Nov. 5, 1940. R. F. MORRISON 2,220,265

LIQUID PROCESS DUPLICATING MACHINE AND BLOCK-OUT MEANS THEREFOR

Filed June 3, 1939 2 Sheets-Sheet 1

Fig. 2.

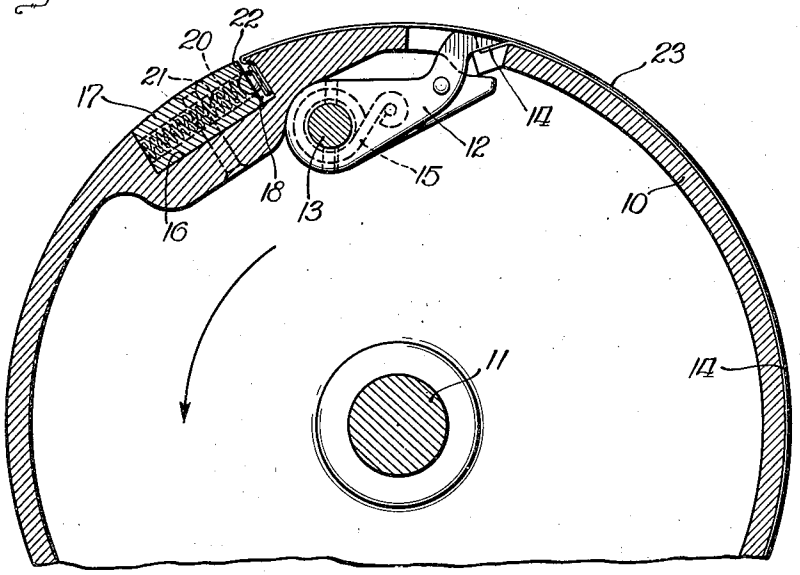
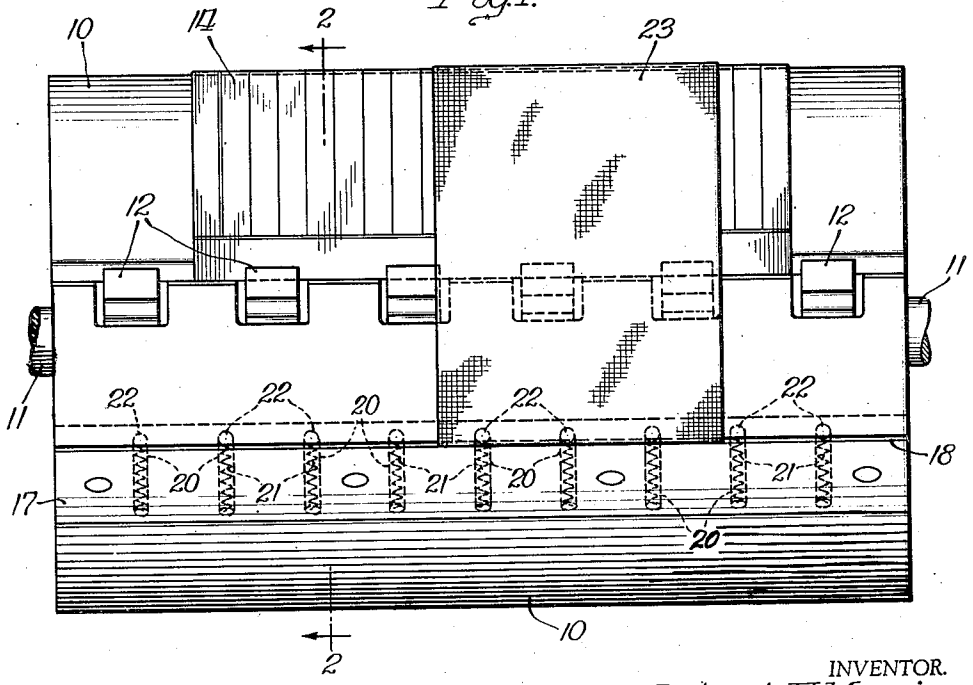


Fig. 1.



