

T. N. BURKE.

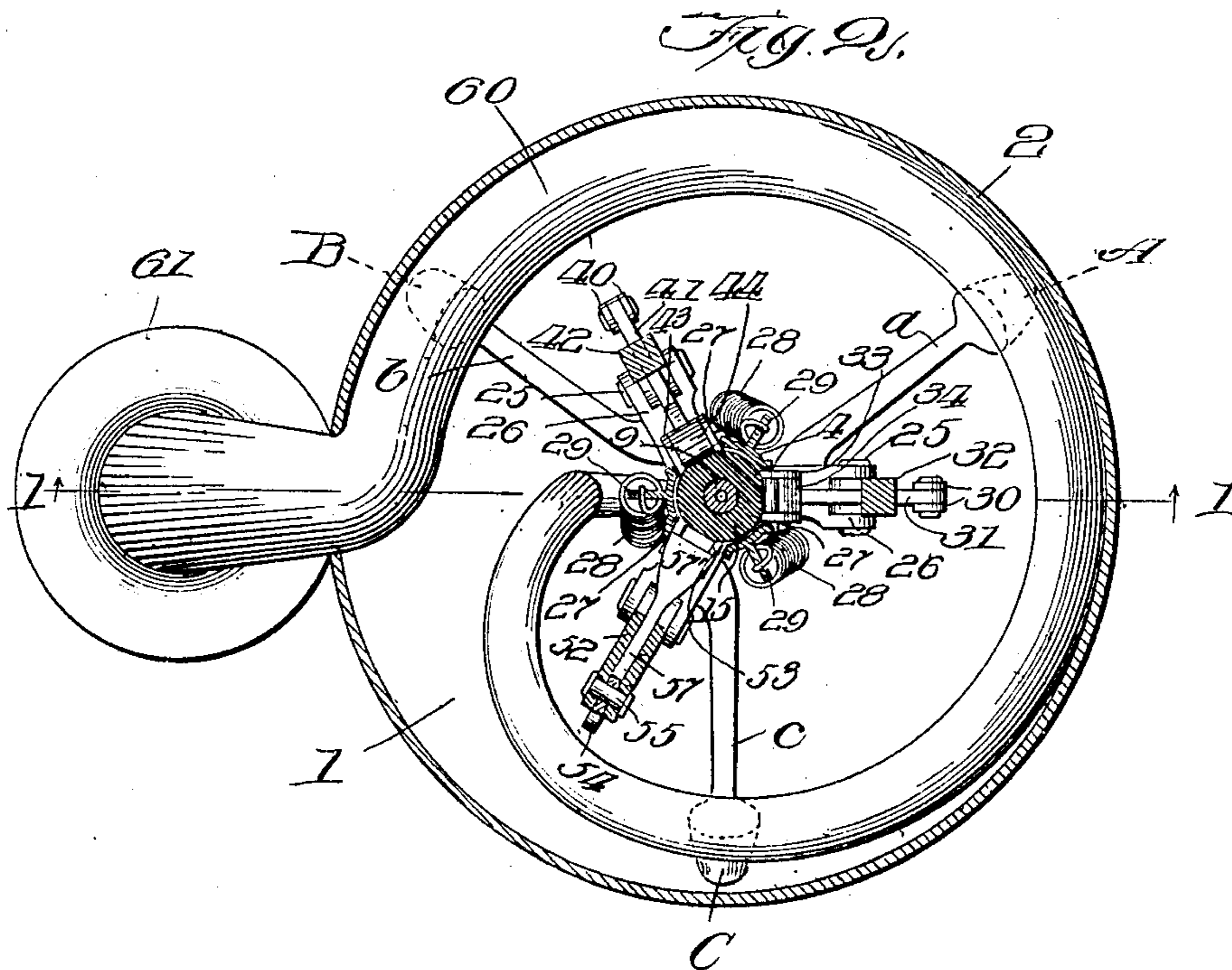
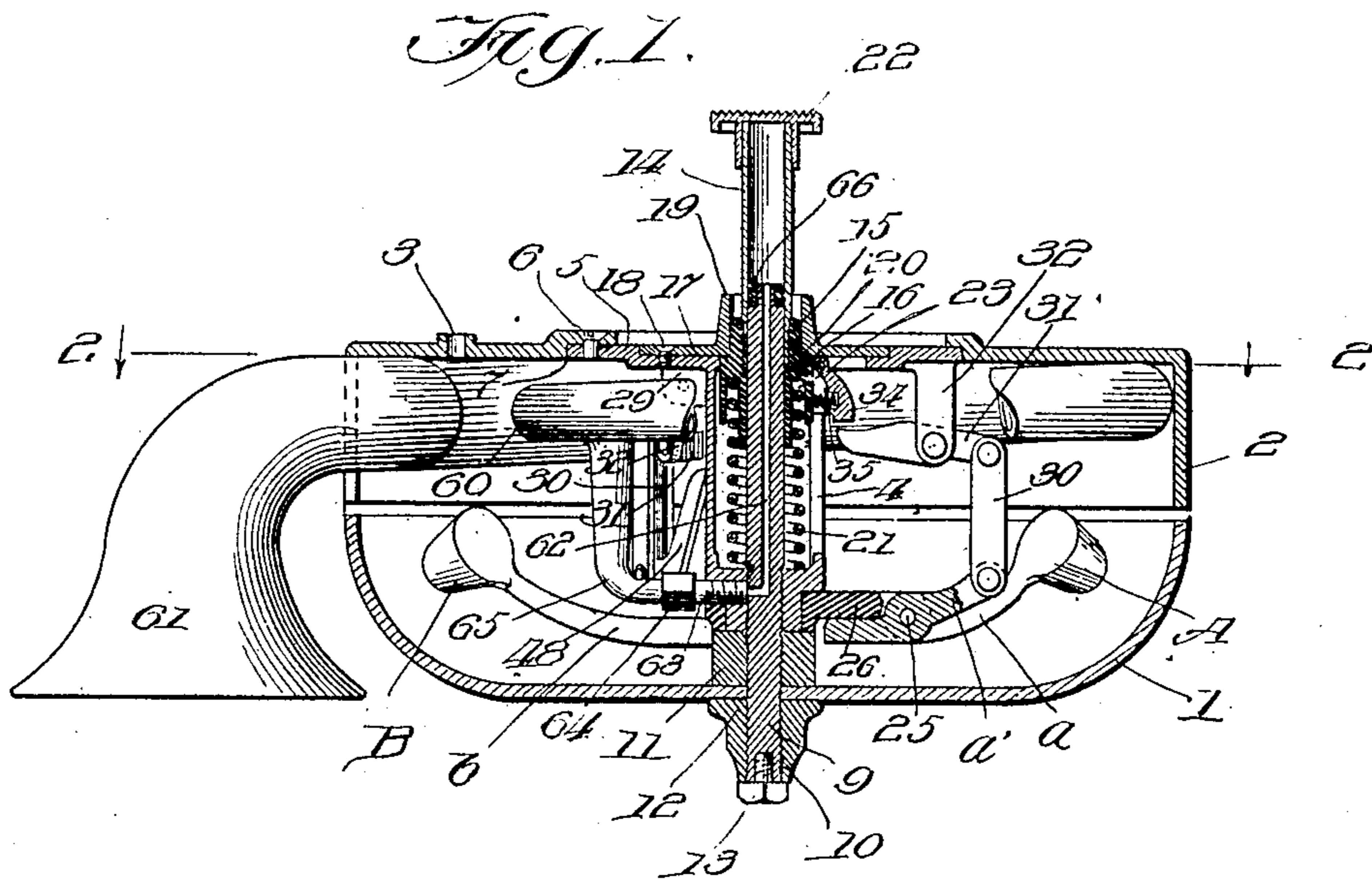
ALARM SIGNAL.

APPLICATION FILED MAR. 23, 1906.

906,609.

Patented Dec. 15, 1908.

3 SHEETS—SHEET 1.



Witnesses:

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3 SHEETS—SHEET 2.

Fig. 3.

