May 3, 1927. 1,627,313

T. A. BOWE

SAFETY CLUTCH RELEASING DEVICE

Filed Dec. 10, 1925

Fig. 1

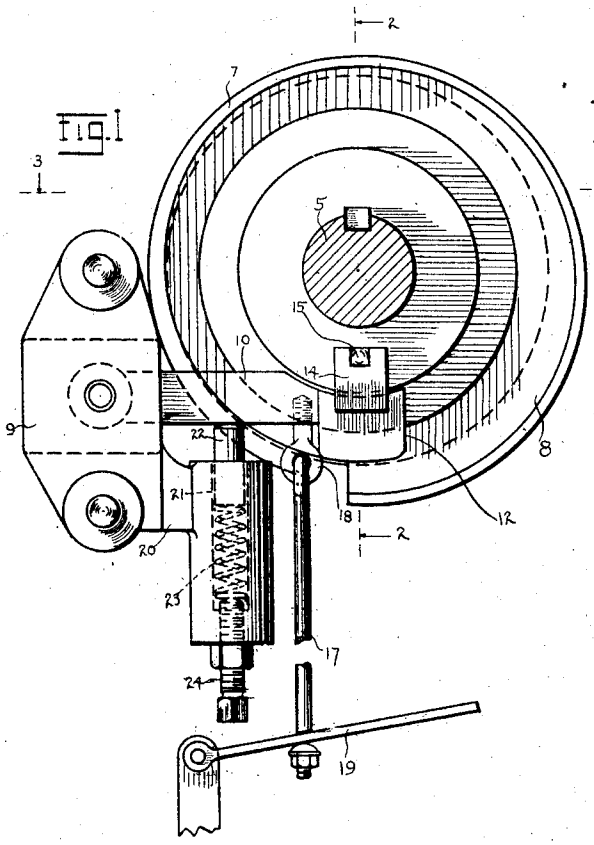


Fig. 2

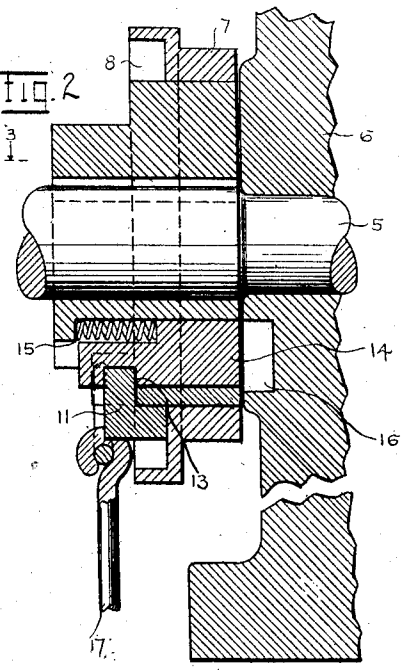
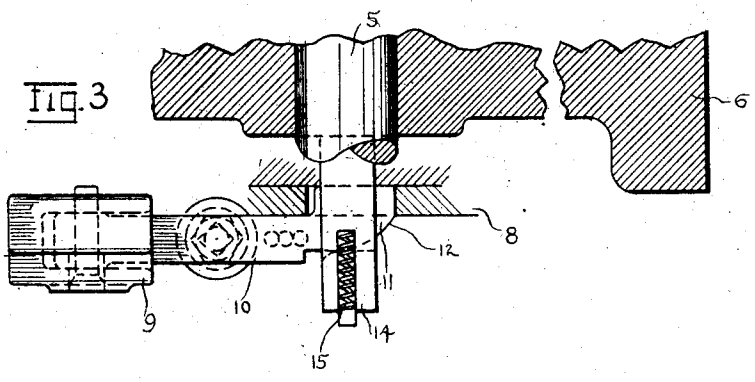


Fig. 3



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UNITED STATES PATENT OFFICE.

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SAFETY CLUTCH-RELEASING DEVICE.

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This invention relates to improvements in safety clutch releasing devices.

On punch presses and machines of a single action type in common use, when the machine is initially started it operates continuously until manually stopped and subjects the operator to the danger of being injured while getting the work into position and removing the same.

It is one of the objects of the present invention to overcome the above objection by providing a mechanical clutch release which is safe and efficient and requires a positive act on the part of the operator for each operation of the machine on the work.

