W. H. SMITH.

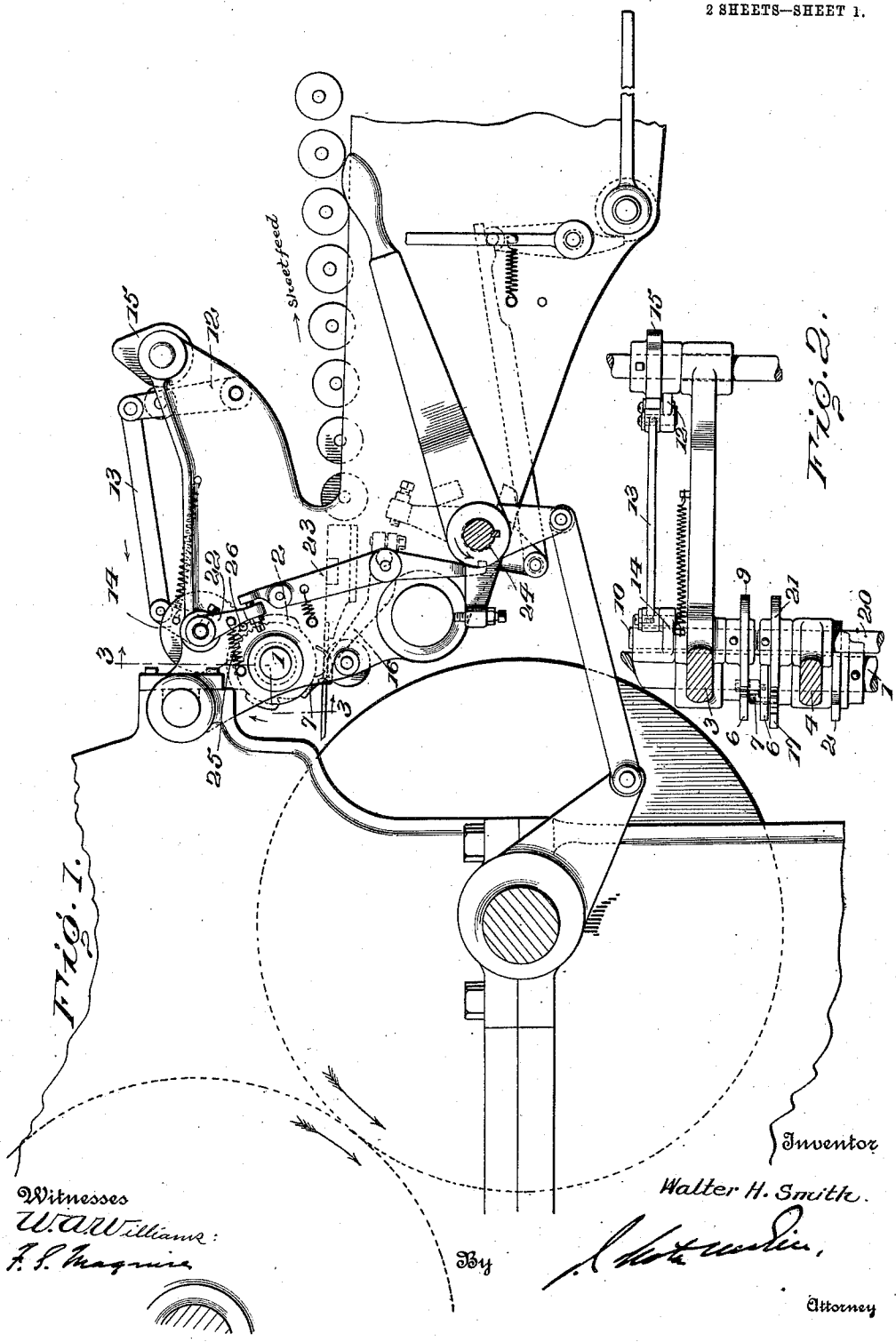
TRIP MECHANISM.

