H. D. HERPST AND S. L. SMITH.

FOLDING SHELF.

APPLICATION FILED JULY 12, 1920.

1,402,929. Patented Jan. 10, 1922.

2 SHEETS—SHEET 1.

FIG. 1.

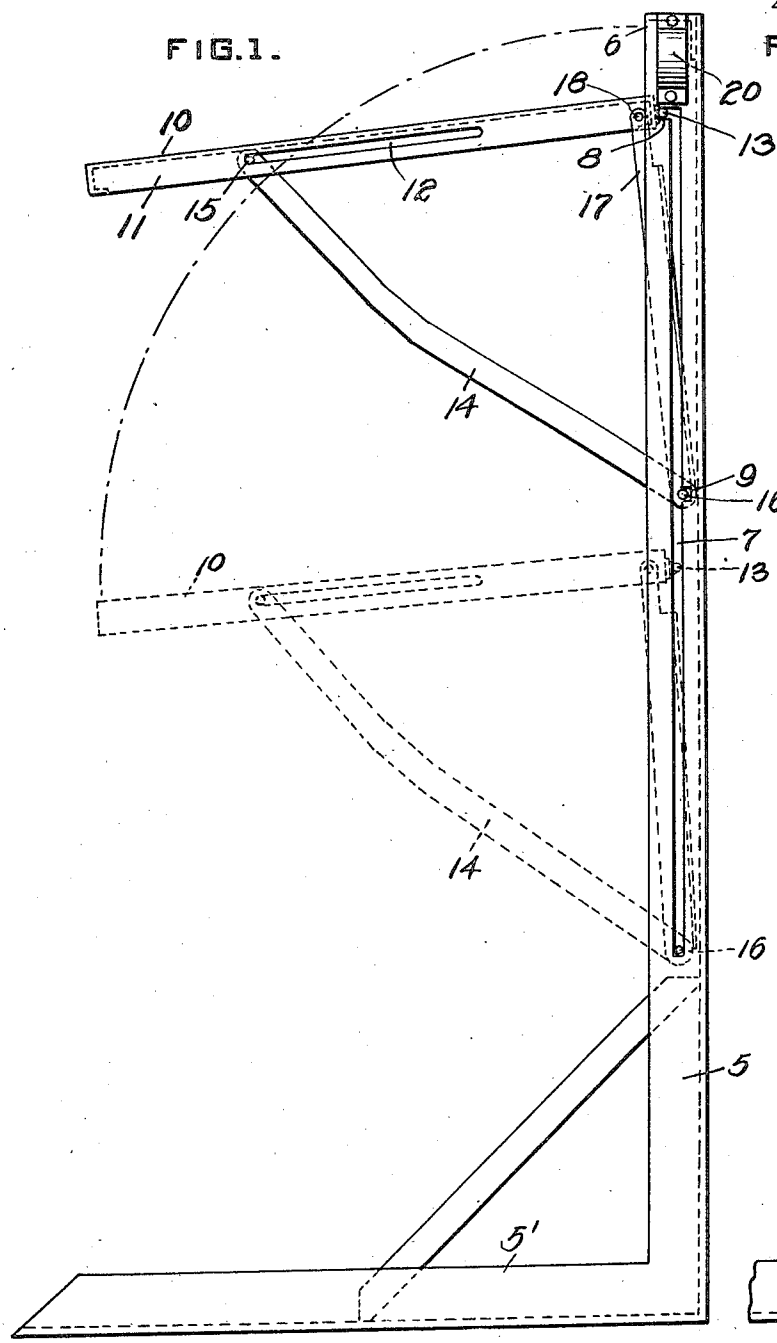
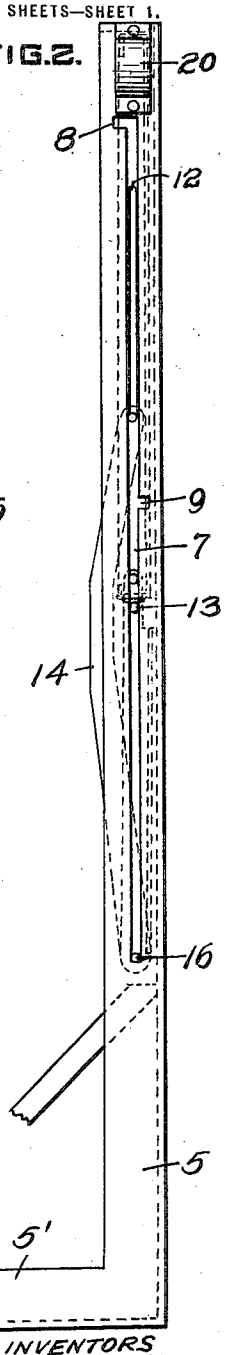


FIG. 2.



