Oct. 16, 1945. H. S. K. LUI 2,386,965

STAMP ROLLER

Filed Sept. 25, 1942

Fig. 1.

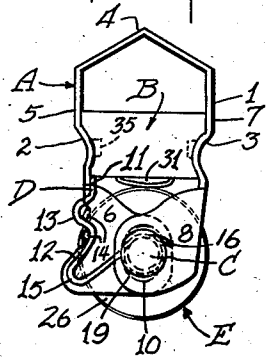


Fig. 2.

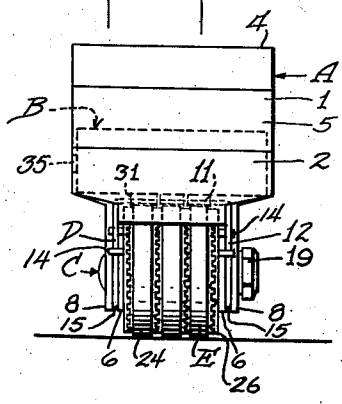
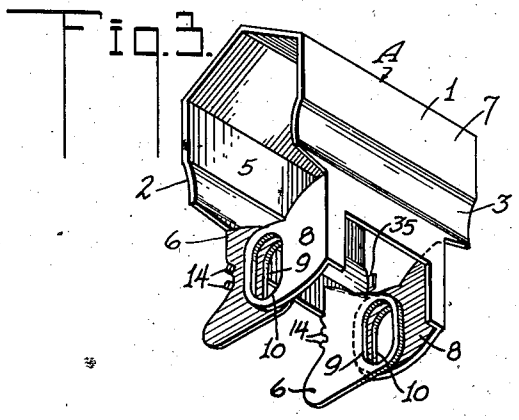


Fig. 3.



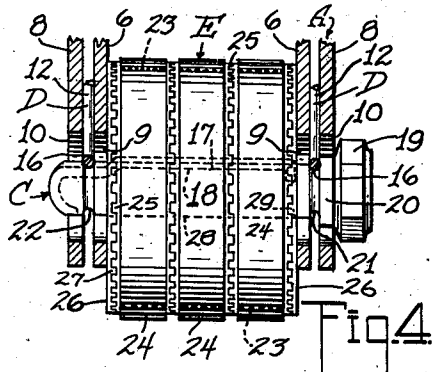


Fig. 4

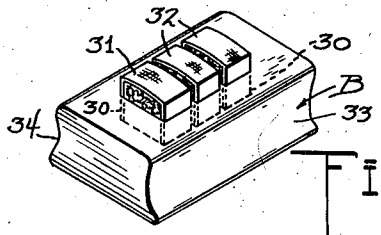


Fig. 5.

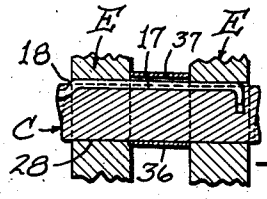


Fig. 6.

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STAMP ROLLER

Henry S. K. Lui, San Francisco, Calif.

Application September 25, 1942, Serial No. 459,880

6 Claims. (Cl. 101—108)

The present invention relates to improvements in a stamp roller, and it consists of the combinations, constructions and arrangements hereinafter described and claimed.

An object of my invention is to provide an improvement over the stamp roller shown in my copending application filed December 24, 1940, Serial No. 371,540. In the copending case coiled springs are mounted in the frame for moving the printing rollers away from the inking pads when the device is not used. In the present case a single wire spring is secured to a one-piece frame and has its ends yieldingly bearing against the shaft that carries the rollers for urging the shaft and rollers away from the inking pads. The frame itself is shaped so as to be readily gripped in the hand; and when a downward pressure is applied on the frame for moving the rollers against the surface to be printed, the spring ends will permit the shaft and rollers to be moved into contact with the inking pads for transferring ink from the pads to the rollers. In the present device a handle is not used, the frame itself constituting the handle. It is obvious that the handle can be attached to the frame if desired. The device is smaller when the handle is not used. In fact the device is designed to take up little space and is compact in construction.

In the copending application the rollers must be removed before the inking pad holder can be removed. In the present form of the invention the frame slidably receives the holder for the inking pads, and the holder may be removed from the frame or mounted therein by merely moving it transversely with respect to the frame. The pad holder carries inking pads of different colors, and the rollers or wheels that contact with the pads transfer the colored ink to the material to be printed. It is possible to change the wheels to print different data as well as to change the pad holder so that the desired colored inks will be transferred to the desired wheels.

Another feature of the present invention is to secure the wheel carrying shaft removably to the frame so that the wheels can be interchanged. The wheels are provided with interlocking means for causing them to rotate as a unit on the shaft. The shaft is held against rotation and carries a spring brake for preventing the wheels from spinning. The frame itself is made of one piece of sheet metal which makes the device inexpensive to manufacture.

