

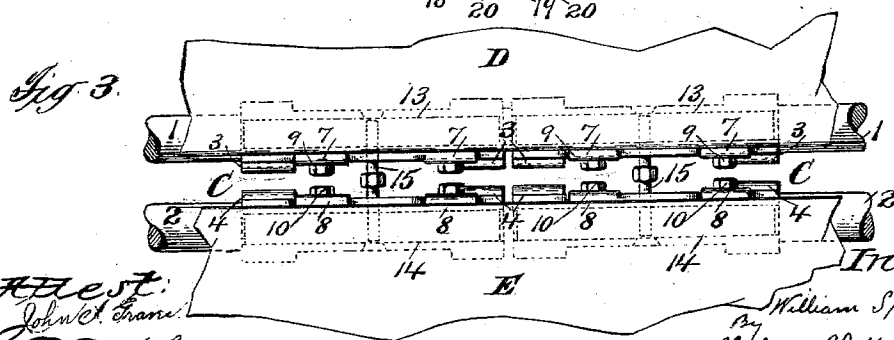
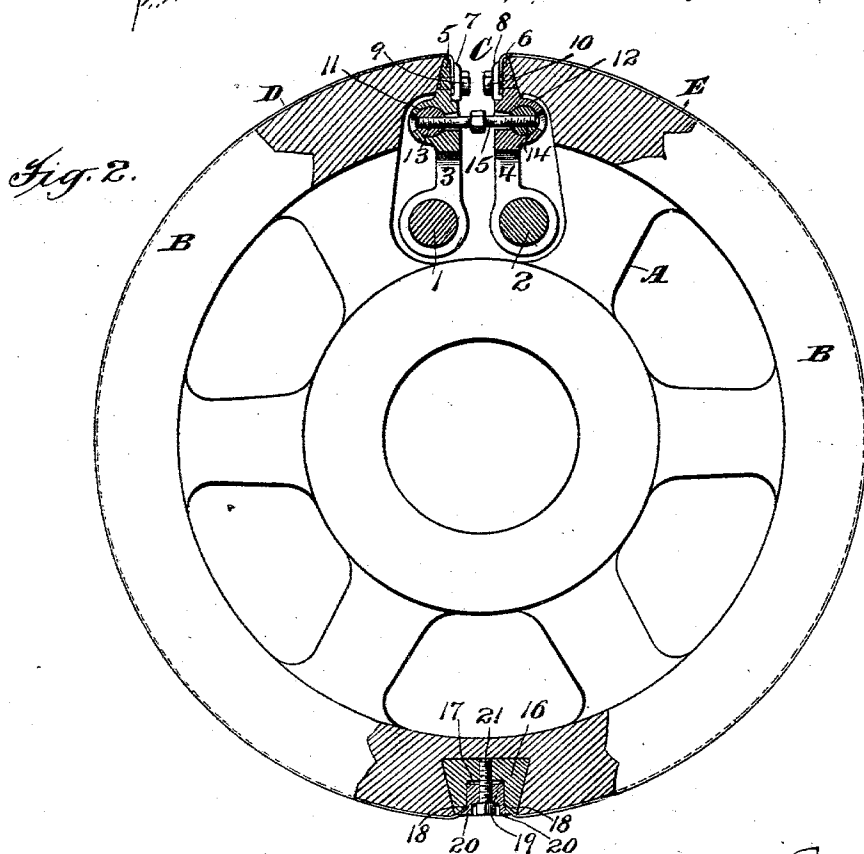
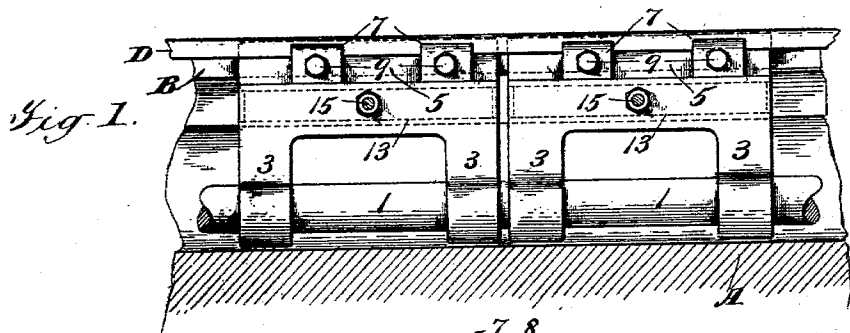
No. 629,931

Patented Aug. 1, 1899.

W. SPALCKHAVER.
SHEET HOLDING AND STRAINING DEVICE.

(Application filed Dec. 10, 1898.)

(No Model.)



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UNITED STATES PATENT OFFICE.

WILLIAM SPALCKHAVER, OF NEW YORK, N. Y., ASSIGNOR TO ROBERT HOE,
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SHEET HOLDING AND STRAINING DEVICE.

SPECIFICATION forming part of Letters Patent No. 629,931, dated August 1, 1899.

