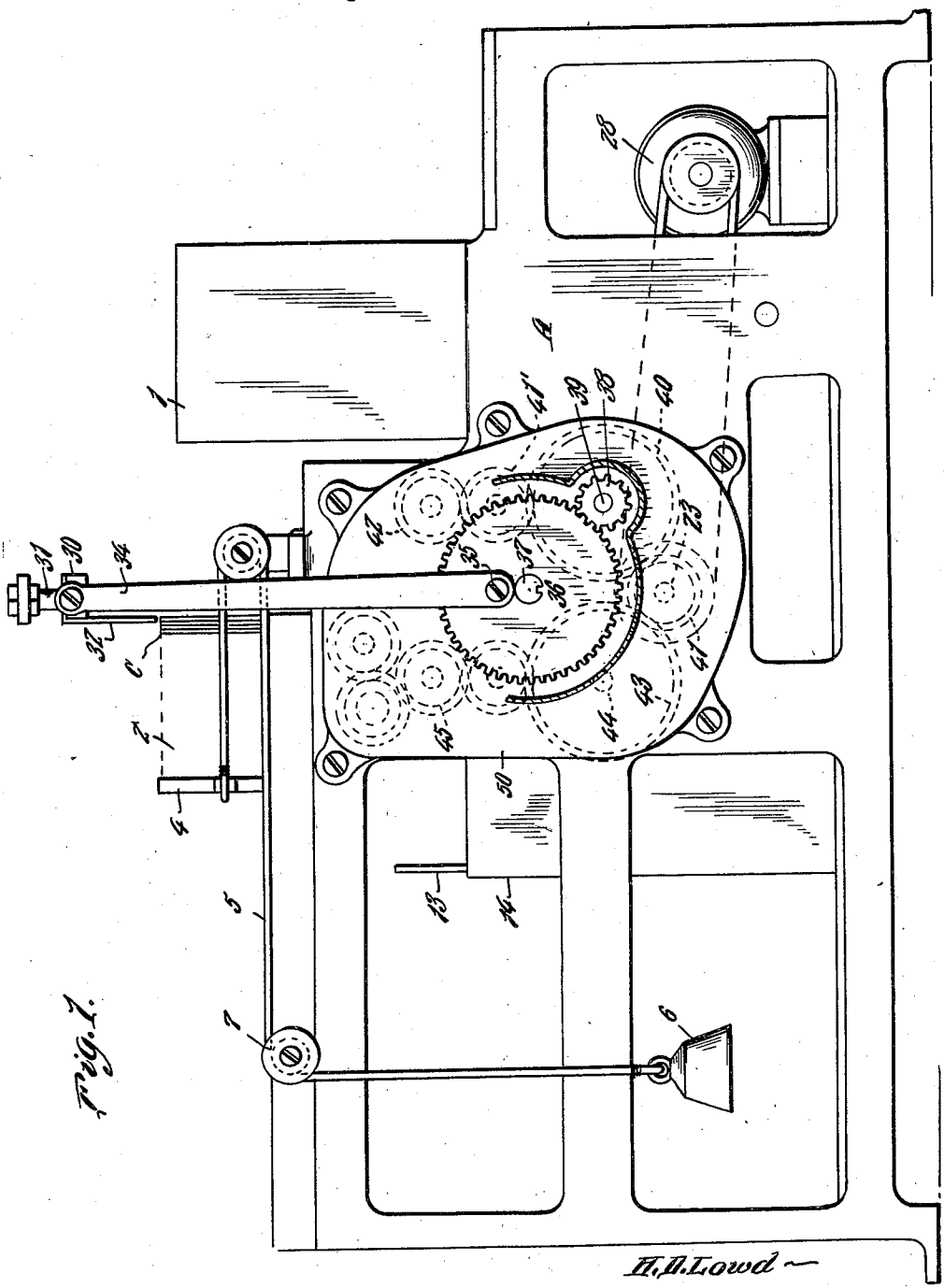
April 22, 1930. H. D. LOWD 1,755,884

CARD COUNTING MACHINE

Original Filed March 26, 1927 5 Sheets-Sheet 1



H. D. Lowd
INVENTOR

BY Victor J. Evans
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April 22, 1930. H. D. LOWD 1,755,884