WITNESSES

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2 SHEETS—SHEET 2.

FIG. 3.

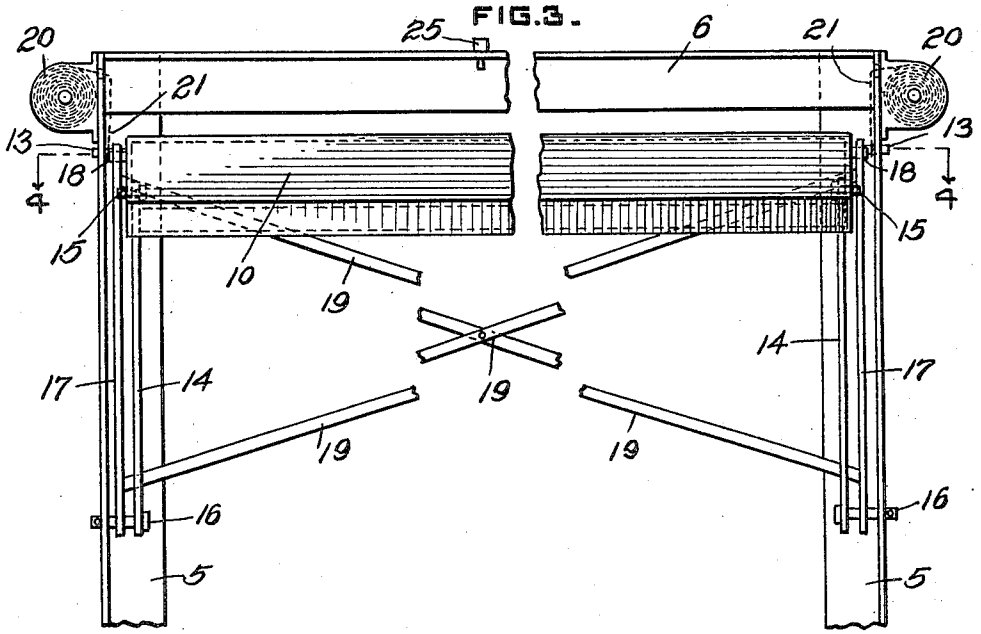
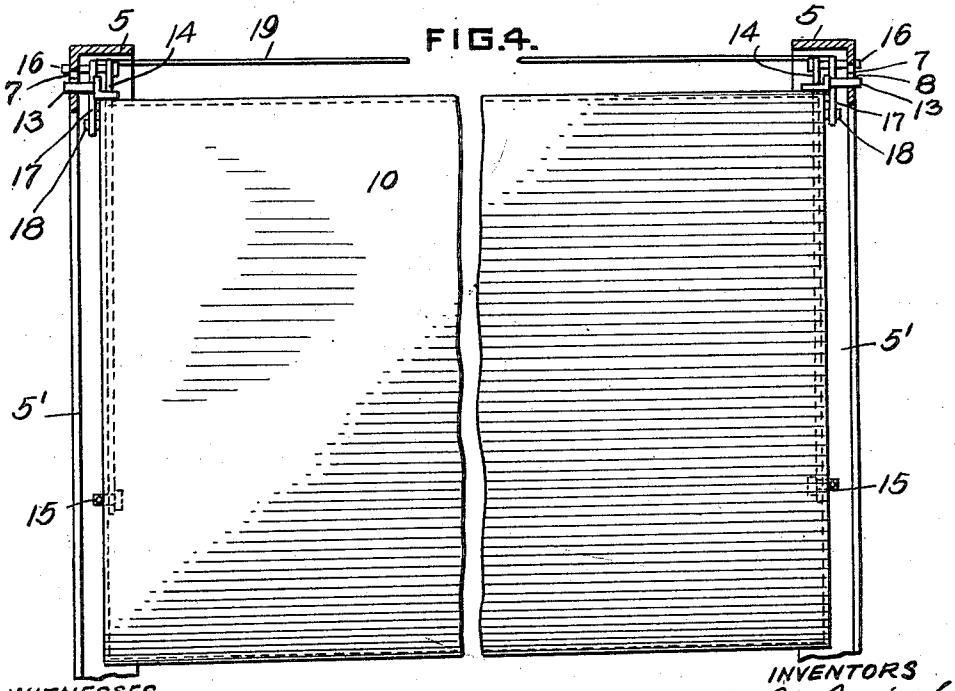


FIG. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

HAROLD DIX HERPST, OF CLEVELAND, OHIO, AND SAMUEL L. SMITH, OF PITTSBURGH, PENNSYLVANIA.

