

Aug. 29, 1967

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3,338,531

REWIND ATTACHMENT FOR BUSINESS MACHINE PRINT-OUT TAPE

Filed Sept. 30, 1965

2 Sheets-Sheet 1

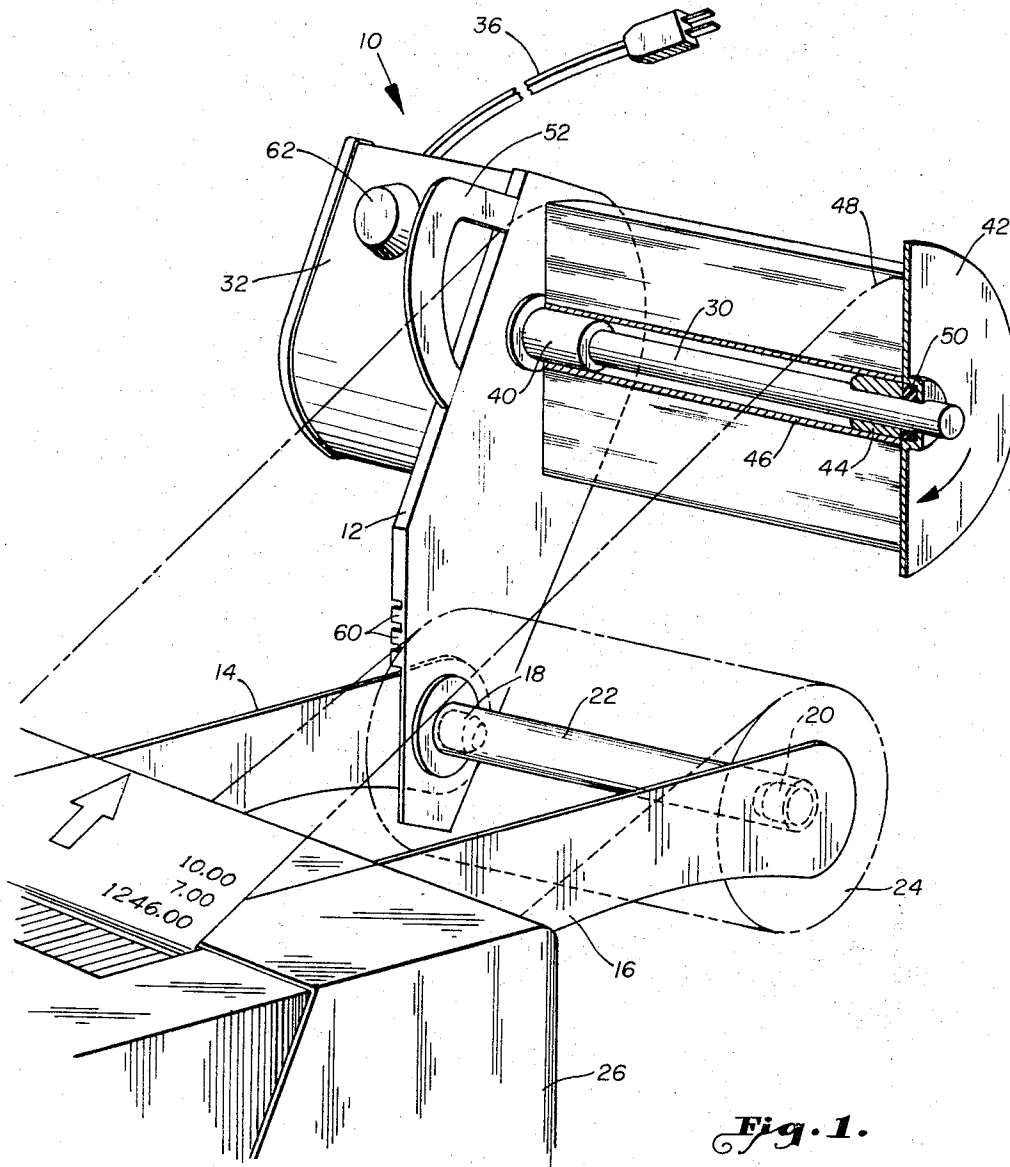


Fig. 1.