Other objects and advantages will appear in the following specification, and the novel features of the device will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawing forming a part of this application, in which:

Figure 1 is a side elevation of the device;

Figure 2 is a front elevation;

Figure 3 is an isometric view of the one-piece frame;

Figure 4 is an enlarged longitudinal sectional view of the shaft and printing wheels;

Figure 5 is an isometric view of the pad holder; and

Figure 6 is a sectional view showing another arrangement of the printing wheels.

While I have shown only the preferred form of my invention, it should be understood that various changes or modifications may be made within the scope of the appended claims without departing from the spirit of the invention.

In carrying out my invention I provide a frame, indicated generally at A, which is preferably made from a single piece of sheet metal cut and bent in the manner shown in Figure 3. The frame has a hand grip portion, indicated generally at 1, and this portion is made hollow and has grooved sides 2 and 3 and a roof shaped top 4 for permitting the device to be readily grasped in one hand. The grooves 2 and 3 will receive the thumb and first finger of the hand, while the roofed top will contact with the portion of the first finger disposed near the palm of the hand. The grooves 2 and 3 provide longitudinal ridges on the inside of the frame for removably receiving an inking pad holder B which will be described in detailed hereinafter.

The two portions of the frame extending below the pad holder B have wings that removably carry the shaft and the printing rollers. The front side 5 of the frame has wings 6—6, while the rear side 7 of the frame has wings 8—8. The wings 6—6 lie inside the wings 8—8. The pair of wings 6—6 extend parallel with and are spaced slightly from the pair of wings 8—8. Each wing 6 has a portion that overlaps a portion of its associate wing 8. The wings 6 and 8 disposed at one end of the frame act as a support for one end of a roller carrying shaft C, while the other two wings 6 and 8 disposed at the other end of the frame carry the other end of the roller shaft. This structure is clearly shown in Figure 4.

It will be seen from Figure 3 that the overlapping portions of the wings have aligned openings which are elongated in the direction of the vertical axis of the device. The wings 6—6 have

openings 9 that register with the openings 10 in the wings 8—8. The frame also carries the spring wire D for holding the shaft C down at the bottom of the elongated openings 9—9 and 10—10. It will be noted from Figures 1 and 3 that the wire has a U-portion 11 that extends across the tops of the wings 6—6 and on the inside of the frame side 5 at the point where the wings merge into the side 5. The bent portions 12 of the wire extend along the outer sides of the wings 6 and have corrugated portions 13 lying between projections 14 formed integral with the wings 6. The projections 14 hold the wire D in place and anchor the wire to the frame. The wire D has two spring loops 15 adjacent to the ends of the wire for exerting a yielding force on the wire ends 16. The ends 16 of the wire are designed to contact with the ends of the roller shaft for urging the shaft away from the pad holder B.

I will now describe the shaft C and the rollers or printing wheels E. Reference to Figure 4 shows the shaft C as having a longitudinal groove 17 for receiving a leaf spring 18. The spring will project above the slot a slight distance for frictionally engaging with the bores of the printing rollers. I have shown three rollers in the drawing, but the number may be altered at will. The shaft C has a head 19 that bears against one of the outer wings 8. The head 19 has a non-circular portion 20 that is designed to enter the slot 10 and to contact with the sides of the slot for preventing the rotation of the shaft. Next to the non-circular portion 20 I provide an annular groove 21 in the shaft for receiving one of the spring ends 16. The opposite end of the shaft C has an annular groove 22 for receiving the other end 16 of the spring wire D. It will be seen from this construction that the shaft can slide in the slots but is held against rotation. The spring ends 16 hold the shaft down at the bottoms of the slots 9 and 10. The spring ends move between the pairs of wings 6 and 8.

The printing wheels E are preferably made of metal or a plastic material and are cylindrical in shape with an annular groove 23 being formed in their peripheries. An endless printing band 24 is placed in the groove 23 and the band may carry raised projections of any type or character for printing designs, numbers or letters when the device is used. Adjacent to the circumference of each wheel or roller E, I dispose a ring of teeth 25. The teeth of one wheel or roller will engage with those of the adjacent wheel for locking the two rollers together so that they will rotate as a unit. The outermost rollers have discs 26 which also have a ring of teeth 27 that mesh with the teeth 25 of the adjacent wheel so that these discs will be locked to the outermost wheels and rotate therewith as a unit. The purpose of the discs is to provide a smooth exterior end for each end of the set of rollers.

The rollers have central openings 28 for rotatably receiving the shaft C, and the discs have central openings 29 for rotatably receiving the same shaft. The leaf spring 18 contacts with the inner walls of the central bores 28 and 29 and acts as a frictional brake on the wheels and discs. The braking force is not sufficient to prevent the wheels from rolling freely but it will stop a spinning of the wheels should the device be moved rapidly across the paper to be printed and then suddenly lifted from the paper.

The inking pad holder B is illustrated in Figure 5 and it will be noted that the holder has three recesses 30 for receiving the different colored inking pads 31. The pads may be made of any material desired, such as felt, and covered with a cloth 32. The holder B may be made of metal or a plastic material. The two sides of the holder are grooved as at 33 and 34 for receiving the ribbed portions formed by the inner surfaces of the grooves 2 and 3 in the frame A. Stops 35 are provided in the frame A for stopping further movement of the pad holder when it reaches the proper position.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood.

