

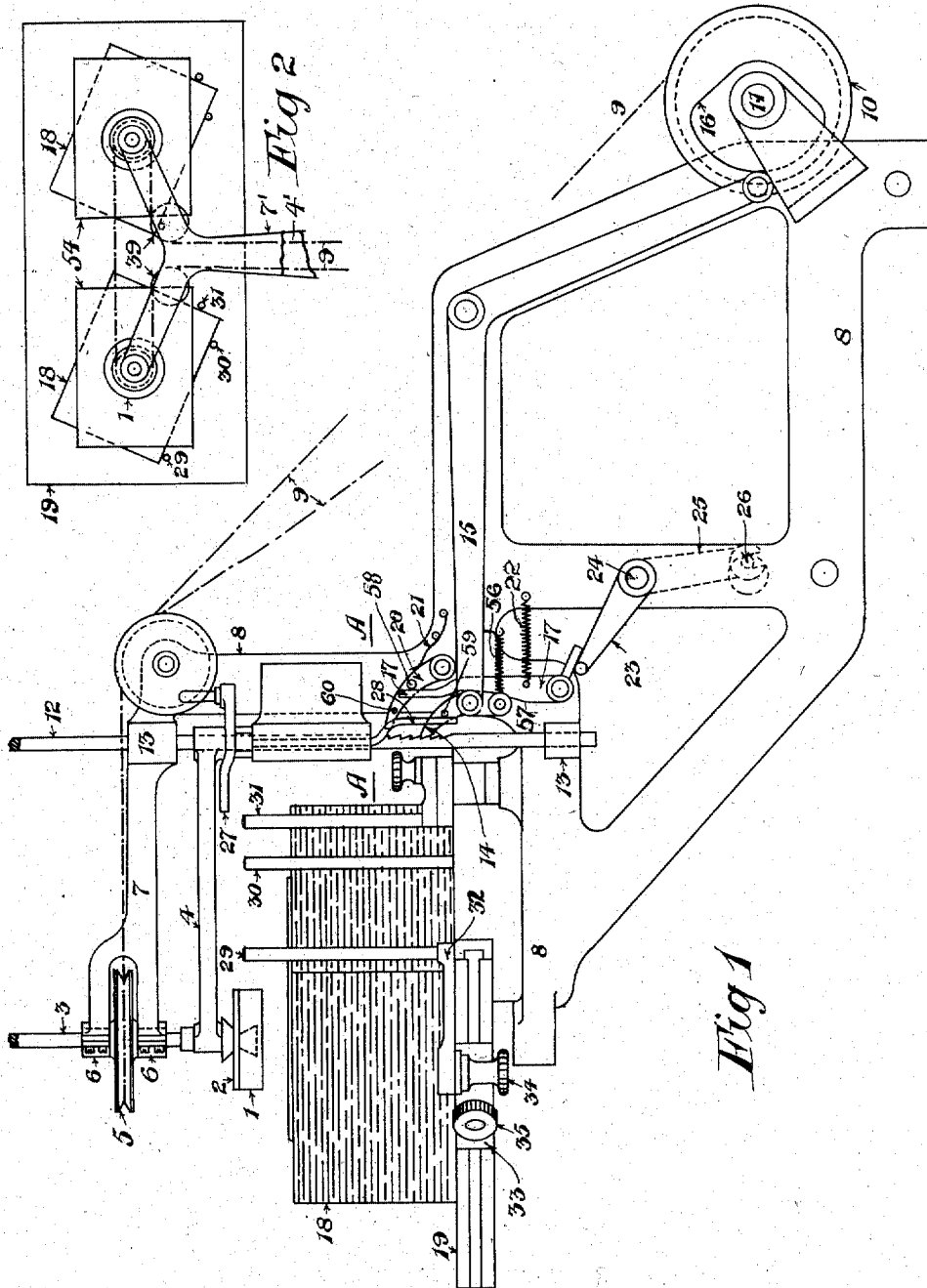
C. BUTTERFIELD.
SELECTING MECHANISM.

APPLICATION FILED MAR. 15, 1909.

Patented Feb. 14, 1911.

2 SHEETS—SHEET 1.

984,417.



Witnesses:
L. C. Mady
C. Barker

Inventor:
Charles Butterfield
By J. S. Barker
his Atty.

