Sept. 25, 1951 F. KOCH 2,569,108

ROLLER TYPE BRAKE

Filed Nov. 30, 1948

FIG. 1.

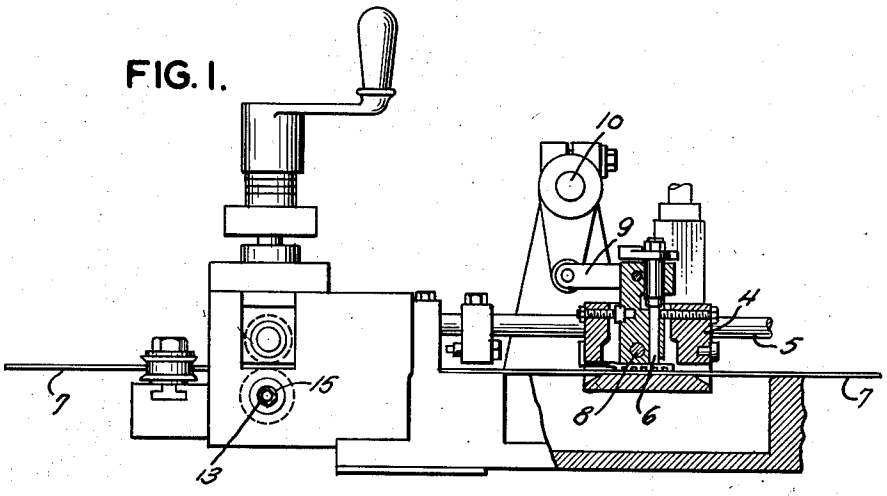


FIG. 2.

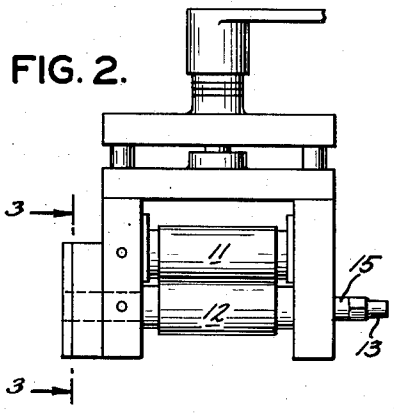
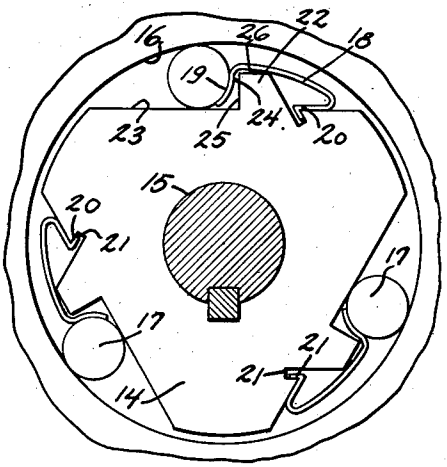


FIG. 3.



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ROLLER TYPE BRAKE

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1 Claim. (Cl. 188—82.84)

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The invention here disclosed relates to roller checks of the type disclosed in the A. E. Borton "Slide Feed" Patent No. 2,397,833 of April 2, 1946, in which one of a pair of feeding rolls is equipped with a flat sided cam and cooperating wedge rolls to form a one-way clutch turning freely in the feeding-in direction but locking against reverse movement to check any retrograde movement of the stock.

Bowed or arched springs thrust the rolls in the wedging direction.

Time has shown that there is a tendency for these bowed springs to become broken under continued impact of the clutch rolls, and as the springs and rolls are entirely enclosed such facts may not become known until this difficulty in the check rolls has become acute.

The objects of the present invention are to overcome the possibilities mentioned and to assure that the clutch springs will continue effective and unbroken.

Further special objects are to attain such results with simplicity of structure, low cost and with mechanism that will require no special attention or servicing.

Other desirable objects attained by the invention and the novel structure through which the purposes of the invention are attained are set forth or will appear in the course of the following specification.

The drawing accompanying and forming part of the specification illustrates a present commercial embodiment of the invention. Structure, however, may be modified and changed as regards the immediate disclosure, within the full intent of the invention as hereinafter defined and claimed.

Fig. 1 in the drawing is a side elevation of the invention as in use with a slide feed of approved design;

Fig. 2 is an end view of the check rollers;

Fig. 3 is an enlarged broken sectional detail of the overrunning check clutch as appearing on substantially the plane of line 3—3 of Fig. 2.

