

May 3, 1927.

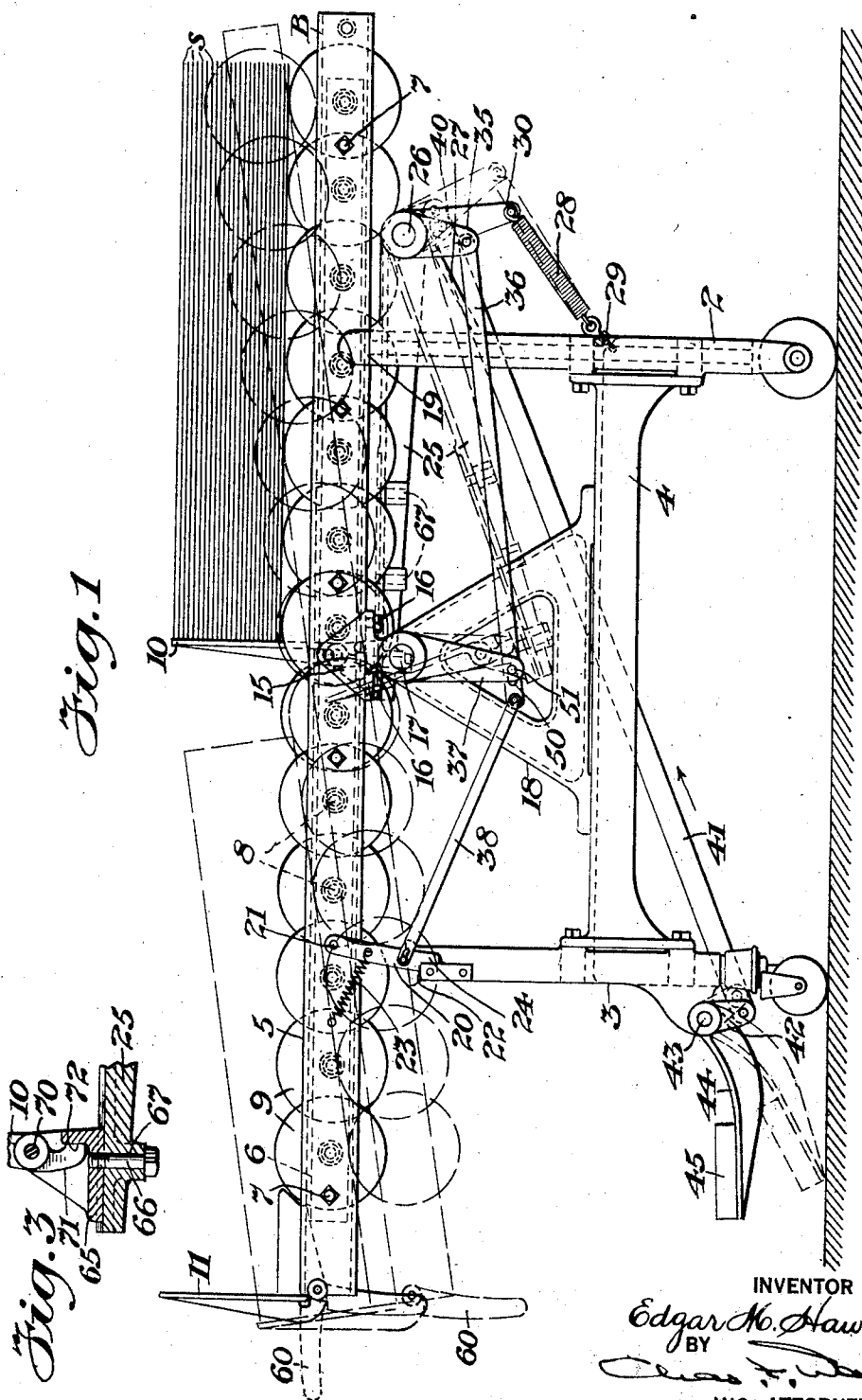
E. M. HAWKINS

1,626,933

RECEIVING BANK

Filed June 9, 1925

2 Sheets-Sheet 1



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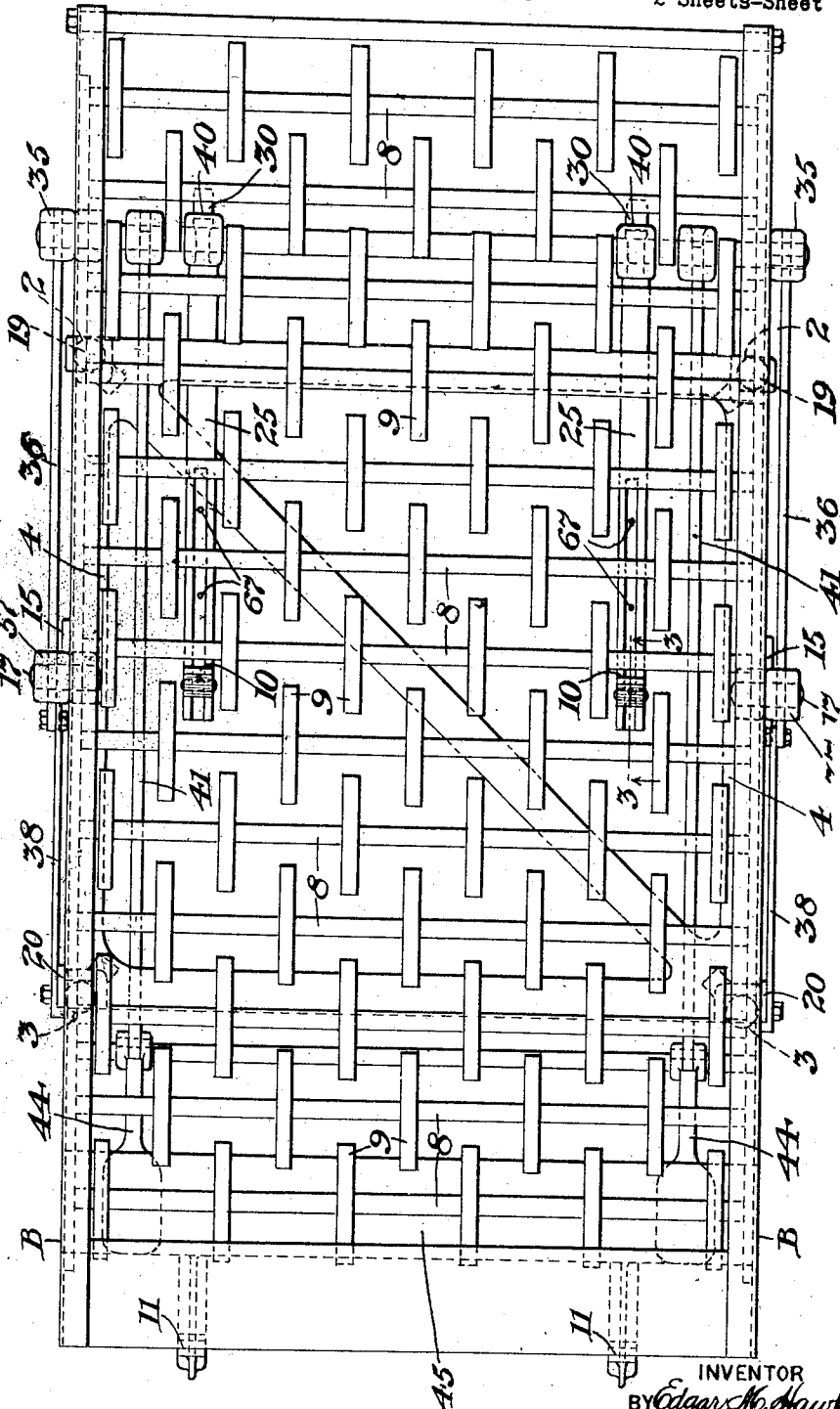
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2 Sheets-Sheet 2

Fig. 2



INVENTOR
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HIS ATTORNEY

Patented May 3, 1927.

1,626,933

UNITED STATES PATENT OFFICE.

EDGAR M. HAWKINS, OF ROCHESTER, NEW YORK, ASSIGNOR TO M. D. KNOWLTON COMPANY, OF ROCHESTER, NEW YORK, A CORPORATION OF NEW YORK.

RECEIVING BANK.

Application filed June 9, 1925. Serial No. 35,865.

