

March 12, 1929.

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**1,705,272**

## ADDING AND LISTING MACHINE

Filed Oct. 13, 1924

2 Sheets-Sheet 1

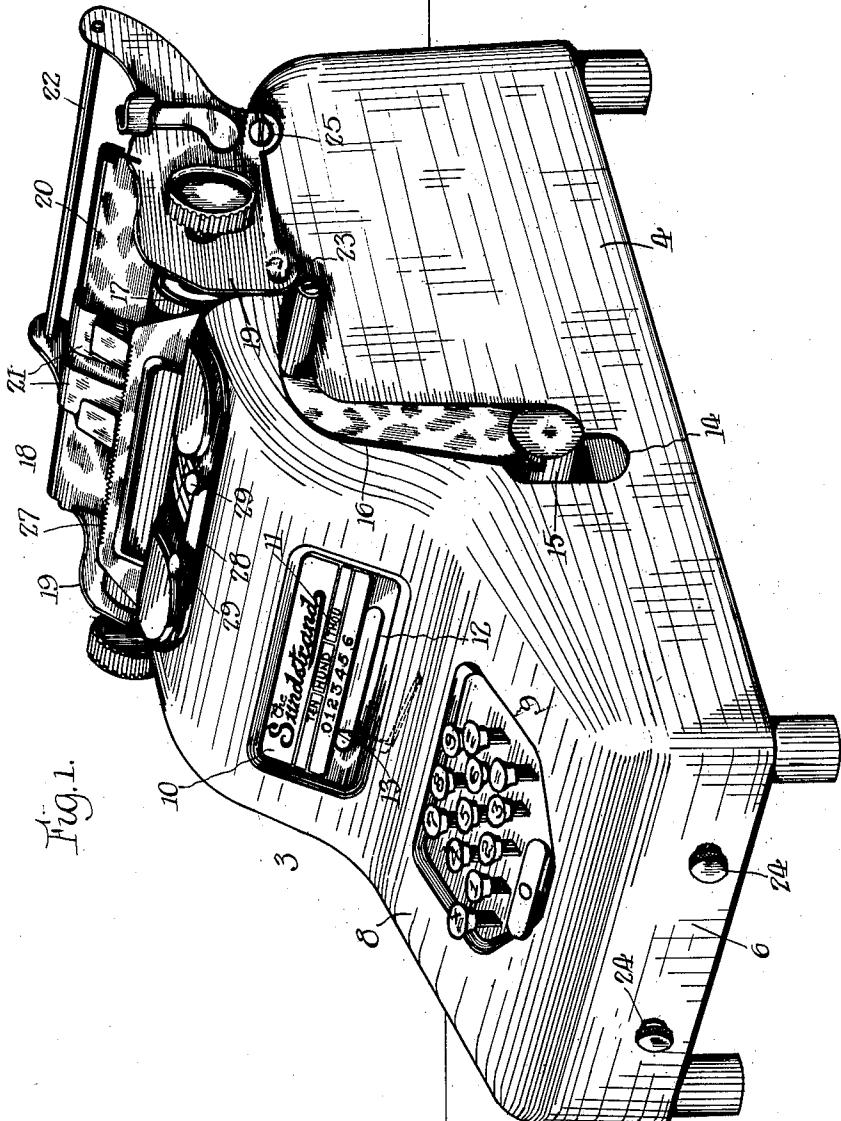


Fig. 1.

