

Nov. 11, 1941.

N. S. WELK

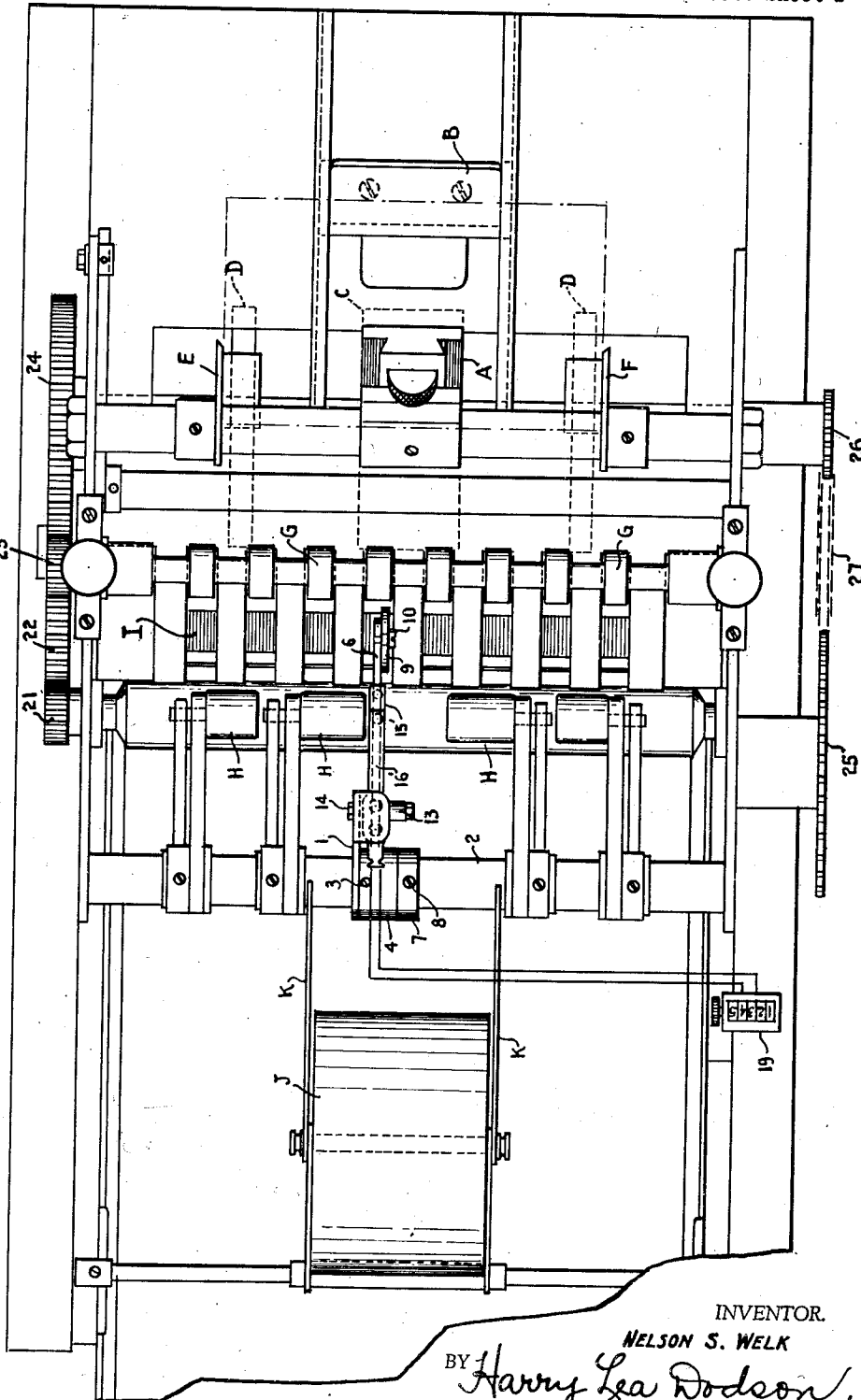
2,262,152

ACTUATING MEANS FOR ELECTRIC COUNTING MACHINES

Filed Aug. 15, 1940

2 Sheets-Sheet 1

FIG. 1



INVENTOR.

NELSON S. WELK

BY *Harry Lea Dodson.*
ATTORNEY

Nov. 11, 1941.

