

No. 867,034.

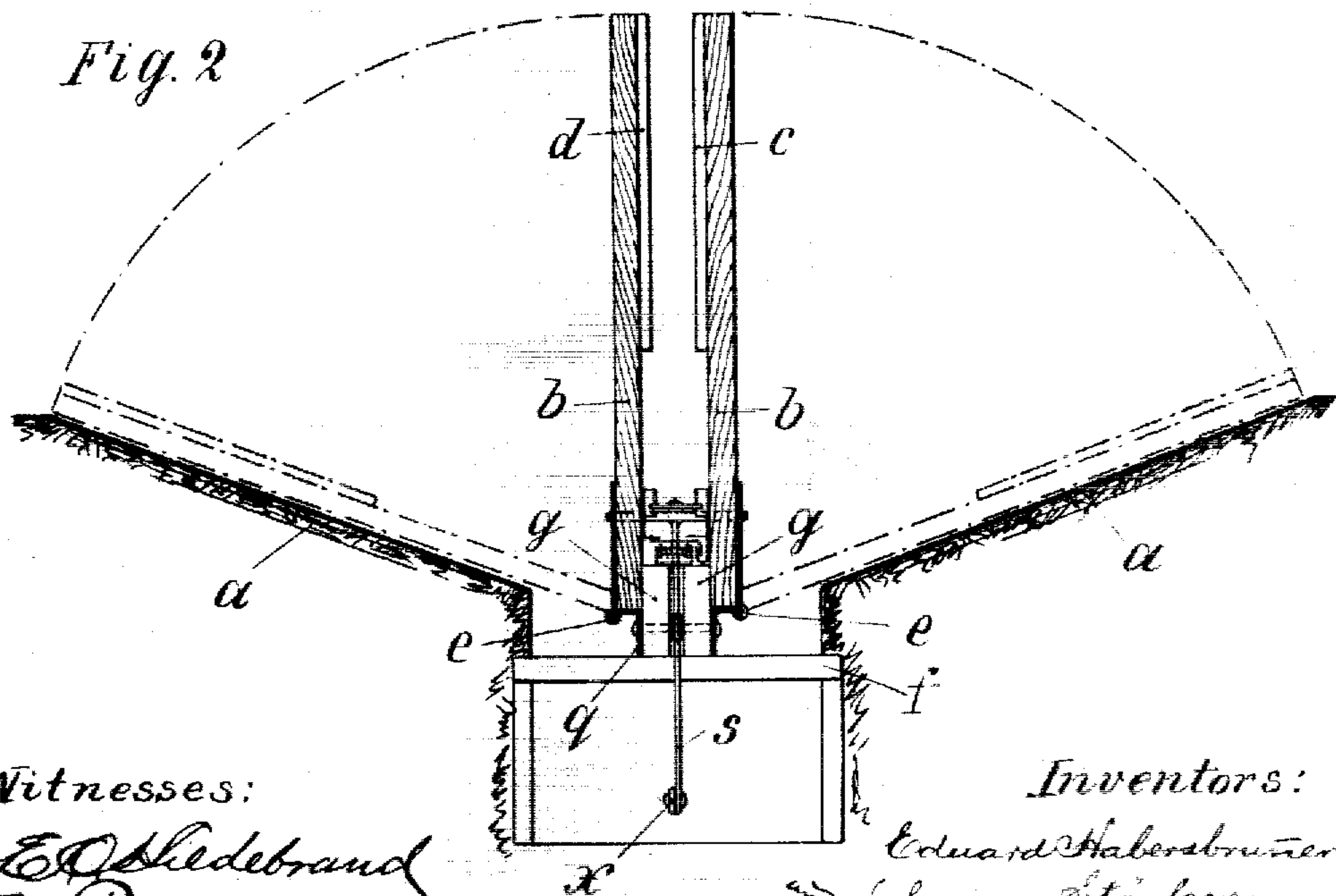
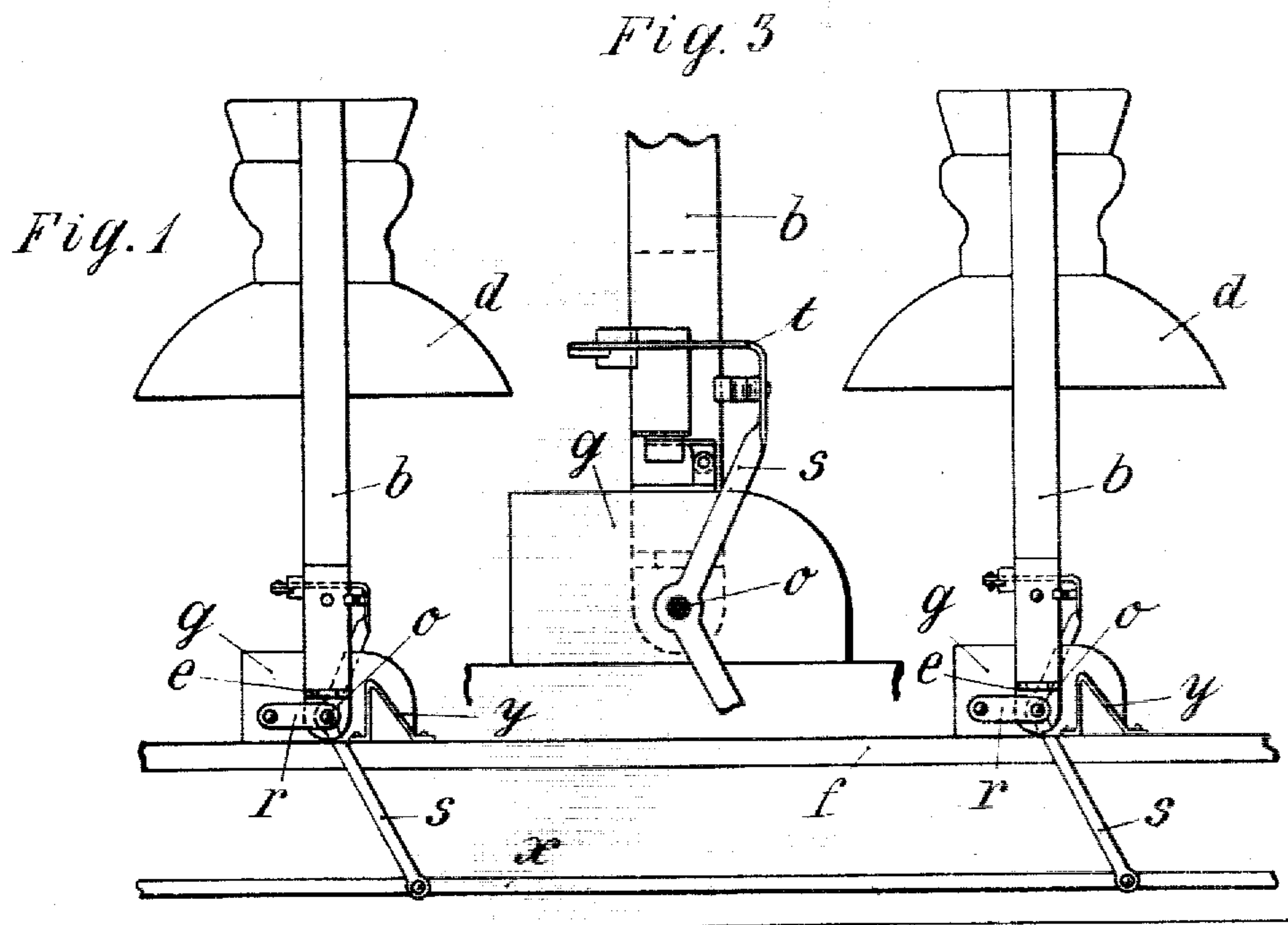
PATENTED SEPT. 24, 1907.

