

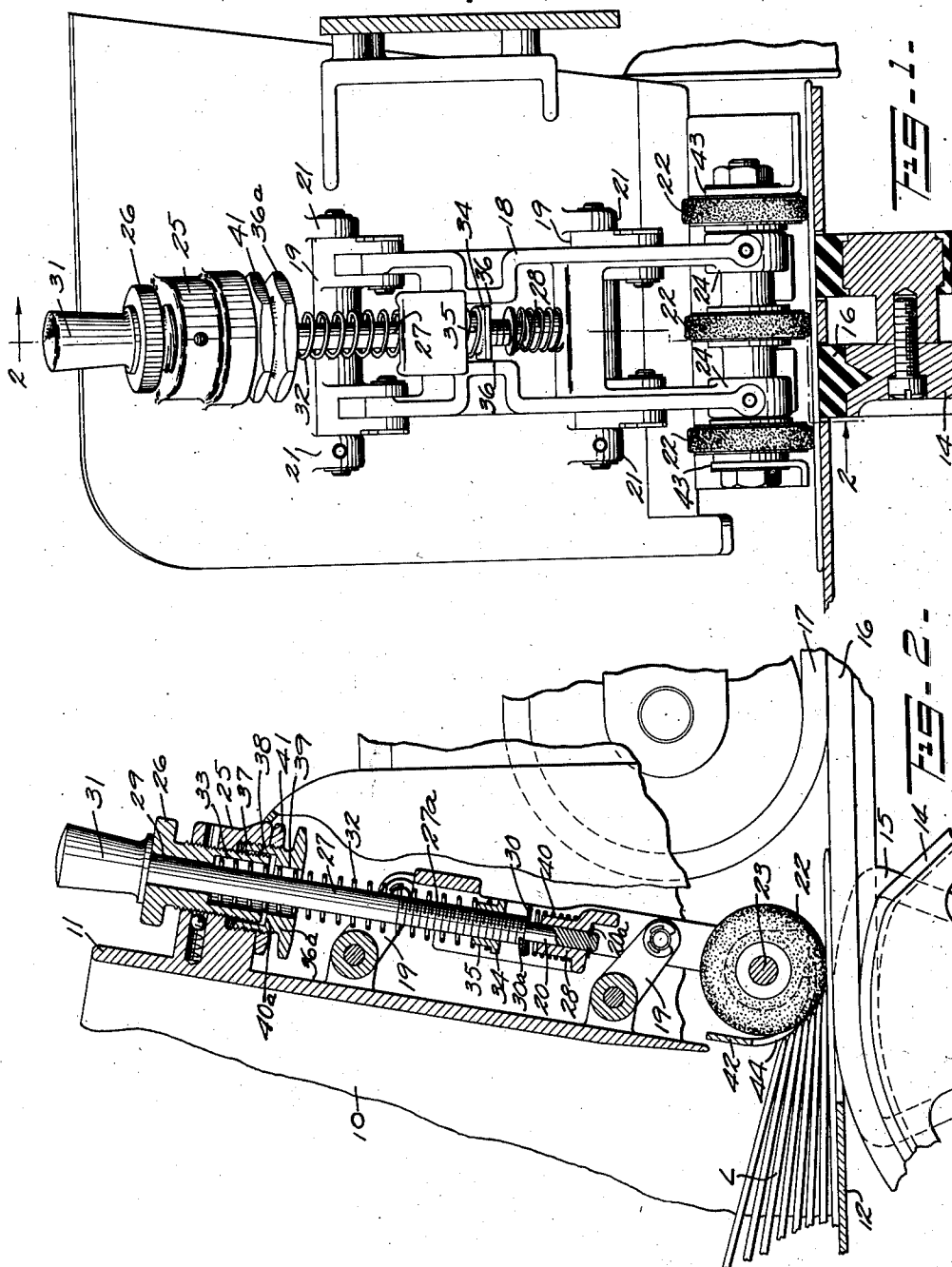
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LETTER FEED AND SEPARATOR DEVICE

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LETTER FEED AND SEPARATOR DEVICE

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This invention relates to a device for use in a power fed postage printing machine with particular regard to the feed and separation of letters from a superimposed stack of letters, and is an improvement of the device disclosed in Patent 2,273,288.

It is the principal object of the invention to provide a simplified means for providing a quick adjustment for frictional letter engaging elements which cooperate with means for feeding the lowermost letter from a stack of letters.

It is another object to provide adjustment devices for the frictional letter engaging elements which are controlled by lifting a knob to raise the said letter engaging elements to provide for the release of an occasional thick letter, by rotation of a thumb screw at substantially the same location as the knob, to effect a quick fixed adjustment of the letter engaging elements, and by rotation of the knob to change the tension applied to said letter engaging elements.

A preferred embodiment of the invention is disclosed in the drawings wherein:

Fig. 1 is a front elevational view of the letter separating device with a part of the letter feed means and feed plate shown in section; and

Fig. 2 is a sectional view taken substantially along the line 2—2 of Fig. 1.

Referring to the drawings in detail, a letter feed hopper, indicated at 10, includes a front wall 11, the lower end of which is spaced above a feed plate 12.

