

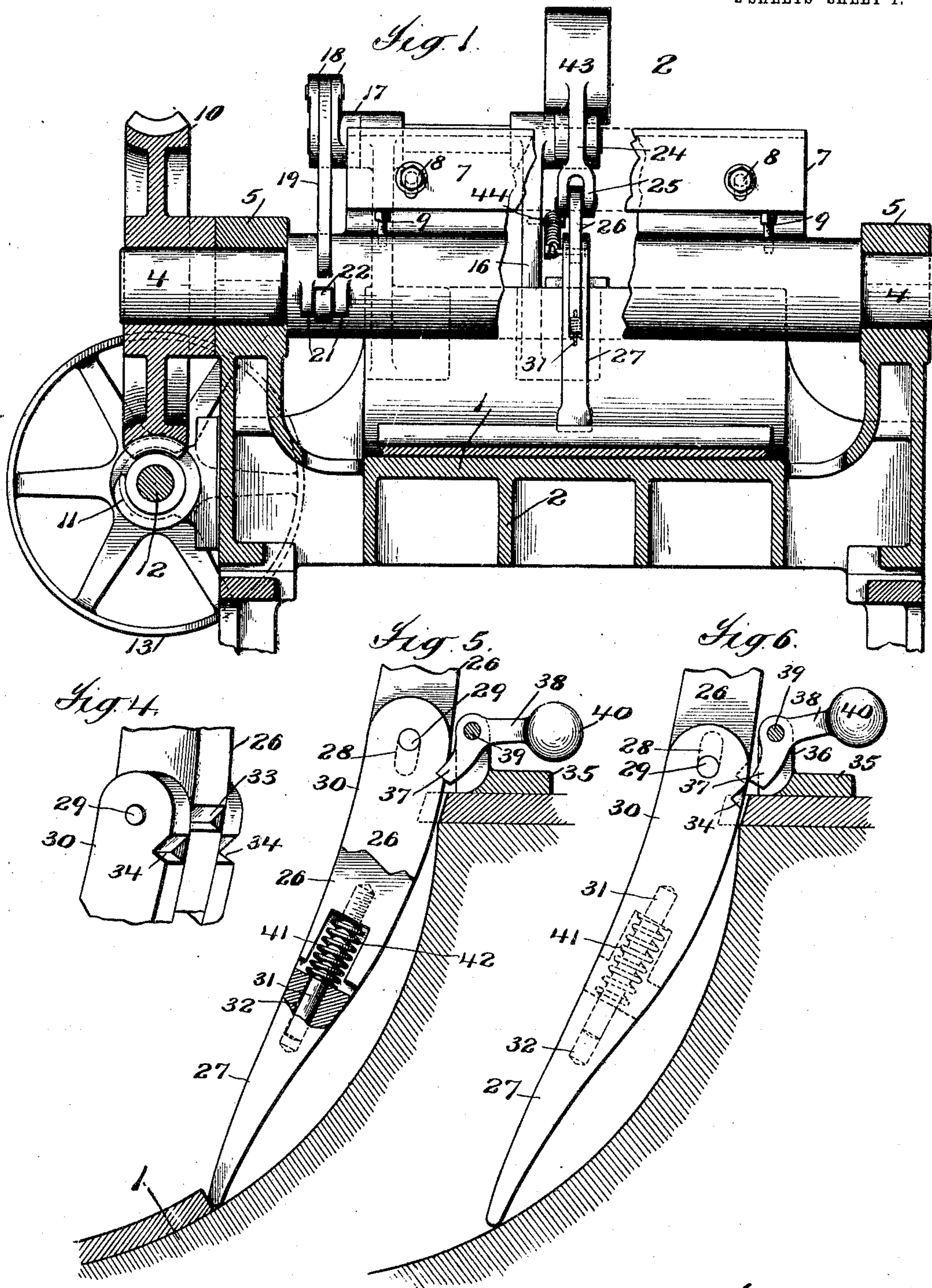
A. H. CRUSE.

