

Oct. 25, 1960

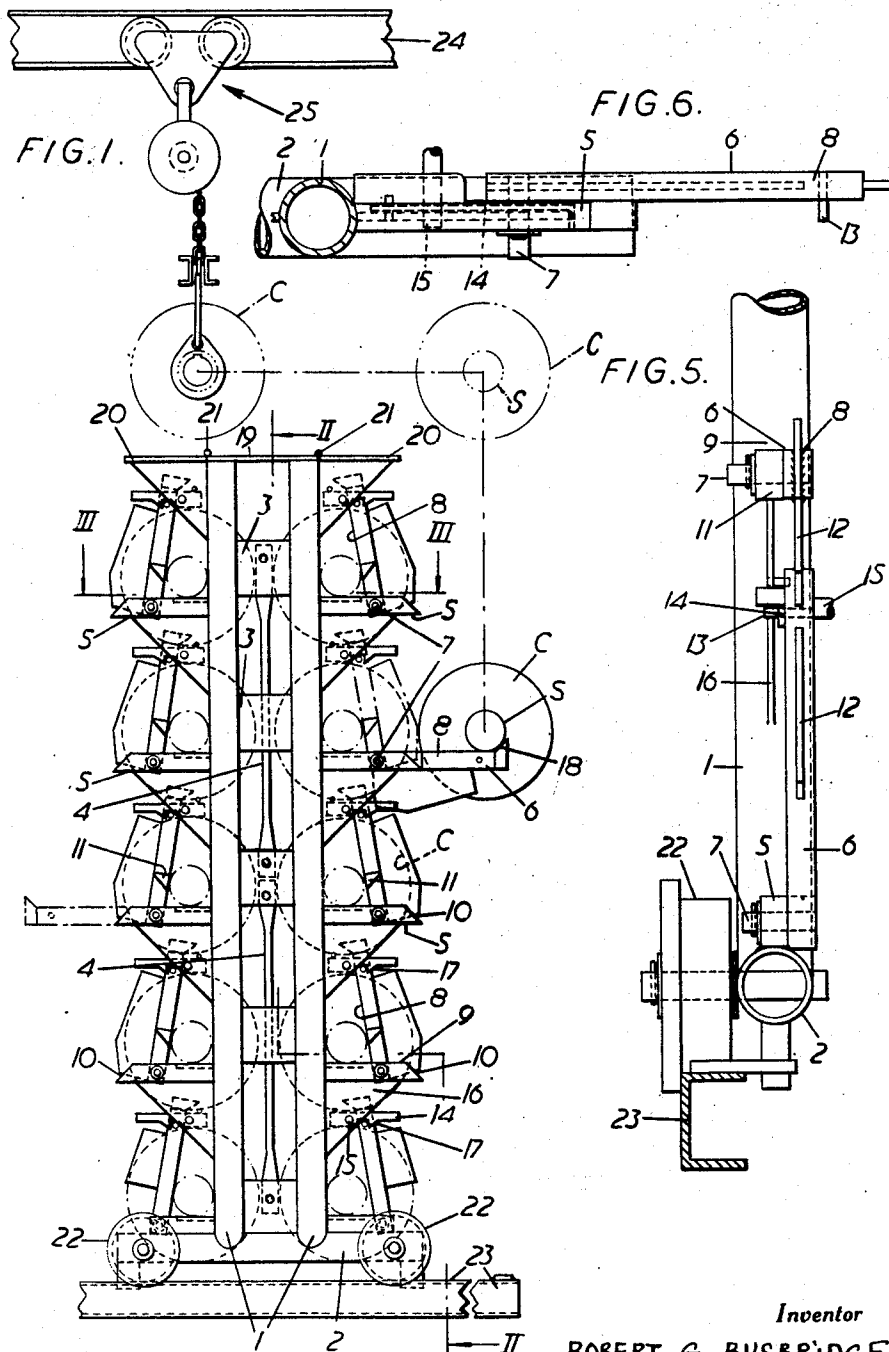
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2,957,583

