June 16, 1953 M. L. GOODMAN 2,642,189

TIMECARD RACK

Filed July 25, 1952 2 Sheets-Sheet 1

Fig. 1

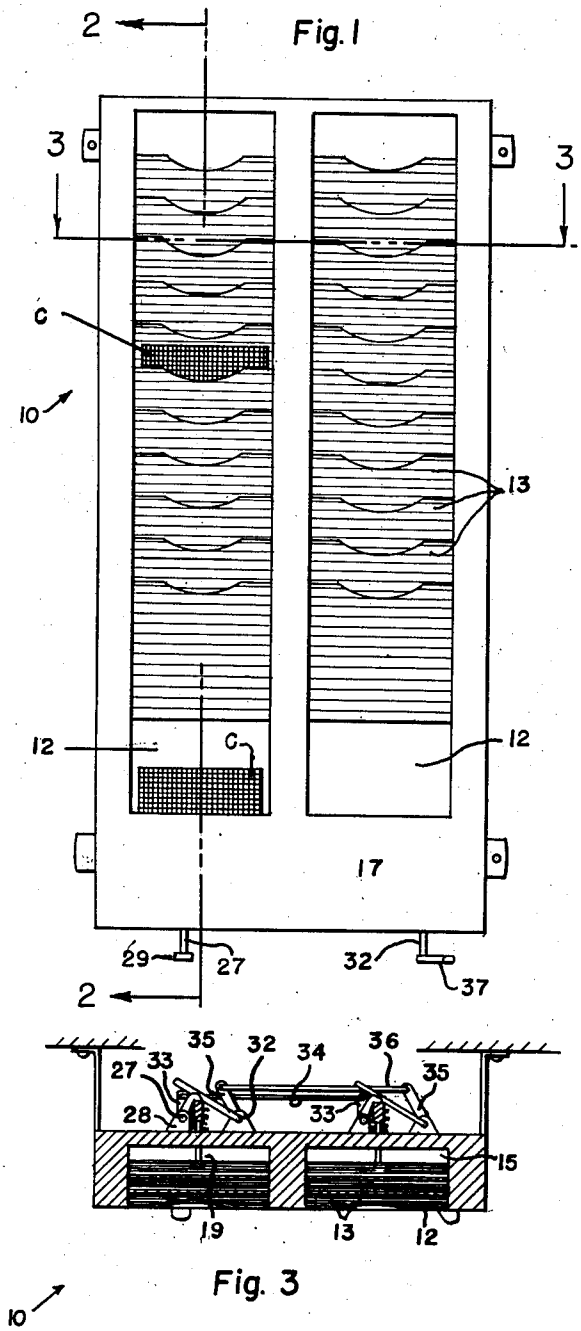


Fig. 2

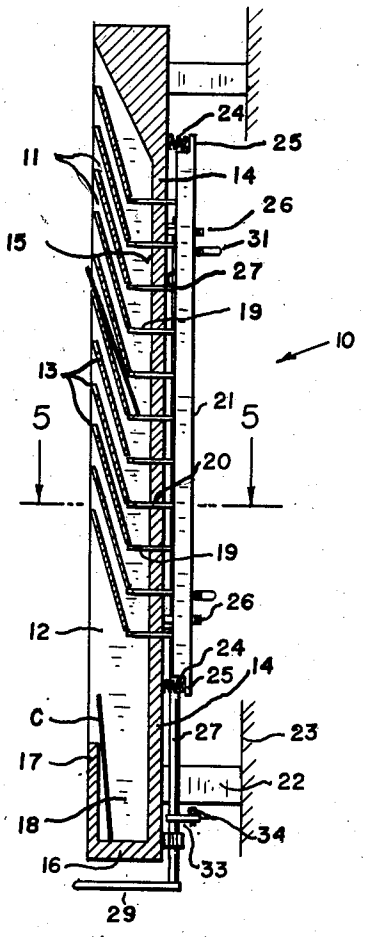
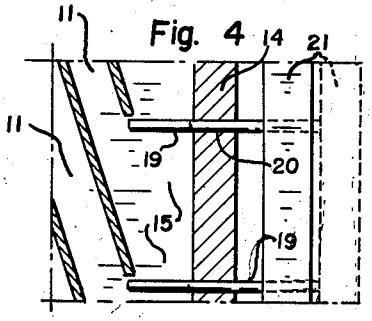