The invention relates to receiving banks of the kind used in connection with machines for working on sheet stock, such as paper cutting and scoring machines, and which are adapted for receiving the cut and scored sheets as they are discharged from the machines. In the ordinary operation of a double scoring machine, the operator feeds as many sheets through the machine as the receiving bank will hold. He then ceases feeding and unloads the receiving bank, breaking the sheets as he unloads and places them on the truck by which they are carried away. This unloading operation obviously interferes with the feeding of the machine and substantially decreases its possible output. With such fact in mind, it has been an object of the present invention to provide an improved receiving bank for machines of the kind referred to by which the finished product may be handled in a way to permit the operator to feed the machine substantially continuously and thus greatly increase its possible output. This object is attained by the novel construction of receiving bank embodying my invention as hereinafter described and claimed, and as illustrated in the accompanying drawings, in which—

Fig. 1 is a side elevation of the improved receiving bank, showing the normal loading position of the sheet receiving table and certain of its operating parts in full lines, and the unloading or sheet-shifting position of the same in broken lines.

Fig. 2 is a top plan of the same, and

Fig. 3 is a sectional detail, the section being taken on the line 3—3 of Fig. 2.

A receiving bank of the type herein referred to is made the subject-matter of an application of Joseph F. Steegmuller, Ser. No. 751,569. The receiving bank of such application comprises a supporting frame having mounted thereon an inclined work-receiving table whose surface is arranged at such an angle to the horizontal that sheets received thereon at its upper end will be caused to readily gravitate toward its lower end, and whose length is at least double that of the sheets to be received thereon whereby it may be divided into two sections by means of stop devices located at different points in the length thereof; the upper section being adapted to receive sheets as they are fed from a scoring or other machine, and the

second or lower section being adapted to receive the sheets from the upper section after a pile has accumulated thereon, upon the release of said pile by its holding stop. In this prior device the work-receiving table is fixedly mounted in its inclined position on the supporting frame. In the device of the present application, the work-receiving table differs from that of said prior device in that it is pivotally mounted for movement about a horizontal axis whereby it may be held in a horizontal position during loading of the same at its receiving end, and thereafter depressed at its storage end to effect shifting of the pile of sheets from the receiving end to said storage end; suitable mechanism being provided for tilting the table and for releasing the pile to effect shifting of the same upon such tilting.

Referring to the drawings, B indicates the work-receiving table of the device, which is pivotally supported on a suitable frame, here shown as comprising front legs 2 and rear legs 3, all connected by suitable cross braces 4.

The table B comprises an open rectangular frame, the side members 5—5 of which are in the form of channel irons, each having a journal bar 6 attached to its inner wall by suitable fastening means, such as the screws or bolts 7. Journalled at their opposite ends in the bars 6 are a series of shafts 8, each having mounted thereon a plurality of wheels 9. These shafts with their supported wheels provide a top roller surface upon which the sheets are adapted to be received at one end from a scoring or other machine, and which, upon the tilting of the table to raise said receiving end, will cause the pile of sheets to readily gravitate to the opposite lower or storage end.

The table B is made of a length at least double that of the sheets to be received thereon, whereby it may be divided into two sections by means of stop members, 10 and 11, located at different points in the length thereof, the front or receiving section being adapted to receive the sheets from a scoring or other machine, and the rear or storage section being adapted to receive the sheets from the receiving end after a pile has accumulated thereon; the transfer of the pile being effected by a tilting of the table from the full line position shown in Fig. 1 to the broken line position, and a lowering of

the stops 10 from their raised sheet-holding position shown by full lines in Fig. 1 to the sheet-releasing position shown by broken lines. Upon such tilting of the table and the releasing of the pile by the stops 10, the pile automatically gravitates downwardly onto the lower section and comes to rest against the back stops 11, as shown by broken lines in Fig. 1, where it may remain in storage until the operator or his helper has a convenient opportunity of removing the same. However, in order to obtain the full benefit of this type of receiving bank the unloading of the same from the storage end thereof will be attended to by a helper or "stacker" whereby the operator may attend to his work of feeding sheets into the machine without interruption.