RACKS FOR STORING ARTICLES PARTICULARLY CYLINDERS

Filed May 4, 1959

3 Sheets-Sheet 1



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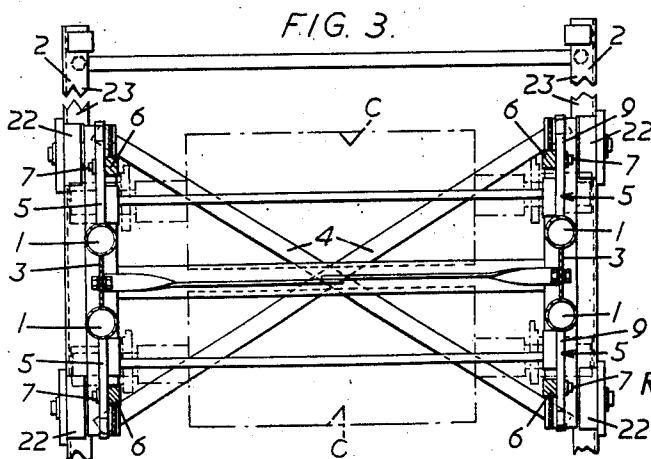
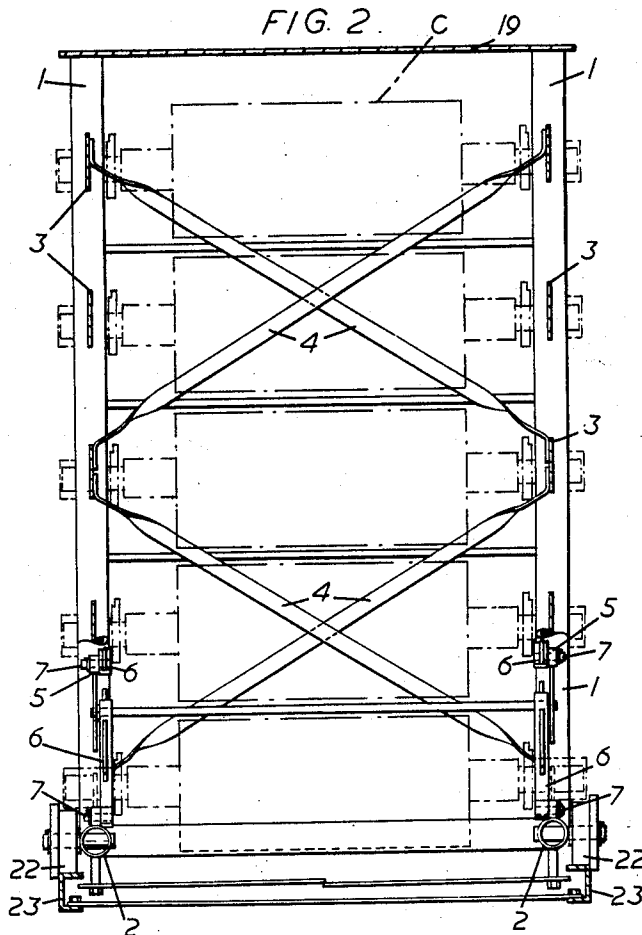
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3 Sheets-Sheet 2