CARD COUNTING MACHINE

Original Filed March 26, 1927 5 Sheets-Sheet 2

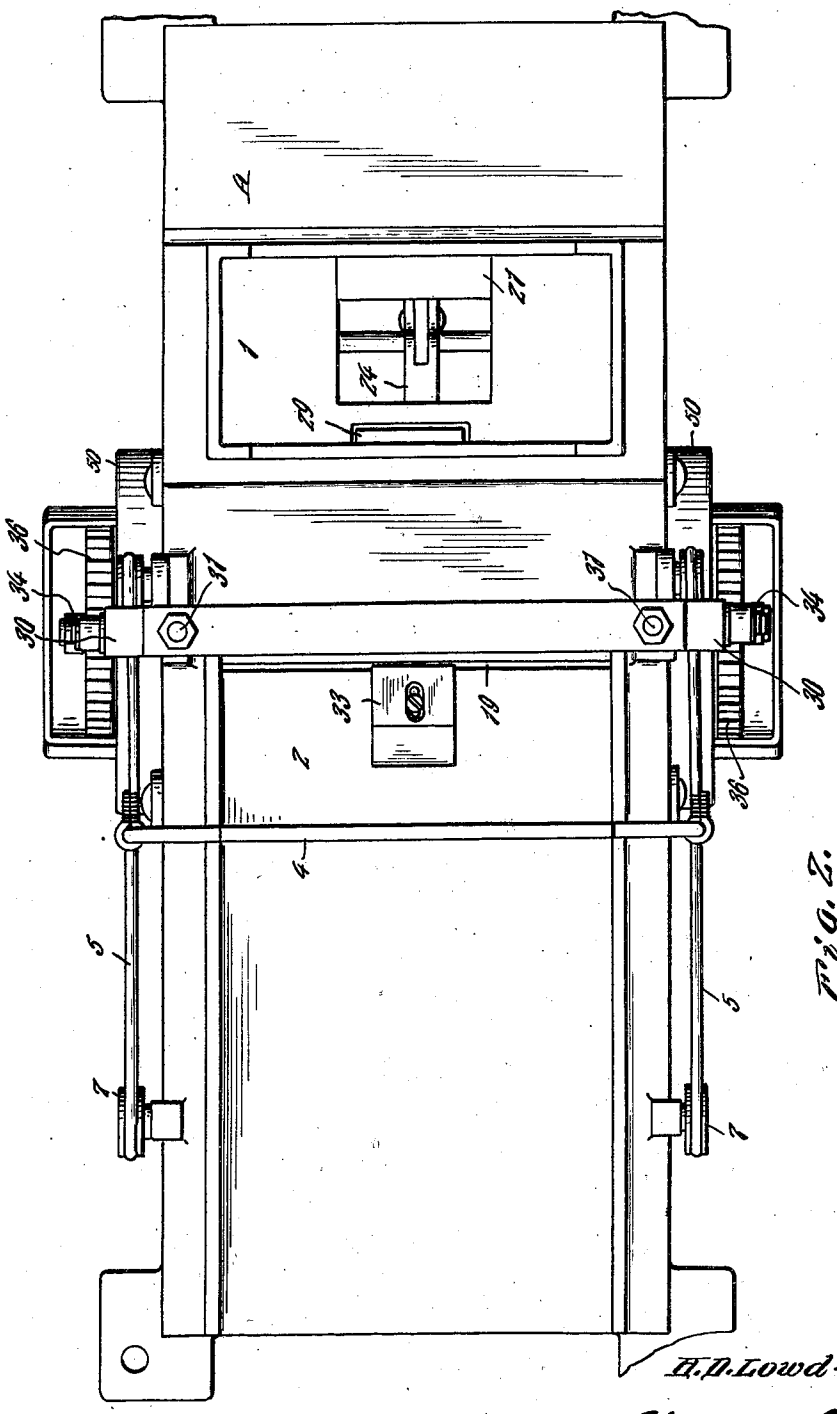


Fig. 2.

