

No. 723,722.

PATENTED MAR. 24, 1903.

W. H. PARKER.
PUNCHING MACHINE.
APPLICATION FILED APR. 1, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

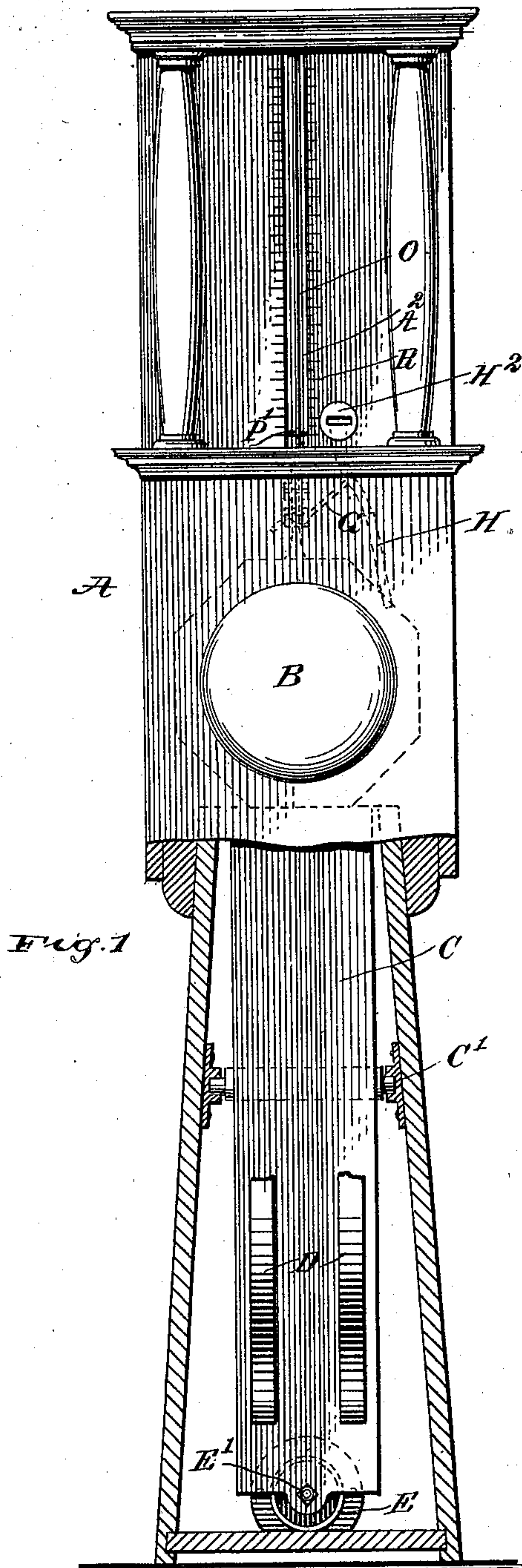


Fig. 1