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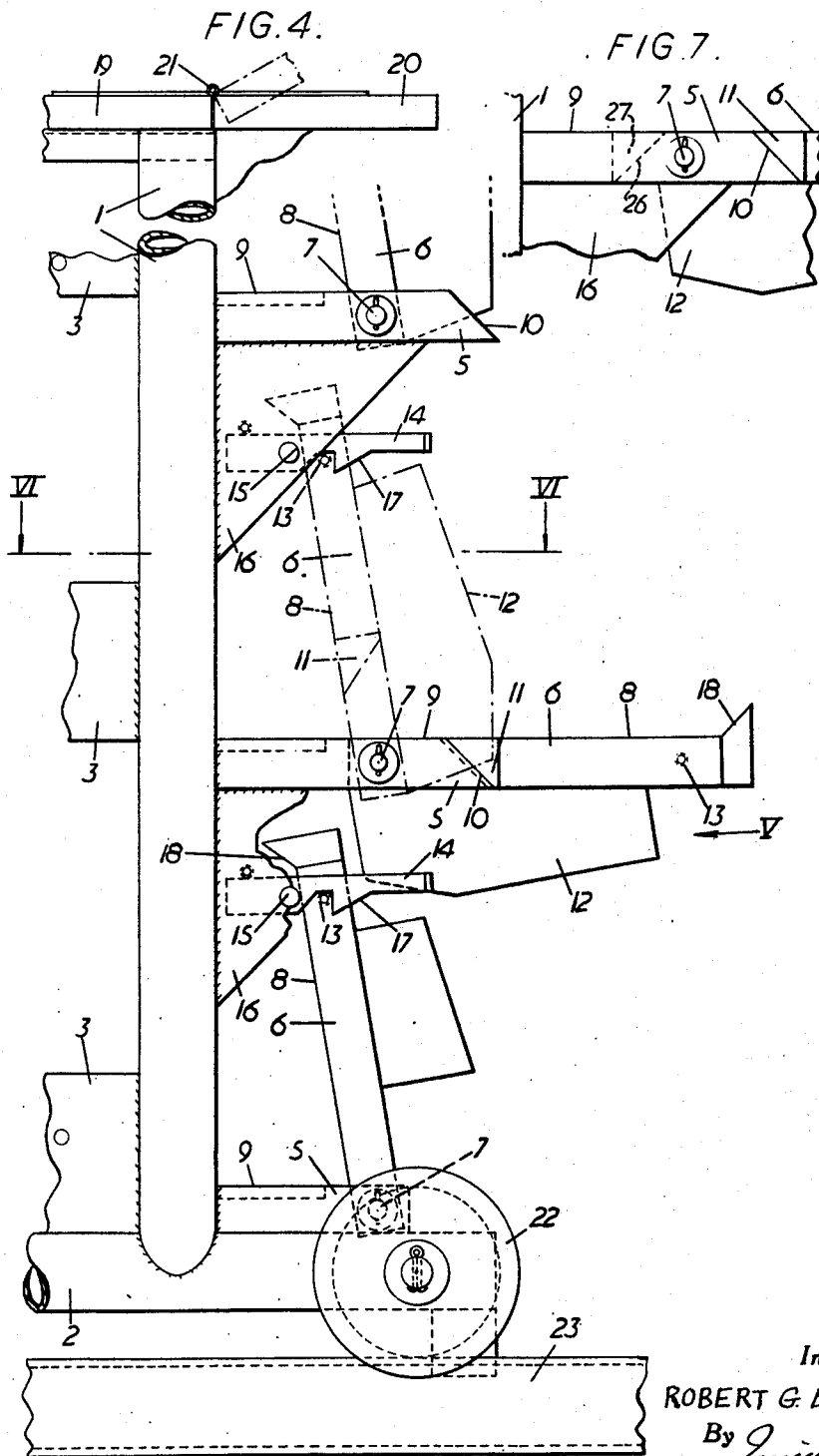
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3 Sheets-Sheet 3



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2,957,583

RACKS FOR STORING ARTICLES PARTICULARLY CYLINDERS

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This invention relates to racks for storing articles, particularly cylinders.

As is well understood the storing of cylinders, such as photogravure cylinders, which must be stored carefully to avoid damage to the surfaces thereof, has for a long time presented a considerable problem because of the necessity carefully to store the cylinder. Heretofore it has, in many instances, been the custom to store each cylinder in a packing case and to store the cases one on another in order to conserve space. With this form of storage, however, care must be taken in inserting the cylinders into the packing cases and in removing them therefrom, and also when the loaded packing cases are being lifted on to or off of a pile. Further, when the cylinders are stored in cases, even though it may be possible easily to identify a given cylinder by the markings on the cases, if the required case should be one at the bottom of or in the middle of a pile it is difficult to remove the case and usually entails the handling of a number of unwanted cases in order to gain access to the needed case.