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CARD COUNTING MACHINE

Original Filed March 26, 1927 5 Sheets-Sheet 3

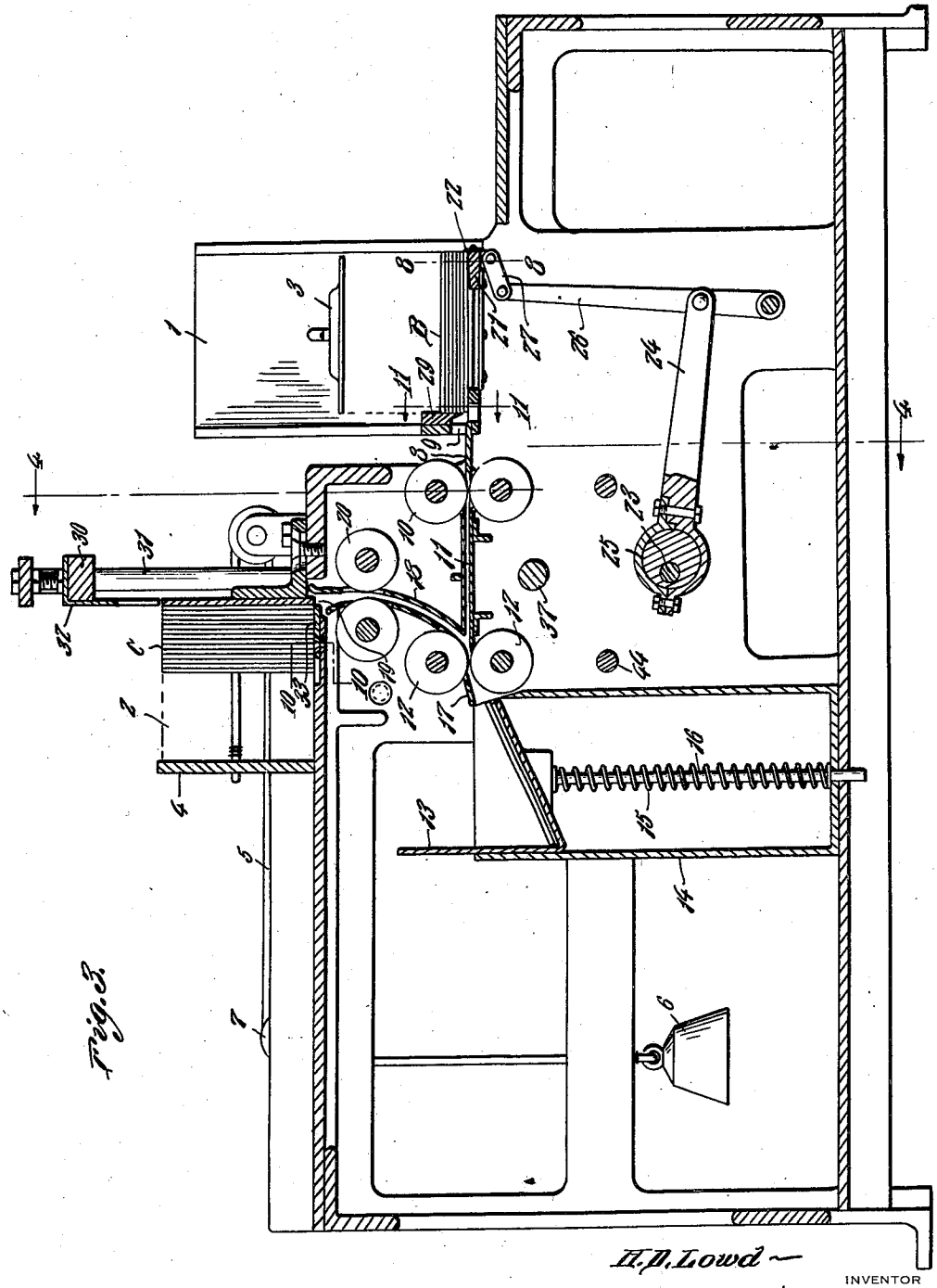


Fig. 3.