A further object of the invention is to provide a device of the class described which is very easy and accessible to operate.

A further object of the invention is to provide a device of the class described with which a single action machine may be readily equipped.

A further object of the invention is to provide a clutch release for single action machines, which is of very simple construction, is efficient and positive in operation, is strong and durable, and is well adapted for the purpose described.

With the above and other objects in view, the invention consists of the improved clutch release, and its parts and combinations as set forth in the claim, and all equivalents thereof.

In the accompanying drawing in which the same reference characters indicate the same parts in all of the views:

Fig. 1 is a front view of the improved clutch release, the drive shaft being shown in section;

Fig. 2 is a sectional view taken on line 2—2 of Fig. 1; and

Fig. 3 is a sectional view taken on line 3—3 of Fig. 1.

Referring now more particularly to the drawings, it will appear that the numeral 5 indicates a driven shaft having loosely mounted thereon a fly or drive wheel 6 receiving rotation by any convenient means, as by a belt (not shown).

Keyed to the shaft 5 forwardly of the drive wheel 6 is a cam wheel 7 formed with an eccentric cam groove 8 on its outer surface. A latch supporting bracket 9 is bolted to the machine frame adjacent the cam wheel and pivotally secured to the bracket is the inner portion of a pivotal latch 10. The outer end portion of the pivotal latch is shaped as shown particularly in Figs. 1 and 3 to form a shoe 11 to ride in the eccentric cam groove 8. The outer edge portion of the latch is beveled or sharp, as at 12, to engage and enter a notch or slot 13 formed in a squared clutch pin 14.

The clutch pin 14 is longitudinally movably mounted in a transverse opening provided therefor in the cam wheel 7 and is normally urged outwardly by a coiled spring 15 confined, as shown in Fig. 2. The fly or drive wheel 6, adjacent to clutch pin 14, is formed with a squared recess 16 to receive said clutch pin.

A rod 17 is secured to the outer end portion of the latch 10 by means of an eye-bolt 18 and the lower end of said rod connects with a pivotally mounted operating lever of pedal 19.

A latch adjusting bracket 20 is formed integral with the bracket 9 and is provided with a bore 21 in which is mounted a plunger 22 adapted to bear against the latch 10, the plunger being movable against the tension of a coiled spring 23, confined within the bore 21. An adjusting bolt 24 permits the tension of the spring to be varied.

In use the device is associated with a punch press or a single action machine of a like type and successive operations of the machine are controlled by the revolving of the cam wheel 7. When the parts are in the position shown in Figs. 1 and 2, the latch pin 14 is held inwardly, out of engagement with the fly wheel recess 16, by the latch 10. Hence the fly wheel 6 turns loosely on the shaft 5 without carrying the cam wheel therewith with the result that the punch press or machine will not be in operation. However, when an operation is desired, the pedal 19 is pressed downwardly, drawing the rod 17 therewith to lower the latch 10 on its pivotal mounting. As a result, the latch 11 is disengaged from the notch 13 and the coiled spring 15 will then force the clutch pin 14 inwardly into engagement with the recess 16 of the fly wheel 6. The cam wheel, due to this engagement with the fly wheel will be revolved one revolution and the shoe portion of the latch will ride in the cam groove 8 until it is returned to the position shown in Figs. 1 and 2, in which position the clutch pin is again engaged and drawn out of its engagement with the recess 16, to prevent further movement of the cam wheel.

It will be noted that the adjustable plunger 22 yieldingly holds the latch in engagement with the clutch pin and also takes up play and permits of adjustments.

From the foregoing description it will be seen that the improved safety clutch release is of very simple and novel construction, and is well adapted for the purpose set forth.

What I claim as my invention is:

A clutch releasing device; comprising a shaft, a fly wheel mounted loosely thereon and formed with a recess therein; a second wheel keyed to said shaft and formed with a cam groove therein, a spring urged, slidable pin mounted transversely through said second wheel and engageable with said fly wheel recess, a pivotal latch engageable with said pin, and manual means for moving the latch out of engaging position; said cam groove being arranged to return the latch to engaging position.

In testimony whereof, I affix my signature.

THOMAS A. BOWE.