It is a main object of the present invention to provide a storage rack for articles such as cylinders, the rack being so constructed as to support a plurality of articles access to any one of which can be obtained easily without the need for handling any of the other articles.

According to the present invention there is provided a rack for storing articles, particularly cylinders, comprising frame members spaced apart and extending upwards from a base, a plurality of article supports secured to and spaced apart one above the other lengthwise of the frame members in a manner such that each support on one frame member is aligned with a support on the other frame member to permit an article to extend across and rest on the aligned supports, a pivot carried by each support and located between the ends of the support, a support extension mounted on each said pivot for movement upwards towards the frame member from which the support extends from a position in which a surface of the extension is located in the plane of that surface of the support on which an article is to rest, each said pivot being so located relative to the frame member that when the extension mounted on the pivot is in the upturned position thereof it co-operates with the frame member to constrain an article resting thereon against movement relative thereto lengthwise of the support, and latch means to retain the support extension in the upturned position thereof.

In order that the invention may be clearly understood one embodiment thereof will now be described, by way of example, with reference to the accompanying drawings, in which:

Fig. 1 is a side elevation of a rack according to the invention.

Fig. 2 is a view partly in section on broken line II—II, Fig. 1,

Fig. 3 is a view on line III—III, Fig. 1,

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Fig. 4 illustrates a portion of Fig. 1 to an enlarged scale,

Fig. 5 is a view looking in the direction of arrow V, Fig. 4,

Fig. 6 is a section on line VI—VI, Fig. 4, and

Fig. 7 illustrates a modification which can be incorporated in the rack.

Referring to the drawings, the rack comprises frame members 1 which are spaced apart and extend upwards from a base 2. In one embodiment of the invention each frame member consists of two pillars of circular cross-section spaced one behind the other and held in spaced relation by spacing elements 3 secured thereto for example by welding. The two frame members are tied by suitable bracing elements 4 and to each of the pillars 1 there is secured a plurality of article supports 5 which are spaced apart one above the other lengthwise of the pillars. The supports 5 secured to a pillar of one frame member are aligned with the supports secured to a pillar of the other member, Fig. 2, in a manner such that an article such as a cylinder C can extend across and rest on the aligned supports. When the articles to be stored are cylinders, such as photogravure cylinders, the spacing between the frame members is such that the journals for the cylinders are arranged to rest on the supports, and to avoid damage to the journals sleeves S, Fig. 1, may be fitted over the journals before the cylinders are lifted on to the supports.

Each support 5 has an extension 6 pivoted at 7 thereto, the extension being movable upwards towards the frame member from which the support extends from a position in which a surface 8 of the extension is located in the plane 9 of that surface of the support on which an article is to rest. In one embodiment of the invention that end of each support which is remote from the frame member to which the support is secured is provided with a chamfer 10, Fig. 4, and the extension 6 has the axis of its pivot 7 located between the chamfer 10 and the frame member 1 so that, as shown in Fig. 1, when the extension is upturned and is latched in position the cylinder shaft, or the sleeve fitted to the shaft, is constrained by the extension against movement away from the frame member 1. The extension 6 is provided at a position between the pivot 7 and the end of the extension remote from the pivot with a locating element 11, Fig. 4, which extends laterally from the extension and which is chamfered to co-operate with the chamfered end 10 of the support thereby to locate the extension relative to the support in the position thereof in which a surface of the extension is located in the plane of that surface of the support on which an article is to rest. A reinforcing stay 12 is also secured to the underside of the extension 6.

If desired, the inner end of the extension 6 may be chamfered as at 26, Fig. 7, to co-operate with the chamfer on a second locating element 27 secured to and extending laterally from the support 5. The provision of the chamfer 26 and second locating element 27 in combination with the locating element 11 and the chamfered end of support 5 relieves the load on the pivot 7.

