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INKING APPARATUS FOR PRINTING PRESSES.

(Application filed May 9, 1898. Renewed Dec. 18, 1899.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.

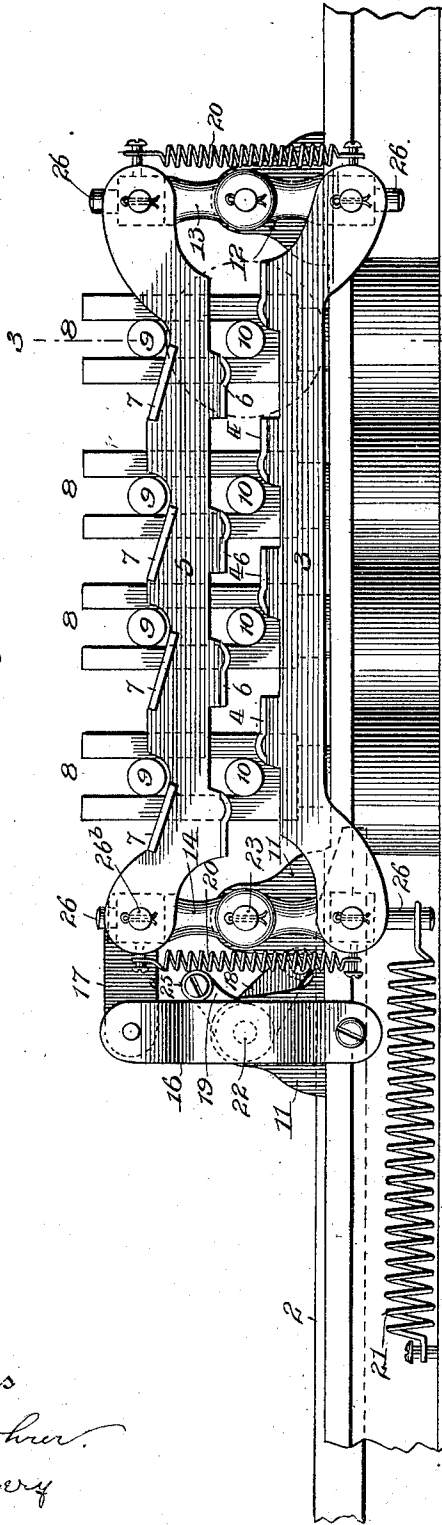


Fig. 4.

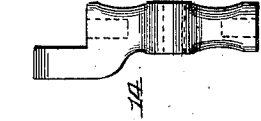
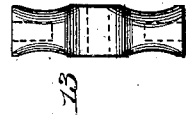


Fig. 5.



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3 Sheets—Sheet 2.