EJECTING MECHANISM FOR STEREOTYPE SHAVING MACHINES.

APPLICATION FILED FEB. 1, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



Attest:
A. White
J. E. Brown.

Inventor:
Amundus H. Cruse
by his Attys
Phillips Sawm. P. & Kennedy

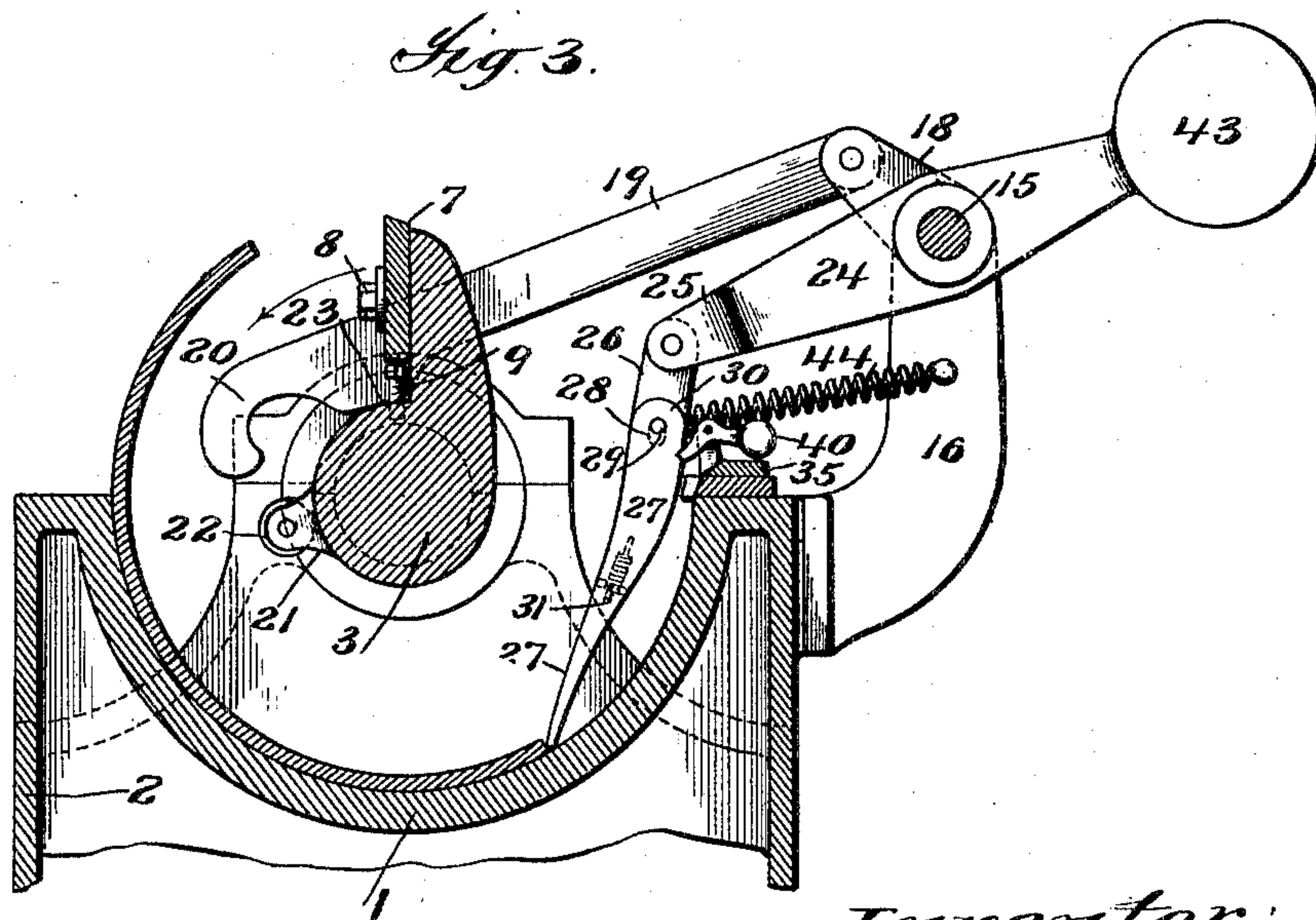
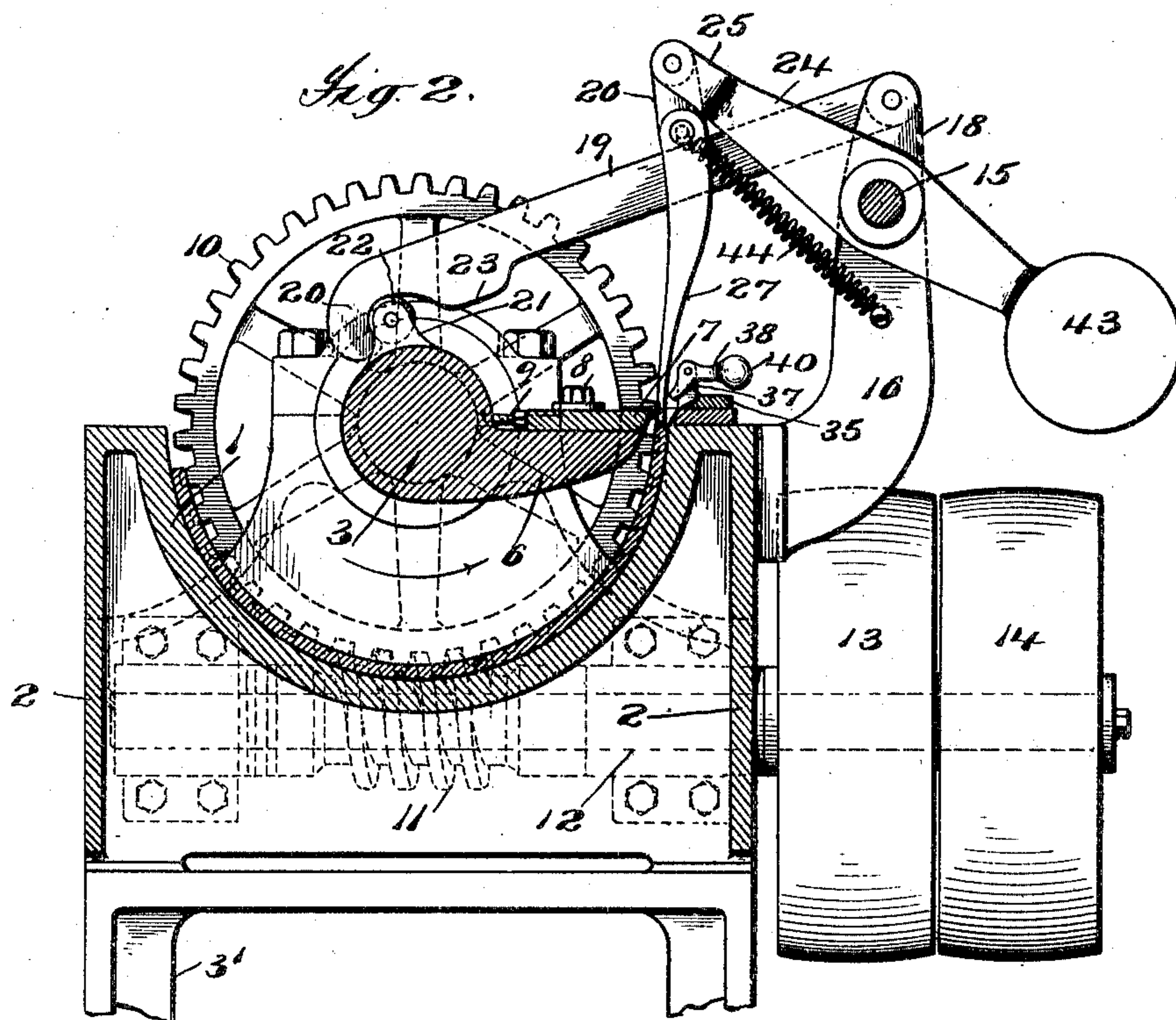
A. H. CRUSE.