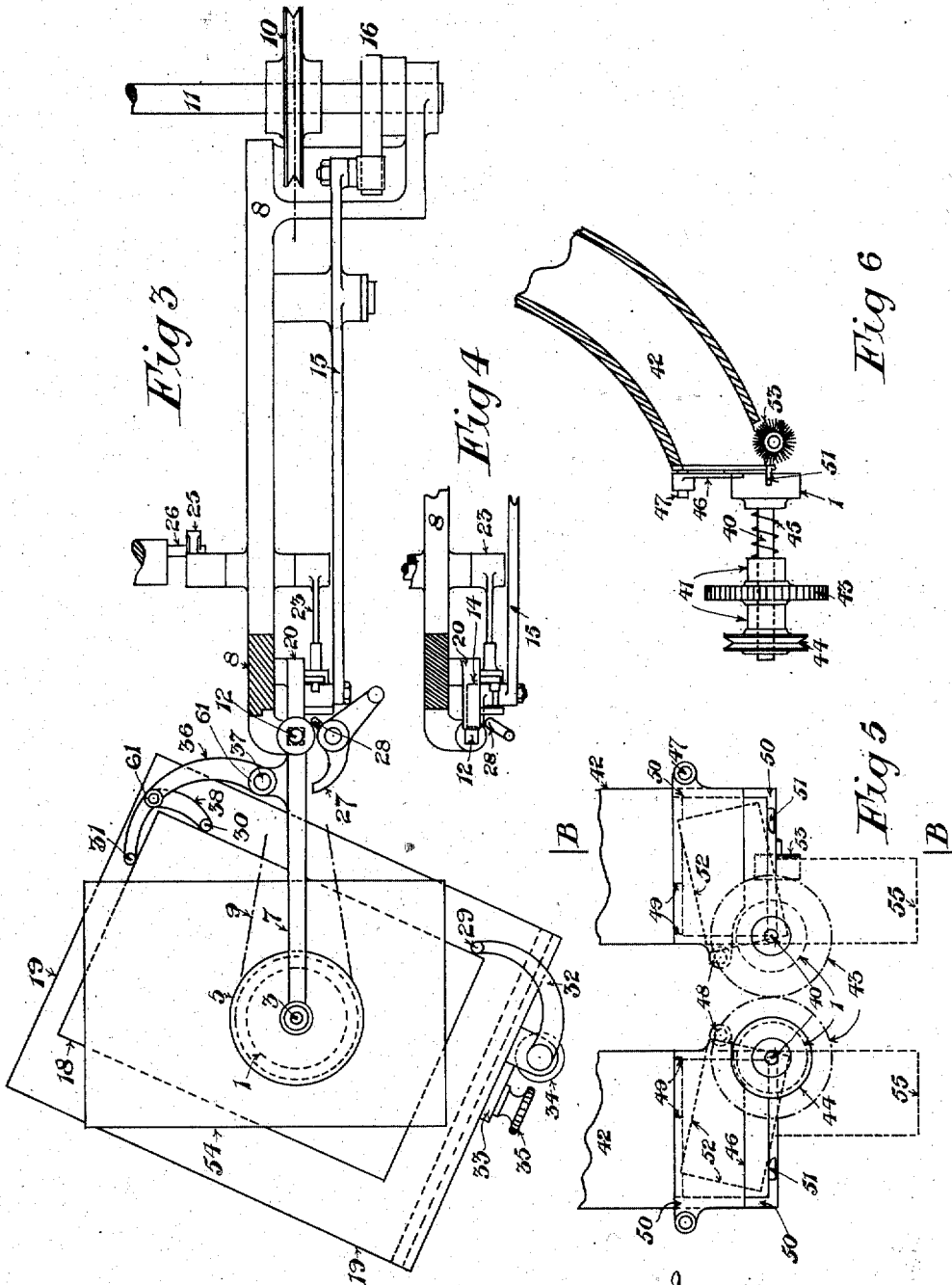
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UNITED STATES PATENT OFFICE.

CHARLES BUTTERFIELD, OF NOTTINGHAM, ENGLAND.

SELECTING MECHANISM.

984,417.

Specification of Letters Patent. Patented Feb. 14, 1911.

Application filed March 15, 1909. Serial No. 483,549.

To all whom it may concern:

Be it known that I, CHARLES BUTTERFIELD, a subject of the King of Great Britain, and a resident of Nottingham, England, have invented new and useful Improvements in Selecting Mechanism, of which the following is a specification.

This invention has for its object the provision of improved means by which a sheet of paper, a card, an envelop or the like may be selected from a number and moved into such a position that it can be readily dealt with by the workman or be seized or engaged by automatic feeding mechanism, the said invention being particularly suitable for use in connection with printing machines, ruling machines, folding machines and other similar machines in which sheets, cards or the like have to be dealt with separately.