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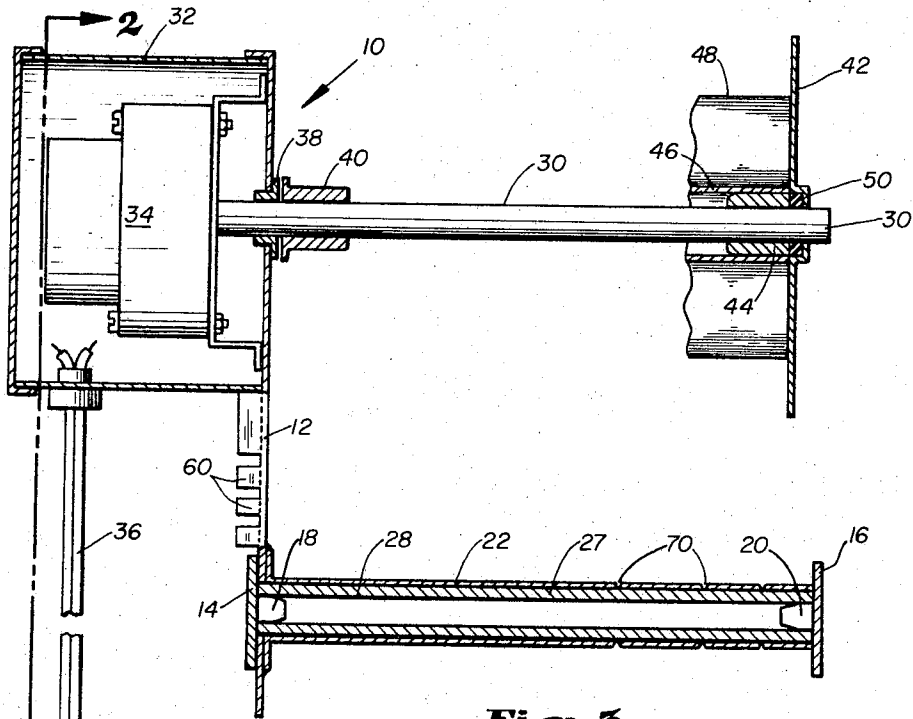


Fig. 3.

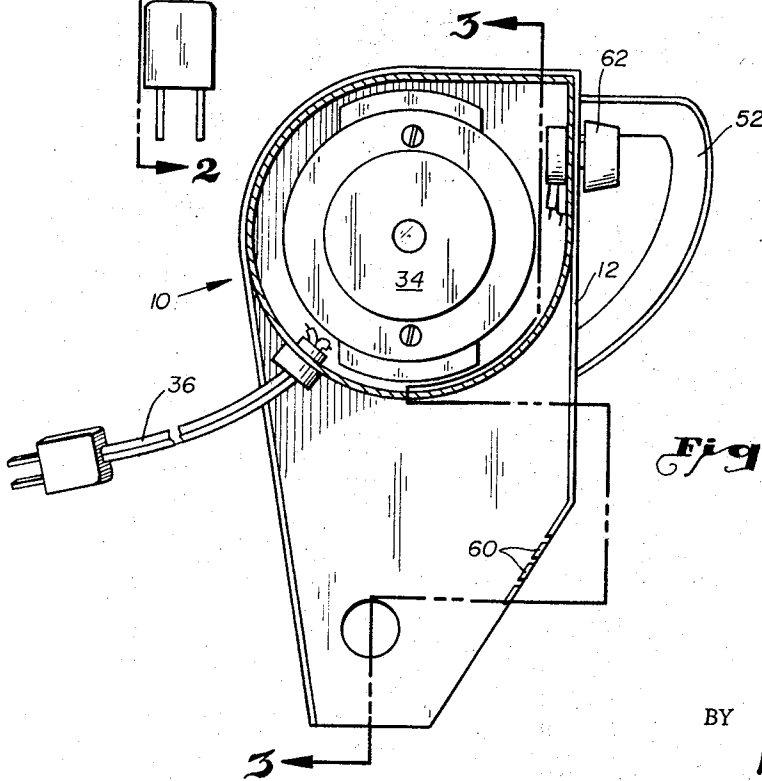


Fig. 2.