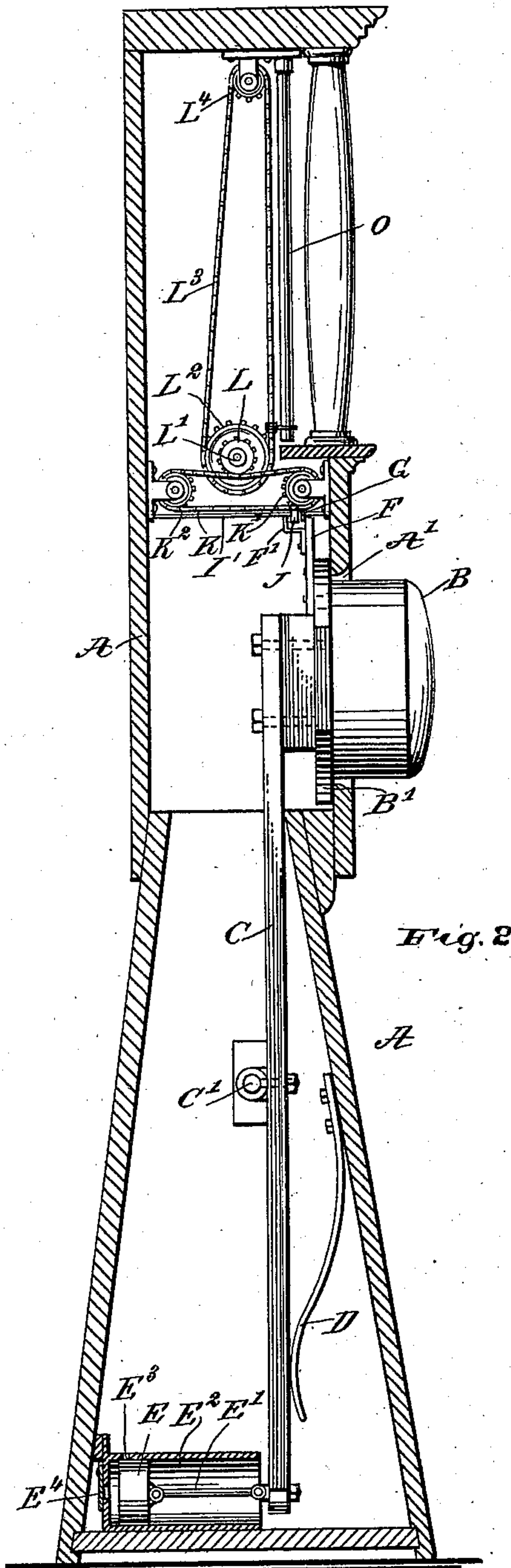


Fig. 2

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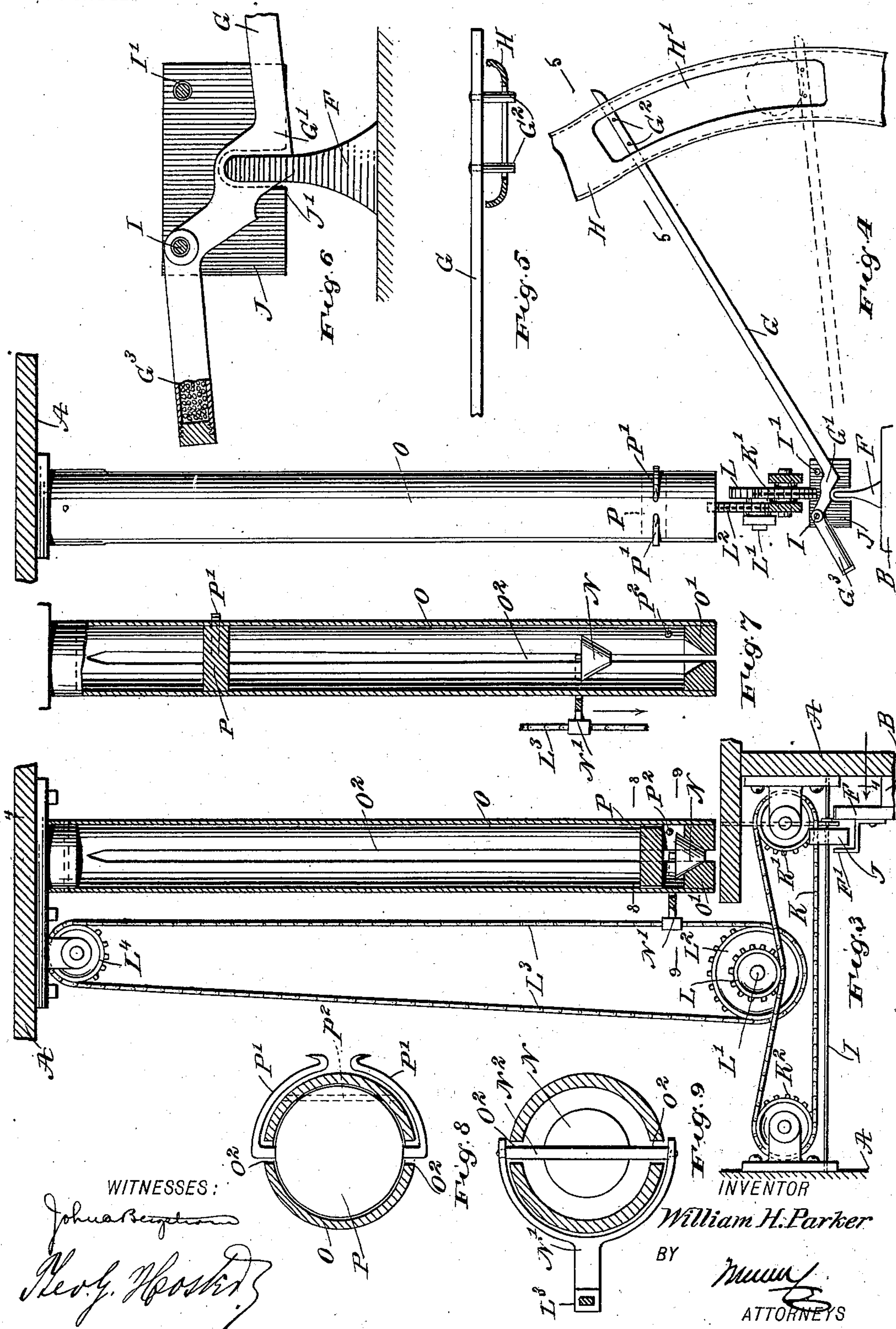
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UNITED STATES PATENT OFFICE.