E. HABERSBRUNER & J. STÖCKER.

DISAPPEARING TARGET.

APPLICATION FILED APR. 23 1907.

4 SHEETS—SHEET 1.



Witnesses:

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Inventors:

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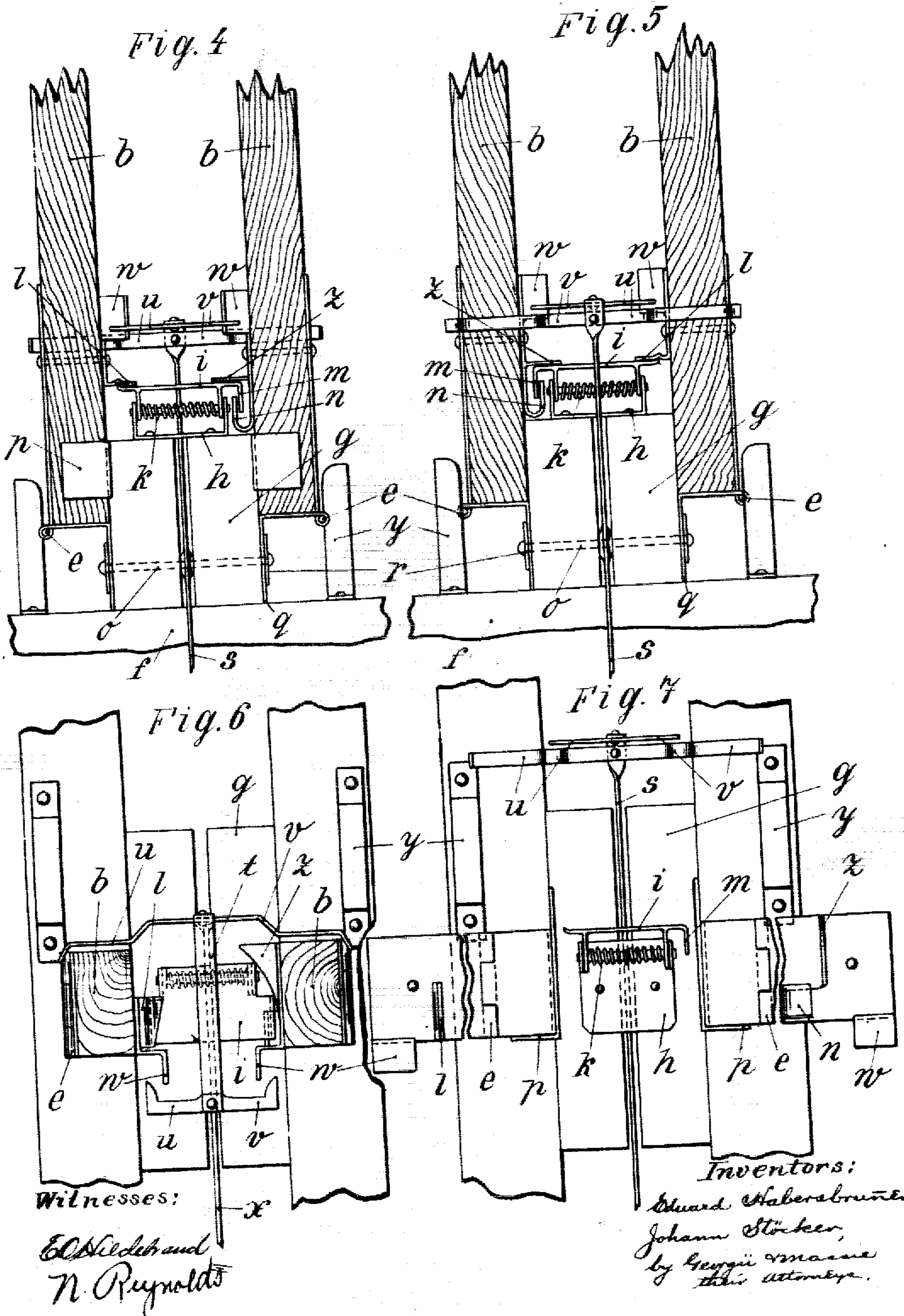
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4 SHEETS—SHEET 2.