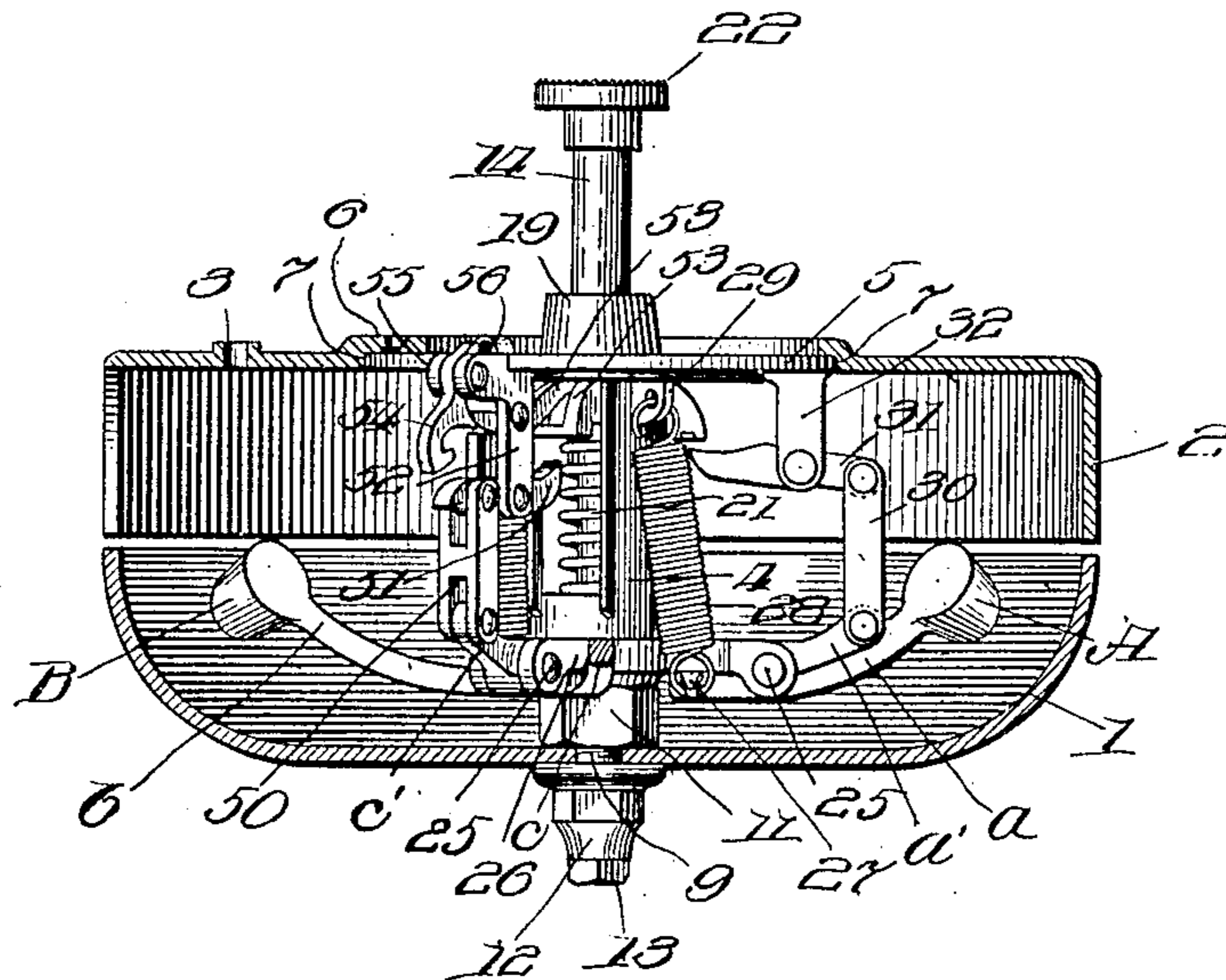
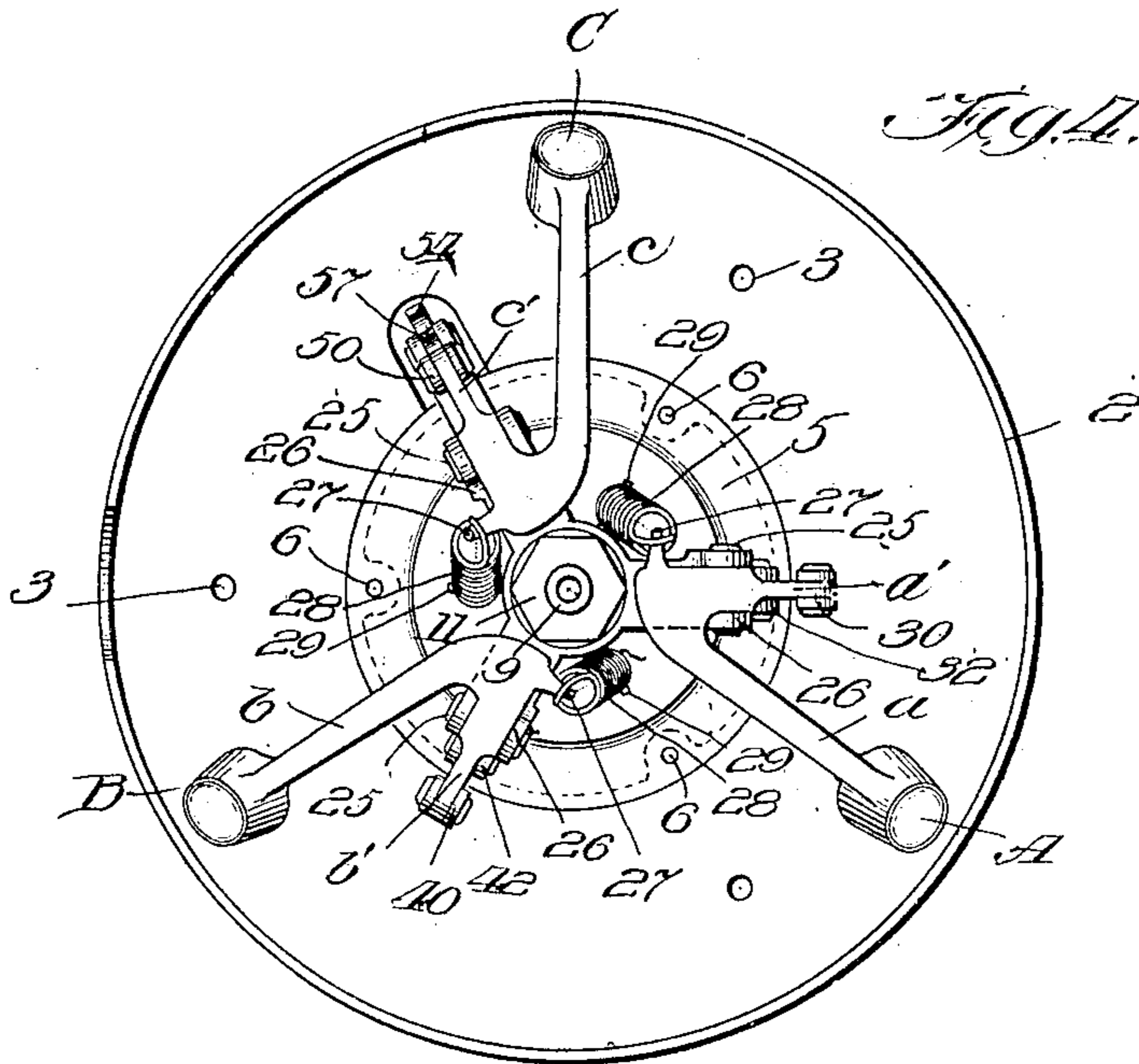


Fig. 4.



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3 SHEETS—SHEET 3.