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REWIND ATTACHMENT FOR BUSINESS
MACHINE PRINT-OUT TAPE

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Filed Sept. 30, 1965, Ser. No. 491,644

1 Claim. (Cl. 242—67.3)

ABSTRACT OF THE DISCLOSURE

An attachment mounted on a business machine for rewinding tape issuing from the machine including a low torque field wound synchronous motor and a rewind roll shaft supported by the attachment. The rewind roll shaft is directly driven by the motor whereby the tape is constantly and automatically rewound.

This invention relates to a rewind attachment for print-out tape used in business machines. More particularly this invention relates to an electric motor operated constant rewinding attachment which is adapted to be mounted upon the regular paper print-out supply roll carrying brackets of adding machines, calculators, or the like.

In the use of many business machines such as adding machines and the like a paper tape is adapted to be supplied and fed therethrough in conjunction with the print-out mechanism normally associated with such machines. It has been found, in many instances, that only a very small portion of the paper roll is utilized. That is, in many instances only one-half of the paper tape is printed upon, thereafter thrown away and a new supply roll used. In offices where a great many of these machines are operated and wherein a great amount of paper is fed through each machine over a short period of time the expense and waste readily becomes apparent. Many offices have attempted to save the paper tape which normally flows outward from the machine, hand rewind same upon a paper core and by inverting the ends of the roll upon its supply roll the print-out will be upon the other half or unused portion of the tape. Likewise, if the paper is turned over the unused back surface is now available for use in the machine and hence a more efficient use of relatively expensive paper tape is decreased.

This invention has for its primary object to provide a rewind attachment which is readily available and attachable to existing business machine equipment for automatically and continuously rewinding the print-out tape roll therefrom.

A further object of this invention is to provide a continuous rewind attachment for the print-out tape of business machines which is electric motor operated and which is adapted to automatically maintain the outward feed of paper or tape in a taut condition yet will permit recheck of the tape by permitting a reverse roll direction in the event the operator desires to recheck earlier figures, upon release of which the paper will be again automatically rewound and available for reuse as above described.

These and other objects of this invention will become more apparent upon further reading of the specifications and claim when taken in conjunction with the following illustrations of which:

FIGURE 1 is a perspective view, partly in section, depicting the typical utilization of this invention.

FIGURE 2 is a side elevational view of the drive motor and support bracket of the rewind attachment of this invention.

FIGURE 3 is a sectional view of the rewind attachment of this invention as taken along the line 3—3 of FIGURE 2.

The rewind attachment of this invention is generally designated by the numeral 10 which includes a plate-like support member 12 which is readily adapted to be supported in conjunction with the paper roll support brackets 14 or 16. Although the normal paper supply brackets very considerably with various types and models of business machines, they typically include axially aligned protrusions like members 18 and 20 which by spring pressure are insertable within an opening 28 of the spool 22 which is a part of support 12. A paper roll 24, which is shown in phantom, is insertable about spool 22. The paper is fed normally in a single thickness through the feed and print mechanism of a typical business or adding machine 26 and then to the rewind spool 30 of this invention. In some instances the lower portion of plate-like support member 12 includes only an opening for receiving a protrusion such as 18 without interfering with the normal attachment of a paper roll 24 and usually associated spool. However, it is understood that in most instances it is desirable to provide the spool 22 as shown which is fixably attached to support member 12 and which has an axially aligned opening 28 to receive the protuberances members 18 and 20 as best shown in FIGURE 3.

The rewind shaft 30 is rotatively supported to plate-like support member 12 and bushing 38, extending through the other side thereof into housing 32 wherein the shaft is directly attached to field-type synchronous motor 34 which is driven by electricity through suitable plug in extension cord 36 from 110–115 volt AC. A drive bushing 40 is adapted to fit within the interior of a typical paper tape or roll spool 46. At the other end a removable spool flange 42 includes a bushing member 44, similar to the bushing 40 for insertion within a paper roll spool 46 about which paper 48 is rewound. Frictional gripping of spool flange 42 to shaft 30 is provided by a resilient or rubber packer member 50 which grips the shaft 30 to retain same in position and further assist in causing rotation of spool 46 and paper 48. In the alternative it may be desirable to use an additional spool flange member 42, replacing bushing member 40 providing a removable and replaceable guide flange at each end of the spool. Otherwise, as shown, a guide extension arm 52 is provided to effect the smooth rewind of the paper and prevent interference with plate-like support 12.