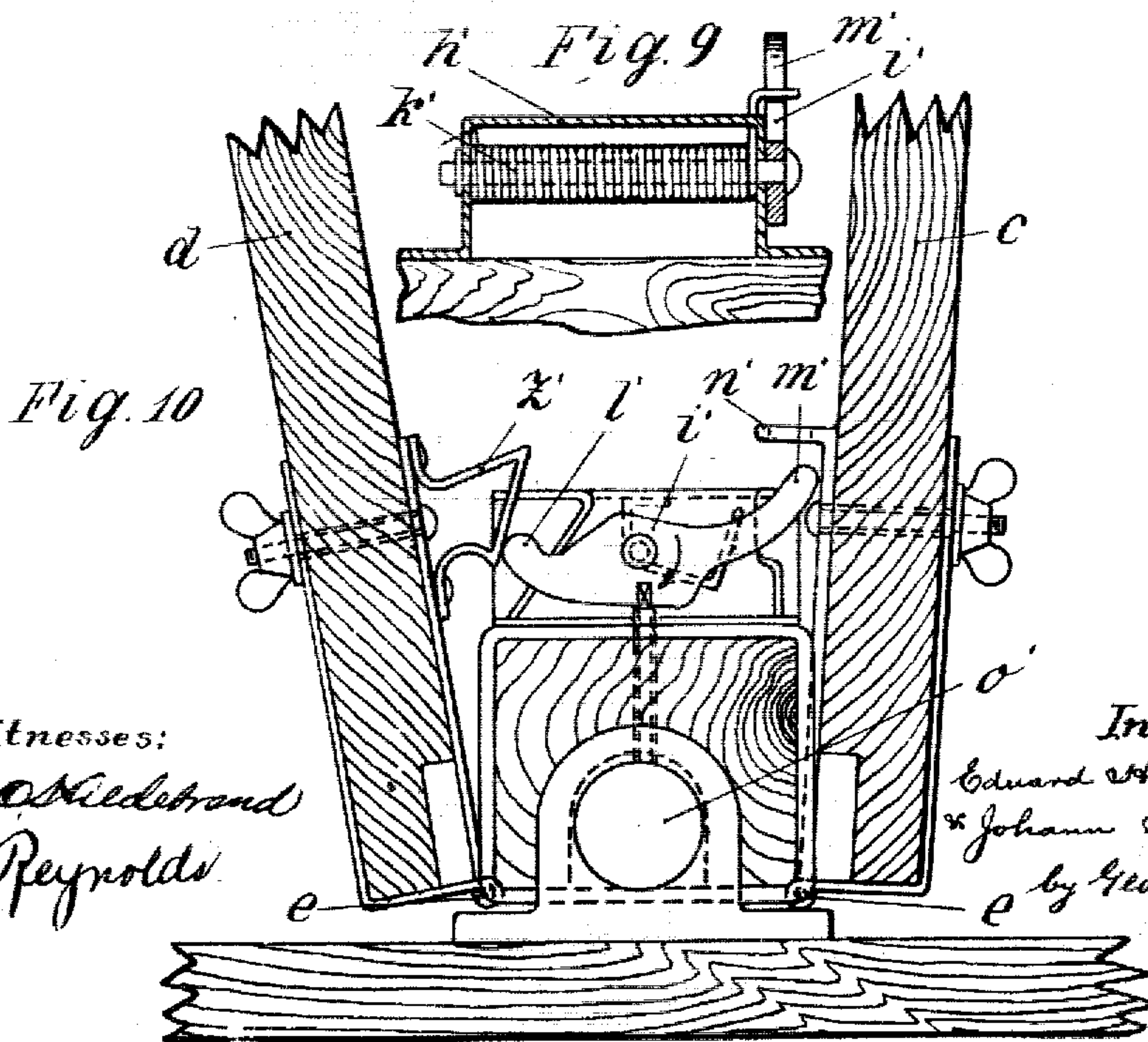
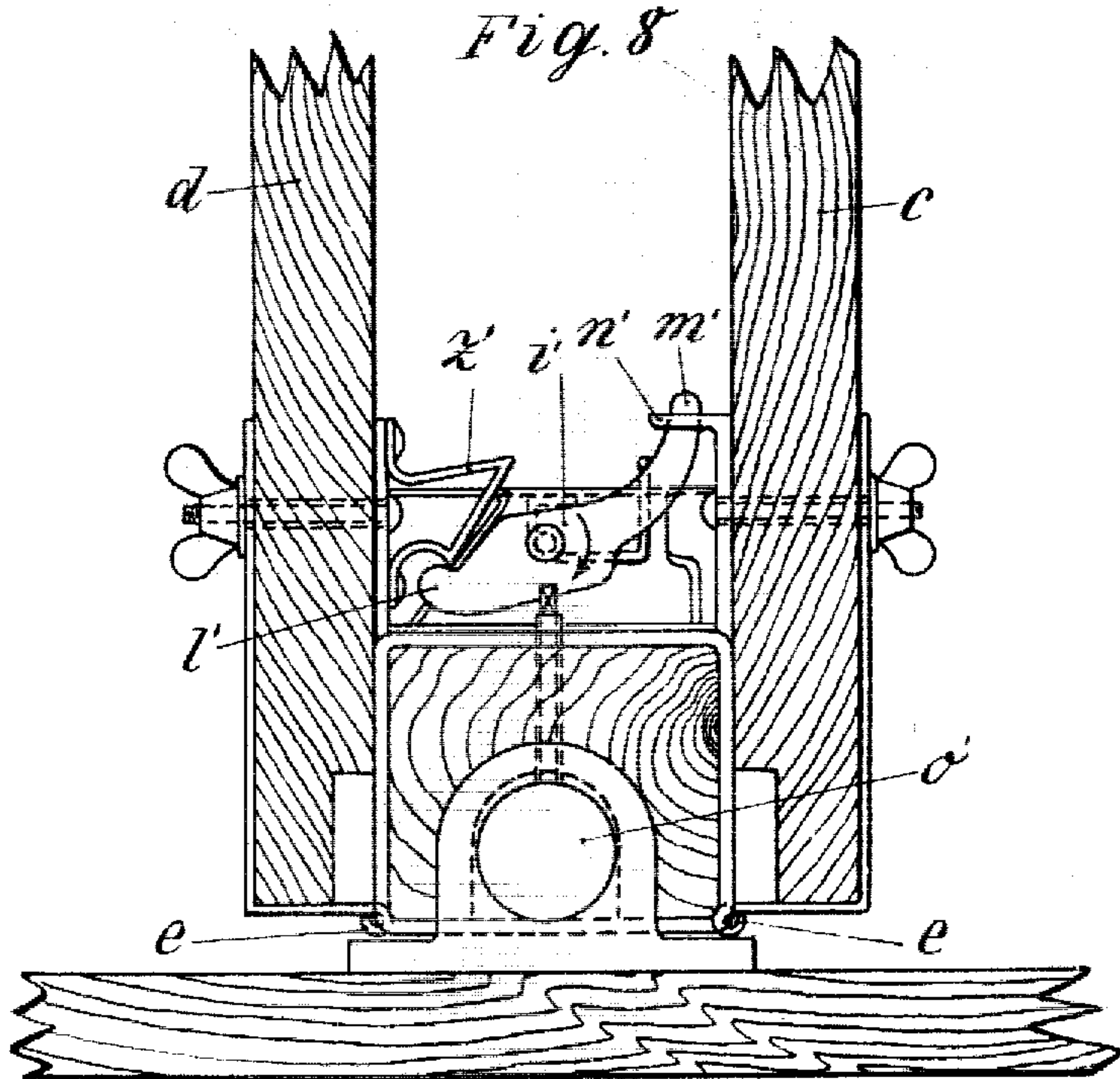
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4 SHEETS—SHEET 3.



