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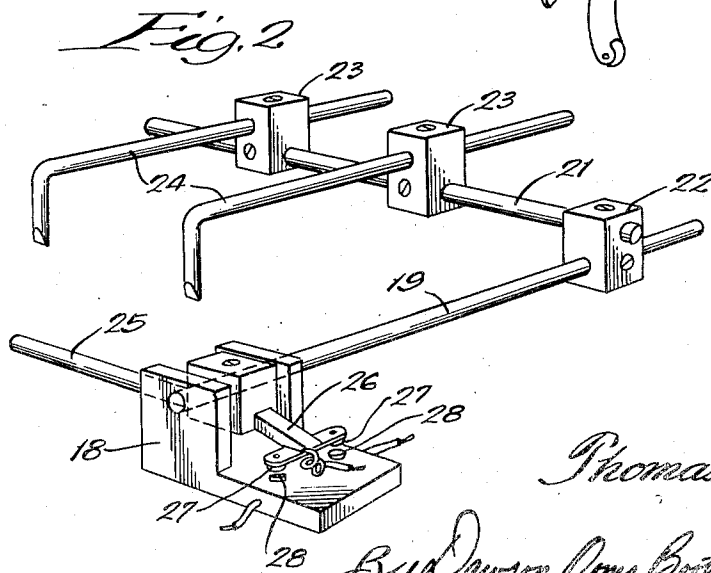
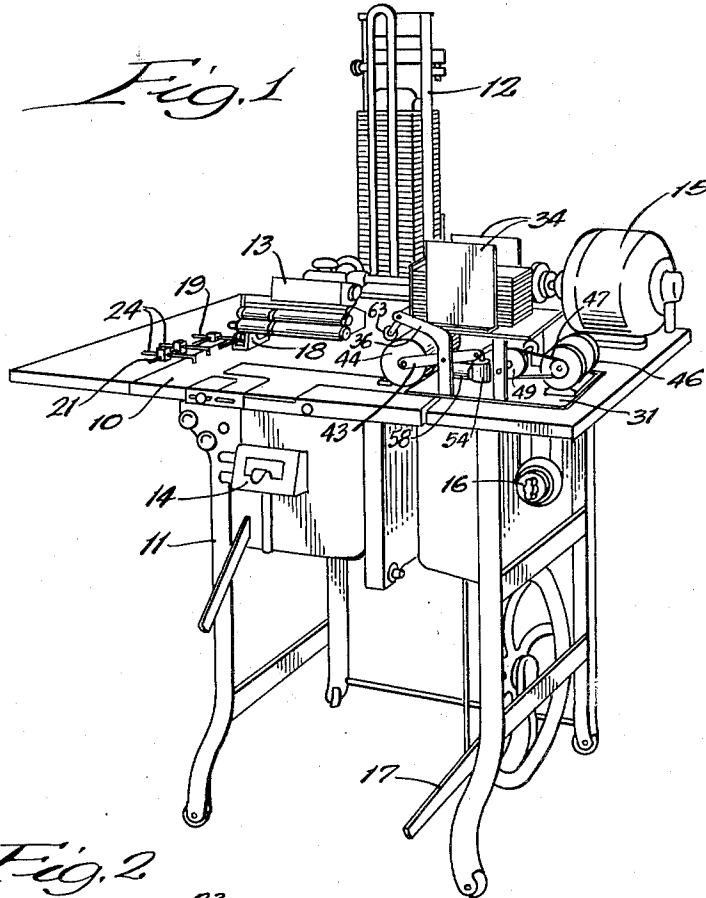
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FEEDING ATTACHMENT FOR ADDRESSING MACHINES