The table B may be pivotally mounted on its supporting frame in any suitable or desired way. In the present case, the table has brackets 15 secured thereto at its opposite sides, as by means of bolts 16, which brackets are journaled on stud shafts 17 mounted in the upper ends of standards 18 secured on the side members 4 of the supporting frame. The table, thus pivotally mounted at a point about midway of its length, is normally maintained in a substantially horizontal position with its front or receiving end resting upon the front end of the frame, as at 19, in which position it is held by means of latches 20 pivotally attached to the opposite sides of the table, as at 21, with their lower ends resting upon stationary supports 22 secured to the rear end of the supporting frame as shown. These latches 20, for a purpose to be presently described, are yieldingly held in their position of latching engagement with the supports 22 by means of connecting springs 23, which act to hold the latches with abutments 24 at their lower ends in engagement with the front sides of the supports 22.

The stop device for engaging and holding the sheets on the receiving end of the table may be of any suitable construction. In the present case it comprises the two members 10 which project above the top surface of the table for engaging the sheets near their opposite ends, and which are carried adjacent the free ends of two horizontally ranging arms 25 fixed to a rock-shaft 26 journaled in suitable brackets 27 at the front end of the frame. A spring 28, connecting at one end with a fixed part of the machine, as at 29, and at its opposite end with an arm 30 fixed on the shaft 26, acts to yieldingly hold the stop members 10 in their normally raised or sheet engaging position.

After a pile of sheets has accumulated on the table B and it is desired to shift the same to the storage end thereof, the latches 20 are first shifted from engagement with the stops 22 to permit tilting of the table,

the stops 10 then lowered to release the pile, and the table tilted to cause shifting of the pile into engagement with the back stops 11. The operating means for effecting these movements of the several parts is as follows: The rock-shaft 26, which has connection with the stop members 10 through its arms 25 as before described, has a short arm 35 fixed thereto adjacent one end, which connects through a link 36 with a lever arm 37 depending from the table bracket 15, and which also connects through said link 36 and a second link 38 pivoted to the end of the latter, with the latch 20. A like connection between the rock-shaft 26, table-bracket lever arm 37 and latch 20, is provided at the opposite side of the device from that shown in Fig. 1.

The rock-shaft 26 may be operated to actuate the several connecting parts, in the manner to be presently described, by any suitable means. In the present case, it is provided with a short arm 40 connected through a rod 41 with an arm 42 on a second rock-shaft 43, which latter is journaled in the lower part of the frame and provided with a pair of treadle arms 44 (see Fig. 2) upon which are mounted a treadle board 45 extending across the full width of the device for the convenience of the operator.

In the operation of the device, when the operator wishes to shift the pile of sheets from the receiving end to the storage end, he will depress the treadle 45. This will cause a movement of the connecting rod 41 in the direction of the arrow, which will cause a rocking of the shaft 26 in the proper direction to first withdraw the latch 20 from the support 22 through the connecting links 36 and 38, this release of the latch being effected prior to a tilting of the table by reason of an elongated slot 50 in the link 36 at its point of connection with the lever arm 37, which connection is provided by means of a pin 51 on said arm engaging the link within its said slot. After the latch has thus been released to permit tilting of the table, the lost motion between the link 36 and the lever arm 37 will have been taken up and the further movement of the link 36 in the same direction will then swing the connected table bracket 15 about its axis and tilt the table from the horizontal position shown by full lines in Fig. 1 to the inclined position shown by broken lines, where it will rest on the left hand leg of the supporting frame.

During the described movement of the rock-shaft 26 in releasing the latches 20 and tilting the table B, the arms 25 on said shaft which carry the stops 10 are at the same time swung downwardly to lower the stops 10 from their sheet-holding position shown in full lines in Fig. 1 to sheet releasing po-

sition below the surface of the table as shown by broken lines.

After the shifting of the pile from the receiving end of the table to the storage end has thus been effected, the pile may be removed prior to the return of the table to horizontal position, but ordinarily the table will be returned to horizontal position prior to the removal of the pile therefrom in order that the feed of the sheets from the scoring or other machine may be continued without substantial interruption while the "stacker" breaks up the sheets as he removes them from the storage end of the table. In returning the table to its normal horizontal position, the operator or his assistant may do this by grasping the handles 60 pivoted to the rear end of the table. When the latter has been tilted back to its horizontal position, the pivoted latches 20 will be caused to snap into locking engagement with the stops 22 under the influence of the springs 23.