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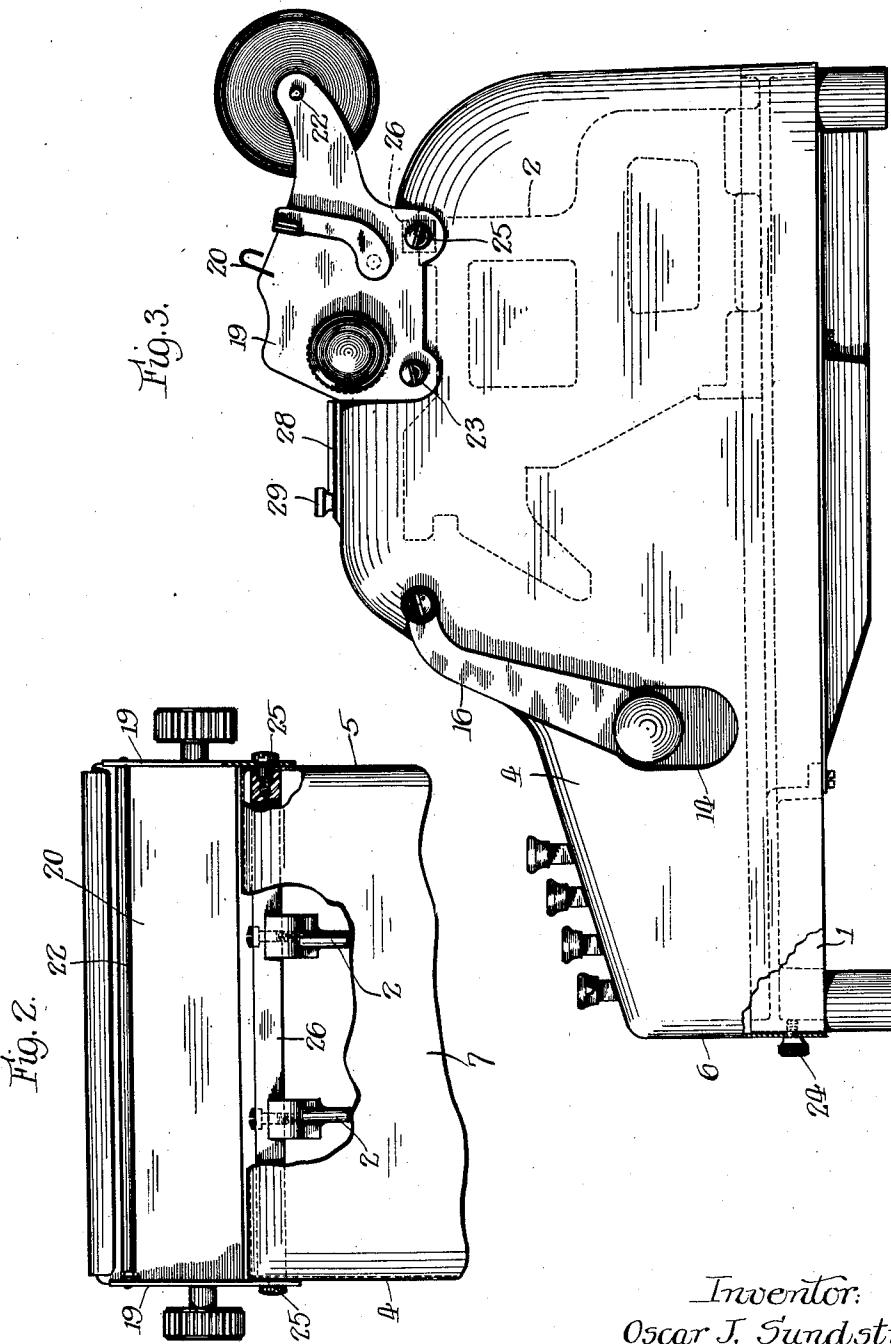
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ADDING AND LISTING MACHINE

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2 Sheets-Sheet 2



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# UNITED STATES PATENT OFFICE.

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## ADDING AND LISTING MACHINE.

Application filed October 13, 1924. Serial No. 743,188.

This invention relates to adding and listing machines, and more particularly to those in which the paper support need not be laterally movable.

5 The invention is applicable to adding machines of various types, but for convenience in pointing out the improvements effected thereby I shall herein compare a machine embodying the invention with a machine of 10 the type shown in the Sundstrand Patent No. 1,198,487 illustrating the well known Sundstrand adding machine.

The mechanism of the Sundstrand adding machine is mounted upon a cast-metal base 15 and is enclosed within a case, the lower edge of which rests upon the base, the case being secured to the base by means of two screws. The paper carriage is supported upon the framework of the mechanism and is structurally distinct from the case. The case is either a sand-mold casting or a die casting. 20 The casing and the edge of the base are polished and enameled. The lower edge of the case must be machined so that it may 25 make proper contact with the base.

The present invention has for its object to reduce the cost of manufacture by substituting for the cast-metal case and the structurally distinct paper carriage a unitary sheet-metal case and built-in paper carriage, that is to say, a sheet-metal case in and upon which all of the essential parts of the paper carriage are mounted, the whole forming a relatively inexpensive unit which 30 may be easily and quickly applied to and removed from the mechanism. The advantages accruing from the invention will be more fully pointed out in connection with the following detailed description of the 35 present embodiment.