A feed pulley 14 is positioned below the feed plate 12, and has an extended portion 15 to provide for a so-called bump feed. A frictional surfaced belt 16, extending from said pulley 14, cooperates with a driven belt 17 to effect the feed of each letter fed from the hopper 10.

A separator unit is provided to restrict the feed of single letters from the stack and includes a substantially H-shaped supporting bracket 18, which is yieldably supported by a pair of yoke-shaped parallel links 19—19, the latter being pivotally mounted on lugs 21 projecting from the front wall 11 of the hopper 10.

Three frictional surfaced elements 22, preferably abrasive wheels, are supported on a shaft 23, and the shaft is supported by bearings 24—24 at the lower end of the bracket 18.

A supporting lug 25 projects from the front of the wall 11 and has a thumb screw 26 adjustably mounted therein.

A rod 27, has a reduced lower end 20 rotatively mounted within a bearing 28, which bearing projects upwardly from a central connecting bridge portion of the yieldable supporting bracket 18.

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The upper end of said rod 27 is slidably mounted within an opening 29 in the thumb screw 26 and has a knob 31 thereon. The lower end 20 is retained within the bearing 28 by means of a clip washer as indicated at 20a.

By means of a compression spring 32, pressure is applied to normally urge the bracket 18 and frictional separator elements 22 downward. Said spring 32 has the upper end thereof confined within a cavity 33 in the lower end of the thumb screw 26, and has the lower end thereof in engagement with a square flanged portion 34 of an internally threaded collar 35. By means of a threaded portion 27a, of the rod 27, the said collar 35 is adapted to be moved either upward or downward when the knob 31 is rotated. Rotation of the collar 35 is prevented by the confinement of the flat edges of the square flange between two flat surfaces 36—36 of the bracket 18, as best shown in Fig. 1. Pressure of the spring 32 is thus adapted to be increased or decreased when the knob 31 is rotated to move the collar upward or downward respectively, to thereby increase or decrease the pressure of the frictional surfaced elements 22 against the surface of the lowermost letter when it is fed therebeneath. A washer 30, urged against a shoulder 30a, at the lower end of the rod 27 by a spring 40, will force the rod 27 upward to take up play in the support thereof and will absorb shock.

The letters indicated at L and stacked in the hopper 10, will vary in thickness, but, by rotating the knob 31 or thumb screw 26, it is possible to adjust the tension of the spring 32 or the height of the elements 22 respectively to a degree which will permit the feed of single letters of a reasonable range of thicknesses.

It will be noted that either of these two adjustments can be effected at precisely the same position of the hand, by either the rotation of the knob 31 or the thumb screw 26.

Occasionally an extra heavy piece of mail will be mixed with the hopper supply and when this piece reaches the frictional elements 22 the resistance will be too great to permit feeding. An upward pull on the knob 31 will quickly free the heavy piece. Release of the knob 31 will allow the device to return to its original set position.

The structure of the device further includes a screw threaded member 36a which is adopted to be screwed into a threaded opening 37 in the lower surface of the thumb screw support 25. A clearance cavity 38 is provided in the member 36a for the threaded end of the thumb screw to enter, also a clearance opening 39 for the

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spring 32. Said member 36 is also locked with-
in the threaded opening 37 by means of a lock
nut 41. The bottom of the cavity 38 forms a
seat 40a which is adapted to be engaged by the
bottom of thumb screw 26 to effect a limit stop
for the downward adjustment of said thumb
screw. A stop of this character becomes useful
when there is an occasional run of material such
as post cards or the like which would normally
require that the frictional surfaced elements be
set closer to the surface of the feed plate than
for letters. Whenever it becomes necessary to
adjust the thumb screw for a run of cards, the
screw is rotated until the lower end becomes
seated as at 40a.

A guard 42 is also provided, which guard has
ears 43 secured to the shaft 23 and includes a
curved shielding surface 44 to permit only a few
of the lowermost letters to engage the frictional
surfaced elements 22.

What is claimed is:

1. In a letter feeding and separating device,
the combination with a hopper having a stack
of letters therein and a bracket yieldably sup-
ported on one wall thereof, the bracket includ-
ing friction surfaced elements thereon position-
ed in the path of the lowermost letters to re-
strict feeding to that of the lowermost letter
during a feeding cycle of operation; of devices
to limit the position of the friction surfaced el-
ements in a downward direction and comprising,
a support on the hopper wall, a member adjust-
ably positioned within said support, a manipula-
tive rod freely positioned within an opening in
said adjustable member and having the lower
end thereof secured to and rotative within a por-
tion of the yieldable bracket, a screw thread on
the lower portion of the rod and an internal
threaded collar screwed thereon, means to pre-
vent rotation of said collar, a coil spring com-
pressed between the adjustable member and
threaded collar, and a knob at the opposite end
of the rod seated against the surface of the ad-
justable member, whereby the bracket may be
manually raised by an upward thrust of said
knob to remove the friction surfaced elements
from the path of the lowermost letter or a
change of compression may be effected in the coil
spring by rotation of the knob, and whereby ver-
tical adjustment of the position of the yieldable
bracket may be made by adjustment of the ad-
justable member.

