

E. W. COOPER.
 PLATE HOLDING DEVICE.
 APPLICATION FILED JUNE 11, 1912.

1,128,853.

Patented Feb. 16, 1915.

FIG. 1.

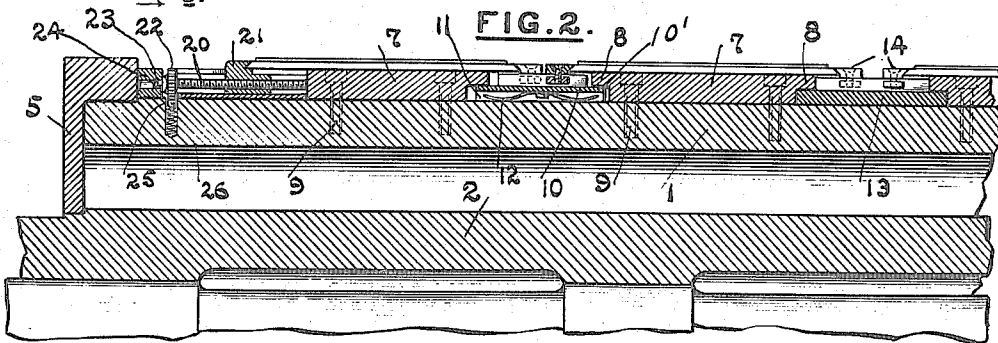
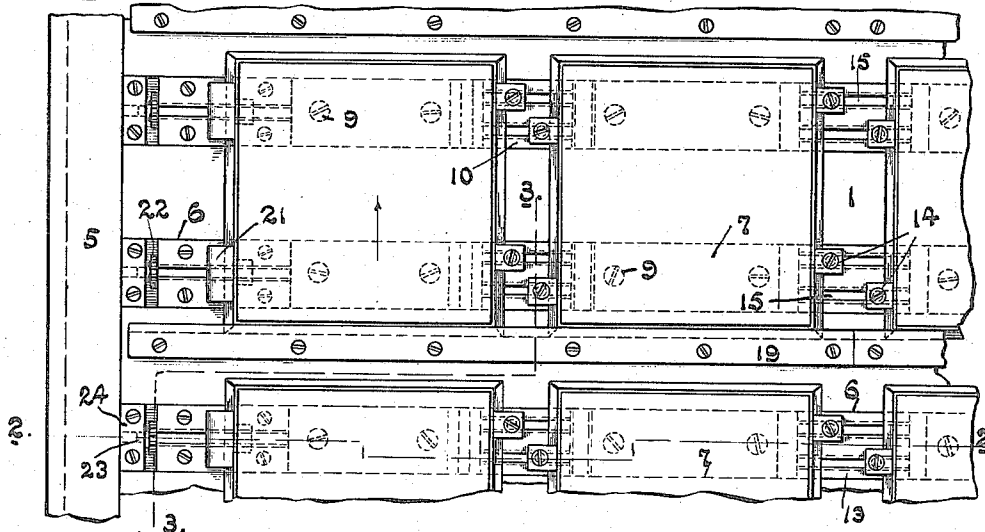
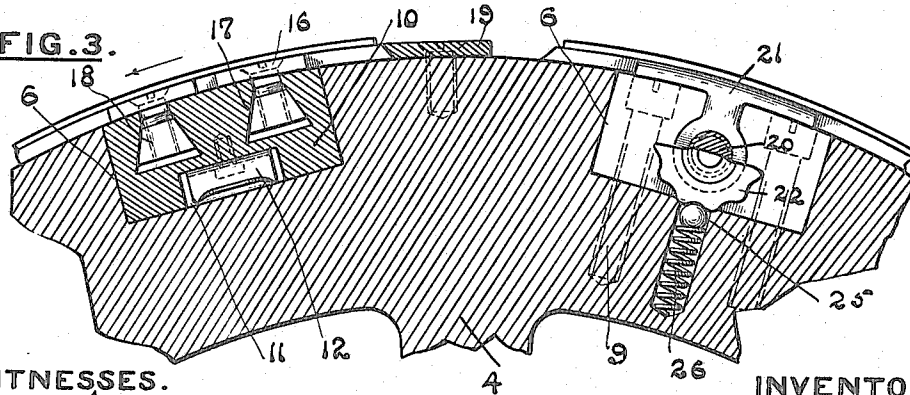


FIG. 3.



WITNESSES.

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PLATE-HOLDING DEVICE.

1,128,853.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ELLIS W. COOPER, a citizen of the United States, residing at New York, county of New York, and State of New York, have invented certain new and useful Improvements in Plate-Holding 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 plate holding devices for rotary printing machines.

In rotary printing machines and particularly in those the cylinders of which are arranged to carry a plurality of rows of plates each row containing three or more plates, it is usual, after the plates have been locked in position to take a trial impression, to ascertain whether each plate is in proper register with respect to the other plates in the row. When any plate is not in proper register it is necessary, in machines as now ordinarily constructed, to shift the position of the plate which is out of register, and where the construction is such that the plates are simultaneously locked in position, it is necessary to unlock all the plates in the row to bring any improperly positioned plate into register. This requires considerable time and is objectionable for other reasons.

