C. Potter Jr,

Fly Frames

No 111.776. Patented. Feb. 14. 1871.

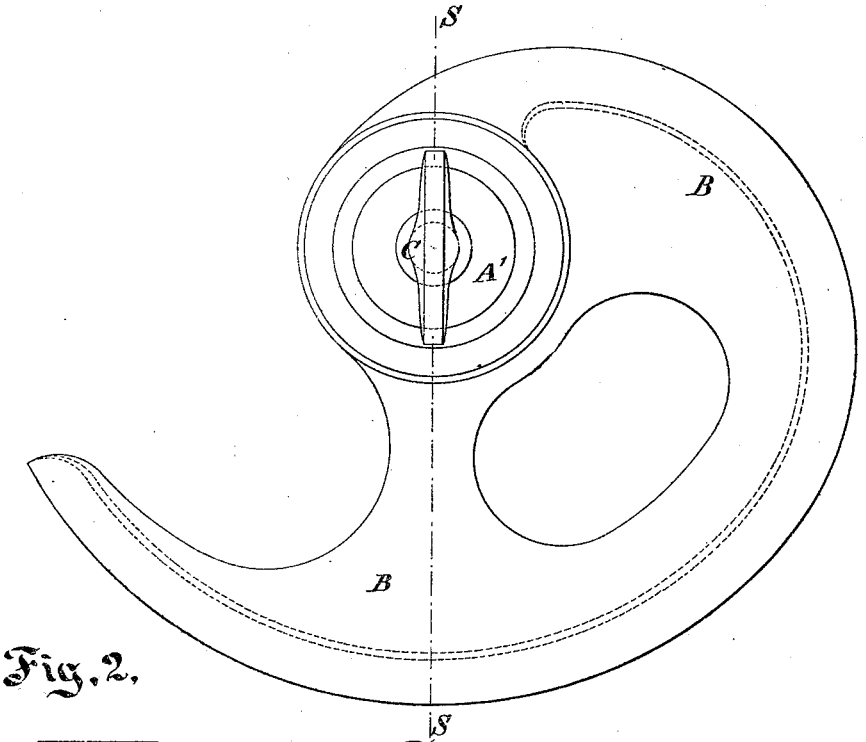
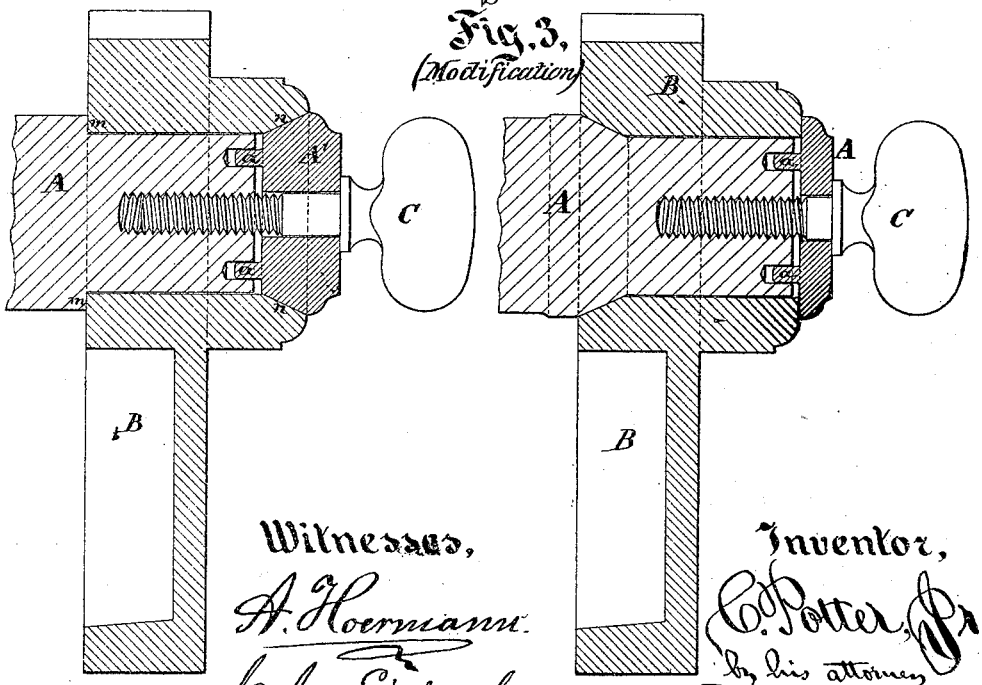


Fig. 2.

Fig. 3,
(Modification)



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United States Patent Office.

CHARLES POTTER, JR., OF PLAINFIELD, NEW JERSEY.

Letters Patent No. 111,776, dated February 14, 1871.

IMPROVEMENT IN ADJUSTABLE ATTACHMENTS OF CAMS FOR FLIERS OF PRINTING-PRESSES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, CHARLES POTTER, Jr., of Plainfield, in the county of Union, in the State of New Jersey, have invented a new and useful Improvement in Printing-Presses; and I do hereby declare that the following is a full and exact description thereof.

My invention relates to improvements for operating the fly which removes the sheets. It has been common to operate these by a cam or wild-cat which lifts the fly every time during a portion of its revolution by a wedge-like operation, and allows it to fly downward again by the action of a spring. It is necessary that the period of this release and fly movement shall be changeable with each change in the size of the sheets. It is also desirable that the cam or wild-cat, which I will hereafter term simply the cam, shall be readily removable when under some circumstances it is desirable to operate the cam without the fly, and shall induce no serious evils when a press, through any mismanagement or carelessness, is turned backward.