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CARD COUNTING MACHINE

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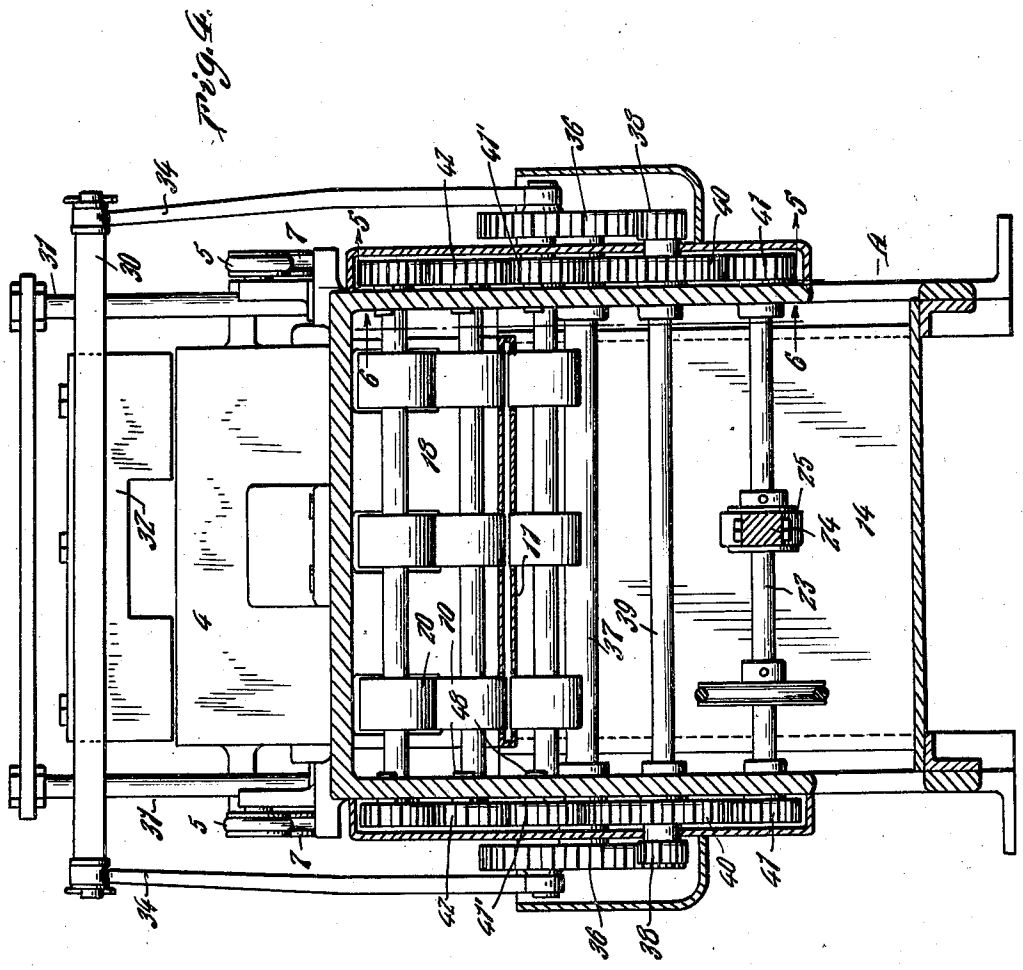


Fig. 4.



Fig. 4a.

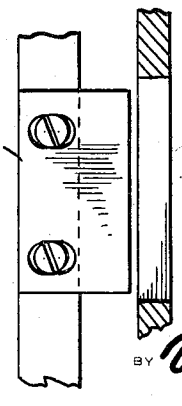


Fig. 4b.

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April 22, 1930. H. D. LOWD 1,755,884

CARD COUNTING MACHINE

Original Filed March 26, 1927 5 Sheets-Sheet 5

Fig. 7.

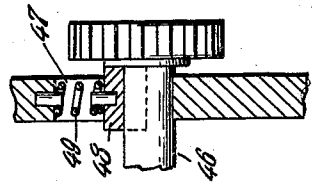


Fig. 8.