Application filed December 10, 1898. Serial No. 698,862. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM SPALCKHAVER, a citizen of the United States, residing at New York city, county of Kings, and State of New York, have invented certain new and useful Improvements in Sheet Holding and Straining Devices, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to certain improvements in sheet holding and straining devices, and is more particularly directed toward improvements in those devices which are intended to strain to their seats and hold in position aluminium, zinc, and other metallic printing-plates.

It is desirable in using printing-surfaces consisting of metallic plates mounted on cylinders to cover as much of the cylinders as is possible with the plates. The gaps in which the straining devices are located are therefore made narrow, so as to occupy as little space as possible and yet afford room for manipulating the holding and straining devices.

It is the object of this invention to provide improved devices for holding and straining plates of such a character as to require very narrow gaps, and thus permit the use of the largest possible portion of the cylinder as the plate-supporting surface.

A further object of the invention is to provide plate holding and straining devices of such a character that a single means may be utilized to adjust the holding and straining devices of two sets of plates, thereby greatly economizing room and at the same time facilitating the plate-adjusting operations.

With these and other objects in view the invention consists in certain constructions, parts, improvements, and combinations, as will be hereinafter fully described and then specifically pointed out in the claims hereunto appended.

In the accompanying drawings, which form a part of this specification and in which like characters of reference indicate the same parts, Figure 1 is a front view of two adjacent sets of plate holding and straining devices. Fig. 2 is an elevation of a printing-cylinder, showing the improved plate-holding

devices attached thereto, said devices and certain portions of the cylinder being shown in section. Fig. 3 is a detail plan view looking down upon the gap of the cylinder shown in Fig. 2.

Referring to the drawings, A indicates a plate-carrying cylinder provided with suitable plate-supporting surfaces B. The cylinder may have any desired number of these plate-supporting surfaces, but the cylinder shown in the drawings is provided with two such surfaces, this number being sufficient to illustrate the application of the invention. The cylinder is provided with a gap C between two of the adjacent ends of the plate-holding surfaces and is further provided with a pair of rods 1 and 2, extending through the cylinder from end to end, said rods being located near the gap C. The rod 1 carries a series of pivoted arms 3 and the rod 2 carries a series of pivoted arms 4, though in some cases a single wide arm may be carried by each rod. The upper ends of the arms 3 are formed to provide holding-jaws 5 and the upper ends of the arms 4 are formed to provide similar jaws 6.

Coöperating with the jaws 5 and 6 are jaws 7 and 8, the jaws 5 and 7 acting to hold the edges of one plate D and strain it to its seat and the jaws 6 and 8 performing a similar office for the plate E. These jaws may be supported in any suitable or desired manner; but they are preferably secured to the arms 3 and 4 by bolts 9 and 10, the edge of the plate being inserted between the jaws and clamped by screwing up the said bolts.

Various means may be used for simultaneously adjusting the arms 3 and 4 and the jaws carried by them. In the construction shown the arms are provided with recesses 11 and 12, these recesses being preferably circular. In these recesses are located cylindrical pieces 13 and 14, which are free to turn in the recesses and are provided with threaded apertures.

Located between the arms and engaging each threaded aperture in the cylindrical pieces 13 14 is a reversely-threaded rod 15, having a central squared nut thereon. It is obvious that by turning the rod by means of a suitable wrench the arms and jaws can be adjusted toward and from each other, and if

the edges of a pair of plates be secured between each series of jaws it will be strained to its seat or released, as may be desired. The opposite ends of the plates may be held in any desired manner. Preferably, however, they will be held by the device illustrated in the drawings, which consists of a dovetailed block 16, which is located in a similarly-shaped recess formed in the cylinder. The block 16 has a recess 17 therein and is provided with shoulders 18, which are preferably beveled, as shown. Located in the recess 17 is a block 19, which is provided with shoulders 20, which cooperate with the beveled shoulders 18 of the block 16. This block 16 may be held in place in any suitable way, as by a screw 21, which passes through it and into a threaded recess in the block 16.

The operation of the device is obvious. The plates D E being placed upon the cylinder with their edges held between the blocks 16 and 20, the opposite edges of the plates are inserted between the jaws 6 and 8 and 7 and 9, being secured therein by screwing up the bolts. A wrench is then placed on the squared central projection of the reversely-threaded rod 15 and the same is turned. This causes the arms 2 and 3 to approach each other and strains the plate to its base, the cylindrical pieces 13 and 14 moving in their recesses sufficiently to permit the arms to adjust themselves as they are drawn together, the openings in the arms through which the threaded rod passes being slightly enlarged to allow this movement of the nuts to adjust themselves.

Sets of arms similar to the arms 3 and 4 might, if desired, be substituted for the blocks 16 19 for holding the opposite ends of the plates. The cylinder might also be provided with more than two sets of plates, if desired. So, too, the construction of the arms which carry the jaws and the means for operating them may be widely varied, and while the invention is particularly adapted for straining and holding metallic printing-plates in position on a cylinder it is also adapted for use where the plates are supported on other than cylindrical surfaces—as, for instance, on flat beds. It may also be used for straining and holding sheets of material other than metallic plates.