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No. 867,034.

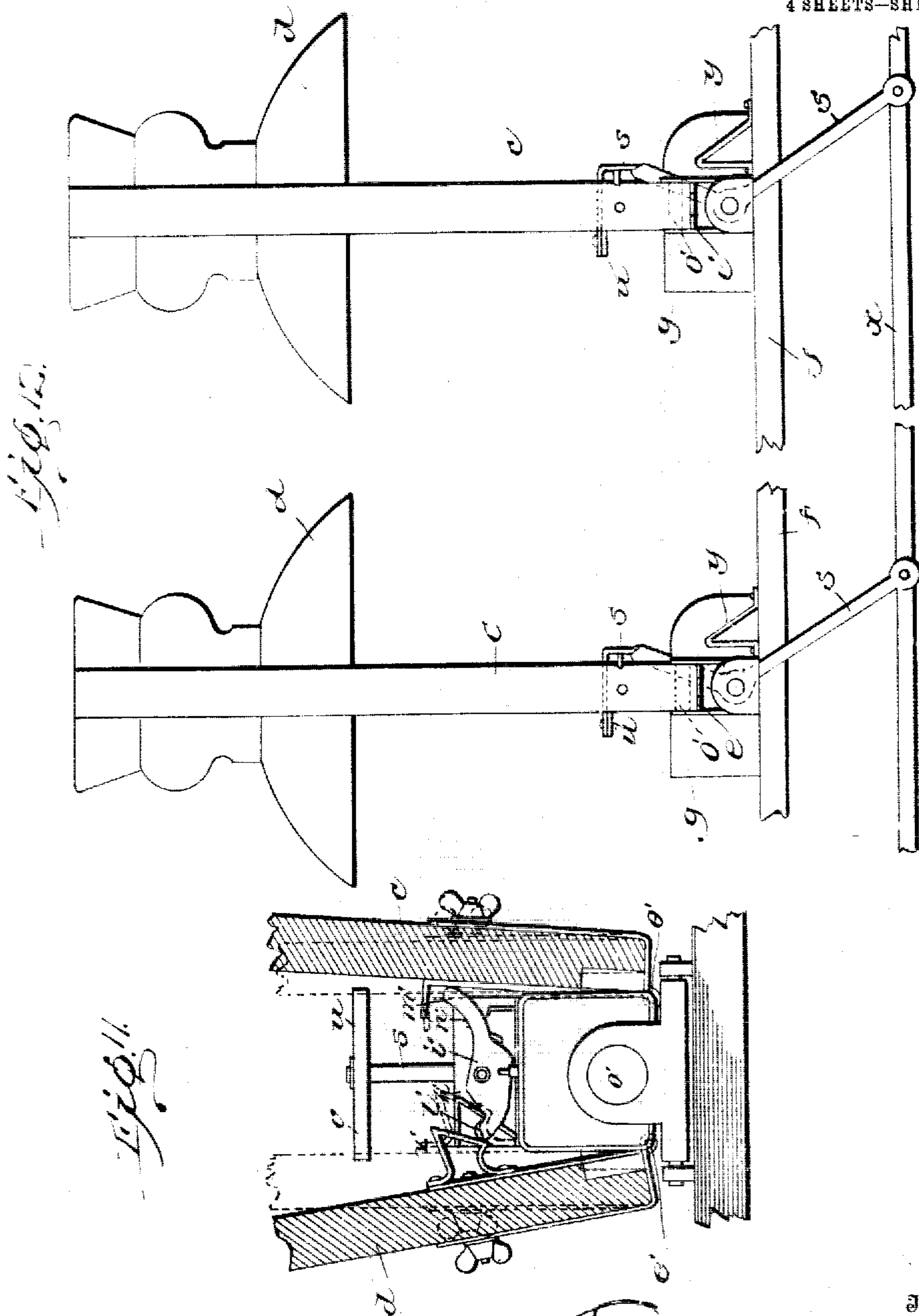
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

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DISAPPEARING TARGET.

No. 867,034.

Specification of Letters Patent.

Patented Sept. 24, 1907.

Application filed April 23, 1907. Serial No. 369,887.

To all whom it may concern:

Be it known that we, EDUARD HABERSBRUNER and JOHANN STÖCKER, subjects of Germany, residing at Sulzbach, Oberpfalz resp. at Bayreuth, Germany, have invented certain new and useful Improvements in Dis-

5 appearing Targets; and we 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.

10 Disappearing targets for use in rifle ranges and the like, normally held in an upright position by means of catches, springs and the like, and hinged to fall upon the release of the catch by the impact of the rifle-ball on the target, are already known. In consequence of the

15 very slight shock and the slight pressure exerted by modern projectiles when passing through such target, it was necessary to adjust the springs very delicately and this again had the disadvantage that stones or earth thrown up against the target, or gusts of wind, were

20 likely to cause the release of the catch and the dropping of said target, or, on the other hand, if the springs were not adjusted lightly enough, the impact of the projectile failed to cause the drop.

The target according to the present invention consists of two falling targets in the form of, for instance, a head, which fall forwards and backwards respectively and can also be made to disappear together laterally, and which are not directly connected with each other, the front target being held in the upright position by a

25 lock or catch which cannot be released even by the strongest concussion or vibration of the front target, the release being actuated by the dropping of the rear target.

A further advantage of this target is that all mechanical parts are arranged below the line of fire in a sheltered

30 position and are therefore not in danger of being injured or destroyed by the projectiles, as was the case with all similar targets heretofore.

The present target can further be more easily and quickly reerected after the drop, since the two halves of the target need only be swung round on a hinge, no especial connection or adjustment between the two parts being necessary as in the case of the above-mentioned already known duplex disappearing targets. At the same time the target is of comparatively simple and

35 durable construction and the parts cannot be injured by the drop of the target or the impact of the projectile. Those parts of the target exposed to the fire can on the other hand be very easily renewed.

Essential and especially advantageous is also the device for tilting the target laterally, causing it to disappear and reappear at will; whole groups or rows of targets may be thus tilted together, in which case however those targets already struck and dropped by a projectile do not again rise with the others.