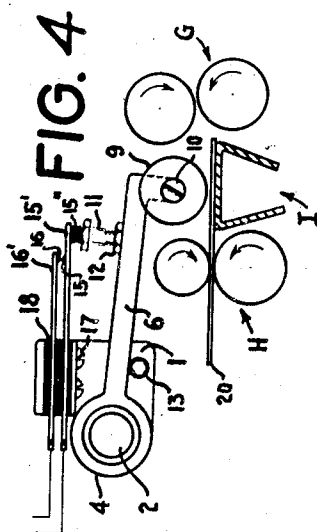
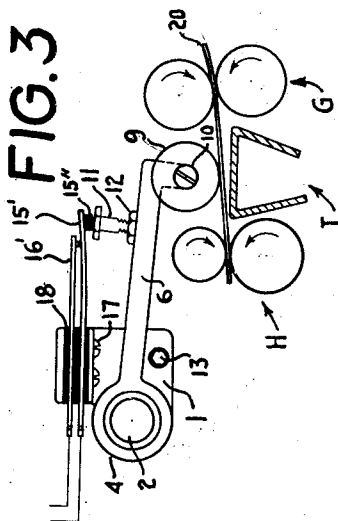
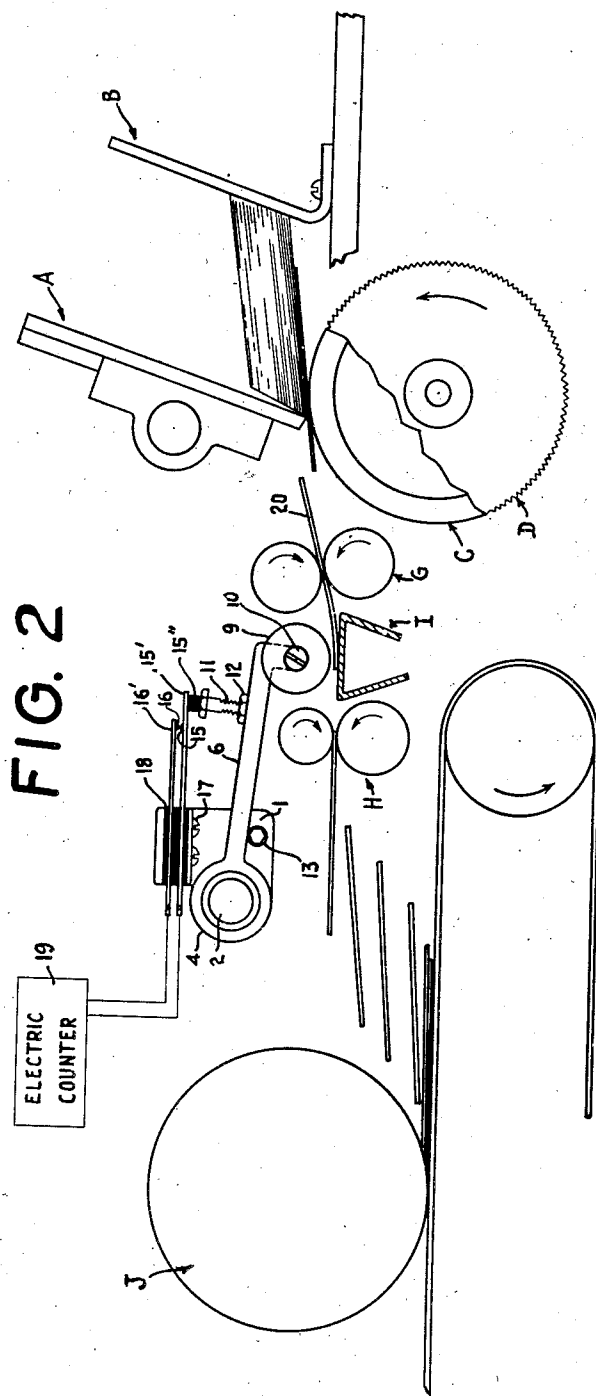
N. S. WELK

2,262,152

ACTUATING MEANS FOR ELECTRIC COUNTING MACHINES

Filed Aug. 15, 1940

2 Sheets-Sheet 2



INVENTOR
NELSON S. WELK
BY *Harry Lee Rodson*
ATTORNEY

UNITED STATES PATENT OFFICE

2,262,152

ACTUATING MEANS FOR ELECTRIC
COUNTING MACHINESNelson S. Welk, Athens, Ohio, assignor to The
McBee Company, Athens, Ohio, a corporation of
Ohio

