

No. 662,445

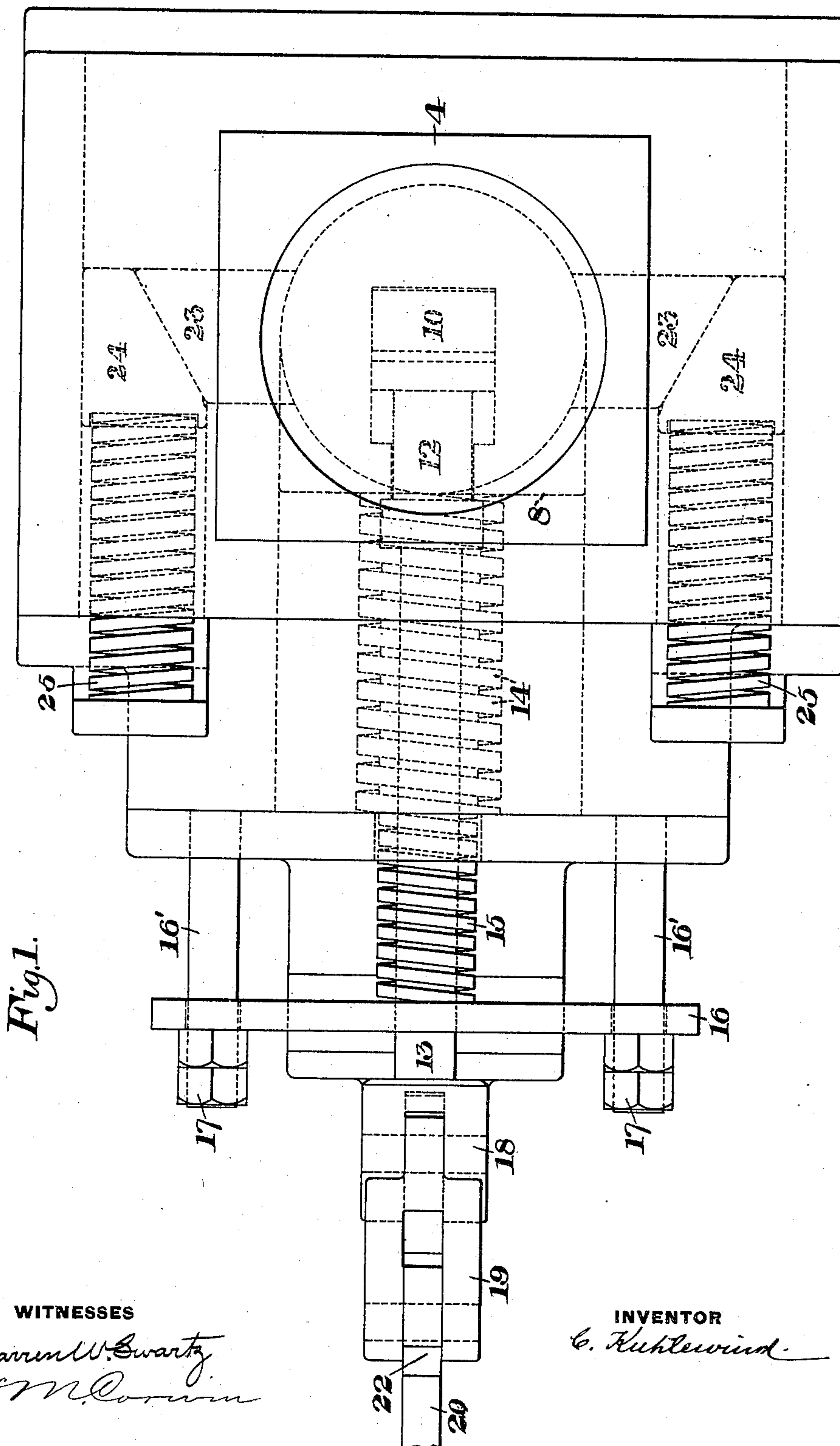
Patented Nov. 27, 1900.

C. KUHLEWIND.  
ROLL RELIEVING DEVICE.

(Application filed Dec. 22, 1899.)

(No Model.)