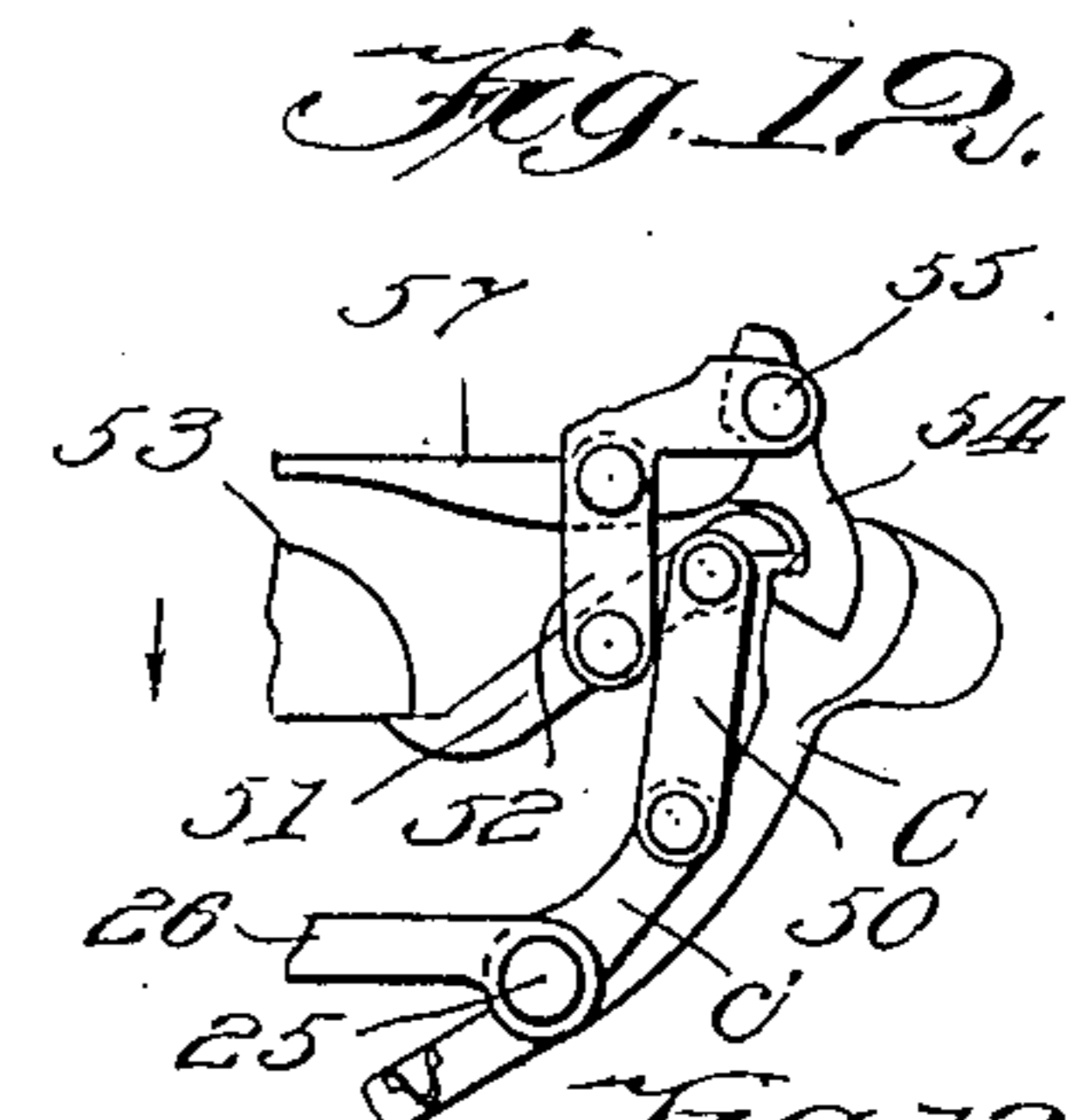
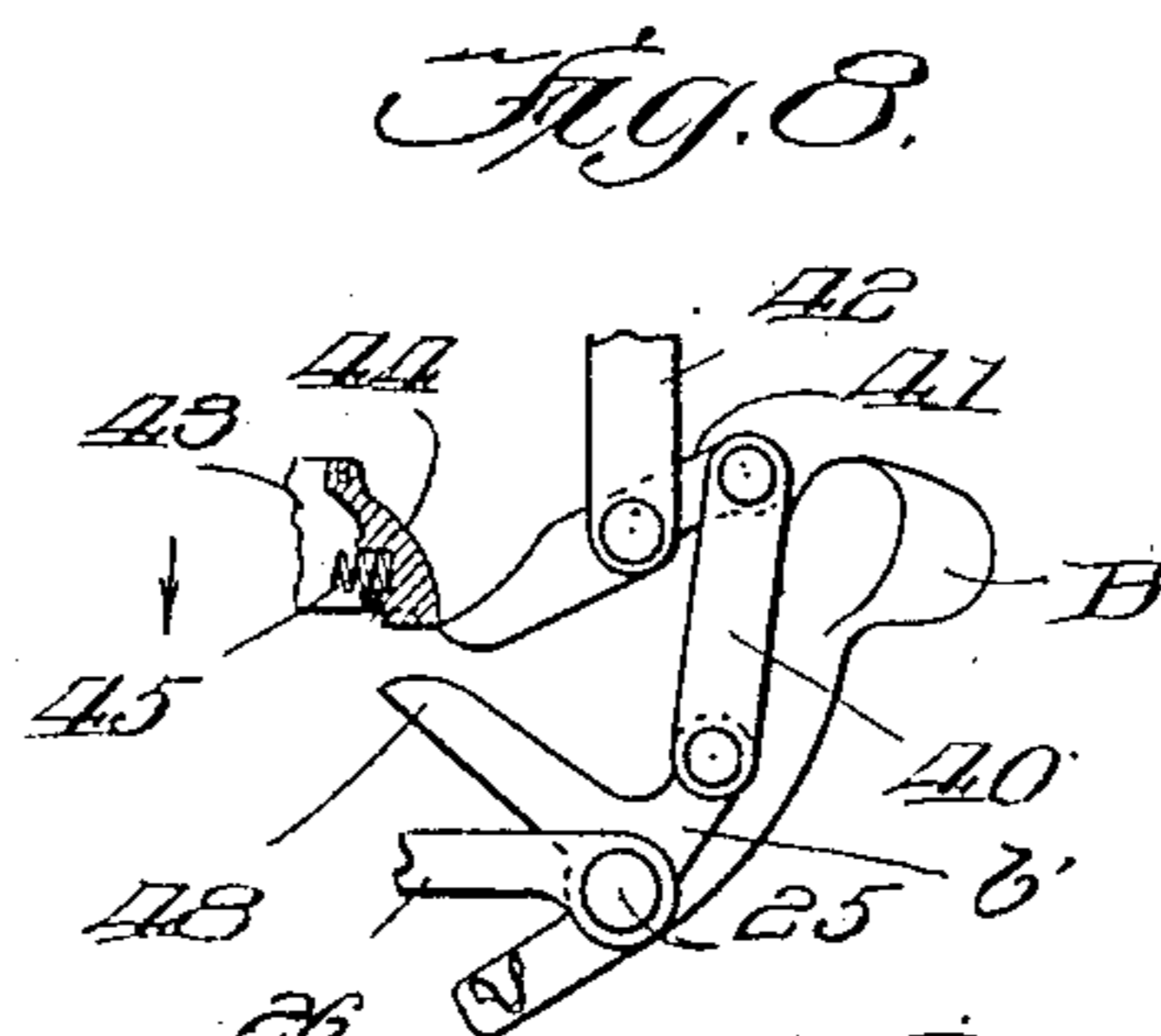
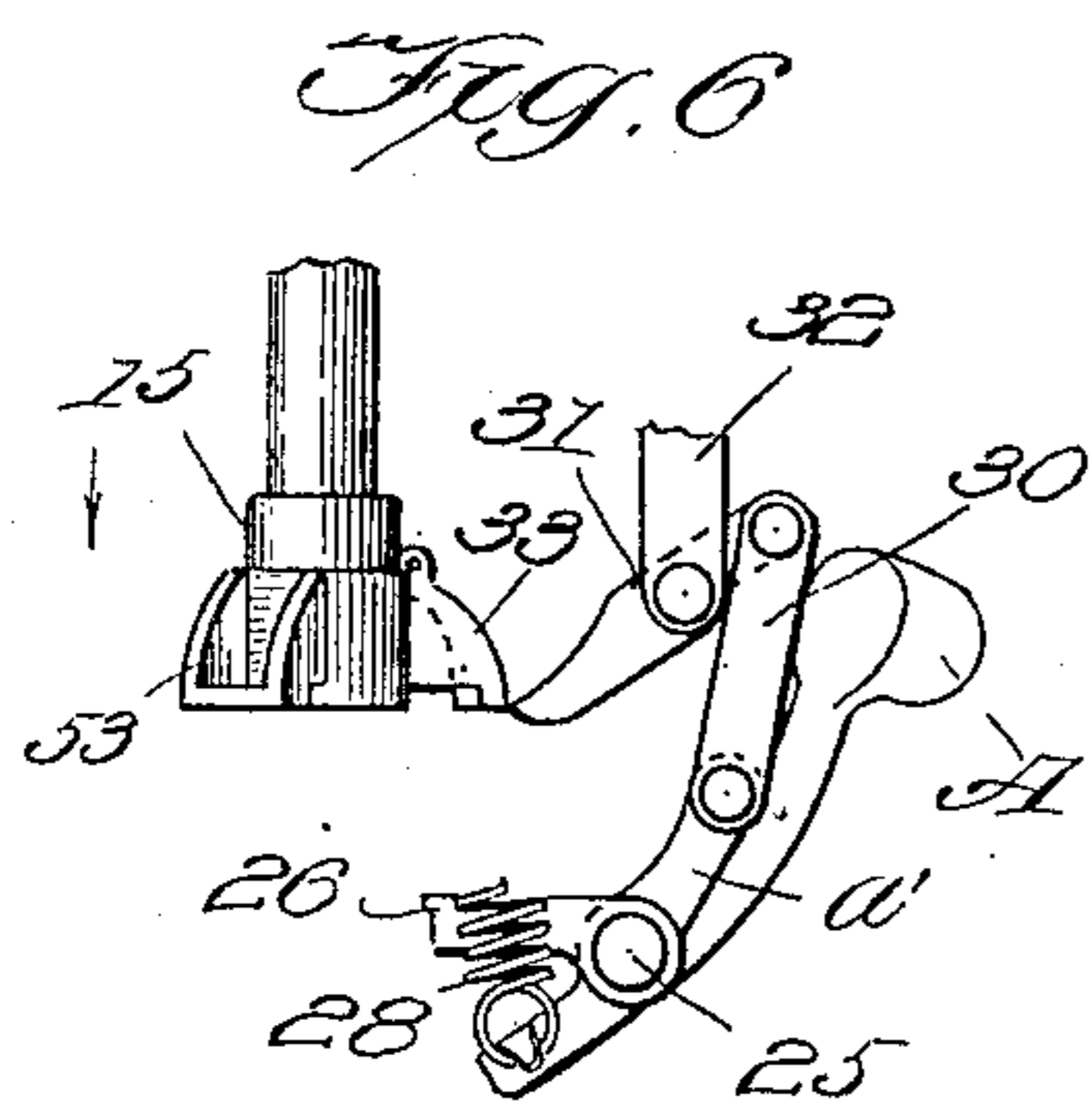