EJECTING MECHANISM FOR STEREOTYPE SHAVING MACHINES.

APPLICATION FILED FEB. 1, 1904.

NO MODEL.

2 SHEETS—SHEET 2.



Attest:
A. White.
S. C. Brown

Inventor:
Amarius H. Cruse
by his Attys
Philip. Sawyer, Peck & Kennedy

UNITED STATES PATENT OFFICE.

AMANDUS H. CRUSE, OF NEW YORK, N. Y., ASSIGNOR TO ROBERT HOE,
OF NEW YORK, N. Y.

EJECTING MECHANISM FOR STEREOTYPE-SHAVING MACHINES.

SPECIFICATION forming part of Letters Patent No. 776,499, dated December 6, 1904.

Application filed February 1, 1904. Serial No. 191,474. (No model.)

To all whom it may concern:

Be it known that I, AMANDUS H. CRUSE, a citizen of the United States, residing at New York, county of Kings, and State of New York, have invented certain new and useful Improvements in Ejecting Mechanism for Stereotype-Shaving Machines, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to certain improvements in ejecting mechanism for stereotype-shaving machines.

Stereotype-plates after being cast are usually subjected to a shaving operation, so as to bring them to the required thickness. This shaving operation is ordinarily effected by placing the plates in a curved support and subjecting them to the action of a rotating knife, which shaves off from the back of the plate a greater or less amount, as may be required. The plates are then removed from the support by an ejector which is actuated by the operator, this ejector operating to partially push the plate out of the curved support, so that it may be readily seized for removal by the operator. In these mechanisms as now constructed it is necessary for the operator to hold the ejector mechanism until he has seized the plate, and if he does not do this the weight of the plate is sufficient to force the ejector mechanism back, thus allowing the plate to slide back into the curved support.

The present invention has for one of its objects to produce an automatically-operated ejector mechanism of an improved type for use in shaving-machines having curved plate-supporting beds.

A further object of the invention is to produce an ejector mechanism for use in shaving-machines having curved supporting-beds, in which the ejector shall be automatically held after it has moved the plate out of the bed and with the plate in its displaced position.

A further object of the invention is to produce an ejector mechanism for use in shaving-machines having curved supporting-beds, in which the ejector shall be held in the position which it assumes when it has displaced the

plate and in which the holding means shall be automatically released by the removal of the plate.

With these and other objects not specifically referred to in view the invention consists in certain constructions and in certain parts, improvements, and combinations, as will be hereinafter fully described and then specifically pointed out in the claims hereunto appended.

Referring to the accompanying drawings, which illustrate one embodiment of the invention, Figure 1 is a sectional elevation of so much of a shaving-machine and its ejecting mechanism as is necessary to an understanding of the invention. Fig. 2 is a section on the line 2 2 of Fig. 1, the knife and ejector being shown in different positions. Fig. 3 is a view similar to Fig. 2, the knife and ejector being shown in the position they assume when the ejector has operated on the plate. Figs. 4, 5, and 6 are detail views.

Referring to the drawings, 1 is a curved plate-support or bed of usual construction, said plate-support being formed by a flanged casting, the flanges 2 being bolted or secured in any other suitable manner to the frame. The shaving mechanism employed may be of any desired character. As shown, there is provided an operating-shaft 3, said shaft being provided with journals 4, which take into bearings 5, formed in the casting before referred to. This operating-shaft 3 carries a knife-arm 6, this arm being preferably formed in one piece with the shaft. Secured to this knife-arm is the shaving-knife 7, said knife being provided with slots, through which its securing-bolts 8 pass, the knife being adjustable by means of set-screws 9.

The construction so far described is a usual one, and any other form of shaving mechanism may be substituted therefor.