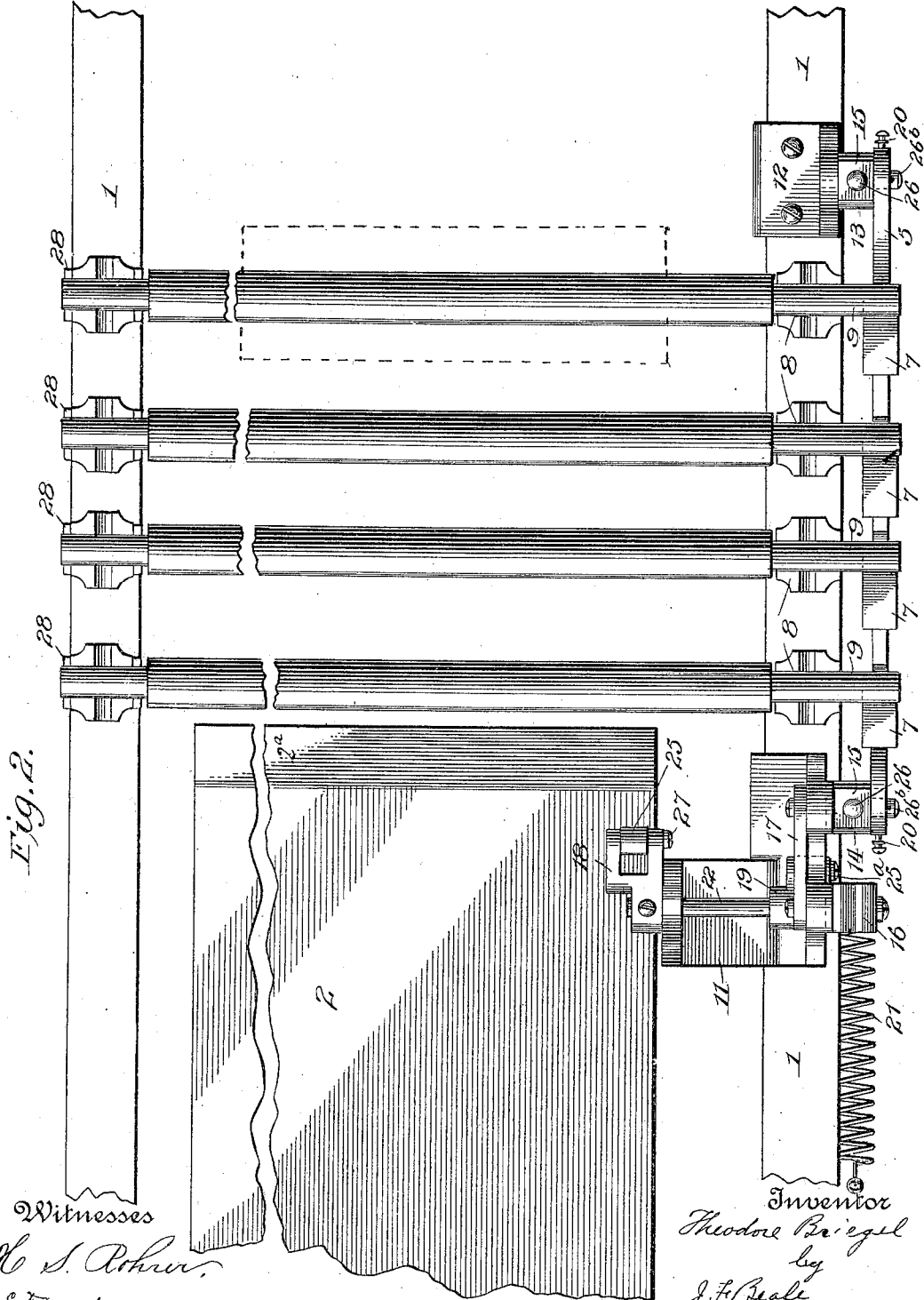


Fig. 2.

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3 Sheets—Sheet 3.

Fig. 3.

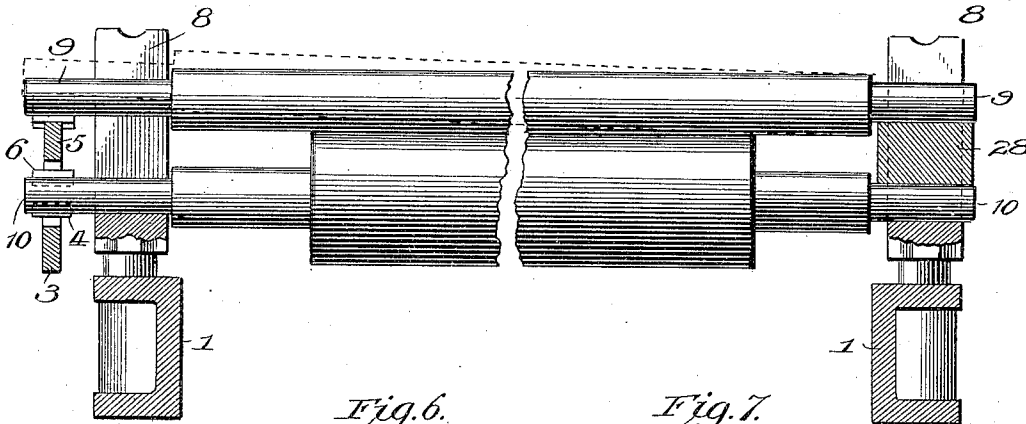


Fig. 6.

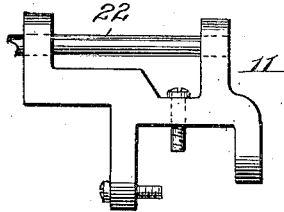


Fig. 7.

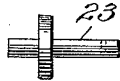


Fig. 8.



Fig. 9.

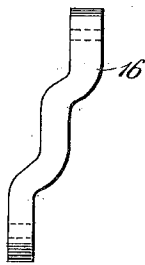


Fig. 10.

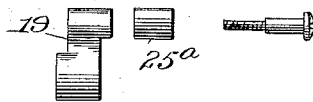


Fig. 13.

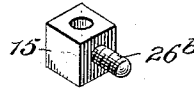


Fig. 11.



Fig. 12.



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UNITED STATES PATENT OFFICE.

THEODORE BRIEGEL, OF ROCK ISLAND, ILLINOIS.

INKING APPARATUS FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 652,343, dated June 26, 1900.

Application filed May 9, 1898. Renewed December 18, 1899. Serial No. 740,825. (No model.)