APPLICATION FILED JAN. 31, 1911.

1,019,378.

Patented Mar. 5, 1912.

2 SHEETS—SHEET 1.



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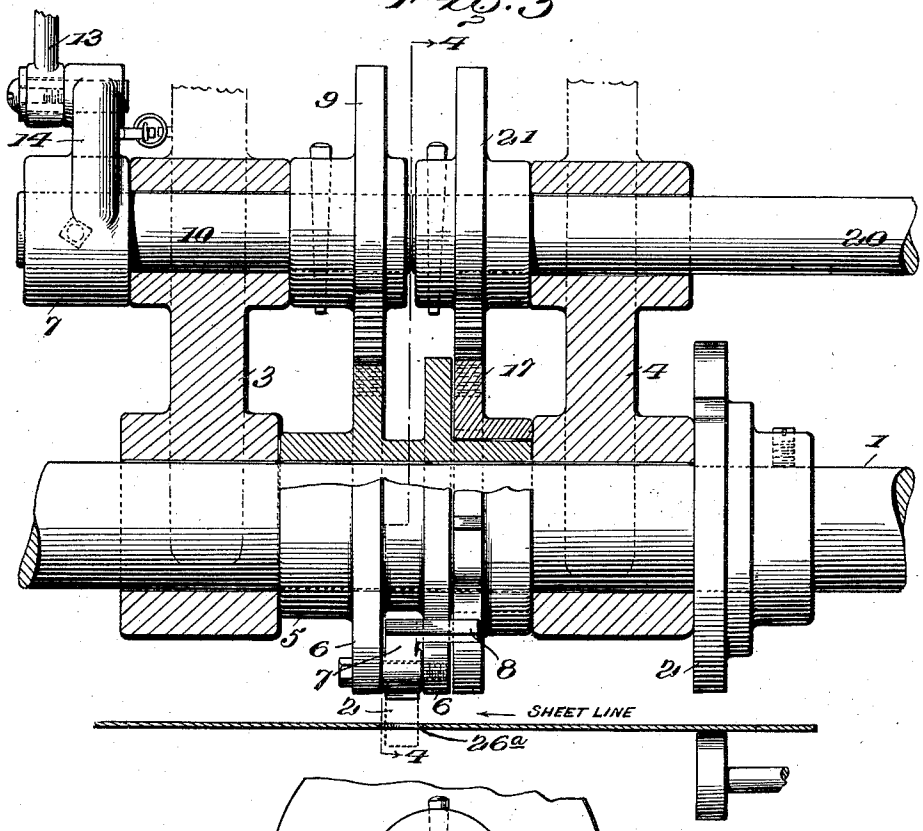
2 SHEETS—SHEET 2.

Fig. 3



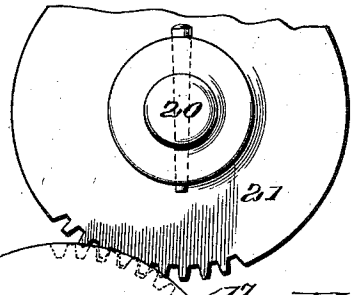
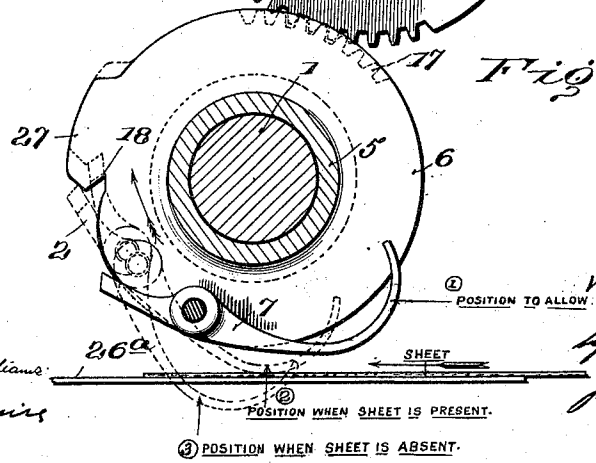


Fig. 4.