Latching means are provided to retain the support extension 6 of the upturned position thereof, and as shown in the drawings the latching means comprises an abutment 13, Fig. 4, which extends laterally from the extension and a latch 14 which is pivoted at 15 to a stay or reinforcing member 16 which forms part of the support next above that to which the extension is hinged. The abutment 13 may comprise a laterally extending pin and the latch be a hook which is arranged gravitationally to engage with the pin and which is provided with a cam face 17 engageable by the pin 13 during upward movement thereof so that the latch is lifted above the pin and is permitted to fall into latching relation there-

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with when the extension has been upturned to the maximum extent thereof, Fig. 4.

When an article is to be loaded on to the rack the appropriate pair of extensions 6 are downturned to the positions thereof at which their locating elements 11 co-operate with the chamfered ends 10 of the supports 5 to which they are pivoted and the article to be stored is then lifted on to the extensions 6. The article is then slid or rolled along the extensions 6 and on to the supports 5 and the extensions are then turned upwards until they are in the latched positions thereof when the article is positively retained in position on the rack by being located between the extensions 6, the supports 5 and the frame members 1. The outer end of each extension may have an upturned portion 18 to guard against the article being accidentally permitted to move off the extensions whilst resting thereon. When the articles are stored on the rack in the manner above described they are disposed one above the other as a column, see Fig. 1, and it will be understood that not only do the extensions serve to retain the articles in position relative to the rack but they provide an extension of the supports whereby loading and unloading of an article is effected at a position remote from the column of stacked articles. By this means, as will be readily understood, when the articles are heavy articles such as photogravure cylinders, full use can be made of a crane or the like to lift each article onto and off of the rack.

As was mentioned above, the frame members are each composed of pillars from each of which article supports extend and, by this arrangement, two columns of articles can be stored on each rack, Fig. 1. To protect the upper articles against damage during storage a cover is attached to the upper ends of the frame members and includes a fixed portion 19 which is secured to the frame members and movable portions 20 which are hinged at 21, Fig. 4, to the fixed portion to extend over the upper supports and provide the said protection. The hinged portions 20 can be turned outwards, see Fig. 4, about their hinges 21 away from the supports to facilitate access to the upper articles stored on the rack.

As is described above, the rack is supported on the base 2 and the base is provided with freely rotatable wheels 22 to permit the rack to be moved from one position to another. In one convenient arrangement, the wheels fitted to the base are flanged wheels and a number of racks as described above are located on a pair of rails 23 along which the racks can be moved to facilitate access to any required article stored on the racks. For example, if each rack is adapted to store two columns each of five articles and there are provided six racks, then the total storage capacity is for sixty articles and by moving the racks relative one to the other along the rails 23, access can be obtained to any one of the sixty articles. With such a construction an overhead rail 24, Figure 1, is preferably supported above the racks and a pulley block 25 or the like provided on the overhead rail for the purpose of lifting articles onto and off of the racks.

In the foregoing description the supports have been described as secured to the frame members. It is, however, to be understood that, if desired, the supports may be movable lengthwise of the frame members, to permit adjustment of the position thereof, and suitable clamping means provided to lock the supports in position relative to the frame members.

I claim:

1. A rack for storing articles, particularly cylinders, comprising frame members spaced apart and extending upwards from a base, a plurality of article supports secured to and spaced apart one above the other lengthwise of the frame members in a manner such that each support on one frame member is aligned with a support on the other frame member to permit an article to extend across and rest on the aligned supports, a pivot carried by

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each support and located between the ends of the support, a support extension mounted on each said pivot for movement upwards towards the frame member from which the support extends from a position in which a surface of the extension is located in the plane of that surface of the support on which an article is to rest, each said pivot being so located relative to the frame member that when the extension mounted on the pivot is in the upturned position thereof it co-operates with the frame member to constrain an article resting thereon against movement relative thereto lengthwise of the support, and latch means to retain the support extension in the upturned position thereof.