In the accompanying drawings:—Figure 1. is a side elevation of the improved mechanism as used for sheets of paper. Fig. 2. is a diagrammatic plan of an arrangement for dealing with two sheets at the same time. Fig. 3. is a plan of the mechanism shown in Fig. 1. Fig. 4. is a sectional plan on the line A. A. Fig. 5. is a front elevation of the mechanism as arranged for dealing with envelopes, cards and the like, and Fig. 6. is a sectional elevation on the line B. B. Fig. 5.

The improved mechanism is provided with a pad 1 which may be made of the same composition as that used for the ink distributing rollers of printing machines. This pad is cast on, or otherwise attached, to a plate 2 on the end of a spindle 3 which has a bearing in the end of an arm 4 and is held from end movement in such bearing. The upper part of the spindle is fitted to slide in a pulley 5 but is prevented from turning in such pulley while the pulley has bearings 6 in an arm 7 which is connected to the frame piece 8. In the arrangement shown the pulley is rotated continuously by a cord 9 from a pulley 10 on the shaft 11, and such shaft may be any suitable shaft in the machine to which the mechanism is applied or it may be a shaft driven from the machine. The arm 4 carrying the selecting pad 1 is attached to a rack slide 12 which is fitted to slide in guides 13 carried by the frame piece 8 and is raised after each sheet has been selected by a pawl 14 on a lever 15 which is actuated by a cam 16 on the shaft 11. The lower end

of the pawl 14 is held by a spring 56 in contact with the cam shaped edge 57 of the lever 17 which lever is so shaped that as the pawl 14 moves down it is disengaged from the slide and the pad 1 is thus left free to descend as the height of the pile of sheets 18 on the table 19 is lowered by the removal of the sheets. There is also a retaining pawl 20 provided with a pin 58 which is normally held by the spring 21 in contact with the upper end of the lever 17 and this lever is held by a spring 22 in contact with a lever 23 mounted on an axle 24 and connected by a lever 25 to a crank pin 26 which is worked from the "throw out" mechanism of the machine to which the selecting mechanism is fitted, and these parts are so arranged that when the "throw out" mechanism is operated the pawl 20 falls into gear with the rack slide and holds the pad clear of the sheets 18 and the pawl 14 is held out of gear. The mechanism is also provided with means by which it is rendered inoperative. Such mechanism consists of a lever 27 which can be moved under the arm 4, the lower end of the spindle carrying the lever 27 being cranked, as at 28, so that when the lever 27 is moved under the arm 4, the crank 28 comes into contact with pins 59 and 60 carried by the pawls 14 and 20, respectively, and moves these pawls clear of the rack slide 12, holding them in that position.

The table 19 is provided with three upright rods 29, 30 and 31 which serve as guides for fixing the sheets on the table and also assist in the separation of the top sheet from the one below. The rod 29 is carried by a lever 32 which is pivotally mounted on a bracket 33 and provided with a screw 34 for fixing it in position while the bracket 33 is fitted to slide in a groove in the edge of the table and can be fixed in any position by a nut 35. The rod 31 is carried by a lever 36 which is pivotally mounted at 37 to the frame 8 and the rod 30 is carried by a lever 38 which is pivoted to the lever 36, and both levers are provided with nuts 61 or equivalent means for fixing them in their placed positions.

In the arrangement shown in Fig. 2 the arm 7 is divided to carry the bearings for the vertical shafts of two pads and is provided with guide pulleys 39 by which the cord 9 is guided to drive both pads in the same direction. In this arrangement the pads are carried by an arm 4' which is of

the same shape in plan as the arm 7' represented in Fig. 2, and is moved vertically in the same way as the corresponding arm 4 shown in Fig. 1.

5 In the arrangement shown in Figs. 5 and 6 the selecting mechanism is shown as used for the selecting of cards, envelopes and like articles and the drawings illustrate how the mechanism is arranged for the simultaneous
10 selection of two articles. The selecting pads 1 are mounted on spindles 40 which have bearings 41 carried by a lever or slide which is moved to and from the end of the chutes 42 by suitable mechanism. The two spindles
15 are geared together by toothed wheels 43 which are connected to the spindles by feather or spline and key way connections to allow of the spindles sliding relative to the wheels. Attached to one of the spindles
20 is a driving pulley 44. The spindles are thus positively rotated and can also slide in their bearings, as in the construction illustrated in Fig. 1 and already described, but are normally held in their forward positions
25 by springs 45, instead of by the force of gravity, as in the Fig. 1 construction. The articles to be selected are placed in the inclined chute 42, or its equivalent, and by their weight the end article is held in contact
30 with a plate 46 which is adjustably mounted on studs 47, 48 so that its distance from the end of the chute can be varied. The ends of the chute are made with projecting pieces 49 and 50 and a lug 51 which
35 projects slightly beyond the plate 46 to allow of the end article falling into the dotted line position 52 and there is a rotating brush 53 by which the article at the lower end of the chute is brushed forward up to
40 the plate 46 and into such a position that the end article falls into the position 52 and rests in contact with the lug 51 and the pin 48.