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TRIP MECHANISM.

1,019,378. Specification of Letters Patent. Patented Mar. 5, 1912.

Application filed January 31, 1911. Serial No. 605,674.

To all whom it may concern:

Be it known that I, WALTER H. SMITH, of Niles, in the county of Trumbull and State of Ohio, have invented certain new and useful Improvements in Trip Mechanism; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to trip mechanism, and is primarily intended for automatically actuating the throw-off or stop mechanism of printing presses in the event of any interruption in the feed supply.

In Letters Patent No. 920,406, dated May 4, 1909, and No. 925,047, dated June 15, 1909, I showed and described trip mechanism comprising an active or actuated shaft which was designed to be automatically locked to an inactive or normally idle shaft which controlled the throw-off or stop mechanism. According to the construction shown in said patents the inactive shaft was of tubular formation, and the active shaft extended therethrough, the former having a notched disk with which a feeler lever carried by the active shaft was designed to interlock upon failure in the feed-supply. Necessarily both shafts had to be in close proximity to the path of the stock, and this in many instances is impracticable and interferes with the proper location of the feed roll shafts.

The primary objects of my invention are, therefore, to so locate and arrange the cooperative parts of a trip mechanism as to not interfere with the most advantageous arrangement of the feed roll shafts; to provide simple and highly efficient means for quickly actuating the trip upon an interruption in the feed-supply; and to prevent the feeler lever from interfering with the proper positioning of the stock in respect to the registering stops and the feed rolls.

The invention will be hereinafter fully set forth and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in side elevation, showing my improvements applied to a printing press, a portion only of which is indicated. Fig. 2 is a fragmentary plan view. Fig. 3 is an enlarged elevation—looking toward the front of the machine. Fig. 4 is a section on line 4—4, Fig. 3.

Referring to the drawings, 1 designates the upper feed roll shaft of a printing press, such shaft carrying feed rolls, one of which is shown at 2, Figs. 2 and 3. This shaft is, of course, supported and actuated by any suitable means, the actuation being either constant or intermittent.

Loose upon feed roll shaft 1, between two drop-bearings 3 and 4 of the press frame, is located a sleeve 5 which I have shown as having two parallel flanges 6 between which is fulcrumed a feeler lever 7 carrying a laterally projecting lug 8. One of the flanges 6 has a series of peripheral teeth with which intermesh peripheral teeth of a disk 9 fast on a short active shaft 10 supported by bearing 3 and to which constant reciprocation is imparted by any suitable means, that shown comprising a spring-held lever 12, a link 13 connecting such lever to an arm 14 of shaft 10, and a rotary cam 15 by which lever 12 is operated. The reciprocation of shaft 10 is thus communicated to sleeve 5 which carries the feeler lever. It will be noted that shaft 10 is located on a plane above the feed roll shaft 1, which latter may be in its normal position with respect to the stop fingers, one of which is shown at 16, Fig. 1, and hence in close proximity to the forward edge of the sheet arrested by such stop fingers.

Loose on sleeve 5 is a disk 17, which is normally idle, its position not ordinarily being changed by the reciprocation of sleeve 5. When, however, there is an interruption in the feed supply, lug 8 of the feeler lever will enter a notch 18 of the idle disk 17 and cause it to turn with sleeve 5. The motion so imparted to the disk 17 is utilized for tripping the stop mechanism or the impression, or both, of a printing press, such movement of the disk being capable of being transmitted by widely varying means. The means shown contemplates the partial turning of a second shaft 20 mounted in bearing 4 and in axial line with the active shaft 10. This shaft 20 has a toothed disk 21 fast thereon, the teeth of such disk meshing with peripheral teeth of disk 17. The partial turning of shaft 20 will, through a tappet arm 22 carried thereby, move a locking lever 23 so as to release a spring-im-

pelled shaft, conventionally indicated at 24, and permit it to trip the impression after the manner disclosed by Letters Patent No. 577,405, dated February 16, 1897. I have shown a spring 25 connected to tappet arm 22 for returning disks 21 and 17 to their normal positions, such arm being normally held against a stop 26.