55 Referring to the accompanying drawing, in which one form of construction of this target is shown, Figure 1 is a

front view of a group of such targets, Fig. 2 a vertical section of such a double target, Fig. 3 a detailed front view of the movable parts after removal of the front target and during the lateral rising of the target, Fig. 4 a detailed 60 view of the catch as seen from the left side and Fig. 5 the same as seen from the right side, Fig. 6 a top view with erected targets, Fig. 7 a top view with dropped targets, and Figs. 8 to 10 illustrate a modification of the latch device, while Figs. 11 and 12 are respectively a 65 side and a front view of a group of targets embodying such modification.

Similar letters refer to similar parts throughout the several views.

The most convenient disposition of the targets will 70 be in ditches with sloping sides *a*, above which only the target heads are visible, and on which the targets lie after dropping, as shown by the dotted lines in Fig. 2. The supports *b* of the targets *c* and *d* are provided with hinges *e* and when erected lean against 75 the flat blocks *g*, mounted on a framework *f* of wood or the like, said blocks *g* being separated by a central slit; the supports *b* are held in position by their own weight and also by a catch. This catch consists of a latch in the form of a flap *i* strongly made of sheet 80 metal, pivotally arranged in the bracket *h*, on the blocks *g*, a spring *k* pressing said flap and always urging it to take up an erect position, as shown in Fig. 7. When the targets are erected this flap *i* is however held in the horizontal position by a detent in the form 85 of a lug or projection *l* secured to the support of the rear target. The edge of the flap adjoining the front target *c* is bent down at *m* and projects into a keeper or the like *n* of bent metal secured to the support of the front target, thereby locking the front target in 90 the upright position and preventing the dropping of the same as long as the flap *i* is held down in the horizontal position by the lug *l*; even the most violent concussion or vibration of the front target will not effect this locking of the front target in the upright 95 position. The rear target *d* will, similarly to the front target, tend to remain upright in consequence of the position of the hinges *e* (Figs. 4 and 5) and further a loose locking of this upright position of the rear target can be attained by slightly bending up the rear 100 edge of the flap *i* and allowing the bent edge to engage with an indenture of the lug *l*. But in any case the rear target will on the one hand possess sufficient stability to resist the influence of the wind or the vibrations resulting from the impact of stones or earth on 105 the front target, and on the other hand will be sufficiently delicately adjusted to drop with certainty when struck by a projectile after passing through the front target. In order to increase the effect of the impact of the projectile on the rear target, it is ad- 110 visable to cover this target with sheet iron or the like. The impact of the projectile on the rear target then

releases the loose connection between the lug *l* and the spring-pressed flap *l*, and the latter, urged by its spring, rises from the horizontal position; the edge of the lug *l* is wedge shaped and the rising flap pressing against this and also against a wedge shaped lug *z* secured to the front support forces the two supports and targets outwards until they drop of their own weight.

In order now to be able to cause the targets to disappear and reappear at will during shooting practice the following arrangement has been provided: The supports *b* of the targets can turn laterally on pivots or pins *o* arranged below the hinges *e*; in Fig. 1, for instance, the targets can be tilted over to the right side, but are prevented from turning to the opposite (left) side by suitable stops *p* (Figs. 4 and 7). These lower parts of the supports *b* may advantageously be formed of prolongations of the one half of the hinges *e* bent down at right angles and pressed by the cheeks *r* against the blocks *g*, said cheeks *r* and blocks *g* acting as guides for the lateral movement of the targets and also, by their friction, preventing an accidental lateral movement. On the pin *o*, between the two blocks *g*, *g*, is pivoted a two-armed lever *s*, having at its upper end an arm *t* passing between the two supports (Fig. 3). At both ends of this arm *t* are arranged cross-pieces *u* and *v* with backwardly bent ends or claws adapted to engage with and encompass the supports *b* or suitable projecting pieces *w* secured to these supports on either side. The lower ends of the levers *s* of any desired number of targets can be connected with each other by means of rods *x*, cords, or the like leading to and manipulated from a bullet proof shelter, so that an attendant can cause the disappearance and reappearance of the targets singly or in groups or rows at will through the mediation of said rods *x*, levers *s* and cross-pieces *u*, *v*. The targets are guided and prevented from falling to the front or back partly by the bent ends of the of the arms *u*, *v*, and partly by guides *y* arranged on the frame, and also in the upper position by the flap *l*. On the erection of the targets the lug *l* of the rear target presses the flap *l* downwards and finally again engages with the same. Those targets which have been hit and have therefore dropped to the front and back, will neither be moved to the side by the action of the arm *s* or again appear with the other targets, since they are no longer in the path of the arms *u*, *v*; this is important, reproducing as nearly as possible the actual conditions in a battle. The arms *u*, *v* will not hinder the dropping of the targets to the back and front, since they encompass the supports but loosely, thus giving these supports sufficient free play. It is therefore only necessary after the lateral erection of the targets to again pull the arms *s* slightly back with the help of the rod *x* or the like, so that the targets or their supports are midway between the arms *u*, *v*, and are then quite free to fall to the back and front.

