sheets 9.

The pawl 26 is mounted on the pawl actuating lever 27 which is operatively connected to the sheet cutter so that the pawl is actuated to rotate the counter wheel one step on each actuation of the cutter. In the embodiment illustrated, this operating connection comprises an arm 28 operatively connected to the cutter cylinder, the connections not being illustrated, the arm actuating a plunger rod 29 which is connected to the arm 30 on the rockshaft 31. These are parts of the cutting machine and will be understood by those skilled in the art.

The connecting rod 29 is provided with a tappet 32 which, on reciprocation of the rod, engages a bell crank lever 33 pivoted at 34 and connected by the link or connecting rod 35 to the pawl actuating lever 27. The spring 36 acts to return the bell crank lever. This provides a simple actuating connection for the counter wheel to the cutter.

We have not illustrated the operating connections for the connecting rod to the cutter as it is

believed that this will be readily understood by those skilled in the art. In some conditions, it may be desirable not to offset the sheets to indicate the number but to provide an audible signal to the attendant when a predetermined number of sheets have been delivered and the signal is also sometimes used in connection with the offsetting. To accomplish this, we provide a second tappet 37 which is mounted on the counter wheel for radial adjustment by means of the slot 38 and screws 39 so that the tappet may be adjusted to switch actuating position as indicated by dotted lines in Fig. 1. The solenoid 20 and the signal 40 are connected to the control switch 23 by means of a manually adjustable switch designated generally by the numeral 41, provided with two push buttons 42 and 43 which may be selectively adjusted to connect either the solenoid or the signal to the control switch.

We have not attempted to illustrate other embodiments or adaptations of our invention as we believe the disclosure made will enable those skilled in the art to embody or adapt the same as may be desired.

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

In an apparatus of the class described, the combination of a conveyor for receiving sheets and translating them one by one with one edge projecting and in a manner permitting lateral shifting on the conveyor, a sheet shifter bar to receive and guide the projecting edges of the sheets, a solenoid for actuating said shifter bar to laterally adjust a sheet relative to the conveyor, a signal, a counter wheel provided with a predetermined number of ratchet teeth, a control switch, a pair of control switch actuating tappets angularly spaced on said counter wheel, the first tappet being adjustable into and out of switch actuating position, electrical connections for said control switch to said solenoid and to said signal including a manual switch by which the solenoid and signal may be selectively connected to said control switch, an actuating pawl for said counter wheel, and operating connections for said pawl to rotate said counter wheel step by step to move the tappets thereon into engagement with said control switch and operate the same after delivery of a predetermined number of sheets from said conveyor, the shifter bar when actuated shifting the sheet on the conveyor so that the sheets are delivered by the conveyor with the sheets acted upon by said shifter bar offset.

CHARLES F. McALEER.
RAY RICHARDS.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
204,097	Sawyer	May 21, 1878
1,208,465	Boreham	Dec. 12, 1916
1,298,518	Labombarde	Mar. 25, 1919
1,488,688	Labombarde	Apr. 1, 1924
1,841,711	Cannon	Jan. 19, 1932
1,961,724	Zenke	June 5, 1934
2,177,722	Josephs	Oct. 31, 1939
2,233,490	Shields	Mar. 4, 1941