Fig. 3

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Fig. 4



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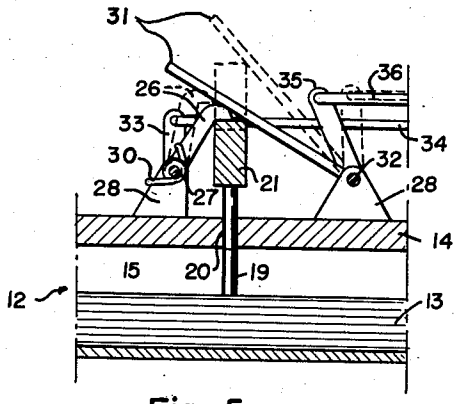


Fig. 5

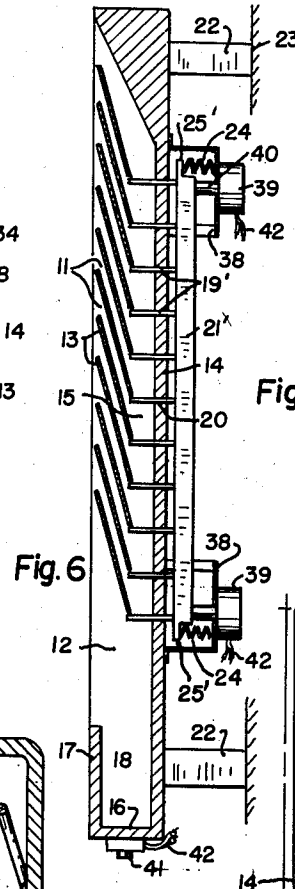


Fig. 6

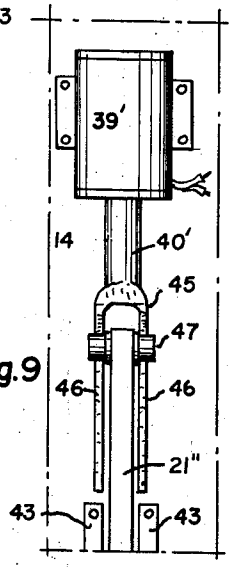


Fig. 9

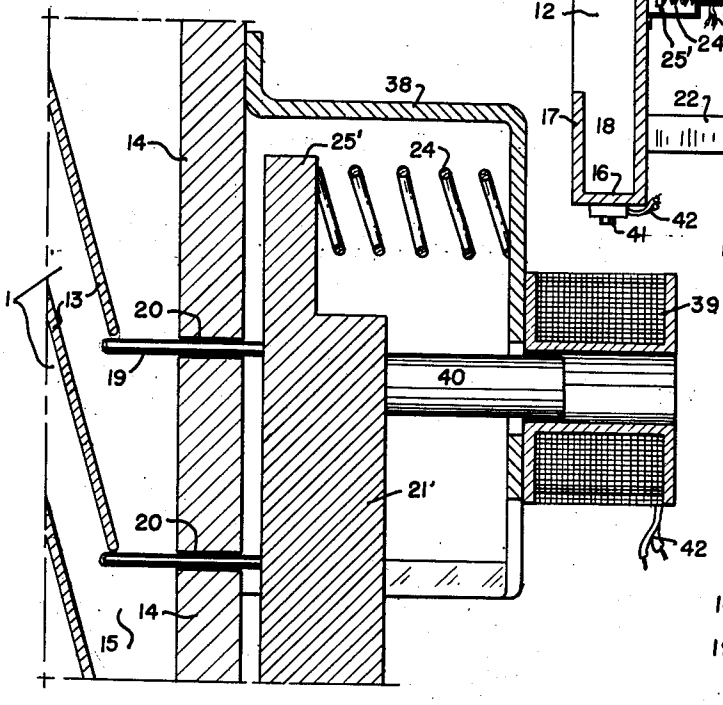


Fig. 7

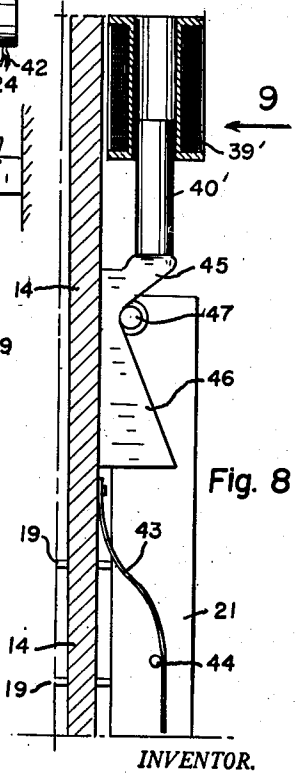


Fig. 8

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UNITED STATES PATENT OFFICE

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TIMECARD RACK

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10 Claims. (Cl. 211—55)