In general it may be said that many changes may be made in the construction without departing from the spirit and scope of the invention, and such changes will suggest themselves to skilled mechanics. It will be understood, therefore, that the invention is not to be limited to the particular form of devices described in the foregoing specification and illustrated in the accompanying drawings nor to the particular use described.

What I claim is—

1. In a holding and straining device, the combination with two sheet-supporting surfaces having an opening between them, of holding and straining devices located in the

opening, and means for simultaneously adjusting said devices, substantially as described.

2. In a holding and straining device, the combination with two sheet-supporting surfaces having an opening between them, of two series of holding and straining devices one series being located on each side of the opening, and means for simultaneously adjusting two holding devices, one of each series, substantially as described.

3. In a holding and straining device, the combination with a cylinder having a gap, of a pair of sheet-holding jaws located on each side of the gap, and means for simultaneously adjusting the jaws, substantially as described.

4. In a holding and straining device, the combination with two sheet-supporting surfaces having an opening between them, of sheet-holding jaws located on each side of the opening, means for simultaneously adjusting said jaws, said means consisting of a bolt having reversely-threaded ends, and means carried by the jaws by which said ends are engaged, substantially as described.

5. The combination with a pair of oppositely-disposed jaws each provided with a recess, of parts supported and free to turn in said recesses, said parts having threaded apertures, and a single reversely-threaded bolt engaging the threaded apertures, substantially as described.

6. In a holding and straining device, the combination with two oppositely-disposed jaws each having a cylindrical recess, of cylindrical parts located in and free to turn in said recess, said parts having threaded apertures, and a single reversely-threaded bolt engaging said threaded apertures, substantially as described.

7. In a holding and straining device, the combination of a cylinder having a gap, means located in the gap for holding and straining a plate to its seat, of means for holding the opposite ends of the plate, said means consisting of a dovetailed recessed block fitting in a groove in said cylinder, and provided with shoulders, a block fitting in the recess of the dovetailed block and having shoulders cooperating with the shoulders of said block, and means for holding said block in position, substantially as described.

8. In a holding and straining device, the combination with a cylinder having a gap, of means located on each side of the gap for holding and straining a plate, means for holding the other ends of the plate, said means consisting of a dovetailed recessed block fitting in a recess in the cylinder, shoulders on said block, a second block fitting in the recess in the first block and having shoulders which cooperate with the shoulders of the first block, and means for securing the second block in position, substantially as described.

9. In a holding and straining device, the combination with a cylinder having a gap, of means located on each side of the gap for

holding and straining a plate, devices for simultaneously adjusting said means toward and away from the edges of the gap, means for holding the other ends of the plates, said
 5 means consisting of a dovetailed recessed block fitting in a recess in the cylinder, shoulders on said block, a second block fitting in the recess in the first block and having shoulders which cooperate with the shoulders of
 10 the first block, and means for securing the second block in position, substantially as described.

10. In a holding and straining device, the combination with a cylinder having a gap, of
 15 means located on each side of the gap for holding and straining a plate, devices for simultaneously adjusting said means toward and away from the edges of the gap, means for holding the other ends of the plates, said
 20 means consisting of a dovetailed recessed block fitting in a recess in the cylinder, beveled shoulders on said block, a second block fitting in the recess in the first block and having shoulders which cooperate with the shoulders of the first block, and means for securing the second block in position, substantially
 25 as described.

11. In a holding and straining device, the combination with two sheet-supporting surfaces having an opening between them, of
 30 pivoted jaws located on each side of the opening, and means for simultaneously adjusting the jaws toward and away from the supporting-surfaces, substantially as described.

35 12. In a holding and straining device, the

combination with a cylinder having a gap, of a pair of rods supported beneath the gap, a pair of pivoted jaws supported on each of the rods, and means for simultaneously adjusting the pairs of jaws toward and away
 40 from the edges of the gap, substantially as described.

13. In a holding and straining device, the combination with a cylinder having a gap, of a pair of rods supported beneath the gap, a
 45 series of pairs of pivoted jaws supported on each of the rods, and means for simultaneously adjusting the opposite pairs of jaws of each series, said means consisting of a bolt having reversely-threaded ends and means
 50 carried by the jaws by which said ends are engaged, substantially as described.

14. In a holding and straining device, the combination with a cylinder having a gap, of a pair of rods supported beneath the gap, a
 55 series of pairs of pivoted jaws supported on each of the rods, one jaw of each pair having a cylindrical recess, cylindrical parts located in and free to turn in said recesses and having threaded apertures, and reversely-
 60 threaded bolts engaging the cylindrical parts of each opposite pair of jaws, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing
 65 witnesses.

WILLIAM SPALCKHAVER.

Witnesses:

F. W. H. CRANE;

E. L. SPEIR.