When the device is not used, the spring ends 16 will hold the shaft C down at the bottoms of the slots 9 and 10. The shaft when in this position will space the rollers E from the pads so that there will be no transfer of ink from the pads to the rollers. When the device is used the rollers are placed on the surface to be printed and then pressure is brought to bear on the frame for moving the rollers into contact with the pads. The movement of the frame over the material will cause the rollers to rotate thereover and to transfer ink from the pads to the material. As soon as the device is lifted from the material, the spring ends 16 will move the shaft and rollers away from the pads. In this way there is no loss of ink when the device is not used and the rollers will not receive an undue quantity of ink. Any blotting of the rollers on the material due to too much ink being on the rollers will be obviated. The pad holder B may be quickly removed and a new one substituted so that different colored inking pads may be brought into registration with the rollers. The shaft may be removed and the rollers interchanged or new ones substituted. In this way the different rollers will give different types of printing and the different inking pads will give the rollers different colors.

In Figure 6 I show a different arrangement of printing wheels E. Here only two wheels are used rather than the three illustrated in Figures 2 and 4. A collar 36 is slipped over the shaft C and spaces the two end rollers or wheels E the proper distance apart. The collar is made out of thin metal and has a portion bent longitudinally to provide a groove 37 on the inner surface of the collar for receiving the leaf spring 18. The groove 37 permits the free flexing of the spring 18 therein so that the spring will frictionally contact with the walls of the wheel bores 28.

The use of the collar 36 in lieu of the central valve E will cause the stamp to print only two spaced runners on the material to be printed. It is possible to substitute the collar for either of the end wheels E if desired. The collar permits the various combinations of wheels to be greatly increased.

I claim:

1. A stamp roller comprising a frame constructed of sheet material formed into a handgrip portion and shaft-supporting wings, the wings being arranged in pairs at each end of the frame and having aligned openings for receiving a wheel-supporting shaft, the wings of each pair of wings being spaced a slight distance apart, a spring carried by the frame and having its ends slidably received in the space provided between the wings of each pair of wings, a shaft having its ends received in the aligned openings, printing wheels carried by the shaft, and a holder for inking pads mounted in the frame, the spring ends bearing against the shaft for yieldingly

holding the wheels out of contact with the pads when the device is not in use.

2. A stamp roller comprising a frame constructed of sheet material formed into a hand-grip portion and shaft-supporting wings, the wings being arranged in pairs at each end of the frame and having aligned openings for receiving a wheel-supporting shaft, the wings of each pair of wings being spaced a slight distance apart, a spring carried by the frame and having its ends slidably received in the space provided between the wings of each pair of wings, a shaft having its ends received in the aligned openings, printing wheels carried by the shaft, and a holder for inking pads mounted in the frame, the spring ends bearing against the shaft for yieldingly holding the wheels out of contact with the pads when the device is not in use, said shaft having annular grooves for receiving the spring ends, whereby the spring ends perform the double function of holding the wheels away from the pads and preventing longitudinal movement of the shaft with respect to the frame.

3. In a stamp roller, a shaft having a non-circular portion and a spring extending substantially throughout the length of the shaft, a frame having elongated openings for slidably receiving the shaft ends, the non-circular shaft portion being received in one of the openings and contacting with the edge of the opening for holding the shaft against rotation, and printing wheels having bores rotatably receiving the shaft, said spring frictionally contacting with the walls of the bores for bringing the wheels to an immediate stop when a rotative movement imparted to the wheels ceases.

4. In a stamp roller, a shaft, printing wheels rotatably mounted on the shaft and adapted to contact with each other, the abutting surfaces of the wheels having circumferential teeth adapted to mesh with each other for causing the wheels to rotate as a unit on the shaft, the outermost wheels having circumferential teeth on their outer ends, and discs protecting said outer ends and having circumferential teeth meshing with the exposed teeth on the outermost wheels.

5. In a stamp roller, a shaft, printing wheels rotatably mounted on the shaft and adapted to contact with each other, the abutting surfaces of the wheels having circumferential teeth adapted to mesh with each other for causing the wheels to rotate as a unit on the shaft, the outermost wheels having circumferential teeth on their outer ends, discs protecting said outer ends and having circumferential teeth meshing with the exposed teeth on the outermost wheels, and means carried by the shaft for applying a continual braking force to the wheels.

6. In a stamp roller, a shaft, printing wheels rotatably mounted on the shaft and adapted to contact with each other, the abutting surfaces of the wheels having circumferential teeth adapted to mesh with each other for causing the wheels to rotate as a unit on the shaft, and end discs mounted on the shaft and abutting the end surfaces of the end wheels, said end discs having circumferential teeth adapted to mesh with the teeth on the end surfaces of the end wheels, whereby smooth ends are provided for the ends of the wheel units.

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