It is the object of this invention to produce an improved construction for locking up a row of plates on a cylinder, the construction being such as to permit the sidewise adjustment of any plate, that is, adjustment in the direction of the axis of the cylinder, without disturbing the position of any other plate.

A further object of the invention is to produce an improved construction for locking up a row of plates, the construction including a holder base located between two adjacent plates and movable sidewise, the base being provided with holders for adjacent plates.

The invention extends to certain other improvements in details of construction which need not be here specifically pointed out, but which will appear hereinafter.

With these and other objects in view, the invention consists in certain constructions, and in certain parts, improvements and

combinations as will be hereinafter fully described and then specifically pointed out.

Referring to the drawings: Figure 1 illustrates in plan view a part of the circumference of a printing cylinder provided with the improved plate holding construction. Fig. 2 is a sectional view on the line 2—2 of Fig. 1. Fig. 3 is a section, on an enlarged scale, on the line 3—3 of Fig. 1.

Referring to the accompanying drawings, the improved construction is illustrated in connection with a cylinder of the tubular type in which 1 indicates the outer shell of the cylinder, 2 the tubular core, the outer shell and core being connected by ribs, one of which is indicated at 4. The cylinder is provided with the usual bearer rings, indicated at 5. The particular construction of cylinder has no special reference to the invention, and any form of cylinder desirable may be employed.

Constructions embodying the invention will include, in connection with complementary holding devices, a holder base which is movable sidewise, viz., in the direction of the axis of the cylinder, which is arranged between adjacent plates and which is provided with holders for said plates. The holder base and the means for holding it in position may be variously constructed. In the particular construction illustrated, the cylinder is provided with a series of grooves 6 which are planed in the outer shell of the cylinder, and extends from end to end thereof. These grooves should have vertical sides, as this construction conduces to cheapness of manufacture. The particular construction illustrated includes, further, a plurality of spaced blocks 7, these blocks being located in the grooves. When such blocks are employed in connection with the holder base, a part of them, at least, have overhanging ends, as indicated at 8, these ends being provided by undercutting the blocks. As shown, the blocks are held in position by screws 9 which are tapped into the bottoms of the grooves. The overhanging ends of these blocks when such blocks are employed, serve to maintain in position the sidewise movable holder base, indicated at 10. This holder base is cut away to provide projecting ends 10' which underlie the projecting ends 8 of the blocks. Means should be provided for maintaining the

holder base in position in such a way that it may have the sidewise movement referred to. The means employed may be such as to frictionally hold the base in position. In the particular construction illustrated, this is accomplished by channeling out the base of the block, as indicated at 11, see Fig. 3, and locating a plate spring 12 therein, the spring being secured to the base by a screw, or in any other suitable manner. When the base is forced under the overhanging ends of the supporting blocks, the spring 12 is placed under tension and thus frictionally holds the base in position, although permitting it to have a sidewise movement.

In the particular construction illustrated, the cylinder is constructed to carry four plates abreast, the drawings illustrating a little more than half of these plates. In this construction, there is provided a plurality of centrally disposed blocks 13 which are provided with complementary plate clamps 14, these clamps being slidably mounted in grooves 15. Similar plate clamps 16 are slidably in grooves 17 in the holder base. These plate clamps are of a well-known two-part construction, the parts being fastened together by screws 18, the base of the clamps being truncated and the grooves being undercut, so that the tightening of the screws 18 draws the two parts of the clamps together. The usual margin bars 19 are provided.

The best constructions embodying the invention will include means for simultaneously locking a plurality of plates of the row. As a rule where the cylinders, as in the construction shown, are arranged to carry four plates abreast, the locking up devices are located at each end of the cylinder. In the particular construction illustrated, these locking up devices include a screw 20 carrying a movable clamp 21, the inner end of the screw abutting against the outer block 7 of the row. The screw is provided with a notched wheel 22, the outer end of the screw extending slightly beyond the wheel, as at 23, and engaging a socketed block 24 secured in the groove 6. A locking device, comprising a ball 25 impelled against the notched wheel 22 by a spring 26, may be employed to hold the screw in adjusted position.

The operation of the construction will be readily understood from the foregoing description.

Referring more particularly to the drawings, the inner set of plates can be placed on the cylinder and the endwise movable bases slid to the right, temporarily locking these plates in position. The machine can be then turned over to see if the plates are accurately positioned, and if this is found to be the case, the outer set of plates can be placed in position and locked up by turning the screws at the end of the cylinder. The position of

the plates can now be proved by again turning over the cylinder. If any plate is found to be out of position that plate can be adjusted by loosening the screws 18 in the clamps at its opposite ends, and this can be done without disturbing the position of any other plate in the row. This is of great advantage, particularly where the cylinders carry a plurality of plates arranged in a row. The fact that the movable base may be slid sidewise to hold the inner set of plates in position temporarily is also of great advantage, as it enables the position of this inner set to be proved independently of the outer set. Further, the construction permits of the simultaneous locking up of the plates as before described. The construction also has the advantage of cheapness of manufacture. The grooves in the cylinder can be readily milled therein and the supporting blocks cheaply made and readily positioned in the grooves.