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4 Sheets-Sheet 1



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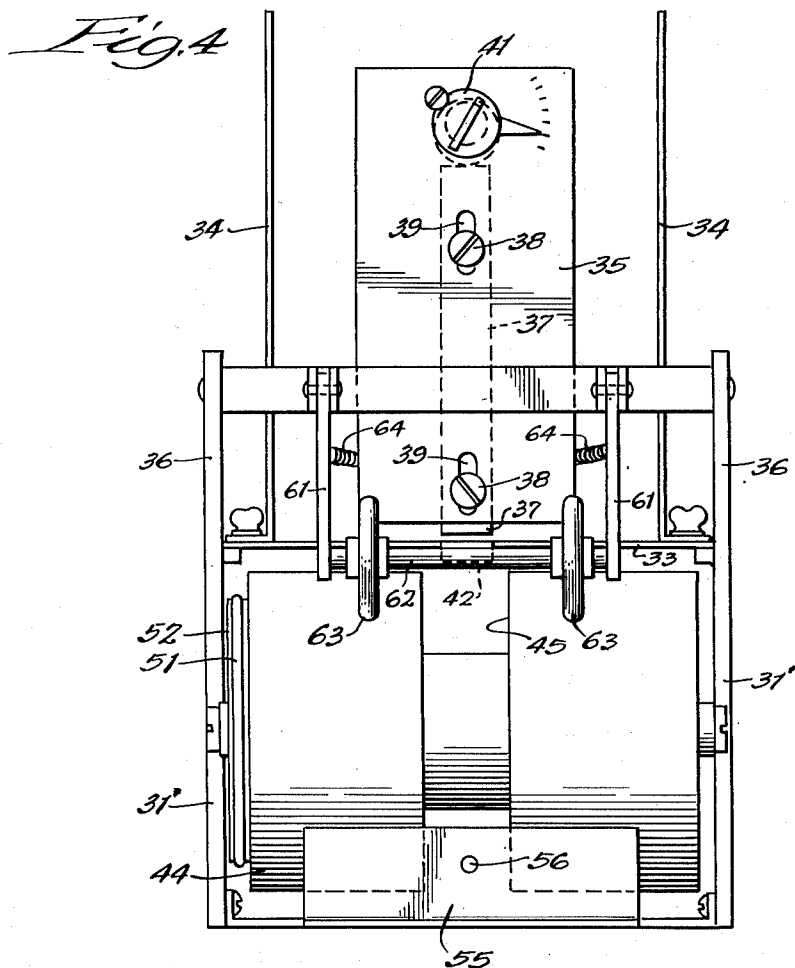
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UNITED STATES PATENT OFFICE

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FEEDING ATTACHMENT FOR ADDRESSING MACHINES

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7 Claims. (Cl. 271—10)

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This invention relates to feeding attachments for addressing machines and the like and more particularly to an attachment which will automatically feed sheets, such as envelopes, to an addressing machine.

It is one of the objects of the invention to provide a feeding attachment which can easily be mounted on any standard type addressing machine and which will automatically feed sheets thereto in synchronism with the operation of the machine.

Another object is to provide a feeding attachment which feeds sheets to a machine from a magazine or the like which properly locates the sheets in the machine and which ejects the completed sheets from the machine.

Still another object is to provide a feeding attachment in which sheets are fed to a machine from a magazine by a continuously operating feed roller which is periodically raised into engagement with the bottom sheet in the magazine to move it from the magazine into the machine.

A still further object is to provide a feeding attachment in which the sheets are located in the machine between movable stop fingers and an ejector scoop. In operation, the fingers periodically move away from the sheet to release it and the scoop is thereafter operated to eject the sheet.

A further object is to provide a combined stop and control unit which serves to locate the sheets to be addressed in the machine and to control the operation of the feeding and ejecting mechanisms.

The above and other objects and advantages of the invention will be more readily apparent from the following description when read in connection with the accompanying drawing, in which—

Figure 1 is a perspective view of an addressing machine having a feeding attachment embodying the invention mounted thereon;

Figure 2 is a perspective view of the stop and control unit;

Figure 3 is a plan view of the magazine feed unit;

Figure 4 is a front elevation of the magazine feed unit; and

Figure 5 is a vertical section on the line 5—5 of Fig. 3 with parts in elevation.

The attachment of the present invention may be applied to any desired type of addressing machine which, as shown in Fig. 1, may comprise a bed plate 10 supported on a frame 11. Above the bed plate, there is provided a magazine 12 for address plates. Adjacent the lower end of

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the magazine, there is mounted a movable head 13 which receives address plates from the magazine and which moves toward and away from the bed plate 10 to address a sheet on the bed plate.

In this operation, the head moves downward to accomplish the printing or addressing and thereafter moves upward to release the address plate, held thereby which then falls into a drawer 14 below the bed plate, and to receive a new address plate from the magazine. The mechanism may be driven by a motor 15 controlled through a switch 16, and its operation may be initiated by a lever 17. In a machine of this type, each time the lever 17 is depressed, the machine will perform a complete addressing operation and will stop with the head 13 elevated, ready for the next operation. Since machines of this type are well known in the art, it is believed that the above description will be sufficient for an understanding of the invention.