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This invention relates in general to card racks and more particularly to racks for holding workmen's time cards and the like. The main object of this invention is to provide a time card rack, including compartments for holding individual cards, combined with means for transferring the cards from such compartments to a trough at the base of the rack.

Other objects of this invention are to provide an improved time card rack which: (*a*) includes a trough at the base of the rack, into which time cards may fall from their individual compartments above, to thereby simplify the collection of the cards; (*b*) provides means in which time cards are arranged in a predetermined order in a vertical row of compartments and means to transfer said cards to a trough at the base of the rack, maintaining said order of said cards; (*c*) includes manually operable card-release means which are adapted to simultaneously drop all cards from a rack containing many rows of compartments to troughs at the base of the rack; (*d*) is a sturdy, simply-constructed unit, easy to operate and maintain and usable over long periods of time.

With the foregoing and other objects in view, all of which more fully hereinafter appear, my invention comprises certain new and novel constructions, combinations and arrangements of parts and elements as hereinafter described, and as defined in the appended claims and illustrated in preferred embodiment, in the accompanying drawing, in which:

Figure 1 is a front elevation view of a time card rack having two vertical rows of compartments and a trough at the base of each row, embodying the present invention.

Figure 2 is a vertical section through the rack, as viewed from the indicated line 2—2 at Fig. 1.

Figure 3 is a transverse section through the rack as viewed from the indicated line 3—3 at Fig. 1.

Figure 4 is a fragmentary sectional detail of a portion of the showing at Fig. 2, on an enlarged scale and with broken lines indicating alternate positions of the elements there shown.

Figure 5 is a fragmentary sectional detail of a portion of the apparatus as viewed from the indicated line 5—5 at Fig. 2, but on an enlarged scale and with broken lines indicating alternate positions of the elements therein shown.

Figure 6 is a vertical section similar to Fig. 2 but showing an alternate construction of the invention.

Figure 7 is a fragmentary portion, in section, on an enlarged scale, of the showing at Fig. 6.

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Figure 8 is a fragmentary sectional view similar to Fig. 7, but showing another alternate embodiment of the invention.

Figure 9 is a fragmentary rear view of the elements shown at Fig. 8, as viewed from the indicated arrow 9 at Fig. 8.

The usual rack for holding workmen's time cards comprises an array of slot-like compartments upon a backboard, which are generally disposed in groups in vertical rows, and each compartment is adapted to hold the card of an individual workman. The basic purpose of such a rack is to permit a workman to easily find his card among a large group of other similar cards. At certain intervals it is necessary to gather all of the time cards in the rack for recording the information on each of them and for payroll and other purposes. Gathering these cards one by one from a rack constructed in a conventional manner, in some plants as many as several thousand, is most wasteful and inefficient. This condition exists at many large plants and factories, and the problem of providing automatic collection of the time cards in such large racks has long been recognized. The present invention was conceived and developed to meet such a problem and to provide an improved time card rack which includes automatic collection features.

The invention comprises in essence a rack having a plurality of inclined pockets or compartments in a vertical row as in conventional time card racks, but combined with a chute at the back of the compartments and a trough at the bottom of the row. A retractable pin extends across the bottom of each compartment to hold the cards in position, and means are provided for simultaneously retracting all of the pins to permit the cards to drop from the compartments into the chute and thence into the trough at the base of the row.

In the illustrated embodiments of my invention the time card rack 10 is shown as a unit having two vertical rows of compartments 11, although it is understood that the rack 10 may include one or any number of rows of compartments. The frame of the rack is formed by suitable structural members to provide a box-like unit of sufficient depth to include vertical channels 12 wherein transverse plates 13 are positioned to define the pockets or compartments 11, the plates being inclined outwardly from the vertical and the inner, lower edges of the plates being spaced forwardly from the rear wall 14 of the rack to define a chute 15. The channels 12 extend to the bottom of the frame and a bottom

plate 16 and face plate 17 define a trough 18, the face plate 17 being of sufficient height to hold time cards in substantially upright position therein. It follows that a time card placed in a compartment, if not restrained, will drop from the compartment into the chute and to the trough 18.