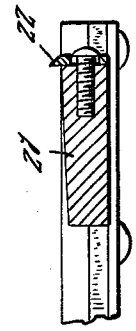


Fig. 9.

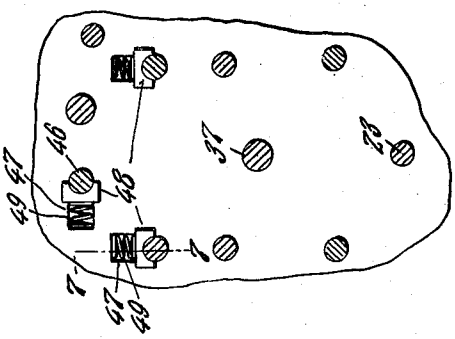


Fig. 10.

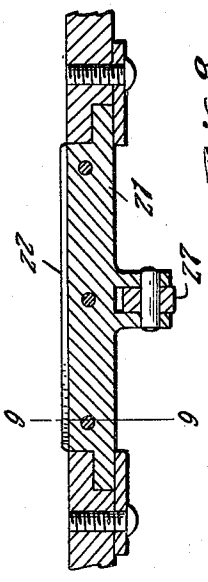
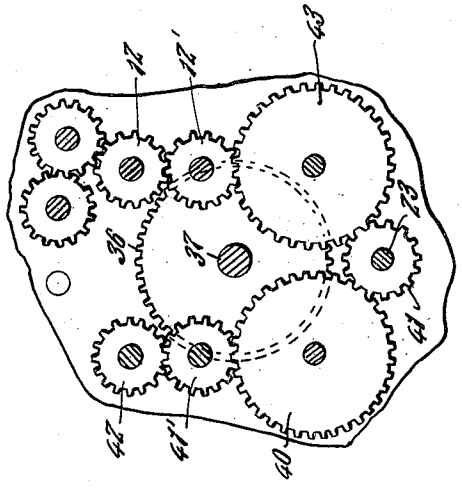


Fig. 11.



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Patented Apr. 22, 1930 1,755,884

UNITED STATES PATENT OFFICE

HARRY DAVID LOWD, OF NASHUA, NEW HAMPSHIRE

CARD-COUNTING MACHINE

Application filed March 26, 1927, Serial No. 178,795. Renewed October 10, 1929.

This invention relates to a card handling machine, the general object of the invention being to provide means for separating groups of cards by cards of a different color from the other cards, each group of cards containing the same number of cards.

Another object of the invention is to so construct the apparatus that it can be set, by changing the gears, to place any desired number of cards in each group.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claims.

In describing my invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:—

Figure 1 is an elevation of the apparatus.

Figure 2 is a top plan view thereof.

Figure 3 is a longitudinal sectional view thereof.

Figure 4 is a section on line 4—4 of Figure 3.

Figure 5 is a section on line 5—5 of Figure 4.

Figure 6 is a section on line 6—6 of Figure 4.

Figure 7 is a section on line 7—7 of Figure 6.

Figure 8 is a section on line 8—8 of Figure 4.

Figure 9 is a section on line 9—9 of Figure 8.

Figure 10 is a section on line 10—10 of Figure 4.

Figure 11 is a section on line 11—11 of Figure 4.

