C. DAUSMAN.

GRIPPER DEVICE.

APPLICATION FILED OCT. 29, 1913.

1,177,933. Patented Apr. 4, 1916.

Fig. 1.

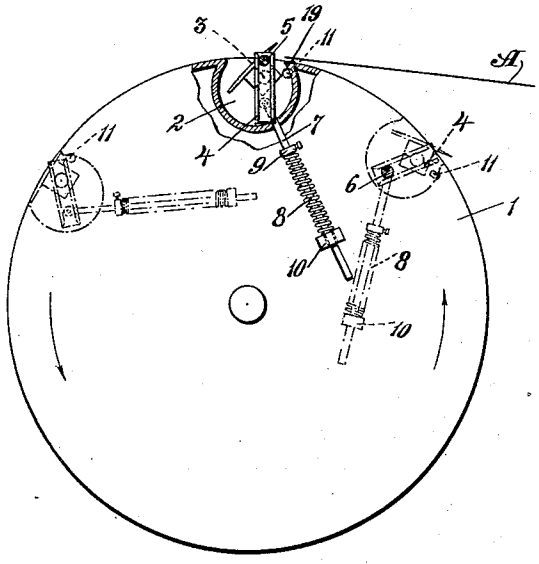


Fig. 2.

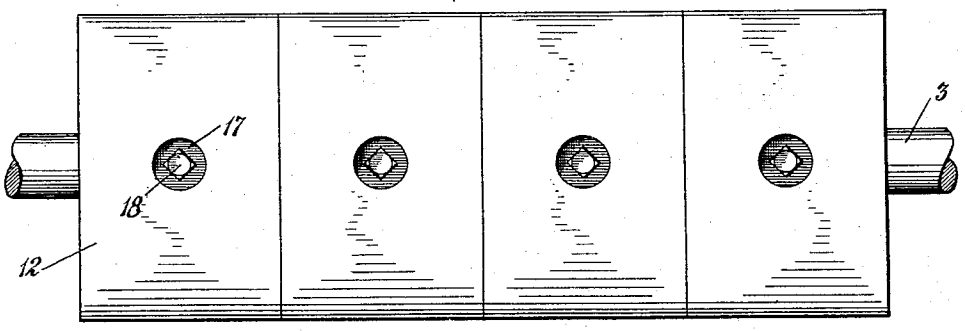


Fig. 3.

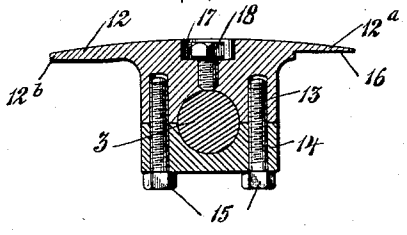
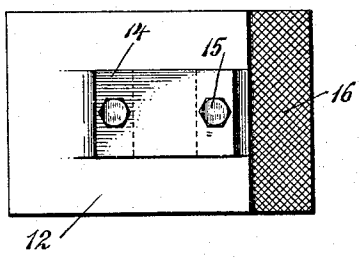


Fig. 4.



WITNESSES

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GRIPPER DEVICE.

1,177,933. Specification of Letters Patent. Patented Apr. 4, 1916.

Application filed October 29, 1913. Serial No. 797,997.

To all whom it may concern:

Be it known that I, CHARLES DAUSMAN, a citizen of the United States, and resident of the borough of Brooklyn, county of Kings, city and State of New York, have invented certain new and useful Improvements in Gripper Devices, of which the following is a specification.

My invention relates more particularly to gripper devices for bronzing machines or the like, through which printed sheets of paper are passed while the ink is still moist, and automatically dusted with bronze powder which is suitably distributed by fountain rollers, brushes and puffs, and finally buffed, so that when delivered from the machine the previously inked design appears in bronze. In such machines, one edge of the paper is gripped by a gripper device located in a gap in the periphery of a large iron roller, and carried under the fountain rollers, puffs, brushes and buffers located circumferentially of the roller. The paper rests upon the smooth surface of the roller while passing through the machine until the several operations are completed when the grippers release the leading edge and the sheet is discharged. The object of my device is to improve the gripper device of such machines and at the same time do away with the objectionable gap pan. In machines of this kind the gap pan is usually a strip of wood faced with a thin sheet of zinc, which frequently becomes bent and frayed and frequently damages the various rollers, puffs and brushes, some of which are very expensive to repair or replace. Furthermore there is the added loss while the machine is idle and undergoing repair. The gripper devices in these machines usually consist of a series of spring mounted gripping fingers located a considerable distance apart on the tumbler shaft in the roller gap and covered by the gap pan. The bronze powder sifts into the gap and some of it lodges in the coils of the individual gripper springs and gums them up so that frequent cleaning and adjustment of the gripper fingers is required. To do this it is necessary to turn the gap pan and grippers over by tumbling or rocking the supporting shaft and then with a wrench reach into the gap and loosen and tighten set screws until the proper adjustment is obtained. These operations result in a very considerable loss of time and labor.

With my improved gap pan and gripper device each gripper is separately and readily set and adjusted from the outside without tumbling the shaft and since the gripper plates themselves are extended to form the gap pan, there is no necessity for the objectionable wood and zinc gap pan.

My invention in one form is illustrated in the accompanying drawing in which—

Figure 1 represents an end view of the roller partly broken away at the gap; the position of the parts at different rotative positions being represented by dotted lines. Fig. 2 is a plan view of some of the gripper plates on the tumbler shaft, Fig. 3 is a section transversely of the shaft through the middle of a gripper plate and Fig. 4 is a view of the under side of a plate.