Each time card C is normally held in its individual compartment, between two plates 13, by a pin 19 which extends from the rear wall 14 across the chute and below the lower edge of the lower of said two plates. The pins have a common retracting means whereby all are retracted, and the cards are simultaneously released to drop into chute 15 and thence into trough 18 for collection. The retracting means include orifices 20 in the rear wall 14 of the rack through which pins 19 slide, and all of the pins are connected to a vertical bar 21 behind the rear wall. Movement of the bar 21 toward or away from the rear wall will simultaneously project the pins across the chute and across the bottoms of the pockets or retract the pins and clear the pockets and chute. It follows that the time card rack 10 must be mounted or supported in such a manner as to provide for movement of the bar 21, and mechanisms which operate it, as for example, by brackets 22 supporting the rack spaced from wall 23.

A spring 24 is compressively seated against lugs 25 at each end of the bar 21 between the bar and the rear face of wall 14 to resiliently move the bar away from the wall 14 and retract the pins 19 from across the chute. The bar 21 is held adjacent to the wall 14 by a pair of latches 26 which are mounted upon a common shaft 27 and adapted to swing against the bar 21, a latch being located at each end of the bar to provide a uniform movement of the bar whenever the latches are released, thus insuring simultaneous retraction of all pins 19. The shaft 27 is pivotally mounted upon lugs 28 which outstand from the rear wall 14 and this shaft extends alongside the bar 21, in spaced parallelism therewith, and terminates below the lower edge of the rack 10 as a handle 29 for manual operation thereof. The operation comprises rotation of the shaft to swing the latches 26 out of line with the bar 21 to permit springs 24 to move it away from the wall. A spring 30 is wrapped around the shaft 27 and is attached to a latch 26 and to an adjacent lug 28 to resiliently move the latches toward the latching position whenever the bar 21 is pushed toward the wall.

The retracted position of the pins 19 and bar 21 is shown by broken lines at Figs. 4 and 5. To move bar 21 against the wall 14, a pair of inclined arms 31 is mounted upon a shaft 32 which is carried upon lugs 33. The shaft 32 extends alongside the bar 21 in spaced parallelism therewith to position an arm 31 at each end of the bar 21 to insure uniform movement of the bar toward the wall 14 to prevent binding of operative parts, and it is spaced at a distance from the bar 21 sufficient to permit the angle of arms 31 to be comparatively flat to minimize lateral pressure of the arms 31 against the bar 21 as the arms rotate and bear against the bar. The shaft 32 may extend to the bottom or to the top of the rack and terminate as a handle for manual operation thereof or may be connected by levers hereinafter described where the rack includes a plurality of vertical rows each having an individual bar 21.

Where there is a plurality of vertical rows of pockets in a single time card rack, as illustrated by the pair at Fig. 1, the shafts 27 and shafts 32 of the rows are linked together to operate simultaneously if desired. A pivot arm 33 outstands from each shaft 27 and is connected to the other arm 33 by a link rod 34. Rotation of one shaft 27 by turning handle 29 rotates the other shaft 27 of the neighboring unit. The shafts 32 include pivot arms 35 connected together by a link rod 36 for simultaneous rotation of the shafts. In the showing at Figs. 1, 2 and 3 the shaft 32 on the unit opposite the one carrying handle 29 extends to the bottom of the rack to terminate as a handle 37. With such an arrangement the handles 29 and 37 are spaced apart at the bottom of the board and operation of the rack is first to rotate handle 29 to release the bar 21 from latches 26 and retract the pins 19 to thereby permit the cards to drop from the pockets to the trough; subsequently, the handle 37 may be rotated to move the arms 31 against the bar 21 to project the pins across the chute, and upon such rotation the latches 26 move to lock the bar in position.

The successive relative overlapping of the pockets insures the maintenance of the predetermined order of the cards in the trough—the card from the bottom pocket will be in front and the card from the top pocket will be at the back and the other cards in order therebetween.