In one embodiment support 12 is provided with a plurality of notched like members 60 which may be folded, indented or removed therefrom in the event adjustment is necessary relative to the axis of the machine paper roll.

A switch 62 is provided to energize motor 34 as described.

In operation, plate-like support member 12 as assembled includes the motor 34, housing 32, shaft 30 and spool 22. Shaft 22 is of diameter to rotatably receive the business machine paper roll 24 thereof. In certain instances a bushing member 27 is necessary to be inserted within the tubular shaft 22 depending upon the size of protrusions 18 and 20 of the bracket arms 14 and 16 respectively. A new paper tape roll 24 is thus positioned about shaft 22 and positioned between spring biased brackets 14 and 16 and thus retained. Because of recessed lips 60 the support is maintained in position upon bracket 14 as shown. In the event that the distance between the axis of the protrusions 18 and 20 and the top of bracket 14 is different, one or more tabs 60 may be bent to make appropriate correction so that support 12 will not rotate during operation.

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Since the rewind shaft 30 is adapted to rotate in the direction as shown, the forces acting upon the paper tape tend to draw the support forward, hence the tabs 60 will act as a stop. The paper tape from roll 24 is threaded through the print-out mechanism of business machine 26 and attached in any appropriate manner to a spool 46 which is positioned on shaft 30 and held rigidly to the shaft by means of bushing 40. As soon as the paper is started upon the roll the spool hub 42 is positioned thereon inserting bushing 44 within the paper tube spool. Because of the friction of rubber gasket or packer 50 with respect to shaft 30 the hub will remain substantially in position and further help in rotating the rewind spool.

As soon as it is desired to operate the business machine 26, either by the same switch that operates the business machine or by utilizing the separate auxiliary switch 62, the motor 34 is energized after a suitable connection by plug-in cord 36 to an alternating current source of electricity. This causes rotation of shaft 30 in the direction shown by the arrow in FIGURE 1. A typical motor used in this invention is one having a torque rating of 40 inch-ounces at 10 r.p.m. Because of the normally low torque which is utilized in the motor of this invention the rewind attachment will tend to brake itself without the use of clutch or other mechanism when the paper tape passing through the machine is not moving. In addition, because of the low torque it is possible for the operator to pull upon the wound paper tape 48 to retrace previous figures as desired. When all of the paper from roll 24 is exhausted and now wound upon rewind spool 46, the hub 42 is removed and the roll repositioned upon shaft 22 and the cycle of operation repeated. In this instance the underside of the paper tape will contain the previously printed matter and the new printed numerals will appear on the other side of the tape and hence utilize paper tape to its fullest extent. By continuing this operation it is possible, by orienting the tape on the shaft 22, to utilize four separate print channels on the same tape.

Although this invention has been described with reference to particular and specific embodiments, it is to be understood that other substantial equivalent modifications can be made. For example, it is entirely feasible that shaft 22 may be divided with notched weak portions along various lengths which may permit the shaft to be

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shortened to fit between various types and sizes of business machine tape spool brackets. Additionally, other means to adjust the relationship to shaft 22 with respect to a single stop member 60 includes means to move, adjust and lock the said shaft in various positions with respect to support member 12. Accordingly these modifications should be considered when viewing the appended claim.

A rewind attachment for print-out tape from a business machine comprising:
 a plate-like support member,
 a print-out tape roll support shaft affixed at one end to said support member so as to be attachable between the roll support brackets normally associated with said business machine,
 adjustable stop means on said support member to prevent rotation of said attachment in one direction,
 a rewind shaft rotatably supported at one end to said support member so as to be spaced from and parallel to said print-out tape spool,
 a low torque field wound synchronous motor affixed to said support member and connecting the rotor of said motor directly with said rewind shaft,
 means to energize said motor,
 first rewind spool holding means coaxially affixed to said rewind shaft adjacent said support member,
 a spool flange removably positionable axially from the other free end of said shaft and including therewith a second coaxial rewind spool holding means and a resilient packer member,
 a spool flange affixed to said support member adjacent said one end of said rewind shaft, and
 switch means to continuously energize said motor from a source of alternating current.

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