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Filed June 3, 1939 2 Sheets-Sheet 2

Fig. 3.

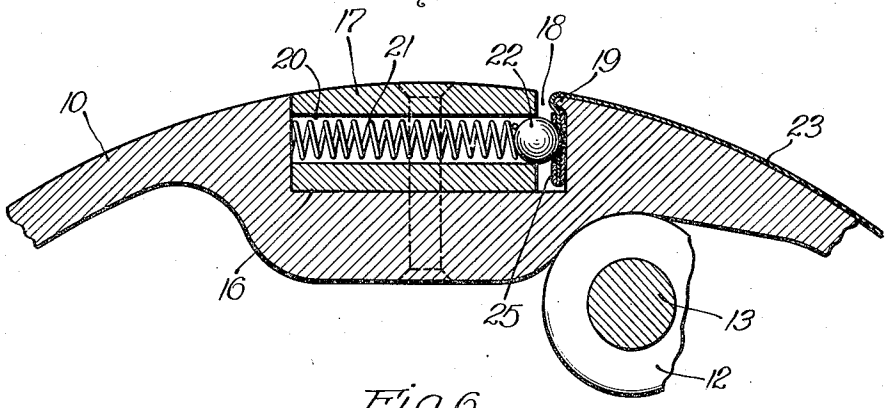


Fig. 6.

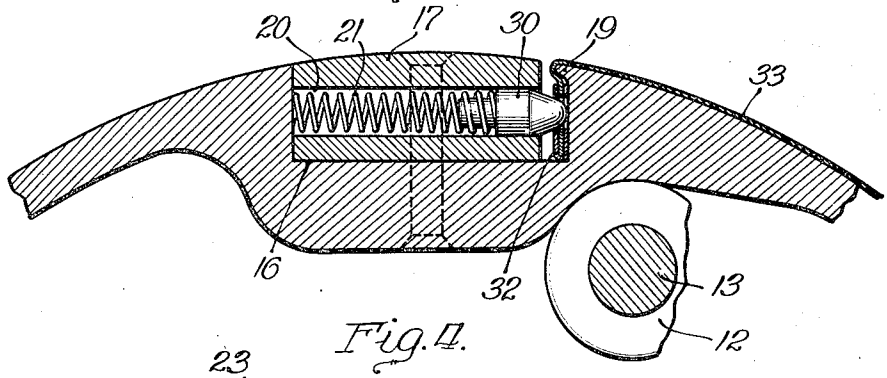


Fig. 4.

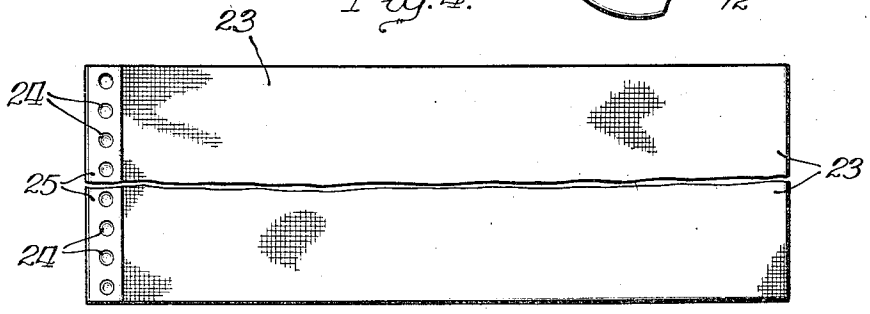


Fig. 5.

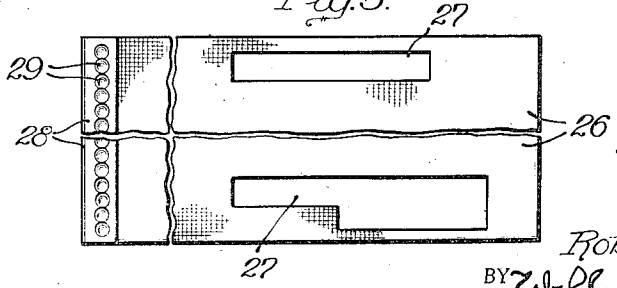
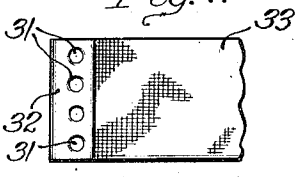


Fig. 7.