In these views, A indicates the frame of the machine which embodies a reservoir 1 for the cards B to be grouped, and the reservoir 2 for the cards C which act as the signal cards or the cards for separating the groups of cards B. A weighted cover 3 is adapted to be placed on the cards B to place them under pressure, while a follower plate 4, to which are attached cables 5 which support the weights 6, holds the cards C under pressure, the cables passing over the guiding pulleys 7. A horizontal guiding plate 8 guides the cards leaving the opening 9 in the lower end of the reservoir 1 to the guiding rollers 10 and a horizontal guideway 11 guides the cards from the feeding or guiding rollers 10 to the feeding rollers 12 which feed the cards into the vertically movable receiver 13 located in a receptacle 14 and normally held in raised position by the coiled spring 15 placed on the rod 16 which is connected with the bottom of the receiver and passes through a hole in the bottom of the receptacle 14. An inclined plate 17 directs the cards leaving the feeding rollers 12 into the receiver 13, the bottom of which is inclined to receive the cards leaving the feed rollers 12. The spring 15 is of such a tension that the weight of the cards will cause the receiver to move downwardly as the cards are deposited in the receiver. A curved chute 18 is arranged to receive the cards passing through the opening 19 in the front lower end of the reservoir 2 and this chute directs the cards to the feeding rollers 12. Other feeding rollers 20 act to feed the cards through the chute 18. Thus it will be seen that both sets of cards are guided to the feeding rollers 12 so that they will be deposited in the receiver 13.

The cards B are fed from the reservoir 1 to the feeding rollers 10 by means of a slide 21 movably mounted in the bottom of the reservoir 1 and having a plate 22 adjustably connected with its front edge which has its beveled edge projecting slightly above the slide so that as the slide is moved toward the opening 9, it will move the bottom card of the group B with it through the opening and against the feeding rollers 10 so that these rollers will seize the card and pass it to the rollers 12 through the guide 11. The slide 21 is reciprocated through means of a shaft 23, the arm 24 which is operated from the shaft by the eccentric 25 and the lever 26 which is rocked by the movement of the arm 24 and which is connected with

the slide 21 by the link 27. This shaft 23 is belted to a motor 28.

A gauge plate 29 is adjustably mounted on a wall of the reservoir 1 and partly covers the opening 9 so that but a single car can pass through said opening under the action of the slide or ejector 21. An ejector bar 30 is provided for ejecting the cards C from the reservoir 2 into the chute 18, this bar being vertically movable on the guide rods 31 and having the ejector plate 32 thereon which engages the first card in the reservoir and pushes it through the opening 19, which is adjustable by the gauge plate 33, when the bar 30 is moved downwardly through means of the links 34 which have their upper ends pivotally connected with the bar 30 and their lower ends engaging the crank pins 35 on the large gears 36 which are fastened to the ends of the shaft 37. These gears 36 mesh with the pinions 38 carried by a shaft 39 and this shaft 39 carries the gears 40 which mesh with the pinions 41 on the drive shaft 23. The gears 40 mesh with the pinions 41′ on the lower feed roller 10 and these gears 41′ also mesh with the gears 42 on the upper feed roller 10. The pinions 41 mesh with gears 43 carried by a shaft 44 and a train of gears 45 communicate the movement of the gears 43 to the feed rollers 12 and 20.

Thus both ejecting means and all the feed rollers are driven from the motor 28 and as will be seen, the means for actuating the ejecting means of the reservoir 1 cause the said ejecting means to operate much faster than the ejecting means for the reservoir 2. As shown, the ejecting means for the reservoir 1 will operate twelve times while the ejecting means for the reservoir 2 are operating once. Thus twelve cards B will be fed from the reservoir 1 into the receiver 13 and then one card will be fed from the reservoir 2 into the receiver. The card C from the reservoir 2 will pass through the feeding rollers 12 with the twelfth card B from the reservoir 1. Thus the cards B are separated into groups of twelve cards each by the cards C, it being understood that these cards C are of a different color or otherwise distinguished from the cards B. It will also be understood that by changing the gear ratio, the machine can be set to divide the cards B into groups of any desired number of cards.

One roller of each pair is movably arranged with respect to the other roller and is yieldingly held against said other roller by having its pintles 46 arranged in slots 47 formed in the frame, with the bearing blocks 48 for the pintles engaged by springs 49 which act to press the roller against the other roller, but permits the rollers to separate so that a card can pass through the rollers.

The gears are enclosed in the housings 50.

From the foregoing it will be seen that I have provided simple means for placing cards in groups, the groups being separated by signal cards which are made distinctive from the other cards, the machine being automatic in operation and being capable of being adjusted to handle cards of different thicknesses and also being capable of being set to make the groups contain any desired number of cards.

It is thought from the foregoing description that the advantages and novel features of my invention will be readily apparent.