The invention is not confined to the employment of any particular form of tripping means, nor is it confined to the location of the normally inactive shaft in axial line with the active shaft, since such inactive shaft, or its equivalent, may be otherwise located, and the movement of the normally idle disk 17 communicated thereto by any suitable means.

It is customary in practice, as shown in Figs. 3 and 4, to form a slot or aperture in a plate, such as 26ª, through which slot the feeler lever is designed to project when there is an interruption in the feed supply, permitting its lug 8 to enter the notch 18 of the inactive disk 17. The range of oscillation of the feeler lever is clearly indicated in Fig. 4. When in position (1) the curled end of the lever is raised out of the path of the sheet, and is so held by lug 8 engaging the cam face of disk 17, thus preventing the sheet, no matter how much curled, from lodging against the feeler lever. The other extreme of travel of the feeler lever is indicated in position (3), and no sheet being present, the lug will enter notch 18 and move disk 17 the distance represented by dotted lines. When in position (2), that is to say, when the feeler lever is in engagement with a sheet passing to the press, the lug 8 is prevented from entering notch 18, and upon the further travel of sleeve 5, such lug will engage a peripheral enlargement or projection 27 of disk 17. This engagement effects the turning of the feeler lever on its fulcrum to an extent sufficient to disengage the curved portion of the feeler lever from the sheet, so that upon the return travel of the feeler lever with its carrying sleeve 5, its curled end will not contact with the sheet until it again starts on its forward travel. This is due to the fact that the lug 8 of the feeler lever will, on its rapid return, jump from the projection 27, across the notch 18 and its lug will engage the periphery of the disk before the tail of the feeler lever can fall sufficiently to strike the sheet on the return stroke. It is only when stock is absent and the lug of the feeler lever enters the notch of the normally idle disk 17 that the latter is given a partial rotation, and it is this partial rotation which is utilized at another portion of the machine for tripping purposes.

Although, as before stated, the various shafts need not necessarily be arranged in the exact manner as shown and described, yet I have found in actual practice that highly advantageous results are obtained by locating the member carrying the feeler lever directly on the feed roll shaft and having the normally active shaft and inactive shaft in axial line with each other on a plane above the feed roll shaft.

From what has been stated the operation will be manifest.

I claim as my invention:—

1. In combination with tripping means, a feeler lever, a carrier therefor, a support for said carrier upon which it is loosely mounted, an active shaft paralleling said support, means for reciprocating such active shaft, means for transmitting motion from said shaft to said carrier, a normally idle member with which said feeler lever is designed to automatically interlock, and means for transmitting the movement of said member to said tripping means.

2. In combination with a printing press having a feed roll shaft and tripping means for the press, a feeler lever, a carrier therefor loose on said shaft, means for reciprocating said carrier independently of such shaft, a normally idle member with which said feeler lever is designed to automatically interlock, and means for transmitting the movement of said member to the said tripping means.

3. In combination with a printing press having a feed roll shaft and tripping means for the press, a feeler lever, a carrier therefor loose on said shaft, an active shaft paralleling the feed roll shaft, means for reciprocating such active shaft, means for communicating motion from said active shaft to said carrier, a normally idle member with which said feeler lever is designed to automatically interlock, and means for transmitting the movement of said member to the said tripping means.

4. In combination with tripping means, a feeler lever, a sleeve carrying such feeler lever, a support for said sleeve, an active shaft, means for reciprocating the latter, gearing between said active shaft and said sleeve, a normally idle member with which said feeler lever is designed to automatically interlock, and means for transmitting the movement of said member to the tripping means.