WILLIAM H. PARKER, OF LONGBRANCH, NEW JERSEY.

PUNCHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 723,722, dated March 24, 1903.

Application filed April 1, 1902. Serial No. 100,957. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. PARKER, a subject of the King of Great Britain, residing at Longbranch, in the county of Monmouth and State of New Jersey, have invented a new and Improved Punching-Machine, of which the following is a full, clear, and exact description.

The invention relates to coin-operated machines for testing physical strength; and its object is to provide a new and improved punching-machine which is simple and durable in construction and arranged to correctly show by means of an indicator the force of the blow delivered by the operator on the machine.

The invention consists of novel features and parts and combinations of the same, as will be more fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a front elevation of the improvement, parts being shown in section. Fig. 2 is a transverse section of the same. Fig. 3 is an enlarged transverse section of the indicating mechanism. Fig. 4 is a sectional front elevation of the same on the line 4 4 of Fig. 3. Fig. 5 is a sectional plan view of the coin-chute, also showing the coin-carrying lever, the section being on the line 5 5 of Fig. 4. Fig. 6 is an enlarged sectional front elevation of part of the punching-head, its projection, the coin-carrying lever, and the plate of the gearing for the indicating device. Fig. 7 is an enlarged sectional front elevation of the indicating-tube, the lifter, and the pointer. Fig. 8 is an enlarged sectional plan view of the same on the line 8 8 of Fig. 3, and Fig. 9 is a similar view of the same on the line 9 9 of Fig. 3.

The improved punching-machine is mounted on a suitable stand or casing A, formed at its front with an opening A', through which projects the punching-head B, against which the blow is directed with the fist of the person using the machine. The punching-head B, of any approved construction, is secured on the upper end of a lever C, fulcrumed at

or near its middle at C' in the lower portion of the casing A, and a spring D presses the said lever, so as to hold the latter and the punching-head B normally in an outermost position, as plainly illustrated in Fig. 2. The lower end of the lever C is connected with a dash-pot to give the desired resistance to the lever C and the punching-head B when the latter is struck by the fist of the operator. The dash-pot consists, essentially, of a link E', connecting the lever C with a piston E, mounted to reciprocate in a cylinder E², secured in the casing A, and in the wall of the said cylinder, near the rear end thereof, is arranged an air-opening E³, and in the rear end of the cylinder is arranged an air-outlet, normally closed by a valve E⁴, adapted to open upwardly on the return or rearward movement of the piston E. Now when the several parts are in the position shown in Fig. 2 then the piston E is at the inner end of the cylinder E² and covers the opening E³, and when a blow is delivered on the punching-head B then the lever C is forced to swing against the tension of the spring D and against the resistance offered by the piston E, sliding in the cylinder E². Now it will be seen that on the first impact of the fist on the punching-head B the piston E has to be moved past the opening E³ before air can pass into the rear end of the cylinder. Consequently the first impact on the punching-head B is resisted by full atmospheric pressure against the front face of the piston E. As soon as the piston E passes the opening E³ then air passes into the rear end of the cylinder, and consequently the piston E moves forward easily, thus reducing the resistance against the inward movement of the punching-head B. As soon as the force of the blow on the punching-head B has ceased the spring D forces the lever C back to its former position, thus moving the punching-head B back into an outermost position, as shown in Fig. 2. At the same time the piston E moves inward in the cylinder E², and as the air in the rear end of the cylinder can now readily escape through the opening E³ and the outlet-valve E⁴ it is evident that the spring D can readily accomplish the desired result, as very little resistance is offered to the inward movement of the piston E.