Application August 15, 1940, Serial No. 352,704

2 Claims. (Cl. 235—98)

My invention relates to counting machines such as described in my copending application Serial No. 286,570. As described in that specification Serial No. 286,570, the cards are fed through a caliper to carrying and forwarding means. As the cards are fed rapidly one at a time, their edges impinge one of a plurality of blades of a wheel which is attached to the spindle of a commercial counter. The card traveling at a high rate of speed has enough momentum to move the blade a sufficient part of a revolution to cause the counter to register. This movement of the paddle wheel brings another blade into the line of travel of the next succeeding card, its edge impinging against the blade will in turn move it and the counter will again register.

My invention relates more particularly to cards which vary in size from cards or tickets smaller than the standard 3x5 index card up to the larger 8½x11", or even larger ledger sheets. The thickness of the paper stock of which the cards are formed, may vary from paper used in bank checks to the heavy card stock such as used in the making of record cards. Experience with machines of this type has shown, that if the card is formed of thin paper, and especially if the paper stock is of a lower grade, when the edge of the card, etc., impinges upon the paddle wheel, the edge may be curled up or down or otherwise damaged, the result being that an inaccurate count occurs.

In practice, in many instances, the cards or checks are counted many times, and if this curling is repeated, it results in a thickening of the card. This compels the operator to readjust the caliper which, as described in the said copending application, is set for the feeding of a single card. It follows, as a result, that frequently two cards will be fed simultaneously through the caliper and an incorrect count will occur.

When the cards or checks are perforated and notched or slotted in accordance with the plan outlined in the United States Letters Patent No. 1,544,172 to A. Perkins, the edge becomes mutilated by impinging the blade of the paddle wheel and the mutilation will prevent the card from passing under the caliper.

The principal object of my invention is to provide a device in which instead of using the edge of the card to bring about the actuation of the counter, I employ the body of the card, thus effectually meeting and overcoming the objections above referred to.

My means of accomplishing the foregoing ob-

jects may be more readily understood by reference to the accompanying drawings which are hereunto annexed and form a part of this specification in which:

Fig. 1 is a plan view of a counting machine equipped with my improvement;

Fig. 2 is a more or less diagrammatic view of my device showing a card being fed through the first set of carrying or wringer rolls;

Fig. 3 is a somewhat similar view showing the body of the card actuating the electric counting device;

Fig. 4 is a view similar to Fig. 3 showing the card in the second set of carrying or wringer rolls and the actuating device in its normal position.

Similar reference numerals refer to similar parts throughout the entire specification.

As shown in the drawings, the machine is similar in many respects to the machine shown in my copending application Serial No. 286,570, in that it has the same feeding mechanism comprising a caliper A, angle plate B, a main feeding roll C, two supporting rolls D, adjustable spacing plates E and F, and two pairs of carrying or wringer rolls G and H, with the platform I between them. Also the stacking roller J for delivering the cards to the conveyor after they have been counted and the two deflector arms K.

The rollers G and H are driven by a train of gears 21, 22, 23, and 24, which are arranged to drive the set of carrying or wringer rolls H at a higher rate of speed than the set G. These gears, 21, 22, 23 and 24, are driven by sprockets 25 and 26 and chain 27 on the opposite side of the frame. The sprocket 25 is driven by any suitable power (not shown).

I mount a bracket 1 on a shaft 2 (which is the same as the one shown in said copending application), to which it may be secured by a set screw 3 or in any other convenient manner. This bracket 1 is provided with a laterally extending hub 4 which is formed with a reduced neck thus providing a pivotal mounting for an arm 6. This arm is held in place by a collar 7 which is secured to the shaft 2 by means of a set screw 8. The arm 6 extends forwardly and downwardly. Downward movement of the arm 6 past its normal position is prevented by a detent 13 fastened to the bracket 1 by a nut 14. A roller 9 is rotatably mounted on the end of arm 6, it is carried by a shouldered screw 10 which serves as an axle.

A screw 11 having a very fine thread is threaded into the upper side of the arm 6 and is locked in position by a lock nut 12.