The rotation of the shaft by which the shaving operation is effected may be secured in any desired manner. As illustrated, the shaft 3 is provided at one of its ends with a worm-gear 10, said gear being driven by a worm 11, formed on a worm-shaft 12, said shaft being supported in bearings on the side of the flanged casting before referred to and

being provided with fast and loose driving-pulleys 13 14, as is usual in such constructions.

The mechanism for operating the ejector to be hereinafter described may be of any desired construction; but it will preferably be automatically operated from the knife-operating shaft. In the construction illustrated, which is a preferred form, there is provided an ejector-operating shaft 15, said shaft being journaled in curved arms 16, rising from the rear of the casting before referred to. This shaft is provided at one of its ends with a hub 17, to which is secured a double arm 18, and between the parts of this arm is pivoted a connecting-bar 19. This bar has on its end a hook 20, which is arranged to engage a co-operating projection 21, formed on the knife-operating shaft. In the preferred form of the construction this projection will be formed by two ears cast on the shaft, said ears having an antifriction-roll 22 journaled between them. The projection is so located on the shaft that as the shaving operation is completed the hook 20 of the bar 19 will drop over it and the further rotation of the knife-shaft will through the bar 19 rock the ejector-operating shaft. When a sufficient movement has been given to the ejector-operating shaft, the operating connections, of whatever form they may be by which it is moved, are interrupted. In the preferred form of the construction this interruption of the operating connections of the ejector-shaft will be automatically effected and by means which may be of any desired construction. As shown, the connecting-bar 19 is provided with a cam projection 23, which projection as the knife-shaft rotates strikes the shaft. The cam projection is of sufficient height to raise the hook 20, so that the roll 22 of the projection 21 runs out of the hook, the operation being clearly illustrated in Fig. 3.

The ejector mechanism may be widely varied in construction; but it will be constructed so as to be automatically locked after the operation of displacing the plate is completed. In the construction shown the shaft 15 has connected to it an arm 24, said arm being formed at one end to provide a yoke 25, and in this yoke is pivoted a section 26, which forms a part of the ejector. The operating portion of the ejector consists of a second section 27, which is properly proportioned to engage the edge of the plate.

As has been indicated, the ejector mechanism will be of such a character that it is automatically locked after the displacement of the plate is effected, and preferably it will be automatically unlocked after the plate is removed. Preferably, also, the locking and unlocking of the ejector mechanism will be effected by the action of the ejector on the plate. While the mechanism by which the automatic locking and the unlocking of the ejector may be varied within wide limits in

the preferred construction, the parts 26 and 27 of the ejector will be telescopically connected. In the construction shown this is effected by providing the section 26 with a slot 28, (see dotted lines in Figs. 5 and 6,) through which slot passes a pin 29. In the preferred construction the section 27 is formed at its upper end with ears 30, and the pin 29 passes through both these ears, as is clearly shown in the drawings. The pin-and-slot connection permits a telescopic movement of the parts 26 and 27 with relation to each other. In the preferred construction, furthermore, one of the ejector-sections 26 is provided with a guide-pin 31, which pin plays in a socket 32 in the section 27. It is obvious that when the ejector-section 27 strikes the plate it will remain stationary, while the section 26 moves downward between the ears 30 until the pin 29 strikes the top of the slot 28, after which the two sections move together. In the construction illustrated the section 26 is provided with a notch 33, and the ears 30 are each provided with a notch 34, the upper sides of the notches being beveled, as shown, and these notches being so related to each other that after the relative movement, before described, of the sections has occurred the slots will be in line with each other and can be engaged by a suitable locking device.

The locking device which is arranged to come into operation after the sections have completed the movement, which they have in ejecting the plate, may be widely varied in construction. As shown, the casting in which the curved bed is formed has mounted on it a block 35, from which block rise two ears 36, and between these ears is pivoted a small bell-crank lever 37 38, the pivot of this lever being at 39. The arm 37 of the lever is arranged to engage the notches 33 34, this arm being wide enough so as to engage all three of these notches. The arm 38 in the construction shown is provided with a weight 40, though any other equivalent device may be employed to throw the bell-crank latch forward and cause it to engage the notches when they are opposite the arm 37.