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Patented Nov. 5, 1940 2,220,265

UNITED STATES PATENT OFFICE

2,220,265

LIQUID PROCESS DUPLICATING MACHINE AND BLOCK-OUT MEANS THEREFOR

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Application June 3, 1939, Serial No. 277,169

10 Claims. (Cl. 101—132)

My invention relates to block-out means for covering a portion or portions of a master sheet in position on the drum of a duplicating machine of the liquid process type, and it has for its object the provision of a new and improved form of block-out device, together with a new and improved form and arrangement of cooperating means by which the device is adapted to be secured very quickly and easily in the desired position on the drum of the duplicating machine and is adapted thereafter to be quickly and easily removed from the drum so as to be kept for future use.

In the form of block-out means shown, the device comprises a sheet of cloth or the like, provided with a mounting bar on one end having sockets in one face for cooperation with spring-pressed balls or other plungers adapted normally to be projected into a groove extending longitudinally of the drum adjacent to the point where a master sheet is attached to the drum, the arrangement being such that the mounting bar can readily be inserted into the groove so as to cause the plungers to engage the sockets for holding the block-out device in position. In my improved device, the plungers are in the form of balls adapted to engage sockets in the form of depressions in the face of the mounting bar of the block-out device so as to enable the springs to exert a latching effect on the mounting bar through the balls. In the alternative arrangement illustrated, the plungers are in the form of pins adapted to engage sockets in the form of openings through the mounting bar of the block-out device so as to bring about a more positive latching effect for holding the device in position on the drum.

It is another object of my invention to improve devices of this type in sundry details hereinafter pointed out. The preferred means by which I have accomplished my several objects are illustrated in the drawings, in which—

Fig. 1 is a top face view of the drum of a liquid process duplicating machine with a master sheet secured thereon and with a portion of the master sheet covered or blocked out by the use of my improved block-out device;

Fig. 2 is a vertical cross-sectional view taken substantially at the line 2—2 of Fig. 1, being broken away at its lower portion for clearness of illustration;

Fig. 3 is a view similar to a portion of Fig. 2, but shown on a larger scale, and with the section taken at a slightly different point;

Fig. 4 is a face view of the form of block-out device as shown in Fig. 3, being partly broken away at its intermediate portion;

Fig. 5 is a view similar to Fig. 4, but showing a slightly modified form of device;

Fig. 6 is a view similar to Fig. 3, but showing a modified form of block-out device and a modified form of cooperating gripping means on the drum; and

Fig. 7 is a face view of a portion of the form of block-out device as shown in Fig. 6.

Referring now to Figs. 1 to 5 inclusive, which show one preferred form of construction, 10 indicates the drum of a liquid process duplicating machine rotatably mounted in position upon a shaft 11 which is adapted to be driven by power from any suitable source in counterclockwise direction in Fig. 2. As is clearly shown in said Fig. 2, the drum is provided at one side with a plurality of grippers 12 which are pivotally mounted upon a shaft 13 extending longitudinally of the drum, the arrangement being such that the grippers are adapted to press one edge portion of a master sheet 14 against a suitable abutment on the drum, a spring 15 being shown adapted normally to hold the grippers in operative holding position.

At a short distance in front of the grippers 12 with reference to the direction of rotation of the drum, I have provided an opening 16 in the side of the drum within which a block 17 is secured so as to provide an outwardly opening groove 18 between the block and the rear face of the opening 16. As is clearly shown in Fig. 3, the rear wall of the opening 16 is slightly undercut so as to provide a forwardly projecting rib 19 overhanging the groove 18.