My invention fulfills all these conditions very successfully.

I will proceed to describe what I consider the best means for carrying out my invention.

The accompanying drawing forms a part of this specification.

Figure I is a side view of the cam, with the novel fastening and adjusting means.

Figure II is a section on the line S S of Fig. I.

Figure III represents the modification of the forms of the parts which I consider equivalent.

Similar letters of reference indicate corresponding parts in all the figures.

A is a shaft, and B is the cam which is to be adjustably held thereon. The shaft A is contracted a little where it receives the cam, and it terminates a little within the hub of the cam.

A′ is a terminal piece fitting on or close to the end of the shaft, and compelled to turn therewith by means of pins *a a*, which are fixed in the piece A′, and project into holes in the shaft A, as represented.

C is a thumb-screw, which confines the terminal piece A′ to the shaft A, and holds it nearly in contact with the end of the shaft, or allows it to move away therefrom within considerable limits, according as the screw C is adjusted.

Directing attention now to the modification shown in Fig. II, it will be seen that the cam rests against the perpendicular shoulder on one side, and is pressed against that shoulder by the force of the screw C applied through the medium of the piece A′, which latter is conical and fits into a corresponding conical seat on the adjacent end of the hub of the cam.

Directing attention now to Fig. III, it will be observed that the construction is similar except that the shoulder on the shaft A is conical, and that the corresponding or adjacent surface of the cam is correspondingly excavated, while the piece A′ fits against the other end of the hub, with a shoulder which is perpendicular to the axis. Either form may be used with success.

With either form, by slacking the screw C, and thus releasing the terminal piece A′, the latter moves axially a little, and the cam is thereby liberated, and may be turned around to any new position desired, and again fixed fast by tightening the screw C.

Wherever the cam B chances to stand relatively with the shaft A when the screw C is tightened, there it remains firmly held by the endwise or axial pressure.

I will designate the shoulder where the shaft contracts its diameter, at or near the point of entering the cam, by the letter *m*, and I will designate the surface on the opposite end of the cam, which may also be termed the end of the hub of the cam, by *n*.

The cam is held against turning around entirely by the friction or traction at these points. The traction on the surface *m* conveys the force directly from the shaft A to the cam. The traction on the surface *m* conveys the force between these parts indirectly through the medium of the terminal piece A′. But as the latter is compelled to turn with the shaft through the medium of the strong pins *a a*, the effect is the same whether the principal part of the force is derived through the surface *m* or the surface *n*.

The tractive force is increased with a given amount of end pressure by making the surface conical. In the form shown in Fig. II more than half the force is transmitted through the piece A′. In the other form, Fig. III, more than half is transmitted directly. I can make either of the surfaces conical at pleasure. I can make both conical with good effect, in which case the terminal piece A′ and its adjacent surfaces will be as shown in fig. II, while the surface *m* will be also conical, as shown in fig. III. It may be also practicable to construct the work successfully with both of the shoulders perpendicular, but I have not tried this, and I do not propose to. I esteem the conical surfaces very greatly preferable.

The ordinary mode of fixing the cam upon the shaft is by inserting a set-screw or pinching-screw through the hub and bearing against the shaft diametrically.

There are several evils incident to this arrangement which my invention completely avoids. The shaft is liable to become indented by the point of the screw, and such indentations interfere greatly with any subsequent nice adjustment.

The cam with such arrangement can be adjusted at

points widely differing from its former position, or it may be adjusted exactly in its former position, but it cannot be adjusted near it without liability of the end of the screw slipping into the dent and bringing the cam to its old position.

Another serious evil with the old arrangement is the injury to the surfaces, when in consequence of a turning of the machine backward the cam is hooked against the fly-rod, and is forcibly held so that it cannot be turned while the shaft continues to revolve. This causes an abrasion of the surface of the shaft and sometimes induces such a condition of roughness that the cam cannot be removed from the shaft except by violent effort.

My invention overcomes these difficulties. There is no possibility of indenting the shaft; and in case of mismanagement of the machine the cam can turn as many times as is necessary without roughening the shaft or destroying anything.

I find, with the conical surfaces, that a moderate pressure of the screw C is sufficient to hold the cam. The cones must not be made too tapering. I esteem it important that the cam shall be able to slip in case of any extraordinary strain.

A special advantage due to my invention which has not yet been referred to, is the nearly complete certainty that the screw C will slacken of itself when the printing-press is turned backward so as to hook or arrest the cam.

The friction of the piece A′, under the wide collar of the screw C, is sufficient to turn it backward under such circumstances and set the cam free. All that is necessary in such case then is to readjust the cam, and the press is ready to work as before, without any part having been strained.

I claim as my invention—

The within-described improvement in the fly mechanism in printing-presses, consisting of the terminal piece A′, and the locking means *a*, arranged to serve relatively to the shaft A, the axially-adjusting means C, and fly-cam B, substantially as and for the purposes herein set forth.

In testimony whereof I have hereunto set my name in presence of two subscribing witnesses.

C. POTTER, JR.

Witnesses:

THOMAS D. STETSON.

O. C. LIVINGS.