Referring to the drawings 1 represents the usual roller of a bronzing machine of ordinary construction. At one point on the periphery a gap or longitudinal groove 2 extends uniformly from end to end of the roller 1 and has mounted therein the tumbler shaft 3 which is pivotally mounted in the end plates in the usual or any preferred manner. To the end of the shaft 3 there is secured a groove cam 4 which is adapted during the rotation of the roller 1, in the direction of the arrows in Fig. 1, to engage pins 5 and 6 fixed in the supporting frame of the machines and thereby tumble or rock the shaft 3 and close or open the grippers. The pins 5 and 6 are shown in section, since for clearness no part of the frame of the machine is here shown. A spring actuated thrust rod 7 is pivotally connected to the cam 4 at a short distance from the axis of the shaft 3 and is surrounded by an expansion spring 8 one end of which is adapted to thrust against a collar 9, adjustably secured to the rod, and the other against a

lug 10 secured to and projecting from the end plate of the roller 1, the lug 10 being provided with a hole through which the other end of the rod 7 is adapted to slide. From this construction it will be seen that as the shaft 3 is rocked in one direction or the other by the pins 5, 6, the end of the thrust rod will be carried to one side or the other of the center of the shaft and the thrust of the spring will complete the movement and resiliently hold the shaft and grippers in either position. A stop pin 11 projecting from the end of the roller 1 is adapted to limit the movement of the tumbler shaft in either direction by contact with one end or the other of the grooved cam 4.

The construction thus far described is the usual construction of the bronzing machine above referred to and the shaft 3 ordinarily carries a series of spring gripping fingers and a gap pan. For these latter I have substituted the combined gripper and gap pan illustrated in the drawings, which consists of a plurality of separate plates 12 preferably cast with a box lug 13 on the under side, the bore of which is located substantially central thereof. A correspondingly bored box cap 14 is secured thereto by suitable bolts 15 so as to revolubly mount the plate 12 upon and at a fixed distance from the tumbler shaft 3. The outer surfaces of the gripper plates 12 are curved to conform to the circumference of the roller 1 when the gripper is closed. The plates 12 extend in both directions from a radial plane through the axis of the shaft 3, one end 12^a of each plate being thinned down on the under side and roughened in any preferred manner, as at 16, to form a gripper face; the other ends 12^b of the plates are extended to the edge of the gap so as to completely close the gap when the plates are in gripping position (see dotted position at the left in Fig. 1). The plates 12, constituting the gripper and gap pan, are all mounted upon the shaft 3 in a similar manner and adjacent edges are in contact throughout the width of the plates; the number of plates required being determined by the length of the roller 1 and the amount of adjustability required in the grippers.

Each plate 12 has a counterbore or socket on its outer face at 17 to accommodate the head of a set screw 18 threaded through a hole in the lug 13, as indicated in Fig. 3. Preferably the set screw 18 is provided with an angular head for use in connection with a socket wrench which may be inserted in the counterbore 17. This arrangement leaves the outer surface of the plate 12 unobstructed and at the same time permits an operator to readily set and adjust the individual gripper plates from the outside without trouble or loss of time. The gripping edge of the gap 2 of the roller 1 is slightly beveled, and preferably, I secure to this beveled face a strip of tape or other suitable material 19 adapted to coöperate with the gripping faces 16 of the plates 12; the paper to be carried around the roller 1 being gripped therebetween. In operation the printed sheets A, to be bronzed, are delivered to the roller when substantially in the position shown in Fig. 1 and the pin 5 in the groove cam 4 is just closing the gripper plates 12 upon the edge of the paper. In this position it will be seen that the upper end of the thrust rod 7 is past the center of the shaft 3 and as the pin passes out of the groove the gripper plates 12 will clamp and grip the edge of the paper. The paper will continue to be gripped as the roller 1 rotates and carries the paper under the several rollers, puffs and brushes (not shown) until the grooved cam strikes the pin 6 when the grippers will release the paper as the shaft 3 is turned or tumbled until stopped by the stop pin 11 striking the grooved cam. Another sheet is then inserted and the operation repeated.

Various modifications in the specific details of construction of the gripper plates and associated parts may be made without departing from the spirit and scope of my invention as defined in the claims.

I claim:—

1. In a bronzing machine or the like a roller provided with a peripheral gap extending lengthwise thereof, a tumbler shaft in said gap, a plurality of contiguous gripping members mounted on said shaft and independently rotatable thereon, and means accessible through the exposed face of each of said members whereby the latter are secured upon said shaft.

2. In a bronzing machine or the like a roller provided with a peripheral gap extending lengthwise thereof, a tumbler shaft in said gap, a plurality of combined gap pans and gripping members arranged contiguous to each other throughout the length of the gap, lugs depending from said members and engaging said shaft, caps detachably secured to said lugs whereby said members are mounted on said shaft so as to be independently rotatable thereon and means accessible through the exposed face of each of said members whereby the latter are secured upon said shaft.

3. In a bronzing machine or the like a roller provided with a peripheral gap extending lengthwise thereof, a tumbler shaft in said gap, a plurality of combined gap pans and gripping members arranged contiguous to each other throughout the length of the gap, and each provided with a counterbore terminating in the outer face of each member, integral lugs depending from said

members and engaging said shaft, caps detachably secured to said lugs whereby said members are mounted on said shaft so as to be independently rotatable thereon and set bolts in said counterbores and accessible therethrough whereby said members are secured upon said shaft.

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

CHARLES DAUSMAN.

Witnesses:
CHARLES HAHN,
JOSEPH T. DONAHUE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."