The attachment of the present invention comprises two sections which are adapted to be mounted on the bed plate of the machine for cooperation with the machine and with each other.

One of the units comprises a paper stop and control unit which, as shown in detail in Fig. 2, includes a supporting block 18 adapted to be mounted on the bed plate of the machine at one side of the addressing space. The block 18 carries a rotatable shaft 19 projecting therefrom and carrying at its outer end a cross bar 21. The bar may be supported on the shaft by means of a block 22 having cross bores therein, one of which receives the shaft and the other, the cross bar. The cross bar carries a pair of similar blocks 23 in which stop fingers 24 are mounted. The stop fingers, as shown, turn down at their ends to rest against the bed plate 10 and form stops for a sheet in the machine to locate the sheet properly beneath the head 13.

The shaft 19 is adapted to be periodically rocked to raise the stop fingers so that they will release the sheet to permit it to be ejected from the machine. For this purpose, the shaft 19 carries an operating finger 25 extending laterally therefrom in a position to be engaged and tripped by the head 13 when the head is moving upward. The finger 25 is so arranged that upon downward movement of the head, it will engage therewith, and when the head starts to move up, it will be elevated to rock the shaft 19. When the head reaches its uppermost position, the finger 25 will be released thereby to return to its original position with the stop fingers engaging the bed plate of the machine.

For controlling the feeding and ejecting mechanisms, as described hereafter, an arm 26 is connected to the shaft 19 and carries a pair of switch contacts 27. The contacts 27 are respectively engageable with fixed contacts 28 on the base 18 so that when the finger 25 is raised, circuits will be completed through the contacts 28 and 27 to the feeding and ejecting mechanisms.

The other unit of the attachment comprises a magazine feeding unit including a base plate 31 mounted on the bed plate of the machine at the side of the head opposite to the paper stop and control unit. Uprights 32 on the base plate 31 support a bottom plate 33 for a paper magazine. The magazine is formed by side plates 34 which are adjustably secured to the bottom plate 33 to accommodate envelopes or sheets of different sizes. At its front end, the magazine is provided with a front plate 35 rigidly carried by extension arms 36 on the uprights 31' and which is spaced above the bottom plate 33, as seen in Fig. 5. An adjustable control strip 37 is mounted on the front plate 35 for vertical adjustment thereon by means of screws 38 extending through slots 39 in the front plate. If desired, the vertical position of the control strip may be accurately adjusted by means of an eccentric 41 rotatably mounted on the front plate and engageable with the upper end of the control strip. In this way, the space between the lower end of the control strip and the bottom plate 33 may be accurately adjusted so that only a single sheet or envelope can pass between them.

In order that single sheets or envelopes can be withdrawn from the magazine, the forward part of the bottom plate 33 is cut away to leave only a central tongue or strip 42. This leaves openings in the forward part of the bottom plate at the sides of the tongue 42 through which the lowermost sheet is exposed to be engaged by a feed roller.

Below the bottom plate 33, a lever 43 is centrally pivoted on the uprights 31' and carries at its forward end a feed roller 44 which may be formed of rubber or the like to grip and feed the lowermost sheet in the magazine. As best seen in Figs. 3 and 4, the feed roller is grooved at its center, as shown at 45, in register with the tongue 42 so that the surfaces of the feed roller can rise above the level of the tongue to press against the bottom sheet in the magazine.

The feed roller is continuously driven by a motor 46 which is connected through a belt 47 to a driving shaft 48 mounted between the supports 32. The shaft 48 carries a double pulley 49, one part of which engages the belt 47 and the other part of which engages and drives a belt 51. The belt 51 engages and drives a pulley 52 at one end of the driving roller 44 so that the driving roller will be continuously driven when the motor 46 is running.

The lever 43 normally occupies the position shown in Fig. 5 in which it is below the bottom plate 33 and is out of engagement with the lowermost sheet in the magazine. The roller is adapted to be periodically raised, and, for this purpose, it carries a magnetic armature 53 which extends into a solenoid coil 54 carried by the base plate 31. The coil 54 is connected to one of the contacts 28 so that it will be energized to elevate the feed roller when the finger 25 is lifted.