With the construction so far described it is apparent that after the ejector-sections have been forced against the plate and after they have been given the relative telescopic movement before referred to, which brings the notches into line, the further movement of the ejector mechanism will push the plate out of the curved plate-support, the displaced plate at the end of this movement of the ejector occupying about the position illustrated in Fig. 3. When the parts have reached this position, the latch 37 38 will drop into the notches and lock the ejector-sections against backward movement.

The release of the locking mechanism is preferably effected by the removal of the plate. While this might be accomplished in various

ways, in the construction shown there is provided a spring 41, which is located in a recess 42, formed in the section 26, before referred to, said spring surrounding the pin 31 and bearing against the section 27 at the bottom of the space between the two ears 30. The relative telescopic movement of the sections effected by the push of the ejector against the plate compresses this spring, and when the operator removes the plate this spring is free to expand, so that the section 27 is forced downward. The spring 41 is stronger than the force due to the counterweight 40, so that the downward movement of the section 27 is readily effected by it. As this section moves downward the upper beveled portions of the notches 34 operate as cams and throw the latch portion 37 of the bell-crank 37 38 out of the notch 33 in the section 26 of the ejector, so that the ejector may be readily withdrawn. The withdrawal of the ejector is preferably automatically effected. While this may be accomplished in any suitable manner, in the preferred construction the lever 24 is provided at the end opposite that which carries the ejector with a counterweight 43; this counterweight being heavy enough to rock the shaft 15. The rocking of the shaft produced by this counterweight not only withdraws the ejector, but also pulls back the bar 19, so that its hooked end 20 is in position to be engaged by the roll 22 as the shaft revolves.

In the ordinary operation of the mechanism the belt will be shifted from the fast to the loose pulley as soon as the ejector operation is completed—that is, when the parts are about in the position illustrated in Fig. 3. After the counterweight has thrown back the ejector, therefore, and drawn back the connecting-bar, another plate may be inserted, the belt shifted to the fast pulley, and the operations repeated. In the preferred construction a spring 44 is or may be provided to assist in maintaining the ejector in position.

Changes and variations may be made in the construction by which this invention is carried into effect. The invention is not, therefore, to be limited to the details of construction herein shown and described.

What is claimed is—

1. In a shaving-machine, the combination with a curved plate-support, of an ejector, means for operating the ejector, and automatic means for holding the ejector in position with the plate displaced, substantially as described.

2. In a shaving-machine, the combination with a curved plate-support, of an operating-shaft, an ejector, operating means for the ejector, and automatic means for connecting the ejector to the operating-shaft after the shaving of the plate is completed, substantially as described.

3. In a shaving-machine, the combination with a curved plate-support, of an operating-

shaft, an ejector, operating means for the ejector, automatic means for connecting the ejector to the operating-shaft after the shaving of the plate is completed, and automatic means for holding the ejector in position with the plate displaced, substantially as described.

4. In a shaving-machine, the combination with a curved plate-support, of an operating-shaft, an ejector, operating means for the ejector, automatic means for connecting the shaft and ejector-operating means after the shaving of the plate is completed and for disconnecting them when the ejector has reached the end of its stroke, and means for holding the ejector in position with the plate displaced, substantially as described.

5. In a shaving-machine, the combination with a curved plate-support, of an operating-shaft, an ejector, operating means for the ejector, automatic means for connecting the shaft and the ejector-operating means after the shaving of the plate is completed and for disconnecting them when the ejector has reached the end of its stroke, and automatic means for holding the ejector in position with the plate displaced, substantially as described.

6. In a shaving-machine, the combination with a curved plate-support, of an ejector, operating means therefor, and means rendered operative and inoperative by the action of the ejector on the plate for holding the ejector in position with the plate displaced, substantially as described.