2 Sheets—Sheet 1.



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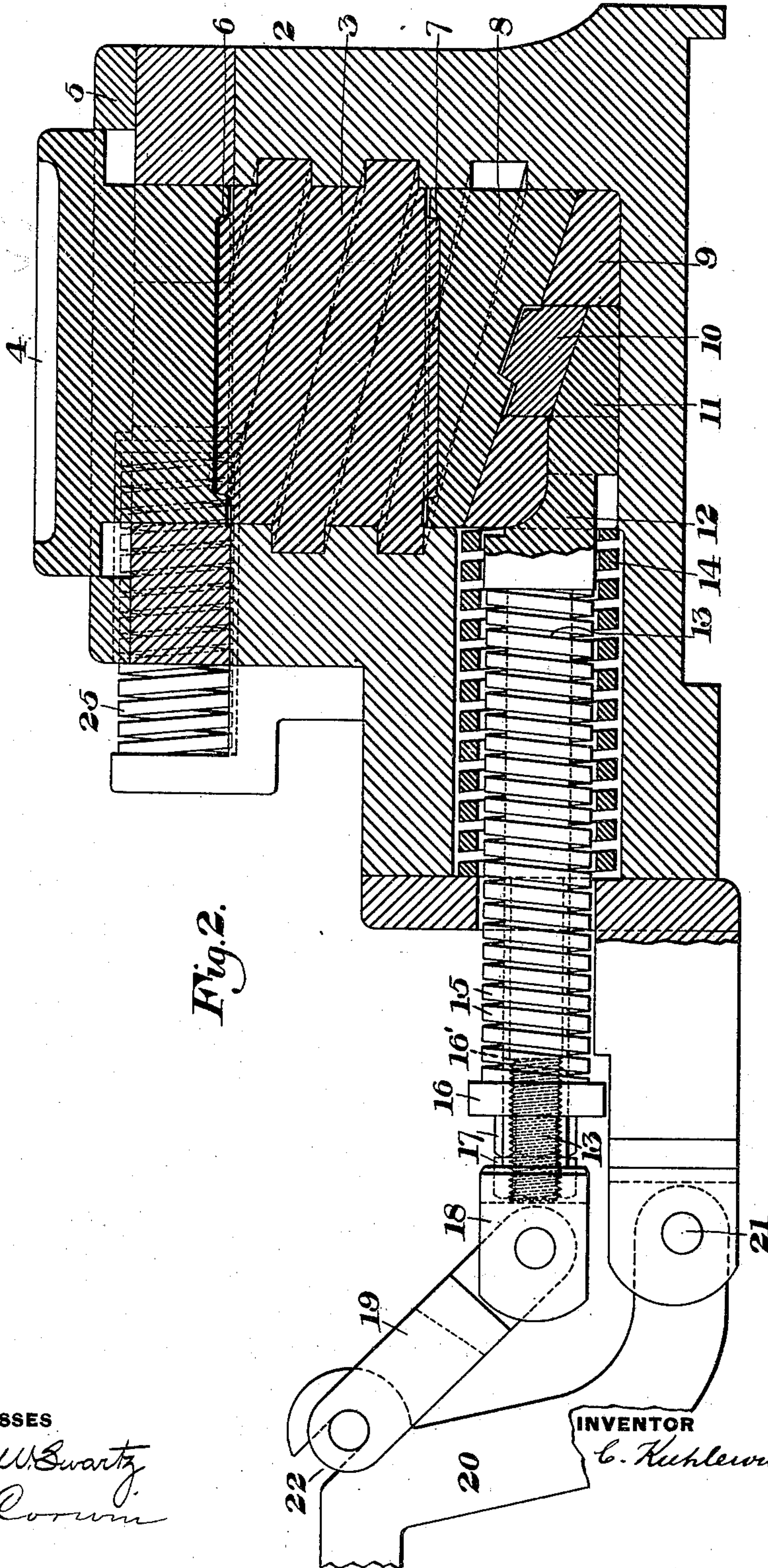


Fig. 2.

WITNESSES

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# UNITED STATES PATENT OFFICE.

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## ROLL-RELIEVING DEVICE.

SPECIFICATION forming part of Letters Patent No. 662,445, dated November 27, 1900.

Application filed December 22, 1899. Serial No. 741,209. (No model.)

*To all whom it may concern:*

Be it known that I, CORNELIUS KUHLEWIND, of Knoxville borough, in the county of Allegheny and State of Pennsylvania, have  
5 invented a new and useful Improvement in Roll-Relieving Devices, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in  
10 which—

Figure 1 is a top plan view of my improved relief device, and Fig. 2 is a sectional side elevation of the same.

My invention relates to devices for relieving the pressure upon rolls and similar apparatus when such pressure reaches a certain limit, and is designed to provide a device of this character which will automatically relieve the pressure and may be made in compact form as a breaker which can be used  
20 with existing mills.

In the drawings, 2 represents a hollow breaker having a vertical cylindrical screw-threaded socket containing a correspondingly  
25 screw-threaded plug 3, arranged to rotate and move vertically therein. Above this rotary plug is a cylindrical block 4, the upper portion of which is squared and fits in a square hole in a cover-plate 5 to hold the block against rotation. An annular boss 6 upon  
30 the top of the screw-plug fits in a corresponding recess in the base of the block and holds these parts in correct relative position. The lower end of the screw-plug is provided with  
35 a circular boss 7, which fits in a corresponding recess in the top of a wedge-block 8, having an inclined lower face fitting upon the corresponding upper face of a horizontally-movable wedge-block 9, which rests upon the  
40 floor of the cavity in the breaker. The wedge-block 9 is provided with a central square hole containing a locking-block 10, having a locking projection with inclined faces which fits in a recess in the lower part of wedge-block  
45 8. The lower face of the locking-block is inclined and fits upon the top of the head 11 of a horizontal slide 12, which is provided with a stem 13, extending out through the breaker. The slide is provided with side recesses which contain depending lugs in the

horizontal wedge-block, so as to draw out this block after the slide is pulled out a short distance.