Completed sheets are adapted to be ejected from the machine by an L-shaped ejector scoop 55 lying below the roller toward the forward end of the magazine. The ejector scoop is connected to a

push rod 56 having a magnetic armature 57 thereon which is adapted to extend into a solenoid coil 58 carried by the base plate 31. The ejector scoop is normally retracted to the position shown by a spring 59 and is adapted to be moved to the left, as seen in Figs. 1 and 5, when the coil 58 is energized. The coil 58 is connected to the other of the contacts 28 to be energized when the finger 25 is raised.

Sheets drawn from the magazine by the feed roller are adapted to be held against the feed roller even after it is again lowered so that once a sheet is started from the magazine, it will be fed completely into the machine. For this purpose, a pair of arms 61 are pivoted on the front plate 35 and carry a cross shaft 62 at their lower ends. Two or more relatively narrow follower rollers 63 may be mounted on the cross shaft and are normally held against the feed roller 44 by a spring 64. When the feed roller is raised, the follower rollers 63 will move up with it, as indicated in dotted lines in Fig. 5, and when it is again lowered, the rollers will follow it. Thus, when a sheet is once pulled from the magazine by the feed roller and is gripped between the feed roller and the follower rollers, it will be drawn completely from the magazine and will continue to be fed until it has passed the feed roller.

In operation with the attachment on an addressing machine, as shown in Fig. 1, and with a stack of envelopes or other sheets in the magazine, sheets will be automatically fed to and ejected from the addressing machine in synchronism with the operation thereof. Assuming that a sheet or envelope is in the machine ready to be addressed, it will engage the stop fingers 24 at one edge and the ejector scoop 55 at its opposite edge to be properly located in the machine beneath the head 13. The head 13 may then move down to perform an addressing operation, and as it rises, it will rock the shaft 19 temporarily to raise the stop fingers from the bed plate of the machine so that the sheet can be ejected. When the fingers are raised, the contacts 27 will engage the contacts 28 to energize both of the coils 54 and 58. The coil 58 will cause the ejector scoop to be moved rapidly toward the stop fingers to eject the completed sheet from the machine beneath the stop fingers. This operation will be completed before the finger 25 is released by the head 13 so that the completed sheet will be ejected and the fingers will then again move down into contact with the machine bed plate to serve as a stop for the next sheet.

Energizing of the coil 54 will cause the roller 44 to be raised into engagement with the lowermost sheet in the magazine to start withdrawing the sheet therefrom. Before the coil 54 is de-energized, the sheet will be drawn far enough forward to be gripped between the feed roller and the follower rollers so that even after the feed roller is again lowered, the sheet will be continued to be fed forward thereby. Therefore, even though the feed roller is already raised temporarily, it will always feed a sheet completely into the machine since the feeding operation will continue until the sheet leaves the feed roller.

As the sheet is fed forward, it will slide along the bed plate of the machine until its forward edge strikes the stop fingers 24. At this time, the rearward edge of the sheet will just be leaving the feed roller and will drop onto the ejector scoop so that the sheet will be accurately located

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in the machine ready for an addressing operation.

It will be seen that with the attachment of the present invention, the machine may operate automatically and continuously since sheets are fed thereto and are ejected therefrom in synchronism with the operation of the machine itself. Thus, a continuous automatic operation can be carried out as long as there are address plates in the magazine 12 and as long as there are sheets in the magazine of the attachment.

While one embodiment of the invention has been shown and described in detail, it will be understood that it is illustrative only and is not intended to be a definition of the scope of the invention, reference being had for this purpose to the appended claims.

What is claimed is:

1. A feeding attachment for an addressing machine comprising a vertical magazine to hold a stack of sheets to be addressed, an elongated supporting finger extending across the bottom of the magazine from back to front thereof to support the sheets and spaced below the front of the magazine so that a sheet can pass between the finger and the front of the magazine, a rotatable feed roller below the magazine adjacent the front thereof and having a groove therein to receive the finger, means mounting the feed roller for vertical movement toward and away from the bottom of the magazine, a paper stop unit adapted to be mounted on the addressing machine spaced from the feed roller and including movable stop fingers to engage and stop a sheet and movable away from the sheet so that it can be ejected from the machine, an ejector scoop adjacent the feed roller movable toward the stop unit, and control means operated in synchronism with the machine to move the stop fingers, operate the ejector scoop, and cause vertical movement of the feed roller.