7. In a shaving-machine, the combination with a curved plate-support, of an operating-shaft, an ejector, operating means therefor, means for automatically connecting the ejector-operating means to and disconnecting it from the shaft, and means rendered operative and inoperative by the action of the ejector on the plate for holding the ejector in position with the plate displaced, substantially as described.

8. In a shaving-machine, the combination with a curved plate-support, of an operating-shaft, an ejector, an operating-shaft for the ejector, means for automatically connecting said two shafts when the shaving operation is completed and for interrupting the connection when the ejector has operated, and means for holding the ejector in position with the plate displaced, substantially as described.

9. In a shaving-machine, the combination with a curved plate-support, of a knife-operating shaft, an ejector, an ejector-operating shaft, means including a projection on said knife-operating shaft and a hooked connecting-bar for connecting the ejector-shaft to the knife-shaft after the shaving operation has been completed, and means for automatically interrupting the connection after the ejector has operated, substantially as described.

10. In a shaving-machine, the combination with a curved plate-support, of a knife-operating shaft, an ejector, an ejector-operating

shaft, means including a projection on said knife-operating shaft and a hooked connecting-bar for connecting the ejector-shaft to the knife-shaft after the shaving operation has been completed, and a cam for automatically interrupting the connection after the ejector has operated, substantially as described.

11. In a shaving-machine, the combination with a curved plate-support, of a knife-operating shaft, an ejector, an ejector-operating shaft, means including a projection on said knife-operating shaft and a hooked connecting-bar for connecting the ejector-shaft to the knife-shaft after the shaving operation has been completed, and a cam on the connecting-bar for automatically interrupting the connection after the ejector has operated, substantially as described.

12. In a shaving-machine, the combination with a curved plate-support, of a knife-operating shaft, an ejector, an ejector-operating shaft, means including a projection on said knife-operating shaft and a hooked connecting-bar for connecting the ejector-shaft to the knife-shaft after the shaving operation has been completed, means for automatically interrupting the connection after the ejector has operated, and means for holding the ejector in position with the plate displaced, substantially as described.

13. In a shaving-machine, the combination with a curved plate-support, of a knife-operating shaft, an ejector, an ejector-operating shaft, means including a projection on said knife-operating shaft and a hooked connecting-bar for connecting the ejector-shaft to the knife-shaft after the shaving operation has been completed, a cam for automatically interrupting the connection after the ejector has operated, and means for holding the ejector in position with the plate displaced, substantially as described.

14. In a shaving-machine, the combination with a curved plate-support, of a knife-operating shaft, an ejector, an ejector-operating shaft, means including a projection on said knife-operating shaft and a hooked connecting-bar for connecting the ejector-shaft to the knife-shaft after the shaving operation has been completed, a cam on the connecting-bar for automatically interrupting the connection after the ejector has operated, and means for holding the ejector in position with the plate displaced, substantially as described.

15. In a shaving-machine, the combination with a curved plate-support, of a knife-operating shaft, an ejector, an ejector-operating shaft, means including a projection on said knife-operating shaft and a hooked connecting-bar for connecting the ejector-shaft to the knife-shaft after the shaving operation has been completed, means for automatically interrupting the connection after the ejector has operated, and means rendered operative and inoperative by the action of the ejector

on the plate for holding the ejector in position with the plate displaced, substantially as described.

16. In a shaving-machine, the combination with a curved plate-support, of a knife-operating shaft, an ejector, an ejector-operating shaft, means including a projection on said knife-operating shaft and a hooked connecting-bar for connecting the ejector-shaft to the knife-shaft after the shaving operation has been completed, a cam for automatically interrupting the connection after the ejector has operated, and means rendered operative and inoperative by the action of the ejector on the plate for holding the ejector in position with the plate displaced, substantially as described.