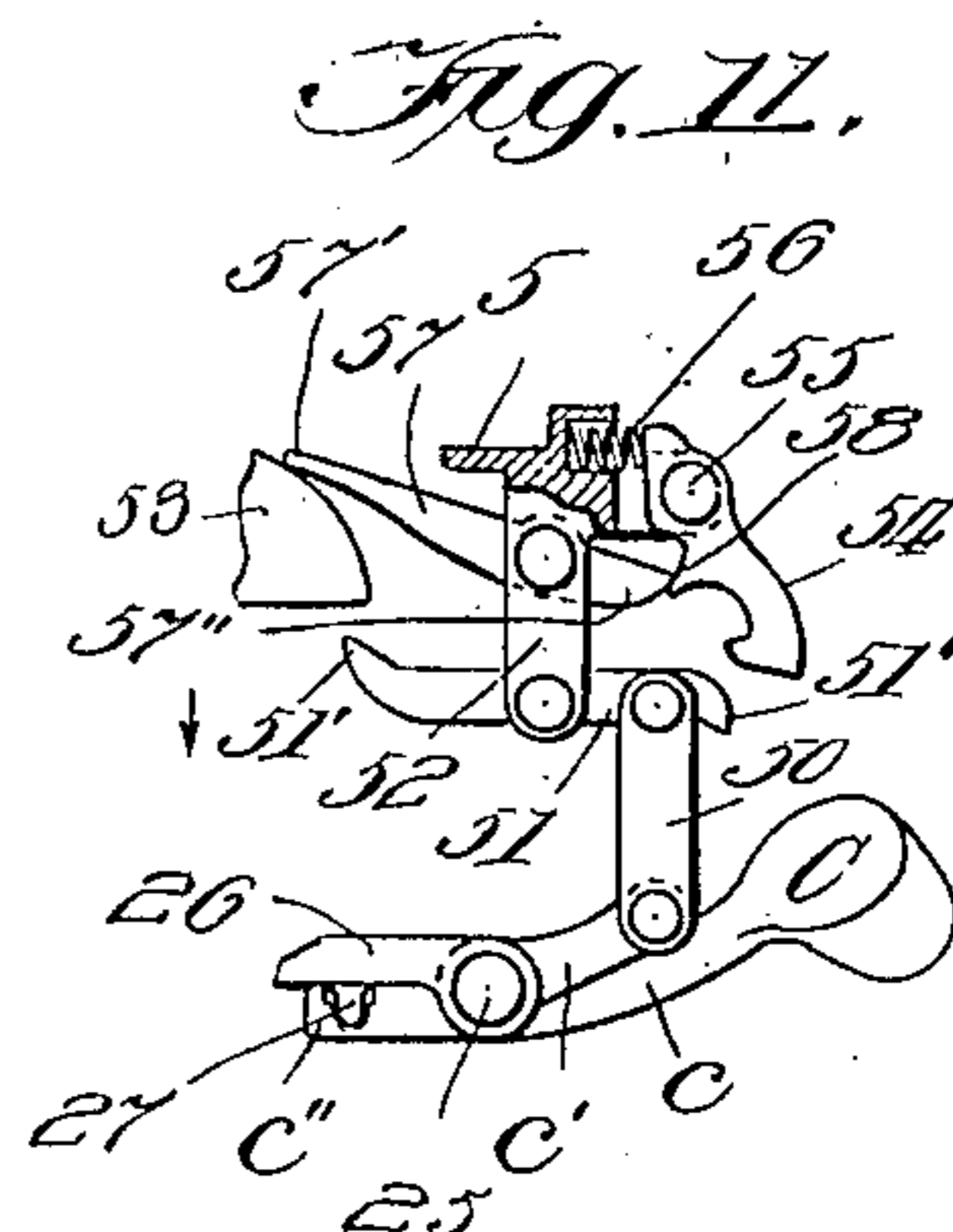
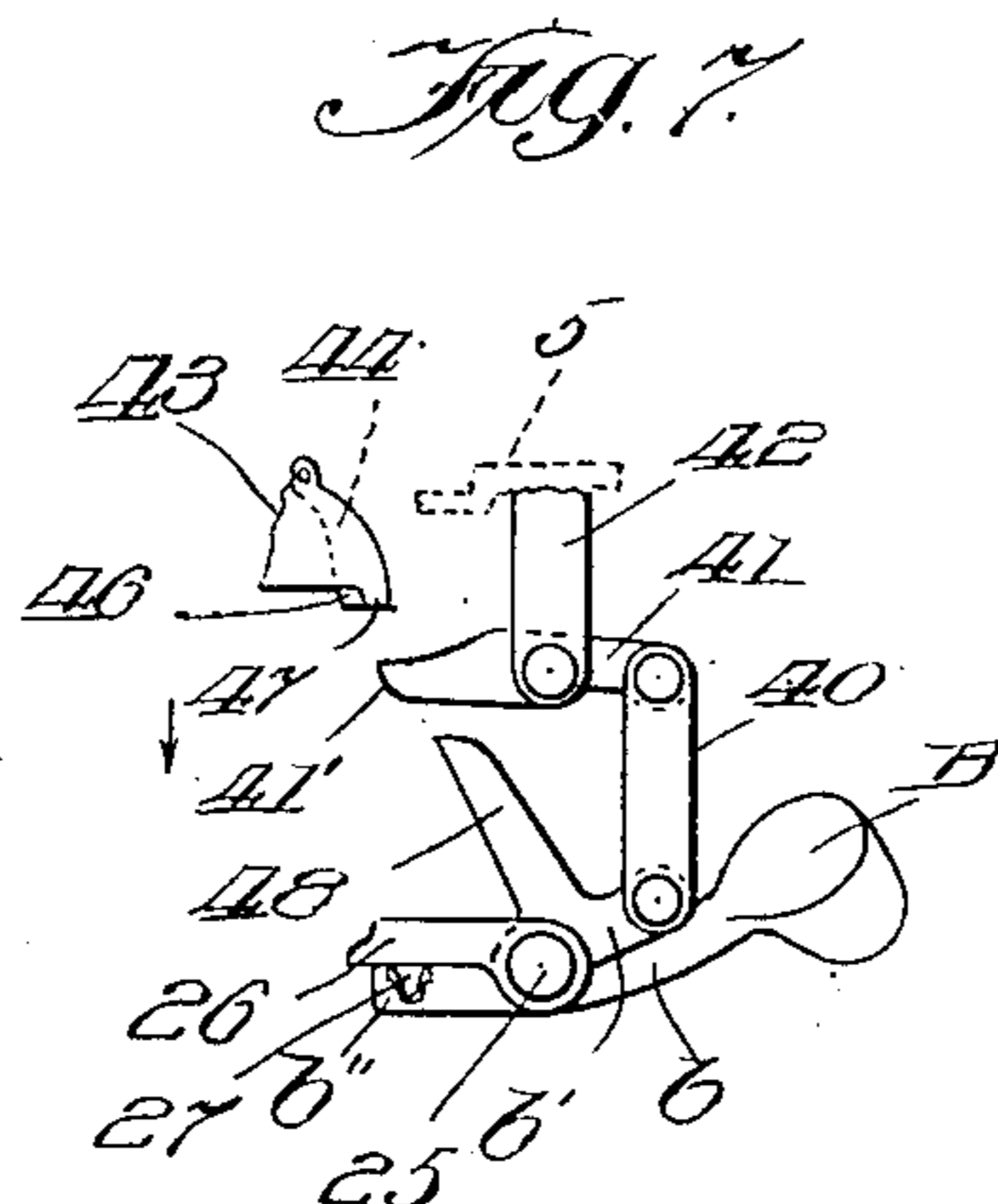
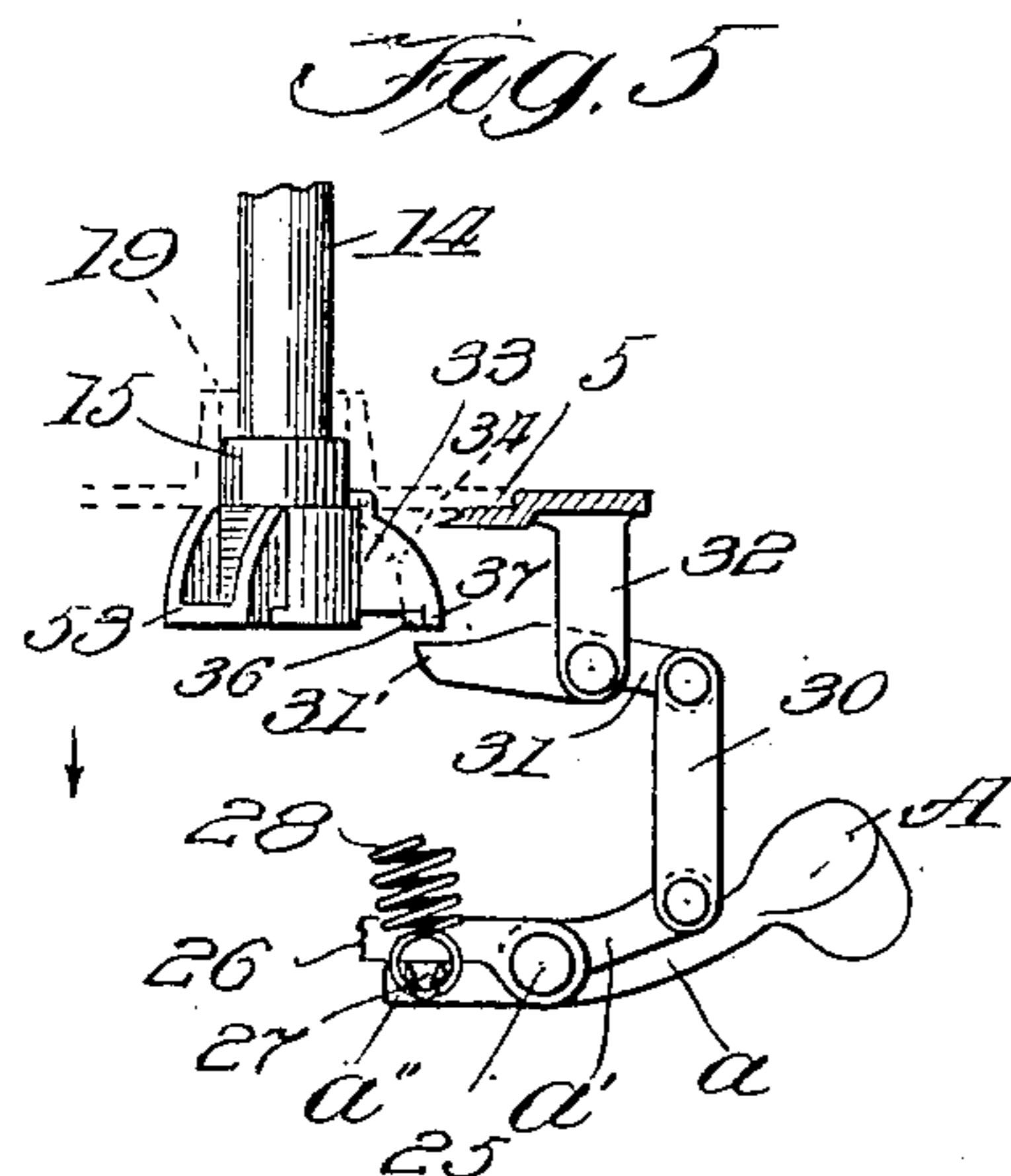