Figs. 8 and 12 illustrate a further constructive form of the catch for such disappearing targets in its most essential parts in two positions, while Fig. 9 shows in a side view the bolt constituting an essential part of this form of construction. Similar parts are represented by letters similar to those used in Figs. 1 to 7. The front target *c* and the rear target *d* are pivoted as before

on hinges *e*, but in the present case both parts *c* and *d* can be together turned about a third joint or link *O'* with an axle parallel to the hinges *e*, *e*. The catch-device for the targets is here also of simple and most efficient design and is so arranged that the rear target is easily released while the front target is securely held and can only drop after the impact of the projectile on the rear target has first released the loose connection of this target, whereupon both targets are pressed apart and thus caused to drop. This is attained by the action of a latch in the form of a bolt *i'* actuated by a spring *k'*, said bolt having on the side nearest the rear target a nose *l'*, and on the side nearest the front target a hook or arm *m'*. The bolt itself may be advantageously mounted in a bracket or frame *k'* of metal, in which the coil spring *k'*, arranged on the axle of the bolt *i'*, tends to turn the bolt in the direction of the arrow. On the rear target a detent in the form of a lug or projection *z'* with an oblique front surface is so arranged that its lower end engages with and holds down the nose *l'* when the target is raised. On the front target *c* a ring or keeper of metal is secured, into which keeper *n'*, when the target is raised, the arm *m'* of the bolt *i'* protrudes, whereby the target is locked in the upright position and can only be released after the rear target, which may advantageously be covered with sheet metal, has been hit by a projectile, and the connection of lug *z'* and nose *l'* severed. The pressure of the spring *k'* now turns the bolt *i'* in the direction of the arrow, the nose *l'* pressing on the one side against the oblique surface of the lug *z'*, and the arm *m'* pressing on the other side against the back of the target *c*, thereby urging both targets outwards. The slope or shape of the operative parts of the lug *z'* and nose *l'* can be easily altered by filing or other means in order to vary the delicacy of the adjustment; or said nose or lug may be provided with a regulating device to permit of a regulation of the connection of the rear target and a most delicate adjustment according to the strength of the impact of the projectile. Such a regulating device may, for instance, consist of a screw or the like for varying the slope of the nose *l'* or the lower surface of the lug *z'*. An especial advantage of this form of construction is the very simple manner in which the targets can be erected after they have fallen; to do this, the central part carrying the hinges *e*, *e* is turned over through an angle of 90° onto the horizontal front target *c* and the rear target *d* then thrown over onto the target *c*, passing through an angle of 180° in doing so. The weight of the target *d* causes the bolt *i'* to lock the position of the target *c*, as described above, whereupon both targets can be erected together by turning the central piece back. The axle *o'* may be advantageously formed of a tube of iron or the like, mounted on cross-beams *q'* placed at suitable intervals.

It must be mentioned that the target according to the present invention may also be constructed with a divided rear target, the latter then consisting of two or more parts, a right and left part, etc., but the essential features of the invention will remain the same in all such cases.

The pressing apart and dropping of the targets after the release of the catch may obviously also be attained by other means; for instance, the nose *l'* of the bolt *i'*, instead of pressing upwards against the lug *z'*, may be

arranged to press downwards against a suitable projection or lug, in which case the arm m' would of course be downwardly protruding into the ring or loop n ; or again, the catch may be arranged to release a coil spring which presses the targets apart; or weights or the like may be provided on the outer sides of the targets.

The chief advantage of the present invention is the absolutely reliable working of the device coupled with the simple and inexpensive construction.

What I claim as my invention and desire to secure by Letters Patent, is—

1. The combination with a target hinged to a suitable support and arranged to fall, of a latch mounted on a support other than the target and engaging the target, means normally tending to disengage the latch, and a detent normally holding the latch against disengagement and arranged to release the same upon a scoring of a hit by a projectile.

2. The combination with two targets hinged one in front of the other to a suitable support and arranged to fall respectively to the front and rear, of a latch engaging the front target, means tending to disengage the latch, and means holding the latch against disengagement, said last named means arranged to release the latch upon the impact of a projectile upon the target.

3. The combination with two targets hinged one in front of the other to a suitable support and arranged to fall respectively to the front and rear, of a latch mounted on a fixed support and engaging the target, means tending to disengage the latch, and means carried by the rear target holding the latch against disengagement, said last named means arranged to release the latch upon the impact of a projectile upon the rear target.

4. The combination with two targets hinged one in front of the other to a suitable support and arranged to fall respectively to the front and rear, the front target being readily penetrable and the rear target comparatively impenetrable, of a latch positively engaging the front target, means tending to disengage the latch, and means carried by the rear target holding the latch against disengagement, said last named means arranged to release the latch upon the impact of a projectile upon the rear target.

5. The combination with two targets hinged one in front of the other to a suitable support and arranged to fall respectively to the front and rear, the front target being readily penetrable and the rear target comparatively impenetrable, of a latch arranged on a fixed support and engaging a keeper carried by the front target, means tending to disengage the latch from the keeper, and a detent carried by the rear target holding the latch against disengagement, the detent arranged to release the latch upon the impact of a projectile upon the rear target.

6. The combination with a target hinged to a suitable support and arranged to fall, of a latch engaging the target, means normally tending to disengage the latch, a detent normally holding the latch against disengagement and arranged to release the same upon the scoring of a hit by a projectile, the latch arranged upon its release to bear against the target to displace the same from its upright position.