17. In a shaving-machine, the combination with a curved plate-support, of a knife-operating shaft, an ejector, an ejector-operating shaft, means including a projection on said knife-operating shaft and a hooked connecting-bar for connecting the ejector-shaft to the knife-shaft after the shaving operation has been completed, a cam on the connecting-bar for automatically interrupting the connection after the ejector has operated, and means rendered operative and inoperative by the action of the ejector on the plate for holding the ejector in position with the plate displaced, substantially as described.

18. In a shaving-machine, the combination with a curved plate-support, of an ejector comprising a plurality of relatively movable sections, said sections assuming one position when the ejector bears against the plate and another position when the ejector is not bearing against the plate, and a locking mechanism which is operative or inoperative according to the position of the sections, substantially as described.

19. In a shaving-machine, the combination with a curved plate-support, of an ejector comprising a plurality of relatively movable sections, a spring intermediate the sections, said spring being arranged to yield when the ejector is pressing against the plate, and to expand when the plate is freed from the ejector, notches in the sections arranged to register when the spring is compressed and to be out of register when the spring is expanded, and a latch for engaging the notches when they are in register, the latch being forced out of engagement when the notches are out of register, substantially as described.

20. In a shaving-machine, the combination with a curved plate-support, of an ejector comprising a plurality of relatively movable sections, a spring intermediate the sections, said spring being arranged to yield when the ejector is pressing against the plate and to expand when the plate is freed from the ejector, notches in the sections arranged to register when the spring is compressed and to be out of register when the spring is expanded, and a weighted pivoted latch for en-

gaging the notches when they are in register, the latch being forced out of engagement when the notches are out of register, substantially as described.

5 21. In a shaving-machine, the combination with a curved plate-support, of an ejector-operating shaft, an ejector comprising a plurality of sections, connections between one of the sections and the shaft, a spring-controlled
10 telescopic connection between the sections, said sections assuming different relative positions when the ejector is in and out of operating contact with the plate, and a locking device rendered operative and inoperative by
15 the movement of the sections, said device being constructed to engage the ejector and hold it in position with the plate displaced, substantially as described.

22. In a shaving-machine, the combination
20 with a curved plate-support, of an ejector-operating shaft, an ejector comprising two sections, a telescopic spring-controlled connection between the sections, the spring being arranged to be compressed when one of the
25 sections is forced against the plate, connections between the other section and the operating-shaft, notches on the sections arranged to register when the spring is compressed and to be out of register when the spring is ex-
30 panded, and a latch arranged to engage the notches when the ejector has completed its movement and to be forced out of engagement by the relative movement of the sections produced by the expansion of the spring.

35 23. In a shaving-machine, the combination with a curved plate-support, of a knife-operating shaft, an ejector-operating shaft, means for automatically connecting the shafts after the shaving of the plate has been completed
40 and for disconnecting them after the ejector

has operated, an ejector comprising notched sections, a telescopic connection including a spring between the sections, said spring being arranged to yield when one of the sections is forced against the plate so as to
45 bring the notches into register, connections between the ejector and its operating-shaft, and a gravity-latch arranged to engage the notches in the sections of the ejector as the ejector completes its movement and to be dis-
50 engaged from the ejector by the relative movement of the sections due to the expansion of the spring when the plate is removed from the ejector, substantially as described.

24. In a shaving-machine, the combination
55 with a curved plate-support, of a knife-shaft, a projection on the shaft, a hooked connecting-bar, a cam on the bar cooperating with the shaft, an ejector-shaft to which the bar is connected, an arm on said shaft, an ejector-
60 section connected to the arm, a second ejector-section movably connected to the first section, a spring between the two sections, said spring being arranged to yield when the ejector is forced against the plate, notches in said sec-
65 tions arranged to register when the spring is compressed, and a gravity-latch for engaging the sections, said latch being forced out of engagement by the relative movement of the sections due to the expansion of the spring
70 when the plate is removed, substantially as described.

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

AMANDUS H. CRUSE.

Witnesses:

F. W. H. CRANE,
T. F. KEHOE.