FOLDING SHELF.

1,402,929. Specification of Letters Patent. Patented Jan. 10, 1922.

Application filed July 12, 1920. Serial No. 395,613.

To all whom it may concern:

Be it known that we, HAROLD DIX HERPST and SAMUEL L. SMITH, citizens of the United States, and residents of Cleveland, in the county of Cuyahoga, State of Ohio, and Pittsburgh, in the county of Allegheny and State of Pennsylvania, respectively, have invented a new and useful Improvement in Folding Shelves, and we do hereby declare the following to be a full, clear, and exact description thereof.

Our invention relates to folding shelves particularly adaptable for use in banks in connection with machine book-keeping, but is equally capable of use in other places where temporary shelving space is necessary and it is desired to conserve room.

In banking establishments where machine bookkeeping is used, a certain room is provided for the machines and their operators. At certain hours in the day it is necessary for the operators to have desk space on which they can arrange various papers, such as checks or deposit slips, in the desired alphabetical or other order. Heretofore it has usually been the practice to provide a separate room or a separate part of the room with desks at which the operators can work to arrange their papers. After the papers have been arranged, the operators return to the room where their machines are stationed to make the necessary entries. The question of providing sufficient space in some banks for this purpose is quite serious.

The present invention has for its object to provide a shelf which may be positioned along the walls or "cages" or in any other place in the rooms where the bookkeeping machines are located, such shelf being capable of folding to occupy a minimum space.

A further object of the invention is to so construct such shelf that when it is opened the bookkeeping machines may be pushed under it out of the way of the operator.

A still further object of the invention is to so arrange the shelf that it may be held open at a position which will enable the operator to comfortably stand up to work, or which, when desired, may be lowered to such a position that the operator may remain seated while working thereat.

According to our invention the support for the shelf is preferably constructed of angle iron and metal bars in order that it will occupy a minimum space and to permit an unobstructed view of each desk where several of them are arranged in a row, or where, as is sometimes necessary, to permit an unobstructed view through the cages adjacent which the shelves will usually be positioned. Spring drums or other counter balancing devices are preferably employed to facilitate movement of the shelf.

Our invention may be more readily understood by reference to the accompanying drawings, in which, Figure 1 is an end elevation of the shelf in open or extended position; Fig. 2 is a similar view showing the shelf folded; Fig. 3 is a front elevation with the shelf opened or extended; Fig. 4 is a section on line 4—4 of Fig. 3 and shows the shelf in extended position.

In the drawings 5 indicates vertical standards preferably formed of angle iron and provided with feet 5′, one of the supports 5 being positioned at each end of the shelf. The top of the vertical supports are connected by an angle bar 6 to form a suitable supporting frame.

In the vertical supports 5 are vertical slots 7 at the top end of which is a notch 8 extending forwardly, and intermediately of the ends of each slot is a rearwardly extending notch 9.

The shelf is indicated at 10 and preferably comprises an angle bar frame covered with linoleum or other suitable material. At each end of the shelf 10 is an angle bar 11 having a slot 12 therein. Secured to the back of the shelf 10 and at each end thereof are pins 13 adapted to project through and slide in the slots 7 in the vertical standards.

Supporting braces, one at each end of the shelf, are provided and comprise a bar of metal 14 preferably shaped as shown in the drawings. At the upper end of each bar 14 is a pin 15 slidable in the slot 12 in the angle bar 11. At the lower end of each of said bars a similar pin 16 is provided, the pins 16 being slidable in the vertical slots 7.

Bars 17 are pivoted to each end of the shelf 10 at 18 and pivot to the pins 16 on the bars 14. These bars 17 act to properly space the end of the bar 14 from the pin 13 on the back of the shelf. They are connected by cross-ties 19 as shown in Fig. 3.

Secured to any suitable place on the frame, such as on the vertical supports 5, we provide spring drums 20 of well known construction having metal tapes 21 passed

through the frame and connecting to the pins 13. These drums, as is well understood, act as counter balances by reason of the unwinding of the tape winding or tensioning the spring and vice versa.

In practice, the shelf is normally held in the closed position shown in Fig. 2 by a suitable catch 25. In this position the shelf 10 is vertical and lies in vertical alignment with the end of the standards 5. The brace bars 14 also assume such vertical position, so that when folded the entire shelf occupies a width equal to or only slightly greater than the width or thickness of the frame. In this folded position the metal tapes 21 are unwound and the spring drum is tensioned.