2. A feed attachment for an addressing machine comprising a vertical magazine to hold a stack of sheets to be addressed, an elongated supporting finger extending across the bottom of the magazine from back to front thereof to support the sheets and spaced below the front of the magazine so that a sheet can pass between the finger and the front of the magazine, a rotatable feed roller below the magazine adjacent the front thereof and having a groove therein to receive the finger, means mounting the feed roller for vertical movement toward and away from the bottom of the magazine, a paper stop unit adapted to be mounted on the addressing machine spaced from the feed roller and including movable stop fingers to engage and stop a sheet and movable away from the sheet so that it can be ejected from the machine, an ejector scoop adjacent the feed roller movable toward the stop unit, a part on the stop unit projecting into the path of movement of a movable part on the addressing machine to move the stop fingers when said movable part on the machine engages and moves said part on the stop unit, and control means operated by movement of the first-named part to operate the ejector scoop and cause vertical movement of the feed roller.

3. A feeding attachment for an addressing machine comprising a vertical magazine to hold a stack of sheets to be addressed, an elongated supporting finger extending across the bottom of the magazine from back to front thereof to support the sheets and spaced below the front of the magazine so that a sheet can pass be-

tween the finger and the front of the magazine, a rotatable feed roller below the magazine adjacent the front thereof and having a groove therein to receive the finger, means mounting the feed roller for vertical movement toward and away from the bottom of the magazine, a stop unit adapted to be mounted on an addressing machine spaced from the feed roller, a pivoted shaft on the stop unit, stop fingers carried by the shaft to engage and stop a sheet and to be raised when the shaft is rocked, a control arm on the shaft to be engaged by a part on the addressing machine thereby to rock the shaft at the end of an addressing operation, an ejector scoop adjacent the roller movable toward the stop unit, and control means operated by rocking of the shaft to operate the ejector scoop and to raise the feed roller.

4. A feeding attachment for an addressing machine comprising a vertical magazine to hold a stack of sheets to be addressed, an elongated supporting finger extending across the bottom of the magazine from back to front thereof to support the sheets and spaced below the front of the magazine so that a sheet can pass between the finger and the front of the magazine, a rotatable feed roller below the magazine adjacent the front thereof and having a groove therein to receive the finger, means mounting the feed roller for vertical movement toward and away from the bottom of the magazine, a stop unit adapted to be mounted on an addressing machine spaced from the feed roller, a pivoted shaft on the stop unit, stop fingers carried by the shaft to engage and stop a sheet and to be raised when the shaft is rocked, a control arm on the shaft to be engaged by a part on the addressing machine thereby to rock the shaft at the end of an addressing operation, an ejector scoop adjacent the roller movable toward the stop unit, a solenoid connected to the scoop to move it, a solenoid connected to the feed roller to raise it, and switch means operated by rocking of the shafts to energize the solenoids.

5. In a feeding attachment for an addressing machine, front and side walls defining a magazine to hold a stack of sheets, a bottom wall for the magazine having openings therein adjacent the front wall and spaced from the front wall for passage of a sheet therebetween, a lever pivoted on a horizontal axis below the bottom wall, a drive roller carried by the lever in register with the openings in the bottom wall, an arm pivoted on the front wall, a follower roller carried by the arm and engaging the upper part of the drive roller to hold a sheet against the drive roller, means for continuously driving the drive roller, and means to tilt the lever in a direction to raise the drive roller.

6. In a feeding attachment for an addressing machine, a stop unit adapted to be mounted on an addressing machine, stop fingers movably carried by the stop unit to engage and locate one edge of a sheet to be addressed, a part on the unit projecting into the path of movement of a movable part on the addressing machine to be moved at the end of an addressing operation to move the fingers away from the sheet, an ejector scoop spaced from the stop unit to engage the opposite edge of a sheet, and means controlled by movement of said part on the stop unit to move the ejector scoop toward the stop unit.

7. In a feeding attachment for an addressing machine, a stop unit adapted to be mounted on an addressing machine, stop fingers movably

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carried by the stop unit to engage and locate one edge of a sheet to be addressed, a part on the unit projecting into the path of movement of a movable part on the addressing machine to be moved at the end of an addressing operation to move the fingers away from the sheet, an ejector scoop spaced from the stop unit to engage the opposite edge of a sheet, a solenoid to move the ejector scoop, and a switch closed by movement of said part on the stop unit to energize the solenoid.

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