As the sheets are delivered from the scoring or other machine to the receiving table B, it is important that they be brought to a state of rest on said table as quickly as possible so that "floating" of the same sidewise will be avoided and thereby the sheets be caused to pile on each other against the stops 10 with the score lines registering with each other. This aids in the breaking up of the stock and is very important for such reason. In order that the different sizes of sheets delivered to the table B may be quickly brought to a state of rest, it is necessary that the stops 10 be adjustable lengthwise of the table according to the size of sheet being delivered. To provide for such adjustment, the stops 10 are mounted on the arms 25 for adjustment lengthwise thereof. Such adjustment may be provided for in any suitable or desired way. In the present case, each stop member is connected with a block 65 (see Fig. 3) which is detachably secured to the arm 25 by a screw 66 passing through an opening 67 in the latter. A series of these openings 67 at predetermined points in the length of the arm 25, here shown as three in number, provides for the necessary adjustment of the stops.

The stop members 10 extend upwardly from the arms 25 between the roller carrying shafts 8. When these are adjustable lengthwise of their supporting arms as in the present case, the shorter radius and greater angle of movement necessary to get their upper ends below the roller surface, as they are adjusted inwardly on the arms 25, makes it necessary to pivot these stop members to the blocks 66 in order that they may yield or swing inwardly in the event of their upper ends coming in contact with the shafts 8. To permit of such yielding of the stop members in a forward direction,

they are pivoted within recesses in the blocks 65 by pivot pins 70; and in order to hold them rigid in the opposite or rearward direction, they are provided with extensions 71 at their lower ends for engagement with stop abutments 72 on the blocks 65, as clearly shown in Fig. 3.

While I have referred particularly to paper cutting and scoring machines in connection with the bank herein described, it will be understood that such bank may be used to advantage in connection with any machine which delivers sheet stock, such as printing presses, sheet slotters, etc.

What I claim is:

1. A receiving bank comprising a frame, a work-receiving table mounted thereon, means for moving said table from a generally horizontal work-receiving position to an inclined work-shifting position, a work holding stop intermediate the length of the table, and means for moving said stop to releasing position when the table is tilted.
2. A receiving bank comprising a frame, a work-receiving table pivotally mounted thereon, means for rocking said table from a generally horizontal work-receiving position to an inclined work-shifting position, a work holding stop intermediate the length of the table, and means for moving said stop to releasing position when the table is tilted.
3. A receiving bank comprising a frame, a work-receiving table mounted thereon and having a roller in its work-receiving surface, means for moving said table from a generally horizontal work-receiving position to an inclined work-shifting position, a work holding stop intermediate the length of the table, and means for moving said stop to releasing position when the table is tilted.
4. A receiving bank comprising a frame, a work-receiving table mounted thereon and having a plurality of rollers forming its work-receiving surface, means for moving said table from a generally horizontal work-receiving position to an inclined work-shifting position, a work holding stop intermediate the length of the table, and means for moving said stop to releasing position when the table is tilted.
5. A receiving bank comprising a frame, a work-receiving table pivotally mounted thereon and having a plurality of rollers forming its work-receiving surface, means for rocking said table from a generally horizontal work-receiving position to an inclined work-shifting position, a work holding stop intermediate the length of the table, and means for moving said stop to releasing position when the table is tilted.
6. A receiving bank comprising a frame, a work-receiving table pivotally mounted thereon, and a latch for normally holding said table in a generally horizontal work-receiving position.