Secured to the bracket 1 adjacent its top and under a bent over portion of the bracket are two electric contact points 15 and 16, which are carried by contact bars 15' and 16' which are fastened to the bracket 1 by screws 17. Suitable insulation 18 is provided for the contact bars 15' and 16'.

A standard electrically actuated counting mechanism 19 is connected by wires to the contacts 15 and 16. Current for these wires may be supplied from any convenient source (not shown).

The end of the contact bar 15' is provided with an insulating button 15'' which is adapted to be engaged by the head of the screw 11. This screw is adjustable so that the time of its engagement with the said button can be regulated with a great degree of nicety and then locked into place by means of the nut 12.

The weight of the arm 6 and the roller 9, and its axle 10, causes the arm 6 normally to rest on the detent 13 with the roller 9 positioned slightly above the platform I, and the card 20. The roller 9 being located intermediate the two sets of carrying or wringer rolls G and H.

It will be obvious that upward movement of the card 20 will swing the arm 6 upwardly and cause the screw 11 to abut the insulating button 15'' and close the contact points 15 and 16.

Operation of the actuating mechanism

The cards 20 are first formed into a stack and then placed in the hopper, resting against the inclined plate B. The caliper A is then adjusted so as to permit a single card to pass between it and the feeding roll C. Obviously the rotation of the feeding roll C carries the bottom card forward causing it to enter between the first pair of carrying or wringer rolls G.

As shown in the drawings, these rolls are arranged so that the upper one is slightly in advance of the lower one so as to feed the card in a downward direction as clearly seen in Fig. 2. Practice has shown this is the most desirable location. Rotation of this first set of wringer rolls G, in the direction indicated by the arrows, projects the card downwardly until it contacts the platform I, which directs it into the second set of carrying or wringer rolls H. This second set of carrying or wringer rolls should be rotated at a very much higher rate of speed than the first set which will cause the card to be suddenly drawn taut, raising the body of the card and so causing it to impinge the roller 9 carried by the arm 6. This elevates the roller 9 and in turn the arm 6, and brings the head of the screw 11 in engagement with the insulating button 15'', thus raising the contact bar 15', which carries the contact point 15, causing it to make contact with the contact point 16 so closing the circuit and causing the counting mechanism 19 to register one unit on the number dials.

When the card 20 leaves the first set of carrying or wringer rolls G, it drops onto the platform I, to the position shown in Fig. 4, where it will be clear of the following card. This lowered position of the card 20 permits the roller 9 to drop back to its normal position as shown in Fig. 2, and be ready to be actuated by the body of the next succeeding card as it is drawn taut when it is engaged by the high speed carrying or wringer rolls H.

After the card is ejected by the second set of wringer rolls H, it will strike the deflector horns K and the stacker roll J, and be stacked upon a conveyor belt as described in application Serial No. 286,570.

Although I have described a specific form of construction for this device, it will be obvious that many changes may be made in the specific apparatus employed and I do not desire to be limited to the construction shown in the drawings, except as to such limitations as may appear in the hereinafter appended claims.

Having described my method, what I regard as new and desire to secure by Letters Patent is:

1. A sheet counting machine comprising a pair of feed rolls having a bight whose tangent is inclined downwardly in the direction of feed, means for rotating said rolls, a second pair of rolls having a bight below that of the first said rolls but above said tangent, a deflecting element arranged between said pairs of rolls below a line passing between said bights to deflect a sheet towards the bight of said second rolls, a movable counter actuator supported above the normal path of a sheet being fed but below a line passing between said bights, and means for rotating said second rolls at a higher peripheral speed than said first rolls whereby a sheet engaged by both pairs of rolls will be drawn taut so as to elevate its body to engage said actuator and operate the same.

2. A sheet counting machine comprising sheet gripping means having a downwardly inclined direction of feed, means for actuating said gripping means, a second gripping means below the first said gripping means but above said direction of feed, deflecting means arranged between the first and second said gripping means to deflect a sheet towards said second gripping means, a movable counter actuator supported above the normal path of a sheet being fed but below a line passing between said gripping means, and means for operating said second gripping means at a higher sheet feeding rate than the first said gripping means, whereby a sheet engaged by both of said gripping means will be drawn taut so as to elevate its body to engage said actuator and operate the same.

NELSON S. WELK.