2. A rack for storing articles, particularly cylinders, comprising frame members spaced apart and extending upwards from a base, a plurality of article supports secured to and spaced apart one above the other lengthwise of the frame members in a manner such that each support on one frame member is aligned with a support on the other frame member to permit an article to extend across and rest on the aligned supports, a pivot carried by each support and located between the ends of the support, a support extension mounted on each said pivot for movement upwards towards the frame member from which the support extends from a position in which a surface of the extension is located in the plane of that surface of the support on which an article is to rest, each said pivot being so located relative to the frame member that when the extension mounted on the pivot is in the upturned position thereof it co-operates with the frame member to constrain an article resting thereon against movement relative thereto lengthwise of the support, an abutment extending laterally from said extension, and a latch pivoted to the support next above that to which the extension is pivoted and arranged to retain the extension in the upturned position thereof.

3. A rack for storing articles such as cylinders, comprising frame members spaced apart and extending upwards from a base, a plurality of article supports on each of opposite sides of the frame members, said supports on each of said sides being spaced apart one above the other lengthwise of the frame members in a manner such that each support on one frame member is aligned with a support on the other frame member to permit an article to extend across and rest on the aligned supports, a pivot carried by each support and located between the ends of the support, an extension mounted on each said pivot for movement upwards towards the frame member from which the support extends from a position in which a surface of the extension is located in the plane of that surface of the support on which an article is to rest, each said pivot being so located relative to the frame member that when the extension mounted on the pivot is in the upturned position thereof it co-operates with the frame member to constrain an article resting thereon against movement relative thereto lengthwise of the support, and latch means to retain the support extension in the upturned position thereof.

4. A rack for storing articles such as cylinders, comprising frame members spaced apart and extending upwards from a base, a plurality of article supports on each of opposite sides of the frame members, said supports on each of said sides being spaced apart one above the other lengthwise of the frame members in a manner such that each support on one frame member is aligned with a support on the other frame member to permit an article to extend across and rest on the aligned supports, a support extension mounted on each said pivot for movement upwards towards the frame member from which the support extends from a position in which a surface of the extension is located in the plane of that surface of the support on which an article is to rest, each said pivot being so located relative to the frame member that when the extension mounted on the pivot is in the upturned position thereof it co-operates with the frame member to

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constrain an article resting thereon against movement relative thereto lengthwise of the support, an abutment extending laterally from said extension, and a latch pivoted to the support next above that to which the extension is pivoted and arranged to retain the extension in the upturned position thereof.

5. A rack according to claim 1, including a cover attached to the upper ends of the frame members and including a fixed portion secured to the frame members and movable portions hinged to the fixed portion to extend over the upper supports and to be turnable about their hinges away from the upper supports.

6. A rack for storing articles such as cylinders, comprising frame members spaced apart and extending upwards from a base, a plurality of article supports on each of opposite sides of the frame members, said supports on each of said sides being spaced apart one above the other lengthwise of the frame members in a manner such that each support on one frame member is aligned with a support on the other frame member to permit an article to extend across and rest on the aligned supports, a pivot carried by each support and located between the ends of the support, a support extension mounted on each said pivot for movement upwards towards the frame member from which the support extends from a position in which a surface of the extension is located in the plane of that surface of the support on which an article is to rest, each said pivot being so located relative to the frame member that when the extension mounted on the pivot is in the upturned position thereof it co-operates with the frame member to constrain an article resting thereon against the movement relative thereto lengthwise of the support, locating means movable with the support extension and engageable with the support to which the extension is pivoted to locate said extension surface in the plane of said support surface, and latch means to retain the support extension in the upturned position thereof.

7. A rack for storing articles such as cylinders, comprising frame members spaced apart and extending upwards from a base, a plurality of article supports on each of opposite sides of the frame members, said supports on each of said sides being spaced apart one above the other lengthwise of the frame members in a manner such that each support on one frame member is aligned with a support on the other frame member to permit an article to extend across and rest on the aligned supports, a pivot carried by each support and located between the ends of the support, a support extension mounted on each said pivot for movement upwards towards the frame member from which the support extends from a position in which a surface of the extension is located in the plane of that surface of the support on which an article is to rest, each said pivot being so located relative to the frame member that when the extension mounted on the pivot is in the upturned position thereof it co-operates with the frame member to constrain an article resting thereon against movement relative thereto lengthwise of the support, locating means movable with the support extension and engageable with the support to which the extension is pivoted to locate said extension surface in the plane of said support surface, an abutment extending laterally from said extension, and a latch pivoted to the support next above that to which the extension is pivoted and arranged to retain the extension in the upturned position thereof.