The slide feed mechanism illustrated in Fig. 1 may be considered as like that disclosed in the Borton patent above identified, involving a feed block 4 sliding on guide rods 5 and carrying a gripper 6 for the stock 7 oscillating on the center 8 under impulse of the link 9 actuated from the rock shaft 10.

Upper and lower rollers 11, 12, grip the stock and provide the means for initially feeding in and adjusting the stock to the slide feed and the

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means for checking and preventing reverse movement of the stock.

The lower roll is shown equipped with a squared end 13 for turning it in the feeding-in direction and this roll, also as in the patent, has associated with it the overrunning clutch mechanism involving a triangular cam 14 on the roll shaft 15, a surrounding stationary chamber 16, wedge rolls 17 and springs for thrusting the latter in the wedging direction.

These springs, however, in the present invention, are of special elongated design and they are limited in their collapsing movement by special shoulder abutments preventing harmful excessive over-action of the springs.

Specifically, as shown at 18, these springs are of elongated, flat arch design, having arcuate terminals 19 at their forward, free ends in engagement with the backs of the rolls and hooks 20 at their opposite ends entered in inclined slots or notches 21 cut in the cam.

The abutment shoulders are shown in the form of ridges 22 upstanding from the flat cam planes 23 at the back of the rolls and within the arches the springs.

In the expanded position of the springs, with the rolls touching the surrounding cylindrical wall 16, clearance is provided at 24 between the back of the roll engaging surfaces 19 and the forward abrupt faces 25 of the abutment shoulders, allowing slight backward free collapsing movement of the springs. Also it will be noted, clearance is left at 26 over the tops of these shoulders, beneath the arch of the springs, so as not to interfere with free action of the arched portions of the springs.

As a result the springs are free to thrust the rolls in the wedging direction and are free as well to release the rolls by collapsing movement in the opposite direction, but this collapsing movement is limited to the extent permitted by the clearance at 24 and hence can be fixed to save the springs against any injurious hammering action of the rolls as the check rollers come to a sudden immediate stop at the end of each slide feed advance stroke.

Thus the springs are protected against the impact of the clutch rolls and can yield only to the extent permitted by the instant design.

Consequently, relatively long, sensitive springs can safely be employed, relatively light in weight and quick in action.

This quick responsiveness is of particular value in enabling the slide feed to be operated at faster speed and with a greater number of strokes per

minute. Also, this is of particular value for short feed stroke action, enabling speeding up without losing accuracy in feed.

The flat arch design enables springs of ample length to be used in the relatively shallow spaces afforded between the cam faces and the surrounding cylindrical wall of the casing.

The structure is relatively simple and inexpensive and is fully effective in the purposes indicated.

What is claimed is:

A quick acting, accurate, one-way brake for stock gripping rollers or the like comprising a cam and a surrounding cylindrical track in spaced, relatively rotatable relation, wedge rolls confined between said relatively rotatable cam and track, said cam having outwardly extending wedging cam faces with radially projecting, rigid abutment shoulders at the inner ends of the same and notches in back of said shoulders, and elongated, flat arched springs disposed in the space between said cam and surrounding track and with said radially projecting shoulders extending outwardly into the arches of the springs, said springs having hooked inner ends entered in said notches and extending therefrom in arched formation freely over the outer ends of said rigid abutment shoulders and having arcuate terminals at the forward free ends of the same in front of said shoulders and engaging the backs of the rollers to thrust the latter outwardly into engagement with the surrounding cylindrical track and said arched springs being thereby supported free to hold the rolls outward in engagement with the track but yieldable under pressure of the rolls to permit said arcuate roll engaging terminals to engage the forward faces of said abutment shoulders and whereby the collapsing movements of said arched springs are positively limited to prevent strain and breakage of the same.

FREDERICK KOCH.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
897,846	Olde	Sept. 1, 1908
1,594,890	Loewy	Aug. 3, 1926
1,692,130	Long et al.	Nov. 20, 1928
1,718,074	Reese et al.	June 18, 1929
1,818,844	Dodge et al.	Aug. 11, 1931
2,348,456	Dickerman	May 9, 1944
2,371,653	Schuckers	Mar. 20, 1945
2,372,026	Smith	Mar. 20, 1945
2,397,833	Borton	Apr. 2, 1946

FOREIGN PATENTS

Number	Country	Date
605,285	France	May 22, 1926