7. A receiving bank comprising a frame, a work-receiving table pivotally mounted thereon, a latch for normally holding said table in a generally horizontal work-receiving position, and means for moving said latch to releasing position to permit movement of the table to an inclined work-shifting position.
8. A receiving bank comprising a frame, a work-receiving table pivotally mounted thereon, a latch for normally holding said table in a generally horizontal work-receiving position, and means for moving said latch to releasing position and thereafter moving said table to an inclined work-shifting position.
9. A receiving bank comprising a frame, a work-receiving table pivotally mounted thereon, a latch for normally holding said table in a generally horizontal work-receiving position, and treadle operated means for moving said latch to releasing position and thereafter moving said table to an inclined work-shifting position.
10. A receiving bank comprising a frame, a work-receiving table mounted thereon for movement from a generally horizontal work-receiving position to an inclined work-shifting position and having a plurality of rollers forming its work-receiving surface; means for normally holding said table in its work-receiving position, means for moving said table to an inclined work shifting position, a work holding stop intermediate the length of the table, and connections between said stop and the table moving means for retracting said stop to release the work.
11. A receiving bank comprising a frame, a work-receiving table mounted thereon for movement from a generally horizontal work-receiving position to an inclined work-shifting position and having a plurality of rollers forming its work-receiving surface, a latch for normally holding said table in its work-receiving position, and means for moving said latch to releasing position.
12. A receiving bank comprising a frame, a work-receiving table mounted thereon for movement from a generally horizontal work-receiving position to an inclined work-shifting position and having a plurality of rollers forming its work-receiving surface, a latch for normally holding said table in its work-receiving position, and means for moving the latch to releasing position and thereafter moving said table to an inclined work-shifting position.
13. A receiving bank comprising a frame, a work-receiving table mounted thereon and having a plurality of rollers forming its work-receiving surface, and a work-holding stop at the upper side of said table mounted for adjustment lengthwise thereof.
14. A receiving bank comprising a frame, a work-receiving table mounted thereon and having a plurality of rollers forming its work-receiving surface, and a work-holding stop movable to and from an operative position at the upper side of said table and being mounted for adjustment lengthwise thereof.
15. A receiving bank comprising a frame, a work-receiving table mounted thereon and adapted to have an inclined work-shifting position, the work-receiving surface of which is formed by a plurality of rollers, and a work-holding stop at the upper side of said table mounted for adjustment lengthwise thereof.
16. A receiving bank comprising a frame, a work-receiving table mounted thereon and adapted to have an inclined work-shifting position, the work-receiving surface of which is formed by a plurality of rollers, and two work-holding stops at different points in the length of said table, one of said stops being adjustable lengthwise of the latter.
17. A receiving bank comprising a frame, a work-receiving table mounted thereon and adapted to have an inclined work-shifting position, the work-receiving surface of which is formed by a plurality of rollers, and two work-holding stops at different points in the length of said table, one of said stops being movable to and from an operative position above said table and also being adjustable lengthwise of the latter.
18. A receiving bank comprising a frame having a work-receiving table thereon, a series of shafts mounted on said table and carrying a plurality of rollers forming the work-receiving surface of the table, a work-holding stop at the upper side of the table, and a supporting member for said stop, the latter being adjustable on said supporting member in a direction lengthwise of the table.
19. A receiving bank comprising a frame, a work-receiving table mounted thereon and adapted to have an inclined work-shifting position, a series of shafts mounted on said table and carrying a plurality of rollers forming the work-receiving surface of the table, a work-holding stop supported at the under side of the table and adapted to project above the latter between certain of the roller shafts carried thereby, and a supporting member for said stop at the under side of the table, said stop being adjustable on said member in a direction lengthwise of the table.
20. A receiving bank comprising a frame, a work-receiving table mounted thereon, means for tilting said table to an inclined work-shifting position, a series of shafts mounted on said table and carrying a plurality of rollers forming the work-receiving surface of the table, a work-holding stop supported at the under side of the table

intermediate the length of the latter and adapted to project above the latter between certain of the roller shafts carried thereby, a pivoted member at the under side of the table on which said stop is mounted, and means connecting said pivoted member to the table shifting means for operating said member to raise and lower the supported stop to and from its operative work-holding position.

21. A receiving bank comprising a frame, a work-receiving table mounted thereon, means for tilting said table to an inclined work-shifting position, a series of shafts mounted on said table and carrying a plurality of rollers forming the work-receiving surface of the table, a work-holding stop supported at the under side of the table intermediate the length of the latter and adapted to project above the latter between certain of the roller shafts carried thereby, a pivoted member at the under side of the table on which said stop is pivotally mounted, and means connecting said pivoted member to the table shifting means for op-

erating said member to raise and lower the supported stop to and from its operative work-holding position.

22. A receiving bank comprising a frame, a work-receiving table pivotally mounted thereon, a latch normally holding said table in a generally horizontal work-receiving position, a work-holding stop normally projecting above the top of the table, and operating means for moving the latch to releasing position to permit tilting of said table and thereafter lowering the stop beneath the table.

23. A receiving bank comprising a frame, a work-receiving table pivotally mounted thereon, a latch normally holding said table in a generally horizontal work-receiving position, a work-holding stop normally projecting above the top of the table, and operating means for moving the latch to releasing position, lowering the stop beneath the table, and tilting the table to an inclined work-shifting position.

In testimony whereof I affix my signature.
EDGAR M. HAWKINS.