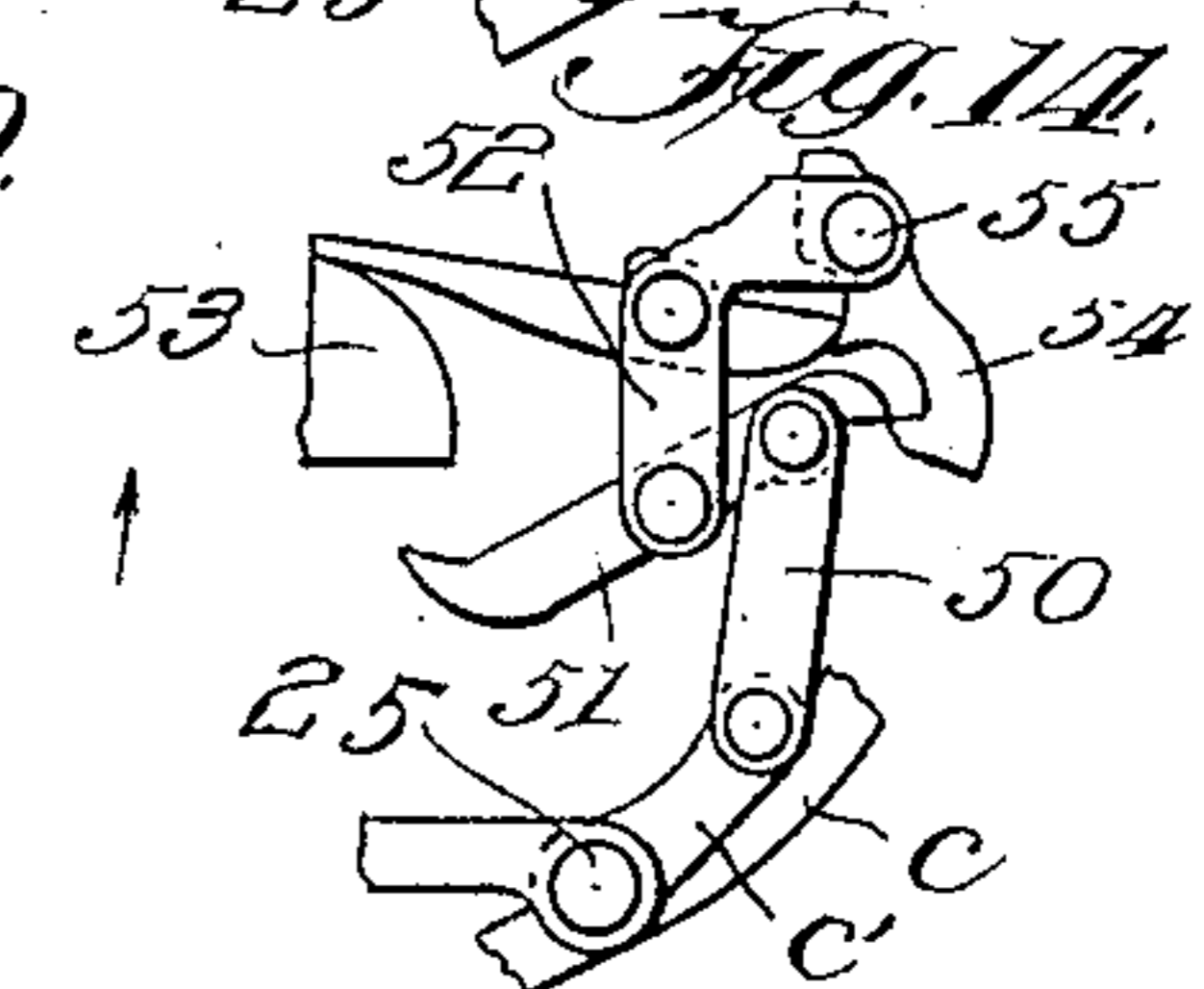
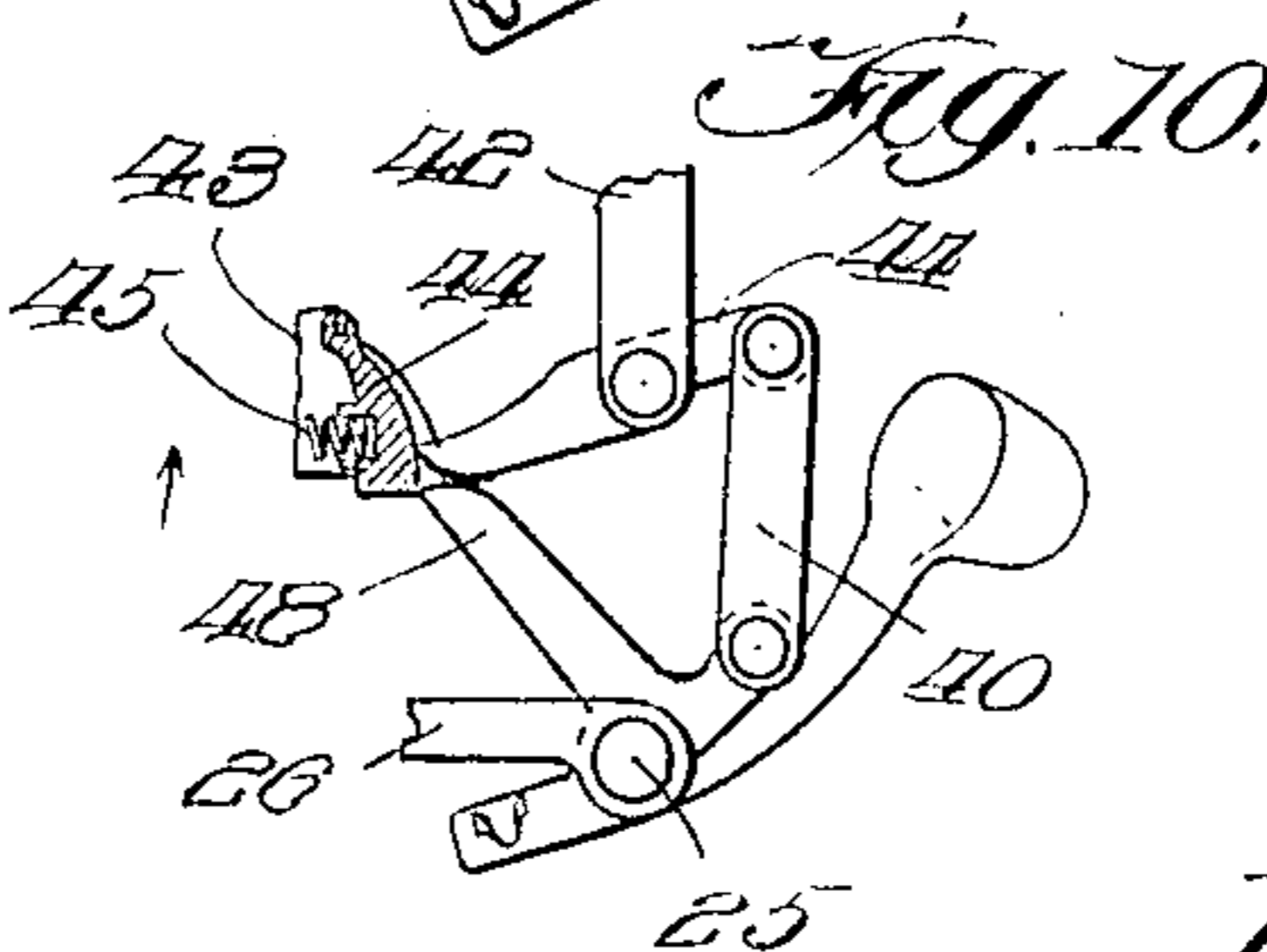