In the block 17, I have provided a plurality of spaced openings 20 extending transversely of the drum at spaced intervals along the block 17, each of said openings being provided with a coiled spring 21 therein, adapted to press a plunger 22 toward the undercut face portion of the groove 18, as is clearly shown in Fig. 3. In the arrangement shown in Fig. 3, the plungers 22 are in the form of balls which are pressed into position across the groove by the springs 21.

My improved block-out device in the arrangement shown in Figs. 1 to 5, comprises a sheet 23 of flexible material such as cloth or the like, provided at one end with a series of sockets 24 in one face thereof. In the arrangement shown in Fig. 4, the sockets 24 are provided in a mounting bar 25 formed of sheet metal bent into the form of a channel and pressed into gripping relation to the sheet 23. The sockets 24 are merely depres-

sions in the sheet metal, being arranged in equally spaced relation to each other across the sheet 23. The arrangement is such that when the mounting bar 25 is pressed into the groove 18 in proper position, the plungers 22 are displaced sufficiently toward the left for permitting the movement of the mounting bar into position, the plungers serving by their yielding engagement with the sockets to hold the bar 25 releasably in position in the groove. The spacing of the openings 24 in the bar 25 corresponds preferably to the double spacing of a standard typewriter, it being understood that the block-out device comprising a sheet 23 can be mounted in position at any desired point longitudinally of the drum at which the plungers 22 and the sockets 24 register. The provision of the rib 19 at the mouth of the groove is quite important with respect to the retention of the mounting bar 25 in position without the use of heavy springs in the openings 20 of the block 17. I have found that by the use of my improved construction, a device of the type shown in Fig. 4 can be very quickly and easily applied into the desired adjusted position and that there is no danger of the device being accidentally released during the operation of the machine.

In Fig. 5, I have shown a slightly modified form of block-out device comprising a sheet 26 having a plurality of openings 27 therein. A slightly different form of mounting bar 28 also is shown, having sockets or depressions 29 arranged in spaced relation corresponding to the single spacing of a standard typewriting machine, rather than the double spacing form as shown in Fig. 4. As will be readily understood, the device of Fig. 5 can be adjusted through a smaller variation than can the device of Fig. 4.

In the arrangement shown in Figs. 6 and 7, pins 30 are employed in lieu of the balls 22, the arrangement otherwise being the same. The pins 30 are provided with tapering end portions which are rounded at their points so as to enable the pins to have latching engagement with openings 31 in the mounting bar 32 of a block-out sheet 33, as shown in Fig. 7. The mounting bar 32 is preferably formed of sheet metal bent into the form of a channel and pressed into gripping position upon the end of the sheet, the openings 31 extending entirely through the bar 32 and the sheet material 33.

While I prefer to employ the form and arrangement of parts as shown in my drawings and as above described, it is to be understood that my invention is not limited to such arrangement except so far as the claims may be so limited, it being understood that changes might well be made in the form and arrangement of parts without departing from my invention.

I claim:

1. In a liquid process duplicating machine, the combination of a rotatable drum having an outwardly opening groove therein longitudinally thereof, spring-pressed plungers normally extending across said groove, means carried by said drum for attaching a master sheet thereon adjacent to said groove, and a block-out device comprising a sheet provided with sockets along one end adapted by engagement with said plungers to hold the device releasably in position for covering at least a portion of a master sheet carried by the drum.

2. In a liquid process duplicating machine, the combination of a rotatable drum having an outwardly opening groove therein longitudinally thereof with the rear face of the groove with reference to the direction of rotation of the drum slightly undercut for providing a forwardly extending rib at the mouth of the groove, spring-pressed plungers normally extending across said groove, means carried by said drum for attaching a master sheet thereon adjacent to said groove, and a block-out device comprising a sheet provided with sockets on one end in such spaced relation as to engage said plungers so as to be held releasably in position by the plungers for covering at least a portion of a master sheet carried by the drum.