To all whom it may concern:

Be it known that I, THEODORE BRIEGEL, a citizen of the United States, residing at Rock Island, in the county of Rock Island and State of Illinois, have invented certain new and useful Improvements in Inking Apparatus for Printing-Presses; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to inking apparatus for printing-presses embodying a reciprocating ink-table and distributing-roller. Distributing-rollers, generally speaking, are rotated back and forth by a reciprocating inking-table contacting therewith. They are revolved in opposite directions at high speed, and when the table passes from contact said rollers continue to rotate by their momentum until said table again coming in contact reverses them. Said rollers are necessarily made of a soft composition, and the reciprocating table striking them in reverse to motion last imparted wears the composition rapidly and often tears it.

My invention consists of a simple and economical mechanism adapted to be attached to a variety of printing-presses having ink-distributing rollers, whereby the motion of said rollers is instantly checked when the ink-table passes from contact and are then given a reverse motion coinciding with the return motion of said table preparatory to their succeeding contact therewith.

My invention further consists in novel means for alternately lowering and lifting the iron rollers or riders to and from contact with the distributing-rollers.

In the accompanying drawings I have shown my invention applied to a Campbell improved two-revolution book-press having four distributing-rollers with superincumbent riders or iron rollers, it being understood that my invention can be applied with the proper number of contact-points or bearing-surfaces for the shafts of composition and iron rollers to operate any number of rollers used by different presses. While the drawings show the riders or iron rollers in place, it will be seen that the mechanism for controlling the distributing-rollers operates independently of

the riders, which may therefore be removed, if desired, without affecting the control of the composition rollers.

Referring more particularly to the drawings, Figure 1 is a side elevation showing my mechanism in position and parts of the frame of a press adjacent thereto, and Fig. 2 is a top plan view of the same. Fig. 3 is a transverse section taken on line 3 3 of Fig. 1. Figs. 4 and 5 are detail views of swing-levers. Fig. 6 is an edge view of supporting-bracket 11. Fig. 7 is a detail view of the stud 23. Fig. 8 is a detail view of the screw-stud 27. Fig. 9 is an edge view of arm 16. Fig. 10 is a detail view showing arm 19, with rollers and retaining-screw assembled. Figs. 11 and 12 are top and edge views, respectively, of bearing 28. Fig. 13 is a detail view of the yielding hinge-bearing connecting the jaws of the friction-clutch to the swing-levers.

1 denotes part of the frame of a Campbell printing-press, and 2 denotes the reciprocating ink-table, having a beveled end 2^a to facilitate the passage of a friction-wheel 25, hereinafter mentioned.

3 denotes the lower jaw of a friction-clutch, and 5 its upper jaw.

4 denotes leather cushions on the lower jaw, and 6 like cushions on the upper jaw.

7 denotes inclined planes arranged on the upper side of the upper jaw, provided with leather cushions.

8 denotes the open journal-boxes or bearings for the rollers usually attached to printing-presses.

9 denotes the ends of shafts of the iron rollers or riders projecting through the boxes, as usual, and 10 the ends of shafts of the composition rollers, likewise projecting through the boxes 8.

11 denotes a bracket bolted to the frame 1 with screw-bolts, and 12 a bracket likewise bolted to said frame.

13 and 14 denote swing-levers pivotally mounted about midway of their length on studs 23, rigidly secured to said brackets 11 and 12 and held in place by split cotter-pins.

15 denotes perforated bearings, four in number, (shown in Fig. 13 and in dotted lines, Fig. 1,) mounted on the upper and lower ends of the arms 13 and 14 by means of screw-studs 26, which are screwed into the ends of

said arms. Said bearings are loosely fitted to said studs in order that the bearings may slide vertically thereon. The ends of the jaws 3 and 5 are pivotally connected to said bearings by means of studs 26^b, secured to said bearings. Thus a yielding hinge or sliding pivoted connection is formed for connecting the jaws 3 and 5 and the arms 13 and 14.

16 denotes an arm pivoted to the bracket 11 and pivotally connected at its upper end to an arm 17, which latter arm is also pivotally connected to the lever 14.

18 denotes an arm rigidly secured to the inner end of a rock-shaft 22 and provided at its free end with a friction-wheel 25, held in place by a stud 27.

19 denotes an arm rigidly mounted upon rock-shaft 22, directly against the inner side of outer supporting-arm of bracket 11. Said arm is provided with a friction-wheel 25^a, which is secured to the outer side by means of a stud 27 and bears against the arm 16.

20 denotes a coiled spring secured to the upper and lower ends of jaws 3 and 5.

21 denotes a coiled spring attached at one end to frame 1 and at the other end to stud 26, secured to the lower end of lever 14.

28 denotes bearings provided with flanges and adapted to be placed between ends of the shafts of distributing and iron rollers or riders upon the side of the press opposite to the friction-clutch, as shown in Figs. 2 and 3, (Figs. 11 and 12 showing bearings detached.) Said bearings act as independent supports to the ends of shafts opposite to those upon which jaws 3 and 5 operate.