The selecting pad is preferably made of
45 the same composition as is used for the ink distributing rollers of a printing machine, but other materials or compositions possessing similar qualities and producing a greater amount of friction when in contact with the
50 sheet than is produced by the same pressure between two adjacent sheets, may be used, and the pad may be in one or more pieces arranged to act as a single pad. The pads herein described are rotated continuously
55 but they may be rotated intermittently or they may be reciprocated, provided they are always moved in the same direction when in contact with the sheets or other articles.

60 With the apparatus herein described the sheets to be selected are placed on the table 19 and the guides 29, 30 and 31 adjusted. The mechanism is then put in motion and the pad 1 is lowered on to the top sheet and
65 as soon as the friction between the pad and

top sheet is greater than the friction between two sheets, the top sheet is gradually turned to the position 54 Fig. 3 the corners of the sheet being turned upward as they pass the
70 guides 29 and 31, and should there be any tendency for two or more sheets to adhere together the rubbing of the edges of the sheets on the pins 29 and 31 tends to separate them and allow of the top sheet being
75 moved to the desired position. When the mechanism is used for the selection of cards and thick sheets the guide pins are so inclined that they offer a minimum resistance to the turning of the card or sheet and so
80 that the edges of the card or sheet can slide up the pins. With the apparatus shown in Figs. 5 and 6 the end article falls into the position 52 and the pad, which is opposite a corner of the sheet, is brought into contact
85 with the lowest corner of the article and turns it from the position 52 to the position 55.

The position to which the selected sheet or other article is turned depends upon the length of time the pad is in contact with the
90 sheet or other article and this time may be varied according to the purpose for which the mechanism is used. If used for hand feeding it is sufficient to turn the sheet or other article into a position in which it can
95 be easily taken hold of by the operator, but if used in connection with an automatic feeding mechanism the sheet or other article would be turned until it could be seized by the feeding grippers or fall into a position to
100 be carried forward by tapes, bands or the like.

What I claim in mechanism for selecting and turning sheets of paper, envelopes cards
105 and the like, is:—

1. The combination of a selecting pad, an axle carrying the said pad, a pulley rotating in fixed bearings and turning the pad, an arm carrying the pad axle, a slide provided
110 with ratchet teeth connected with the said arm, reciprocating mechanism for moving the said slide having a pawl arranged to engage with the ratchet teeth thereof, and means for periodically throwing the pawl out from engagement with the said teeth
115 substantially as herein set forth.

2. The combination of a selecting pad having a flat face, means for turning the pad in planes parallel with the said face, a supporting slide carrying the pad, mechanism for
120 lifting the said slide and pad, means for disengaging the slide from the said mechanism to allow the pad to descend, and a means adapted to be connected with throw-out mechanism for operating the said slide-dis-
125 engaging mechanism.

3. The combination of a plurality of independent selecting pads having flat faces adapted to operate respectively upon articles
130 arranged in two independent stacks, an arm

supporting and carrying both of the pads, means for moving the pads simultaneously toward and from the articles on which they operate, and means for simultaneously rotating the said independent pads whereby each selects the article with which it engages from the stack in which it was placed, substantially as set forth.

4. The combination of a selecting pad, a slide carrying the same, mechanism for moving the slide vertically having a lifting pawl

adapted to engage with the slide, a retaining pawl, also adapted to engage with the slide, and a lever for holding the pad out of action, a crank arranged to throw out of action the actuating pawl and the retaining pawl substantially as herein set forth.

CHARLES BUTTERFIELD.

Witnesses:

WILLIAM H. POTTER,
NATHANIEL W. NEED.

It is hereby certified that in Letters Patent No. 984,417, granted February 14, 1911, upon the application of Charles Butterfield, of Nottingham, England, for an improvement in "Selecting Mechanism," an error appears in the printed specification requiring correction as follows: Page 3, line 15, before the words "a crank" the words *provided with* should be inserted; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 14th day of March, A. D., 1911.

[SEAL.]

E. B. MOORE,
Commissioner of Patents.