3. In a liquid process duplicating machine, the combination of a rotatable drum having a longitudinally extending opening in its face, a block secured in said opening so as to leave an outwardly opening groove at one side of said opening in the drum, said block being provided with a series of spaced openings therein positioned transversely of the drum, plungers movably mounted in said openings in said block, springs normally pressing said plungers into position to extend across said groove, means carried by said drum for attaching a master sheet thereon adjacent to said groove, and a block-out device comprising a sheet provided with sockets along one end in such spaced relation as to engage said plungers so as to be held releasably in position by the plungers for covering at least a portion of the master sheet carried by the drum.

4. In a liquid process duplicating machine, the combination of a rotatable drum having a longitudinally extending opening in its face with a forwardly extending rib at about the outer face of the drum at the rear edge face of said opening with reference to the direction of rotation of the drum, a block secured in said opening so as to leave an outwardly opening undercut groove at the rear edge of said block, said block being provided with a series of spaced openings therein positioned transversely of the drum, plungers movably mounted in said openings in the block, spring means normally pressing said plungers into position to extend across said groove, means carried by said drum for attaching a master sheet thereon adjacent to said groove, and a block-out device comprising a sheet provided with sockets along one end in such spaced relation as to engage said plungers so as to be held releasably in position by the plungers for covering a selected portion of a master sheet carried by the drum.

5. In a liquid process duplicating machine, the combination of a rotatable drum having an outwardly opening groove extending longitudinally thereof, spring-pressed plungers normally extending across said groove at spaced intervals therealong, means carried by said drum for attaching a master sheet thereon adjacent to said groove, and a block-out device comprising a sheet provided with sockets in the form of openings at one end portion adapted by engagement with said plungers to hold the device releasably in position by a latching effect for covering a selected portion of the master sheet carried by the drum.

6. In a liquid process duplicating machine, the combination of a rotatable drum having an outwardly opening groove extending longitudinally thereof, spring-pressed plungers normally extending across said groove at spaced intervals therealong, means carried by said drum for attaching a master sheet thereon adjacent to said groove, and a block-out device comprising a sheet

and a mounting bar on one end portion of the sheet having openings through at least one thickness of the material of the mounting bar adapted by a latching engagement with said plungers to hold the device releasably in position on the drum.

7. In a liquid process duplicating machine, the combination of a rotatable drum having an outwardly opening groove extending longitudinally thereof, spring-pressed plungers normally extending across said groove at spaced intervals therealong, means carried by said drum for attaching a master sheet thereon adjacent to said groove, and a block-out device comprising a sheet and a mounting bar in the form of a channel of sheet metal secured on one end of the sheet and having openings through the bar and the sheet material adapted by a latching engagement with said plungers to hold the device releasably in position on the drum.

8. In a liquid process duplicating machine, the combination of a rotatable drum having an outwardly opening groove extending longitudinally thereof with openings at spaced intervals along the drum extending circumferentially of the drum at one face of the groove, balls mounted in said spaced openings, springs serving normally to press said balls into position extending across the groove, and a block-out device comprising a sheet provided with sockets along one end adapted by a latching engagement with said balls to hold said device releasably in position on the drum.

9. In a liquid process duplicating machine, the combination of a rotatable drum having an outwardly opening groove extending longitudinally thereof with openings at spaced intervals along the drum extending circumferentially of the drum at one face of the groove, pins slidably mounted in said spaced openings and having rounded end portions in position to extend across said groove, springs serving normally to press said pins into position extending across the groove, and a block-out device comprising a sheet provided with sockets along one end adapted by a latching engagement with said pins to hold said device releasably in position on the drum.

10. In a liquid process duplicating machine, the combination of a rotatable drum having a longitudinally extending opening in its face with a forwardly extending rib at about the outer face of the drum at the rear edge face of said opening with reference to the direction of rotation of the drum, a block secured in said opening so as to leave an outwardly opening undercut groove at the rear edge of said block, said block being provided with a series of spaced openings therein positioned transversely of the drum, balls slidably mounted in said openings in the block, springs mounted in said openings for pressing said balls into position to extend across the groove, means carried by said drum for attaching a master sheet thereon adjacent to said groove, and a block-out device comprising a sheet provided with sockets along one end in such spaced relation as to engage said balls so as to be held releasably in position on the drum by said balls.

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