2. In a letter feeding and separating device,
the combination with a hopper having a stack
of letters therein and a bracket yieldably sup-
ported on one wall thereof, the bracket includ-
ing a plurality of friction surfaced elements
thereon positioned in the path of the lowermost
letters to restrict feeding to that of the lower-
most letter during a feeding cycle of operation;
of devices to limit the position of the friction
surfaced elements in a downward direction and
comprising, a support on the hopper wall and
having an adjustable thumb screw therein, a
manipulative rod freely positioned within an
axial opening in said thumb screw and having
the lower end thereof secured to and rotative
within a portion of the yieldable bracket, a screw
thread on the lower portion of the rod and an
internal threaded collar screw thereon, means
associated with the collar to prevent rotation
while allowing axial adjustment thereof, a coil
spring compressed between the adjustable thumb
screw and threaded collar and a knob at the
upper end of the rod seated against the upper

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surface of the thumb screw, whereby the bracket
may be manually raised by an upward thrust
of said knob to remove the friction surfaced el-
ements from the path of the lowermost letter
or a change of compression may be effected
in the coil spring by rotation of the knob
and whereby vertical adjustment of the position
of the yieldable bracket may be made by rota-
tion of the thumb screw.

3. In a letter feeding and separating device,
the combination with a hopper having a stack
of letters therein and a bracket yieldably sup-
ported on one wall thereof, the bracket includ-
ing friction surfaced elements thereon position-
ed in the path of the lowermost letters to restrict
feeding to that of the lowermost letter during
a feeding cycle of operation; of devices to limit
the position of the friction surfaced elements in
a downward direction and comprising, a support
on the hopper wall having an adjustable thumb
screw therein, a manipulative rod positioned
within an axial opening in said thumb screw
and having one end thereof secured to and ro-
tative within the yieldable bracket, screw threads
on the lower portion of the rod, an internally
threaded collar mounted on the screw threads
of said rod, a coil spring around said rod and
compressed between the thumb screw and collar
to urge the yieldable bracket downward, the col-
lar having flat side portions confined between
flat portions of the bracket, and a knob at the
upper end of the rod seated against the upper
surface of the thumb screw, whereby the bracket
may be manually raised by an upward thrust of
said knob to remove the friction surfaced el-
ements from the path of the lowermost letter, or
a change of compression may be effected in the
coil spring by rotation of the knob, and whereby
vertical adjustment of the position of the yield-
able bracket may be made by rotation of the
thumb screw.

4. In a letter feeding and separating device,
the combination with a hopper having a stack
of letters therein and a bracket yieldably sup-
ported on one wall thereof, the bracket includ-
ing friction surfaced elements thereon position-
ed in the path of the lowermost letters to restrict
feeding to that of the lowermost letter during
a feeding cycle of operation; of devices to limit
the position of the friction surfaced elements
in one direction and comprising, a support ex-
tending from the hopper wall and having an ad-
justable thumb screw within the upper surface
thereof, a compression spring positioned be-
tween the yieldable bracket and thumb screw to
urge said bracket downward, an adjustable stop
mounted within the lower surface of the sup-
port and positioned in the path of the base of
the thumb screw to provide a seat therefor, a
manipulative rod freely positioned within open-
ings in said thumb screw and stop and having
one end secured to a portion of the yieldable
bracket, and a knob at the upper end of the rod
seated against the upper surface of the thumb
screw, whereby the yieldable bracket may be
manually raised by said knob to remove the fric-
tion surfaced elements from the path of the
lowermost letter; whereby vertical adjustment of
the position of the yieldable bracket may be
made by manual rotation of the thumb screw,
and whereby downward adjustment of the thumb
screw is adapted to be limited by the position of
said stop.

5. In a letter feeding and separating device,
the combination with a hopper having a stack

of letters therein and a bracket yieldably supported on one wall thereof, the bracket including friction surfaced elements thereon positioned in the path of the lowermost letters to restrict feeding to that of the lowermost letter during a feeding cycle of operation; of devices to limit the position of the friction surfaced elements in one direction and comprising, a support extending from the hopper wall and having an adjustable thumb screw within the upper surface thereof, an adjustable stop mounted within the lower surface of the support and positioned in the path of the base of the thumb screw to limit downward adjustment of the thumb screw, a manipulative rod freely movable through openings in said thumb screw and stop and having one end attached to and rotative within a portion of the yieldable bracket, a threaded portion on said rod having an internally threaded collar screwed thereon, means associated with the collar to prevent rotative movement thereof, a coil spring

around said rod and compressed between the thumb screw and collar to urge the yieldable bracket downward, and a knob at the opposite end of the rod seated against the upper surface of the thumb screw, whereby the yieldable bracket may be manually raised by lifting said knob to remove the friction surfaced elements from the path of the lowermost letter; whereby vertical adjustment of the position of the yieldable bracket may be made by manual rotation of the thumb screw; and whereby rotation of the knob may effect adjustment of the compression of the spring.

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