8. A rack according to claim 7, wherein the locating means include chamfers formed on the support and the support extension.

9. A rack according to claim 8, including a cover attached to the upper ends of the frame members and including a fixed portion secured to the frame members and movable portions hinged to the fixed portion to extend over the upper supports and to be turnable about their hinges away from the upper supports.

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10. A rack for storing articles, particularly cylinders, comprising frame members spaced apart and extending upwards from a wheeled base, a plurality of article supports secured to and spaced apart one above the other lengthwise of the frame members in a manner such that each support on one frame member is aligned with a support on the other frame member to permit an article to extend across and rest on the aligned supports, a pivot carried by each support and located between the ends of the support, a support extension mounted on each said pivot for movement upwards towards the frame member from which the support extends from a position in which a surface of the extension is located in the plane of that surface of the support on which an article is to rest, each said pivot being so located relative to the frame member that when the extension mounted on the pivot is in the upturned position thereof it co-operates with the frame member to constrain an article resting thereon against movement relative thereto lengthwise of the support, and latch means to retain the support extension in the upturned position thereof.

11. A rack for storing articles such as cylinders, comprising frame members spaced apart and extending upwards from a wheeled base, a plurality of article supports secured to and spaced apart one above the other lengthwise of the frame members in a manner such that each support on one frame member is aligned with a support on the other frame member to permit an article to extend across and rest on the aligned supports, a pivot carried by each support and located between the ends of the support, a support extension mounted on each said pivot for movement upwards towards the frame member from which the support extends from a position in which a surface of the extension is located in the plane of that surface of the support on which an article is to rest, each said pivot being so located relative to the frame member that when the extension mounted on the pivot is in the upturned position thereof it co-operates with the frame member to constrain an article resting thereon against movement relative thereto lengthwise of the support, locating means movable with the support extension and engageable with the support to which the extension is pivoted to locate said extension surface in the plane of said support surface, and latch means to retain the support extension in the upturned position thereof.

12. A rack for storing articles such as cylinders, comprising frame members spaced apart and extending upwards from a wheeled base, a plurality of article supports on each of opposite sides of the frame members, said supports on each of said sides being spaced apart one above the other lengthwise of the frame members in a manner such that each support on one frame member is aligned with a support on the other frame member to permit an article to extend across and rest on the aligned supports, a pivot carried by each support and located between the ends of the support, a support extension mounted on each said pivot for movement upwards towards the frame member from which the support extends from a position in which a surface of the extension is located in the plane of that surface of the support on which an article is to rest, each said pivot being so located relative to the frame member that when the extension mounted on the pivot is in the upturned position thereof it co-operates with the frame member to constrain an article resting thereon against movement relative thereto lengthwise of the support, and latch means to retain the support extension in the upturned position thereof.

13. A rack for storing articles such as cylinders, comprising frame members spaced apart and extending upwards from a wheeled base, a plurality of article supports on each of opposite sides of the frame members, said supports on each of the said sides being spaced apart one above the other lengthwise of the frame members in a manner such that each support on one frame member is aligned with a support on the other frame member to

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permit an article to extend across and rest on the aligned supports, a pivot carried by each support and located between the ends of the support, a support extension mounted on each said pivot for movement upwards towards the frame member from which the support extends from a position in which a surface of the extension is located in the plane of that surface of the support on which an article is to rest, each said pivot being so located relative to the frame member that when the extension mounted on the pivot is in the upturned position thereof it co-operates with the frame member to constrain an article resting thereon against movement relative thereto lengthwise of the support, locating means movable with the support extension and engageable with the support to which the extension is pivoted to locate

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said extension surface in the plane of said support surface, and latch means to retain the support extension in the upturned position thereof.

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