40 In the accompanying drawings, Figure 1 is a perspective view of an adding and listing machine embodying the features of my invention.

45 Fig. 2 is a fragmentary rear end elevation. Fig. 3 is a side elevation with parts broken away.

50 1 denotes a cast-metal base on which the mechanism of the machine is mounted. Two brackets 2 are secured to the base in spaced parallel relation and serve to support some of the mechanism.

The case 3 consists of a drawn sheet-metal stamping, the side walls 4 and 5, the ver-

tical front end wall 6, the rear end wall 7 55 and the curved top wall 8 being formed from a single piece of sheet metal. In the top wall 8 is the usual opening 9 to expose the keyboard.

As clearly shown in Figs. 1 and 3, the 60 case 3 fits over and encloses the edge of the base 1, thus obviating the necessity of polishing and enameling the edge of the base.

Less labor is required in preparing the case for enameling, and the case takes a 65 better finish than the cast aluminum case heretofore used.

It has heretofore been the custom to provide an opening in the top wall to receive a glass plate bearing a series of numerals 70 behind which the digit-indicating pointer traveled as an item was set up. To eliminate the cost of the glass plate an expense of securing it in place, I substitute a depressed panel 10 integral with the case 3 75 and of proper size to receive the usual decalcomania transfer 11. In the panel 10 is a horizontal, transverse slot 12 through which the end of the digit-indicating pointer 13 is visible. 80

In the side wall 4 is a vertically elongated opening 14 through which projects the stub shaft on which the hub 15 of the operating handle 16 is removably mounted.

The paper-supporting and feeding means 85 includes a platen 17 rotatably mounted in a rigid frame 18 consisting of two end plates 19 and a paper shelf 20. On the paper shelf may be slidably mounted the usual tape guides 21. Rearward extensions of the end plates 19 support a rod 22 on which a roll of tape may be rotatably mounted. The end plates 19 are secured to the side walls 4 and 5 by means of two screws 23. 90

The method just described of constructing 95 the paper carriage dispenses with the cast-iron bracket heretofore required to impart rigidity to the carriage.

The case 3 with the attached paper-supporting means 18 is removably secured in 100 place by means of two screws 24 extending through the front end wall 6 into the front end of the base 1, and by means of two screws 25 which extend through openings in the end plates 19 and the side walls 4 and 5 into holes in the ends of a bar 26 that is secured rigidly to the brackets 2 and extends 105 transversely of the machine near the rear

end of the latter. This method of attaching the case damps the vibration set up in use, and thus prevents the noise that would otherwise result from the use of sheet metal.

5 It will be evident that the platen must be accurately located with reference to the type bars. Such accurate positioning of the platen could not be secured were it not for the fact that the paper-supporting frame 18 10 is attached to the bar 26 and hence to the interior framework that supports the printing and adding mechanisms. Drawn sheet-metal cases are apt to vary somewhat, due to warping and other causes; but such variations in the case do not affect the position 15 of the platen, notwithstanding the fact that the case and the frame 18 are secured together and constitute a unit, because said unit is secured to the interior framework 20 at points relatively close to the printing mechanism.

The paper knife or tearing plate 27 is of ordinary form except that it is shortened to be within the planes of the side walls 4 25 and 5 so as not to interfere with removal of the case. The paper knife is secured to the interior framework in the usual manner.

The cover 28 for the ribbon spools may be of common form and attached to the case 30 by screws 29, as usual.

The improved construction herein described reduces the cost of the whole machine

about twenty per centum, and effects a further economy in reducing the stock kept on hand, as cases and paper carriages necessarily correspond in number.

While I have described the present embodiment of the invention in considerable detail, it will be understood that the invention is not limited to all such details, but 40 that, on the contrary, it is applicable to adding and listing machines of various types and shapes, the scope of the invention being defined in the appended claims.

45 I claim as my invention:

1. An adding and listing machine comprising a metal base, a unitary removable sheet metal case, paper supporting means removable with the case including two end plates secured to said case, a platen carried by said end plates, and means for securing the case to said base arranged also to secure the end plates to the case.

2. An adding and listing machine having, 55 in combination, a removable enclosing case comprising opposite side walls, and paper-supporting means including two end plates rigidly secured to opposite side walls of said case, and a platen carried by said end plates.

60 In testimony whereof, I have hereunto affixed my signature.

OSCAR J. SUNDSTRAND.