As rollers 9 are not used at all times in printing, it is evident they may be removed, and their absence will not interfere with the operation of my mechanism for controlling the composition or distributing rollers 10. When rollers 9 are not in use, the bearings 28 are removed. The rollers 10 may be easily removed for cleaning, &c., by lifting the ends opposite to those engaged by the jaws 3 and 5 and then pulling said engaged ends from between the jaws. As usual, the iron rollers ride upon the distributing-rollers, their entire weight resting upon the surface of the same, except as hereinafter mentioned.

My invention operates as follows: As shown in Fig. 1, the iron rollers bear upon the distributing-rollers and the inking-table has passed from underneath the latter, but is still in contact with wheel 25 on arm 18. Now as the inking-table passes from contact with said wheel, releasing arm 18, the spring 21 draws upon the lower end of lever 14, rocks shaft 22, and moves jaw 5 backward and jaw 3 forward. As jaw 5 moves back, the ends of shafts of rollers 9 will ascend the incline 7, tilting them in the position shown in dotted lines. (See Fig. 3.) In this position the opposite ends of shafts of said rollers will rest on the bearings 28, and thus clear said rollers of the distributing-rollers. In this position the iron rollers or riders are supported by the jaw 5

at one end and the bearings 28 at the other, and simultaneously jaws 3 and 5 will clamp firmly the ends of shafts of rollers 10 through the action of compression-springs 20. It will be seen that the momentum of the rollers 10 when said jaws come in contact with their shaft ends aid spring 21 to draw said jaws into a clamping position against the resiliency of compression-springs 20. It is also evident that the momentum of rollers 9 will carry their shaft ends up the inclines 7 with little, if any, resistance to spring 21. The jaws being now clamped upon shaft ends 10, as the inking-table again comes in contact with roller 25 it gives a quick parallel movement to jaws 3 and 5 in directions opposite one to the other, which movements give rollers 10 an initial rotary motion to coincide with the reverse movement of the inking-table before it strikes them. The shaft ends of rollers 9, moving down the inclined plane, bring said rollers in contact with rollers 10. It is evident that this return movement of the inking-table as it strikes wheel 25 raises arm 19 and causes friction-wheel 25^a to bear back upon arm 16, which through arm 17 pulls back the upper end of the spring-lever 14, thus expanding spring 21 preparatory to its succeeding action.

Having shown and described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a printing-press the combination with the shafts of the ink-distributing rollers, of a friction-clutch having clamping-jaws arranged horizontally in parallel alinement upon opposite sides of said shafts and provided with a series of clamping-surfaces for said shafts, and means for operating said jaws to clamp said shafts simultaneously for the purposes specified.

2. In a printing-press, the combination with the shafts of ink-distributing rollers, of the horizontal clamping-jaws, the swing-levers connected to said jaws and means for operating said levers.

3. In a printing-press, the combination with the ink-distributing rollers and riders, of a friction-clutch consisting of an upper and lower jaw arranged upon opposite sides of the shaft ends of said rollers adapted to clamp said ends between them and the upper jaw provided with inclined planes, and means for operating said jaws.

4. The combination with the ink-distributing rollers, and riders of a printing-press, of a friction-clutch having upper and lower jaws arranged upon opposite sides of the shaft ends of said rollers, said upper jaw having inclined planes for the shaft ends of the riders, and a bearing for the opposite ends of said riders, and means for operating said jaws.

5. The combination with the ink-distributing rollers of a printing-press having a reciprocating ink-table, of the jaws of the friction-clutch, the swing-levers connected to said jaws, the coiled spring 21, and means

connected with the ink-table for expanding and releasing said spring.

6. The combination with the ink-distributing rollers and ink-table, of the jaws of the friction-clutch, the swing-levers, the pivoted arm 16, the connecting-arm 17, the arms 18 and 19, the rock-shaft 22, and means for actuating said jaws to clamp the shaft ends of said rollers.

7. The combination with ink-distributing rollers and ink-table, of the jaws of the friction-clutch, the swing-levers connected to said jaws, the pivoted arm 16, the connecting-arm 17, the arms 18 and 19, the rock-shaft 22, and means for actuating said parts to reverse the motion of the distributing-rollers for the purposes named.

8. The combination with the ink-distributing rollers and ink-table, of the friction-

clutch, the swing-levers, the arm 16, the connecting-arm 17, the arms 18 and 19, the rock-shaft 22, the compression-springs for the jaws of said clutch, and the coiled spring 21.

9. The combination with the inking apparatus of a printing-press having means for controlling the movement of the distributing-rollers, of the bearings 28 interposed at one end between the distributing-rollers and their respective riders, and means for elevating the opposite ends of said riders, whereby the riders and rollers are removed from contact with each other.

In testimony whereof I affix my signature in presence of two witnesses.

THEODORE BRIEGEL.

Witnesses:

M. O. GRISWOLD,

E. D. SWEENEY.