The forward movement of the punching-head B is limited by a flange B', formed on the punching-head and abutting against the inner face of the front of the casing, as shown in Fig. 2. On this flange B' of the punching-head, and preferably at the top thereof, is secured a projection F, adapted to engage the portion G' of the coin-carrying lever G, provided at its free end with pins G² for supporting a coin passing to the pins through the coin-chute H, extending within the casing and having an elongated opening H' for the passage of the pins G². (See Fig. 4.) The upper end of the coin-chute H is formed with the usual mouth or entrance end H², extending on the front of the casing to allow convenient insertion of a coin into the chute. Normally the lever G stands in the position shown in Fig. 4 by the action of the weighted end G³, so that the portion G' is out of alignment with the projection F. The lever G is fulcrumed on and mounted to slide on a guide-rod I, which, with the guide-rod I', extends transversely in the casing A and forms a bearing for a plate J, located immediately in the rear of the lever G at the portion G', and formed with an opening J' for the passage of the projection F in case the lever G is held in a normal uppermost position and a blow is given to the punching-head B. Thus when no coin is introduced into the machine the lever G remains in the position shown and described, and when the punching-head B is moved forward, as previously described, then the projection F clears the portion G' of the lever G and passes through the opening J' without disturbing either the lever G or the plate J. When, however, a proper coin is introduced into the chute H, it engages the pins G², and thus overbalances the weighted end G³ of the lever, so that the latter swings downward in front of the opening J' and the projection F, and when the punching-head B is pushed inward the said projection F engages the portion G', and as the latter is in engagement with the front face of the plate J it is evident that both the lever and the plate are caused to slide transversely. The plate J is secured to the lower run of a sprocket-chain K, extending transversely and passing over sprocket-wheels K' and K², journaled in the front and rear of the casing A. The upper run of the sprocket-chain K is in mesh with a sprocket-pinion L, secured on a shaft L', journaled in the casing A, and on the said shaft is secured a larger sprocket-wheel L², over which passes a sprocket-chain L³, extending upwardly and passing over a sprocket-wheel L⁴, journaled in the top of the casing A. On one of the runs of the sprocket-chain L³ is secured the arm N' of a lifter N, preferably made cone-shaped and normally seated on a correspondingly-shaped seat O', arranged in the bottom of a guideway O in the form of a tube, extending vertically in the casing A. The arm N' is preferably forked, as plainly shown in Fig. 9, and carries a transverse pin

N², secured to the lifter N, the said pin extending through slots O², arranged in the sides of the guideway O. Immediately above the lifter N is arranged a pointer-disk P in the form of a piston, provided on its sides with pointer-arms P', extending through the slots O² and through a slot A² in the front of the casing to indicate on a graduation R, arranged on the front face of the casing and the sides of the slot, as plainly indicated in Fig. 1. A rest P² is arranged above the seat O' of the guideway O for the pointer-disk to rest on when in a normal lowermost position—that is, when the pointers P' indicate zero on the graduation R. (See Figs. 1 and 3.) The pointer-disk P is so arranged that it remains in position within the guideway O by frictional contact of the disk with the inner wall of the guideway O. Now when a transverse movement is given to the plate J, as previously explained, then a traveling motion is imparted to the sprocket-chain K to rotate the sprocket-wheel L, which in turn rotates the shaft L' and sprocket-wheel L², so that a traveling motion is given to the sprocket-chain L³. When this takes place, the run of the sprocket-chain L³, carrying the arm N', moves upward, so that the lifter N is caused to move up in the guideway O and in doing so carries the pointer-disk P in a like direction, so that the pointers P' indicate on the graduation R—that is, as soon as the force of the blow on the head B ceases and the head moves back to its normal outermost position then the arm F' on the projection F engages the rear face of the plate J and pulls the same back to a normal forward position, thus rotating the sprocket-gearing above described in the opposite direction to return the lifter N to a normal lowermost position. The pointer-disk P remains in the position in which it was lifted by the lifter N to properly indicate the force of the blow struck by the operator on the punching-head B until the lifter reaches its lowermost position. When the cone shaped lifter N moves down into its seat O', it spreads the guideways sufficiently apart for the guideways to release the pointer-disk P, and the latter now drops by its own weight back onto the rest P². Thus the pointers P' remain stationary for a short time—that is, sufficiently long to permit of conveniently reading on the graduation R the force of the blow struck on the punching-head B. It is understood that the lever G is moved rearward with the projection F and plate J, and the latter in doing so moves the pins G² from under the coin held in the chute H, so that the coin drops down through the chute into the casing.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A punching-machine, having a punching-head, a lever carrying at one end the said punching-head, a dash-pot having its piston connected with the other end of the said lever, the cylinder of the dash-pot having an

air-inlet and a valved air-outlet, and a spring pressing the said lever, for return movement thereof, as set forth.