7. The combination with two targets hinged one in front of the other to a suitable support and arranged to fall respectively to the front and rear, the front target being readily penetrable and the rear target comparatively impenetrable, of a latch arranged on the fixed support and engaging a keeper carried by the front target, means tending to disengage the latch from the keeper, and a detent carried by the rear target holding the latch against disengagement, the detent arranged to release the latch upon the impact of a projectile upon the rear target, the latch upon release arranged to bear against the inner opposing faces of the targets and press the same outwardly.

8. The combination with two targets hinged one in front of the other to a suitable support and arranged to fall respectively to the front and rear, a keeper carried by the inner face of the front target, a detent provided with a beveled approach carried by the inner face of the rear target, a spring pressed latch pivoted to the support and ar-

anged to be tilted against the action of its spring by the beveled approach of the detent to cause one extremity of the latch to engage the keeper and the other extremity of the latch to be lightly engaged by the detent.

9. The combination with two targets hinged one in front of the other to a suitable support and arranged to fall respectively to the front and rear, a keeper carried by the inner face of the front target, a detent provided with a beveled approach carried by the inner face of the rear target, a spring pressed latch pivoted to the support and arranged to be tilted against the action of its spring by the beveled approach of the detent to cause one extremity of the latch to engage the keeper and the other extremity of the latch to be lightly engaged by the detent, the latch arranged upon its release to exert a wedge-pressure outwardly against the targets.

10. The combination with two targets hinged one in front of the other to a suitable support and arranged to fall respectively to the front and rear, of a keeper arranged on the inner face of the front target, a detent having an oblique approach arranged on the inner face of the rear target, a spring pressed latch pivoted between the keeper and detent and arranged to be turned against the action of its spring by the oblique approach of the detent to cause its obliquely extending arm to enter the keeper, the said detent snapping over the other arm of the latch to hold the latch against disengagement with the keeper, the two targets as a whole also hinged so as to be turned bodily to the front or rear, the impact of a projectile upon the rear target serving to release the latch and permit the same to press the two targets outwardly by a wedging action and the mechanical bringing of the two targets together causing the reengagement of the latch.

11. The combination with a target hinged to a suitable support and arranged to fall, means normally holding the target upright and arranged to release the same upon the scoring of a hit by a projectile, of means for tilting the target laterally, said means rendered inoperative as to the target by the previous scoring of a hit.

12. The combination with a target hinged to a suitable support and arranged to fall, a latch engaging the target, means tending to disengage the latch, a detent normally holding the latch against disengagement and arranged to release the same upon the scoring of a hit by a projectile, of means for tilting the target laterally, said means rendered inoperative as to the target by the previous scoring of a hit.

13. The combination with a target hinged to a suitable support and arranged to fall, means normally holding the target upright and arranged to release the same upon the scoring of a hit by a projectile, of means to tilt the target laterally comprising a lever arranged to engage the target in its upright position and not to engage the same in its prostrate position.

14. The combination with two targets hinged one in front of the other to a suitable support and arranged to fall respectively to the front and rear, a latch engaging a keeper carried by the front target, means tending to disengage the latch, a detent carried by the rear target holding the latch against disengagement and arranged to release the latch upon the impact of a projectile upon the rear target, of means for tilting the targets laterally, said means rendered inoperative as to the targets by the previous scoring of a hit.

15. The combination with two targets hinged one in front of the other to a suitable support and arranged to fall respectively to the front and rear, a latch engaging a keeper carried by the front target, means tending to disengage the latch, a detent carried by the rear target holding the latch against disengagement and arranged to release the latch upon the impact of a projectile upon the rear target, of a lever arranged between the two targets and movable in a plane at right angles to the falling plane of the targets, said lever provided with prongs extending sidewise to engage the upright targets and not to engage the prostrate targets, and means for operating said lever.

16. The combination with a plurality of target sets each comprising two targets hinged one in front of the other to a suitable support and arranged to fall respectively to the front and rear, of a latch engaging a keeper carried by the

front target, a detent carried by the rear target and holding the latch in engagement with the front target and arranged to release the latch upon the scoring of a hit by a projectile, each of the target sets also hinged to tilt bodily in a plane at right angles to the falling plane of the targets, said levers provided with prongs extending sidewise to engage the targets when upright and not to engage the same when prostrate, and a rod connecting the several levers by which the same may be simultaneously operated.

10 17. The combination with a plurality of target sets each comprising two targets hinged one in front of the other to a suitable support and arranged to fall respectively to the front and rear, of a latch engaging a keeper carried by the front target, a detent carried by the rear target and holding the latch in engagement with the front target and arranged to release the latch upon the scoring of a hit by a

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projectile, each of the target sets also hinged to tilt bodily in a plane at right angles to the falling plane of the targets, said levers provided with prongs extending sidewise to engage the targets when upright and not to engage the same when prostrate, a rod connecting the several levers by which the same may be simultaneously operated, and friction devices to prevent accidental tilting of the individual targets. 20

In testimony whereof we hereunto affix our signature 25
in the presence of two witnesses.

EDUARD HABERSBRUNER.
JOHANN STÖCKER.

Witnesses:

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