A spiral spring 14 surrounds the stem within the socket in the breaker and bears upon  
55 the end of wedge-block 9, normally forcing it inwardly. A spiral spring 15 within the spring 14 closely surrounds the stem 13 and bears against the base of the slide and at its  
60 outer end against a cross-head 16, sliding on guides 16', secured to the breaker. The outer portion of the guides 16' are screw-threaded to receive adjusting-nuts 17. To the stem 13 at its outer end is secured an eared socket  
65 18, connected by pivotal link 19 to the curved lever 20. The lever is fulcrumed at 21 and is provided with a slot 22, engaged by the upper pivot-pin of the link, so that outward movement of the stem in the automatic operation of the device will not actuate the hand-  
70 lever.

To reduce the jar and vibration which occurs in the ordinary operating of the rolls when the piece enters the pass therein, I provide the upper block 4 with side wedge-faces  
75 which contact with similar faces on blocks 23, which blocks have outer inclined faces coacting with similar faces on blocks 24, movable longitudinally of the breaker and normally forced forward by springs 25. This supplemental wedge system tends to lift the block  
80 4 slightly from the screw-plug and is arranged to be actuated by the ordinary working pressure upon the rolls. As the piece enters the rolls the block 4 will be forced down in contact with the screw-plug, moving such wedge  
85 system against its yielding pressure, and thus cushioning the action. The parts remain in this position until excessive pressure is exerted upon the rolls, as by a piece sticking  
90 therein, and when this pressure exceeds a certain limit the block 4, being forced down, will cause the screw-plug to turn and move downwardly. This turning action will force  
95 the locking-block downwardly into the hole in the wedge-block 9, the slide moving outwardly against the pressure of spring 15. As soon as the locking-block moves down the wedge-block 9 is also forced outwardly against  
100 the pressure of the spring 14. The pressure



upon the rolls is thus relieved, and when such excess pressure is removed the springs will restore the parts to their normal position.

When at any time it is desired to relieve  
5 the pressure upon the rolls, the hand-lever 20 is pressed down, thus drawing out the slide and allowing the locking-block to move down and relieve the parts.

The advantages of my invention result from  
10 the simplicity and compactness of the device and its automatic relief action, which largely prevents breaking of the rolls. The use of the screw-plug simplifies and reduces the number of parts by increasing the frictional  
15 resistance, while the wear upon it will be substantially uniform.

Many variations may be made in the form and arrangement of the parts without departing from my invention.

20 I claim—

1. A relief device, having a vertically-movable block, a screw arranged to be forced endwise by the movement of the block, a non-rotatable innerly-screw-threaded socket surrounding the screw and a yielding pressure  
25 device acting upon the screw; substantially as described.

2. In a relief device for rolls, a screw arranged to be acted upon by the pressure on  
30 the bearings, a non-rotatable socket having inner screw-threads engaging the screw and a yielding spring and wedge system coacting therewith; substantially as described.

3. In a relief device, a vertically-movable  
35 screw supported in a non-rotatable screw-threaded socket; a yielding pressure device arranged to hold the screw in place, and a hand-controlled device for releasing the yielding pressure device; substantially as de-  
40 scribed.

4. A relief device having a vertically-movable block held against rotation, an endwise-movable screw coacting therewith and arranged to be rotated by end pressure thereon, a wedge arranged to be actuated by the  
45 movement of the screw, and a yielding pressure device coacting with the wedge; substantially as described.

5. A relief device having a reciprocatory block held against rotation, a screw supported in a screw-threaded socket and arranged to bear against the block, a wedge coacting with the opposite end of the screw, a second spring-pressed wedge coacting with said  
55 wedge, and locking mechanism arranged to hold the wedges in place; substantially as described.

6. In a relief device for rolls, an endwise-movable screw, a wedge coacting with one end thereof, a non-rotatable socket for the screw,  
60 a spring-pressed wedge-block coacting with said wedge, a movable locking-block between the wedges, and a hand-controlled device arranged to release the locking-block when desired; substantially as described. 65

7. A relief device for rolls, having a non-rotatable socket, a screw arranged to revolve and move endwise therein, under the pressure of the bearings, and a yielding pressure  
70 device arranged to prevent rotation and movement of the screw until the pressure reaches a determined limit; substantially as described.

In testimony whereof I have hereunto set my hand.

CORNELIUS KUHLEWIND.

Witnesses:

G. I. HOLDSHIP,  
H. M. CORWIN.