2. A punching-machine having a casing provided with an opening, a punching-head projecting through the opening of the casing, a pivoted and spring-pressed lever mounted in the casing and carrying at its upper end the punching-head, and a dash-pot in the casing and having its piston connected with the lower end of the said lever, the cylinder of the dash-pot having an air-inlet in its side near the rear end and in its end with an air-outlet controlled by an outwardly-opening valve, as set forth.

3. A punching-machine, having an expansible guideway, a pointer-disk movable in the guideway and indicating on a graduation, a lifter in the guideway, actuated from the punching-head, to move the pointer-disk in one direction in the guideway, the said guideway being arranged to hold the pointer-disk by frictional contact in an uppermost position, and means whereby when the said lifter moves into a lowermost position in the guideway it expands the same and releases the pointer-disk, as set forth.

4. A punching-machine, having a split guide-tube, a lifter movable in the said guide-tube, and a pointer-disk arranged in the said guide-tube, above the said lifter, the latter, on moving upward, carrying the pointer-disk along in the split tube, said guide-tube by its resiliency holding the pointer-disk in position during the downward movement of the lifter, as set forth.

5. A punching-machine, having a split guide-tube, a lifter movable in the said guide-tube, a pointer-disk arranged in the said guide-tube, above the said lifter, the latter, on moving upward, carrying the pointer-disk along in the split tube, said guide-tube holding the pointer-disk in position during the downward movement of the lifter, and means whereby the said lifter, on engaging the bottom of the guide-tube, spreads the split parts apart, to cause the guide-tube to release the pointer-disk and allow the latter to drop by its own weight, as set forth.

6. A punching-machine, having a split guide-tube, a lifter movable in the said guide-tube, a pointer-disk arranged in the said guide-tube, above the said lifter, the latter, on moving upward, carrying the pointer-disk along in the split tube, said guide-tube holding the pointer-disk in position during the downward movement of the lifter, means whereby the said lifter, on engaging the bottom of the guide-tube, spreads the split parts

apart, to cause the guide-tube to release the pointer-disk and allow the latter to drop by its own weight, and a rest within the tube, at the bottom thereof, for the pointer-disk to rest on when in a lowermost position, as set forth.

7. A punching-machine, comprising a punching-head, a sprocket-chain, adapted to be actuated from the said punching-head, a lifter, means for operating the lifter from the sprocket-chain, and a pointer actuated by the said lifter and arranged to indicate on a graduation, as set forth.

8. A punching-machine, comprising a punching-head, a sprocket-chain, adapted to be actuated from the said punching-head, a second sprocket-chain operated from the first chain, a lifter carried by the second sprocket-chain, a pointer actuated by the said lifter and arranged to indicate on a graduation, and a guide-tube containing the said lifter and the pointer-disk of the said pointer, as set forth.

9. In a punching-machine, the combination of a split tube having a tapering opening in its bottom, a pointer member movable in the tube, and a tapering lifter in the tube below the pointer member, as set forth.

10. In a punching-machine, the combination of a split tube having a conical opening in its lower end, a disk pointer in the tube, and a conical lifter in the tube below the disk pointer, as set forth.

11. In a punching-machine, the combination with a punching-head, and a movable member operated from the punching-head, of an expansible tube, a pointer member in the tube, and a lifter in the tube below the pointer member and connected with the said movable member, said tube having means at its lower end adapted to be engaged by the lifter to expand the tube, as and for the purpose set forth.

12. In a punching-machine, the combination with a punching-head, and a movable member operated from the punching-head, of a split tube having a conical opening in its bottom, a disk pointer mounted in the tube, and a conical lifter mounted in the tube below the disk pointer and connected with the said movable member, as set forth.

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

WILLIAM H. PARKER.

Witnesses:

THEO. G. HOSTER,
EVERARD BOLTON MARSHALL.