The alternate construction illustrated at Figs. 6 and 7 employs electrical means to operate the bar 21' to retract the pins 19. In this construction the bar 21' is modified by reversing the position of lugs, here indicated as 25', and the spring 24. A basket type frame 38 encases each end of the bar 21' and the spring 24 is compressively mounted between each lug 25' of the bar 21' and a member of the frame 28 which overhangs the bar, whereby the springs 24 push the bar against the wall 14 to resiliently hold the pins 19 in their projected position across the chute 15.

The body of a solenoid 39 is mounted upon each frame member 38 and the armature 40 of the solenoid is carried by bar 21'. Whenever the solenoids at each end of the bar are energized, the armature is drawn into the body of the solenoid to move the bar away from the wall 14 and retract the pins 19. These solenoids are connected together and to a push button control switch 41 by an electrical circuit, indicated by the leads 42 from the solenoids and switch. The circuit is powered from any suitable electric source, such as a common 110 volt alternating current. The switch is mounted upon the rack 10 in any convenient location, as illustrated at Fig. 6.

The alternate construction shown at Figs. 8 and 9 positions the solenoid 39' against the rear wall 14 of the rack 10 in such a manner as to minimize the necessary spacing between the back of the wall 14 and the wall 23 whereon the rack is mounted. The bar 21' is resiliently held against the wall 14, with the pins 19 extended across the chute, by a pair of leaf springs 43 along each side and at each end of the bar 21', which bear against pins 44 outstanding from the sides of the bar. The fingers of a yoke 45 extend around each end of the bar and are formed as inclined planes 46, one side of which bears against rollers 47 outstanding each side of the bar 21'. The inclination of the planes 46 is such that movement of the yoke away from the end of the bar 21' lifts the rollers and bar 21' away from the wall 14 to retract the pins 19. A solenoid 39' is mounted beyond the end of each bar

21'' and its armature 40' is connected to the yoke away from the bar whenever the solenoids are energized as in the manner hereinbefore described.

While I have illustrated and described many details of construction, alternatives and equivalents will occur to those skilled in the art which are within the scope and spirit of my invention; hence it is my desire that my protection be not limited to the details herein illustrated and described, but only by the proper scope of the appended claims.

I claim:

1. A time card rack including, in combination, a substantially vertical row of time-card pockets inclined outwardly from the rack, a chute at the rear of said row and communicating with the bottoms of said pockets, a trough at the bottom of said chute, obstructions at bottom of pockets and means for withdrawing all of said obstructions, whereby to permit cards to drop from the pockets into the chute and thence into the trough.

2. The apparatus defined in claim 1 wherein said obstructions comprise pins positioned across the chute and the bottom of each pocket.

3. The apparatus defined in claim 1 wherein said obstructions comprise pins slidable through the rear wall of the chute and across the chute at the bottom of each pocket, said withdrawing means being associated with the pins behind said rear wall.

4. The apparatus defined in claim 3 wherein said means include a bar connected with said pins.

5. The apparatus defined in claim 1 wherein said obstructions comprise pins extending through the rear wall of the chute and across the chute and the bottoms of the respective pockets, and the withdrawing means include a bar behind said rear wall interconnecting said pins, balanced resilient means for moving said bar and thereby withdrawing said pins, and latching means adapted to hold the bar in pin-extended position.

6. The apparatus defined in claim 5 wherein said latching means comprises swingable arms at the respective ends of the bar, and a shaft interconnecting the arms and extending below the rack and terminating as a handle.

7. The apparatus defined in claim 5 including means for pushing the bar from its pin-withdrawn position to the pin-extended and bar-latched position.

8. The apparatus defined in claim 1 wherein said obstructions comprise pins slidable through the rear wall of and across the chute at the bottoms of the respective pockets, a bar behind the rear wall of the chute interconnecting said pins, balanced resilient means adapted to push the bar to the pin-extended position, balanced solenoid means including armatures connected to the bar and adapted to pull the bar to the pin-retracted position.

9. The apparatus defined in claim 1 wherein said obstructions comprise pins slidable through the rear wall of and across the chute at the bottoms of the respective pockets, a bar behind the rear wall of the chute interconnecting said pins, balanced resilient means adapted to push the bar to the pin-extended position, wedge means adapted to move the bar to pin-withdrawn position and means adapted to operate the wedge.

10. The apparatus defined in claim 9 wherein said wedge operating means include a solenoid having its armature connected to the wedge.

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