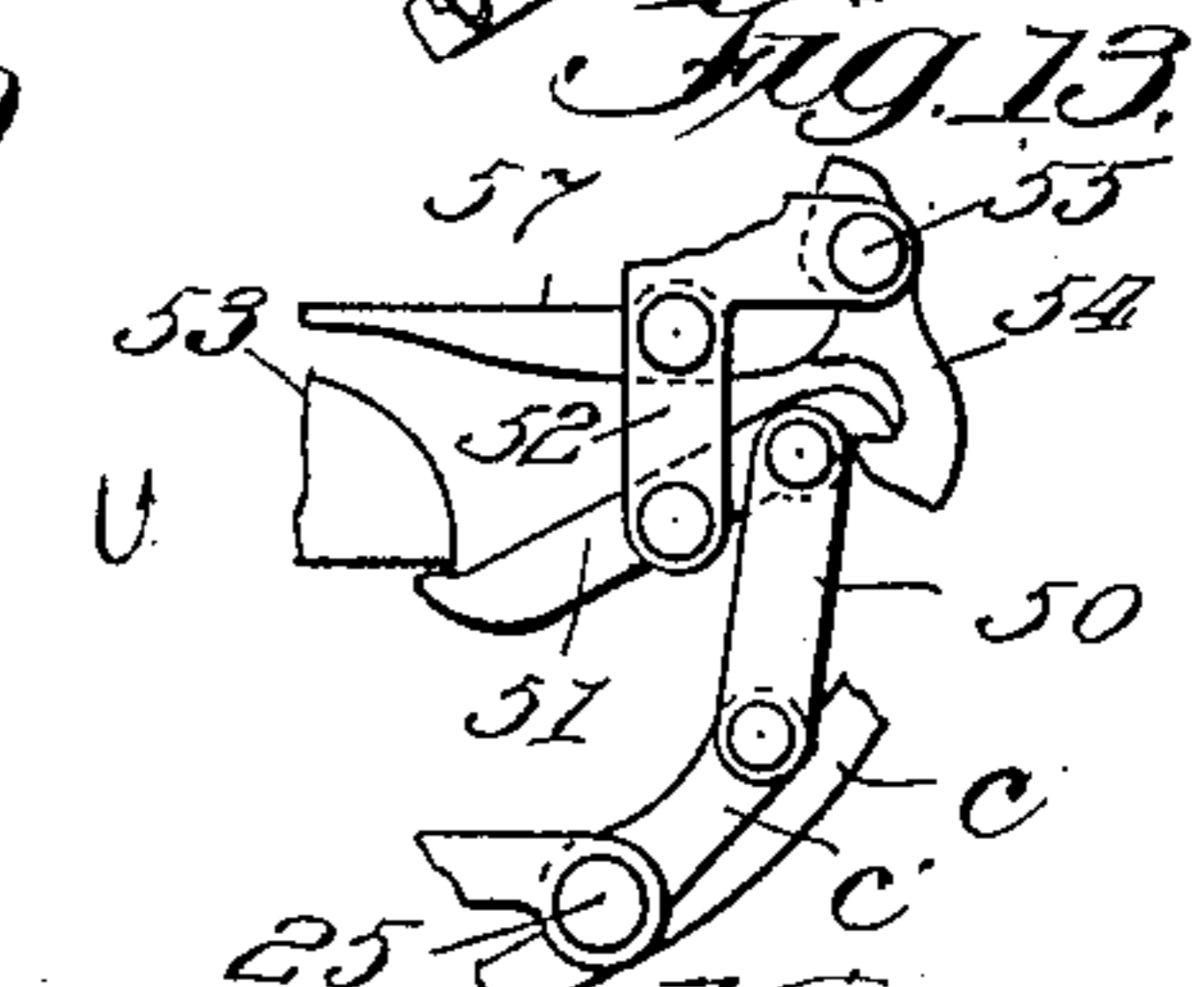
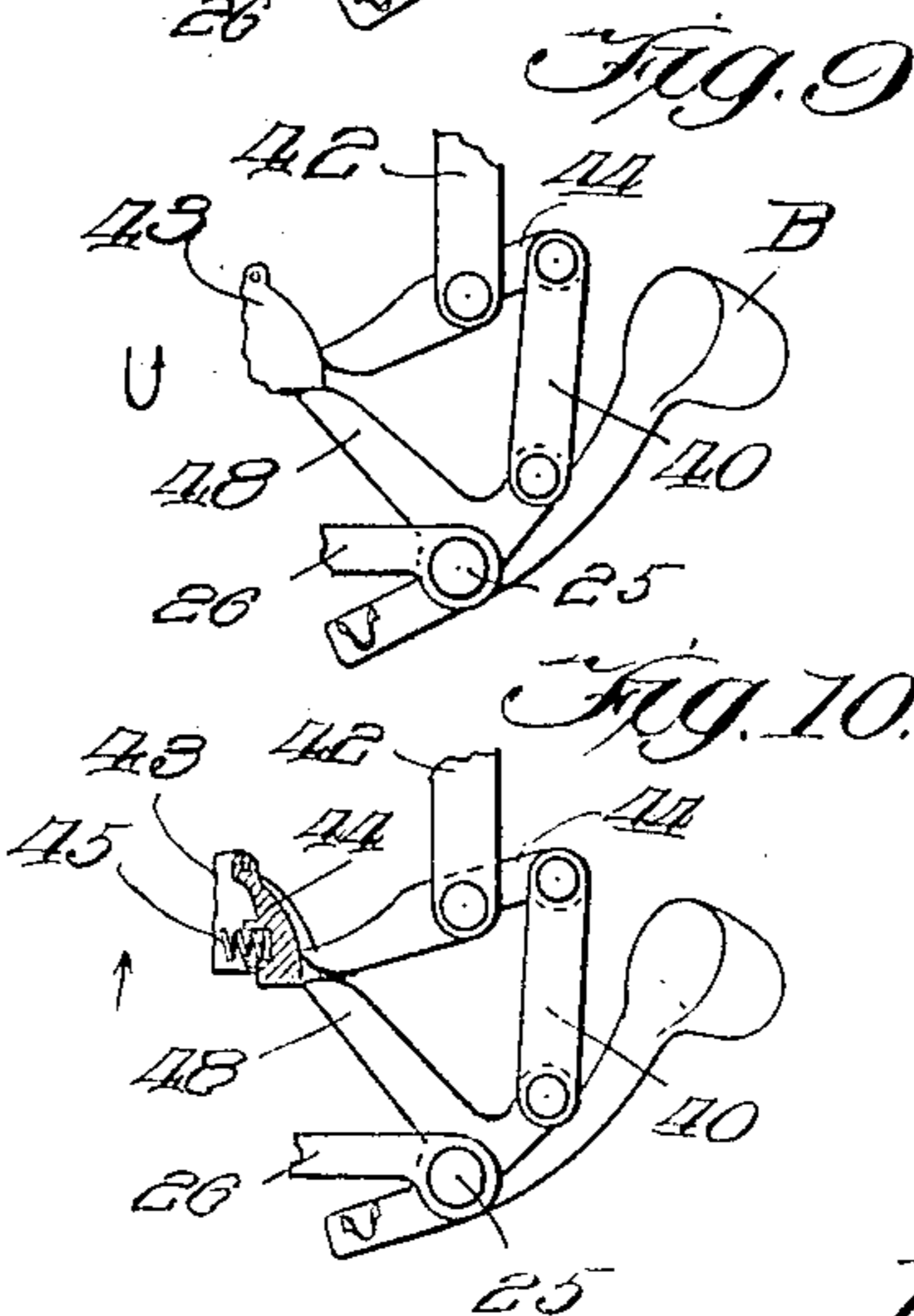
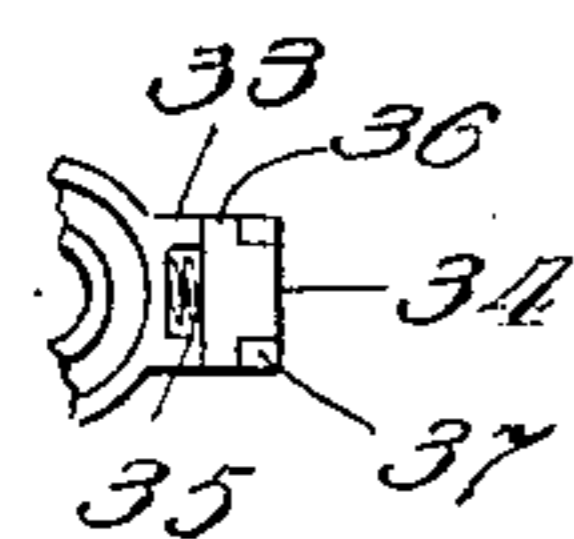