The catch 25 may be released to let the shelf swing down to the position shown in dotted lines in Fig. 1. In this position the pins 13 engage the sides of the slot 7 and pins 16 rest on the lower end thereof, while the pins 15 slide to the forward extremity of the slots 12 and the shelf is firmly held in a substantially horizontal position.

From the folded position shown in Fig. 2, the shelf may be lifted vertically and at the same time swung outwardly to a substantially horizontal position until the pins 13 engage the top of the slot 7, at which time the weight of the shelf will tend to move them forward into the notches 8. As the shelf 10 is further swung toward the horizontal position, the pins 15 on the brace bars 14 move to the forward extremity of slot 12 and the pins 16, having also been moved upwardly, and being held in proper spaced relation by the bars 17, are forced back in the notches 9 by reason of the weight of the shelf on the bars 14. Thus the shelf will be held in its upper extended position. The lifting of the shelf to this upper position will be greatly facilitated by the action of the spring drums 20.

In practice, it is contemplated that the shelves be placed along the cages or walls of the room or at any other convenient place therein, an individual shelf being provided for each bookkeeping machine operator. Each shelf, while normally closed, may be opened to the uppermost position and the bookkeeping machine may be pushed beneath it. The shelf frames being constructed of structural metal occupy a minimum space and do not interfere with the operators' conversing or seeing through the cages. Where several shelves are arranged in a longitudinal row, as contemplated in some banks, a person standing at one end of such row may look down along the row and see each desk without his view being obstructed by any side frames, as would be the case where ordinary folding wooden shelves are used.

While we have described our invention as being particularly adaptable for use in banks, it is apparent that it may be used in other places where temporary shelf space or desk space is required. A preferred embodiment of the invention has been shown and described, but it is obvious that changes may be made within the scope of the appended claims.

We claim as our invention—

1. A folding shelf comprising a supporting frame having vertical supports at each end thereof, a shelf, means on the shelf for slidably and pivotally engaging said vertical supports, and brace bars slidably engaging said shelf and said vertical frame members in such manner that the said shelf may be moved vertically or may be swung from an extended to a folded position while the brace bars remain attached to the shelf and guided in the frame.

2. A folding shelf comprising a frame having vertical standards on each end thereof, a shelf, means on the shelf for slidably and pivotally engaging said vertical standards, brace members slidably connected with said shelf and with said standards, and space bars pivoted to said shelf and to said brace members for holding them in proper spaced relation to keep the brace members always in proper position when the shelf is opened or closed or moved vertically.

3. A folding shelf comprising a frame having vertically slotted end standards, a shelf having means at the rear of each end thereof adapted to engage the vertical slots in said standards to provide a sliding pivot therefor, slotted members on each end of said shelf, and a brace at each end of said shelf having means thereon at its upper end for slidably engaging in said slotted shelf members and means on its lower end for slidably engaging in said slotted standards, the arrangement being such that the shelf may be moved vertically or swung from an extended to folded position while the brace bars remain attached thereto and slidably engaging in the slotted end standards.

4. A folding shelf comprising a frame having vertically slotted end standards, a shelf having means at the rear of each end thereof adapted to engage the vertical slots in said standards, slotted members at each end of said shelf, a brace at each end of said shelf having means thereon at its upper end for slidably engaging in said slotted shelf members and means on its lower end for slidably engaging in said slotted standard, and a spacing bar pivoted at each end of said shelf at its upper end and pivoted at the other end to the lower end of said brace bar.

5. A folding shelf comprising a supporting frame including end members having vertical slots and transverse notches therein a shelf member, means movable in the slots and notches in the frame and connected with said shelf member for holding said shelf in an upper extended position or a lower ex-

tended position or for permitting the shelf to be folded to a substantially vertical position and means mounted on the frame and connected with the shelf for counterbalancing the weight of the shelf, said means being under greatest tension when the shelf is closed to a substantially vertical position.

6. A folding shelf comprising a supporting frame including end members having guides therein with forwardly and rearwardly extending notches, a folding shelf having means thereon slidable in the guideways and adapted to move into the forwardly extended notches when the shelf is extended, and a brace member connected to the shelf having means thereon for engaging the rearwardly extending notches when the shelf is extended, said guideways permitting the shelf to be extended when at different heights.

In testimony whereof we, the said SAMUEL L. SMITH and HAROLD DIX HERPST, have hereunto set our hands.

HAROLD DIX HERPST.
SAMUEL L. SMITH.