5. In combination with tripping means, a feeler lever, a sleeve carrying such feeler lever, a support for said sleeve, an active shaft, means for reciprocating the latter, said sleeve having a toothed disk, a second toothed disk carried by said active shaft and in mesh with the sleeve disk, a normally idle member with which said feeler lever is designed to automatically interlock, and means for transmitting the movement of said member to the tripping means.

6. In combination with tripping means, a

feeler lever, a sleeve carrying such feeler lever, means for reciprocating the sleeve, a normally idle disk, a normally inactive shaft, gearing between the disk and said inactive shaft, said feeler lever being designed to automatically interlock with said disk, and means for transmitting the movement of the inactive shaft to said tripping means.

7. In combination with tripping means, a feeler lever, a sleeve carrying such feeler lever, means for reciprocating the sleeve, a normally idle disk having gear teeth, a normally inactive shaft, a toothed disk fast on the latter in mesh with said gear teeth, said feeler lever being designed to automatically interlock with said disk, and means for transmitting the movement of said inactive shaft to said tripping means.

8. In combination with tripping means, a loosely mounted sleeve, a support therefor, an active shaft for actuating said sleeve, said shaft being on a different plane from said support, a normally idle member, a feeler lever carried by the sleeve for automatically interlocking with said member, a normally inactive shaft in axial line with said active shaft, gearing between said inactive shaft and said member, and means for transmiting the movement of said inactive shaft to said tripping means.

9. In combination with tripping means, a loosely mounted sleeve, a support therefor, an active shaft for actuating said sleeve, said shaft being on a different plane from said support, a normally idle disk having peripheral teeth, a feeler lever carried by said sleeve for automatically interlocking with said disk, a normally inactive shaft in axial line with said active shaft, a toothed disk carried by said inactive shaft and in mesh with the before-mentioned disk, and means for transmitting the movement of said inactive shaft to said tripping means.

10. In combination with tripping means, a loosely mounted sleeve, a support therefor, an active shaft for actuating said sleeve, said shaft being on a different plane from said support, a normally idle disk loosely mounted on said sleeve, said disk having peripheral teeth, a feeler lever carried by the sleeve for automatically interlocking with said disk, a normally inactive shaft in axial line with said active shaft, a second toothed disk carried by said inactive shaft and in mesh with said normally inactive disk, and means for transmitting the movement of said inactive shaft to said tripping means.

11. In combination with tripping means, a feeler lever, a carrier for such lever, means for actuating said carrier, a normally idle disk with which said feeler lever is designed to automatically interlock, a normally inactive shaft designed to be actuated by said disk for communicating the movement of the latter to said tripping means, and means for returning said inactive shaft and said disk to their normal positions.

12. In combination with tripping means, a feeler lever having a lug at one end, a reciprocating carrier for said lever, a normally idle disk having a cut-out with which said lug is designed to engage, and means carried by said disk for effecting the turning of said lever on its fulcrum to hold it out of engagement with the stock when the lug of said lever does not engage the cut-out.

13. In combination with tripping means, a feeler lever having a lug at one end and elongated at its other end, a reciprocating carrier for said lever, and a normally idle disk having a cut-out with which said lug is designed to engage, the periphery of said disk being formed to turn said lever on its fulcrum to hold its elongated end out of engagement with the stock when the lug of said lever does not engage the cut-out.

14. In combination with tripping means, a feeler lever having a lug at one end and elongated at its other end, a reciprocating carrier for said lever, and a normally idle disk having a cut-out with which said lug is designed to engage, said disk also having a cam surface with which said lug is designed to engage when it does not enter said cut-out to effect the turning of said lever on its fulcrum to hold its elongated end out of engagement with the stock when the lug of said lever does not engage the cut-out.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

WALTER H. SMITH.

Witnesses:
LIZZIE JEANES,
C. G. PRITCHARD.