Fig. 6a



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UNITED STATES PATENT OFFICE.

THOMAS N. BURKE, OF CHICAGO, ILLINOIS.

ALARM-SIGNAL.

No. 906,609.

Specification of Letters Patent.

Patented Dec. 15, 1908.

Application filed March 23, 1906. Serial No. 307,592.

To all whom it may concern:

Be it known that I, THOMAS N. BURKE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Alarm-Signals, of which the following is a specification.

The object of this invention is to provide a signal gong which will give a loud and distinctive alarm and is especially adapted for outdoor use on fire apparatus, street cars and the like where it is desirable to sound an alarm which will be clearly heard above the ordinary noises on the street and readily distinguishable therefrom.

A further object is to provide for sounding the gong a plurality of times at each operation of the device to sound separate and distinct alarms. And a further object of the invention is to combine with the gong a horn which will be blown simultaneously with the sounding of the gong.

In the accompanying drawings I have illustrated one embodiment of the invention and referring thereto Figure 1 is a sectional view on the line 1—1 of Fig. 2. Fig. 2 is a sectional view on the line 2—2 of Fig. 1. Fig. 3 is a sectional view showing the striker mechanism in elevation. Fig. 4 is a bottom plan view with the gong removed. Figs. 5 to 14 are diagrammatic views illustrating the principal positions of the three strikers and their actuating mechanism, Figs. 5 and 6 illustrating the striker mechanism designated A, Figs. 7 to 10 illustrating the striker mechanism designated B and Figs. 11 to 14 illustrating the striker mechanism designated C.

Referring to the drawings a gong 1 is fastened to a casing 2 and the striker mechanism is inclosed within the casing and gong. The casing is provided with holes 3 to receive bolts by which the device can be secured in place on the dashboard or foot-board of a fire engine, on the platform of a street car or in any other place where the signal is to be located. A skeleton frame 4 open centrally is provided with a plate 5 which is secured by screws 6 in an opening 7 in the casing. A stem 9 extends centrally through the frame 4 and through the gong and is provided with a screw thread 10 at its lower part to receive the nut 11 within the gong and the nut 12 and lock nut 13 outside of the gong, by which nuts the gong is

secured rigidly to the stem. A hollow plunger 14 operates on the upper end of the stem and this plunger carries at its lower end a sleeve 15 which has a peripheral shoulder 16 to engage beneath a plate 17 which is fastened by screws 18 to the plate 5. The plate 17 has a hollow boss 19 and the sleeve 15 is normally pressed into this boss, with its shoulder 16 against the shoulder 20 on the boss, by a spring 21 inclosed within the frame 4 and confined on the stem 9 between the sleeve 15 and the lower end 4' of the frame. This spring projects the plunger outward into normal position as shown in Figs. 1 and 3. A cap 22 is mounted on the plunger 14 and preferably has a serrated or roughened surface. The sleeve 15 is preferably provided with an annular groove 23 to receive the upper end of the spring 21 and prevent its displacement.

In the drawings I have shown three strikers and for convenience in distinguishing them I will designate them by the letters A, B and C. These strikers are carried by arms *a*, *b*, *c*, projecting angularly from the inner ends of levers *a'*, *b'*, *c'* which are all substantially alike and pivotally mounted at 25 on a spider 26 fastened on the frame by the nut 11. Each striker lever is provided at its inner end with a hook 27 and a spring 28 is fastened to this hook and to the plate 5 at 29 (Fig. 3) to hold the strikers normally in a position at rest, as shown in Figs. 1-4 of the drawings.

The striker A (Figs. 5-6) has the outer end of its lever *a'* pivotally connected by a link 30 to the outer end of a trip lever 31. This trip lever is pivotally supported on a lug 32 depending from the plate 5 and its inner end 31' is arranged to be engaged by a tripper 33 on the sleeve 15. This tripper is provided with a pivoted section 34 (Figs. 1, 2, 6^a) which is normally pressed outward by a spring 35 into position to engage the trip lever 31 on the downward movement of the sleeve 15. Lugs 36 on this pivoted section engage lugs 37 on the main part of the tripper to limit the outward movement of said pivoted section.

The striker B (Figs. 7-10) has the outer end of its lever *b'* pivotally connected by a link 40 to the outer end of a trip lever 41. This trip lever is pivotally supported on a lug 42 depending from the plate 5 and its inner end 41' is arranged to be engaged by

a tripper 43 on the sleeve 15. This tripper, like the tripper 33, is provided with a pivoted section 44 which is normally pressed outward by a spring 45 into position to engage the trip lever 41 on the downward movement of the sleeve 15. Lugs 46 on this pivoted section engage lugs 47 on the main part of the tripper to limit the outward movement of said pivoted section. The trip levers 31 and 41 are released from engagement with their trippers 33 and 43 at or about the same time. To prevent the striker B from striking the gong at the same time as the striker A I provide an arm 48 on the lever *b'* which is engaged by the tripper 43 as the latter releases the lever 41 (Fig. 9) and holds up the striker B for a period after the striker A has struck the gong.

The striker C (Figs. 11-14) has the outer end of its lever *c'* pivotally connected by a link 50 to a tripper 51. This tripper lever is pivotally supported on a lug 52 depending from the plate 5 and its inner end 51' is arranged to be engaged by a tripper 53 (Fig. 5) on the sleeve 15. To make the striker C strike after the striker B I provide a catch 54 which is pivoted at 55 on the plate 5 and is constantly under the tension of a spring 56 which tends to throw it inward to engage the outer end 51'' of the tripper lever. A releasing lever 57 is also pivoted on the lug 52 and its inner end 57' is arranged to be engaged by the tripper on its outward movement while its upper end 57'' operates against a shoulder 58 on the catch 54.

The movement of the several parts associated with each striker is clearly shown in Figs. 5 to 14 and the direction of movement is indicated on each figure by an arrow, the figures being also arranged to show the parts in relative position. The striker A operates on the inward stroke of the plunger and the strikers B and C operate on the outward stroke of the plunger, the operation of these parts being so timed that three separate and distinct alarms will be sounded on the gong. In the construction illustrated in the drawings the same or substantially the same period elapses between the first and second and the second and third alarms and while this is a desirable arrangement it may be varied if desired. The three trippers project through the openings in the skeleton frame and operate separately on the three tripper levers but each constitutes a fixed part of the sleeve and might be considered one tripper in a general sense. However, for convenience in describing as a group the mechanism for operating each striker I have referred to the trippers as separate parts and I will refer to the sleeve with the trippers thereon in a general way as the tripper device.

On the inward stroke of the plunger the tripper device engages all of the tripper le-

vers and swings them to carry the strikers into elevated position (Figs. 6, 8, 12). As the tripper device nears the limit of its inward stroke the tripper 33 releases the lever 31 and the spring 28 swings the lever *a'* to cause the striker A to strike the gong. At or about the time this takes place the tripper 43 releases the lever 41 and engages the arm 48 (Figs. 8, 9). At this time also the catch 54 has moved in to engage the end 51'' of the lever 51 (Figs. 12, 13). The striker A strikes almost at the limit of the inward stroke of the plunger, but the arrangement is preferably such that the plunger shall travel a short distance inward after the tripper 33 has released the lever 31 in order to insure this releasement. When the plunger begins its outward stroke the strikers B and C are both locked as shown in Figs. 9 and 13 and the arrangement is such that the tripper 43 will release the arm 48 first and then the tripper 53 will swing the lever 57 to disengage the catch 54 from the lever 51, so that the strikers B and C will operate successively on the outward stroke of the plunger. The pivoted spring pressed sections 34 and 44 on the trippers 33 and 43, respectively, are provided to enable said trippers to pass the tripper levers on the outward stroke of the plunger.