I desire it to be understood that I may make changes in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claims.

What I claim is:—

1. A machine of the class described comprising a receiver, a pair of card reservoirs, a pair of feeding rollers arranged adjacent the receiver, guiding means for leading the cards from each reservoir to the feeding rollers, an ejector for each reservoir for ejecting the cards therefrom one at a time into the guiding means and means for operating the ejecting means of one reservoir faster than the ejecting means of the other reservoir.

2. A machine of the class described comprising a receiver, yieldable means for holding the same in raised position, a pair of card reservoirs, a pair of feeding rollers arranged adjacent the receiver, guiding means for leading the cards from each reservoir to the feeding rollers, an ejector for each reservoir for ejecting the cards therefrom one at a time into the guiding means, means for operating the ejecting means of one reservoir faster than the ejecting means of the other reservoir and means for placing the cards in each reservoir under pressure to hold the first card in each reservoir in a position where it will be acted on by the ejecting means.

3. A machine of the class described comprising a receiver, spring means for holding the receiver in raised position but permitting it to move downwardly under the weight of cards placed therein, feeding rollers for discharging the cards into the receiver, a pair of card reservoirs, means for guiding the cards from each reservoir to the feeding rollers, each of such means including guiding rollers, ejector means for ejecting the cards one at a time from each reservoir into the guiding means, means for actuating one ejector means faster than the other, means for placing the cards in the reservoirs under pressure, power means and means for actuating the ejector means and the feeding rollers from said power means.

4. A machine of the class described comprising a pair of reservoirs for receiving cards, each reservoir having an opening therein, a horizontally arranged slide in one reservoir, a card engaging member thereon for ejecting cards from said reservoir when the

slide is reciprocated, an ejector bar, guiding means for the same for permitting the same to be moved vertically, a member on the bar for engaging the cards in the second reservoir to eject them one by one therefrom, means for reciprocating the slide, means for moving the bar, the latter means actuating at less speed than the other means so that the slide is moved a greater number of times than the bar, a receiver and means for causing the cards from each reservoir to enter the receiver.

5. A machine of the class described comprising a pair of reservoirs for receiving cards, each reservoir having an opening therein, a horizontally arranged slide in one reservoir, a card engaging member thereon for ejecting cards from said reservoir when the slide is reciprocated, an ejector bar, guiding means for the same for permitting the same to be moved vertically, a member on the bar for engaging the cards in the second reservoir to eject them one by one therefrom, means for reciprocating the slide, means for moving the bar, the latter means actuating at less speed than the other means so that the slide is moved a greater number of times than the bar, a receiver, means for causing the cards from each reservoir to enter the receiver, the latter means including pairs of feeding rollers and means for yieldingly holding a roller of each pair against the other roller.

6. A machine of the class described comprising a pair of reservoirs for receiving cards, each reservoir having an opening therein, an adjustable gauge for partially covering each opening, a horizontally arranged slide in one reservoir, an adjustable card engaging member thereon for ejecting cards from said reservoir when the slide is reciprocated, an ejector bar, guiding means for the same for permitting the same to be moved vertically, a member on the bar for engaging the cards in the second reservoir to eject them one by one therefrom, means for reciprocating the slide, means for moving the bar, the latter means, actuating at less speed than the other means so that the slide is moved a greater number of times than the bar, a receiver, means for causing the cards from each reservoir to enter the receiver, the latter means including pairs of feeding rollers, means for yieldingly holding a roller of each pair against the other roller and power means for operating the slide and bar actuating means and the feeding rollers.

7. A card handling machine comprising a frame, a pair of card reservoirs on said frame, a card receiver on said frame, a pair of feed rollers adjacent said receiver for feeding cards into the same, guideways leading from said card reservoirs and converging adjacent said feed rollers to feed cards between the rollers, rollers adjacent to and projecting into said guideways for moving the cards therealong, means for ejecting the cards from said reservoirs into said guideways and means for operating said ejecting means in a predetermined ratio of speed to each other.

In testimony whereof I affix my signature.

HARRY DAVID LOWD.