Changes and variations may be made in the construction by which the invention is carried into effect. The invention claimed, therefore, is not to be confined to the particular construction herein shown and described.

What is claimed is:—

1. The combination with a cylinder constructed to carry a row of plates arranged parallel to its axis, of means including holders for each plate for simultaneously locking up a plurality of plates of a row, the holders being adjustable to permit sidewise adjustment of any plate of the row after locking up without unlocking any other plate from its lock.

2. The combination with a cylinder constructed to carry a row of plates arranged parallel to its axis, of a sidewise movable base located between adjacent plates, holders for said adjacent plates carried by the base and adjustable sidewise on it, and means including suitable complementary plate holders for simultaneously locking up a plurality of plates of the row.

3. The combination with a cylinder constructed to carry a row of plates arranged parallel to its axis, of a sidewise movable base located between adjacent plates, holders for said adjacent plates carried by the base and adjustable sidewise on it, and means including suitable complementary adjustable plate holders for simultaneously locking up a plurality of plates of the row.

4. The combination with a cylinder, of blocks arranged parallel to the axis of the cylinder and spaced apart, said blocks having overhanging ends, a base in the space and movable sidewise therein, said base underlying said overhanging ends, a plate holder carried by the base, and complementary plate holding means.

5. The combination with a cylinder, of

blocks arranged parallel to its axis and spaced apart, said blocks having overhanging ends, a base in the space and movable sidewise therein, said base underlying said overhanging ends, means for frictionally holding the base against said ends, a plate holder carried by the base, and complementary plate holding devices. 60

6. The combination with a cylinder, of blocks arranged parallel to its axis and spaced apart, said blocks having overhanging ends, a base in the space and movable sidewise therein, said base underlying said overhanging ends, a spring for frictionally holding the base against said ends, a plate holder carried by the base, and complementary plate holding devices. 70

7. The combination with a plate cylinder having a plurality of blocks arranged parallel to the axis of the cylinder and spaced apart, a set of centrally arranged adjustable plate holders, a base arranged in the space between the blocks and movable sidewise therein, adjustable plate holders carried by the base and a sidewise movable plate holder arranged to engage the outer side of an outer plate, and means for moving said sidewise movable plate holder into locking position. 80

8. The combination with a plate cylinder having a plurality of blocks arranged parallel to the axis of the cylinder and spaced apart, a set of centrally arranged adjustable plate holders, a base arranged in the space between the blocks and movable sidewise therein, adjustable plate holders carried by the base and a sidewise movable plate holder arranged to engage the outer side of an outer plate, means for moving said sidewise movable plate holder into locking position, and means for frictionally holding the base in position. 90

9. The combination with a cylinder, of blocks arranged parallel to the axis of the cylinder and spaced apart, said blocks having overhanging ends, a base frictionally held in the space between the blocks and underlying the end thereof, a set of adjustable centrally arranged plate holders, plate holders for adjacent plates carried by the base and adjustable thereon, a holder for engaging the outer side of the outer plate, and means for forcing the holder into locking position. 100

10. The combination with a cylinder, of blocks arranged parallel to the axis of the cylinder and spaced apart, said blocks having overhanging ends, a base frictionally held by a spring in the space between the 105

blocks and underlying said overhanging ends, a set of adjustable centrally arranged plate holders, plate holders for adjacent plates carried by the plate and adjustable thereon, a holder for engaging the outer side of the outer plate, and means for forcing the holder into locking position. 65

11. The combination with a cylinder provided with rows of blocks, said rows being parallel to each other and the axis of the cylinder, of a sidewise movable base located between two adjacent blocks in each row, sidewise adjustable plate holders carried by the base for the plates on the adjacent surfaces, and complementary plate holding devices. 70

12. The combination with a cylinder provided with rows of grooves parallel to each other and the axis of the cylinder, of rows of spaced blocks in the grooves, an endwise movable base supported between two adjacent blocks in each row, sidewise adjustable plate holders carried by the base for the plates on adjacent surfaces, and complementary plate holding devices. 80

13. The combination with a cylinder provided with rows of grooves parallel to each other and the axis of the cylinder, said grooves having vertical sides, of rows of spaced blocks in the grooves at least two of said blocks having adjacent overhanging ends, a sidewise movable base underlying said ends and frictionally held in position, sidewise adjustable plate holders carried by the base for the plates overlying adjacent blocks, and complementary plate holding devices. 95

14. The combination with a cylinder provided with rows of grooves parallel to each other and the axis of the cylinder, a plurality of blocks in each groove, some of said blocks having the ends adjacent to each other overhanging, a holder block located in one of the spaces in a row and having adjustable plate holders thereon, a sidewise movable base frictionally held in position beneath the overhanging ends of the blocks in each row, recessed sidewise adjustable plate holders carried by the base, and complementary plate holding devices. 105

In testimony whereof, I have hereunto set my hand, in the presence of two subscribing witnesses. 110

ELLIS W. COOPER.

Witnesses:

RICHARD KELLY,
HAROLD M. TILLINGHAST.