In the construction illustrated in the drawings it is intended that the plunger shall be operated by pressure of the foot applied to the cap 22 as signals of this kind are usually sounded but the plunger can be operated by hand or in any way desired. The spring 21 returns the plunger and the tripper device to normal position immediately after the pressure is released which carries the plunger to the limit of its inward stroke. The springs 28 are independent of the spring 21 and of each other and operate upon their respective strikers to carry them forcibly into contact with the gong. The strikers must be normally held out of contact with the gong and the rear end *a''*, *b''*, *c''* of the striker levers bears against the spider, as shown in Fig. 1, for this purpose. The springs 28 are of sufficient tension to cause the striker arms to spring sufficiently to permit the strikers to strike the gong with a hard sharp blow.

I contemplate making the gong by pressing it into shape out of sheet steel, as no projections are required on the interior or exterior thereof. The gong has superior advantages over cast gongs and it gives a strong, loud alarm. This loud alarm is readily distinguishable over the ordinary noises of the street including the sounds of the commonly used gongs. Sounding three alarms in comparatively rapid succession, each being a strong, loud alarm, will attract attention in the noisiest thoroughfare, and where the operation is repeated quickly the

rapid repetition of the three independent alarms will be easily distinguishable from all other sounds and noises.

I may embody a horn with the gong signal to be sounded at or about the same time as the gong. The horn 60 is shown within the casing in Figs. 1 and 2 and it projects through the casing with its mouth 61 outside thereof. The stem 9 is provided with an air passage 62 which communicates with a pipe section 63 screwed into the frame 4 and connected by a union 64 or by other suitable means with the small end 65 of the horn. The plunger may be fitted snugly on the stem but as the plunger constitutes the cylinder which is moved on the piston constituted by the stem I prefer to provide a packing 66 at the upper end of the stem to prevent the escape of air. As the plunger is moved inward the air within the plunger will be forced through the horn and this will produce a noise which, added to the sounding of the gong, will be readily distinguishable from all other sounds. The stem serves as a guide for the plunger and the tripper device, and it connects the gong to the frame. The plate 5 and the plate 17 could be made integral with the casing but they are made separate in the construction shown in the drawings as a convenient arrangement.

What I claim and desire to secure by Letters Patent is:—

1. An alarm signal comprising a single gong, a plunger arranged to operate axially of the gong, three spring controlled striker arms radially disposed within said gong, strikers on the outer ends of said arms, and a tripper device on the plunger, said device comprising separate trippers radially disposed around the plunger in the same plane to operate said strikers successively at each operation of the plunger.

2. An alarm signal comprising a single gong, a plunger arranged to operate axially of the gong, three separate strikers radially disposed within said gong and each operating in a plane coincident with the axis of the gong, and separate and independent means intermediate of the plunger and each of said strikers for actuating one of said strikers on the inward movement and the other two strikers successively on the outward movement of the plunger and at each operation thereof.

3. An alarm signal comprising a gong, a plunger arranged to operate axially of the gong, a frame centrally disposed within the gong below the plunger, three separate and independent strikers radially disposed within the gong and each adapted to swing in the direction of movement of the plunger, arms pivotally mounted on the frame and carrying said strikers, a separate trip lever connected to each striker arm, and a tripper device carried by said plunger for operating

said trip levers and the strikers connected therewith successively.

4. An alarm signal comprising a gong, a spring-pressed plunger arranged to operate axially of the gong, a frame centrally disposed within the gong below the plunger, three separate and independent strikers radially arranged within the gong and each adapted to swing in the direction of movement of the plunger, arms pivotally mounted on the frame and carrying said strikers at their outer ends, springs connected to the inner ends of said arms, a separate trip lever connected to said arms, and a tripper device carried by the plunger for operating said trip levers.

5. An alarm signal comprising a gong, a plunger, a striker, an arm carrying said striker, a striker lever carrying said arm, a tripper actuated by the plunger, a trip lever arranged to be operated by the tripper, and a link connection between the trip lever and striker lever.

6. An alarm signal comprising a gong, a plunger, a striker, an arm carrying said striker, a striker lever carrying said arm, a trip lever connected to the striker lever, a tripper actuated by the plunger, and means for arresting the blow of the striker temporarily after the trip lever has been operated by the tripper.

7. An alarm signal comprising a gong, a plunger, a striker, an arm carrying said striker, a striker lever carrying said arm, a trip lever connected to the striker lever, a tripper actuated by the plunger for operating said trip lever, and an arm on said striker lever arranged to be engaged by the tripper to arrest the blow of the striker temporarily after the trip lever has been operated by the tripper.

8. An alarm signal comprising a gong, a plunger, a striker, an arm carrying said striker, a striker lever carrying the arm, a trip lever, a link connection between the trip lever and striker lever, a tripper actuated by the plunger for operating said trip lever, and an arm on the striker lever to be engaged by the tripper to arrest the blow of the striker temporarily after the trip lever has been operated by the tripper.

9. An alarm signal comprising a gong, a plunger, a striker, an arm carrying said striker, a striker lever carrying the arm, a trip lever connected to the striker lever, a tripper actuated by the plunger for operating said trip lever, and means to engage said trip lever and arrest the blow of the striker temporarily.

10. An alarm signal comprising a gong, a plunger, a striker, an arm carrying said striker, a striker lever carrying the arm, a trip lever connected to the striker lever, a tripper actuated by the plunger for operating said trip lever, and a spring pressed

catch to engage said trip lever and arrest the blow of the striker temporarily.

11. An alarm signal comprising a gong, a plunger, a striker, an arm carrying said 5 striker, a striker lever carrying the arm, a trip lever connected to the striker lever, a tripper actuated by the plunger for operating said trip lever, a catch to engage said 10 trip lever and arrest the blow of the striker temporarily, and means for releasing said catch from engagement with the trip lever.

12. An alarm signal comprising a gong, a plunger, a striker, an arm carrying said 15 striker, a striker lever carrying the arm, a trip lever connected to the striker lever, a tripper actuated by the plunger for operating said trip lever, a catch to engage said trip lever and arrest the blow of the striker 20 temporarily, and a releasing device operated by the tripper to disengage the catch from the trip lever.

13. An alarm signal comprising a gong, a plunger, a striker, an arm carrying said 25 striker, a striker lever carrying the arm, a trip lever connected to the striker lever, a tripper actuated by the plunger for operating said trip lever, a spring pressed catch to engage said trip lever and arrest the blow 30 of the striker temporarily, and a releasing lever operated by the tripper to disengage the catch from the trip lever.

14. An alarm signal comprising a gong, a plunger arranged to operate axially of the 35 gong, a support centrally disposed within the gong, a plurality of strikers radially disposed within the gong and pivotally connected to said support, means intermediate 40 of the plunger and said strikers for actuating the strikers successively at each operation of the plunger, and means for holding the strikers normally out of contact with the gong.

15. An alarm signal comprising a gong, a plunger, a striker, an arm carrying said 45 striker, a support, a lever carrying said arm and pivoted between its ends on said support, one end of said lever being arranged to engage said support to hold the striker normally out of contact with the gong, and 50 means for operating said lever at each operation of the plunger.

16. An alarm signal comprising a gong, a plunger, a striker, an arm carrying the 55 striker, a support, a lever to operate said arm and pivoted between its ends on said

support, one end of said lever being arranged to engage the support, and a spring connected to said end of the lever to hold the striker normally in a position at rest with the lever in engagement with the sup- 60 port.

17. An alarm signal comprising a gong, a plunger, a striker, operating devices connected to the striker, and a tripper for actuating said devices, said tripper having a 65 spring pressed section to permit the tripper to pass said devices on its return movement.

18. An alarm signal comprising a gong, a plunger, a striker, devices for operating the 70 striker, a tripper for actuating said devices, said tripper having a spring pressed section to permit the tripper to pass said devices on its return movement, and interengaging lugs on said section and the main part of the 75 tripper to limit the outward movement of the tripper.

19. An alarm signal comprising a gong, a skeleton frame connected with the gong and disposed centrally at a right angle to the 80 diameter thereof, a plurality of strikers disposed radially within the gong, a plunger, a tripper device actuated by the plunger and operating within the frame, said device having a tripper for each striker projecting 85 through an opening in the frame, and means operated by said tripper device for operating the strikers.

20. An alarm signal comprising a gong, means for sounding the gong, a horn, and a hollow plunger to operate said sounding 90 means and blow the horn.

21. An alarm signal comprising a gong, a plurality of strikers, a horn, and a plunger to operate said strikers successively and at 95 the same time blow the horn.

22. An alarm signal comprising a gong, a striker, a horn, and a hollow plunger to operate said striker and at the same time create a pressure of air to blow the horn.

23. An alarm signal comprising a gong, a 100 striker, a horn, a stem having a passage therein communicating with the horn, and a hollow plunger operating on the stem to actuate the striker and at the same time force air through said passage to blow the 105 horn.

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